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Device for Removing Seeds and Pits from Fruit. The preparation of fruit for culinary purposes or preserving is a monotonous and tiresome labor, at least the work of removing the seeds or pits. To facilitate the operation and render the task less irksome is the object of the inventor of the neat little implement shown in the engraving, an object we have found by trial it successfully accomplishes. Its operation is very rapid and its results satisfactory. It never fails to remove the pits from cherries and the seeds from raisins, grapes, cranberries, etc., leaving the fruit in excellent condition without crushing or bruising it.

The machine is made, with the exception of the platform, A, of the receiver and the gutter, B, wholly of wrought iron, so there is no danger of breakage. There are no springs or complicated parts to get out of order and it is made in a substantial manner. The device is screwed to the edge of a table in the same manner as a " sewing bird " or other similar implements, so that it may be attached or removed instantly. The fruit is dropped into the receiver. A. Fig. 2, which, when the implement is attached to a table, is inclined toward the operator, and it rolls down the grooves to the recesses. which hold it in place to be ope rated upon. The hand then lifts forward the handle, C, connected, with the hooked forks, to a pivot. The ends of the forks or stoners are split and pointed, the points diverging from the center. These engage with the seeds or stones in the frait and force them through the apertures in the bottom of the recesses in A. As the forks are raised the fruit ad heres to them, and is raised as seen in the main figure, and thrown off by the plate, D, drop ping into the gutter, B, and being thus discharged into a dish, the seeds dropping through the re-

cesses in A to another vessel placed to receive them. Pierced | pores and interstices are filled with paraffine wax, thereby glands of leather or other suitable material under A prevent the return of the seeds should they become attached to the forks.

This little machine leaves the cherries after being stoned round and plump, and from its rapidity of operation does not waste the juice. Patented by George Geer, April 9, 1867. For further information address Geer & Hutchinson, Peoria, III.

Telegraph Insulation.

C. F. Varley, well known for his skill as an electrician, and especially for his services in connection with the Atlantic ca ble, has lately obtained the following patent:

Insulators for telegraphic wires are usually made with an iron pin, coated with what is known as vulcanite, or hard vulcanized india rubber, and secured by means of plaster Paris, or other cement, inside of a porcelain or other earthenware cup inverted. As heretofore made it has been found that the vulcanite covering is liable to be porous, and full of what are known as blow-holes, and that the iron or steel pin is liable to rust, by reason of the presence of the vulcanite covering, and that the accumulation of the rust is liable to crack the vulcanite covering. And the first part of said invention relates to a method of preventing the pin from rusting, and consists in coating the iron or steel pin with zinc, and then coating the zinc with tin, or an alloy of tin, preparatory to applying the vulcanite covering. The zinc is applied in the well-known manner of galvanizing iron, and the zinc is coated with tin, or an alloy of hard metals, with tin or alloys, by 'dipping' the former in tin, by dipping in a bath of molten tin, or allow of tin, in the same mannar as sheets of iron are usually tinned; and after being so tinned, the preparation of india rubber, or other vulcanizable gum, mixed with sulphur, is applied in the green or plastic state, and then subjected to the vulcanizing heat to be hardened, in manner well known to manufacturers of vulcanite. When so made, the vulcanite will be found to be solid and without blow-holes, and the pin will not rust, however much it may be exposed. The cement used for securing the pin in side the inverted cup is more or less porous, and the presence of such pores renders the insulation imperfect.

ing of vulcanite, is inserted in the cup, without touching any part of the surface thereof except the bottom of the inside of the inverted cup, and the intervening space is filled with cement, made, by preference, of one part of plaster Paris and two parts of Portland cement, but other cement may be used, such as plaster, or Roman or Portland cement alone. After the parts have been united by the cement, the whole is put in a bath of melted paraffine wax, at a temperature of about 224° Fahr., and there left until all bubbling ceases, which indicates that all the water has been expelled from the cement,

through the rolls, and cause them to unite firmly and with a uniform surface, so as to produce a superior article of metal. " In carrying out our invention, we take blocks or sheets of any of the aforementioned hard metals, and roll them, in a cold or heated state, until they assume a certain thickness. We then make an alloy of either of the following: One quarter tin, one quarter copper, and one half lead, more or less; or six parts tin, one, antimony; or fifty parts tin, four, antimony, one, bismuth; or fourteen parts tin, one twenty eighth part zinc or copper, or one half of each of the latter and that the pores have all been filled. In this way all the ones; or pure tin, alloyed with as much of one of the above-



THE ILLINOIS CHERRY STONER.

rendering the insulation more perfect, and as there are no pores into which moisture can lodge, there will be no danger of fracturing the parts by the expansion of water in freezing, as heretofore.

The third part of this invention consists in covering the telegraph wire itself, at the point of support, and for a distance of a foot or more on each side, with a covering of hard rubber, similar to that placed on the insulator. This is carried into effect in the following manner, viz: First, pieces of ordinary galvanized telegraph-wire are tinned, and then covered with hard vulcanite, in the same manner that the insulator pins are covered, as above described. Secondly, these pieces of wire are spliced into the telegraph-wire at each point of support by means of the usual soldered joints. Prior to being used, these pieces are boiled in paraffine wax, and from time to time, when their surface becomes damaged by the solar actinic rays and exposure, they are washed and rubbed with paraffine oil or coal-tar narhtha, which renews the insulating power of the surface.

These insulators are principally useful where the wires are exposed to the spray of the sea, the rain washing them clean. This oil is very useful with all kinds of insulators, for the purpose of renovating the surface.

named metals, or any other metal which will give it more stiffness and durability than it has in its natural state; or we use pure tin itself. A block of the tin, or tin or other alloy, is now cast in a mold of suitable size, which block is then passed through highly-polished rollers, so as to be reduced to a proper thickness to answer the purpose of common plating. The thickness may vary from one to thirty five per cent of the original thickness of the block or sheet of hard metal selected. The strips thus produced are then severally spread or laid upon a smooth, level table. One of the aforementioned blocks or sheets of hard metal is now laid upon one of the strips of tin or alloy, which strip is then lap ped over the former, so as to entirely cover it. Care must be taken to rub it smoothly, in order to prevent the formation of air blisters or wrinkles. The compound sheet or block thus constituted is now passed between highly-polished rollers under heavy pressure, whereby the metals become quite hot in passing through, thus causing them to firmly unite, and evenly, in one solid sheet, having either the tin or alloy, or other metal, for the outer coating.

"Instead of the above process, we prepare a solution of one pound of muriate or nitrate of tin, and ten gallons (or eighty pounds) water (98° Fah.), more or less. Into this bath we dip the desired sheet of hard metal for the space of five to twenty minutes, more or less, when the sheet will be found sufficiently covered with pure tin. It may then be polished or rubbed bright with soft cloth or leather. It will be found that steel or iron coated with tin or alloy can be used for cooking utensils, and for every article in which sheet tin is employed. The surface being entirely uniform, it cannot be affected by dampness, and thus serves to prevent rust.

"Our process prevents oxidation or corrosion in zinc. We can produce very large sheets thereof, when, by the process now employed, it can only be produced in small pieces. For lining bath tubs, water cisterns, and the like, our zinc will be found invaluable. For photographic and lithographic purposes, we interpose between the sheets of covered or plated zinc suitable pieces of tissue or other paper, muslin, or any equivalent fabric, and then subject them to another pressure; or we pass the metal between rollers having a slightly-roughened surface, so that the impression of the paper, fabric or rollers will be imparted to the metal, and cause its surface to assume a certain roughness necessary to photographic, lithographic, printing, or any other ornamental purposes.

And the second part of said invention, which relates to a method of avoiding such defect, consists in saturating the cement with paraffine war, to fill up the pores. In practising the two sheets be subjected to rolling under a heavy pressthe second part of said invention, the iron pin, with its cover- ure, the friction thereby will heat the metals in passing

Improvement in Coating Metals.

John D. Grüneberg and Samuel H. Gilbert, of Spring Mills, N. J., have patented the following: "Hitherto it has been customary to cover sheet iron and copper, and probably other acid, and then in a solution of the tin or alloy. The disadvantage of this process is that only small sheets of metal can thus be coated or plated, because, in preparing large sheets, it was found that a considerable portion of the surplus covering or plating would harden before it had run off from the lower end of the sheets, so that only part of said sheets would possess the proper thickness or surface. Our invention is specially intended to remedy this. We have found that long or large sheets of metal can be uniformly coated or plated in a simple manner, so that an article of metal is produced which possesses all the advantages of pure tin, and at a much less expense. If the sheets of tin or alloy are spread or laid upon sheets of hard metal so as to entirely overlap them, and

"The uses to which our invention can be applied are numerous; generally speaking, to all purposes requiring stiff metal, which shall neither corrode, crack, nor be affected by heat or cold, and also to possess the advantages of pure tin."

Manufacture of Whiting and Paris White.

Take good limeston 3-though I believe any good lime will serve as well-and burn it in a kiln in the ordinary manner. Then slack the quicklime thus produced, and add so much water as will form a fluid having a consistency like cream Let this stand for several hours, to allow the foreign and gritty matter to subside. Then lead it into a tank, and blow up through it carbonic acid gas for some days or weeks, constantly agitating it by a wheel, after the fashion of a dairy churn, until the water ceases to give any appreciable alkaline reaction to the taste. The particles of lime are now again fully supplied with carbonic acid, and are then carbonate of lime, substantially the same article, chemically, as the rock in the earth, but exceedingly comminuted and void of foreign matter. It remains now to dry the mass by ordinary means, and the result is a whiting or Paris white, made without grinding, yet as fine as dissolving in water can make it. This may be used for all the purposes for which ordinary whiting or Paris white is used, with the same or a better effect. Recently patented by Wm, W. Chipman, of Brooklyn, N. Y.

EDITORIAL CORRESPONDENCE.

Other Characteristics of Venice-Gondolas-The Plains of Lom bardy-Great Battle Fields-Milan as a City-The Carni val-The Duomo with its Marble Statues-A Gorgeous Tomb The Splendid Monastery near Pavia-The Monks and their Occupations.

TURIN, March, 1868.

In dull, rainy weather, Venice is the place above all others within my knowledge where a sublime melancholy could be cultivated to great advantage. It is one of those peculiar spots that needs all the sunshine it can get to dispel the heaviness of death which hangs about its decaying grandeur. I met in Rome a jolly New Yorker who was compelled by sickness in his family to remain several weeks in Venice during the rainy season, and in answer to the question how he enjoyed it, he declared that he "felt like a drowning rat all the time." We considered ourselves, therefore, very fortunate to have passed our time there cheered by the presence of warm sunlight. Under such favoring circumstances I know of no situation more luxurious than to take a gondola and float lazily about the canals and lagoons of this most singular city, observing its many quaint old palaces, beautiful even in their fading glory, and the numerous water craft which flit about the waters, doing the business and pleasure of the people. Many persons whose knowledge of Venice consists in what they have read, are apt to entertain the idea that it is a city whose streets are all canals, and that no communication is had from point to point except by boats. This is an error. It is true that along the margin of the grand canal, and on many of the smaller ones, there are neither streets nor sidewalks. Nevertheless, I think there is scarcely a building in the whole city which cannot be reached either through some narrow, dingy street or by a foot walk. I suppose it is one of the most intricate cities in the world to pass through on land. A person not accustomed to its maziness would soon get bewildered by the numerous bridges, alleys, crooks, and turns, which present themselves at every point. There was some novelty in taking a boat to go to church, but as every thing is novel hereabouts, one soon gets accustomed to strange things. Many of the churches of Venice are exceedingly rich in fine sculpture and painting, chiefly the works of Venetian masters, and of whom Titian and Canova were the acknowledged leaders. The picture gallery contains Titian's first work, "The Visitation of Elizabeth," executed when he was but fourteen years old, also his last picture, a Deposition, painted when he was ninety-eight, though he was unable to finish it. He was a master of the art of painting the female form divine, and his Venuses rank among the most wonderful works of art in Europe. By the assistance of his mistress to serve as a model, Titian could supply the church and the world with pictures of Madonnas, saints, and sinners-it was all the same to him.

A Venetian gondola is a long, black, rakish-looking craft, which glides over the water with the grace and dignity of a swan. They are uniformly painted black, with a black cloth housing fastened over the little saloon, which affords a most cosy retreat from the elements. In the olden time, when extravagance was carried to a high pitch, the gondolas were painted and decorated according to the whims and taste or their owners; but at the present time custom, if not law, requires that they shall be of uniform color, simply for the reason that if this seemingly small matter of choosing a color were to be left to the discretion of the owners, they might indulge a variety of tricks and fancies for the purpose of catching customers, to the injury of those less able to compete with them. A gondola and one gondolier costs twenty cents for the first hour, and ten cents for each subsequent hour. A gondola with two gondoliers can be hired for twelve france per day-equal to \$2.40 in our money.

We chanced to leave Venice the day after the close of the carnival. It was estimated that at least three thousand neo ple were to take the first morning train, therefore there was an unusual stir. The canals were literaily alive with gondo las and other small water craft, hurrying passengers and trunks to the station. It was very interesting to notice with what skill they pass each other in the narrow and tortuous canals which thread their way through every part of the city. Before turning a corner, and to prevent collisions, which rarely ever happen, it is the habit of the gondolier to utter a sharp cry to give notice of his approach, which is quickly responded to if another is coming in the opposite direction, There is nothing like incivility or even real rudeness between the gondoliers, although to one not familiar with the language their colloquies may sometimes appear to be sharp. Upon arriving at the station the scene was one of great confusion, which was greatly increased by the fact that Venice, to caricature somebody, was also a very noticeable feature. retaining its ancient right of a free port, all baggage is subject to examination before being allowed to pass beyond the city limits. Seats, however, were somehow provided for all and as is usual at nearly all the European railroad stations, citizens mingled with freedom. the passengers are seated about five minutes before the train starts, during which interval everything is so silent and still it is difficult to believe that thousands of people are impatient for a start.

quadrilaterals of the war of 1859, and is but a short distance from the battle field of Solferino. It will be recollected that this fortress was invested after the victory of Solferino, but the siege was cut short by the peace of Villafranca.

I think it would be difficult to find a section of country finer than that which lies between Venice and Turin, and especial ly that portion of it known as the plains of Lombardy. These plains derive their fertility in a great measure, no doubt, from the waters which flow down the Alps into and through the beautiful lakes of Garda, Como, and Maggiore, which constitute receiving and distributing reservoirs. The country is covered by a network of canals, which are employed for the transportation of merchandise, having numerous off shooting rivulets for irrigating the soil. Mulberry trees and silk, indian corn and rice, wheat, potatoes, and cheese, besides the vine, olives, and chestnuts, and a great variety of fruits, are its abundant productions. Ir is a country worth fighting for, and has been a bone of contention since the invasion of the Lombards, or Longbeards, in 568. Its cities were among the most splendid and populous in Europe, and its history is written over in blood shed upon the fields of Novara, Pavia, Cremona, Lodi, Marengo, Magenta, and Solferino. So terrible has been the destruction visited upon some portions of this fair country, that when Frederick Barbarossa left Milan, in 1162, its inhabitants were all scattered, and nothing was left to mark its site but shapeless ruins and the old church of St. Ambrose, which now exists as among the most venerable Christian edifices in Italy.

Milan is one of the most beautiful cities in Europe, having broad streets, fine parks, drives, and promenades, which are kept with scrupulous neatness. The Milanese pride themselves upon having the cleanest city in Europe, and are disappointed if strangers fail to recognize the fact. It is a miniature Paris in the general aspect of its streets and fine shops, and it may be interesting for the ladies to know that at one time Milan led the fashionable world, especially upon the all absorbing topic of bonnets, and the word milliner is a namesake of the fair city.

The King Victor Emmanuel contrives somewhat shrewdly to propitiate the favor of the larger cities by quartering branches of the royal family among them. The crown prince Humbert, who is soon to marry his cousin Margaret, the daughter of the king of Saxony, resides permanently in Milan, and strives to keep up a small court. The prince Amadeo resides at Naples, and other members of the family so far as their numbers will admit, are scattered about other parts of Italy, while the poor king lives all alone at Florence. The Church of Rome forbids intermarriages between cousins, therefore, in order to bring about this marriage, it became necessary to apply to the Pope for a special dispensation, which the papers declare was awarded upon the payment of twenty thousand francs. The stock of royal boys and girls in Europe has nearly run out, and there are fears that the blood may become corrupted by a resort to plebian connections.

By a special indulgence of St. Ambrose-patron saint of Milan, who appears to have had an eye in this matter toward the business interests of its inhabitants-they are permitted to extend their carnival three days beyond the time allotted to its celebration in other cities. A carnival in Italy is an outburst of popular festivity, which is allowed to manifest itself by unusual license for several days previous to the lenten fast, when every body is expected to sit down hungry, in sackcloth and ashes. We happened to arrive in Milan the day previous to the opening of the grander ceremonies, for which unusual preparations had been made, hoping thereby to draw crowds of strangers and the country folks. During the afternoon the streets swarmed with the people, eager to enjoy the fun and excitement, and certainly the display was very extraordinary. There were all sorts of vehicles and ridiculous costumes, moving in procession through the principal streets, the scene being enlivened by bands of music and the promiscuous discharge of confetti upon the crowd of pedestrians, many of whom resembled the old limekiln man, who some years since was a character upon the streets of New York. I cannot undertake to describe all the strange looking vehicles that were rigged up for the occasion, but I remember one that resembled an immense lobster, drawn by six horses. with outriders in livery, the space in the vehicle being occupied by men in priestly robes, and with large hats made to resemble crows' heads, that kept up a continual "cawing "at the crowd. Another vehicle was a dilapidated old mill, with the word "Rome" painted upon it in large letters. Another was designed to represent a blacksmith's forge, with men employed in forging out implements of war, and receiving at the same time the benediction of a priest, which I understood was intened to burlesque the Pontifical government, which ness and suclusion to the industry and active outdoor life

different architects and engineers, among whom I notice the names of Leonardo da Vinci and Giulio Romano, who were celebrated painters. It is difficult for the mind to conceive of such folly and prodigality of expenditure, but the author of the guide before me states that 550,000,000 of france have now been expended upon its construction, and from present appearances it will require many years yet to finish it. The Cathedral is intended to be Gothic, although it is not purely so. The exterior has thirty-two fine pilasters, richly decorated by a great variety of statues and figures; the roof is a wilderness of spires, pinnacles, and points, into the recesses of which there are also many marble statues, frequently the work of the best masters of Italy. Four intelligent guides are regularly employed to conduct visitors to the roof, and glasses are brought into requisition to enable the eye to appreciate some of the master pieces of Canova, which are placed in niches in the spires. The guide informed me that there were more than seven thousand different marble figures on and within the Cathedral. Nobody is expected to have patience to read a long description of this Cathedral, therefore I will conclude what I wish to say about it by referring to one of the many interesting things to be seen inside. I refer to the gorgeous tomb of St. Charles Borromeo, who was once Archbishop of Milan. St. Charles belonged to one of the richest families in Italy, and during the time of his archbishopric he not only devoted his wealth to the good of the church, but during the time of the plague he exhibited a degree of heroism and self sacrifice which has endeared his memory to all the generations which have succeeded. The tomb adjoins the great subterranean chapel called the "Scurolo," and receives a very "dim religious light" through a glazed opening in the pavement of the church, enclosed by a fine bronze railway, upon the top of which a row of lamps are kept constantly burning. Before entering the chapel a fee is exacted from all visitors, and upon payment being made, a priest with lighted candles proceeds to conduct the way down ward, through an elegant portal, supported upon beautiful columns, which leads to the gorgeous sepulchre, the ceilings of which are ornamented by eight massive bas-reliefs in silver, and other rich devices intended to illustrate the virtues and more remarkable events in the life of St. Charles. Above the altar stands an elegant bronze sarcophagus, with elaborate silver ornaments. all of the most exquisite workmanship. After the visitor has had time to admire the rich decorations, the priest, by means of delicate mechanism, begins to unfold the sarcophagus, which reveals an elegant casket made of plates of rock crystal, bound together by heavy silver mould. ings, the gift of Philip IV. of Spain. Within this casket lies the emaciated body of the saint, dressed in the gorgeous robes, jewels, and insignia of his priestly office. Suspended to the lid is a magnificent cross of emeralds and diamonds, the gift of the Empress Maria Theresa, of Austria. For nearly three hundred years a daily mass has been performed in this chapel tomb, and thousands of people have wept and prayed with grateful hearts for the continued intercession of the saint.

A pleasant carriage drive of fourteen miles from Milan, leads to the Certosa, the most splendid monastery in Europe, founded by Visconti, Duke of Milan, to expiate for the murder of his father in-law. The front of the church is one mass of bas-reliefs in marble, while the interior is the richest in Italy. The altars and chapel are composed of mosaics and precious stones of lapis lazuli, rubies, agate, porphery, jasper, and the rarest oriental marbles and alabaster. The pictures and frescos are by the first masters of the period. I never before beheld such liberal adornment and wasteful extravagance, and all for the purpose of washing a guilty soul of the crime of murder, which no earthly law could reach and punish. Such was the exemption accorded to the wealthy and powerful criminal of those ruder times. The monastery and cloisters adjoining the church are extensive and elegant, and the only occupants are twenty-four Carthusian monks, who never pass beyond the limits of their seclusion. They have each a small dwelling opening upon the grand cloister, with two small rooms and a little garden in the rear. They have little or no intercourse with each other, and their food is handed to them through a small trap door, let into the wall tacing the court. They occupy themselves in reading their breviaries, saying prayers, and attending to their other religious duties. In other words, they keep fat on poor living, and consider it their religious duty to crucify the body for the good of their souls. They subsist upon the scanty revenues of some small endowments, and employ a little of their leisure from religious duties in cultivating vegetables and flowers. The Certosa furnishes a magnificent retreat for those who, tired of the follies and vanities of the world, prefer lazi-

The route to Milan carries the tourist through Padua, Vein 1386, by one of the dukes of Milan, who made a vow of rona, Vicenza, Brescia, and Bergamo, all ancient cities of insome kind, the nature of which is carefully concealed from terest, but for the want of time I could not stop to visit them. the reader, but it is conjectured that he wanted in some way I was, however, much interested in getting a good view of to wipe out an awful crime, and knew not how else to do it. the fortress of Peschiera, situated on the Mincio, where it It is built entirely of white marble, and since commenced it issues from the Lake of Garda. It was one of the famous has occupied the skill and attention of nearly two hundred dried.

among men. combines both war and religion. A procession of sixteen

At this point I propose to lay down the pen of a wandering war chariots, made of half barrels mounted upon two wheels, scribe, and to quit the field, having nearly completed the in each of which chariots stood gladiators, drawn by mules somewhat extended tour which I criginally marked out. having cardinal's hats tied on between their long ears, and S. H. W. led by colored grooms in fancy costumes, the whole designed

Two days were devoted to this more amusing feature of the MAKING WHITE LEAD-A few weeks ago we made a note occasion, and one day was given up to a display of the finer of the fact that a new process for producing an excellent turnouts, into which the Prince Humbert and all classes of article of white lead, had been devised by M. A. Giffard : the following is the plan referred to: Granulated metallic lead is The most interesting single object in Milan is the wonderplaced in a barrel, with one fourth its weight of water. By ful Duomo, or Cathedral. From a little descriptive guide a suitable arrangement the barrel and contents are rotated book which has been published for the convenience of visiabout forty turns per minute, while a continuous current of tors, it appears that the foundations of this edifice were laid air is forced through at the same time. After revolving for about two hours almost all the lead will be oxidized, and now a current of carbonic acid is substituted for the air, and the rotation continued for five hours longer, when the true white lead, which constitutes almost the entire contents of the barrel, can be separated by decantation, washed and

Correspondence.

The Editors are not responsible for the opinions expressed by their cor respondents.

Steel and Iron Rails.

MESSRS. EDITORS :- The following remarks, though containing nothing absolutely novel, may be of interest to some of your readers :-

Locomotive and car wheels slide more frequently on steel rails than on iron ones, on account of the smoother surface of the former, but this loss of adhesion, and consequent loss of speed, is in reality so small, that it is more than compensated by the advantages gained, viz:

1. The grinding action, which, on iron rails, is greater than required for adhesion, is dispensed with, and the wear of rails and tires alike is reduced.

2d. In curves, the outer wheel must traverse a greater distance than the inner wheel, the outer wheel therefore must slide part of the distance; both wheels making the same number of revolutions. The smooth steel face offers no re sistance to this necessary performance, but the uneven and often laminated surface of the iron rails causes so much friction that the axles are subjected to a very dangerous torsion or strain. It is a fact that breakage of axles generally happens while passing a curve.

In adopting the use of steel rails many engineers have retained the old-fashioned, low patterns, used for iron rails, say $3\frac{1}{2}$ inches, or $3\frac{3}{4}$ inches high, with base of the same, or even greater width than the hight. Without changing the weight a steel rail may be made 4 inches or $4\frac{1}{4}$ inches high, instead of $3\frac{1}{2}$ inches to 4 inches respectively, because the sectional area of head given to an iron rail, in order to resist compression and exfoliation, is not necessary in a steel rail. The base of a rail should be less than the hight, because the strength against deflection or transverse pressure increases in the ratio of the simple width and the square of the hight.

The slow abrasion of steel rails is proved beyond doubt, and on that account their life may be calculated at twenty years, or more; but their endurance against continual tensile strain may not, and probably will not, be in the same proportion. It is, therefore, of the utmost importance to give a hight of profile which will obviate, or, at least, diminish this strain.

The advocates of broad bases and low profiles maintain that the former is necessary to prevent the rails from falling over! and that the latter are sufficient for close bearingssays 2640 cross ties to the mile, 2 feet from center to center. This is erroneous. On railroads on the European Continent, rails 51 inches high, and with 31 inches base, are laid on pine wood cross ties, which do not hold a single spike tight after two years' use; nevertheless, the rails do not fall over. The number of cross ties is not so important as the substantial manner in which they are laid, viz : firmly, and on a perfect level

It is no uncommon occurrence that, when the spikes hold tight, some cross ties hang actually suspended from the rail, instead of supporting it. Cross ties sometimes will settle below the common level. The consequence is, that if one cross tie settles, and the bearings next to it remain firm, the actual distance of bearings is doubled. Would any of fully placed in contact with the wooden wall of the building. the low rails be strong enough to resist the increased transverse pressure?

Some manufacturers, who were over anxious to promulgate the economical advantages of steel rails, favored the almost general illusion that steel rails could be made much lighter than iron rails. This is correct in theory, but not applicable on railroads on which rails of less weight than 60 lbs. per yard are considered sufficiently strong for heavy traffic.

Recently, a contrivance has been adopted on several railroads for fastening the rail ends to the cross ties without punching spike-holes.

The base of rails on most American railroads is sufficiently wide to allow of punching it on both sides without endanger-, ing the stability of the rails.

Any steel rail, no matter of what make, which is less safe in that respect than an iron rail, and consequently lacks toughness, should not be used at all. The interests of the public demand that the innovation of steel rails shall not only benefit the stockholders by a saving of expenses in maintenance of roadbed and rolling stock, but that it shall also put a stop to the frequent disastrous accidents from broken rails. Railroad managers are apt to disregard this so long as the percentage of broken steel rails is not alarming from an economical point of view, whereas it could be entirely avoided. I also doubt, that any contrivance will secure rails so com-

the written products of that mind. Take a case in point. A | in the air, because cold air cannot retain moisture, and conthoughtful student writes out the result of much reading and thinking in a book ; he puts his mind into a volume. If published, it will be read: it will instruct, or what is better than mere instruction, it will stimulate mind and excite thought. He endeavors to have it put in print, but from poverty cannot afford it; from want of friends and influence with publishers he cannot have it brought out. He fails in his effort to reach the public, and the world is not bettered or benefited by his thought.

Let an agency be established to which manuscript can be sent, and to which authors can apply; let this agency communicate with publishers, bring new works to their notice, contract with them in regard to publication, and in every way aid the author as you now aid the inventor. Such a plan, well carried out, will not only help the writing public, it will also tend to make New York the emporium of literature in JOHN FENTONHILL this country. Richmond, Va.

[We apprehend that the position of examiner for such an

agency would not be very eagerly sought; the examination and frequent rejection of manuscript is one of the most un pleasant duties of the editor, and those persons not in a position to know, can hardly realize the quantity of matter submitted to our literary, magazine, newspaper, and book publishers. Some of our large publishing houses employ persons who devote their whole time to reading manuscript thus submitted, a much larger proportion of which is rejected for lack of merit than ever finds its way into print.-EDS.

Insecurity of Buildings---Protection from Fire.

MESSRS. EDITORS :-- I was much interested in your remarks in a recent number about the construction of flues in stores and other buildings, particularly where steam boilers are used. It suggested some reflections which I will endeavor to express. Every engineer knows the fact expressed in your article and can confirm it and add scores of others to the list if it would do any good. This is, however unfortunate it may be, that every one who has owned a steam engine for a few months thinks himself an engineer and adopts the principle of every man his own engineer. This is the key to the whole mystery. If they were the only sufferers by their own enginering, the public might not complain; but such is not the case, as their malpractice is productive of great insecurity, causing enhanced rates of insurance and the conse quent depreciation of surrounding property. This is entirely unnecessary, provided the boilers are properly set and flues properly constructed. There is no more risk when the proper precautions are taken than there is in boiling a potato pot over a cookstove.

I will mention a case or two that have recently come under my observation. A slight wooden structure for a smith's shop with some half a dozen forges and heating furnaces with a steam boiler of the capacity of twenty horse-power. The roof was flat, made of inch pine boards and covered with tarred paper. The chimney, or rather smoke pipe of the boiler, passed through the roof and was nicely fitted to the wood and made water tight by the tarred paper; the smoke pipes of the forges and furnaces were fitted with the same care and nicety. The brick setting of the boiler was care This was the general style of the engineering of the whole concern. It went into operation and in less than a year was totally destroyed by fire, loss reported at \$30,000 to \$40,000, and, fortunately, no insurance.

Another concern is now nearly ready to go into operation. The works are for a wood planing and sawing mill and the manufacture of sashes, blinds, doors, and for wood turning, with a 60-horse engine and boilers to correspond. The structure is of wood, three stories high, something like 100 by 50 feet plan. The two boilers are placed outside of the building on the windward side with nothing to break the wind setting in from the bay. The boilers are set in brick work carried one course of brick above their tops and are suspended at each end by bolts passing through lugs on each side and at each end of the boilers, and secured by passing through timbers running across the brick work, with their whole under surface in contact with the heated bricks of the setting in which the expansion and contraction of the boiler is sure to make cracks and fissures its entire length. The fuel will be shavings, sawdust, waste stuff, etc. On the top of this boiler setting is erected a structure intended for a kiln for seasoning the lumber to be used in the works. This structure is of pine and spruce, placed in direct contact with the heated brickwork of the boilers, in order to utilize the heat that would be otherwise wasted; certainly economical!

sequently it cannot snow, and however much lower the temperature may fall, there will be no snow; "it is too cold to snow." We must wait till a warm current comes from another quarter laden with moisture, and as soon as this happens, two effects are produced, first; by the mixture of warm air the temperature rises; second; the warm air is cooled and is no longer able to retain its moisture. If this warm current comes on a low stratum and is warm enough we have a thaw and it rains, if not warm enough to raise the thermometer above 30° it will snow large soft flakes of warm snow, but if this warm current comes to us as is the case here at present when the thermometer has been ranging from 20° below to zero, then it is only able to raise the temperature a very little, but it is compelled to yield up its moisture and we have a storm of those beautiful crystals of hard, crisp snow that is only known in our high latitudes, consequently it is correct to say "it is too cold to snow," when we have a continuation of cold, dry weather, and we will have snow when a current of warm, moist air comes to raise the temperature and yield up its moisture. F. D. Montreal, P. Q.

Steam Economy.

MESSRS. EDITORS :- The benefits derived from steam expansion have been the study of the engineering world from the time of Watt, who first laid down the law of expansion. The experiments of Isherwood, Dickerson, and others in regard to the economical use of the expansion of steam has not been satisfactory.

Upon the trial between the Arethusa, built by Penn, the Octavia, built by Maudslay, both favorite builders for the British Government, and the Constance, built by Randolf, Elder & Co., the latter furnished with their compound standing engine-on a voyage of these steamers to Madeira, the Constance proved to be the fastest boat and consumed from 25 to 30 per cent less coal, all of the boats being built from the same models.

A recent test of this new engine was made at Buffalo. The consumption of fuel was the only point sought to be arrived at. The propeller upon both tests was made fast to the dock and, with an equal pressure of steam, making the same number of revolutions, a saving of twenty-one and one. half per cent resulted in favor of the combined cylinder engine.

In carrying higher steam, say eighty pounds per square inch, with boilers suitable for the pressure, there would be still better economy.

There is now being altered in this city, changing to the combined cylinder, the engines of the propellers Nebraska, Colorado, Idaho, and Free State, which will fairly demonstrate during the coming season to the relative value, and what actual saving there is to be derived from this form of com. bination. DAVID BELL.

Buffalo, N. Y.

Aluminum Bronze.

MESSRS. EDITORS :- As a completion to what you have said n your last number of the properties and uses of aluminum bronze, I beg leave to add a few words about the preparation and cost of this important metal.

In order to have a good alloy, the copper used must be quite pure; the best is copper deposited by electricity. Next to this is the copper of Lake Superior, which also gives an excellent alloy. Almost all other coppers fail, because they contain iron, for which aluminum has no affinity. Another thing to be observed is to remelt the alloy two, three, and often four times. The first melting is very brittle, the second is less, and the third generally gives off a good metal. Hammering also improves the strength and tenacity of the metal.

Aluminum bronze would cost nearly five times the price of gun metal. For mathematical and astronomical instruments, this is no doubt the best and comparatively the cheapest metal that could be used. CHAS DE G. Seton Hall, South Orange, N. J.

Neutral Acetate of Lead,

MESSRS. EDITORS :- One of your correspondents complains (p. 247) that in order to make neutral acetate of lead he has to take more than 51 parts of acetic acid against 111.7 of oxide lead, which should be the right proportion after the theory of chemical equivalents. Allow me to remark that the compound (PbO, $C_4H_3O_3$) naturally possesses, with a few others, the peculiarity of an alkaline or basic reaction toward the usual tests, and in order to make it behave neutral, an excess of acid above the regular atomic relations has to be added.

How is a Ball Kept in a Fountain Jet,

P. H. VANDER WEYDE, M.

pletely against longitudinal motion, as the firm hold which the notches or holes punched in the rails give to the spikes.

A, E,

New York city.

A Literary Bureau Wanted.

MESSRS. EDITORS :- There is a want in the literary world similar to that which your journal or your house supplies in the scientific world. An inventor knows to whom he can apply to have the product of his brain brought into notice. He will put himself in the hands of MUNN & Co., and feel sure that they will use every exertion to put his invention before the public. Without such an agency as yours, it is certain that many an ingenious invention would never have seen the light.

Now I wish to see an agency established in New York which will do for the world of writers what you are doing for the world of inventors. There is plenty of mind running to waste in our country, not for want of self employment. but for want of knowing how to put in form and have published weather, we know that there is (comparatively) no moisture

the underwriters will probably appreciate it ! F. W. B.

Atmospheric Temperature and Snow.

MESSRS. EDITORS :-- In regard to the force which retains a MESSRS. EDITORS :- The explanation you gave of the poplight ball in the jet of an upward-spouting fountain, I am ular saying, "It is too cold to snow," on page 151, current inclined to believe that its position is assured by the pressure of the atmosphere. A cannon ball flying rapidly through volume, is not in my opinion the correct one. It is a fact, and you like "facts," that at present it is here two degrees above the air induces an inward tending current of atmospheric. zero, and it is snowing very hard and very boisterous, and all air, caused simply by the momentary vacuum made by the rapid flight of the ball. This inward flowing current has. the snow that has fallen to-day has not prevented a great many frozen ears and noses. of course, a tendency to suck or draw in any light, small

body and induce it to pursue the line of flight of the ball. Another fact is, we can make it snow whenever we like if the weather is cold enough, on a small scale to be sure, but A stream of water moving rapidly upward through a tube seems to have a similar effect. If the tube be removed would really to snow, by simply ejecting a current of moist, warm air into the cold atmosphere; for instance, when the doors of not the atmospheric pressure still be less inside the stream than outside, and would not any small body, not too heavy, a church are opened after service on a very cold day, the be drawn within the influence of the stream; that is the moisture in the warm air is immediately frozen and falls in a small shower. This is no rare phenomena-exactly so in influence of the in-drawing current of atmospheric air? nature. To snow there must be a meeting of heated moist West Pittsfield, Mass. air and cold air. Now suppose we have a duration of cold [We think the theory of our correspondent has considera ble plausibility.-EDS.

Parasites on Insects, and other Animals.

MESSRS. EDITORS :- For the information of your correspond ent who mentions, p. 259, his observations about the house-fly parasite, we observe that this parasite is well known and described in books on that subject, is even quite common in some localities, and has nothing to do with the transmission of contagious diseases. As far as our present knowledge on the last subject extends, it appears that the organic structures which undoubtedly propagate contagion belong to a much lower stage of organization than parasites; one so small as to be only visible with the strongest magnifying powers, and their germs, seeds or eggs escape our most careful research altogether, as they appear to be present in the very dust of the air we breathe. The only fact known in relation to flies and cholera morbus, is that it has been observed in many localities that at the time this disease was raging, the usual number of flies was either entirely absent or at least considerably diminished, which is an additional proof that flies are scavengers of the atmosphere.

In regard to insect parasites in general, the species which infect the fly is called *acarus*. The smallest acarus is found on the clothes moth, the largest on the beetle. They are all very similar to the so called chicken-louse, and also resemble slightly the cheese mite. They are usually blind, have two or four suckers or points at their heads, and, like spiders, eight legs which are commonly arranged two and two, close together. The ticks, lice, flees, bed bugs, etc., have to the contrary eyes and only six legs, and belong to a different and higher order.

The most curious of these parasites is the one which selects the respiratory orifice of the common garden snail it slips through the opening the moment the snail dilates it to respire air, and lays eggs in the interior membrane, where they are developed. The young, after being hatched, feed upon a portion of the snail's body. The water snail is tormented with a parasite of the family of the Distoma, which attaches itself by a series of hooks to any part of the body or manule. They sometimes surround the whole animal like tufts of thread.

Diverse reptiles, like serpents, and even fishes are affected by parasites, who attach themselves to the fins or tail, and slowly destroy these parts of the suffering animal. They are often observed among fish captive in an aquarium, and I once found on such a parasite who had grown large and fat in destroying a small, fish in one of the aquariums I used to have in operation, in the Cooper Union in this city, a second parasite who lived on the first. These parasites of parasites are a great curiosity, however not so very uncommon, they are repeatedly observed by industrious investigators.

In a hygienic point of view the study of this subject is most important, and at the present day undergoes a thorough investigation by observers, aided by the most powerful microscopes. To give the reader an idea of this field of research, I will only name some of the varieties of parasites found on different animals.

Docophorus ictervides, found on every species of ducks Neimus obscurus, found on sand pipers, godwits, etc.; Neimus rufus, found on hawks, falcons; Docophorus lari, found on gull tribe ; Trichodeites sealaris, found on oxen, asses ; Tediculus capitis, found on head of man; Tediculus vertimenti, found on clothes of man; Tediculus tabescentium, found on bodies of men dying of marasmus; Tediculus inguinalis, found on groins, armpits, beards of man; Acarus scabiei, the itch insect; Sarcoptes scabiei, produce the scab in sheep, and has lately been discovered to be the cause of the mange in dogs. In one pint full from a dog suffering from this disease, as many as thirty or forty of these parasites were found.

I could fill with such lists several columns of this paper, to show how thoroughly the subject is being investigated I will only add that of all these parasites, and several hundreds more, their habits have been described, their mode of propagation, number of eggs, time and manner of hatching, means of their extermination, etc. They infest most of our articles of food, flour, cheese, sugar, dried figs, and other saccharine fruit, others live on contents of our insect collections, butterflies, etc.; others in the crusts of ulcers, etc.

I refer those who wish to know more on the subject to Rheidi's work "Treatise de Gene ratione Insectorum," and Denni's "Monographia Anaplurorum Britannia," Bohn, London. V.

New York City.

Polygons.

MESSRS. EDITORS :- One of your correspondents wants to know (see page 247) the extreme radius of a 52-sided polygon,

Improved Attachment to Mowing and Reaping

Machines. The rattling noise of the working parts of mowing and reaping machines is annoying and liable to frighten horses which have not become used to it. But the wear of the wrist pin, and its boxes, connected with the cutter bar, is a more common evil. There is a great strain on these parts, and it is sometimes difficult to keep them in working order. The device shown in the accompanying engraving is designed to make the pitman connection as enduring as the rest of the machine, and to prevent unnecessary noise in working.

A is a section of a cutter bar, having a frame, B, attached, in which are halved boxes, C, for the reception of the wrist, progress. A correspondent from California sends us a com-

Used as a cradle the child is not tossed about, but is kept in aquiet condition. When the swing is set in motion it retains its momentum for some time, avoiding the constant labor attendant in the use of the cradle.

Patented through the Scientific American Patent Agency, March 31, 1868. Address Samuel E. Martin or Samuel Swank, Shamokin, Pa.



There are many instances in veritable history where a scientific toy has developed into a valuable aid to mechanical

> munication in which he ad vances the same idea, illustrated by sketches which we reproduce. He says :" Having followed the sea a number of years, I have noted with much interest, the progress of sea birds through the air, and wondered whether man had not as good a right in the aerial kingdom as birds, who seem to possess it alone. As the subject of aerial traveling seems to have aroused some attention in Europe I have made bold to give my idea of a contrivance for supporting a weight in the atmosphere. Try this experiment; get three small sticks half the size of a penholder and about eighteen



KINTNER'S PATENT BOX FOR HARVESTER PITMANS.

and having a suitable packing, F, of rubber, or some elastic substance, so that when the wristpin is inserted between the boxes it is held firmly, but without binding. Thus any sudden jerk of the material being mowed or reaped against the outer end, or any portion of the cutter bar, is relieved by the elastic packing, and there is less wear on the wristpin, always a weak part.

The patent was issued to Jacob L. Kintner, Rock Haven, Mead county, Ky., who will give any additional information as to rights, etc., if addressed as above.

PATENT TELESCOPIC SPEAKING TRUMPET.



N. Y., has invented and constructed a handy speaking trumpet, which is made in sections sliding one within the other, and the whole when closed being contained within the bell, as seen in the smaller figure. When in this position the sections are held together by a simple catch on the mouthpiece engaging with a circumferential wire around the bell. The trumpet may be extended for use, as in the larger figure, instantly, when it is in all respects equal to one made in the usual way. A trumpet made in this style can be easily carried in the pocket, and is always ready for use and never in the way when not wanted. For firemen, sea captains, and others, it will be found to be exceedingly convenient.

Frederick J. Miller, of Brooklyn

MARTIN'S PATENT SAFETY SWING.

The engraving shows a swing intended for the amusement of children and as a substitute for the cradle. It is a car attached by two parallel pivoted bars on each side to the top pieces of an upright frame. This arrangement gives an easy



D, of the pitman. The rear part of the boxes have vertical inches long; take two of them and tie them crosswise, as at grooves, E, embracing the uprights of the square frame, B, A, then a third one, splitting it at one end and inserting between the open ends, a short stick, as at B. Then tie the whole or unsplitted end to the two crossed pieces, C, to form a frame for the wings and tail. The body and tail with pieces

of paper pasted on the sticks will make the artificial bird. D.



Now take a weight of three or four ounces and suspend it, as shown at E, and your flyer is complete. Two of the strings should be attached to the wings, each about six inches from the intersection of the wing sticks with the body or straight stick ; the other two to be attached to the straight or horizontal stick. Try the apparatus in a room until you have the right relation between the weight and the bird; then send it out of an upper window."

[We have not tested this toy, but offer this description for the benefit of our young readers. Perhaps it may be of more consequence than a mere amusement in leisure hours.-EDS.

ANOTHER OPTICAL ILLUSION.

We give, for the amusement of our readers, a little diagram to show how easily the eye may be deceived as to absolute size by a comparison of similar objects. The segments of circles in the diagram are really of one and the same size; but, arranged as they are in the engraving, they do not ap-



pear so; certainly, the lower 1 looks longer than 2, and much longer than the upper 1. This may be proved by drawing two concentric circles on paper and dividing them by equal spaced radii, so that each segment shall be of the same size, and then, cutting the segments out and placing them as in the diagram, they will appear to be of unequal size, but placed one on the top of the other, they show equally on every edge. Wheelwrights understand this, as by placing fellies-the segments of the wheel rim-in different relative positions, this illusion is perfect, and also its solution. The whole difficulty, which prevents us from judging properly of the relative sizes of the segments, lies in their arrangement. In the diagram, one side, forming one of the radii of the circle, is in line, each of the segment ends being accurately joined; the others present their longer sweep to the shorter circle of the next, and this confuses the eye, which is insensibly attracted to these divergent ends.

the radii of which are 12 feet. When we take into consider ation that each side of such a polygon is the chord of an arc, of one 52d part of 360° or the double sine of half that are that is the double sine of $3^{\circ} 27' 40''$, we find for the radius 1 this side, according to the tables, equal to 0.120760, and therefore when the side is 12 feet, the radius will be 12 divided by 0.120760, that is 99 feet 44 inches very near, or within less than 8 inches equal to 100 feet. As 12.5 is the ϵ ighth part of 100 we see that this teaches at the same time that the eighth part of the radius is only a little larger than the polygon of 52 sides, and may be used for it in case that an error of one 250th part of the radius may be neglected.

THE NEW YORK LYCEUM OF NATURAL HISTORY .--- This society will celebrate its fiftieth anniversary, at the Cooper Institute, on Wednesday evening, April 29th. Addresses are expected from Dr. Barnard, President of Columbia College, Dr. John Torrey, Rev. Dr. Thompson, and other gentlemen eminent for their scientific attainments.

motion to the car and preserves it in a horizontal position in every part of its course, rendering the exercise of swinging one of positive pleasure without the danger of vertigo or any other uncomfortable sensation. The sides of the car are sufficiently high to prevent the danger of falling out, and it can be made to seat two or more children or adults. As the suspension bars are rigid, the sickening sensation from the swaying motion which is inseparable from a rope swing is avoided. I tion to bring it to a light yellow or straw color.

BLEACHING COTTON SEED OIL .- W. R. Fee, of Cincinnati, Ohio, sends us the following recipe: Use one gallon of Eng lish caustic soda, in a solution of about forty degrees of strength, to about twenty gallons of crude oil. The oil, previous to being mixed with the solution, must be heated to about 90°. Stir constantly while adding the cold solution. If the oil is not now sufficiently light, add more of the solu-

LOCKE'S SELF-LIGHTING GAS BURNER.

Matches are a great convenience, but their use is more or less troublesome and dangerous. Many, when they have used a match, throw it, while lighted, on the floor or anywhere. by which carelessness, undoubtedly, many fires are caused. In lighting gas jets, a match must be used on every occasion, or a taper must be employed, entailing danger in one case, and trouble and cost in the other. The lighting of gas by electricity is convenient only in halls or other large rooms where it is desirable to light many burners at the same time. All these annoyances are avoided by the simple device shown in the accompanying engraving.

Fig. 1 is a perspective view, and Fig. 2 a vertical central section. The burner can be attached to any gas pipe in place of the nipple generally used. Its peculiarity consists in having a supplementary miniature pipe, A, Fig. 2, by the side of the main nipple. This receives its supply of gas from a channel, seen at B, cut from the main supply aperture in the cock spirally and partially around its circumference. A screw, C, passes through the side of the burner under the cock and serves to regulate the amount of gas admitted to the channel, thus regulating the flow of gas according to the pressure.



When the gas is turned on to the main burner, the supply to the secondary burner is entirely cut off; but when shut off from the primary or principal burner, a small portion escapes through the auxiliary, being lighted in the instant of turning off by the flame from the main burner, in consequence of the rapid spiral of the channel cut in the circumference of the cock, which is simply a "fast" screw thread. In lighting, the jet of gas from the auxiliary tube, when the cock is turned, "jumps up" and ignites the gas from the main tube. The small tube, of course, burns gas when the main tube is not acting, but the amount thus burned is slight and proves to be far less expensive than the use of matches and other appliances for lighting gas. A cowl or cap, as seen in the engraving, protects the small jet from being extinguished by currents of air.

Patented April 7, 1868, by Richard B. Locke. Communications should be addressed to R. B. Locke, Secretary of the Self-Lighting Gas-Burner Company, at 451 Broadway, New York city.

PICTORIAL PRINTING.

In the new volume of the Annual of Scientific Discovery reference is made to, and an illustration is given, of an invention brought out during last year, designed for producing pictorial effects by the use of movable metal types, cast like ordinary printing types and bearing upon their faces different devices, which, by their combination, produce the desired effect. A full-page illustration, printed on landscape type, and representing the home of the Adams' at Quincy, Mass., is given as evidence of what is possible to be accomplished by this invention. The type used are each one thirty-second inch square, their surfaces either plain, blank, or lined in various directions and degrees of fineness. The two edifices, with doors, windows, chimneys, columns, and roofs, are represented in the cut before us in accurate prospective, and even the trees, foliage, clouds, and other accessories of the landscape are portrayed with a considerable degree of fidelity. The general picture presents the familiar appearance of the patterns for canvas needlework ; every straight line appears as such, but the curved outlines approximate to that form by rectangular gradations.

This plan is a Boston invention, and is not yet even fully developed ; but even when perfected, it is doubtful if pictures thus printed will ever equal in beauty those produced by a process, similar in principle, to the foregoing, and, like that, first made public during the past year. The latter invention is due to one Fasol, a printer in Vienna, and the art, as practiced by him, is called "Stigmatypy," from the fact that he uses only the full point, of different sizes, cast upon the same body. The variations in shade, and the whole effect is produced, as in ordinary stipple engraving, according to the proximity of the points. Both processes are yet in their infancy, and we await with interest their further develop ment.

THE CONSTRUCTION OF WATCHES.

BY H. F. PIAGET.

No. 2.

A clock has a combination of wheels to mark the number of oscillations made by the pendulum. A watch is a similar combination to mark the number of vibrations made by a balance. The wheels of a clock may be impelled by a weight, and the time measured by a pendulum; but as the watch must go in all positions, neither the weight nor the pendulum can be applied to it.



The power of motion in a watch is produced by means of a spiral spring, usually called the main spring, placed in adrum or barrel, which

> when wound round a center will from its elasticity cause the barrel to make as many revolutions as there are turns made by the spring. Time is measured in a watch by the vibrations of a balance, which if

moving in equal space, will make all the

The escapement is the name given to that part of the watch which transmits the power from the wheels to keep up the vibrations of the balance; the escapement also prevents acceleration of the wheels, by holding them in check until the balance has completed its vibration. If the force exerted by the unfolding of the spring be equally transferred through the wheels to the escapement, and if the impulse given by the escapement to keep up the vibration of the balance be equal, then will the motion of the balance be also regular, and the watch will measure equal time. But the force of the spring is unequal-it is strongest when fully wound, and becomes weaker as it uncoils. To compensate this inequality, a cone is employed with a spiral groove, called a fuzee, to which is attached the first wheel.

The wheels of a watch are thus called :- The wheel on the fuzee is the first wheel; the center wheel, the pinion of which carries the minute hand; the second, or center, the one which in ordinary watches carries the second hand : the fourth, and the next, the escape wheel. In the old rack-lever watches there is one wheel less, the second hand being carried on the pinion of the escape wheel; the second hand then went around very fast, but these kind of watches are nearly out of use, many of them having been altered to the present lever escapement.

The going fuzee, invented by Harrison, to make a watch continue to go while being wound up, and used in all good English watches, has an auxiliary spring, through which the force of the main spring is carried to the wheels. While the watch is being wound, a ratchet and click prevent the reaction of the auxiliary spring, which therefore continues to act during the time of winding, although the power of the main





Auxiliary spring.

Maintaining Power, Clock and Spring. Barrel, Fuzee, and Chain.

spring is then taken off. The fuzee is connected with the barrel containing the spring, by a chain with hooks at each end. In winding the watch the chain is wound off the barrel and around the fuzee. When the watch is fully wound, the spring is at its greatest power, but the chain being then around the smallest part of the cone of the fuzee, the influ ence of the spring is the smallest.

As the watch goes down the power of the spring relaxes. but as the cone enlarges its influence increases, and when the spring is down, the chain is upon the base of the cone, where the influence of the spring is the greatest. Upon the shape of the cone of the fuzee, therefore, depends the quality of the maintaining power. There is usually about half a turn of the weakest part of the spring left without action to enable it to draw all the chain to the end, otherwise the watch would vibration. not run quite down; that is regulated by a click and ratchet upon the barrel arbor.

In some watches the ratchet and click are placed under the dial, and cannot be seen by the wearer; in others they are placed on the bar that holds the barrel, and are easily seen on opening the chain, they are indispensable (to a good watch), as by them the spring is regulated as near as possible in its action ; not to be too strong when fully wound, nor too weak when nearly run down, A watch without stop works, or one with imperfect ones, will be in danger of having the spring or some of the teeth of the barrel broken in winding.

If the spring is wound up too tight it is much more liable to break, and when broken, if there are no stop works, the strain of the key comes on the teeth of the barres, and if forced will frequently bend or break them. If the spring to a going barrel be well made, and the wheels so constructed that only the middle turns of the spring are required to be in action, and not those turns of the spring in which it is at its greatest or least power, the force may be sufficiently equal for ordinary purposes; but where the fuzee can be applied it is preferable and certainly the best.

The power of the spring is conveyed to the escapement through the wheels, and the arrangement is nearly the same in all watches; therefore their comparative value in this part of the construction depends entirely upon the skill of the workman and the quality of the materials. The power of the spring being equal, and the wheels and pinions properly constructed and placed correctly to act with each other, which is called "pitching the depths" (this is a term used in wheel work, and it is necessary that the wheels and pinions be placed at proper distances from each other, or there is friction, cutting, and noise in the action, which should not be in a good watch), to convey the power to the escapement, and to keep up the vibration of the balance, constitutes the essential difference between one watch and another.

A watch is described by the form of its escapements.

Several escapements, such as the verge, the vergule, the rack lever, etc., had to be abandoned. My uncle, who was one of the most ingenious workmen in Switzerland and London, and maker of musical watches and repeaters of every kind, and with whom I worked fifteen years, spent upward of five years in inventing and trying new escapements, but had to abandon the idea of making anything better. It was his opinion, and is also mine, from experience, that it will not be possible to get escapements with less friction, and that will maintain their accuracy better than the chronometer, duplex, or even lever, if properly made. Still I may be mistaken, as many things have been achieved within a quarter of a centurywhich would then have been thought fabulous.



The balance of a watch is a wheel nicely poised upon its axis, having its greatest weight at its periphery.

A balance properly placed, with its pivots in their holes, but resting on the points or ends, would, when put in mo-

tion, revolve on its axis; but if a spring so constructed as to bend in either direction in which the balance will turn, was to have one of its ends fastened to a point independent of the balance, while the other end was attached near to its axis, an impulse then given to the balance would only cause it to move as far as the force given was able to overcome the resistance of the spring, when the resistance becomes equal to the impulse given ; the balance stops for an instant, and then is driven back by the elasticity of the spring to a distance nearly double to that through which it passed in its first motion, and thus continues to vibrate until the friction and the resistence of the air bring it to rest.



A spring thus applied is called the balance or hair spring. This spring has been frequently noticed as illustrating the great value a small piece of steel may acquire from manual labor; it is perhaps more remarkable for its extreme delicacy, four thousand of them weighing scarcely more than an ounce, while the cost frequently exceeds four thousand dollars whenused

for fine work.

When the balance is at rest the spring is inclined neither way, this position is called the point of rest; and the motion of the balance when influenced by the hair spring, is called

The application of the balance or hair spring is the greatest improvement ever made in a watch; since it rendered a comparatively useless machine capable of going with accucacy; and now that the principle can be more easily applied, although perhaps not better understood, it offers the means of measuring time equal to a pendulum.

The first watches were made without any balance spring, but with a vertical wheel which moved the wheel backward and forward; and instead of the chain now used, there was watch. The fuzee, or cone, can not be only a piece of cord, like a very fine violin string, to convey introduced into very flat watches. the motive power of the main spring to the wheels. This The barrel, therefore, instead of balance spring can produce astonishingly varied effects, from the fuzee, is attached to the first difference in the length and tapering, the principle being, the wheel, by the barrel having teeth cut at the sides, and is stronger and shorter the spring, the quicker will be the vibrations.



EFFECT OF FROST ON LARVÆ.-In a paper addressed to the French Academy, M. Reisert announces that the general belief held by farmers, that a severe frost kills noxious insects and larvæ that grub in the earth, is a fallacy, the only effect of the frost being to drive them still deeper into the earth, He found that while the thermometer stood at 5° Fah., and the ground was covered with snow, the soil at a depth of twenty inches was not influenced by frost, and below this line the larvæ were to be found; descending still further as the cold increases.







Chronometer Balance and Spherical Spring.

The hair springs of watch es are made flat on account of the small space for them to work in ; but where there is room, the isochronal spring is applied. In marine chronometers for the use of ships, they are made in a spherical

form; the thickness of the spring being the same the

whole of its length instead of tapering, as they are easier of Stop works are necessary to every watch, particularly to those with chains, as to those without the chain would be execution and better adapted for the regulation of time. These remarks will not be thought too detailed if we conalmost sure to break, particularly in thick English watches. In Swiss watches, and in all with going barrels, or without a 'sider that the correctness of the watch as a measurer of time

Marine

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is mostly dependent on the correct principle of the escapement and of the hair spring.

The curb, or regulator, is the part used for regulating the watch. The purpose is to shorten or limit the motion of the balance to make the watch go faster, and to lengthen it to make the watch go slower.

When a good watch has been produced, with the main spring acting with equal power from the instant of being fully wound to the termination of its time of going, the wheels and pinions perfect in all their parts, the escapement on a good principle and properly executed, and the balance spring so perfect as to make all its vibrations in equal time, even then the watch will vary in the time. It will show a variation upon every change of temperature, unless it be compensatory.

A watch may be said to be a metallic thermometer, for the slightest thange in the temperature affects its going in pro portion to the change; heat enlarging the balance and lengthening the hair spring, (independently of the effect produced upon all the other parts,) which will make a watch lose, while contraction from cold will make it gain. An action upon the balance, bringing the weight at its extremity nearer to the center, will cause it to gain, and the same effect will be produced by an action on the hair spring, which will either shorten its length or limit its motion; and both of these means are made use of to make watches keep equal time in different degrees of temperature.

When this effect is produced it is called compensation, and is obtained from the different degrees of expansion in metals, and for this purpose the compensating balance is applied to good watches. The compensation balance has its circum-



ance composed of two metals, brass at the extremity andsteel within; and as the rim is cut in two parts will expand or contract with every change of temperature. When heat causes the expansion of the spring and balance, it also cuts on the brass at the extremity, and causes that part of the rim which is cut,

Compensation Balance. to be brought nearer the center, and this motion is so regulated by means of screws or weights, as to compensate for the expansion, and enable the watch to measure equal time under the different degrees of heat and cold.

But compensation balances should not be used unless the other parts of the watch are perfect, otherwise they are not so good as the plain gold or steel round rim balance. I have always found the latter kinds to keep very good time, and where the price is limited, are to be preferred, as a bad compensation balance is but a detriment to an otherwise good watch. The compensation curb is frequently applied to watches. Its use is to limit or extend the motion of the balance spring, by a self moving action caused by a change of temperature. The principle is the same as in a compensation balance, the motion being produced by the inequality of expansion in the two metals, (brass and steel.) of which it is made.

There are many who expect an accuracy incompatible with the nature of the machine; indeed, positive accuracy can never be obtained, until an unchangeable material is discovered, of which the work can be constructed.

One of the best time keepers and finely finished watches that I ever saw, was one made in Geneva, or Locle, which a friend of mine purchased in California, and I had it to clean. It had the plates and bars for the wheels made of nickle, the wheels were made of gold, it had a compensation balance, with isochronal hair spring; in short it was a *chef d'œuvre* (for a Swiss watch,) with an anchor escapement.

It is frequently forgotten that time differs in every spot east or west of the place at which the watch is set. At the present speed on railroads, two hours' traveling may make the traveller's watch show some two or three minutes faster or slower, than the local time of the place at which he arrives. In this case, the difference must be added or subtracted to avoid disappointment when travelling. It has been said "that no man ever made a true circle or a straight line except by chance," and the same may be said of any machine which measures time exactly. These remarks neither lessen the perfection or usefulness of watches. They are among the highest specimens of human ingenuity, and indispensable in the present state of society.

MANUFACTURING MINING, AND RAILROAD ITEMS.

At Denver, Col., a company has been organized to build a train-road into the mountains of South Pass, as a means for bringing into the city lumber and all kinds of building material. The plan of construction is as follows:

According to the *Athenœum*, Mr. Galy Cazalat has invented a process to be employed in casting steel, so that tilting is rendered unnecessary. The mold is made of the greatest possible strength, and is provided in its upper part with a chamber in which a quantity of an inflammable powder is placed. When this powder is ignited an immense pressure is exerted upon the surface of the steel, the molten metal is thereby forced into every minute portion of the casting, expels the gases contained in the steel, and causes the metallic particles to be brought into the most intimate union.

In the foundery of the Port Richmond Iron Works, of Philadelphia, are three cupola furnaces, the largest of which will melt twelve tuns of iron per hour. In the machine shop of the same establishment there is a planing machine capable of planing casting eight feet wide, six feet high, and thirty-two feet long; a lathe that will swing six feet long, and turn a length of thirtyfour feet; and a boring mill, believed to be the largest in America or Europe, that will bore a cylinder sixteen feet in diameter and eighteen feet long.

The American Central railway, a projected air line road from New York to Omaha, has, we learn, finally assumed a definite shape, and the enterprise is to be pushed through as fast as money in abundance can do it. The entire air line will be made by a consolidation of the Allentown road to Harrisburgh, the Pennsylvania Central to Pittsburgh, the Fort Wayne and Chicago to Fort Wayne, and the American Central to Omaha. The company wasfully organized at Fort Wayne, Indiana, on the 5th inst., and the road will be one of the most important now building in the United States. Its length is to be five hundred and eighty-five miles, and by its directness will shorten the route now traversed between this city and Omaha by one hundred and thirty-six miles. When the Pacific railway is completed this new road will constitute with it a grand trunk line from ocean to ocean.

The New York State Legislature, after a protracted consideration, have passed two bills securing two underground railways for the relief of this ciry. The first bill provides for the construction within three years of *s*.tunnel railroad from the City Hall to Forty-second street, a distance of a little over three miles. The list of incorporators of this road embraces the names of many of the most responsible capitalists of the city, and the required deposit of \$000,000, will serve as a pledge that the enterprise will be carried through. Two additional years are allowed to carry the railway to Harlem river, and provision is made for an elevated line in case the lowness of the surface above Ninety second street renders the construction of a tunnel impossible. The other bill passed was for the Arcade railroad, described and fully illustrated on pages 92 and 93, Vol. XVI. SCIENTIFIC AMERICAN.

Becent American and Loreign Latents.

Under this heading we shall publish weekly notes of some of the more promi nent home and foreign patents.

WOOD-PLANING MACHINE.—Frank Douglas, Norwich, Conn.—The object of this invention is to provide means for rendering the feed rolls more periectly self-adjustable to planks, boards, etc., of different thicknesses. In accomplishing this object, the upper rolls are supported in a novel manner, and a new kind of adjustable gear is employed to operate them. A new arrangement is also used for applying adjusting weights to the upper rolls.

CARRIAGE COUPLING.—Ira and John S. Vanpelt, Petersburgh, Va.—In this invention the use of couping bars is dispensed with, and a carriage is made withou, them, which is simpler in construction, stronger, and works better, than the carriages in which such bars are employed.

SHINGLE MACHINE.—Albert Thompson, Ridgeway, Pa.—In this invention the carriages are attached by a new device, by means of which one of them can be detached and stopped for adjusting the bolt without interaring with the action of the other. The heading and pointing is also regulated by a new mechanical arrangement, and a new apparatus is employed for adjusting the speed of the carriages.

GIG SAW.-J. W. Moyer, Cherry Valley, N. Y.-This invention consists in providing the saw irame with two springs, one above and one below the saw, which operate together to give it the necessary tension, and which counteract each others' effect upon the motion of the saw, rendering its working even and uniform, and enabling it to be operated with any degree of speed.

CAETRIDGE BOX.-John Elbertson. Kirksvill, Mo.-In this invention, the cartridges are arranged in a circular disk, which is hung at its conter upon a spindle in a circular case. The latter is provided with a door at its lower edge, by which its cartridges are taken out. The disk carries the percussion caps, also, which are taken out through a port in the upper side of the case. The disk and case are so constructed and arranged that the cartridges and caps will always present themselves at the proper place to be handled.

DOOR STOF.-A. G. Stevens, Hillsboro', N. H.-The object of the door stop embraced in the present invention is to obviate any injury to the sides of rooms by the striking of the door against the same when opening wide, and for this purpose this invention is a newly constructed and arranged stop applied to the door, which, by the opening of the door, will be thrown into position to prevent its striking against the side of the room and thus obviate any injury thereto.

WATCH.-Charles! S. Moseley, Elgin, Ill.-This invention relates to the manner of securing or holding the outer end of the hair or balance spring to the watch movement, and it confists in the construction of a stud carrying hair spring, of an arm or extension piece to the bridge plate for the bal ance wheel, and of a set screw or screws, whereby the adjustment and at tachment of the hair spring can be secured with accuracy and it can be always brought to the same position.

RAILEOAD SWITCH.—Adolph F. Ballas, Pottstown, Pa.—The many accidents which occur through the switches now in use have led to the invention by me of a switch that in itselt will be sufficient to guard against accidents, however careless or neglectful the switchman may be, and by the present invention such a switch is obtained, the principle of the switch consisting in arranging in such a manner as to be self acting through a counter weight suitably applied therero.

ANTI-FRICTION JOURNAL BOX.—Patrick S. Devlan, Hudson City, N. J.— This invention has for its object to furnish an improved anti-friction material for journal boxes so that the said anti-friction material or part of the journal box may be conveniently replaced when worn by fresh material.

CORN PLANTER.-D. A. Kershner, Elliottstown, Ill.-This invention has for its object to furnish an improved corn planter which shall be so constructed, and arranged as to drop the corn, cover it and mark the plade in which the corn is planted so that the corn may be conveniently planted in check row

SAUSAGE MEAT CHOPPER.—Charles Welte, Frankford, Pa.—This invention has for its chject to furnish an improved machine for cutting or chop-

COMBINATION TOOL.—James Swan. Seymonr, Conn.—This invention relates to a combination tool, whereby two tools such, for instance as a screw driver and a gimlet, brad awl, corkscrew, or other similar tools may be com bined. The invention is an improvement or a further carrying out of the principle on which the pocket or portable corkscrew is made.

WHIFFLETREE HOOK.—Francis W. Beckwith, Westmoreland, N, Y.—This invention consists of the combination of the thimble and spring tongue for obtaining a more safe and convenient hook for whifiletrees.

PEN AND PENCIL CASE, Wm. Maginn, New York city. —This invention consists in the employment of a cylinder of whalebone between the metal ends of a pencil case, whereby it serves to inclose the metal barrel containing the mechanism for protruding the lead holder; and simulates the appearance of the hard rubber heretofore used.

CONCRETE BLOCK PRESS.—J. H. Wirt, Delphi, Ind.—This invention relates to the pressing of concrete blocks for building purposes. It consists of a simple and effective arrangement of levers and toggle joints for actuating the press block together with other devices perfecting the whole.

FRUIT CRATE.—Truman Mabbett, Vineland, N. J.—The nature of this invention relates to the packing of fruit for transportation and consists of a crate composed of slats with spaces between each slat, the said crate also containing an inner or lining crate-together with a spring bottom.

FENCE POST.—P. McDuff, Weston, Mo.—This invention relates to an im provement infences and consists of an upright plank secured to a bottom cross piece and brace and having the horizontal planks composing the fence panels nailed to the upright plank.

LIFTING JACK.-G. H. Alger, Ames, N. Y.-This invention is an improvement on the lifting jacks as heretofore made and is designed more particularly for lifting thrashing machines when the rear wheels of the same are to be withdrawn to lower the rear of the machine to the ground for the operation of thrashing.

RUDDER GEAR.-C. T. Rideout, Boothbay Harbor, Me.-The nature of this invention consists in the employment of a traversing segment having teeth which engage with the teeth of a disk keyed to the rudder head, whereby the tiller can be made shorter and take up less room in its travel across the deck, together with a device for securing the rudder in any desired position.

SCAFFOLD BRACKET.—Samuel D. Van Felt, Anderson, Ind.—The object of this invention is to provide a firm point of attachment on the roofs of buildings for the scaffolds used in shingling or repairing the same. It consists of devices for clawing into the shingles of the roof and supporting the plank or scantiling of a scaffold.

TOBACCO SMOKING PIPS.—Henry R. Robbins, Baltimore, Md.—In this in vention the pipe, which is so small that it can readily be carried in the pocket, is provided with an improved apparatus for passing the smoke through water, and for preventing the water from escaping into the stem or the bowl, and is so constructed that it can be readily taken apart for cleansing it.

TOBACCO HAND TYING MACHINE.—David C. Delinger, Russellyille, Ohio.— This invention is a simple, cheap, and easily operated machine for tying rolls or hands of tobacco, whereby the operation is greatly facilitated.

RAILBOAD SILL AND CHAIR.—Jasper Snell, Pottsville, Pa.—This invention relates to an improved railroad sill and chair.

KNIFE FOR REMOVING HIDES AND SKINS.—S.J.Patterson,Bridgeport,Conn. This invention has for its object to furnish an improved knife, designed especially tor butchers' use in removing the hides and skins of animals, which shall be so constructed and arranged as to guard against injuring the skins and hides by cutting them during the process of removing them from the animals.

WASHING MACHINE.-Milton F. Wickersham and Elisha Roush, Springfield Ill.-This invention has for its object to furnish an improved washing machine, simple and durable in construction, which will not wear the clothes and which will be easily operated.

SCOURING AND CLEANING INSTRUMENT.—V. A. Hacker, Knoxville, Tenn This invention has for its object to furnish an improved instrument for use in cleaning and scouring floors stairs, ceilings, windows, etc., which shall be simple in construction, convenient in use, and effective in operation.

HOE.-G. H. Owens, Maysville. Ky.-This invention relates to a method of fastening a hoe to the handle, whereby it is made much more useful and dur able than hoes made in the ordinary manner, and the invention consists in securing the hoe to the handle by a tapering ferrule.

VENTILATOR FOR HATS.—George Deas, New York City.—This invention reates to a device which is applicable to all kinds of hats, and consists in attaching to the inside of the hat elastic and adjustable bands, or rings, formed of vulcanized rubber, or other suitable material.

TIGHTENING WAGON TIRES.-S. W. Corbin, Vallonia Springs, N. Y.-This invention relates to a method of setting or tightening the tires of wagon wheels, when they have become loosened by use, or from any other cause.

VENTILATOR.-W. O. Crawford, North Star, Pa.-This invention consists in confining within a case or cabinet of suitable size, one or more air bellows, which may be operated by clock work, propelled by a spring or by a weight, the said clock work or gearing being placed within the case.

SICKLÉ DRIVING APPARATUS.—George G. Lyman, Independence. Iowa.— This invention relates to an improved mechanism for driving the sickles of reaping and mowing machines, and indian corn harvesters.

FASTENING FOR FURNACE DOORS.—P. E. Shear, Saugerties, N. \checkmark .—This invention relates to a fastening for furnace doors, whereby doors for this pur pose may be tightly secured in a closed state and very readily opened. The invention in the present instance is applied to a door fitted in a mouth-plate provided with water passages to admit of a current of water passing through to obviate the rapid burning out of the door and mouth-place; but the invention is applicable to doors fitted in the ordinary frame or mouth-p iece.

BEEHIVE.—A. F. Cobb, Chapel Hill, Mo.—This invention consists in constructing a beeive of metal, and coating the same internally with plaster of Paris and beeswax, whereby the ravages of the moth, so destructive to bees, are fully guarded against, and at the same time a very economical and durable hive obtained, and one which may be kept well ventilated at an even temperature, or warm in winter and cool in summer.

MACHINERY FOR AUGERS AND BITS.-James Swan, Seymour, Conn.-This invention relates to a machine for upsetting the lips of curved or gouge-lip augers and bits.

INDEXING BOOKS, LEDGERS, ETC.-James H. Swindell, Camden, N. J.-This inventon relates to a method of indexing books, ledgers, etc., so that with two or three turns any desired page can at once be found. The invention consists in subdividing by means of notches such pages which are found by

and all kinds of building material. The plan of construction is as follows: The ties are designed to be seven feet long, round timber; the rail 8x8 wide, sawed spruce timber, 16½ feet long, let into the ties and securely keyed: track four feet wide; car wheels 18 inches in diameter, 4 inch tread, with square flange. These rails can be turned and used eight times, or can be strapped with iron when desired by the company. Small but powerful loconotives are to furnish the motive power. The estimated cost per mile is \$1,783.

English capitalists of a speculative disposition are turning their attention to the oll resources of Northern Italy. This country has been known for ages to be rich in petroleum of peculiar qualities and of a natural transparency. In Barigazzo the oll appears on the surface of small pools of water, and throughout the whole of the hills of the northern sections there are unmistakable geological signs of the existence of petroleum deposits. There **are o**il wells at Monte Bonello which have produced eleven tuns of oil perday, and this at a depth of less than 160 teet. The Italians seem entirely apathetic about developing the oil resources, but the introduction of English capital and American machinery will make petroleum one of the most profitable of Italian industries.

The boot and shoe business of Detroit last year was very prosperous, the aggregate sales of twenty large manufacturers amounted to nearly \$6,000, 00. One of the most extensive firms sold \$2,000,000 worth of goods.

A special freight train was recently started from Concord, N. H., ior Salt Lake City, a distance of 2,600 miles. It consisted of twenty cars loaded with stages for the overland line to California.

ping sausage meat which shall be simple in construction, easily operated, and effective in operation.

HARROW.—John Rankin, Taunton, Mass.—This invention has for its object to furnish an improved harrow, simple in construction, easily operated, and effective in operation, and which will do its work better and more thoroughly than the harrows now in general use.

SPOOL STAND.-Nicholas P. Clarke, Central Falls, R. I.-This invention relates to a combination of a revolving spool stand, needle case, and thread cutter, whereby needles may be threaded directly from the spools on the stand and the thread cut of any desired length.

STEAM VALVE.—William Wilson, Galesburg, Ill.—This invention relates to a method of constructing the slide valve of steam engines, whereby double openings are given both at steam and exhaust ports.

BEEHIVE.—James Wash, Mt. Stirling, Ill.—This invention relates to improvements in beehives, the object of which is to provide a hive that shall effectually prevent millers, moth and other insects from entering the same, and at the same time provide a hive having good ventilation, and which is easy of access to remove the boxes of honey.

BUCKLE.—John A. Mashmeyer, Beardstown, Ill.—This invention relates to a buckle designed more especially for harnesses but capable of very general application. The object of the invention is to obtain a buckle which will admit of the parts it connects being readily attached together and detached and also readily taken up and let out, asd one which will not abraid or injure the parts connected by it in any way whatever.

means of the ordinary notches that indicate the capital letters, or the hundreds or thousands, as the case may be.

CORN PLANTER.—Aaron Armstrong, Gillespie, Ill.—This invention relates to a corn planter of that class which is mounted on wheels, and on which the driver rides. The invention relates to a new and improved mode of raising the furrow shares out of the ground, and in an improved mechanism for operating the seed distributing device.

STAVE JOINTEE.—Hiram S. Wiley, Madison, Ind.—This invention consists, lst, In the arrangement of a movable circular saw for jointing staves, which traverses in a downward curve, corresponding with and conforming to the curve in the stave. The guides which conduct the saw forward and backward are true arcs of circles and concentric with the driving pulley over head, so that the belt is always kept tight at any part of the travel of the saw frame along its guides. 2d, In a slight lateral curve given in the said guides, where by a light uniform curve is left in the edge of the stave, which adapts it more readily to the bilge requisite in a cask or barrel. 3d, The arrangement of the curved guides, toothed racks, and the connections for producing the forward and backward movement of the saw frame and saw.

EXHAUST FOR MILLSTONES.—David Baird, Bioody Run, Pa.—The present invention is an improvement upon the apparatus for which a patent was granted to the same inventor Dec. 2, 1867. The improvement consists in providing means for saving any dust or fine flour which may occasionally be taken up by the exhaust, and for carrying off the condensed steam and moisture. GATE.-John J. Pellett, Oconomowoc, Wis. This invention relates to the class of farm gates which are expanded and contracted longitudinally in order to close or open them, by means of the device known as "Jacob's lad. der," and consists in inclosing said ladder between the bars of a sliding trame, by which the gate is greatly strengthened and at the same time rendered more beautiful in appearance.

FEATHEE RENOVATOR.-James C. Moorehead and Wm, W. Elliott, New Madrid, Mo -In this invention two boilers are employed, one containing pure water and the otquer containing certain chemicals in solution. The steam from these boilers is carried in separate pipes to the cylinder where the jets are united and discharged among the ieathers. The latter are beaten and shaken while under the action of the steam, until thoroughly cleansed.

OYSTER WINDER.—Samuel S. Shaw, Newport N. J.—This invention relates to a device to be used on boats for winding up oyster dredges, and the object is to prevent the reversing of the crank shaft in case the dredge strikes against a rock or some other obstruction.

EGG CUP.-C. D. P. Watters, New York city.-This invention relates to a device the object of which is to facilitate the taking up of boiled eggs from the plate and to hold the same in a convenient position, to allow their being partly peeled and their subsequent removal from the shell.

RAILROAD TICKET HOLDER.—Smith M. Brown and Harvey J.Brown, Holly, Mich.—This invention relates to a device for holding railroad tickets, and consists chiefly of a sheet metal plate, having turned inside and bottom edges, whereby flanges are formed between which and the body of the plate a ticket can conveniently be held.

SAW SET.—Jacob Noepel, Newark, N.J.—This invention consists in the use of a rotary punch, whereby the device can be applied to different sized and shaped saw teeth, and in the construction and arrangement of the jaws and handles, whereby the saw blade is caused to remain stationary on the lower jaw.

BRICK MACHINE.—John H. Smith and Charles H. Florence, Richview, Ill-This invention has for its object to furnish an improved machine for moldin brick, which shall be simple in construction, easily operated, and conver iently moved from one part of the yard to another.

EGG BEATER.-Wm. N. Angus, Morristown, N. J.-This invention relater to an improvement in machines for beating up eggs for various culinary pur poses, which machines or beaters are operated by hand.

LAMP BURNER.—John R. Ackerman, Edward B. Campbell, and Niram O. Golden, Dobbs Ferry, N. Y.—This invention consists in the application and arrangement of a double cone or cone and cylinder, which surround the wick tube of the lamp, whereby the flame is supplied with atmospheric air or oxygen in sufficient quantity to produce perfect combustion and prevent smoking, without the use of a chimney.

METALLIG HEATING BASE AND MOLDING.—Chas. E. Finkle, New York city. —This invention relates to the construction and improvement of dwelling houses and public buildings, and to the facilities for heating or warming the same.

WASHING MACHINE.—George Hood and John D. Kelly, Providence, R. I.— This invention relates to a washing machine of that class in which the articles to be washed are manipulated between corrugated rollers, and the invention consists; in the general arrangement of the machine, in which below a revolving corrugated drum, a frame carrying a series of horizontal corrugated rollers is arranged, the frame being held up against the drum by means of springs.

BOTTLE STOPPER.-S. and S. Cary, New York city.-This invention relates to a new mode of strengthening and protecting cork bottle stoppers, and consists in the use of a cap made of metal foll fitted around and over the upper part of the cork. The cork is thereby not only made air tight, so as to form an air-tight stopper for the bottle, but **j**it is also made stronger and not so liable to crumble. The metal foll increases the diameter of the stopper so little that it will fit easily into the mouth of the bottle, if it did fit without the cap.

STRIKING ATTACHMENT TO CLOCKS.—N. É. Mulford, Madison, N. Y.—This invention relates to a new arrangement for operating the striking part of a clock, and consists chiefly in the arrangement of a heart shaped cam mounted on the spindle of the hour wheel, and in the arrangement of seven pins on face of the hammer wheel, said pins being arranged in a spiral line around the center of the hammer wheel.

PURIFYING AND DECOMPOSING OILS, FATS, ETC.-Richard C. Barton, Brooklyn, N. Y.-This invention relates to a new process for purifying oils and fats and for separating gelatine matter from fish and other oils, and consists more particularly in the use of ferment or protein, which, when added in the necessary proportions to an oll or fat, and when raised in the same to a certain required temyerature, will extract from it all impurities.

Answers to Correspondents.

- CORRESPONDENTS who expect to receive answers to their letters must, in all cases, sign their names. We have a right to know those who seek in formation from us; besides, as sometimes happens, we may prefer to ad dress the correspondent by mail.
- SPECIAL NOTE.—This column is designed for the general interest and in struction of our readers, not for gratuitous replies to questions of a purel business of personal nature. We will publish such inquiries, however when paid for as advertisemets at \$100 a line, under the head of "Business ness and Personal."

IF All reference to back numbers should be by volume and page.

Mt. Sterling, Ill.—A letter dated August 23d, containing \$5 came from the above place. No name to the letter. Who sent it, and what for?

W. E. S., of Pa., has a boiler, the shell of which is 40 inches dameter and 16 feet long. He proposes to put in 35 three-inch tubes, and a steam dome on the top to make its capacity 34 H. P. He asks if the boiler, with proper grate surface, will yield that amount. In reply we will state that with 16 square feet of grate surface and the 35 tubes the boiler should give 34 H. P. We think, however, that a better draft and more perfect combustion will be obtained by reducing the length of the boiler to 12 feet.

N. C., of Tenn., E. F. O., of R. I., and W. E. C., of Conn.— The nominal horse-power of the steam engine is worthless to represent its actual power. It is a conventional term having very little significance. The indicator is the only test of engine power.

A. P., of Ky.—Tripoli is a valuable polishing powder, b

A. P. V., of N. Y.—Lead pencils are made of graphite, the purer kinds containing from 90 to 96 per cent of carbon and from 4 to 6 per cent of iron. It is found in Sturbridge, Mass., and many other places. The material is ground fine, exhausted of air, and subjected to great pressure in the form of cakes. Sometimes pure clay is mixed with the plumbago.

E. M., of R. I.—"Do meats or vegetables cook any faster when boiled in a pot if the water boils hard than when it boils gently?" No. You cannot heat water above its boiling point. 212 degrees is all the heat you can obtain at the sea level. When the heat rises above that the water turns into steam.

F. C. C., of Pa.—" Can you inform me why brass or copper thrown into a blacksmith's forge prevents the welding of iron?" Yes. Copperand its alloys contain sulphur which is a disintegrater and destroyer of iron.

er of fron. M. D. C., of Pa., says that a cement for fastening iron to stone which becomes nearly as hard as the stone itself, consists of 6 parts Portland cement; 1 part powdered lime, not slaked; 2 parts sand, and 1 part slaked lime; mixed with water to the proper consistency, the stone and iron both being previously dampened. In 48 hours it will have set firmly.

H. H. R., of N. Y.—If you wish to learn the art of locomotive engineering go into a locomotive building shop and from thence on the road as fireman. H. C. Baird, 406 Walnut street, Philadelphia, will send you a good Mechanic's Manual.

Business and Lersonal.

The charge for insertion under this head is one dollar a line.

\$500 will be paid for a method of casting large chill rolls, which, upon trial, will be found to overcome the danger of breakage in casting. Address Lock Box 304, Pittsburgh, Pa.

Wanted—1 cotton cord machine for laying cotton or hemp twine, either 3 or 4-fold. Address, stating price, etc., Jabez Hodson & 50n, Manayunk, Philadelphia, Pa.

Patent self-closing faucets—a very superior article for water closets, wash basins, sinks, and urinals. J. Zane & Co., plumbers, 31 Sudbury st., Boston, Mass.

Important!-How to exterminate midgets, or gray hen lice, in heneries-send 25 cents for recipe to G. F. Wright, Box 8, Clinton, Mass.

Wanted-terms for air pumps of various sizes for hand and machine power. Address "Air Pumps," P. O. Box 778, New York.

Henry Carey Baird, Industrial Publisher, 406 Walnut street, Philadelphia, has just published :--"A Hand Book of Practical Gaging." To which is added a Chapter on Distillation, describing the process in operation at the Custom House for ascertaining the strength of Wines. By J. B. Keene. Price \$1 25 by mail, free of postage.

The Franklin Institute system of bolts and nuts, drawn full size, and sent to any address, postpaid, on receipt of two dollars, by Edward Lyman, engineer and draftsman, New Haven, Ct. Circular sent free.

A responsible man desires the agency of some staple article for the West; or would attend to any business that may be intrusted to him. Address, at once, box 776, West Meriden, Conn.

Manufacturers of combs please send address to Theodore Schreiber, box No. 522, Wheeling, W. Va

Wanted—A circular sawyer. One who thoroughly understands his business will have regular employment. He must produce testimonials from late employer as to competency. Address G. A. M., box 428, New York.

To Proprietors of boiler works.—A young man of several years' theoretical and practical experience, and still employed as a superintendent of extensive boiler works, desires a similar situation. Address A. W. R., Philadelphia Democrat office, No. 465 North 3d st., Phila., Pa.

Wanted to purchase—the necessary machinery for manufacturing parlor matches. Address Zeitung, Charleston, S. C.

Models and light machinery in brass or iron. Clauson & Tucker, No. 3 Alling st., Newark, N. J.

For improved double and single-roll carding machines, seven roll rubbers, twisters, card grinders, etc., address Union Iron Works, Rhinebeck, N. Y.

Spring-bed bottom--cheapest and best in use. Responsible Agents wanted in each State. Address S. C. Jennings, Wautoma, Wis.

One half of patent right of Wyatt's mode of reefing top gallant sails given for obtaining patent in England. Geo. Hart, New Bedford, Mass. Mill-stone dressing diamond machine, simple, effective, and

durable. Also, Glaziers' diamonds, and for all mechanical purposes. Send stamp for circular. John Dickinson, 64 Nassau st., New York.

The surest detective of low and high water, and high steam in boilers yet invented. Springer, Hess & Co., Philadelphia, Pa.

Paper Makers, Tanners, etc., wanting the Best and Cheapest Pump in use will send for Circular to Heald, Sisco & Co., at Baldwinsville N.Y. Agents wanted.

Tube Well—Best in Use.—Patented in 1865. State, County, and Town Rights for sale. Send for circular and prices. Address Dutton & Maguire, Port Jervis, N. Y.

Foreman or master mechanic, machine shop or rolling mill. Reliable. Address M. M., Syracuse, N. Y.

Merriman's patent bolt cutters—best in use. Address, for circulars, etc., H. B. Brown & Co., New Haven, Conn.

Bartlett's machine and needle depot, 569 Broadway, New York. Needles for all machines. Hackle, Gill Pins, etc.

granted to the said James A. Cutting the 11th day of July, 1854, for an improvement in composition for making photographic pictures, for seven years from the expiration of said patent, which takes place on the 11th day of July, 1868, it is ordered that the said petition be heard at the Patent Office on Monday the 29th cay of June next.

Albert H. Tingley, of Providence, R. I., having petitioned for the extension of a patent granted to him and his co-assignee, Edmund W. Tingley, the 18th day of July, 1854, for an improvementin machines for sawing stone and marble, tor seven years from the expiration of said patent, which takes place on the 18th day of July, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 29th day of June next.

R. H. Garrigues, administrator of the estate of L. A. Dole, deceased, of Sa lem, Ohio, having petitioned for the extension of a patent granted to the said L. A. Dole the 254h day of July, 1854, for an improvement in arrangement for lathe chucks, for seven years from the expiration of said patent, which takes place on the 25th day of July, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 6th day of July next.

Wm. S. Chapman, of Wilmington, Del., having petitioned for the extension of a'patent granted to him the 8th day of August, 1854, for an improvement in preventing rattling in carrlages, for seven years from the expiration of said patent, which takes place8th day of August, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 20th day of July next.

Norman Millington, of Shaftsbury, Vt., having petitioned for the extension of a patent granted to him the 8th day of August, 1854, for an improvement in machine for graduating carpenters' squares, for seven years from the expiraton of said patent, which takes place on the 8th day of August, 1868, it is ordered that the said petition be heard at the Patent Office on_Monday, the 20th day of July next.

Elliot Savage, of Meriden, Conn., having petitioned for the extension of a patent granted to him the list day of November, 1854, and reissued in two divisions the 27th day of September, 1859, and numbered respectively 826 and 827 for an improvement in machines for threading screw blanks, for seven years from the expiration of said patent, which takes; place on the 21st day of November, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 24th day of August next.

NEW PUBLICATIONS.

ENGINEERING FACTS AND FIGURES FOR 1867. Illustrated. John Penington & Son, 127 South Seventh street, Philadelphia.

A handy volume of about 400 pages, illustrated with plates and engravings of mechanical subjects, intended to show the advancement made in the arts and sciences during the past year, especially noting the exhibition of improvements made in the great exposition at Paris. Much of the work is made up from articles which appeared in the SOIENTIFIC AMERICAN and kindred periodicals (to which due credit has been given), and they are presented in a very convenient and concise form.

ANNUAL OF SCIENTIFIC DISCOVERY; a year-book of Science and Art for 1868. Gould & Lincoln, 59 Washington street, Boston.

This is a volume, as its title denotes, containing some account of all the im portant discoveries and improvements in mechanics and the useful arts, natural philosophy, chemistry, astronomy, geology, etc., beside notices of the lives of eminent scientific men deceased within the year, a fine engraving of Prof. Wm. B. Rogers, LL.D., President of the Massachusetts Institute of Technology, and other interesting matter. It is a valuable annual to the scientific or mechanical student for reference. This and the previous volumes from its commencement should be in every library. For a number of years this work was ably edited by Hon. D. A. Wells, now holding the office of Commissioner of Revenues.

EXPLORATION OF THE NILE TRIBUTARIES OF ABYSSINIA. By Sir S. W. Baker, M. A., F. R. G. S. Hartford: O. D. Case & Co. 1868. 608 pages; price \$3.50.

The thick cloud of mystery which has so long hung over the Nile is being gradually and completely dispelled by the explorations of the scientific traveler. We are now no longer left in uncertainty as to what supplies its main stream, or the cause of its periodical overflow and fertilizing influence. To such men as Speke, Grant, and Baker we are indebted for the solution of questions which have for centuries puzzled the world. In "The Albert N'yanza Great Basin of the Nile," published by Sir Samuel in 1866, we have an account of the grand reservoirs-the equatorial lake system-from which the Nile issues. In the present volume he describes twelve months of his journey during which he explored the Abyssinian tributaries, the sudden rush of muddy waters which, in July, August, and September, causes the inundation which irrigates and fertilizes Egypt. We may mention, as an element of interest in Baker's African explorations, that he was accompanied during the whole journey by his wife. The narrative is often exciting, always instructive, and never dry. A certain wild, open-air sort of freedom pervading the style might naturally be expected in the writings of one who has spent the greater part of his life in travel and adventure. The engrav-ings and maps serve not only as embellishments but as valuable illustrations of the text. The book is elegantly printed and will be found a pleasing addition to the family library.

THE PUBLIC LEDGER BUILDING.

To Geo. W. Childs, Esq., proprietor of the Ledger Newspaper Establishment, Philadelphia, we are indebted for a handsome volume of nearly 200 pages, giving an account of the proceedings at the banquet given at the opening of the elegant new iron *Ledger* building on Chestnut street last June The energetic, systematic, and business qualities, are seldom found in such complete harmony as they are exhibited in Mr. Childs. In every morning's issue of the *Ledger* is evinced the industry of its proprietor, and the fine intrinsic taste of the author is forcibly shown in the volume before us. A truthful steel plate vignette of Mr. Childs, delineating to a wonderful degree the benevolence and good nature which characterize him among his acquaintances, graces as it should the first page of the volume, and then follows interspersed through its pages a large number of wood engravings of the press vaults, compositor's rooms, editorial rooms, and other apartments pertaining to a first-class daily paper.

THE ECLECTIC MAGAZINE. W. H. Bidwell & Co., No. 5 Beekman street, New York.

For twenty-five years the "Eclectic" has been published, and is the oldest magazine, we believe, in this country. It makes no claim to originality, but

 A. P., of Ky.—ITIPOII is a valuable poinsing powder, but seems to be of little commercial consequence, and has no established price. It is found in large quantities and of excellent quality in values parts of the country. The sample sent appears to be good. S. H. P., of Mass.—We believe that boiled linseed oil is clarified and bleached by simmering and skimming and afterward boiling with 	Engineering facts and figures for 1867, mailed on receipt of \$3. John Penington & Son, 127 S. 7th st., Philadelphia, Pa. Entire, State, or shop rights for three new first-class toys for sale. Send 50c. for samples to J. Pusey, 700 Spring-Garden st., Philadelphia	is made up mostly from selections from foreign reviews. Every number con- tains a fine steel-plate portrait of some distinguished person. The May num- ber has a portrait of Earl Albemarle, with a sketch of his life by the editor. \$5 per annum; 45 cents, single numbers. THE BROADWAY. May. Routledge & Sons, 416 Broome
calcined magnesia and letting it stand until the impurities subside with the magnesia. Another method is to use sulphuric acid. J. G. P., of Pa.—The lime from tan vats may be removed by	EXTÉNSION NOTICES.	street, New York. This is the only illustrated magazine that comes to our sanctum. It is published monthly, and may be had at the news stands for 25 cents a copy.
 washing the surface with a dilute solution of muriatic acid. H. W. D., of Ind.—Caustic soda and sal. soda are used to soften bard water; but hard water is one of the necessary evils of a new cement cistern. F. A. J., of Ohio.—If you will read back numbers of the SOIENTIFIC AMERICAN you will find all our ideas in regard to rotary es reciprocating engines. Once for all, we wait as anxiously as anybody for the advent of an economical rotary steam engine. We have yet to see it. H. S., of Pa.—Aluminum bronze is not a bronze powder, as you imagine. It is a composition of metals used as brass or any other composition. Read our columns and you will see your mistake. H. W. B., of Pa., asks if the steam in a locomotive cylinder will exert its force to as great advantage in startung a train when the crank is on the lower center as when on the upper. This question has already been extensively discussed in these columns. See back youmes. 	Lavinia L. Bartlett, administratrix of the estate of Russell D. Bartlett, deceased, ot Bangor, Me., having petitioned for the extension of a patent granted to the said Russell D. Bartlett the 11th day of July, 1854, for an im- provement in machine for making the heads of shovel handles, for seven years from the expiration of said patent, which takes place on the 11th day of July, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 22d day of June next. Rebecca R. Gillett, administratrix of the estate of Thomas W. Gillett, deceased, of Chicago, 11L, having petitioned for the extension of a patent granted ito John Matthews as assignee of the said Thomas W. Gillett the 11th day of July, 1854, for an improvement in apparatus for corking bottles, for seven years from the expiration of said patent, which takes place on the 11th day of July, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 22d day of June next. Asa Oliver Butman, administrator of the estate of James A. Cutting, de- ceased, of Boston, Mass., having petitioned for the extension of a patent	 PUBLIC SPIRIT. Le Grand Benedict, 37 Park Row, New York. This monthly improves with each issue. The May number, just out, is well worth its price-#5 cents. THE NEW ECLECTIC. Turnbull & Murdoch, 49 Lexington street, Baltimore, Md. Price \$4 per annum. Monthly. The May number of this new magazine of select literature is just out. ATLANTIC MONTHLY. Ticknor & Fields, Boston. Four dollars per annum; 36e. single copies. May number out. ALLEN'S CATALOGUE. R. H. Allen & Co., 189 Water street, New York, have just issued an illustrated catalogue of agricultural implements, machinery, and hardware, adapted to the farm and plantation. The book contains 270 pages and 550 engravings, handsomely printed on cream colored paper. Price

Improved Device for Drying and Cooling Flour. The invention represented in the engraving is a new and useful arrangement of a device for conducting fresh air be- revolving with the shaft, and, by means of a gear meshing tween a pair of mill stones and expelling it from the curb, for | into the worm, showing on the lower dial, F, the register of the purpose of cooling the stones and carrying away the vapor arising from friction in grinding grain; thereby, it is ber of teeth, and as it is plain it can move but one tooth to claimed, increasing the capacity of the stones from fifteen to a revolution of the shaft it becomes a perpetual record of the twenty-five per cent, saving a proportionate amount of fuel amount of power used in a given time, while the upper dial, in steam mills and power in water mills. It is intended also E, shows momentary variation in the power absorbed. to prevent the stones from injuring the color of the flour by | By this machine it is easy to know at any time the amount | tion by microscope showed that the first figure 1 of the date becoming overheated, and to leave it in a

dry state so as to diminish the danger of spoiling.

Expelling the air from the curbs, that portion of the meal that by the usual process is lost in being allowed to lie and rot in the curb, is saved; no inconsiderable item to proprietors of mills.

In the engraving, A is the curb of a run of mill stones, B the bed stone, and C the runner. In the eye of the runner are two metal flanges, D being one, between which is held a washer of leather or some other elastic material that envelopes the feed tube, E, preventing any access of air at this point. Tubes, shown in the engraving at F, are let into the back of the runner, leading to the eye, the opposite ends communicating with the hoods, G, at the skirt of the runner, so that they shall catch the air as the upper stone or runner revolves, and force it in through the pipes, F, to the eye of the stone, and thence, with the grain, down between the runner and bedstone, the flanges and leather disk around the feed pipe preventing escape in this direction. Around the inside of the curb a circle of leather or some other pliable substance bears against the runner to prevent the escape of the heated air in this direction; it is forced through two or more vent holes, H, which may have pipes connected to lead the vapor and hot air away from the curb.

The currents of air, thus carry off the heat generated by friction; and also the vapor arising from the grain, delivering the product in good order.

Patented through the Scientific American

Patent Agency, January 28, 1868. All orders should be ad- of power being used by any line of shafting to which it is in the following manner: dressed to Campbell and Brown, Box 2,894 St. Louis, Mo. The attached. One of them may be seen in operation at E. P. device is highly recommended by practical millers who are using it.

Improvement in Power Measurers.

In No. 16, present volume, we inserted an article on the "Absorption and Transmission of Power," with a closing Microscopical Examination of Damaged paragraph expressing the desire that some reliable power measurer, giving the actual amount transmitted by belts,

witnessed its operation. It appears to answer the demand, as it really weighs the power exerted on a main or counter shaft and records it on a dial, the face of which is in plain sight. In fact it is an adaptation of the spring balance, differently applied of course, but operating on the same principle.

The dynamometer usually known as Neer's is, in construction and operation, quite different from the one herewith illustrated. That had rather a limited range and was liable to get out of order unless nicely adjusted and carefully attended to. This, however, is a new machine patented only a year ago-January 15, 1867-and is attached directly to the shaft without the intervention of belts, and the whole power is transmitted directly through the machine.

Part A in the engraving is a disk, halved across its diameter for convenience of placing it on the shaft without removing couplings. It is attached by steel set screws to the hub of the driving or driven pulley, or of a coupling, the set screws or key of the pulley being removed to allow it to turn easily on the shaft, so that the dynamome ter, itself, becomes the medium through which the power is transmitted. B is a similar disk, also halved, carrying on its periphery two, three, or more rollers, turning on studs seated | remarks being occasioned by an investigation the Doctor had | narily practiced, much of the aroma is dissipated, and the in the rim of B, and having triple linked machine chains of made in two very interesting cases of forgery to which he hardened steel passing over them, the other ends of which had been called as an expert :are attached to the arms, C, the hub of which is halved similar to A and B. These-B and C-act together, revolving with the shaft, while the disk, A, revolves with the pulley to which it is secured. Tempered steel spring surround bolts between B and C, which springs are expanded or contracted through the medium of the chains and the rollers, D. As the resistance to the power increases, the shaft, and with it the disk, B, slackens in speed and the springs are allowed to act on the arms, C, against which they bear, actuating a pointer on the dial, E, by means of a cord passing over a whirr to the shaft of which the pointer is secured, fastened at the other end to a forked clutch fitting the hub of C. A gland with a worm turning with the shaft carries a strap possible to tell which was put on last, till a place was found batches of coffee. Patented ky Benj. T. Babbitt, New York city

similar to an eccentric strap, which, with the clutch, remains in one position as the shaft revolves, the gland and worm the power used. This worm gear may be made of any num-



CAMPBELL'S AUTOMATIC COOLER FOR MILL STONES.

Gleason's, 135 Mercer street, this city, and all orders for machines or for measuring power should be addressed to Geo. C. Roundey, No. 254 Broadway, New York city, where the dynamometer may be examined as a whole or in its parts.

and Valuable Papers

The Buffalo Medical and Surgical Journal reports the folshould be invented. Since then we have seen the apparatus lowing extract from a lecture delivered by Dr. E. H. Parker illustrated in the engraving accompanying this article and of Poughkeepsie, before the New York Medical Society, the ing the hair, and particularly the eyebrows-for rastik means



where the bottom of a letter y and tip of a letter h came together over a dot, and showed the blue ink on top.

The same paper read, "one day after my death I promise to pay," etc. It showed clearly under the microscope that it had been written "one year," an erasure having been made, and day written in.

The other paper was an alleged receipt for \$2,000, paid on May 11th. That amount had been paid May 1st, and this alleged payment was denied to have been made. Examina-

> was in brown -black ink, while the second and the rest of the paper were in blue-black ink. Transfer had been made of the brown-black ink to the other end of the paper by folding, showing that it was put on last. The two shades of black show only under the micros cope; to the naked eye they are alike.

> Dr. Squibb, in this connection, referred to the following case: A number of U.S. bonds were stolen some time since from a party, and their payment stopped. For a long period nothing could be discovered in relation to them. Finally, however, two bonds with the same numbers were found in Wall street, and it occurred to the parties concerned that one of these must be of the lot that had been stolen. The difficulty was to decide which was the genuine, and it was cleared up by a microscopical examination of the ruled lines upon which the figures were written in red ink. The magnifying glass showed the tracings of the old figures underneath the new, the red ink of the former having been pre viously removed by a chemical process.

Turkish Hair Dye.

In answer to a number of correspondents inquiring for information as to the best preparation for coloring the hair, we give the following from the pen of Septimus Piesse, a practical chemist and perfumer in London :

In Constantinople there are some persons, particularly Armenians, who devote themselves to the preparation of cosmetics, and obtain large sums of money from those desirous of learning this art. Amongst these cosmetics is a black dye for the hair, which, according to M. Landerer of Athens, is prepared

Finely pulverized galls are kneaded with a little oil to a paste, which is roasted in an iron pan until the oil vapors cease to evolve, upon which the residue is triturated with water into a paste, and heated again to dryness. At the same time a metallic mixture, which is brought from Egypt to the commercial marts of the East, and which is termed in Turkish Rastikopetra, or Rastik-Yuzi, is employed for this purpose. This metal, which looks like dross, is by some Armenians intentionally fused, and consists of iron and copper. It obtains its name from its use in dyeing or stain-

eyebrows, and yuzi stone. The fine powder of this metal is as intimately mixed as possible with the moistened gall mass into a paste, which is preserved in a damp place, by which it acquires the blackening property In some cases this mass is mixed with the powder of odorous substances which are used in the seraglio as perfumes, and called karsi-that is, pleasant odor; and of these the principal ingredient is ambergris. To blacken the hair, a little of this dye is triturated in the hand or between the fingers, with which the hair or beard is well rubbed. After a few days the hair becomes very beautifully black, and it is a real pleasure to see such fine black beards as are met with in the East among the turks who use this black dye. Another and important advantage in the use of this dye consists herein, that the hair remains soft, pliant, and for a long time black, when it has once been dyed with this substance. That the coloring properties of this dye are to be chiefly ascribed to the pyrogallic acid, which can be formed by treating the mass with water, may be with certainty

NEER'S PATENT DYNAMOMETER.

The first was one in which it was an alleged promissory note, signed by a blind man who had deceased. The gentleman in question had become blind by cataract, but was nevertheless in the habit of signing all important papers. The body of this note was written by a different hand, in blue ink, and the name in black ink. The question came up as to whether the body of the said note was written before that of the signature or not.

The paper folded end to end across the middle. Prints of black ink were transferred from the black signature, and were found on the opposite side. In several places the blue and black ink of the dots were in conjunction. It was imassumed.

Process of Preparing Coffee.

In the process of roasting coffee, as ordi-

quality of the coffee is impaired. This invention is to obviate these objections. In a suitable vessel place a quantity of olive or other oil, butter, or animal fat, and raise the same to a tem perature of, preferably, 400° Fah., whereupon the green coffee is placed therein, and subjected to the cooking or boiling action of the heated oil or material for about five minutes. The coffee is then removed and placed upon a suitable strainer to drain and cool. The coffee being surrounded by unctuous matter during its preparation, the escape of the aroma is prevented; and inasmuch as the oil may be readily. kept at the desired temperature during the whole operation, any injury

to the quality of the coffee by excessive heating is also prevented. The oil, butter, or other like material, after being once heated, may be used repeatedly for different quantities or



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Messrs. Trubner & Co., 60 Paternoster Row London, are also Agents or the SCIENTIFIC AMERICAN.

Messrs, Sampson Low, Son & Co., Booksellers, 47 Ludgate Hill, London, England, are the Agents to receive European subscriptions or advertisements for the SCIENTIFIC AMERICAN. Orders sent to them will be promptly attend-ed to.

VOL. XVIII., No. 19.... [NEW SERIES.]. . Twenty-third Year.

NEW YORK, SATURDAY, MAY 9, 1868.

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CONSTRUCTIVE MECHANICS AND EDUCATIONAL MEANS.

Said a skillful and successful inventor to us lately, when we were congratulating him upon his having accomplished a difficult feat of hydraulic engineering, the reward of many years of study and costly experiment: "If I never should regain a dollar I have expended upon this problem, I have received a certain amount of education at a cheaper rate than I paid in my youth at the schools for rudimentary instruction," and, he added, "I should have had this return if I had been unsuccessful in my special attempt."

We understood his meaning to be that the knowledge, acquired skill, and the mental development obtained by his researches, and his efforts to bring about a definite mechanical result were, aside from the pecuniary benefits that might rearonably be expected to attend its successful accomplishment, a sufficient remuneration for the time, labor, and money expended.

The remark led us to consider the adaptability of invention to educational purposes, and the practicability of its introduction for that purpose into schools of mining and engineering. The result of our reflections, has been to assure us of the entire practicability of its adoption for that purpose, of the possibility of a good text book upon the subject, and its great educational value.

A discovery is not, properly speaking, an invention. although the meanings of the terms are frequently confounded. The former may happen, the latter is never directly the result of a coincidence. The first may result from observation alone, the second is a conclusion reached by a train of reasoning as severe and logical as a geometrical demonstration. Chemistry is at present the principal domain of physical discovery, and constructive mechanics, is the chief field of invention. "Constructive Mechanics" would not be an inappropriate title for the proposed text book. Mechanics, as now taught in the schools, treat of the natural laws which underlie and constitute the philosophy of the elements of machinery. Constructive mechanics should go further than this. It should not only treat of motors, motion, and the conversion of motion, but should teach the different devices for changing the direction of motion and its communication from one body to another, and the philosophy of these devices. It should give rules for the criticism of mechanical structures, and supply specifications to be reduced to drawings for the application of these rules. It should classify materials according to their mechanical properties, and give the chemical and physical characteristics of each as minutely and concisely as possible, with a brief reference to such im- carelessness of consumers has become a desideratum. perfectly known substances as may probably be determined by future investigation to be valuable for constructive purposes. Finally, it should give problems of construction, combining the general conditions of the precise work to be accomplished and the peculiar limiting circumstances under which it is to be performed, to be solved, and the answer given in drawings and specifications of the device which it is claimed will perform the service or labor required. To enable the student to grapple easily with such problems, it should teach him how to analyze the main problem into its subordinate problems, and to generalize them so that the solution of these minor elements shall apply not only to the machine adapted to accomplish the specified purpose, but to any other machine in which the minor device is, or may become an element. We are confident that such discipline would develop the mental powers more than any other method and might be admitted with great propriety and benefit into the latter part of the course of instruction, in schools of mining and

of this subject we have failed to discover them, and should be happy to have them suggested, should any be found by others who may peruse this article.

FORGING BY DROPS AND BY HAMMERING.

Of late years the drop has become an almost indispensable tool for the manufacture of small articles of iron and steel as the parts of machinery, firearms, etc. Its operation in connection with properly made matrices and dies, is so perfect, reproducing almost infinitely the form in its exactness and leaving the material in excellent shape for after working, that it would hardly seem it could ever be greatly improved much less be superseded. Yet we have lately heard practical and observing mechanics express doubts of the perfection of the drop, and suggest that hammering in connection with dies would be preferable. The idea, it seems to us is worthy of consideration and examination. While it may not be that a sudden, single, heavy blow, violently disturbing and re-ar ranging the particles of iron or steel will materially injure the metal-deteriorate its quality-yet it is well known that iron and steel are improved by judicious hammering.

In some cases the drop is used several times on the same piece of metal; one die giving it the first crude, undeveloped form, another heating and the next die bringing it to an advanced stage, a proceeding repeated perhaps once, twice, or thrice more. This repetition may serve a similar purpose to tilting or hammering, toughening and refining the metal. But this repetition, being at the most but four or five very heavy blows, can have no such effect on the metal as rapid, light blows repeated indefinitely. The drop may condense the metal, but it can hardly refine or toughen it. If the interior of the bar from which the article is formed contains impurities they cannot be driven out by the action of the drop, nor can a semi-crystalline structure be made fibrous; the only safety for the good quality of the product is an assurance of the original excellence of the iron or steel. The advantages of the drop, however, in rapidity of work and perfection of form of the product, justify its very extended use, and tempt to its employment where, perhaps, a somewhat slower process will produce more perfect results.

In regard to the best material for drop dies there is some difference of opinion. Usually they are made of steel-refined cast steel-but these break so frequently that their renewal is a large item of expense. If the article to be dropped is of a wedge like form, however slight, the edge bevel and the outward pressure in the combination with the shock of the blow, tend to split the die, so that if the metal fills the matrix or tends to spread, the dies will be very short lived. We have heard practical operators assert that it is better the metal should more than fill, than that it should exactly fill or fall a little short, alleging as a reason that the sprew which spreads on each side forms a cushion of soft metal for the reception of the drop, preserving both it and the die. There is, at least, a show of reason in this, as the steel or iron is worked red hot-in which state the finished article often leaves the drop-and is consequently soft. But lately we have been informed that strapping the dies with tough wrought iron adds immensely to their endurance, the hoops being shrunk on after the dies are otherwise finished. This appears to be a very sensible recomendation. Further we are told that Swedish, Lowmoor, or other tough iron is superior to the best steel for endurance, while it can be worked by the die sinker as readily. This may be correct, as the iron or steel worked under the drop is always worked at a red heat or higher. One use of the drop, not perhaps generally known, is in finishing surfaces while cold. The article is placed in a die and the polished steel face of the drop hammer allowed to come in violent contact with it. The effect is to condense the particles of the surface, leaving it in excellent condition for polishing.

It may be that notwithstanding the apparent advantages of the drop, many articles now formed-we can hardly say forged—by it might be improved in quality by the substitution of one of the rapidly acting power-hammers now so justly in favor with mechanics. This consideration, we think, is well worthy the attention of our mechanics.

WATER METERS.

As the population of our larger cities increases, and the use of water increases in consequence, a constant and sufficient supply is a subject of great moment, and of growing anxiety to Boards of Commissioners and corporations. A method of equitable assessments, and a mode of preventing the enormous waste consequent upon the general and often wanton A careful consideration of the subject, together with an examination of the reports of superintendents of different works, and the opinions of those who have given it great attention is sufficient to convince us that 'meters are the only means of accomplishing these objects. The demand for water meters has existed for a considerale period in this country, and for a still longer period abroad, and a large number of inventions have been made to meet it. Occasionally some of these devices have been adopted by cor porations, only to prove themselves unequal to the requirements of the case, and to be eventually thrown aside as worthless. In a few instances meters have been adopted because they would answer some good purpose, but nothing has vet been devised, and adopted that has proved itself to be what is wanted for general introduction and use. The advantages that would accrue to all parties by the invention and adoption of such an instrument would render it one of the most valuable improvements of the age : but the difficulties of constructing a good water meter are so great engineering. If there exist any valid objections to our views land the conditions to be observed so numerous, that they are ing he spoke, and read extracts from his book (in the course

exceeded by very few mechanical problems. For the benefit of our readers whose minds may be directed to this subject, we here state what we understand to be the principal requisites of a water meter adapted to general use. It should be cheap. Its cost should not greatly exceed the cost of a gas meter, of a size suited to the dwelling or other building in which it is to be placed. It should be sufficiently accurate; that is, it should indicate with little variation the actual amount which passes through the service to which it is attached. It should be beyond all question durable, that is, it should be able to withstand the wear and tear of at least ten or twelve years' service.

The above-named, are the primary requisites, but to secure them, a host of obstacles must be surmounted, and if a meter is to be constructed that will answer for the measurement o oils and liquors, as well as for water, the difficulties are greatly increased. These difficulties consist in the selection of proper materials, so that neither the quality of the fluid to be measured, nor the instrument itself, shall be injured by mechanical action arising from grit or other foreign matters, or by the corrosive action of substances held in solution; the compensation for variations in pressure and temperature; the balancing of valves; the stopping of leaks through stuffing boxes; the protection from injury by frost; the making of an instrument in a sufficiently compact form to withstand the pressure of the great head to which meters are often subjected; avoiding the use of much head to work them; the noninterruption of the stream, so that the stream shall flow equally and not in spirts; capability of being placed back of all faucets in any building, block, or blocks of buildings, and registering equally well for one, or more, or all of them, together, etc.

The attempts which have been made to overcome these may be classed into four groups. Rotary meters, diaphragm meters, plunger meters, oscillating meters. Each of these groups comprise numerous devices which have been made the subjects of many letters patent, and a glance at the records for the past year will show that the number is still increasing. It is safe to say, however, that the device which will fully meet with the requirements of the case is not yet introduced, and that the field is an open one for the man who is successful in inventing it. Cheapness, simplicity of con struction, and correctness in registering, are the grand requisites of a good meter.

THE WHEEL QUESTION.

Our readers are aware that we have set apart a special publication, entitled "THE WHEEL," for the purpose of presenting in handsome style, the views of the many writers whose letters we are unable, for want of space, to print in any other manner. Part first of "THE WHEEL" is to be issued May 15th, and it promises to be entertaining.

We have already received a variety of contributions, most of which are to be illustrated with diagrams, so that the views of the writers will be presented in a very intelligible and attractive manner.

The pages of "THE WHEEL" are open to all who choose to take part in the Wheel discussion, or who wish to present ideas, in their own way, upon any other scientific question. The only requirement is that each writer shall pay the cost of his type setting and diagrams. The expense for type is at the rate of \$2 50 per printed page, 56 lines, 12 words to a line. Correspondents may thus easily reckon the amount and will please remit the same with their communications,

TO INQUIRING CORRESPONDENTS.

We are constantly receiving letters asking such questions as these: Who is the manufacturer of the best and cheapest stocking loom? Which is the best'sewing machine? Who makes drain tiles and water pipes of the finest quality? Whose brick machine can you confidently recommend? A moment's consideration will convince our correspondents that a compliance with thousands of such requests would subject us to a respon sibility which we do not feel called upon to assume. We are quite aware that information of this nature may be of the utmost importance to individuals, and, with a view of giving a legitimate and effective means of obtaining it, we have devot ed a portion of our space to a certain class of advertisements, under the title "Business and Personal," to which we direct the attention of correspondents. A few lines under this head ing will put the advertisers in communication with inventors and manufacturers, throughout the world, and bring out satisfactory replies not obtainable in any other way. ----

CHNIC CLUB OF THE

For some time past we have omitted notice of the meetings of the above organization, except when the discussions were worth reporting. Last year we had occasion to allude to the irreligious tendencies of some persons who were allowed to speak, and protested against the atheistic theories sometimes propounded, which protest had at least the good result of calling forth a declaration of disapproval of such doctrines by the prominent men of that organization. Then came several ong-winded lectures of a certain individual on ocean curents, upheaving of continents, etc., which, singularly enough, we find fully reported in the published transactions of the American Institute, and are now a standing memento, not only of the deficient scientific training of its author, but also of those who allowed the publication.

The Institute is again going astray. The attention of the Club has lately been given up to a long discourse of a spiritualistic-minded individual, about a new science discovered by him, and a new language invented by him. Notwithstandof publication), for about two hours, the audience left in utter ignorance of what the science consisted in, and after reading the whole book one may not know any thing more, as probably the extracts read are fair specimens of the rest; notwithstanding the speaker was urgently pressed by some members present to give at least some idea of the principles of the new science, all they could find out was, that its name will be Universalogy; that it will be above all other sciences, generalize them, supercede them all, and make even the study of them unnecessary, as it will teach them all by one single principle.

The speaker reminded us very much of the ancient alche mists, seeking for the elixir of life, which would make all other medicines superfluous, would give perfect health, etc. They were sure that such a medicine must exist, and can be found; some supposed they had got it. Just so the speaker mentioned is confident that such a science exists, that it can be found; in fact, that he has got it; that it will give perfect wisdom, make other learning superfluous, etc.

Thus far sciences have been generated and slowly developed after a laborious process by many minds, during several generations. The knowledge existed among the investigating class of men before the sum total of cognate truths had obtained a name, and then the new science appeared as a bashful maiden among her sister sciences, never boasting of what it would do; in fact, being utterly unconscious of its power, it never stated what it might do. Here, to the contrary, we have a single individual, who blows the trumpet about a new science discovered and developed by him alone, and, after all, he divulges nothing about it but the name and what it will do; we are utterly astonished at such vanity and conceit, and still more surprised that the Institute mana gers will permit such folly under their auspices.

The last quality becomes still more apparent by learning that the same individual has also invented a new language. to be studied and adopted by all mankind; it is destined to be universal, and to supercede the now existing and very inconvenient variety of languages over all the world. It is based on a simplification of the words which are now unneces sarily long, and too arbitrary. We can do with less letters if they are only combined systematically; for instance, in place of the arbitrary words and sounds, one, two, three, four, five, etc., we may say, ba, be, bi, bo, bu, da, de, di, do, du, fa, fe, fi, fo, fu, etc. Those are not the correct names, but it is about the manner in which the new language is compounded, avoiding the use of long words, as the twenty-five letters may be combined two and two in six hundred ways, and three and three in fifteen thousand ways, etc.

Perhaps we are too severe ; perhaps the man only deserves our pity. The reader will probably have already come to the conclusion what is the matter with him.

On Thursday, April 10th, a gentleman read a long paper on terrestrial magnetism, and announced with a flourish almost equal to that of the preceding person, that he also had made an important discovery, namely ; that the magnetic pole turned slowly around the geographic pole; a fact known a century ago, and stated in most books on natural philosophy. To the utter amazement of the learned individual, a member present stated this at the end of the reading of his long-winded paper, in which a new theory was expounded to explain the facts mixing up magnetism, electricity, and gravitation, in the most absurd manner. It was asserted in this paper that all rota tion was necessarily spiral, that the electricity passes instantaneously through the Atlantic Cable, and that the time of 0.6 seconds, reported to be found by experiment, was only the time it took the experimenters to record their observations he made several other statements, partially absurd, and partially proving his lack of information about matters pertain ing to the natural sciences, and finally mentioned that he in tended to publish his paper to the scientific world, on which point we give the same short answer that the London Punch lately gave to a correspondent who asked his advice about getting married, namely : "Don't."

In order that the Polytechnic Club should be what the name suggests, the presiding officer should, in case persons apply with whose status in scientific matters he is not ac quainted, take a look at the papers to be presented, in order not to cause the disappointment of a large number of persons, who come there to obtain useful information and to prevent the propagation of errors, and of crude or obsolete notions.

It may be answered that such may be, and usually are corrected at the same or on succeeding nights; but then we say that it is, if not a direct loss of time, at least, that the time could be better employed, than to listen for one hour to erroneous views, and then to spend another hour to hear them

|MAY 9, 1868

Engelhardt (assignor to E. E. Hendrick and Peter Dolan), Carbondale, I claim the ingredients in combination, substantially as described for the

76,898.—FIRE-PROOF SAFE.—John Farrel, New York city. I claim constructing the front casing and the door of fire-proof safes each of two or more plates of iron, with a non-conducting substance interposed between the several parts, substantially as described and for the purpose set forth.

forth. 76,899.—MACHINE FOR FORMING FIFTH WHEEL.—George Feightner, Wooster, Obio. I claim, 1st, The removable rings, D D, in combination with the platform, A, and adjustable can lever, E, substantially as and for the purpose set forth. 2d, In combination with the above, the slotted brace, F, and screws, G G, when used as set forth, for the purpose of retaining the fifth wheel in place when used more than the shore of the slotted brace, F and screws, G G. When used uses to forth, for the purpose of retaining the fifth wheel in place when used use the state of the slotted brace. I have the slotted brace of the slotted brace o

76,900.-WRENCH FOR CARRIAGE WHEEL.-Levi B. Fisk,

10,300. — WRENCH FOR CARRIAGE WHEEL. — LEVI D. FISK, Lockport, N. Y. I claim a hand wrench combining the forks, C C, and socket, B, in a single device, when employed in connection with the hub holes, F F, the whole arranged and operating in the manner and for the purpose here in described, 76,901. — DEVICE FOR MULTIPLYING REVOLUTIONS AROUND

AN AXIS.—Lemuel S. Fithian, East New York, N. X. I claim, 1st, The combination of the reversing wheel, R. partitioned, re-volving cylinder, C. with one or more sets of multiplying and interme diate wheels, D and P, with straps, g g, when combined substantially as herein set ioth

volving cylinder, C, with one or more sets of multiplying and interme diate wheels, D and P, with straps, g g, when combined substantially as herein set forth. 21, The straps, g g and g, and their equivalents, when employed to sustain and strengthen the ends of the axes on which the intermediate wheels, P P' and P', revolve. 3d. The reversible hollow cylinder, C, by means of one or more wheels, P and b, one having an axis coincident with the axis of the shaft, and the other or others parallel therewith. 76,902.—DEVICE FOR MULTIPLYING MOTION ON A SINGLE SHAFT-LEmuel S, Fithlan, East New York, N, Y, assignor to himself, James M. Hopkins and Jefferson W. Southmayd, New York city. I claim. 1st, The stationary lever, B, having slot and communicating wheel, b, the wheel or disk, A, and lever or wheel, A', carrying slotted ings, and the communicating wheels or disks, D E F, etc., carry ing slotted layd, The combination of the wheel or disk, A, and the shaft. "d, The stationary lever or slot, B, and communicating-brizontal wheel, b. 3d, The erevoir or olisk, D, and communicating wheel, b, "with communicating wheels or disks, J, and the slotted lever, A', with the revolving wheels or disk, C, geared differently. 5th, The revolving wheels of disk, C, B, and the slotted lever, A', wheels, d, arranged horizontal to the shaft. 76,903.—BROADCAST SEED SOWER.—F. G. Floyd and E. A.

76,903.—F. G. Floyd and E. A. Floyd, Macomb, Ill. We claim, 1st, The disk, A, with flanges, a, which flanges do not radiate in a direct line from the center, but whose inner ends are inclined forward

in a direct line from the center, but whose inner ends are inclined forward in the direction of the revolution, as and for the purpose described. 2d, The shaft. B, with shoulder, b, thread, bl, and nut, b2, in combination with disk, A, as and for the purpose described. 3d, The pointed arm, C', in combination with shaft, B, as and for the pur-pose described. 4th, The feeding holes, D D', when arranged in relation to each other and to the disk, A, substantially as described. 5th, The bushings, d, in combination with holes, D D', as and for the pur-pose described.

out, Incompany, a, in combination with noies, D D', as and for the purpose described. 6th, The bas, F, with open ring, f, in combination with hopper, F', and catches, 6 G'.

catches, G.C. "Junce of the set o

76,905. -DINNER PAIL.-James H. Foote, Pittsfield, Mass.

1 Claim, 1st, One or more trays, b b. in combination with the drawer, d, and pail, e, as and for the purpose specified. 2d, One or more drink cans. c c', in combination with the drawer, d, and pail, e, as and for the purpose specified. 3d, The drawer, d, in combination with one or more trays, b b', one or more cans, c, c, and the pail, e, as and for the purpose specified. 76,906.—CONVERTIBLE CARRIAGE POLE.—Francis Fowler, West Haven Conp.

76,906.—UONVERTIBLE UARRIAGE 101... West Haven. Conn. I claim the attachment of removable poles by means of the shifting rods D D, which slide either way along the metallic cross bar. A A. 76,907.—HAND TRUCK.—Joshua Garsed, Frankford, Pa. I claim the within-described hand truck, constructed and operating sub-stantially as specified. 76,908.—DRY GAS METER.—William Wallace Goodwin, Cam-don N.J. Antedated November 5, 1867.

70,905.—DRY GAS METER.— WITHAII WAIRAC GOUGWIN, Cam-den, N. J. Antedated November 5, 1867. I claim the application, to a dry gas meter, of a device or combination of devices whereby the orifice in the plate through which the current of gas passes to or from the valves, will be either entirely closed or fully opened thereby, in accordance with the relative positons of the meter between the supply and discharge pipes, as described, the said device or combination of devices being constructed and operated in the manner herein described, or in any other manner that will produce the same effect. 76,909.—COMBINED CORNSTALK CUTTER, CULTIVATOR, ETC. —Metthew Gordon Washington, lowa.

Matthew Gordon, Washington, lowa. I claim the cylinders, o p. q. with cutters and teeth or hoes arranged upon he shaft, and opersted substantially as and for the purposes herein recited. 76,910.—BOILER.—Chauncey O. Green and Robert Ham, 76.910.-

76,910.—BortLER.—Chauncey O. Green and Robert Ham, Trov, N. Y. We claim, 1st, In combination with a cooking stove or range, a water reservoir or boiler, B. when binged or pivoted to or upon said stove or range. to, in mannersuch that the said water reservoir or boiler may be turned, revol-ved, or shifted thereon about its pivot center, and thereby be made to rest upon or over the differently heated parts of said stove or range top, to there by increase or decrease, or regulate the temperature of water within said reservoir or boiler, substantially in manner as hereinbefore described and shown for the aforesaid purpose. 2d, In combination with a cooking stove or range, the arrangement of the extirpassage of flue thereof, for the gases of combustion, and the said pivoted turning, or shifting water reservoir, both at one and the same end of said stove or range, in manner substantially as described, so that the escaping gases of combustion thereous shall impart heat to said water reservoir, in any one of its shifted positions on and over the stove or range top, as set forth.

any one of its sinited positions on and other activity of the forth. Soft, 3d, A cooking stove or range, having a top plate provided with pot holes, E, and a water reservoir, B, so mounted and pivoted thereon that it can be turned or shifted horizontally about its pivot center, as described, and plac-ed over, or partly over, the said pot holes, so as to receive the greatest heut from the stove or range, and also be turned off horizontally, to leave the said pot holes exposed or open and free, to place culinary vessels therein, as set forth

pot noise exposed of optimized and the form. 4th, in combination with a stove or range top, pot holes, E, and a water res-er vor, turning or shifting about its pivot center there on as described a loose and removable cover plate or hood, I, substantially as and for the purpose

and removable cover plate or hood, I, substantially as and for the purpose set forth. 5th, The manner of securing said pivoted and shifting reservoir to the stove or range top by means of the collar, h, with lug, a, and fange ring, e, with noten, b, or any equivalent device therefor, which shall hold the said reser-voir upon the stove or range top so that it may turn about its pivot center, as described, and keep it securely thereon, in any one of its shifted positions on and about its pivot center, as set forth. 6th, in combination with a stove or range, and a water reservoir, moving or shifting about its pivot center therefor, as described, a friction flange or flanges, g, or any equivalent devices therefor, formed on or attached to the reservoir bottom, or to the stove or range top, as and for the purpose set forth.

76,911.—FIRE DETECTOR.—Wm. C. Grimes, Philadelphia,Pa. Antedated April 18,1868. I claim a series of tubes converging from several apartments of a house to one apartment, and adapted for the transmission of aeriform fluids to this 2enter, substantially as shown and described, and for the purposes set forth.

76,912 - Root CUTTER. - J. Heberling and Wm. L. Heberling,

Mount Pleasant, Ohio. We claim, 1st, The knives, H, or their equivalent, substantially as described

We claim, lst, The knives, H, or their equivalent, substantiation, and the the purpose settorth. 2d, The oblique curved slots, ethaving an offset directly beneath the for-ward part of the knives, F, to prevent dlogging, the concave and convex sides of which curves bend or turn toward the stationary cutting knives used in connection therewith, as seen at, e', fig. 1, all strips or slices that pass through.

PATENTS AND ULAINS Issued by the United States Patent Office,

OFFICIAL REPORT OF

FOR THE WEEK ENDING APRIL 21, 1868.

.\$30 \$50

Reported Officially for the Scientific American.

PATENTS ARE GRANTED FOR SEVENTEEN YEARS, the following being a schedule of fees: -

On granting the Extension. On filing a Disclamer. On filing application for Design (three and a half years)......

On filing application for Design (seven years)	\$15
On filing application for Design (fourteen years)	\$30
In addition to which there are some small revenue-stamp taxes. Re	sidents

of Canada and Nova Scotia pay \$500 on application.

🖅 Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required, and much nation useful to Inventors, may be had gratis by addressing MUNN & CO., Publishers of the Scientific American, New York.

76,875.—FAN.—Seymour Ainsworth, Saratoga Springs, N. Y. I claim, as a new article of manufacture, a fan, composed of the buckraf found ation, covered with quili feathers throughout its center, on both sides, trimmed on its edge with down, and provided with a handle, attached sub-stantially as described, the whole constructed and shaped as shown. 76,876.—WINDOW SASH HOLDER.—Edward Andrews, Potts-

76.880 -

Brett (assignor to himself and W. H. Saxton), Gen va, Ohio. I claim the adjustable standard, B, and wheel, F, as arranged in combina-tion with the juws, A, for the purpose and in the manner as described. 76,884.—CARPENTERS' GAGE.—Wessel Brodhead, Meadville,

Pa. I claim the bar, A, and the head piece, B, constructed and operated as and r the purpose set forth. for the purpose set forth. 76,885.—CASTER FOR FURNITURE.—John Brown, Utica, N. Y.

I claim forming the roller of the parts, B and C, and the plate, D, substan-tialy as described and for the uses and purposes mentioned. 76,886.—Toy BOOMERANG PISTOL.—O. B. Brown, Malden,

Mass. I claim the toy herein described, consisting of an instrument for support ne and throwing a small boomerang, constructed and operating substan as described

76,887.-ARTIFICIAL FUEL.-A. W. Buckland and A. M. Dan lels, Hartford, Conn. lels, Hartford, Conn. We claim an artificial fuel made from the materials, in the proportions and the manner substantially as above described.

We claim an artificial fuel made from the materials, in the proportions and in the manner substantialy as above described. 76 888.—BRICK MACHINE.—E. P. H. Capron, Springfield, O., assignor to himself, George H. Gerrish and D. D. Rich. I claim, ist, Securing the striker plate in position, by means of the rod, 1, and set sorew, J, arra ged to operate substantially as described. 24, The rod, h, provided with a nut, 1, and arranged to bear upon the striker plate, g, substantially as set forth. 36, Facing the iron mold wheel, E, above described, with the detachable V-shaped steel plates, e, substantially as set forth. 4th, The uncline.], made adjustable both horizontally and vertically, for varying the pressure and pressing the brick from below, substantially as

Varying the pressure and pressing the brick from below, substantially as described. 5th, Providing the follower, m, with the hinged supports, p, thereon, and the springs, q, for supporting the follower clear from the track while the e molds are passing under the hopper, substantially as described. 6th, The combination and arrangement of the hinged supports, p, nuts, s, and the shoulders, r', in the mold wheel, for adjusting the follower to vary the thickness of the brick, as desired. 7th, Providing the follower, m, with a friction roller, w, that can be ad-justed to compensate for the wear of the rollers, or the track, or both, sub-stantially as set forth. 8th, Securing the cloth to the plate by means of the grooves, t, and leather strips placed therein, and sewing through the leather, substantially as de scribed.

, The plate, a', with beveled edges, and adjusted on the follower, m, by ns of the screws, substantially as set forth.

76,889.—MANUFACTURE OF MEAT AND OTHER BISCUIT.—John

76,889.—MANUFACTURE OF MEAT AND OTHER BISCUIT.—John 'Carr, of the Crescent, Clapham, and Charles Lucop, Drummond Road, England. Patented In England January 18, 1868 We claim the manufacture of meat and other biscuits by first baking such of the largerdients of the biscuit as require to be baked, then adding extract of meat or such other of the ingredients of the biscuit as would be injured by the heat of the over, and forming the whole into biscuits by pressure or force applied to the ingredients while they are contained in molds, substan-tially as hereinhefore described.
76,890.—SHEET-METAL CAN.—Joseph Cartwright, South Reading, Mass, assignor to himself James Cartwright, Jr., and W. K. Lewis.

Reading, Mass, assignor to himself James Contention Lewis. claim a polygonal can, having but one side joint, and a groove, d (for selving a lip turned down from the bead), when said groove is made before a body is formed or bent up, substantially as described. (891.—SASH FASTENER.—O. Cate, Boston, Mass. Antedated 76.891.-

April 9, 1868. I claim a fastener for window sashes, etc., composed of an arm or arms, O, and a slide, U, when arranged and combined togther, substantially as and

70,570.— WINDOW SASA HOLDELL CARLEY (1), Pa. ville, Pa. I claim the arrangement and combination of the rack. C, box, A, latch, B, and spring, J, operating in the manner and for the purpose herein described and specified. 76,877.—SLEIGH.—Alonzo Armstrong and Alexander Weller,

Buffalo, N. Y. Buffalo, N. Y. We claim the combination of the curved reach, H, with the pendent links, hangers and elevated standards for supporting the sleigh body upon the rear bob.

76,878.—STEAM SAFETY VALVE.—E. H. Ashcroft, Lynn, Mass.

76,879.—CHURN.—David D. Baker (assignor to himself and

1977, ----UHUKN, ----DAVIG D. DAKET (assignor to minisch and Harvey Campbell). West Alexandria, Oho. claim the combination of wings, 1234, and vanes, a b c d, with the can-y, D, rod, B, and, lever, C, the parts being constructed, arranged and op-taing conjointly, in the manner and for the purpose specified. 880. -- APPARATUS FOR CARBURETING AIR.--J. F. Barker, 'springedial Masse

76,880.—APPARATUS FOR CARBURETING AIR.—J. F. Barker, Springfield, Mass.
Iclaim, Ist, The steam pipe, a, placed within the air conduit, H, of a carburetor, or within a sufficient portion of the length of such conduit, for the purposes specified substantially as set forth.
2d, The arrangement, within the air space of a carburetor, of the steam pipe, a, to the purposes of directly heating the air contained within the carburetor, whether a portion of such steam pipe is immersed in the hydrocarbon for the purposes of directly heating the air contained within the carburetor, whether a portion of such steam pipe is immersed in the hydrocarbon for heating the same, or entirely exposed to the contained air, substantially as described.
3d, In combination with a carburetor or generator, the arrangement of independent water wheel, fan blower, and air conduit, H, the whole forming an apparatus for carbureting air, substantially as described.
76,881.—HORSE AND CATTLE POKE, ETC.—George W. Bell and George W. Fulmer, Hinckley, Ohio.
we claim the adjustable side, C, in combination with the yoke, A, poke, B, and head, D, in the manner as and for the purposes above mentioned.
76,882.—TREST FOR GRINDING HARVESTER CUTTERS.—Thomas Brett (assignor to himsell and W. H. Saxton), Geu va, Ohio, and bind to provide and W. H. Saxton), Geu va, Ohio, and bind to prove the steam of the steam of

corrected.	76 802 - Tox - Dominico Checkeni New York city assignor	through.
Surely a steady atttendance of the right kind of listeners	to himself. John W. Boteler and Charles K. Sherwood, Washington, D.C.	3d, The projecting cutters, G, or their equivalent, for the purpose speci-
could be secured, were the public only sure that something	1 claim, 1st. Combining two cocks or other animals by rods, cords, wheels,	4th, The combination of the projecting cutters, G, knife, F, curved slots, e',
could be secured, were the public only sure that something	or an equivalent therefor, in such manner that by operating the said rods,	and kr.ives, H, as shown, and for the purpose specified.
useful and instructive would always be presented. As the	the motions peculiar to such animals when fighting, substantially as herein	ry of the cylinder from the edge of each knife to the one next in its rear as to
case now stands, we know of many persons, even members of	shown and described. 2d Connecting the heads or bodies of the birds or other animals together	bring the said surface within the edge of it a sufficient distance to constitute
the association, who stay away, and some even who have been	by means of a horse bair, or an equivalent therefor, running from one to the	6th, The hollow metallic cylinder, E, having rimmed ends, one of which is
frightened away, by the crude and absurd notions of some	72 000 I ow WARED INDIGATOR FOR STRANG	open, inclined periphery, oblique curved slows, e', substantially as shown and described.
neonle allowed to sneak there, or hy neddlers who wish to ad-	70,895LOW WATER INDICATOR FOR STEAM GENERATORS.	76,913.—Mode of Churning Butter.—Isaiah Herrick, Mer-
people and weat to speak there, or by peddicis who wish to ad-	I claim a low water indicator for steam boilers, constructed, connected,	rimack, N. H.
vertise their wares.	and operating substantially as herein described.	I claim the dashers, E E', constructed as described, in combination with
	76,894.—BOSOM PAD.—J. C. COOK, BUIIAIO, N. Y.	nal box, G, shaft, A, and crank, V, arranged substantially as and for the pur-
	I claim a posom pad, consisting of an innatable body or sack, provided	pose set forth.
SILVERING HOOKS AND EYES. A patent has been granted	dimensions desired, substantially as herein described.	76,914.—LEATHER POLISHING MACHINE.—J. W. Hildreth,
in Beverie for the following method of gilvering heats and	76,895.—CAM FOR CARD-STRIPPING MACHINES.—Seldon L.	I claim, in a machine such as described, the combination, with the yielding
in Davaria, for the following method of silvering hooks and	Crockett and Benjamin T. Mills (assignors to Benjamin T. Mills), Lowell,	bed upon which the leather is placed, of the vibratory lever to which the
eyes made of iron wire. The articles are suspended in dilute	We claim, 1st. The lifting an dreplacing cam, B, constructed as shown and	glassing tool hold er is attached, provided at its point of suspension with an
sulphuric acid until the iron shows a clean, bright surface.	described, viz, with the prominent portions indicated as 5 θ and 7, and the	herein shown and set forth.
After rinsing in nure water they are placed in a both of a	down the top flats, and again ϵ levate the same, substantially in the manner	76.915.—FRUIT JAR AND CLAMP.—A. J. H. Hilton, Boston,
miter mining in pure water, they are placed in a bath of a	and for the purpose set forth.	Mass. Antedated March 10, 1868.
mixed solution of sulphate of zinc, sulphate of copper and	derating in connection with the slide and its nin 1 as and for the nurmose	I claim the angular clamp, G, with its jaws, a a, in combination with the
cyanide of potassium, and here remain until they receive a	set forth.	whoul ler. B. of the jar. A. all as specified.
bright coating of brass Lastly they are transferred to a	76,896.—BALLAST KEEL EOR BOATS.—Henry A. Dirkes, New	76 916 — CROCHET NEEDLE — J M Hoadley Birmingham.
hath of nitrote of silmon analia of activity	York city. Antedated April 7, 1868-	Conn. Antedated April 8, 1868.
bath of nitrate of silver, cyanide of potassium and sulphate	C, and operating or operated substantially as described.	1 claim, 1st, The holder, B, for crochet needles, formed, with the needle,
of soda, in which they quickly receive a coating of silver.	76,897Composition for Blacking LeatherJohn N.	A, from the same piece of tempered wire, as herein shown and described. 2d, The holder, B, for crochet needles, formed of tempered wire, upon which

the needle is ar anged to slide and be held in position by the elasticity of said holder, as herein shown and described. 76.917.—FRUIT CAN.—L. E. Holden, Cleveland, Ohio. I claim the combination of the pipe, B, tube, D, and stopper, C, as and for the purpose substantially as specified. 76.918.—GATE LATCH.—G. B. Howland, Gardner, Ill.

1 Claim the combination of an end of the particle of

and gate, substantially as set forth. 76,921.—LAMP SHADE.—S. W. Huntington, Augusta, Me. I claim a lamp shade clasp of clamp, struck up from a single piece of sheet metal, in the manner herein described, so that one end of the clasp shall be provided with a spring tongue or clamp, bent in the manner specified, for holding the shade, and the opposite end with a hook and arms for maintain-ing the clasp and shade in position upon the lamp chimney or globe, substan-tially as shown and set forth.

The start and the position upon the lamp chimney or globe, substantially as shown and set forth.
 76,922.—BASE-BURNING STOVE.—F. H. Husted, Buffalo, N.Y. I claim, 1st, Forming the central combustion space, f, by means of the passage, a, and deflecting place, b, or their equivalents, substantially in the manner and for the purposes shown and desoribed.
 2d, Dividing the combustion chamber surrounding the magazine into vertheat flues, by the magazine itself, of the form described, or by the hinged plates, d. provided with operating rods, n, or equivalent, substantially in the manner and for the purpose specified.
 3d, The magazine, D, provided with deflecting plate, b, and semi-annular discharge aperture, a, of equivalent, and arranged so as to form an enlarged flue, E, in front, in combination with the oven, F, arranged and operating substantially as set forth.

76,923.

-FUMIGATOR.—Richard Kerr, Boston, Mass. Ante-

6,923.—FUMIGATOR.—Inclusion and a second sec

and so as to operate in the manner described. 76,924.—WASHING AND WRINGING MACHINE.—G. W. Kintz, West Henrietta, N. Y. I claim the combined washing and wringing machine, having the conical crimping rollers, E E', standing in opposite directions to produce a crimping of the cloth, and provided with the intermediate ribs and scoops, d f, and having the wringing rollers, G H H, so arranged as to interm atch and gradu-ate the pressure, the whole operating as described and for the purpose ground.

specified. 76,925.—BLAST GUN.—C. Kirchhof, Newark, N. J.

I claim, ist, The combination of a sheet or plate, h, made of the material as herein described, with an apparatus for compressing air or gas, when sad sheet or plate is secured hermetically to the latter, by means of an arrange ment allo wing a speedy removal and restoration of such sheets, in the man-ner and for the purpose specified.

and to the purpose specified. I, The peculiar construction and connection of the parts, b f g, of the de c, for securing the sheet, as set forth. I, The extension, p and o, made in the manner and for the purpose spec

76,926.—Screen Cylinder for Cotton Pickers.—R. Ki

son, Lowell, Mass. I claim a cylinder surfare, which is more or less raised or depressed between the perior ations, substantially as shown and described, and for the purpose or purposes specified. or purposes specified. 76,927 — LIFTING JACK.— John Kohler, New York city.

I claim the lever, A, pawls, C G, and pawl disengaging pin, H, in combination with the ratchet wheel, D, pinion, E, and rack, F, substantially as and for the purposes set forth. Also, the slot, I, and pin, I, all operating together, as shown and described to form a new and improved carriage jack.

76,928.-CHURN.-Joseph Liebhaber, Bless, Bavaria.

76,928.—UHURN.—JOSEPH LIEDHADET, BIESS, BAVATIA. I claim the combination of four or more beaters of different construction for the purpose above set forth and described. 76,929.—CONDENSER.—Wm. A. Lighthall, New York city. I claim arranging the exhaust pipe from the engine, with its series of open ings, as shown, in relation to the vacant space between the series of tubes, as and for the purpose herein set forth.

76,930.—FRAME FOR WINDOW SCREENS.—C. F. Linscott

Wohrn, Mass. I claim the clasp, B, made of sheet or cast metal, and attached to the inner orner of a frame, for the purpose o_1 securing the sides of the frame together

corner of a frame, for the purpose of securing the sides of the same substantially as set forth. 76,931.—GATE.—Frank Livingston, Marathon, N. Y. I claim the bar, F. binged and pivoted as described, in combi-the gate and sliding h, ges, D , for the uses and purposes set for ination with

I claim the bar, F, hinzed and pivoted as described, in combination with the gate and sliding hi ges, D b, for the uses and purposes set forth. 76,932.—HORSE RAKE.—S. P. Mccay, Killbourne, Ohio. I claim, 1st. The haudle, H, when pivoted to the frame, and provided with an adjustable choulder, J, and hook, I for the purpose of regulating the double rake head. D, as and for the purpose specified. 2d of the double rake head, D, provided with S-shaped slots, x x, in the cross heads thereof, and having spurs, m m, secured therein, in combination with handle, H, and frame, A, as and for the purpose specified. 76,933.—PUMP PISTON.—F. P. Michel, Rochester, N. Y. An-tedated April 14, 1868. I claim the construction of the hollow piston, A, with the rbs, f, and book, h, for the ready insertion and for the purpose specified. 76,934.—CONSTRUCTION OF ICE PITCHER.—F. J. Miller, Brook-lyn, N. Y. Antedated April 10, 1868.

¹ yn, N. Y. Antedated April 10, 1868. I claim an ice pitcher, having the walls, c a, and bottoms, d b, and lower mor base, c constructed substantially as shown and for the purpose set

76,935.—METHOD OF PREPARING LAUNDRY BLUEING.—E. L

76,933.—METHOD OF I ADD AND THAT ADDITING THE SECTION OF A STREET OF A STREET ADDITIONAL ADDITIONAL

76,936.—MACHINE FOR CUTTING BUNGS.—James H. Murrill (assignor to himself, Lewis R. Keizer, and Jacob Seeger), Baltimore, Md. I claim, 1st, The arrangement of the collar, with ith its spring feeders, G G, that lie in the slots of the cylinder, E, and are operated to carry the slick through the cylinder after being rounded by the cutters, subscantially as specified.

that lie in the slots of the cylinder, E, and are operated to carry the slick through the cylinder atter being rounded by the cutters, substantially as specified. 2d, T.i.e wheel, K, provided with the slides, a a, and placed on the end of the cylinder, E, for griping the stick while the bung is being formed, sub-stant, aly as specified. 3d, The arrangement of the sliding frame, L, with shafts, T and M, placed opposite to each other, one provided with the cutters, T and u. and the other with the saw, N, whereby the bung is formed, cut from the stick, and drop ped, in the manner substintially as specified. 4th, The arrangement of the adjustable rod, Q', supported by the bars, fl, and in combination with the inclied bar, R, on the end of frame, L, whereby the bung is held and dropped, the whole arranged to operate substantially as B_{CCLRed} .

specified. 76,937.—SPINDLE BOLSTER.—G. H. Noble (assignor to himself and B. T. Mills), Lowell, Mass.

10,901.—STINDLE DOLSTER.—G. H. Noble (assignor to himself and B. T. Mills), Lowell, Mass. I claim the divided and tapering or conical bushings or linings, combined with a spindle bolster, as described, the said bolster being provided with one or more oil-passages, c, and a dishing top, to receive and convey the lubri-cating substance to the oil space, b, and the spindle, in the manner and for the purpose specified.

76,945.—LAMP BURNER.—F. S. Robinson, Boston, Mass.
I claim, 1st, In combination with the deflector, G, the spring points, e, for the purpose of supporting the deflector by entering grooves or recesses in the chimney prepared to receive them, as described.
2d, Confining the chimney and centering it by means of centripetal holders, constructed and operating as set forth.
3d, The combination and arrangement of the slide, J, levers, K L, sliding holders, M, and springs, N, in the manner and for the purpose specified.
66,946.—BRICK KILN.—Robert Robson, Buffalo, N. Y.
Jerkin Ist The combination and arrangement of a series of klins, A B C.

66,946.—BRICK KILN.—KODETI KODSON, BUIIAIO, N. Y. I claim, ist, The combination and arrangement of a series of kilns, A B C, etc., with a central area, G, and passage way or ways, H I, for supplying and removing the bricks and tile, substantially in the manner set forth. 2d, The furnacer, n, bridge wall, p, and connecting flue, J, and chimneys.S, arranged substantially as herein described.

arrange 76,947 -GIRCULAR SAW TABLE .-- George H. Sanborn, Bos-

70,941.—CINCULAR SHIT CALL ton, Mass. I claim the spring bar, L, in combination with the grooved slats, K, arranged and operating as described. 76,948.—WATER VESSEL FOR FIRE-PROOF SAFE.—R. S. San-

76,948.— WATER VESSEL FOR FIRE-PROOF SAFE.—R. S. Saff-born, Ripon, Wis. I claim a water vessel for steam fire-proof safes, suspended to the wall of the safe, substantially in the manner and for the purpose specified. 76,949.— PEG CUTTER.—D. B. Sanderson, Lewiston, Me. I claim the arrangement of the tongue, f. plate, d. arm, h. and helix, k. in the manner herein illustrated and described, upon and in combination with the curved stock, a, as and for the purposes set forth. 76,950.—SEWING MACHINE.—A. H. Sherwood, Southport, Conn. Antedated April 16, 1869.

Conn. Antedated April 16, 1868. I claim the combination of disk, J, pin, L, with the shuttle-carrying arm, D' and rocking arm, B, provided with curved slots, N M, the whole operating ubstantially as and for the purpose set forth.

substantially as and for the purpose set forth. 76,951.- MACHINE FOR ROUNDING THE CORNERS OF SLATE FRAMES.-Edward Snyder (assignor to himself and Morgan Jones), Slat-ington, Pa. I claim the curved guides, dl d2, and pins, al a2, or their equivalent, ar-ranged and operating relatively to the cutter, C, and carrier, D, substantial-ly as and for the purposes herein set forth. 76,952.-TEETH FOR HAY SPREADERS.-George A. Squier, Syracuse, N. Y.

76,952.—TEETH FOR HAY SPREADERS.—George A. Squur, Syracuse, N. Y.
Telaim the tork head, A, made in sections, A a, for seauring the tines, and having serrated joints, f, as herein shown and for the purpose described.
76,953.—MACHINE FOR HARVESTING POTATOES.—O. S. St. John and T. C. St. John, Willoughby, Ohio.
We claim, ist, The ness of the elongated flat knife or blade, J, and straps, R &, constr acted substantially as described, located and operating in the especial manner herein set for th and for the purpose stated.
2d, The employment of the detabable drag separator herein described, having the two outer arms rigid and the intermediate ones vibratory, so as operate in the manner described, and in connection with the said knife, J, as dad, The special use and employment of the extra attachment herein described, constructed and operating substantially as discribed, and for the purpose stated.

all of a purch, r, and its operative lever, G.
Also, the combination of the gage, t, the bed, s, the dreasing punch, and the lever, G.
Also, the combination of the cammed lever, w, with the one or more puncte, a arranged to operate with a bed, s. in manner as described.
76,976. — BEEHIVE. — Edgar B. Beach, West Meriden, Conn.
Iclaim the combination of the outer case, C, with the inner case, A, when the inner case is provided with a frame case, G, subtantially as and for the purpose specified.
76,976. — SUSPENDER FOR STOVE HANDLE, ETC. — Sewell G.
76,977. — SUSPENDER FOR STOVE HANDLE, ETC. — Sewell G.
76,978. — WHIFFLETREE HOOK. — Francis W. Beckwith (assign of the bead, g, and the tongue, h, having the projection, l, plyoted between the ture, and the tongue, and the tongue, and the tongue, and the tongue, and the dagainst the end of the turing, when the disc, where the inset of the section of the section of the section.
76,978. — WHIFFLETREE HOOK. — Francis W. Beckwith (assign of to himself and Smith, Clark & Co.), Westmoreland, N. Y.
Iclaim the circular spring ban, a, heid against the end of the thimble by the bead, g, and the tongue, h, having the projection, l, plyoted between the lurg, m, all constructed, arranged and onerating as described, wherehy the spring is compressed at each outward and inward movement of the tongue, and the there or closed by the outward expansion of said spring, as herein described. — G. A. Beidler, Philadelphia, Pa.
I claim, ist, The rarefying conductor, B, made substantially as shown and described.
76,980. — HAY FORK. — Henry F. Bemendefer and Dwight H. Finch, Attica, Oho.

4th. The combination of the said drag separator and the said extra attach-ment. operaung in the manner and for the purposes set forth. 5th, The plows, K and K', in combination with the broad knife, J, operating as and for the purpose herein stated. 6th, The levers, A A', connecting rods, B B', forked rods, C C', plow stan-6th, The levers, A A', connecting rods, B B', forked rods, C C', plow stan-6th, The levers, A A', connecting rods, B B', forked with catch holes, G G', swing bar, H, and pawis, I I', in combination with the knife, J, or with other extra attachment, drag separator and plows, K K', all constructed and oper-ating substantially in the manner and for the purposes herein set forth.

ating substantially in the manner and for the purposes herein set forth. 76,954.—HAY HOISTING DRUM AND GRAIN FORK.—Henry Strickler, Borough of Carlisle, Pa. I claim the extension, f, of the lower ratchet, f', operating with the arm, h, and the pulley, w, and the rope, w', for the purpose of enabling the person working the hook or fork on the loaded wagon therefrom to unshift the drum.

drum, g, the beyeled cog wheel, m, fastened on the upper outer face of the 2d, The beyeled cog wheel, m, fastened on the spur cog wheel, p, the spur cog wheel, q, the arm, r, the arm, s, the tork, u, and the inclined plane. v, all combined and operating in the manner and for the purpose herein set

76,955.—MACHINE FOR MAKING AUGER BITS.—James Swan,

76,955.—MACHINE FOR MAKING AUGER BITS.—James Swan, Seymour, Conn.
I claim, 1st, The holding jaws, J J', attached to the sliding plate, I, in com-bination with the slides, G G' G', provided with the dies, cf h, all construct-ed and arranged to operate in the manner substantially as and for the pur-pose: set forth.
24, The combination of the holder, J J', constructed as described, in com-bination with the operating parts thereof, as herein slown and described.
76 956.—A UGER HANDLE.—James Swan, Seymour, Conn.
1 claim the cylindrical key. C, within the handle, A B, provided at its front end with the V-shaped groove, g, and upon its underslice with the longitudi-nal groove, e', fitting over the lug, f, in the socket, a, and having at its rear end the circumferential groover, d, fitting over the lugs, b, upon the part B of the handle, all constructed and operating as described, whereby as the parts A B are screwed together, the key, C, is operated longitudinally, to clamp the shank of the auger, as herein set forth and represented.
76,957.—PROCESS FOR TANNING.—Dexter Symonds, Marlow, N.H., S.

76,957.—PROCESS FOR TANNING.—Dexter Symonus, martor, N.H., I claim, 1st. The process substantially as described of producing or obtain-ing from bark or other substances hould for tanning hides and skins. 2d. The application of such liquid to bides or skins to be tanned. 3d. The liquid herein described as a new production for tanning purposes, when produced or obtained by the process described. 76,958.—DIE FOR MAKING CLOCK COLLETS.—Hiram C. Thomp-son, Bristol, Conn. I claim the combination and arrangement of the dies, E e, gage pin, F, and back gage, G, arranged and operating on the base plate, substantially as de-scribed. 76,959.—SHIFTING RAIL FOR CARRIAGE SEATS.—Samuel Toomev. Wilmot.Ohio.

2d, The combination at the arbor, c, with ring, A, substantially as nerein specified. 76,984.—THILL COUPLING.—C. S. Bonney, Penn Yann, N. Y. 1 claim, ist, The construction and arrangement of the parts, A and D, screw, E, when made and used as and for the purpose set forth. 2d, The part, B, with the channel, H, to prevent the screw E, from furning when made and applied to the part A, substantially as herein specified. 76,985.—TUBE WELL.—Adam S. Brown, Lebanon, Pa. 1 claim, ist, The outer wall or casing, C, of a tube well, constructed of twisted wite cables, g, arranged, secured and flaring enlargements upon the in-rer tube, A, substantially as described. 3d, The rings or shields, h, in combination with a tube, A, which is con-structed with annular perforated enlargements, and with an outer perforat-ed or open work casing, C, substantially as described. 76 OSK —Sewing MACHINE.—Charles E. Brown, East Ran-

70.939.— SHIFTING KAIL FOR CARRIAGE SEATS. — Sailutei Toomey, Wilmot, Ohio. I claim the projection, G, on the inner side of the bracket, a, at the inner edge of the mortise, in combination with the gib, C, and wedge, d, substan-tially as and for the purpose herein specified. Also, in combination with the gib and wedge fastening at the iront, the square hook tenons, g, and shoulder, f, bearing with a spring pressure upon the brackets, b b, substantially as and for the purpose herein set forth. 76,960.—INSULATOR FOR TELEGRAPHS.--Cromwell Flectwood Variew New York city.

Varley, New York city. I claim, 1st, The use of petroleum or parafilne oil, coal tar naphtha, or parafilne was, for renoyating the insulating power of surfaces rendered defec-tive by age, exposure or other cause, as set forth. 2d, The use of the above named materials for increasing the insulating power of porous or otherwise imperfect insulators, as set forth. 76,961.— FEED WATER HEATERS FOR BOILERS.— Charles Worker New Hourn Yt.

70,901.— FEED WATER THEATER FOR LOCAL 2012. Webster, New Haven, Vt. I claim an apparatus for heating the feed water of a steam generator, com-bining the following elements, viz, a tank, B, and a system of pipes connect-ing it with a heater, G, so arranged that the latter may be adjusted in its po-sition in the fire box, substantially as set forth. 76,962.— TRAVELING BAG.—Charles A. Wellington, East Lex-

76,962.—TRAVELING BAG.—Charles A. Wellington, East Lexington, Mass. I claim in combination with the jaws, b c, the hooks, d, each hinged at one end to the jaw, b, and having at its opposite end the bend, r, and tooth, g, the tooth entering the socket or recess in the jaw, c, to confine the jaws to get the substantially as described. Also, the stationary staples or eyes, l, riveted to the metal jaw frame, substantially as described. 76,963.—GATE.—Geo. W. Winterringer, Fredericktown. O. I claim the combination and arrangement of the beveled angles, E and F, of the box. C1 and elotted shart, D, operated by the forked or straight lever, d'a in combination with the above the springs, m, or their equivalent, the fattened and oblorg head of the bolt, h, the operating lever. G' all arranged and operated substantially as and for the purposes herein described and set forth.

and operated substantially as and for the purposes herein described and set forth. Sd. In combination with the above, the weight, H, arranged and operating as described, for the purpose of closing the gate, as specified. 76,904.—CORN PLOW.—Joseph Wolf, Young America, Ill. I clsim, 1st, connecting the forward ends of the beams, C C, to the axle, A, by means of metallic loops, so that said ends can be shifted, while the rear ends can be adjusted, substantially as and for the purpose set forth. 2d, The arrangement of the axle, A, with the beams, C C, which are loose at their rear ends, and with the tongue, F, as and for the purpose set forth. 3C, The arrangement of the fart bars, H H, with the axle, A, and tongue, F, as and for the purpose set forth. 76,905.—ELECTRO-MAGNETIC VALVE GEAR.—Ed win A. Wood, Utica, N. Y.

I claim the foot lever, F, connected or applied to the draft pole, B, to oper-ate in the manner substantially us and for the purpose set forth. 76,972. — MILLSTONE]EXHAUST.—David Baird, Bloody Run, Pa. I claim, 1st, In an exhaust tor millstones, the separator, I, when construct-ed with horizontal interlocking shelves, i'i', arranged substantially as and for the purpose set forth. 2d, Collecting the condensed moisture that may be deposited in the ex-haust, or in any of the air chambers or passages, by means of a set of cups or receivers, m m, n.

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or receivers, m m, n n. 76,973.— RAILWAY SWITCH.— A. F. Bal'as, Pottstown, Pa. 76.973.— KALWAY SWITCH.— A. F. Bal:as, Pottstown, Pa. I claim, Ist, The switch tong use constructed as described, with their points lower than the tread of the rails, A B, and adapted to fit against the web and below the tread of said rails, free from contact with the tread of the car-wheel, as therein described, for the purpose specified. 2d, in combination with the above, the counter weight, constructed and arranged to operate as herein described, for the purpose specified. 3d, in combination with the tongues, C, and counter weight, F, the revolv-ing tarket, P, and gearing, O, operating substantially as described for the purpose specified. 76,974. — PURIFYING OIL AND FAT.— Richard C. Barton, Brooklyn, N, Y.

76,974. — PURIFYING OIL AND FAT. — Richard C. Barton, Brooklyn, N. Y.
Brooklyn, N. Y.
Claim, Ist, Purifying fat and oils, and decomposing them, to separate them fro.n impurities and from gelatinous matter, by means of ferment or protein, asset torth.
2d, The process herein shown and described of treating oils and fats for purification, and for separating impurities.
3d, The process herein shown and described of treating stearle acids.
4th, The apparatus herein shown and described, consisting of the tanks, A and B, and of the agitator, C, all made as set forth, for the purpose of treat-ing faisand oils in the manner specified.
76,975. — HORSENDE MACHINE. — Hazen J. Batchelder and Geo. E. Woods, Mathboro, Mass.

76,975.— HORSESHOE MACHINE.— Hazen J. Batchelder and Geo. E. Woods, Marlboro, Mass. We claim the combination and arrangement of the recess, b, with the car-riage, B, bender, A, and rollers, E E, formed and arranged substantially in the manner and so as to operate as described. Also, the combination and arrangement of the cutting shears, n, o, thestop gage, p, die bender, A, and rollers, E E, and the dischargung recess, b, the whole being to operate as st forth. Also, The combin.tion as well as the arrangement of the auxiliary nail hole punch, r, and its operative lever, v, with the bed, s, and the main nail hole punch, r, and its operative lever, C. Also, the combination of the gage, t, the bed, s, the creasing punch, and the lever, G.

Finch, Attica, Ohio. Finch, Attica, Ohio. We claim the tork, A, with the shank, B, arranged with the catch bar, D, and hundle, E, the parts being constructed and operating as and for the pur-page set forty.

76,981.—WINDOW SASH LOCK.—W. H. Betts, Brooklyn, N.Y.

I claim the divided under cut or dove tail slide, b c, in combination with testiding locking piece, h the parts being constructed and applied substan-ally as set forth, to form a sash fastener.

(assignor to himself and George A.Muson), Plymouth, Conn. I Claim in a feather dressing machine attaching a discharge tube in or near the center of the bilge or cylinder, substantially as and for the purpose described. 76.983.—Device for Turning Nuts.—Byron Boardman (assignor to himself and Frank Douglas), Norwich, Conn. I claim, 1st, The adjustable ring, A. with projections, B B B B, when used

for the purpose specified. 2d, The combination of the arbor, C, with ring, A, substantially as herein specified.

76,986.—Sewing MACHINE.—Charles E. Brown, East Ran-

76,986.—DEWING BROWING, Statute, Construction dolph, Mass. I clain the zuide bar, F, provided with a slot, g, and pin, h, in combination with the collar, K, bolt, d, and the spring, R, when constructed and used sub-stantially as and for the purpose herein set forth. 76,987.—TICKET HOLDER.—Smith M. Brown and Harvey J.

70, 991.— ICREF HODDER.—Shift M. Drown and Harvey J. Brown, Holly, Mich. I claim the ticket holder constructed as described, consisting of the plate, A, having its sides, as and lower end, b, beat in toward and parallel with the face of the plate, whereby a channel is formed between said sides and plate for the passage of the ticket, which is clamped therein by the lip c, said hold-er adapted to be secured to the ends of a hat band by means of the rings, C C, held in the plate, A, by the bent sildes, a, all arranged as herein described for the passed as the secure of t

for the purpose specified. 76,988.—POCKET BOOK AND FAN COMBINED.—Otto Bruck,

New York city. Iclaim a fan and pocket book combined, as a new article of manufacture. 76,989.-QUARTZ CRUSHER.-Andrew Buchanan, Brooklyn,

N.Y. I claim, ist, The connecting straps, F, in combination with the crushing jaws, E G, substantially as and for the purpose described 2d, The rockers, H, in combination with the jaws, E G, constructed and operating substantially as and for the purpose described. 3d, The balance springs, J, in combination with the jaws, G, constructed and operating substantially as and for the purpose set forth.

and operating substantially as and for the purpose set forth. "The set of the set of the

(0,932.—STEAM SAFETY VALVE.—AIDERT G. BUZDY, Phila-delphia, Pa. Iclaim the two valves, B and B', the former being connected to but loaded independently of the valve, B', when the said valves are contained within a casing, substantially as and for the purpose herein set forth. 76,993.—PRINTING TELEGRAPH.—Edward A. Calahan, Brook-

-FEATHER DRESSING MACHINE.-Samuel W. Bevans

or more oil-passages, c, and a dishing top, to receive and convey the lubri-	as described, for the purpose of closing the gate, as specified.	76.993PRINTING TELEGRAPHEdward A.Calahan, Brook-
cating substance to the on space, b, and the spludle, in the manner and for the	76,954.—CORN PLOW.—Joseph Wolf, Young America, III.	lyn, N. Y., assignor to the Gold and Stock Telegraph Co., New York city.
76.038 LOCOMOTIVE COW CATCHER - James Noble Pitts-	1 claim, 1st, connecting the forward ends of the beams, CC, to the axle, A,	I claim, 1st, A magnet for giving or controlling the impression, placed in a
burgh Pa	by means of metallic loops, so that said ends can be shifted, while the rear	main electrical circuit that is separated from the circuit that controls the
I claim, 1st. The construction of a locomotive cow catcher, consisting of a	and the strangement of the syle A with the beams C C, which are loose	hand antiv of any other operation. When the type wheel or denoting device
revolving cylinder or cylinders, with face or faces serrated or toothed, and	at their rear ends, and with the tongue. F, as and for the purpose set forth.	has been properly moved, substantially as set forth.
so connected with the forward locomotive truck as to receive the motions	3d. The arrangement of the draft bars, H H, with the axle, A, and tongue,	2d, Two or more type wheels, separately controlled by magnetism, and ar-
described, and operate substantially as and for the purposes hereinbefore set	F, as and for the purpose set forth.	ranged side by side, or with their axes on the same line, so as to be impressed
of the approximation of the second terms of the locomotive forward	76,935.—ELECTRO-MAGNETIC VALVE GEAR.—Edwin A. Wood,	jointly or separately, on one strip of paper, substantially as and for the pur-
over a revolving cylindrical cow catcher, g, substantially as and for the pur-	Utica, N. Y.	3d. The combination of the type wheels, k and l, magnets, f and i, with the
poses herein set forth.	I claim, 1st, The use of the electro-magnet, one or more, for connecting	magnet, c, and impression roller, u, or its equivalent, substantially as and for
76.939CASTING MOLD BOARDJames Oliver, South Bend.	with and from the nower which operates such valves or valves as described.	the purposes set forth.
Indiana.	2d. The use of the governor and electro-magnet, one or more, in combina-	4th, The reverse ratchet wheel, q, and pawl arm, r, in combination with the
L claim, 1st, A chill, provided with core seats or recesses, e e e, substantially	tion with the inlet cut-off or governor valve or valves of an engine, for the	wheel substantially as at forth
as described and for the purpose set forth.	uses and purposes mentioned.	76 994 BOTTLE STOPPEP Sheldon Cary and Spencer C
tialy as described	76.966. – LAMP BURNER. – John R. Ackerman, Edward B.	Gary New York city
76 940 SCOPING GAMES William B O Perhody Boston	Camphell and Niram O. Golden, Dobb's Ferry, N. Y.	We claim as a new article of manufacture, a bottle stopper provided with
Mass	We claim the arrangement of the perforated cylinder, D, with relation to	a cap, B, of metallic foil, and a flat plate. C, which projects over the edges of
I claim, 1st. The series of changeable, differently marked dials, in combina-	the open-bottomed cone, C, conical top. E, and wick tube, A, as herein de-	the stopper, whereby said stopper is prevented from being forced too far into
tion with the scoring and registering apparatus, as set forth.	scribed for the purpose specified.	the neck of the bottle, as described.
2d, The box, A A, formed in two equal parts, and containing the duplicate	76.967.—LIFTING JACK.—G. H. Alger, Ames. N. Y.	76,995.—Nut FASTENER.—James Christy, Philadelphia, Pa.
sets of changeable dials and indicating apparatus, as and for the purpose	I claim the arrangement of the uprights, C, rack, B, base, D, crosspieces, G	Antedated April 14, 1868.
76041 _BAC ELEMENTE _C H Descolt Estimant N V	G', lever, A, link, g e, lever catch, b, and lifting toe, E, all constructed and	I claim the wire. D, bent, secured, and applied to a nut, or to a bolt or
Jolaim the hand A compared of metallic cond in comparish the	operating together substantially as and for the purpose as shown and de-	screw head, substantially as and for the purpose described.
classes B B and fasterings C D arms E E and cars or projections F F and	SChillen Durghtown Do	76.996.—Automatic Fly Brush and Fan.—Elijah J. Clark.
G G, all arranged to operate as herein set forth.	70,998.— DED DOTTOMJOHN AHEN, Fughtown, Fa.	Kalamazoo, Mich.
76.942.—RAILBOAD RAIL—L B. Prindle, Litchfield Mass.	I claim the bed bottom constructed of inelastic bands of strips, jointed of strips, generating each other in the middle as shown have support.	I claim the arrangement of the shaft h, cam, l, and looped rod, F, in com-
I claim a continuous reversible rail, with its accompanying chair and key.	ed by rings upon the rails of the bedstead, and stretched sidewise by the	bination with the shatt, j, rods, f, and fans, H H, all constructed and oper-
constructed substantially as herein set forth and described.	bands, 12, 34, and 7, the whole constructed in the manner and for the purpose	ated as and for the purposes set forth.
76,943.—OPERATING FERRY BOAT.—E. W. Quincy and Wm.	above set forth and described.	76,997.—Spool Stand.—Nicholas P. Clarke (assignor to him
Fisher, Lacon, Ill.	76.969 MODE OF HANGING RECIPROCATING SAWS IN SAW-	self and Chas. E. Griffin), Central Falls, R. I.
We claim a ferry, or other boat, provided with flanged drums, a a' a", ar-	WILLS — Emanuel Andrews Williamsnort Pa	I claim the pool stand constructed as described, consisting of the revolving
ranged with reference to the prevention of the abrasion of the parts of the	I claim hanging reciprocating saws, so that the strain may be adjusted to	spool carrying place, C, provided with upturned radial arms, a b, having
drait rope upon each other, in the manner described.	any desired part by hooks and surrups, with circular lips, when made and ar-	spring arm. H. all arranged and operating as described and for the purpose
76,944.—LIFTING APPARATUS—Frank W. Reilly (assignor to	ranged substantially as and for the purpose set forth.	specified.
himself, George F. Root, Ebenezer T. Root, and Chauncey M. Cady), Chi-	76.970 — EGG BEATER — Wm N. Angus, Morristown, N. J.	76 008 ADDADATE TOD BELIEVING CHOKED ANIMALS
cago, ill.	I claim the screw or spiral threaded shafts. A and L. cog wheels, i and j	Goorge Clump Handen assigner to himself and Wm Engels New De
ing of two adjustable vertical rode projecting above a table on which the	and the nut, D, in combination with an egg beater, constructed, arranged	ven Conn
patient stands. connected with suitable mechanism beneath the table for Car	and operating substantially as described and for the purpose set forth.	I claim the herein described apparatus, consisting of the tube. A, provided
rying the weights used.	70,971.—CORN PLANTER.—Aaron Armstrong, Gillespie, Ill.	at one end with the mouth, B, or bulb, C, or with one at each end of the tube,

so as to operate substantially in the manner and for the purpose herein de-

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80 as to operate substantially in the manuae and the height operate substantially in the manuae and the height operation of the series of the substantial operation of the substantial operation of the substantial operation operations of the substantial operations ope

77,001.—BILLIARD AND DIMING AMERICAN Statistics and the set of the

ribed. The combination of the elevating mechanism, the outer or bed frame, bed, m, or the equivalent thereof, and the adjustable pieces, c, of the substantially as and for the purpose described. The combination of the spirit levels with the angle sight plates, sub-ially as and for the purpose described. 02.—METHOD OF TIGHTENING TIRES.—S. W. Corbin (as-tion to be present the spirit of the spirit of the spirit of the proverse to be present to the spirit of the spi

77.002

signor to himself and J. B. Sands), Vallonia Springs, N. Y. I claim. 1st, Tightening the tire, having one end secured in the fellies by means of the block, C, tormed upon the opposite end of the tire, having an inclined side J, the rebated slot, E, in the felly, the T-shaped block, F, block G, an. | place, D, all constructed, arranged, and operating as herein shown and described.

described. 2d. The slot, E, and blocks F, and G, and plate or strap, D, substantially as and for the purposes set forth. 77,003.—VENTILATOR.—W. O. Crawford, North Star, Pa.

77,005.— VENTILATOR.— W. O. Otawroth, John Starberg, C. I claim the arrangement within the portable case, A, of the bellows, C. C being opposite to each other within said case, and surrounded by the pipes, D F, said bellows geing operated from the central clock work by means of the pitmen, ff, as herein de cribed, for the purpose specified. the pitmen. f f, as herein de cribed, for the purpose specified. 77,004.—CHEESE TURNING COVER.—Q. C. Culley, Ashta-

77,004.—CHEESE TURNING COVER.—Q. C. CUIIEY, AShtabula, Ohio.
I claim the cover, A, provided with a rim or flange, P, projecting from eachside, in the manner as an 1 for the purpose specified.
77,005.—SHUTTER FASTENING.—Amos Cutter, Chelsea, Mass. I claim the arrangement upon the side of the lower bar of a blind, of arms, a a', jaws, m m., spring, d, pivot, b, staple, g, and hole, f, for a blind catch, in combination with the two horizontal spikes, c, one driven into the wall of the house and the other into the window sll, so that said catch shall operate to hold the blind, when either open or closed, by oneset of jaws, in the manner hereln set forth.
77,005.—TENDER FOR HEATING AND DELIVERING METAL BARS.—S. A. Darrach, Newburg, N. Y.

BARS.-S. A. Darach, Newburg, N. Y. BARS.-S. A. Darach, Newburg, N. Y. I claim, 1st, The arrangement of a revolving furnace, A, provided with holes, h. In its sides, and covered with a bonnet, D, in combination with the mechanism described for introducing and removing the bars, substantially as and for the purpose described. for giving to the feed box. I, containing 26, The devices herein described for giving to the feed box. I, containing the blanks, a transverse shaking motion, substantially as and for the purpose

set forth. Sd. The latches, a t, and pins, s' t', in combination with the laws, o, wedge, r', slides, p r, and revolving firepor, C, all constructed and operating in the manner and for the purpose herein shown and described. 77,007.— VENTLATOR FOR HATS.—Geo. Deas, New York city. I claim a ventilator for hats formed of the elastic adjustable bands, B E, connected together by springs, with an open space between them, being adjustable, the outer one to the size and shape of the hat, and th ner one to the size and bape of the head, substantially as herein shown dependent.

77,008.—MUCILAGE BOTTLE.—David Wm. De Forrest, Brook

1yn, N. Y. I claim the shape of the mouth and neck of the bottle, in combination with the bulge forming the shoulder, substantially in the manner and for the pur

poses as herein described. 77,009.—SEEDING MACHINE.—C. Deis, Canal Dover, Ohio. 11,009.—SEEDING MACHINE.—C. Dels, Canal Dover, Ohio. I claim, 1st. The combination and arrangement of the rollers, B, foot, A', and share, B', in the manner as and for the purpose specified.
26, The slides, H H', incombination with the box, C, when operated in the manner and for the purpose substantially asset forth.
77,010.—TOBACCO HAND TYING MACHINE.—David C. Dellinger, Russellville, Ohio.
1 claim, ist, The cylinder. A, traving the slot, s, and the expanded end, in combination with the bed, E, and the guard, T, substantially as and for the purpose specified.

combination with the bed, E, and the guard, 1, substantiant, as that the purpose specified. 2d, Thefork, B, when used in connection with a rotating cylinder, A, sub-stantially as and for the purposes set forth. 3d, The block, G, when used in combination with a revolving cylinder, and when provided with a lever and spring, or their equivalents, by which it can be raised or lowered, substantially as and for the purposes set ferth. 4th, The combination of the cylinder, A, gear wheels, a 1, cord, u, weight, 5th, The hook, Q, in combination with the cylinder, A, substantially as and for the purposes specified.

off, The hows, Q, in combination when the of minds, it, substantially, and the off of the purposes specified. 77,011.—MACHINE FOR PREPARING WOOL, COTTON, ETC.— Alex. J. Deru, Heusy, Belgium, assignor to Simon Delize, Providence, R.I. I claim, 1st, The combination of the case or hopper, A, with endless apron C, and adjustable partition, x, as an i for the purpose set forth. 24, The combination of the two cylinders, D and B, with the case and end-less apron, C, arranged substantially as herein described and for the purpose set iorth. 3d, The combination of the two brush cylinders, 1 and 2, the two reser-voirs, O and c, and plate, Q, substantially as described and for the purpose set forth.

set fori. 4th, The combination of the oiling apparatus, constructed as described, with the cylinders D and B, substantally as specified. 5th, In combination, the wool delivering or teeding mechanism, the oiling mechanism, the pressing and the bat or lap-forming mechanism, substan-tially as described and for the purpose set for th. 77,012.—MATERIAL FOR JOURNAL BOXES.—Patrick S. Dev-

77,012.—MATERIAL FOR JOURNAL BOXES.—PAIRICK S. Dev-lan, Hudson City, N.J. I claim, 1st, Forming the anti-friction material for lining journal boxes of the ingredients, in the manner, and by the means herein described, and cut-ing the same by dies or with punches into the required shape, as set forth. 2d, The lining for journal boxes composed of fibrous material impregnated with pulverzed plumbago, scapstone, or other earthy matter fixed with a strong size, and rolled and cut by dies or punching into the required shape, substantially as herein shown and described. 77,013.—Wood PLANING MACHINE.—Frank Douglas, Nor-wich Conn.

strong size, and rolled and cut by dies or punching into the required snape, substantially as herein shown and described.
77,013. — WOOD PLANING MACHINE. — Frank Douglas, Norwich, Gonn.
r claim, ist, Supporting the feed rollers, C C, upon a vibrating beam, D, it claim, ist, Supporting the feed rollers, C C, upon a vibrating beam, D, which itself is supported by a sliding standard that permits it to be adjusted higher or lower, when constructed to operate substantially as and for the purpose described.
3d, The combination with the sliding standard, E. of the screw shaft, H, aving the collar, or its equivalent, J, and operating in connection with the ring, K. lever, L, or its equivalent, J, and operating in connection with the ring, K. lever, L, or its equivalent, J, and operating in connection with the ring, K. lever, L, or its equivalent, and bevel gear, h, all constructed to operate substantially as and for the purpose described.
3d, The removable bearing, r, when used in connection with the arms, of ol, in an adjustable gear, substantially as and for the purpose described.
77,014. — MEAT CUTTER. — A. J. Eddy. New Britain, Conn.
1 claim the shape and spiral arrangement of the shear cutters, d, arranged interchangably upon the shafts, k, in combination with the feeders, n n, arranged or then uprose described, or ther guryales within a smooth inner surface case, with the gears, o'', substantially as and for the purpose described, or ther guryalest, when constructed and arranged as described, the purpose of distributing and collars, i, or their equivalents, when constructed and arranged as described, or the purpose of distributing and equalizing the strain throughout the gearing.
2d, The wheels, h h' and n i, arranged as herein described, on a shaft, H, and the di n place by a collar on the shaft, in combination with the staft or with an arranged to run loose on a shaft, H, and norse power, bus shaft, in combination with the staft or the purp Dexter, Me. I claim a blacking and polishing compound composed of the above named ingredjents, in the manner and about the proportions substantially as de-77,070.—APPARATUS FOR DISTILLING PETROLEUM.—James at control of the support or rest. H. when used as and for the purpose set forth. 26, The support or rest. H. when used as and for the purpose set forth. 77,047.—CHIMNEY COWL—David F. Jauss, Harrisburg, Pa. Miller, Alleghany City, Pa. I claim. 1st. The combination of two or more vaccum stills, one, A, for heat-ng the oil and driving off its more volatile ingredients, and the other. B, for build on a continuous distillation, by feeding therein the heated oil from ing the oil and driving off its more volatile ingredients, and the other, B, tor carrying on a continuous distillation, by feeding therein the heated oil from still, A, through a coiled or zigzag pipe, m', with apertures, n, substantially as and for the purpose hereinbefore set forth. 2d, The use m the discharging end of the condensitr pipe of oil distilling apparatus of a glass section, g g', and cock, f or t', in connection with the vacuum still, for ascertaining the rapidity of the condensation, and the qual-itylof the product, substantially as above set forth. 3d, A coiled or zigzag pipe, m', with perforations, n, arranged in a vacuum still, B, with a continuous feed, either separately or in combination with the gage cocks. n', constructed and used substantially as and for the purposes hereinhefore set forth. 4th, Utilizing the uncondensed gases and vapors which are passed over in the process of distillation, by feeding them from the receiving tanks through periorate pipes, 1', into the furnace, substantially as hereinbefore set forth. 77,071.—UAR COUPLIAG.—Simeon Mills, Madison, Wis. 1 claim the draw bar, B, secured in the draw head, A, in the manner speci-fied, and provided with the hooks, C and D, and lug, E, as and for the purposes of specified. 77 072 — LILUSION Tox — John A Minor Middletown Conn 1 claim, 1st. The combination and arrangement of the case, S, with the two inner cases herein shown, so as to effect the communication of exterior air with the products of combustion, in the manner as herein set forth. 21. The case, S and the tubes, n and R, constructed and arranged substan-tially as herein shown and described, 3d, The construction of the deflectors, B m and L, in relation to each other and the hats, H and W, as herein shown. 77,048.—LAND ROLLER.—Elijah O. Jones, Brandon, Mich. I claim, is, Constructing a sectional roller in such manner that the maint purpose of holding Lie cabs, in the manner described. 77,017.—CENTRIFUGAL MACHINE FOR DRAINING SUGAR.— Walter Elmenhorst and Franz O. Matthessen, Jersey City, N. J. We claim in a centrinuzal machine of the character described, and having no upper lixed hearing, the combination with the purging cylinder, A, and rubber or elastic bearing to the shaft, B, of a rem vable or adjustable bear-ing brace or tie to said shaft, so hung or arranged as that it may readily be thrown in or out ofsteadying support to the cylinder while the machine is in motion, essentially as and for the purpose or pu-poses herein set forth. 77,018.—DovETAIL MARKER.—John Evans (assignor to him-self and Thomas H. Smith), Philadelphia, Pa. 1 claim, 1st. The within described instrument, consisting of the frame, A, with its marking edges, x and x', and the slide, B, with its marking edges, y as and tor the purpose here in set forth. 2d, The combination of the above with the adjustable plate, d. 77,019.—EXTENSION FIXTURE FOR CHANDELLERS.—John A. Evarts (assignor to Bradley & Hubbard), West Meriden, Conn. 1 claim, 1st. The socket, B. combined with the lever, E, and shoe, C, and constructed so as to operat substantially in the manner here in set forth. 2d, In combination with the above, the adjusting box, F, to adjust the fric-tion, substantially as and for the purpose set forth. 77,020.—MILK CAN COVER.—John Fandel, Boston, Mass. 1 claim the combination with the a mixed or the rupose set field. 77,021.—OIL OR POLISH FOR LEATHER.—Samuel M. Farn-ham, Tully, N. Y. purpose of holding the cabs, in the manner described. 77,017.—CENTRIFUGAL MACHINE FOR DRAINING SUGAR.-1 claim, is , Constructing a sectional roller in such manner that the weight of the rear section or sections may be transferred, when desired, to the front and outward sections, substantially as and for the purpose described. 2d. The frame, A, rollers, B B C. frame, C', lever, D, standard, a2, and seat, E, the whole being combined and operated substantially as described. 77,049.—MODE OF ATTACHING WHIP SOCKETS.—J. W. Kel-77,049.—MODE OF ATTACHING WHIP SOCKETS.—J. W. Keller, Cleveland, Ohio.
claim the books, C, loops, D, key, D, as arranged, in combination with the socket, A, for the purpose and in the manner substantially as set forth.
77,050.—CORN PLANTER.—D. A. Kershner, Elliottstown, Ill. I claim, 1st, The combination of the bed plate, F, sliding dropping plate, H, hoppers, G, leather conducting spouts, J, projection, h', pivoted lever, I, and arms, et e2, with each other and with the sale, E, and Irame, A, substantially as herein shown and described, and for the purpose set forth.
2d, The combination of the ided plate, F, and plough beams, R, substantially as herein shown and described, and for the purpose set forth.
3d, The combination of the frame, W, concave rollers, X, scraping device, Y Z A', and lever, F, with each other and with the frame, A, substantially as herein shown and described, and for the purpose set forth.
77,051.—MUFF.—M. A. King, New York, N. Y. I claim the spring strip, a, in combination with the other parts of the pose specified. 77,072.—ILLUSION TOY.—John A. Minor, Middletown, Conn. Iclaim the toy constructed substantially as set forth, so as to produce the illusion as described. 77,073.—PREPARING JUTE YARN.—James Monach (assignor to himself, John Huchinson and Jeffrey Hart), Philadelphia, Pa. I claim as a new manufacture jute y am treated with caustic alkali of from forty to fity degrees Twadell's hydrometer, substantially as described for the purpose specified. 77,074.-METHOD OF MOVING BUILDINGS.-John H. Moore Binghamton, N. Y. I claim the frames, A A, having three trucks each, and constructed as de-scribed, with transverse pieces; G, I and J, and springs, E, all in combination with the cross piece, G, resting on springs and rollers, substantially as de-scribed and for the purpose set forth. I claim the spring strip, a, in combination with the other parts of the frame and muff, substantially as and for the purpose set forth. 77,052.-Combined Seeder, Cultivator, and Harrow.-77,075.— FEATHER RENOVATER.—James C. Morehead and Wm. W. Elliott, New Madrid, Mo. We claim, 1st, In a machine for renovating feathers, the combination of the ham, Tully, N. Y. Iclaim a composition compounded from glycerin, resinous and other sub-stances, substantially as and for the purpose set forth. Daniel Kint, Hasieton, Iowa. I claim, Ist, The agitator, E', lever, F', link, H', and friction rollers, I', con-structed and arranged to operate in the manner and for the purpose specified.

77,022.-METALLIC BASE AND MOLDING FOR HEATING PUR-

POSES-Charles E. Finkle (assignor to himself and R.O. Glover), New York city. I claim a metallic base of metallic molding for dwellings or public bulld-ings, when constructed and used substantially as herein shown and described for the purposes specified. 77,023.—UARRIAGE SEAT.—H. H. Forbes and H. C. Sears,

New Bedford, Mass. New Bedford, Mass. 's claim in combination with the seat of a carriage, the plyoted, (rossed, clamped legs, arranged to operate substantially as and for the purpose cribed.

and clamped legs, arranged to operate substantianly as and for the purpose described. 77,034.—DITCHING MACHINE.—E. L. Foreman, Rantoul, Ill. I claim the platform, C, in combination with the lever, F, and sides, A and B, when arranged and used as and for the purpose specified. 77,025.—METHOD OF FINISHING LEATHER.—Lawrence B. Fox, Williamsport, Pa. I claim, 1st, The plane stock for fluishing leather, with its two sleeks and circular knife, as described and shown. 2d, in combination with the plane stock as described, the adjustable table, constructed and operated as shown, and for the purposes set forth. 3d. The combination and arrangement of the several parts composing my finisher, when used for the purposes already stated.

-MANUFACTURE OF TABLE FORKS.-James D. Frary, 77.026.

77,026. — MANUFACTURE OF TABLE FORKS. — James D. Frary, New Britain, Conn.
I claim the fork, A, punched or cut entire from sheet steel, substantially as described, as an article of manufacture.
77,027. — HypRANT. — Benj. G. Fuller, Baltimore, Md.
I claim the combination with the air chamber and the piston cylinder of the hydrant, of the valve and herein described valve mechanism operated by but not attached to the piston head, and held within a tube or case, con-structed and connected with the said air and piston cylinders and chambers, in the manner and for the purposes shown and specified.
77,028. — WATCH KEY. — Henry Ganney, Louisville, Ky.
I claim the combination of the head piece, D, with its spring, E, spindle, A. having one or more studs, C, substantially as and for the purpose testribed.
77,029. —SHOE LACER. — D. A. Gilbert, Morrisville, Vt.
I claim the lacer, A, as an article of manufacture, when made with the end

I claim the lacer, A, as an article of manufacture, when made with the end of its hook turned under, in the form shown and described, and used as and for the purpose herein specified.

for the purpose herein specified. 77.030.—BUTTER TUB.—D. A. Gilbert, Morristown, Vt. I claim the bars, B B, constructed as described, and used in combination with the cover, C, packing, a, and ridges, e e, as and for the purpose set

with the cover, C, packing, a, and ridges, e e, as and for the purpose set forth. 77,031.—STEAM PLOW.—N. A. Gray, Cleveland, Ohio. I claim, lst, So hanging or jointing the digging apparatus to the locomo-tive that the said apparatus will have an independent adjustment, whereby it is rendered adjuitable according to the unevenness of the ground, in the manner and by the means substantially asset forth. 2d. The stay, I, rod, H, and arm, J, arranged in relation to the digging ap-paratus, as and for the purpose set forth, 3d, The arm, J, cross head, K, spades or picks, L M, and keys, R, arranged in the manner and for the purpose substantially as specified. 4th, The construction and arrangement of the spades and picks when com-bined with the compound crank, and operated in the manner and for the purpose substantially as set forth. 77(032.—CoAL STOVE.—C. B. Gregory, Beverly, N. J. I claim, 1st, The combination of the ourer casting, A, inner casting, C, drum, D, and the within described openings for admitting coid air to and dis-charging it from the space between the castings, C, and to and from the space within the drum, all as set forth. 2d, The vertical pipe, B, having a damper, g, situated between the coasting C, drum D, and the within described openings for admitting coid air to and bar charging it from the space between the castings C, and to and from the space within the drum, all as set forth. 2d, The vertical pipe, B, having a damper, g, situated between the opening, e, dora dmitting coid air to the space between the castings C and D) and the branch, f, through which the products of combustion pass to the said verti-cal pipe, as specified.

cal pipe, as specified. 77,033.—BUCKLE.—Henry C. Griggs (assignor to Holmes, Griggs, and Smith), Waterbury, Conn. I claim a buckle frame, constructed with the bar, B, when the said bar, B, is perforated, as at a a and B, so as to form hinging points, f t and d, and the connections, n n, so as to receive and support the tongue, F, and loop, I, in the manner substantially as herein set forth. 77,034.—CORD HOLDER.—John P. Gruger and Charles Mak-inson, Lancaster, Pa.

inson, Lancaster, Pa. We claim the hook, A, with its jaw, a. in combination with the lever, B, with its rounded and eared head, b, both parts, A and B, connected by a pivot joint with each other, in the manner shown and for the purpose set

77,035 — SCRUBBER. — V. A. Hacker, Knoxville, Tenn.

1. Iclaim, 1st, The combination of the brush, B, block, C, and sponge, D, with each other, and with the arms at of the handle, A, substantially as herein described, and for the purpose set forth. 2t, The periorated concive plate, E, and pivoted lever, F, in combination with the soluted handle, A, substantially as herein shown and described, and for the purpose set forth.

for the purpose set forth. 77,036.—MACHINE FOR BENDING WOOD.—Joseph Hale,

Somerville, Mass. Iclaim, 1st, In combination with the tube, d, and with the mandrel, e, when the arrangement is such that the action of the incline of said tube and the rotation of the manurel cause a relative movement between the said parts, the entering trougn, made adjustable to the diameter of the tube, and to the width of the strip being wound. 2d, The adjustable friction device, combined with the cross head carrying the inclined laced tube.

24, The adjustable include, combined with the cross head carrying the inclined faced tube.
77,037.—CLOTHES PIN.—Harvey D. Haraden, Hartford, Vt. I ciaim my improved clothes pin, consisting not only of the piece of wood, A, having the slit, A, the angular opening, c, and the hole, b, formed and arranged in said slit, the whole being substantially as described.
77,038.—GRATE BAR.—Andrew Hartupee, Pittsburg, Pa. I claim, 1st, Thenotched cross bearers, b, of a furnace, in combination with the rlb, d', of a T-shaped grate bar, of either cast or wrought iron, constructed and used substantially as and for the purpose set forth.
24, A T-shaped grate bar, having a series of circular aptrures near to each end, substantially as above described, as a new article of manufacture.
77, 039.—Rau.Book BAU.—I Henry Herryan Boston Mass.

77,063.—BOOTS AND SHOES.—HORACE B. MATSHAII, Waldoboro, Me. asseptor to himself and William W. Lummus, Lynn, Mass. I claim making or forming loops, a a, of flexible material, alternately on each side of the openings for the string or lacing. Also, in combination with the loops above claimed, a flexible string or lacing to draw the loops to be above claimed, a flexible string or lacing to a solution with the loops and lacing, one or more eyelet holes, a distribution with the loops and lacing, one or more eyelet holes, a distribution with the loops and lacing, one or more eyelet holes, a distribution of the lacin: ... Also, making or forming the loops for the string or lacing alternately on the edges of the openings of the various kinds of boots and shoes by perforating or curting out the binding or edge facing of said openings. 77,064.—BUCKLE.—John A. Ma hmeyer, Beardstown, III. Telsim a buckle. composed of the two parts. A B, fitting together or article of the string or lacing of the string or lacing. 3d, A T-fron grate par, constructed when a statistical of manufacture. it, substantially as above described, as a new article of manufacture. 77,039.—RAILROAD RAIL.—J. Henry Herman, Boston, Mass. Iclaim a railroad rail, having an inclined projection on one or both sides, provided with a groove, for the purpose of guiding the car wheel up into its proper position upon the track, substantially as set forth.

 A channe a rainoao rain, aving an inclined projection on one or both sides, provided with a groove, for the purpose of guiding the car wheel up into its proper position upon the track, substantially as set forth.
 (77,040.--GATE AND DOOR LATCH.--Charles C. Holcomb, I claim constructing the pivoted ends of each latch with a shell or cup, which, when put together, inclose acoil spring operating upon the latches all together, englage acoil spring operating upon the latches all together, englage acoil spring operating upon the latches all together, englage and and the gate or door, operating and constructed substantially as described.
 (77,041.--WASHING MACHINE.-George G. Hood, and John D. Kelley, Providence, R. I. We claim the curved frame, C, carrying the corrogated rollers, G, when provided with the guide pins, fitting into the spiral springs, D, in the four corners of the box, in combination with the tub, A, tapering block, I, plate, H, drum, E, and shat, F, as herein shown and described.
 (77,042.-METHOD OF MOLDING DESIGNS.-Leon V. Hue and Charles Roziere, Paris, France, We claim the method of forming or impressing internal ornamentations or designs in glassware or rystai, in the manner hereinshown and described.
 (77,043.-HEAD REST.-H. C. Hunt, Amboy, Ill. Antecdated April 01, 1988.
 I claim the guide and arranged in the manner shown and described.
 (77,044.-Land ROLLER.-Edwin F. Hutchinson, Auburn, Me. I claim the metallic heads, B, consisting of solid metalle plates, with exterior finanges and journals, aspecified, and used in combination with staves, C, connected by the bolts, z, in the manner as set forth.
 (77,044.-SLEIGH BRAKE.-Allen Ingalls, Hartwick Townshib. N, Y. C, connected by the bolts, z, in the manner as set forth. 77,045.—SLEIGH BRAKE.—Allen Ingalls, Hartwick Town-

77(043.—SLEIGH BRAKE.—Altern Ingans, Hartwick Town-ship, N. Y. I claim the brake irons, B, combined with levers, D and E, rods, F and G, and sleigh, A, arranged as described and set forth, for the purpose specified. 77,046.—CAR COUPLING.—Eli H. Janney, Alexandria, Va. I claim, 1st, The combination of the oscillating catch, E, mounted upon a pivot. F', in the mouth of a draw head, B, the movable bar, F, lever, I, and latch. D, when constructed and arranged substantially as and for the purpose set forth.

2d, The cultivator, D, and harrow, K, as constructed and arranged in rela-tion to each other, and operated by the wheel, C, arms, H a, and lever, J, in the manner and for the purpose substantially as set forth. 3d, The combination of the seeder, A', cultivator, D, and vibratory harrow K, when constructed and arranged to operate conjointly in the manner and to the purpose set forth. K, when co for the pur

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77,053.—MITER GAGE.—George W. La Baw and Ira W. Fleming, Jersev City, N. J., and Aaron T. Hutchinson Harlem, N. Y. We claim the arms, d. Jointed to the stock, a, and connected by the links, g. to the clamp, e, that slides upon the stock, a, in combination with the saw guides, k, at the joint, i, and the saw guide, h, on the clamp, e, substantially as and for the purposes set forth.

CENTRIFUGAL HYDRO-EJECTOR.-Hugh W. Lafferty 77.054

77,004.—CENTRIFUGAL HYDRO-EJECTOR.—FIUGH W. Dant By and Robert Laff erty, Gloucestr, N. J. We claim, 1st. The combination of oil cup, C, sleeve, SL, hollow shaft, H S, and india rubber piece, I b, with the shaft, S, of a centrifugal ejector, the whole constructed and operated in the manner and for the purpose above set forth and described. 2d, The combination of inverted conical lug with hollow cone, C' o', and nut, H N, with shaft, S in the manner and for the purpose herein set forth and described

nut, H N, with shaft, S in the manner and for the purpose hereinset forth and described. 3d, The combination of bearing boxes, B and B', and their braces, B d, rlbs, R B, and bolts, b b and b' b', with india rubber, I D, hollow shaft, H S, oil cup, C', slevre, S L, and shaft, S, the whole corstructed and operated in the manner and for the purpose above set forth and described. 4th, The combination of waste oil cup, C', with the shaft of a centrifugal ejector, in the man er and for the purpose above set forth and described. 77,055.—BOOT HEEL.—George Lane, Hamilion, Ohio. I claim the metallic plate, A, having flanges, B D, in combination with the heel, E, and the central screw for attaching said heel to the plate, as herein shown and described.

snown and described. 77,056.—COAL STOVE.—Dennis G. Littlefield, Albany, N. Y. I claim, 1st, The complete separation of the covered magazine from the pended and securely held in its proper position for use, while it may at pleas-ure be taken out of the case and again restored to its place, without injury or disturbance to the case.

. The adjustment, in the manner described, of the handle of the cover of magazine.

ure be taken out of the case and again restored to its place, without injury or disturbance to the case. 2d, The adjustment, in the manner described, of the handle of the cover of the magazine. 3d, The reciprocal adaptation of the magazine cover, the fute plate, and the hopper to each other, and of the hopper to the cover of the burner, in the manner and for the nurposes specified. 77,057.—CORN PLANTER.—H. C. Locke, Somersville, Tenn. I claim, 1st, The reversible plows C C, mounted on the standards, a, con-structed and arranged substantially as described, in combination with the drill tooth, E, and the seed hopper, F, as and for the purpose set forth. 2d, The seed hopper F, provided with the gate, b operated by the spring, c and casm, e, or the wheel, G, as and for the purpose described. 3d, The combination of the reversible plows, C C, drill tooth, E, and seed hopper, F, with its automatic discharging mechanism, and the dragging cov-erfer, H, arranged and operating as described. 4th, The standard, a, constructed with two upright bars and a horizontal connection bar at the bottom, substantially as shown and for the purpose de-scribed. 77.058.—H, purporter D, Coorere, C, Lumen, Ludanendance

77,058.-HARVESTER.-George G. Lyman, Independence,

scribed.
77,058.—HARVESTER.—George G. Lyman, Independence, Iowa, assignor to himseif and George P. Ladd, Milwaukee, Wis.
I claim, 1st, The combination of the driving wheel. A, friction rollers, a, in the rim, b, of said wheel, vibrating levers, c, sickle bar, e, and link g, as herein described for the purpose specified.
2d, The vibrating levers, c, in combination with the sickle bars, e, and the link, g, as herein described for the purpose specified.
77,059.—LAMP SHADE SUPPORTER.—James W. Lyon, Brooklyn, N. Y.
I claim, 1st, Grooving the clamping ring center of the shade-holder on the inside, correspondingly with the bead on the lower corner of the chimney galiery or a kerosene lamp burner, substantially as described, whereby the clamping ring center, whole would otherwise interfere with the screw, substantially as a secribed.
3d, Adapting the clamping ring center of the shade holder to burners which have chimney screws, by removing a portion of the metal of the clamping ring center, which would otherwise interfere with the screw, substantially as a secribed.
3d, Adapting the clamping ring center shade holders to burners which have chimney spring, so the relative arrangement of the radial arms with the clamping ring center, and a camping screw of sufficient length, so that the spring can play freely between the ears when thrown down to release the chimmer, substantially as scretched.
4th, In combination with radial supporting arms, a clamping ring center, constructed substantially as chimney through a chimney therein described, so that it may be applied either to a burner having a chimney thumb screw, or to burners having chimney springs, the leasure, and without change.
5th, In combination with a clamping ring center, extensible supporting arms, whether siding or hinged, aubstantially as a sectible.
77,060.—FRUIT CRATE.—Truman Mabbett, Sr., Vineland, N. J.
I claim, ist, A double crate, composed of the sla

17,000.—FRUIT CRATE.—Iruman Mabbett, Sr., Vineland, N. J.
I claim, 1st, A double crate, composed of the slats, a a a and b b, corner uprights, de, perforated bottom, A, all as substantially shown and described and for the purpose set forth.
2d, The spring bottom, substantially as shown and described, in combination with the double crate, all as and for the purpose set forth.
77,061.—SKATE FASTENING.—Charles B. Maedel and Jacob Wolf, Chicago, III.
We claim the bar, A, L-sbaped, provided with a loop at one end, and having a should ar at its other, when connected to the skate by the heel calk, E, and to the boot or shoe heel by the eyelet screw, B, in the manner substantially as shown and described and for the purposes set forth.
77,062.—PENCIL CASE.—William Maginn, New York, N. Y. I claim an artcle of manufacture, consisting of a pencil case, having whalebone cylinders, a, substantially as shown and described and for the purposes set forth.
77,063.—Boorts AND SHOES.—Horace B. Marshall, Waldo-

BOOTS AND SHOES.—Horace B. Marshall, Waldo-

I claim a buckle, composed of the two parts, A B, fitting together or ar-ranged substantially as shown and described, and with the pin or tongue, f, applied to the part, As set forth. 77,065.—VACUUM PAN APPARATUS.—Franz O. Matthiessen,

77,065.—VACUM PAN APPARATUS.—Franz O. Matthicssen, Jersey City, N. J.
I claim the combunation, with the vacuum pan, of an auxiliary air tight tank or vessel, provided with suita:le air and discharge cocks or valves, and having connections under the centrol of appropriate cocks or valves, with an air pump, or its equivalent, and with the vacuum pan, both above and be-low, for operation in the manner described, and whereby a boiling, or any portion of a boiling, may be run off without destroying the vacuum in the pan, and a continuous boiling therein be kentup, substantially as specified.
77,066.—FENCE POST.—P. McDuff, Atchison, Kansas. I claim the triangular fence post, constructed as described, consisting or the upright, A, having cleats, B, the inclined brace, D, short cross pizce, E, and wire, m. as shown and described, for the purpose specified.
77,067.—PLANING MACHINE.—Horace G. McDuffe, Bradford, Vt. Antedated April 16, 1868.

Vt. Antedated April 16, 1868. I claim in a planing machine, as above described, a carrier, having its upper or outer surface formed in to a series of beds or depressions, O P. R. in shape the same as the shingle or clapboard to be planed, when constructed and operating in combination with the planer, X, substantially as and for the purpose set forth. 77.068.—SAFETY ATTACHMENT FOR POCKET BOOK.—Aaron

MCNeill, Cinclinati, Ohio. I claim the flat spring catch, C, in combination with the socket, A B b, and ligament, D E, all constructed as herein represented and described, to pre-vent the abstraction of the pocket book without the knowledge of the owner, but permit him to readily detach it within the pocket when desired. (77,069,-BLACKING FOR LEATHER, ETC.-Ithamar B. Merrill, Desting Mo.

purposes s 77,063.—

water boiler, B, with the chemical boiler, D, and the pipes, G G', for the pur-pose of generating, conveying and uniting the two kinds of steam, prepara-tory to subjecting the feathers to their joint action. A The cylinder, i, when constructed of slats, i i, slightly separated, in the manner and for the parpose set forth. Sd, The combination within a revolving cylinder of the tubular shaft, J, with the pipes, K K, the latter being provided with valves, o o o, substan-tially as and for the purpose set forth. 4th, The combination of the boilers, D D, pipes, G C', cylinder, I, shaft, J, pipes, K K', valves, o o o, and stop cocks, r r, substantially as and for the pur-pose set forth. 5th, The method of purifying and renovating feathers, substantially as here-in described.

ribe in d In described. 77,076.—WRENCH.—Irå Morse, Danbury, Conn. Iclaim a wrench having the bar, A, serrated rigid jaw, B, and hinge serrat edjaw, D, artached to the sleeve, C, both jaws being divergent outward, and all constructed and arranged substantially as described. Iro Morse

-MACHINE FOR OPERATING CHURNS, ETC.-Ira Morse 77.077.-

West Franklin, Pa. I claim the within described machine for operating churns, composed of the ockers, a, cross bars, B, platform, C, frame, D and E, forked post, F, lever, A, box, H, bar, I, lever, K, and block, L, for the purpose and substantially as

5. Jos, H. Bar, I. lever, K. and block, L. for the purpose and substantially as herein described.
77,078.—WATCH.—Charles S. Moseley, Elgin, Ill. Iclaim the combination of a stud and setsorew or screws, for holding and fastening the outer end of a hair or balance spring to a watch movement, with a Dridge plate or any equivalent therefor, substantially as described.
77,079.—SA WMILL.—J. W. Moyer, Cherry Valley, N. Y. Iclaim, ist, The combination with a gig saw, S, of two springs, ss³, of equal power, the former at the upper end of the saw and acting upwards upon it, all the latter at its lower end, and acting downwards upon it, all the parts being constructed and combined and operating together substantially in the manner and for the purposes set forth.
2d, The combination of the gig saw, S, with the notched levers, C E, and equal springs, ss³, all the parts being constructed and combined substantial for the purposes specified.
77,080.—STRIKING ATTACHMENT TO CLOCKS.—N. E. Mulford, Madison, N. J.

11,080.—STRIKING ATTACHMENT TO CLOCKS.—N. E. Mulford, Madison, N. J. I claim, ist, The arrangement of the seven detent pins, u u1 u2, etc., on the face of the hammer wheel, E, the said pins being set in a spiral line, as de-scribed, and at such distances apart that the required number of pins, i 1, will be between every two adjacent pins, u, substantially as and tor the pur-pose herein shown and described. 2d, The heart shaped cam.O. when mounted on a substantial set of the set

control, and as such distances apart that the required number of pins, i, will be between every two adjacent pins, u, substantially as and for the purpose herein shown and described.
2d. The heartshaped cam, 0, when mounted or or connected by gear or otherwise with the tube. It, to which the hour hand is fastened, and when combined with a lever N, which is gradually raised or lowered by the rotation of the cam, so that its end will be brought into a different plane, substantially as and for the purpose herein shown a d described.
2d. The lever, N, when arranged substantially as herein shown and described.
2d. The lever, N, when arranged substantially as herein shown and described.
2d. The lever, N, when connected with the bar, o, and when raised and lowered by means of the cam, i, is substantially as shown and described.
4th, The lever, m, when connected with the bar, o, and when raised and lowered by means of the cam, L, in combination with the stops, p, on the fly, f, all made and operating substantially as shown and described.
5th, Connecting the detent lever, N, with the retaining lev.r, M, and with the retaining lev.r, O, substantially as shown and described.
6th, The arrangement and combination with each other of the heart shaped cam, O, lever, N, wheel, E, having the seven pins, u. 1. etc., cam, L, levers, o and M, and stops, p, on fly, F, all made and operating substantially as herein shown and described.
7th, The half-hour striking apparatus, when consisting of the hammer, P, rods, wa and v. the latter being held by means of a spring catch, z, substantially as herein shown and described.
8th, Connecting the lever, M, which the catch, z, of the half-hour striking apparatus, so as jo release the same, substantially as herein shown and described.

appratus, so as to receive the same, substantially as nerent shown and described. 9th, The arrangement herein shown and described of setting the half-hour striking appratus by means of the arm, I, of the main hammer, which the main the same, which the potential of the same setting the half-hour striking avoid the same setting the staff, G, as herein shown and de-scribed, and when provided with a recess, and with an elevation, b', oppo-site to the same, substantially as and for the purpose herein specified. 11th, Proving the arm, o, to the lever, M, and combining it with the spring, r, for the purpose of allowing the hands to be turned backward, substantially as herein shown and described. 12th, Setting the half-hour striking apparatus by means of the main strik-ing apparatus, when the same is in motion, substantially as set. forth. 77.081. — FURNACE DRAFT REGULATOR.—James F. Neall and

Ing apparatus, when the same is in motion, substantially as set forth. 77,081.—FURNACE DRAFT REGULATOR.—James F. Neall and Wm. Myers, Philadelphia, Pa. We claim the arrangement of the piston, A, cylinder, B, packing ring, C, and weighted lever, E, substantially as described. 77,082.—SAW SET.—Jacob Noepel and Bernhard Assman, Newarr N.J.

Newarg, N.J. Newarg, N.J. We claim the short lower handle, B. pivoted in the slotted long handle, A. and provided with a cam, f. which works upward through the slotted handle against the lever, C. whereby the short handle is operated by the fingers of the hand, while the long handle is held comparatively stationary, as set

forth. 77,083.—HOE.—G. H. Owens, Maysville, Ky. I claim the fer Ile, D, the shank, B, with the test, e, and the handle, C, con structed, arranged and combined substantially as and for the purposes de

77,084.—Lock-up SAFETY VALVE.—Ralph G. Packard and

Michael nastings, Brooklyn, N. Y. We claim, ist, in lock-up safety valves, forming the weights in sections, adapted to be inserted and removed through openings, a, in the exterior or lock-up casing, substantially as and for the purpose herein specified. 2d, in connection with the above, dove-tailing together the several pieces, substantially as and for the surpose herein set forth. 77,085.—FUR MUFFLER.—G. W. Parker and W. F. Parker, Kolemargo Mich

Kalamazoo, Mich. 1 claim as a new article of manufacture, the fur muffler, A, and lining, B hen the same are constructed in the form shown, and provided with head ands, D D, and the whole is so const ucced and arranged as to operate sub-amining as described for the purpose specified. 77,086.—KNIFE FOR REMOVING THE SKINS OF ANIMALS.—S

77,080.—KNIFE FOR REMOVING THE SKINS OF ANIMALS.—S. J. Patterson, Bridgeport, Conn. I claim as a new article of manufacture, a knife for removing skins from animals, constructed as described, consisting of the curved blade, A, having back of irregular form, adjustably secured between the two sides, B C, having their edges beveled at different angles and forming the outer portion of the handle, E, said plate and sides being pointed at one end, in the form of a knife, as herein shown and described. 77,087.—PORTABLE FENCE.— Lewis P. Pease, McCordsville, Ind

Ind. I claim the alternate long and short panels, so arranged that the adjustable

Trialm the alternate long and short panels, so arranged that the adjustable brace, g, will bind two long and one short panel together, in combination with the long bars, e e, as and for the purpose set forth and described. 77,088.—GATE.—John J. Pellett, Oconomowoc, Wis. I claim the combination of the pivoted bars, a a, with the enclosing frame S Y T1 T2, when operating substantially as and for the purpose set forth. 2d, The combination of the arms, H, connecting rod, h, and locking pin, k' when used in connection with a sliding gate, as above described, and will the wheel and cord for opening and shutting it, as a device for securely lock ing said gate, in the manner described. ate, in the manner described. -SKATE.-Richard Pohl (assignor to Oswald Unger)

Port Huron Mich. I claim, ist, The construction of a skate in substantially the form as de cribeu, that the spring of the skate will cause it to be firmly attached to the scri

soribe, that the spring of the skate will cause it to be firming attached to the boot of the wearer. 2d, The slides, H and M, provided with set screws, J and N, the levers, G and F, and plate, L, when arranged and operating substantially as and for the

and F, and plate, L, when arranged and operating successmanty or an end of the above named parts with the runner. A, the heel plate, C, provided with the flange, P, and points, R, and the bar, E, when constructed and onerating substantially as and for the purposes described. 77,090.—HOT WATER ELEVATOR.—Wm. E. Prall, Washing-

ton, D. C. I claim in connection with a stove or like beater, and for domestic purposes, in antomatic water elevator, constructed and operating substantially and or the purpose set forth. -HARROW.—John Rankin, Taunton, Mass. 77.091.-

I claim in a smoking pipe, composed of the stem, A, bowl, B, tube, D, and ressel, C, the minutely-foraminated screen, c, operating in connection with he tube, D, and vessel, c, substantially as and for the purpose specified. 7,097.—AMALGAMATOR.—William Robbins, Hinsdale, III., 77.097

and Edward Swasey, Bucksport, Me. We claim, ist, The agitator f, arranged to operate in concection with the tube, B, substantially is described. tube, B, substantially is described. 2d, An amalgamator, consisting of a tab for holding the mercury, and a rotating tube provided with arms for stirring and mixing the gold, or other material, with the mercury, and having its lower open end arranged to feed the material in the mercury near the bottom of the tub, with the agitator, f for preventing the tube from becoming clogged or choked, all constructe and arranged to operate substantially as shown and described.

and arranged to operate substantially as shown and described. 77,098. — REFRIGERATOR. — HEnry A. Roberts, Boston, Mass. I claim, lst, A refrigerator, constructed of metal, or other suitable mate-rial, of two or more sections, substantially as and for the purpose described. 2d. Diminshing the interior capacity of a refrigerator chamber, by divid ing, cutting off, or removing a portion thereof, for the purpose of econo-mizing in the use of the cooling agent, substantially as described. 3d, The movable and adjustable frame, d', conforming to the interior shape of the refrigerator, with the receptacles, e, so formed that they fully utilize the interior capacity thereof. substantially as and for the purpose described. 4th, An ice box, having a close bottom, perforated sides, cover with absorbing fibrous material, whereby the box is rendered alr-tight, substan-tially as described. 5th, An ice box, as above described, provided with a flue or series of flues,

tially as described, 5cn, An ice box, as above described, provided with a flue or series of flues, with or withoutradial divisions for the circulation and condensation of air, substantially as described. 6th, An ice box, as above described, provided with a flue or series of flues, with or without perforated sides or evaporating surface, substantially as de-soribed.

77,099.—Compound for Treating Hides and Skins.—L. F.

'Robertson, West Farms, N. Y. I claim a compound for treating hides and skins made of the materials

nerein specified. 77,100.—LAMP CHIMNEY.—James Robinson Frunkville, Pa., assigner to himself and William Robinson, Brooklyn, N. Y. I claim the lip, b, formed of the partially-severed material of the flange, c, in the formation of the notch or recess, a', substantially as and for the pur-poses setforth.

poses setforth. 77,101.—FENCE FOR POULTRY YARD.—Henry W. Rutt, Reedsburg, assignor to himself and Jonathan M. Rhoads, Wayne county, Ohio.

Ohio. I claim the reel, C C, composed of two semicircular disks, connected together by a narrow slat at each side, and one at the bottom, and pivoted between the vertical fence posts, B B, directly above the fence, all con-structed, arranged and operating as specified. 77,102.--MACHINE FOR CUTTING TOBACCO.-Christopher E.

77,102.--MACHINE FOR CUTTING TOBACCO.-Christopher E. Rømes, Somerville, Mass, assignor to Robinson & Hearn, New York city. I claim, ist, A tobacco-cutting machine, in which the bar of tobacco to be divided is passed between the rectilinear surfaces of two traveling and con-verging encless chains or beits, one of which serves to support the bar scribed. 2a, Attaching the knives of a tobacco-cutting machine to one of two trav-eling and converging planes, so that the plane of the knife, while passing through the tobacco, shall, in every position, be parallel to its plane in every other position while so passing, and thus a square and smooth cut be se-cured, as specified.

l, as specified, The links, 1, constructed, arranged and operating as described and cure 3d

4th, The combination of a knife with one or more of the links of an endless chain, as specifilid.

-BRIDGE.-John Sanderson, Fredericksburg, Ohio. 77,103.

I claim the bridge herein described, composed of sections, consisting of the cross des or ribs, B B, and wings, A A, provided with lugs and recesses, as described, the several sections being bolted together, as and for the purpose 77,104.—NAILING OR PEGGING MACHINE.—Joseph F. Sar-

Set Iorda. — NAILING OR PEGGING MACHINE. — Joseph F. Sargent, Boston, Mass.
Iclami, ist, Apegging or nailing machine, constructed substantially as described, so as to operate to automatically cut, at one location, short pieces from a long or wire like formation of material and to convey them, when so cut, to another location, where they receive the action of the driver.
2d, The tube, or a part thereof, through which the nails or pegs are to be forced into or roward the material to be united, made in two parts, capable of being closed and separated on a long truther parts, of which one parts, of which me driver.
3d, The tube turough which the nails or pegs are forced by the driver.
3d, The tube turough which the nails or pegs are forced by the driver, made in two or more parts, of which one drivision is made substantially as and for the purpose specified.
3d, The combination of the tube or groove, through which the wire is thrust to be subjected to the action of a cutter, with a cutter, for severing a nail or peg from the wire or wire-like material.
3th, The combination of intermittently-operating feed-rolls or wheels, for feeding material to a wire-like form, with cutters, for cutting off the material so fed, to form nails or pegs, substantially as described.
3th, The combination or intermittently-operating feed-rolls or wheels, for feeding material to a wire-like form, with cutters, for cutting off the material is off, the cutters, the ratchet-wheel and pawl, and the adjustable shell or sheld, v.

and the information with the technology for supporting togethy the fourther interpreted and pawl, and the adjustable shell or shield, v.
Th, A pegging or nalling machine, constructed substantially as described, so as to operate, in producing correct register of the awhole beneath the driver, by first transferring the contact of the sole from the nall-tube to the feed-foot, then causing the awl to enter and withdraw from the sole, then giveng the feeding movement, to bring the awl and driving holes in register, and keeping the contact of the feed-foot with the stock till the driver between the heads of the sole for the sole for the feed foot, the feed foot, the feed foot, the feed foot, the sole is transferred to the driving the driver, being made its driving sholes in register.
D. R. Satterlee, New Haven, Conn.
D. R. Satterlee, New Haven, Conn.
I claim, 1st, The combination of the two series of cutters, each series formed so that the first half forms the pencil, and while thesecond completes the pencil, and from the second to the driver best of cutters to the second to the driver best of the sole for the sole for the driver best of the sole of the driver best of the sole at the above, the feed-rolls, D and k, arranged and operating in the manner substantially as described.
3d, The arrangement of the cutters between the heads, L, so as to be set and adjusted, substantially in the manner described.
77,106.—ENAMELED WATER-COLER.—Charles C. Savery, Philadelphia, Pa.

77,106.—ENAMELED WATER-COOLER.—Charles C. Savery, Philadelphia, Pa. I claim, 1st, The mode of enameling the inside and outside of the water and ice-tank (or both, if used separately) of a water cooler and refrigerator, in the manner and rot for uprose above set forth and described. 2d, The combination of the awater cooler and refrigerator, for the purpose and in the manner above set forth and described. 3d, The combination of Vitiated set and the set of the purpose and in the manner above set forth and described. 3d, The combined on Vitiated alter and refrigerator, for the purpose and in the manner above set forth and described. 77,107.—W RENCH.—Thos. A. Scarle, Providence, R. I. I claim the silding collar, D, and spriag, S, in combination with the han-ile, H, shank, H, toothed segment, B, stationary jaw, A, slotted movable jaw, a, and puvots, al 23, all constructed, arranged, and operating as and for the purpose described. 77, 108.—BallNG-PRESS.—Geo. W. Serrin. Memphis. Tenn.

The purpose described. 77,108.—BALING-PRESS.—Geo. W. Serrin, Memphis, Tenn. I claim, 1st. The toggle-levers, when suspended upon the cords or chains, F H, forming flexible suspension points, whereby bales of unequal size are pressed with equal force by the platens, C, substantially as herein set iorth. 2d, The arrangement of the cords, F H, pulleys, c c', and windlass, G, as herein described, for the purpose specified. 77,109.—FENCE.—N. Lawrence Shaw, Wilson, N. Y. I claim the combination of the fence-panels, A A, with the wire or wires, e, applied substantially in the manner and for the purpose specified. 77,110.—OYSTER-WINDER.—Samuel S. Shaw, Newport, N. J. I claim, ist. An ovster-winding apparatus, consisting of the shaft B, slid

77,110.—OYSTER-WINDER.—Samuel S. Shaw, Newport, N. J. 1 claim, 1st, An oyster-winding apparatus, consisting of the shaft. B, slid-ing drum, C, gear-wheels, b c and d, and pivoted segment, F, all made and operating substantially as and for the purpose herein shown and described. 2d, The drum, C, when arranged so that it can turn and slide on the shaft, B, and when combined with the gears, b c, and with the lever, D, all made and operating substantially as set forth. 3d, The block, F, when pivoted to the frame, A, and when provided with the friction-roller, c, asset torth. 4th, The slotted bar, e, for elevating the block, F, in combination with the same, and with the drum, C, all made and operating as set forth. 77,111.—MODE OF SURFACING SHEET-IRON AND METAL PLATES.—Thomas Shaw, Philadelphia, Pa. 1 claim the application of carbonaceous material to the heated surfaces of iron and steel, whilst being rolled or otherwise manipulated upon, substan-

I claim the arrangement and combination of the spring, the bands, and the barrel or roller, as applied to the chair and its stand. Also, their arrangement with and application to the stand and chair, sub-stantially in manner as specified. 77,117.—TILTING CHAIR.—Calvin D. Smith, Baldwinville,

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Mass

Mass. I claim the combination as well as the arrangement of the stud, a, the stop bar. d', the two arms, b, and che spring, e, as applied to the chair and its supporting frame, D, and connected together, subtaintially as specified. Also, the arrangement of the stud, a, the stop bar, d', the two arms, b b and the spring, e, with the chair and its supporting frame, D. 77,118.—BRUK MACHINE.—John H. Smith and Charles H.

77,118.—BRI.:K MACHINE.—John H. Smith and Charles H. Florence, Richview, III, assignors to themselves, F. P. Seawell, and H. G. W. Whittenburg.
 I claim, ist, The combination of the pivoted frame, I, bearing the roller, J, mold holder, K, hopper plate, 4, inclined pawls, M, upon shaft, N, the segment, P, and straps, U, all arranged and operating as described for the purpose specified.
 24, The molč, L, the sides, 11, and ends, 12, of which are connected to the bottom, 18, and to each other by inclined prongs, T, arranged ubstantially in the mannerherein shown and described, and for the purpose set forth.
 77,119.—RAILROAD SILL AND CHAIR.—Jasper Snell, Pottsville, Pa.

ville. Pr

ville, Pa. I claim 1st, The base plate, A, walls, B, and springs, G, all substantially as and for the purpose set forth and described. 2d, The plate, C, dovetailing between the walls, B, and provided with the lurgs, c, substantially as above set forth and described. 3d, The chars, D, dovetailing between the walls, B, and provided with the jaws, d d, in manner substantially as above set forth and described. 4th, The railroad sill and chair consisting of a base plate, A, walls, B, and place, C, resting on springs, G, in combination with chairs, D, furnished with the jaws, d d, in manner and for the purposes substantially as above set forth and described.

10 urser neuronal of the source of the store of the store

set forth for the purpose specified. AND POCKET KNIFE.—O. B. Steele, 77,121.—COMBINED RULE AND POCKET KNIFE.—O. B. Steele, Franklin, Pa. I claim combining a jointed rule with the handle of a pocket knife, substan-tially as and for the purpose shown and described.

77,122.—Door Stop.—A. G. Stevens, Manchester, N. H.

17,122.—DOOR STOP.—A. G. Slevens, Manchester, N. H.
Iclaim, Ist, A door stop, constructed as described, consisting of the pivoted lever, G. formed at the lower end into a toe, F. spring, L, cushion, K, and case, E J.
24, The combination of pivoted lever, G. spring, L, and cushion, K, with the case, E J. attached to the lower part of the door, A, substantially as described.
3d, Operating the door stop by means of the trip pin, N, substantially as described and for the purpose specified.
77,123.—COMPASS.—H. Stewart (assignor to G. F. Wright and Wm, Orr, Jr., Clinton, Mass.

17,123.—COMPASS.—II. Stewart (assignor to G. F. Wright allo Wm. Orr, Jr.,) Clinton, Mass. I claim the combination, in one instrument, of dividers and inside and out-side calipers, by use of the adjustable combination points, used in the man-ner and for the purpose herein described and set forth. 77,124.—APPARATUS FOR BURNING HYDROCARBON.—F. T. Supp. Titragrillo, B. Antodated April 2, 1959.

Suhr, Hitusville, Pa. Antedated April 7,1868. I claim, 1st, The cap or cover, C, together with the inside partitions, m m, and the reducer, P, for the purpose of confining and directing the currents of air upon the flame before they can pass out of the opening at the top. 2d, The combination of the frame, dratt pan, old dish, and covers, as above described, all so placed, air tight, in the fire box or chamber, that no air can passinto the soai dire box, except such as passes through the dati pan aiore-said, for the purpose of producing heat from crude petroleum or other com-bustible fluids.

77,125.—Horse HAY FORK.—J. B. Sweetland, Pontiac, Mich. I claim, ist, The arms, A and A', constructed substantially as represented, and provided with two sets of tines, G G and H H, as and for the purpose set forth. 2d, The cross head, J, provided with two or more tines, and adjustably or rigidly connected to the arms, A A', as and for the purpose set forth. 22, The cross head, J, provided with two or more thres, and adjustatly or rigidly connected to the arms, A', as and for the purpose set forth.
77,126.—INDEXING BOOKS AND LEDGERS.—J. H. Swindell, Cauden, N. J.
I claim arranging an alphabeticall or numerical index tor books, by cutting appropriate marks to each of the notches, substantially as and for the purpose herein shown and described.
72.10

I (1,121. - 1 KUNK. - U. A. TAYIOF, Uh)Cago, III. I claim the method of securing trunks, as herein described, by means of the braces, D, and studs, I, or their equivalents, arranged to operate substan-tially as herein set forth. _-77,128. - SHINGLE MACHING. - Albert Thompson, Ridge-

77,128. — SHINGLE BIACHING. — Insert — way, Pa. way, Pa. I claim, ist, The combination of the carriages, I i I, having the barbed coupling bolt, m3, with the barbed dogs, m m, spring, m1, and cord and pulley m2, by which either of the carriages can, ind pendently of the other, be instantivatiated to or detached from the shifting beam, L, which operates them. 2d, The combination of the carm wheels, S, having the cams, ss s, formed and operating in the manner described, with the shaft. N, having the spur wheels, m'r, the spurs of which are at different distance s apart, the whole coveraing together in the manner and for the purposes set forth.

operating together in the manner and for the purposes set forth. 77,129,—SAW MILL.—C. R. Tompkins and John Wright,

77,129.—SAW MILL.—C. R. Tompkins and John Wright, Rochester, N. Y. We claim the movable saddle, d, turning on the hub, l, and adjusted by the setscrews, H H, and the slots, J J, with their confining screws, all adjusted to operate substantially as described. 77,130.—TRY SQUARE.—E. J. Toof, Fort Madison, Iowa. An-tedated April 11, 1868. I claim, in combination with a try square, A, an adjustable cutter, B, ar-ranged and operating substantially in the manner and for the purposes set forth.

Tool, FORT Madison, Iowa. I claim the combination of the paper holder, A, with the inkstand, E, pro-vided with a cover, F, with or without the sponge arm, G, shaft, I, whether extensible or not, and the crank, J, or its equivalent, arranged and operat-ing substantially as and for the purposes herein described. 77,132.—CARRIAGE COUFLING.—Ira Van Pelt and J. S. Van Beit, Retrashurub Va

71,132.—OARMAGE COLLECTION Pelt, Petersburgh, Va. We claim the combination of the sliding pivoted swingle tree, E, with the chains, I J J, axle, C, and bolster, G, substantially as and for the purposes

specified. 77,133.—Scaffold Bracket.—Samuel D. Van Pelt, Ander (7,103.— SCAFFORD January 2011) son, Ind. I claim the plate, A, with claws, B, and upright, H, the dog lever, I, with logs, E E, plvoted to the upright, H, of the plate, A, and the upright, D, plvoted to the dog lever, I, all constructed and operating substantially as shown and described and for the purpose specified. Burger D. Walker, Benford's

77,134.-HORSE HAY FORK.--Edward L. Walker, Benford's

77,134.—HORSE HAY FORK.—Edward L. Walker, Benlorus Store, Pa. Iclaim, 1st, A prong at the lower end of a hay elevating fork, in combination with the sliding bar, e, or equivalent mechanism, that acts to turn said prong up below the hay, substantially as set forth. 2d, The link, k, and lever, h, in combination with the bars, e and a, and prong, 1, substantially as specified. 77,135.—BUTTER WORKER.—Emory P. Walker, Belchertown, Mass. Iclaim the diagonal flanges, D D, placed at the mouth or front end of the bottom, A, of the box, with a hole, x, as described, the various parts being constructed and operating as specified. 77,136.—HORSE HAY FORK.—Joseph H. Walker, Grand Rapids, Mich.

Rapids, Mich. I claim the cam lever, D, pivoted between the upper ends of the bars, C C, and arranged to operate in combination with the curved bar, B, when said bar is provided with a stop at its end, and as a recess, as described, all con-tructed and operating substantially as specified.

77,137.—MACHINE FOR BORING HUBS.—J. W. Walters, Rice-

ville, Iowa. I claim the combination of the two shafts, A K, the latter having the crown gear wheel, G, tubular shaft, H, box, B, adjustable cutter, E, having the pin-ion, F, all operating as described for the purpose specified. 77,138.—Phocess of TREATING WOOLEN AND SILK GOODS.—

-Paper Clamp and Inkstand Combined.-E. J.

127.-TRUNK.-C. A. Taylor, Chicago, Ill.

77,131.

77,091.—HARROW.—John Rankin, Taunton, Mass.	3d, The block, F, when pivoted to the frame, A, and when provided with	77,138.—PROCESS OF TREATING WOOLEN AND SILK GOODS.—
I claim the harrow constructed as described, and consisting of the bars, al	the friction-roller, c, as set forth.	Gardner Warren, Roxbury, assignor to himself and Hezekiak H. Bryant,
a2 a3 a4, to othed rock shafts, D E F, having standards, G H I, crank shaft, P,	4th, The slotted bar, e, for elevating the block, F, in combination with the	Boston, Mass.
bearing loose wheel, R, and fixed wheel Q, clutch S, lever T, three armed piv-	same, and with the drum, C, all made and operating as set forth,	I claim the process of treating fabrics, made of wool, silk, or other anima
oted lever K, and pitmen, J M N O, all arranged and operating in the manner	77,111.—MODE OF SURFACING SHEET-IRON AND METAL	nders, with a solution of givcerin, substantially as described.
and for the purpose herein set forth.	PLATES.—Thomas Shaw, Philadelphia, Pa.	77,139.—BEEHIVE.—Jas. Wash, Mount Sterling, III.
77,092.—MILK CAN.—Charles A. Reight (assignor to himself,	I claim the application of carbonaceous material to the heated surfaces of	I claim the combination of the box, C, provided with partitions having
Henry B. Dill and George A. Swalm), Middletown, N. Y.	iron and steel, whilst being rolled or otherwise manipulated upon, substan-	spaces, E, passages, h i, with the hives, C', substantially as and for the pur-
I claim the combination of the tin band, B, double seamed, with the tin top	tially as and for the purpose set forth.	pose described.
or bottom of a milk can, and soldered or riveted to the iron eylinder, A, of	77 112 — FURNACE DOOR FASTENING — P E Shear Sauger-	The combination, with the box, C, and hives, C', of the perforated passage,
greater thickness than the said bands, or topor bottom, all substantially as	tion N V	D, and outer housing, A, substantially as and for the purpose described.
and for the purpose shown and described.	Lies, \mathbf{N} . 1. Login the binged or jointed has \mathbf{F} in combination with the binged link	D and outer bousing A and the self adjusting guard H entertationing as age,
77,093.—APPARATUS FOR CLIPPING THE HAIR OF ANIMALS.	c and the eccentric F all constructed arranged and annied to the trame or	for the nurnose described
-Arthur Dallison Renshaw, London, England.	mouth-nece of a furnace, substantially as and for the purpose set forth.	The combination, with the hives, C', and long perforated passage, D, of an
I claim, 1st, the cutters, a and b, constructed, combined and operating	77 113 - BED BOTTON Philander P Simmons Devennort	outer housing, provided with the odor passages, F. substantially as and tor
substantially as and for the purpose set forth.	11,110. DED DOTTOM I infantice I . Similaris, Davenport,	the purposes described.
2d, The combination of the said cutters with the adjustable presser bar, g	10Wa.	77140 Fag Cap C D D Wettern New York site
stantially as sat forth	together with wire in combination with the wooden string e, and the spiral	77,140.—Edg CUP.—C. D. P. watters, New York City.
3d Operating the lever k by means of a cord or wire passed through the	springs for their convalents when constructed and arranged substantially	I claim an egg cup consisting of the base, A, springing jaws, B, levers, D,
handle p. or over a rotating am or disk, and connected with any suitable	as described.	and handle, E, all made and operating substantially as herein shown and de-
driving mechanism, substantially as set forth.	77 114 — OPERATING WINDOW-SHUTTERS — Thomas J. Sloan	scribed.
	Now York att	77,141SEED SOWER AND HARROW ATTACHMENT TO GANG
77,094 — STILL FOR DISTILLING HYDROCARBON.—Charles W.	Leisin the employment in combination with the gears. K f. and shaft.'H.	PlowJ. B. Webster, Stockton, Cal.
Requa, Albany, N. Y.	of the retaining catch bar, n and a can. O. for lifting the same, the whole	I claim, 1st, The plow frame, a a'b, provided with means for attaching a
I claim, 1st, The use of steam in the distillation of liquid hydrocarbons in	arranged to operate substantially as described, for the purpose set forth.	seeder to its front end, and provided also with the frame, d d', at its rear end
stills heated by external nre, when the steam is introduced into the still in	Also, the employment, in combination with the hinge-sector, f, and stand,	The the attachment of a seeder, substantially as described.
such a manner that the lowest stratum of the still by the soliton of the store	D, of a swinging or movable retaining pendant, F, arranged to operate as	the purpose described
and its place supplied with the bottom of the still by the action of the steam	déscribed for the purpose set forth.	
the purpose above described.	77 115 LAMP SHADE Austin A Smith Senece Falls N	77,142.—FARM GATE.—B. Weirich and John Smith, Middle-
2d. Constructing stills heated by an external fire, and in which steam is	The Andread Agent 11 1960	bury, Ind.
used, as and for the purpose above described, with an air chamber over	I. Anteuateu April 11,1003. I claim 1st As a now article of manufacture a lamp or gas-light shade of	We claim, 1st, the sections, C C', lever, h, and brace, k, combined and oper-
them, constructed and operating substantially as and for the purpose above	renal form composed of numerous upright (apels or sections, C. C. Situ-	ated as and for the purpose described.
described.	ated closely together to form a screen, and turning horizontally or angular-	2d, The swinging bars, b b, sections, C C', lever, h, and brace, k. all arranged
77.095.—RUDDER GEAR.—C. T. Rideout. Boothbay Harbor.	ly on suitable joints, the whole arranged and operating so that any number	as described.
Me.	of said panels may be opened at any desired position, and the passage of	77.143.—MEAT CUTTER.—Charles Welte, Frankford, Pa.
I claim the combination and arrangement of the toothed sector, C, having	light may be graduated, as herein set forth.	I claim the combination of the revolving meet boy B gear wheels I and
the tiller and socket, T T', the toothed disk, C', having projection, D, with	2d, Forming one or both of the joints of the panels, of spring-wires, I i,	H. vertical shaft, G. bevel gear wheels. F and E. horizontal shaft C. crank
hole, h. and the perforated arc, D', as herein described for the purpose	resting in the square or oblong slots, d, operating as and for the purpose spe-	wheel, D, gear wheels, J and K, short horizontal shaft, L, crank or crank
specified.	cinea.	wheel, M, connecting rod, N, pivoted and balanced lever, O, and slide, R, to
77,096.—TOBACCO PIPE.—Henry R. Robbins (assignor to	77,110.—111/TING UHAIR.—Uaivin D. Smith, Baldwinville,	which the cutter, T U V, is attached, substantially as herein shown and de.,
himselfand W. H, Green), Baltimore Md.	Mass.	scribed, and for the purpose set forth

77,144.--CHURN.-Amos Wescott, Syracuse, N. Y. I claim the combination of the conical body, adjustable leg, horizontal dasher shaft, and alternately oblique dashers, and fan wheel, substantially as described, for the purposes set forth.

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77,145.-HARVESTER.-Cyrenus Wheeler, Jr., Auburn, N. Y.

77,145.—HARVESTER.—Cyrenus Wheeler, Jr., Auburn, N. 1. Division A.
I claim, ist, A main frame, having an axle for the drive wheel, formed or cast on one side, and a hollow cylinder arm on the other side, for supporting the shaft of the bevel wheel.
2d, The main frame, as described, in combination with a tongue frame, hinged to the hollow cylindrical arm of the main frame.
3d, The combination of a main frame, having an axle for the driving wheel on one side, and a hollow cylindrical arm on the other side, with a crank frame hinged to said arm, so as to vibrate independently of the main frame in following the undulations of the surface of the ground over which its drawn, substantially as described.
4th, The combination of a main frame, constructed as described, with a tubular box for holding the bevel wheel shaft.
5th, The crank frame, arranged and vibrating as described, in combination with a stop on the main frame, and a wheel and lever mounted on the shoe, for raising the cutting apparatus.
6th, The driver's seat, mounted with a crank frame and size to vibrate independently of the sing dro said main frame.
7th, Connecting the draught to a standard on the crank frame, in combination with a standard on the crank frame, in combination with the axis of the bevel wheel, but independent of the main axis.
77,146.—HARVESTER RAKE.—Cyrenus Wheeler, Jr., Auburn, N. Y. Division B.
N.Y. Division B.

777,146. — HARVESTER KAKE. — Cyrenus wheeler, 51., Kuonin, N. Y. Division B. I claim, 1st, In a combined reel and rake, the arms of which are hinged, independently of each other, to and travel around an axis perpendicular. or nearly so, to the platform, arranging said axis ou the vibrating crank frame in front of a line drawn along the front edge of the finger bar. 2d, Mounting the axis of a combined reel and rake on a vibrating crank frame, which can rise and fall independently of the main or gear frame. 3d, The location of the axis of a combined reel and rake, upon a vibrating crank frame, behind the axis of the main wheel, in front of the finger bar, and outside of a line drawn across it atright angles, and touching the outside of the axis of the arms of which are hinged to and the bar.

and outside of a line drawn across it atright angles, and touching the out-side of the shoe. 4th, In a combined reel and rake, the arms of which are hinged to and move around an axis perpendicularly, or nearly so, to the platform, hinging the rake heads to the arms, and so combining them with mechanism, under the control of the driver, that the teeth of the rake shall, in reeling, retain a vertical position until they reach the finger beam, and then roll back to pass over the platform for the discharge of the gravels. 5th, Driving a combined reel and rake, located on one side of and below the highest boint of the driver wheel, by mechanism connecting it with the bub of the wheel on the other side, substantially as described. 6th, Adjusting and supporting the crank frame and inter end of the cut-ting apparaus, in reaping, by a chain, connected with a lifting wheel and lever, mounted on the draught frame, substantially as described. 7th, Changing the angle of cut and the inclination of the platform by means of a plinon in the draught frame, combined with a sectorgear on the main frame.

means of a pinion in the draught frame, combined with a sectorgear on the main frame. Sth, The ridge board or inclined track on the grain divider, in combination with the overhanging ends of the rake beads. The employment of set screws, in combination with the rake and reel arms, and the revolvug head, to which the arms are pivoted, for adjusting the height or angle of the rakes. 10th, A combined rake and reel, the arms or rake heads of which rotate about a shaft or pivot in advance of the finger bar, and are of sufficient length to reach the point of the divider in reeling in the grain, in combina tion with an inclined track or ridge board for raising the rake heads to pass the cutters.

the cutters. 11th, Automatically retracting the rake head, to cause the rake teeth to resume their vertical position by means of the lower heel end of the cam way acting upon the inner or heel end of the rake head, substantially as de-

77,147.—CARRIAGE HUB.—Martin Whelan, New Haven, Ct I claim the plate. C, provided with the arms, or luss, a combined with the hub, A, and spokes, B, and the plate, D, when the whole are constructed and united substantially in the manner herein set foith. 77,148.—DOVETAIL MACHINE.—T. D. White, Cincinnati, O.

I claim the combined arrangement of a series of saws of unequal diame ters, and an olique table for feeding planks thereto, as and for the purpose specified.).—Machine for Making Dovetail Mortises. 77 149.-

 77,149.—MACHINE FOR MAKING DOVETAIL MORTISES.— Thayer D. White, Cincinnati, Ohio.
 I clans the removable block, B, having two oppositely inclined planes, B' B'', and employed in conjunction with the sliding gate. D, and chisels, d d, substantially in the manner and for the purpose set forth.
 77,150.—CAR COUPLING.—W. F. Wickersham and Elisha Roush, Springfield, Ill. We claim the combination of the rod or pin, D, gate. C, link, B, buffer, A, plvot, a', and arm a, substantially as shown and described, and for the pur-pose set forth. nose set forth.

77,151.-MACHINE FOR JOINTING STAVES.-Hiram S. Wiley

Mailson, Ind. I claim, 1st. The curved guides, B B, carrying the movable saw frame. G, said guides being concentric with the driving shaft placed above the frame, whereby the tension of the belt from said driving shaft othe pulley, H, on thesaw carriage is regulated, as herein shown and described, for the pur-pose specified. 2d, The combination of the movable curred racks. C C, with the pinion M.

Thesaw callings is required, as herein shown and described, for the purpose specified. 2d, The combination of the movable curved racks, C C, with the pinion M, and the movable saw bed, G, substantially in the manner herein shown and described. 3d, The devices, m2 m2 m m h h'g g n, and the treadle, k, for operating the curved racks, C C, working together, substantially as herein shown. 4th, The clamps, c c' cr'r', and their connections, m m m1 m1, tor operat-ing, the same, as substantially set forth. 5th, The combination of the catch, e, and its wiper, f, with the saw bed and litting devices, substantially as herein shown described.

itting devices, substantially as herein shown described. 77,152.—SLIDE VALVE.—William Wilson, Galesburg, Ill. I claim, 1st, A steam sliding valve, provided with two exhaust chambers, C, and the two exhaust steam passages, a2, and the steam passage, a1. where-by the steam is both admitted to and exhausted from a steam cylinder by double openings, substantially as shown and described. 2d, A steam valve provided with the steam passage, a1, and the exhaust passage, a2, and the chambers, C, in combination with the steam and exhaust ports, of any valve seat, A, substantially as shown and described and for the purposes set fortb. 77,159. Concentration with the steam passage and the exhaust purposes of the steam and exclusion with the steam and exhaust purposes and the chambers, C, in combination with the steam and exhaust purposes at fortb.

77 153.—CONCRETE BRICK PRESS.—J. H. Wirt, Delphi, Ind

771133.—CONCRETE BRICK PRESS.—J. H. Wirt, Delphi. Ind. I claim, ist, The compound toggle joint, consisting of the toggle bar, k, link rod, e, step lever, h, and lever, a, substantially as shown and described, in combination with the uprights, d, and bottoms, u, for the phrpose of com-pressing concrete blocks, all arranged as set forth. 2d, The press constructed as described, and consisting of the molds, b, cover, C, link, E, lever, D p, bottoms, u, uprights, d.x, guide, m. lever, G r, g, forgle bar, k f1, step lever, h i, linx, e, and lever, a, all arranged within the frame, A, and operating in the manner and for the purpose set forth.

77,154.-FERMENTATION BUNG.-Wm. W. Woodruff, New Britain, Conn. I claim the bung, a, cup, a', tube, a'', and cap, b, constructed and arrange substantially as and for the purpose described.

77.155.—DROP HAMMER.—James Wool (assignor to himself

and F. Hungweil), Boston. Mass. I claim in combination with the weight, and lifting rollers of a drop ham-mer, a litter having a stiff central body of wood, or its equivalent, taced on both sides with leather, or other equivalent yielding material substantially as and for the reasons set logth.

77,156.—APPARATUS FOR CARBONIZING GAS.—Wm. H. Lau

1,100.—AFTAKATUS FOR UARBONIZING GAS.—Wm. H. Laubach, Philadelphia, Pa. I claim the hollow glass gage tube, C, caps, f f, straps, d d, set screw, e, and tubes, g g, in combination, made in the manner and for the purpose desorbed.

REISSUES.

2,920

2,920.—GEARING.—The Metropolitan Washing Machine Co., Middletteld, Conn., assignees of S. W. Palmer and J. F. Palmer, Auburn, N. Y. Patented May 8,1866. We claim the combination of toothed or cogged wheels, when used in pairs upon the same shaft, with a plate or plates arranged upon the interior opposite or exterior opposite faces of eith er par, in the manner described, whereby the wheels on the one shaft shall be held in place by the plate or plates of the wheels on the other shaft, and thus prevent the lateral play of the one shaft with respect to the other, as set forth.

Cor U/ m TAT minube TT

PENDING APPLICATIONS FOR REISSUES.

Application has been made to the Commissioner of Patents for the Reissue of the following Patents, with new claims as subjoined. Parties who desire to oppose the grant of any of these reissues should immediately address MUNN & CO., 37 Park Row, N. Y.

69,612.—ROOFING COMPOUND.—Oscar N. Bartholomew, and J. S. Thurston (assignces of Oscar N. Bartholome, and W. P. Sherman), Emira, N. Y. Dated October 8, 1667. Application for reissue received and filed March 11, 1868. We claim a compound of matter compounded from the ingredients named, and in the manner substantially as and for the purpose set forth. 70,247.—LAMP.—HOWARD TILDEN (assignce of William Mul-laly), Boston, Mass. Dated October 29, 1867. Application for reissue received and filed March 17, 1868. I claim, 1st, Supporting the top or dome of the blaze cap upon a cylindri-cal base arranged somewhat above the convex base, G. so as to leave an opening between it and the base ior the air to pass out and ap, to supply air to the flame above the cap, and keep the bottom of the chinney and the base col.

b) the fame above the cap, and keep the bottom of the shind up, to support and the base cool.
2d, the deflectors, J J, extending down from the euds of the slot in a blaze cap, with closed sides, substantially as cescribed.
3d, Making lugs or supports on the base plate, to fit recesses in the side of the cap, so that the cap may be readily removed from the base plate, to fit recesses in the side of the cap, so that the cap may be readily removed from the base plate, to fit recesses in the side of the cap, so that the cap may be readily removed from the base plate, to fit recesses in the side of the cap, so that the cap may be readily removed from the base plate, to fit recesses in the side of the wick and clean ont the base.
4th, In combination with the base on the base plates, A and G, I claim the pins or lugs thereon, for supporting the chinney and the wires or springs, k k, for keeping tin place, substantially as described.
57,125.—PULLEY ATTACHMENT FOR RASING WEIGHTS.—Geo.
W. Gregory, Watertown, N. Y. Dated August 14,1866. Antedated February 14, 1866. Relissue No. 2,754. Dated October 22, 1867. Application for reissue received and filed March 27, 1867.
I claim, lst, As an adjustable pulley support, having be operated and changed from place to place substantially as described.
3d, The combination of an adju ting pole, with a pulley support, having sockets or equivalents, substantially as and for the pulpose, set forth.
73,937.—WATCH.—O. F. Stedman, Ravenna, Ohio. Dated January 28, 1868. Application for reissue received and filed March 27, 1868.
I claim the ring or band, C, bevelled or made thin at one edge or side, sid bend being made the mater at with a more to cover to co

1868. 1868. Lam the ring or band, C, bevelled or made thin at one edge or side, said band being made narrower than the movement, and wide enough to cover the spacedetween the plates, a and b, substantially as and for the purposes herein set forth.

Berein set forth.
 11,892.—MANUFACTURE OF BUCKLES.—The West Haven Buckle Company West Haven.assignees of Sheldon S. Hartshorn, Orange, Buckle Company West Haven.assignees of Sheldon S. Hartshorn, Orange, Buckle Company West Haven.assignees of Sheldon S. Hartshorn, Orange, Buckle Company West Haven.assignees of Sheldon S. Hartshorn, Orange, Buckle Company, West Haven.assignees of Sheldon S. Hartshorn, Orange, Buckle Company, West Haven.assignees of Sheldon S. Hartshorn, Orange, Buckle Company, West Haven.assignees of Sheldon S. Hartshorn, Orange, We claim, 1st, A bushel, in which the tongue is constructed so as 10 clasp the divided side, so that while it sustains the said divided side, it will turn Preely thereon substantially in the manner herein set forth. 26, The combination of the two parts or loops, one side of which is divided and the two parts or loops, hinged together as described, and the divided side sustained by the tongue, clasped and hinged thereon, substantially as set forth.

44,337.— PUMP.— Eli Perry, Baldwinsville, N. Y. Dated September 20, 1864. Application for reissue received and filed March 30, 1868.

1868. I claim, 1st, The combination with the wings, E, of the concentric arms, or extensions, E', forming a division between the discharge space, B, and the interior of the case, except through passages, i, in the manner and for the purpose specified. 2d, The combination with the wings, E, and extensions, E', of the flanges, k, in the manner and for the purpose specified. 3d, Forming the under side of the wings, with sharp edges, 11, the same being used in combination with the floor of the case, A, substantially as de-seribed.

70,345.—IRON BRIDGE.—David H. Morrison, Dayton, Ohio Dated October 29, 1867. Application for reissue received and filed March 31, 1868.

31, 1868. 1st, The construction of the arch or top chord of a bridge by the use of the iron, I, beam, when arranged therein with its double flanges, in vertical planes, substantially as described, for the purpose specified. 2d, The universal washer, B f, constructed and applied in the manner and for the purpose specified. 3d, The combination and arrange ment of the arch beams, C, arch, joint plates, g, and universal washer, B f, when constructed, connected, an i oper-ating, conjointly in the manner substantially as and for the purpose specified. 4th, The combination ot the returned en.s, p' p', of the chord bars, a, with the skew back, D, and block, r', substantially as and for the purpose speci-fied.

73,552.—SASH FASTENING.—C. M. Amsden, Wooster, Ohio. Dated January 21, 1868. Application for reissue received and filed 1st,

Dates of a lever, having its fulcrum on the face of the sash or door, and acting in combination with a sash or door bolt, for the purpose of oper-ating said bolt, substantially as herein specified. 2d, The lever, L, with hole, R, and slot, S, constructed and used substan-tially in the manner and for the purpose here in specified. Sd, The bolt, D, with arms, N O, and peculiarly shaped head, P, and with or without the spindle, F, the several parts being constructed and arranged as herein specified.

herein specified. 4th, The peculiar arrangement and combination of the bolt, D, with arms, N O, hole, H, slot, V. and lever, L, with hole, R, and slot, S, the several parts being arranged in the manner and for the purpose specified. 12,382.—MAGAZINE SMOKE CONSUMING STOVE.—James East-

14,000.— PLAGALINE DATA E CONSUMING STOVE.— JAIMES EASt-erly, Albary, N.Y. Dated February 13, 1855. Application for reissue re-ceived and filed April 3, 1868.—Division 1. I claim constructing a stove as herein described, with openings for the ad-mission of air to the burning fuel, at some point or points above the grate, including between said points and the grate sufficient fuel for ignition at any one time, substantially as described.

Substantially as described. -MAGAZINE SMOKE CONSUMING STOVE.—James East-12,382.

12,562.—In AGAZINE SMORE CONSUMING FIOVE.—James Dascerly, Albany, N.Y. Dated February 18, 1855. Application for reissue received and filed April 3, 1858.—Division 2. Ist, A cooking stove, which is provided with a coal supply magazine, and a combination chamber, arranged without the space inclosed by the outer walls of the stove, substantially as described. 2d, The combination of a coal supply magazine, with a cooking stove, when such magazine is wholly outside of the outer walls of the stove, substantially as described.

such margazine is wholly outside of the outer walls of the store, substantially as described. 3d, In a cooking store, having a magazine for supplying the combustion chamber with fuel, I claim inlets for the admission of air to the burning fuel, arranged at some point or points above the grate, substantially as de-sortbed.

rribed. 4th, fhe relative arrangement of the several parts of the stove, whereby he heated products are caused to circulate around the oven, substantially as escribed.

described. 70,510 — PREPARING CEMENTS FROM SLAGS.—John J. Bod-mer, Newport, England. Dated Nov. 5, 1867. Application for reissue re-ceived and filed March 26, 1868. 1st, I claim the rolling, laminating, grinding, and otherwise reducing or converting to scale or sheets, or to a lamellated or to a pulvurulent state or condition, the clader, elag, or scoria obtained from blast furnaces, copper smelting, or other furnaces, in a fluid or semi-fluid or pasty or viscous con-otiton, in the manner and for the purposes substantially as described, and for other purposes.

ottion, in the manner and for the purposes substantially as described, and so other purposes. 2d, The rolling, laminating, grinding, and otherwise reducing or converting to scale or to a lamellated or to a pulvurulent condition, of various descrip-tions of cement and of materials from which cements are to be produced, substantially as described. 3d, The application of slar, cinder, or scora, whether artificially prepared for the purpose or as obtained from blast furnaces or other furnaces in the manufacture of cement and the several modes or processes employed in the preparation of cements, substantially as described. 4th, The manufacture of artificialstone from the above described ements, either by themselves or with the admixure of coarsely ground materials such as furnace slags, scoria, any descriptions of hard stones, or of shingle, sand or other materials of a similar nature.

70,247.—LIAMP.—Howard Tilden (assignee of Wm. Mullally), Boston, Mass. Dated Oct. 29, 1867. Application for reissue received and filed March 27, 1868. I claim as the invention of Wm. Mullally, 1st, Supporting the top or dome of the blaze cap upon a cylindrical base arranged somewhat above the con-vex base, G, so as to leave an opening between it and the base for the arr to pass out and up to supply air to the fiame above the cap and keep the bottom of the chimney and the base cool. 24, The deflectors, J, extending down from the ends of the slot in a blaze

815.—PROCESS FOR MAKING ARTICLES FROM HARD RUBBER CAPABLE OF BRING MOLDED IN DIES, AND INLA YING AND ATTAOHINGMETALLIC PLATES.

cation.

[MAY 9, 1868.

2d. The combination of the cogs, e, on the driving wheel, the plnion, f, upright shaft, C, and wheel, g, with the plnion, h, of the shaft, D, arranged substantially as and for the purpose specified.
3d. The combination with the driving wheel of the guide box carrying the slokle bar, in such manner that the bar may be adjusted for cutting at a greater or less hight, substantially as herein set forth.
41,746. —H AR VERTER. —Mitchell, Vance & Co. (assignees of Edgar M. Smith), New York city. Dated Feb. 23, 1864. Application for reissue received ano filed April 6, 1898.
We claim, 1st, In combination with the main driving and supporting wheels running loosely on the hubs of said drive wheels, and having a ratchet and purpose berein described and represented.
2d. The arrangement of the two sets of plates and boxes on the opposite sides of the main frame, so that the cutting aparatus may be arranged on other sides of the main frame, the two sets of plates arranged on opposite sides of the main frame, the two sets of plates arranged on opposite sides of the main frame, the two sets of plates arranged on opposite sides of the main frame, the two sets of plates arranged on opposite sides of the main frame, the two sets of plates arranged on opposite sides of the main frame, the two sets of plates arranged on opposite sides of the main frame, the two sets of plates arranged on opposite sides of the main frame, the two sets of plates arranged on opposite sides of the main frame, the two sets of plates arranged on opposite sides of the main frame, the two sets of plates arranged on opposite sides of the main frame, the two sets of plates arranged on opposite sides of the main frame, the durived appace at 1, for the tree action of the rake as described.

a described as to reave unloss tucker space at 1,101 the rice action of the rate af described molecular to the loose and shifting main wheels and main cozged gears, the plnions, b, permanendy arranged on the shaft, d, so that said loose and shifting wheels will, when on either side of the machine, mesh with said plnions as set forth, whichever end of the machine goes foremost 5th, Hanging the reel blades to the reel shaft by means of the crossed arms and adjustable heads, hubs or sockets, for the purpose of enlarging or dimin-tshing the circumference of the reel, substartially as described. 6th, The adjustable pulley plate and adjustable pulley thereon, for the pur-pose of taking up or letting out the reel belt, when the reel is lowered or faised on its support, substantially as described. 15,334.—CUTTING DEVICE FOR HARVESTERS.—John G, Perry, Kingsion, R. L, assignce by mean assignments of Carlos W, Glover, Rox-

faised on its support, substantially as described.
15,334.—CUTTING DEVICE FOR HARVESTERS.—John G. Perry, Kingston, R. 1., assignee by mesne assignments of Carlos W. Glover, Rox-bury, Conn. Dated July 15, 1856. Application for reissue received and Ided April 6, 1868.
Iclaim as the invention of Carlos W. Glover, ist, The combination with the grand fingers, of the leger blades or cutters, constructed with recesses in their upper sides, substantially as and for the purpose specified.
2d, So arranging the leger blades or cutters within the guard fingers that they may have a rocking or oscillating movement during the vibratory methods, e, on the blades, extending into the cavities, i, in the fingers, substantially as and for the purpose apecified.
46,846.—SCREW CUTTING MACHINE.—Charles Parker (as-signee of Stephen W. Goodyear, Meriden, Conn. Dated March 14, 18 65. Application for reissue received and filed April 8, 1868.
I claim as the invention of Stephen W. Goodyear, 1st, The combination of the rotating grooved cylinder with a fixed covering plate which bears bori-tontally apon the shanks of the blanks, but endwise against their heads, and with a movable covering plate, for the purposes and in the manner substan-tially as described, thus forming a conveying tool.
2d, The combination of the jeorgeriore, i, constructed so as to hold a blank, in combination of a cylinder, such substantially as is herein described as having its fixed and movable covering plates, with the blank may be rotated for threading, etc., thus forming a holding tool.
3d, I claim the combination of a cylinder, such substantially as is therein described as having its fixed and movable covering plates, with the curved feeding site trong, whereby without the use of the usual system of grip-pers, etc., the blank may be conveyed to the place where it is to be operated upon, as set forth.
4to, The employment of the senicircular groove, i, as a rest, while the curved f

4th, The employment of the semicircular groove, i, as a rest, while the cut-er operates on a blank, when the said groove is constructed so as to act as a

conveying tool. 64,554.—FRICTION PAWL.—Joseph Moore, San Francisco, Cal. Dated May 7, 1867. Application for reissue received and filed April 8, 1868.

o, 1366. I claim the employment upon the main or a countershaft of the windlass in loisting apparatus, of a pulley which shall be on the one hand under the control of a braze, and on the other hand be connected with the shaft by the pawl and ratchet device or its equivalent, substantially in the manner and or the purposes set forth.

noisting apparatus, of a pulley which shall be on the one hand under the control of a brase, and on the other hand be connected with the shaft by the pawl and ratchet device or its equivalent, substantially in the manner and for the purposes set forth.
 27,319.—BENDING SHEET METAL.—Orson W. Stow, Plants-ville, Conn. Dated Feb. 28, 1860. Application for reissue received and field April 9, 1868.
 I claim, ist, Making the folding bar commonly used in such machines in two parts, fand i, one part, i. being adjustable in respect to the folding plate, e, by means of set screws, n, or other equivalent means, so as to form a close or open lock, for joining two pieces of metal plate, or closing around a wire, substantially in the manner as described.
 2d, 1claim arranging the griping jaw, s, with the folding bar, f and i, in such a manner that on motion being given to the folding plate, e, and at the same time carry along with it the folding plat, f and i, in position locally plate, e, enceessaftly and simultaneously with the motion of the folding plate, e, enceessaftly and simultaneously with the motion of the folding plate, e, enceessaftly and simultaneously with the folding plate, e, in combination with the hing of frame, b, having journal boxes, d, and gripping jaw, s, o, arranged and operating together substantially in the manner as a sting for the purpose described.
 4th. In a machine which uses but one folding bar, I claim the combination of the folding bar, G ALLEY.—R. Hoe & Co. (assignees of Alex. T. De Puy), New York city. Dated Dec. 4, 1866. Application for reissue received and filed April 9, 1868.
 I claim as the invention of Alex. T. De Puy, the combination for reissue received and filed April 9, 1868.
 I claim as the invention of Alex. T. De Puy. the combination for reissue received and filed April 9, 1868.
 I claim as the invention of Alex. T. De Puy. Complexing both open and close locks or bends in sheter meta

I claim the mode herein described of packing lard for transportation or storage, by first packing the lard in separate small packages of wood or paper and inclosing such small packages in an outer close fitting case, substantially as specified.

F NOTE.-The above claims for Reissue are now pending before the Patent Office and will not be officially passed upon until the expiration o / 30 days from the date of filing the application. All persons who desire to

oppose the grant of any of these claims should make immediate appli-

Inventions Patented in England by Americans. [Compiled from the "Journal of the Commissioners of Patents."] PROVISIONAL PROTECTION FOR SIX MONTHS. 792.—MACHINE FOR HULLING OR DECORTICATING COTTON OR OTHER SEED Alex. H. Simmonds, New York city. Match 7, 1868.

808,—Sorew Bolts and Nuts For Securing Fish Plates, ETC,—Frederic Fudor. Boston. Mass. March 9, 1868.

754.-SPIRIT METER.-Robert Creuzbaur, New York city. March 4, 1868. 760.-MECHANISM FOR PREPARING AND SEWING SOLES UPON BOOTS AND SHOES.-Lyman R. Blake, Boston, Mass. March 5, 1868. 803.-MACHINE FOR MAKING NUTS.-Philippe Koch, New Haven, Conn March 7, 1868.

MIINN & CO., Solicitors of Patents, 37 Park Row, N. Y

2,001.—Construction of 500 fors.—Homer wright, Henry	zd, The delectors, 5 5, extending down from the ends of the slot in a blaze	-Wm. H. Halsey, HODOKEN, N.J. March 9, 1808.
H. Collins, and Benj. F. Collins, Pittsburg, Pa., assignces of Homer Wright. Patented Sept. 24, 1867.	cap with closed sides, substantially as described. 3d, Making lugs or supports on the base plate to fit recesses in the side of the cap, so that the cap may be readily removed from the base plate to frim	853BALLASTING VESSELSJohn B. Stoner, Leopold Mendelson, and The- odore Crommelin, New York city. March 12, 1868.
2d, The hinge and knob combined in one piece, as specified. 3d, The lid, when made to cover entirely the top rim of the body, as set forth.	the wick and clean out the base. 4th, In combination with the base or the base plates, A and G, I claim the plers of larg thereon for supporting the chimney, and the wires or springs, K	891MANUFACTURING ILLUWINATING GAS IN THE DISTILLATION OF HY- DROCARBONS AND MAKING GASEOUS FUEL FOR HEATINGLevi Stevens, Washington, D. C. March 16, 1868.
4th, The opening, H, in the lid, when used in combination with the hinge and knob piece, as described.	K, for keeping it in place, substantially as described. 75,070.—HARVESTER.—Wm. H. Stevenson, Auburn, N. Y.	892TELEGRAPHIC APPARATUSElisha W. Andrews and Edward A. Cala- han, New York city. March 16, 1868.
dicated. 6th, Hinging the lid so as to rotate from the inside of the body, as de-	Dated March, 3, 1868. Application for reissue received and filed April 4, 1868.	895 — MACHINERY FOR COMBING COTTON, ETC.—Ira Dimock, Florence, Mass March 16, 1868.
scribed.	i claim, ist, the combination with a dished driving sput wheel, D, of a spur pinion, E, bevel wheel, H, and bevel pinion, I, which will admit of the ar- rangement of the crank shait. J, substantially as and for the purpose speci-	944MACHINE FOR OVERCOMING RESISTANCEHenry F. Shaw, West Rox- bury, Mass. March 19, 1868.
DESIGNS.	fied. 3d, The arrangement of the gear wheels, D E H I, the wheel, E, running loosely on a shaft E and heing provided with a clutching face f and ship.	905SUBSTITUTE FOR HAIR STUFFING, AND MODE OF MANUFACTURING THE SAME FROM VEGETABLE FIBERSNathan W. Blanchard, Dutch Flat
3,000.—BURIAL CASKET.—Wm. G. Algeo, Pittsburg, Pa. 3.001.—Stove.—Isaac J. Baxter, Peekskill, N. Y.	bing lever, G, substantially as described. 3d, The adjustable shifter holder and guide, G, constructed in one piece	Cal. March 11, 1900. 909.—PRODUCING STEEL AND CAST STEEL—Alois Thoma, New Yorkcity March 12, 1868.
3,002.—ORNAMENTATION OF A HORSE BRUSH.—James A.	more slots in the shifting plate, G2, whereby the shifter fork may be adjusted to the groove in the spur pinion, substantially as described.	912.—Coordinates and Curtiss, Jr., Williamsburg, N. Y. March 17, 1868.
3,003.—TRADE MARK.—J. H. Garnhart, St. Louis, Mo.	wise, of a guide box. K, arranged on the main frame, substantially in the manner described, whereby an unobstructed space is left below the frame	920COVERING FOR FLOORSWM. Howell, Jas. C. Fenn, and Chas.H.Day, Philadelphia, Pa. March 18,1868.
3,004.—LEGS OF A TABLE.—Willard Jefts, Battle Creek,	when the drag bar is raised. 5th. The arrangement of the adjusting lever, T, linked connection, L, and curved guide S, the letter working lossely in a guide box K, on the frame	931VENTILATING WINDOWS AND WINDOW BLINDSWm. P. Hoffman San Francisco, Cal. March 19, 1868.
3,005.—SAD IRON.—Anna Niffeler, Chicago, Ill.	in combination with the drag bar, P, all substantially in the manner shown and described.	935MACHINERY FOR COMBING COTTON, ETCMilton D. Whipple, Cam- bridge, Mass. March 19, 1868.
3,006CLOCK CASENoah Pomeroy, Hartford, Conn.	15,882.—HARVESTER.—John G. Perry, Kingston, R. I., as-	947MACHINERY FOR OPENING AND CLEANING WOOL, ETCChas. G. Sar gent, Graniteville, Mass. March 20, 1868.
3,007.—TRADE MARK.—Geo. L. Witsil, Philadelphia, Pa.	Dated Oct. 14, 1856. Application for reissue received and filed April 6, 1868. I claim as the invention of Carlos W. Glover, 1st, So constructing and op-	972METALLIC COTTON BALE TIEJos. W. Branch and Joseph Crookes, St. Louis, Mo. March 23, 1868.
Mich.	erating the vibrating sickle driving mechanism of a harvesting machine, that such mechanism shall work through the driving wheel of the machine.	1,083.—MECHANISM FOR TAKING UP THE RECOIL OF HEAVY ORDNANCE.— Chas. S. Tyson, Prince George county, Md. March 30, 1868.

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