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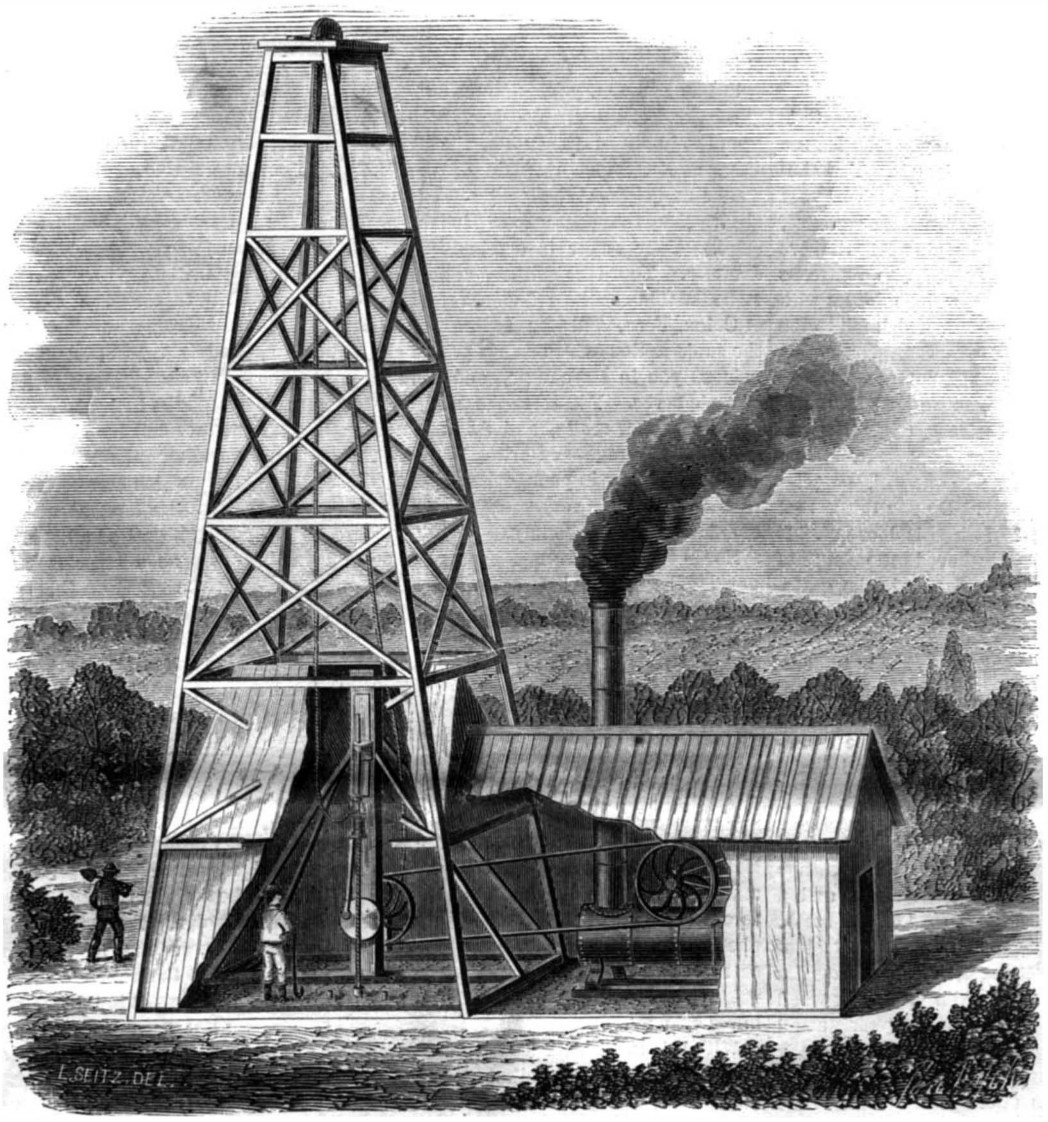


CLAPHAM'S DRILLING AND PUMPING MACHINE.

Drilling and Pumping.

The framework of this machine consists of six lower sills—four forming the square, upon which the derrick is placed, and two cross pieces, one to bear the center post and the other a short post, as a center bearing for the shaft.

A slide, A, is fixed on the upper part of the center post, B, and upon it a crosshead, C, works, which is connected with the crank wheel, D. Attached to the crosshead are the temper screw and swivel rope clamps, which are so fitted that they can be worked by the action of the pitman. Between the center post and the inner short post is the band wheel, F, which is driven by belting from the engine. Upon the shaft outside of the inner short post is a cone coupling that can be worked so as to graduate the speed in hoisting or lowering the tools. The windlass is fitted with a pawl and ratchet which can be used when any work is to be done without the aid of the engine. The outside journal of the windlass is made to receive the bight of the rope, for the purpose of taking out the twist during the operation of drilling. This gives it a continuous rotation and enables the tools to be worked with much more mechanical precision, thereby insuring a round hole. The sand pump is attached very easily.

This machine simplifies the operation of drilling, rendering altogether unnecessary the use of the samson post, walking beam, bull wheel, bull-wheel rope, and several large sills. The advantage of dispensing with the use of these large timbers will be readily seen, for in many districts wood is so scarce that the delay in procuring them often causes a great deal of inconvenience and expense. It is equally well adapted for the use of wire rope, hemp cable, or pole tools. It admits of the rope being continually turned in the same direction, the rotary motion being accomplished by the action of the machine.

In the old system of drilling, the rope being turned at intervals, in opposite directions, it is impossible, especially when working at great depths, to be certain whether the tools have turned at all. Thus it often happens, from the tools merely working vertically, that "flat holes" so frequently occur.

The direct attachment to the windlass affords the drillers much greater facility for taking a strain on the rope or hoisting tools. With the old bull wheel, there is often much delay in adjusting the rope, and this frequently occurs when the power is most needed. The direct connection overcomes this trouble and inconvenience. The cone coupling enables the power to be graduated in hoisting and lowering the tools. The band wheel being in the lower part of the derrick, dispenses with much strain and vibration. The whole machinery is more compact, and can be perfectly inclosed, and made as comfortable as any workshop.

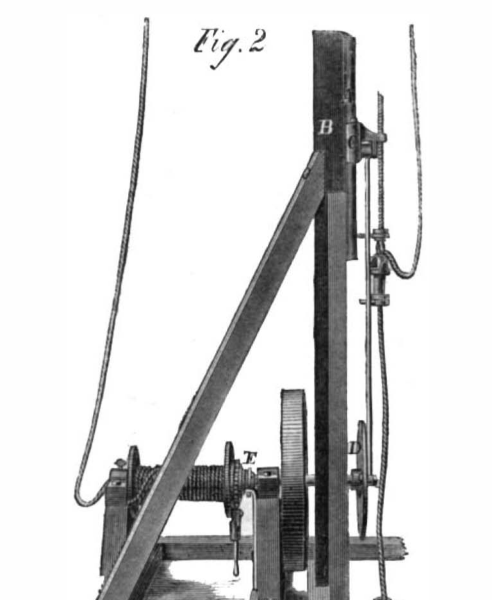


Fig. 2

The negligence of allowing property in the shape of producing wells to be uninclosed, and so exposed by day and night to the danger of fire and other accidents, is too apparent to need any comment. Hitherto the works have required so much space that it would have been difficult to inclose them, but by adopting the new method, everything becomes more compact, and can be more easily brought under cover. In cold weather the derrick room can be heated by small pipes from the boiler, without any risk from fire. The importance of this fact cannot be too highly appreciated, as hundreds of wells are every winter stopped from working by the frost. The derrick room can also be lighted from the engine room, by a glass window being placed in the partition, which brings everything under view at a glance. In pumping, the work can be done with much less power than by the old method, a six-horse engine being able to do as much work as a nine-horse by the old system.

It is often found that wells require to be worked energetically and with a rapid motion; but as a rule this cannot be done with a walking-beam, for when any speed is required, there is such an expenditure of power, and so much vibration and risk of a breakdown, that a slow motion is generally preferred.

One of these machines has been at work at the "Manor Wells," Story Farm, and one at the "Stirling Well," Tarr Farm, Oil Creek, Pa., since September last, and they are spoken of as having given the highest satisfaction.

Patented May 8th, 1866, by J. H. Clapham, whom address, at Messrs. Beebe, Son & Co.'s, 184 Fulton street, New York.

Nitro-Glycerin.

The April number of *The London Quarterly Journal of Science* copies from a German paper an extract in relation to the properties of this new chemical compound. Anything which tends to throw light upon this subject is of interest:—"Nitro-glycerin has been much lauded as an explosive agent for mining purposes. It is now stated that it freezes at a temperature of about 42° Fah., when mere friction will occasion it to explode. In one of the Silesian mines, an overseer was attempting to break a frozen mass, weighing about eight pounds, when it exploded, and the poor man was blown high into the air, and, of course, killed."

MIGHT AND MAGNITUDE.

Little by little the belief is gaining ground that fat is not force, nor size strength, nor plethora power. If we are to trust the most modern deductions of science, Goliath ought to have been a monster of weakness, while Samson, whose feats proclaim his prowess, can hardly have reached the middle hight. Hercules, too, must have been quite a small man. "Long and lazy, little and loud," are proverbial expressions physically accounted for. The Pygmæi of Thrace, who went to war with the cranes, were indeed a valiant race, if only three inches high.

The bodily frame of any animal is as much a machine as a steam engine is a machine. Now the more carbon a machine consumes, the more force it is capable of producing.

We must be careful to avoid forgetting that, in strict fact, at the present epoch, not a single thing in nature is either created or annihilated. It is transformed, and that is all. Thus, you may *burn* a piece of paper; but you do not *destroy* it. You simply make it suffer a metamorphosis. If such be your desire you can find it again, and collect its substance, weight for weight. Instead of retaining its primitive shape, the greater portion has passed into a gaseous state. It has become partly gas, which mingles with the atmosphere, and partly ashes, which fall to the ground.

Force undergoes similar transformations. *We* do not generate our own strength, as we are apt, in our pride, to fancy we do. We receive it ready generated, and then we transform it or displace it. Charcoal, for instance, in obedience to our will, supplies us with heat, that is, with force. Do you think that it really creates that force? Indeed it does not. It derives it from the sun. And when, in the depth of winter, a bright sea-coal fire is blazing in the grate, all the light and heat it gives are bestowed at the expense of the solar heat.

In truth, every vegetable substance has been actually built up, bit by bit, organ by organ, by rays of light and heat from the sun. The materials so grouped remain together; but only on one condition, namely, that the solar force, which originally assembled them, shall not quit them.

Coal is a mass of vegetable matter, which has been buried in the earth for a considerable lapse of time. It is solar light and heat put into a savings bank ages upon ages ago. It is power and action from the sun, imprisoned in the bowels of the earth. To us nineteenth centurians falls the lucky task of making it our slave, by setting it at liberty from its primeval trammels. Throw a piece of coal or wood into the fire; it is absolutely as if you took a small quantity of sun heat in your hand, to manipulate it according to your requirements. And this is not a mere form of speech; it is a correct expression of the real fact.

When an animal exerts his strength, do you also believe that *he* creates that strength? Not more than the coal creates the steam engine's strength. Here again it is entirely derived from the sun. The animal eats. *What* does he consume to keep himself alive? Alimentary substances, composed, in few words, of carbon, oxygen, azote, and hydrogen.

In an animal organism, those elements undergo a veritable transformation. Outside the animal, before they were eaten, they were combined, aggregated, united together, and in that state constituted food. Inside the animal, they are disunited, decomposed; the force which held them together quits them, allows them to separate, and so is free to do other work. It causes the creature's body to grow; endows it with vital and muscular force; and, in short, produces all the phenomena of life.

Who created the aliment? The Sun—himself created by the Great Maker of all things. Here again, therefore, the life and strength possessed by an animal are actually engendered by the sun.

Throughout your whole existence you will find, by following up the same reasoning, that your most trifling act, your most thoughtless movement, has derived its origin from the sun. A blow with the fist, a breath, a sigh, can be exactly estimated in rays of sunshine. Whether you trifle or whether you work, to make such an effort you have been obliged to expend so much strength; and that strength had already been stored in you by the sun, through the agency of a series of transformations. Your clothing is all borrowed from the sun. It is he who has spun every thread of your linen, and fed every fiber of your cloth and flannel. He either bleaches it snowy white, or dyes it purple and scarlet with indigo and madder. He furnishes leather for useful service, and furs and feathers for finery and parade. He gives you your bedding; whether you repose luxuriously between eider down and wool, or stretch your weary limbs on straw, chaff, Indian corn husks, seaweed, or even on a naked plank, as is the lot of not a few, it is the sun who gives both the one and the other. And what do we receive from regions where the sun, as it were, is not—from the immediate neighborhood of either pole? We receive just nothing. We cannot even get to them. The absence of the sun bars our progress with an impenetrable zone of ice and snow.

In like manner, your fine cellars of hock, burgundy, and claret are nothing but bottled sunshine from the banks of the Rhine, the slopes of the Cote d'Or, and the pebbly plain of the Medoc. Your butter and cheese are merely solid forms of sunshine absorbed by the pastures of Holland or Cambridgeshire. Your sugar is crystallized sunshine from Jamaica. Your tea, quinine, coffee, and spice are embodiments of solar influences shed on the surfaces of China, Peru, and the Indian Archipelago. It is the sun's action which sends you to sleep in opium, poisons you in strychnine, and cures in decoctions of tonic herbs. You taste the sun in your sauces, eat him in your meats, and drink him even in your simplest beverage—water. Without the sun, no blood could flow in your veins; your whole corporeal vitality, your very bodily life, is the result of the overflowings of his bounty.

Nor is this all we owe to our great central luminary. The physical forces with which we are acquainted—heat, light, electricity, magnetism, chemical affinity, and motion—dancing their magic round, and alternately assuming each other's form and action, and now believed in all probability to be one in their common birth and origin—are direct emanations from the sun.

But how grand and beautiful is the theory that *all* material blessings here below come to us entirely and alone from the sun! Its simplicity and unity are completely consistent with the attributes of the Maker. Given motion, and given matter, all the rest follows as an inevitable consequence. All nature, from the simplest fact to the most complex phenomenon, is nothing but a work of destruction or reconstruction, a displacement of force from one point to another, according to laws which are absolutely general.

With this much said about might, let us now look at the question of magnitude. From the foregoing statements, it may easily be conceived that the more an organized being is capable, in consequence of its physiological structure, of assimilating a given amount of aliment, the more effective force it will set at liberty, or, in other words, the more strength it will have at its own disposal.

Now, the solar forces, thus rendered active within the frame of a living creature, have, by determining its growth, to construct the animal itself. They have to generate its own proper vitality, as well as the result of vitality, its muscular power. It may therefore be asserted that the effective force at the disposal of every living creature will increase in proportion to its alimentation, and will diminish in proportion to its weight. Otherwise expressing the same idea: The more food an animal consumes and the less it weighs, the more muscular strength it will possess.

These deductions have lately been confirmed by curious experiments instituted by M. Felix Plateau, who has determined the value of the relative muscular power of insects—power of pushing, power of drawing, and the weight which the creature is able to fly away with.

It had already been remarked that animals of small stature are by no means proportionally the weakest. Pliny, in his "Natural History," asserts that, in strength, the ant is superior to all other creatures. The length and hight of the flea's leap also appear quite out of proportion to its weight. No very definite conclusion, however, had hitherto been arrived at. M. Plateau has settled the question by employing exact science as the test. Insects belonging to different species, placed on a plane surface, have been made to draw gradually increasing weights.

A man of thirty, weighing on an average a hundred and thirty pounds, can drag, according to Regnier, only a hundred and twenty pounds. The proportion of the weight drawn to the weight of his body is no more than as twelve to thirteen. A draught horse can exert, only for a few instants, an effort equal to about two-thirds of his own proper weight. The man, therefore, is stronger than the horse.

But, according to M. Plateau, the smallest insect drags without difficulty five, six, ten, twenty times its own weight, and more. The cockchafer draws fourteen times its own weight. Other coleoptera are able to put themselves into equilibrium with a force of traction reaching as high as forty-two times their own weight. Insects, therefore, when compared with the vertebrata which we employ as beasts of draught, have enormous muscular power. If a horse had the same relative strength as a donacia, the traction it could exercise would be equivalent to some sixty thousand pounds.

M. Plateau has also adduced evidence of the fact that, in the same group of insects, if you compare two insects, notably differing in weight, the smaller and lighter will manifest the greater strength.

To ascertain its pushing power, M. Plateau introduced the insect into a card-paper tube whose inner surface had been slightly roughened. The creature, perceiving the light at the end through a transparent plate which barred its passage, advanced by pushing the latter forward with all its might and main, especially if excited a little. The plate, pushed forward, acted on a lever connected with an apparatus for measuring the effort made. In this case also it turned out that the comparative power of pushing, like that of traction, is greater in proportion as the size and weight of the insect are small. Experiments to determine the weight which a flying insect can carry were performed by means of a thread with a ball of putty at the end, whose mass could be augmented or reduced at will. The result is that, during flight, an insect cannot carry a weight sensibly greater than that of its own body.

Consequently, man, less heavy than the horse, has a greater relative muscular power. The dog, less heavy than man, drags a comparatively heavier burden. Insects, as their weight grows less and less, are able to drag more and more. It would appear, therefore, that the muscular force of living creatures is in inverse proportion to their mass.

But we must not forget that it ought to be in direct proportion to the quantity of carbon burnt in their system. To put the law completely out of doubt, it would be necessary to determine the exact weight of the food consumed, and the quantity of carbonic acid disengaged in the act of breathing. Some chemist will settle it for us one of these days. —*All the Year Round.*

NOTES ON NEW DISCOVERIES AND NEW APPLICATIONS OF SCIENCE.

SILK FROM FISHES.

The epidemic which has of late years wrought such ravage among the silkworms has led to a vast amount of searching for substitutes for silk, and M. Joly, a well-known chemist of La Rochelle, conceives that he has at length found one likely to become of practical importance. He has found it, singularly enough, in the sea—that is to say, within the bodies of certain marine fishes. The exterior envelope, he tells us, of the eggs of the fishes in question consists of a very fine tissue composed of an immense number of exceedingly delicate filaments, which admit of being readily separated, and then exactly resemble those of ordinary silk. The eggs are twenty-five centimeters in diameter one way by thirteen the other, and weigh 240 grammes each, and in their interior is a white albuminous matter, which M. Joly believes can be utilized in calico printing, and a yellow coloring matter, which he imagines may prove valuable as a dye. The obtainment from the envelopes of the eggs of a material for textile fabrics, closely resembling ordinary silk, he declares to be economically practicable on any scale.

PHOTOGRAPHIC ENGRAVING.

The great advantage of the process for obtaining photographs on copper plates, which we described last week, consists in the circumstance that photographs so obtained may be readily "bitten in," so as to enable the plate to be printed from just as though they were ordinary engraved plates—the result, however, being a far more perfect reproduction of the original photographic picture than could be obtained by the most skillful mechanical engraving. When it is desired to etch a photographic picture obtained on a coppar plate by this process, the plate, after having been dried must be varnished on the back and sides, but not on the face, must have all the black dust composing the shadows of the picture carefully removed, must next be well washed under a strong jet of water, and must then, without first drying, be plunged into the liquid to be employed as a mordant. A suitable mordant is one consisting of one part of nitric acid, two parts of a saturated solution of bichromate of potash, and five parts of water. Where more convenient, the nitric acid may be replaced by sulphuric acid. The quantity of this mordant used in the first instance should be simply enough to completely cover the plate, but from time to time, as the liquid turns blue, more should be added, the action of the mordant being continued for a whole day, or for even longer, according to the temperature. The mordant acts only on the bare copper, and does not affect those parts of the plate which are covered by silver, so that the result is an incised engraving, fit for printing from. If, instead of treating the plate as thus described, the black dust composing the dark parts of the original picture be not rubbed off, and the mordant used consist of iodine associated with either bichromate of potash or nitric acid, an engraving in relief will be obtained, the iodine acting only on the parts of the plate on which there is a deposit of silver, and from this engraving in relief a reversed proof, suitable for printing from, may be procured by the galvano-plastic process.

PEROXIDE OF HYDROGEN.

Professor Schonbein has discovered a new and very ready method of procuring the peroxide of hydrogen. It consists simply in agitating, in a large flask, to which air has access, amalgamated zinc, in powder, with distilled water. Oxygen is then absorbed by both the zinc and the water, with formation of oxide of zinc and peroxide of hydrogen. The peroxide of hydrogen obtained by this method, unlike that obtained by the ordinary process, is quite free from acid, and so may be kept for a long time without decomposition. It does not contain, moreover, a trace of either zinc or mercury, but is absolutely pure. This new process has therefore great advantages over the old process of preparing peroxide of hydrogen, both as being far simpler and more expeditious, and as yielding a much purer product; but it is almost as far as the old process from yielding peroxide of hydrogen cheaply enough for use in the arts.—*Mechanics' Magazine.*

GLEANINGS FROM THE POLYTECHNIC DISCUSSIONS.

THE GALVANOMETER—MEASURING MAGNETIC CURRENTS—TELEGRAPH INSULATORS—DEEP GULLIES.

Prof. Tillman:—There is a great want for means of measuring the stength of magnetic currents. Every current will deflect a magnetic needle which it passes near, and the stronger current will deflect the needle more; but a current twice as strong will not deflect a needle twice as much. Now what is the law? There is room for invention here. The various European savans have attacked the problem, but as yet the world is without a galvanometer which will give mathematically the proper relations. Gen. Lefferts and Mr. Farmer, of Boston, have succeeded in manufacturing coils of small wire which will give uniform amounts of resistance to currents passing through. Dr. Bradley, of Jersey City, has recently combined a very compact and effective instrument, using a quantity of these coils or spools of wire.

Dr. Bradley:—Weak currents, which deflect the needle a little, produce deflections which are proportional to their force; a current twice as strong, producing twice the deflection. This law holds good only for small angles of deflection. As the angles increase, it requires a greater addition to the current to add an equal amount to the deflection. A magnetic needle points to what we call the magnetic pole, near the north pole of the earth. The artificial current to be measured is carried under such needle in the direction parallel to it. The tendency of all currents is to induce the needle to stand at right angles thereto. A weak current will produce a deflection—it will pull the needle to one side—but no current can be made so strong as to pull it quite around at right angles to the magnetic meridian. De La Rive conjectured that the tangent of the angle of deflection of the needle was an approximate measure of the force of the currents. There are strong reasons for believing that the tangent of the angle is an exact measure of the force of the currents. But the speaker had based his instrument on no such supposition. It was well determined that an equal force would produce an equal deflection. The Bradley instrument is constructed on that principle alone.

The series of Leffert's and Farmer's resistance spools were arranged like a grocer's weights so as to give any resistance desired. The unit of resistance was that due to the traversing of a mile of number eight galvanized-iron wire, well insulated. By switching a number of these spools together he could make a resistance of six hundred miles, or could subdivide it down to hundredths of a mile.

The chief practical importance in the present state of the arts of an exact measure of resistance is to select and adjust telegraph instruments Send the current through one, and measure the deflection of the needle produced by the current which passes that resistance. Then send the current through the resistance measure, and switch on or take off the resistance spools until the needle is deflected the same. Then read the result on the switch levers, as accurately as you weigh a lot of hay on the best Fairbank's platform scales.

Actual telegraph lines always impose more resistance and loss than the theoretical standard miles; but are rarely if ever so bad as to offer double the standard resistance.

Mr. Stetson:—Bad insulation in wet weather is another great difficulty to be met by inventors in telegraphy. The webs of insects extending across, become so good conductors when wetted by storms as to seriously impair insulation. This is the main cause which prevents the success of otherwise excellent inventions, for insulators. Who can overcome the mighty obstacle imposed by a spider's web to the progress of invention in this line?

Dr. Stevens:—The wearing or gullying away of the earth by the action of streams is familiar to all; but the immensity of this influence in modifying the surface of our globe is rarely appreciated except by the professed geologist. The Niagara has excavated a valley or narrow ditch with perpendicular sides, so deep that the surface of the water for about twelve miles below the falls is some three hundred and fifty feet below the adjacent country. The Ohio river between Pittsburgh and Cincinnati, runs some seven hundred feet below the natural level. It has excavated a valley to that depth. But such instances of the sinking of streams much below the general level of the country through which they pass, though comparatively rare east of the Mississippi, are very common in the great territories of the West; there they are the rule. Canons of immense depth seem to be the natural accompaniements of the water courses. The most remarkable instance in the world is the Black Canon, where the Colorado river flows through the Black Mountain region. The land lies in elevated plateaus. For a little distance the general level of the land immediately adjacent is six thousand feet above the surface of the river. At one point there is a perpendicular precipice forming one bank of the river which is one mile high as measured and verified with ordinary care by repeated observations by the anaeroid barometer.

Lacquers.

Lacquers are used upon polished metals and wood, to impart the appearance of gold. As they are wanted of different depths and shades of colors, it is best to keep a concentrated solution of each coloring ingredient ready, so that it may at any time be added to produce any desired tint.

1. *Deep Golden-colored Lacquer.*—Seed lac, three ounces; turmeric, one ounce; dragon's blood, a quarter of an ounce; alcohol, one pint. Digest for a week, frequently shaking. Decant and filter.

2. *Gold-colored Lacquer.*—Ground turmeric, one pound; gamboge, an ounce and a half; gum-sandarach, three pounds and a half; shell lac, three-quarters of a pound (all in powder); rectified spirits of wine, two gallons. Dissolve, strain, and add one pint of turpentine varnish.

3. *Red-colored Lacquer.*—Spanish anatto, three pounds; dragon's blood. one pound; gum-sandarach, three pounds and a quarter; rectified spirits, two gallons; turpentine varnish, one quart. Dissolve and mix as the last.

4. *Pale Brass-colored Lacquer.*—Gamboge, cut small, one ounce; cape aloes, ditto, three ounces; pale shell lac, one pound; rectified spirits, two gallons. Dissolve and mix as No. 2.

5. Seed lac, dragon's blood, anatto, and gamboge, of each a quarter of a pound; saffron, one ounce; rectified spirits of wine, ten pints. Dissolve and mix as No. 2.

The following recipes make most excellent lacquers:—

1. *Gold Lacquer.*—Put into a clean four-gallon tin 1 pound ground turmeric, 1½ ounces of powdered gamboge, 3½ ounces of powdered gum-sandarach, ¾ of a pound of shell lac, and 2 gallons of spirits of wine. After being agitated, dissolved, and strained, add one pint of turpentine varnish, well mixed.

2. *Red Lacquer.*—2 gallons of spirits of wine, 1 pound of dragon's blood, 3 pounds of Spanish anatto, 4½ pounds of gum-sandarach, 2 pints of turpentine. Made as No. 1 lacquer.

3. *Pale Brass Lacquer.*—2 gallons of spirits of wine, 3 ounces of cape aloes, cut small, 1 pound of fine pale shell lac, 1 ounce of gamboge, cut small, no turpentine varnish. Made exactly as before.

But observe that those who make lacquers frequently want some paler, and some darker, and sometimes inclining more to the particular tint of certain of the component ingredients. Therefore, if a four-ounce vial of a strong solution of each ingredient be prepared, a lacquer of any tint can be procured at any time.

4. *Pale Tin Lacquer.*—Strongest alcohol, 4 ounces; powdered turmeric, 2 drachms; hay saffron, 1 scruple; dragon's blood in powder, 2 scruples; red saunders, ½ scruple. Infuse this mixture in the cold for 48 hours, pour off the clear, and strain the rest; then add powdered shell lac, ½ ounce; sandarach, 1 drachm; mastic, 1 drachm; Canada balsam, 1 drachm. Dissolve this in the cold by frequent agitation, laying the bottle on its side, to present a greater surface to the alcohol. When dissolved, add 40 drops of spirits of turpentine.

5. *Another Deep Gold Lacquer.*—Strongest alcohol, 4 ounces; Spanish anatto, 8 grains; powdered turmeric, 2 drachms; red saunders, 12 grains. Infuse and add shell lac, etc., as to the pale tin lacquer; and when dissolved add 30 drops of spirits of turpentine.

Lacquer should always stand till it is quite fine, before it is used.—*Larkin's "Brass and Iron Founder."*

ENGLISH engineers have found out that one of our monitors, the *Monadnock*, made an excellent voyage to Valpariso, that she encountered the ordinary gales and behaved as well as any ship in the squadron. The monitor carried two 15-inch guns in each turret and her sides are but 15 inches out of water. It appears that the new English turret vessel *Monarch* has sides 14 or 15 feet high, which makes some grumbling among engineers; they do not seem to like such exalted structures.

THE following opinion of Mr. Solly was sent to Rome by telegram, by one of the late Mr. Gibson's friends. It is a curious sign of the times in two ways: first, in the mere fact of such a means of transmission of medical advice; and, secondly, in the extraordinary dread of bleeding a patient which exists out of, as well as in, the profession, at this present time. The message was: "Mr. Solly thinks no blood-letting is required, unless the head be hot and painful. Quiet and nourishment are indicated."

WE understand that Capt. John Ericsson is to be paid $13,930 as his reward in full for planning the United States war steamer *Princeton*, and superintending the construction of machinery of the vessel. Mr. Ericsson has realized a large fortune by his improvements and inventions during the war, which we rejoice to hear, as his services and skill have been exceedingly valuable to the Government.

A NEWSPAPER in California says they are so much annoyed out there with mosquitoes and bed bugs, that a physician advises, first a bath in a solution of soft soap and molasses, then a sprinkle of saw dust on the head, after which the patient should take to his bed and maintain perfect repose.

SODIUM DANGEROUS—THE SEA SET ON FIRE.

The Boston *Commercial*, of May 19th, has this story:—

"We understand that the ship *S. T. Joseph*, recently arrived here from Liverpool, had a narrow escape on the passage. It seems, as the matter is reported to us, that among the cargo was a box marked sodium, which was placed on deck, with instructions to the effect that if there was any trouble with it from getting wet or otherwise, to throw it overboard. Soon after getting to sea the captain took a dislike to this box, supposing it might be something of the nature of lime, and possibly might set the ship on fire. So he ordered a couple of old salts to pick it up carefully, and throw it over the stern. Instantly on its striking the water a terrific explosion occurred, and an immense column of water was thrown up, filling all hands who witnessed it with consternation and amazement. Captain Alexander is entitled to much praise for acting thus promptly with the terrible stuff (probably nitro-glycerin), for had a stray block from aloft or a heavy sea struck the box as it lay on deck, the ship might never afterward have been heard from."

The box no doubt contained sodium. It is the nature of sodium to be very violent when thrown into water. We have heard of several similar accidents. Some of the importers of sodium have had a pretty costly experience of its dangerous properties. Shippers who are aware of the risks will have nothing to do with it. One reason of the high price of sodium in this country is an extra charge to cover losses by shipment. We understand that the Wurtz Amalgamation Co. are about to commence the manufacture of sodium on a large scale, and that on account of the danger of transporting it they will offer it for sale only when combined with mercury.

The danger from sodium comes from its extraordinary affinity for oxygen; it (Na) will take that element (O) away from almost any other. When brought in contact with water (HO) it seizes the oxygen, forming caustic soda (NaO) while the hydrogen escapes. But these chemical changes are brought about with violence and if the quantity of material be great, as in Captain Alexander's case, the effects are fearful. Generally, also, there is something besides noise. The sodium and hydrogen are both combustible in the ordinary sense of the word, and when these burn together the fire is not to be put out with water.

Potassium (K), the base of potash (KO), is very like sodium. Its dangerous properties are much more decided. Whenever it touches water it bursts into flame; it even burns fiercely when placed upon a piece of ice.

Sodium and nitro-glycerin are new applicants for employment in the arts, and as is fitting for our position, we have given them a hospitable welcome. They are well commended to us and we have asked for them a trial. They have their faults, it is true, and who has not? But when we understand them, we have only ourselves to blame if we suffer instead of profit by their employment.

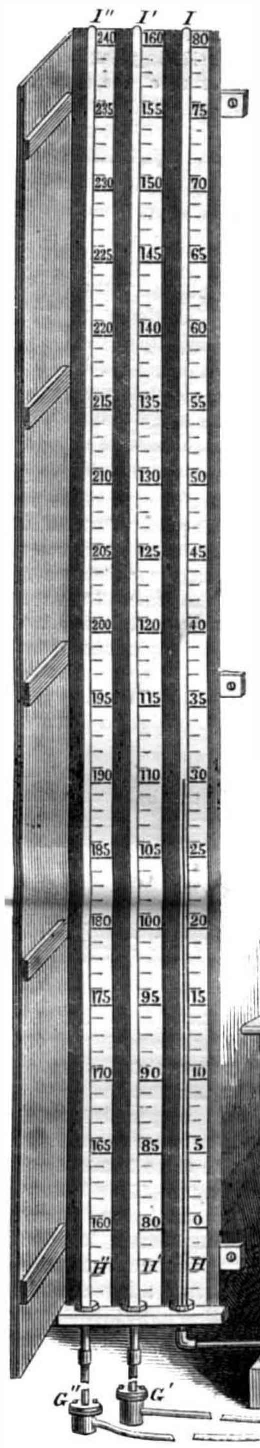
PERMANENT INK FOR WRITING IN RELIEF ON ZINC.—Bichloride of platinum, dry, one part; gum arabic, one part; distilled water, ten parts. The letters traced upon zinc with this solution turn black immediately. The black characters resist the action of weak acids, of rain, or of the elements in general, and the liquid is thus adapted for marking signs, labels, or tags which are liable to exposure. To bring out the letters in relief, immerse the zinc tag in a weak acid for a few moments. The writing is not attacked, while the metal is dissolved away.

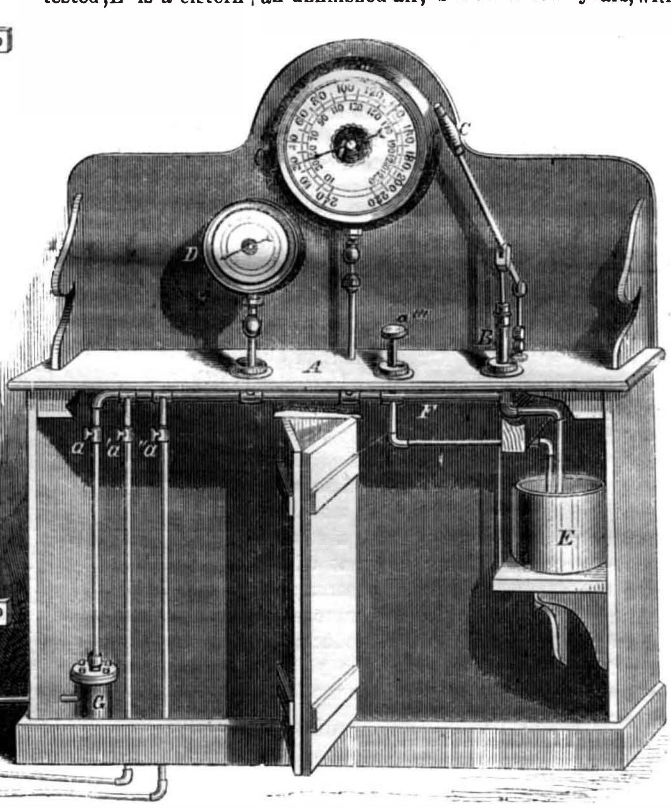
A SUBMARINE VARNISH.—Rosin, two parts; galipot, two parts; essence of turpentine, forty parts. Melt the above and add, in the form of very fine powder and well mixed, sulphide of copper, eighteen parts; regulus of antimony, two parts. This varnish is said to protect wood from worms and to prevent the adherence of barnacles and parasites to the bottom of ships. It also preserves iron from oxydation. The author of this does not say whether the sulphate of copper (blue vitriol) will answer the same purpose. In all probability it would serve quite as well as the sulphide.

[Communicated.]

Improved Steam Gage.

The most accurate and convincing means of testing gages is a column of mercury; but to test a gage up to 240 lbs. requires a column about 40 feet high, which is inconvenient to the observer. In the arrangement illustrated by the accompanying engraving the inconvenience of a glass tube of great hight is avoided by using three tubes of mercury, whose upper ends are on the same level, so that they may be observed without ascending steps. The lower parts of two of the columns descend into rooms or cellars below; and columns of water transmit the pressure down to the cisterns of mercury at their feet.





KEEN BROTHERS' STANDARD STEAM GAGE.

In the engraving, A is the table on which the gages to be tested and the hand pump to produce the pressure are fixed. B is the pump; C is the test gage, and D the gage to be tested; E is a cistern from which the pump draws water; F is a pipe into which it pumps the water. From this pipe there are branches leading to cisterns, G, G', G'', which contain mercury enough to fill the respective graduated glass tubes, I, I', I'', connected with them.

The operation of testing is as follows:—1st. The gage is screwed on to the nipple; and the pump is worked until the mercury rises in the tube, I, to the hight marked 80 on the scale, H. This shows 80 lbs. per square inch pressure. The stop cock, *a*, in the pipe leading to the cistern, G, is then shut to prevent more water from entering that cistern and forcing the mercury out of the open top of the tube. 2d. While the mercury was rising to 80 in the glass tube, I, it rose in the iron tube from the cistern, G', up to the glass tube, I', to the level marked 80 on the middle scale. The pumping is then continued until the mercury rises to 160 lbs. on the middle scale. 3d. The stop-cock, *a'*, is then shut, to prevent more water from going into cistern, G', and pressing the mercury further up in tube, I', and the pumping is resumed, forcing water into the cistern, G'', until the mercury rises to 240 lbs. in the tube, I''. In the same way other tubes and scales may be added, if it be required to test gages to indicate higher pressures. The steam gages manufactured by Keen Brothers are all tested by this mercury column.

This gage is used at the headquarters of the Metropolitan Police in New York for testing the steam gages of boilers officially inspected by the engineers acting under the Police Commissioners, and by Messrs. Hopper & Douglas, U. S. Local Inspectors for this district, who have them for test gages; and they are recommended by the superintendents of many steamboat and railway companies.

Manufactured by Keen Brothers, 218 Fulton street, New York.

OUR SPECIAL CORRESPONDENCE.

First Impressions of Washington—Some facts in Ethnology—The way debates are conducted in Congress—Able administration of the Patent Office.

WASHINGTON, May 21, 1866.

As seen from the upper windows of the Capitol, Washington seems to be a flat city of brick houses, with green rows of tree tops rising from among the red walls; on traveling over it, however, it is found to be an excellent site for a town—sufficiently rolling for drainage, but not too hilly for the easy transportation of merchandise. Like most American cities, it is traversed in all directions by street cars; the fare is six cents—the same as in New York, and one cent less than in Philadelphia. The place has an unfinished air, but in a few years, with its wide streets and large trees, it will be one of the most beautiful of all our cities. The great public buildings, of white marble and pure Grecian architecture, are magnificent, but in their location the grave fault has been committed which has been remarked generally of American public buildings—that of placing them directly upon the street instead of locating them in the midst of ornamented grounds. The Capitol and the White House are exceptions; but even the grounds of the Capitol, though beautiful exceedingly, are far too contracted for the size of the edifice. What a pity that the Capitol, with its superb dome, could not have been placed on the highest ground in the city—say where the City Hall now stands.

As the SCIENTIFIC AMERICAN embraces within its province the whole circle of sciences, I keep my eyes open for any facts, in any department of these, which may prove of interest to its readers. There is one department of ethnology which has attracted my attention for several years, and which seems to me of peculiar interest to the American people—that is, the rapid fading out of the negro race. Among all the colored people that I have observed in this city and on my way here, I have not seen a single full-blooded negro. I observed this same shading away of the black race many years ago in St. Louis, I noticed it in a trip through the Southern States to Texas just before the war, and I have remarked it very particularly in Boston, Providence, New York, and other Northern cities. It is manifestly rapidly increasing; the children everywhere are lighter colored than their parents. Henry Clay estimated that this process would extinguish all traces of the negro race in this country in the course of two hundred years.

Saturday afternoon I went into the hall of the House of Representatives—a rectangular, frescoed room, with a beautiful white marble pulpit for the speaker's desk, and the seats of the members—looking with their tables like large and handsome school desks—arranged in segments of circles around it. The House was in session, though nearly all the seats were vacant—some twenty members being in their places. One member was standing up reading a speech, and one other member—apparently a personal friend—with his right leg hanging over the arm of his seat, was listening to it. No one else in the room was paying any attention to the speech; the speaker was reading a newspaper, and the several members were either reading, writing, or talking. The conversation of one group was more audible than the reading of the member who was addressing the House, and as I was looking about the room, I was startled by a loud blow at the speaker's desk, which sounded like striking a mallet upon a book; when attention was thus secured, the speaker remarked, "I call the gentlemen upon my left to order." The speech had evidently been written for circulation among the member's constituents, but in order to make it a speech in Congress, it was necessary to read it, whether any person listened to it or not. I would suggest to your ingenious subscribers to devise some plan by which this ridiculous humbug, with its consequent waste of the costly time of Congress, might be overcome.

I have, of course, visited the Patent Office, and have only to remark that from Mr. Theaker, the Commissioner, down, I was very favorably impressed with the *personnel* of the establishment. Among the Examiners, I saw Governor Farwell, of Wisconsin, manifestly a man whose ability and weight of character should place him in a higher position; and the same remark might be made of others of the officers. I suppose the Patent Office has always been managed with more honesty and efficiency, and with less complaint from the people, than any other department of our Government. It has certainly done more than any other to increase the production of wealth and to advance the prosperity of the country.

When I started for Washington I had in view the obtaining of certain interesting information for your columns; I shall make an effort toget this to-day, and, if successful, will forward it in time for your next issue. G. B.

IMPROVED FACILITIES IN RAILROAD FREIGHTS

A novel project has recently been presented through the papers of New York and Brooklyn, designed to increase the freight capacity of railroads. It is as follows:—A double-track railroad, to be owned by a joint stock company, but to be open to free competition in transportation—any one being allowed to put trains on the road and to run them, paying tolls to the company for the privilege of transporting over the road. Also, the adoption of a uniform speed, such as will give the road its greatest freight capacity.

The *Tribune*, in allusion to the plan, says:—

"It is estimated that a road of this character would be equivalent in tunnage capacity to twenty single-track, or ten double-track roads with unequal rates of speed, while nine-tenths of the difficulties of management and liability to accidents would be taken away. The suggestions, to us, appear to be nearly, if not quite, self-evident propositions. They are analogous in principle to the operation of a grain elevator, and we do not see why the principle cannot as well be applied to a railroad as to any other piece of machinery. It is difficult to estimate the tunnage capacity of a road capable of being filled with carts its whole length, moving at a uniform rate of speed, and pouring a stream of commerce that would rival the capacity of all our canals and railroads of the State combined. We do not doubt that a road of this description could be so constructed and operated as to cheapen transportation one-half, and benefit the public in the same ratio. Our railway system, like many other things, is in its infancy, and if we mistake not, public necessity will soon bring it into a state of increased efficiency far beyond the present."

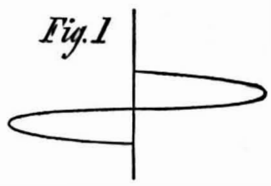
Correspondence.

Mechanical Drawing.

MESSRS. EDITORS:—There are many young persons devoting themselves to the study of mechanical drawing who find their skill and patience sorely taxed to execute a neat drawing of a screw, by any rules that are known to the draughtsman. Having overcome the difficulty in my own experience by a simple and, I think, geometrically accurate method, I propose to describe it for the benefit or gratification of your patrons who find pleasure in such things.

The perspective of any screw may be drawn by the use of a parabola whose base is equal to half the pitch, and whose hight is equal to half the diameter of the screw.

Fig. 1



The annexed double parabola (Fig. 1) describes the outline of a two-inch screw with a half-inch pitch. Cut this parabola accurately from a card, and set its base at the center of a two-inch screw with a half-inch pitch, one leg of it at the top of one thread, and the other at the under side of the next thread, and you will see that it exactly coincides with the perspective outline of the screw.

The parabola desired may be cut singly from a common business card, and used to draw the right side of the screw first, and then reversed to draw the left. But I prefer the mode of preparing a card with a double parabola as illustrated in Fig. 2.

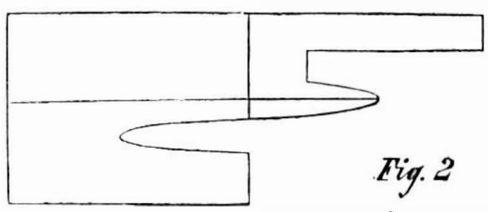


Fig. 2

After drawing these parabolas on cards or thin pieces of wood, from triangles whose hight is just the diameter of the screw, and the breadth of whose base is half the pitch required, carefully cut away, as in Fig. 2, and your card is ready for use.

The practical application of the rule, by this simple instrument, may be described thus: After drawing a center line and two light parallel lines for the diameter and length of the screw, and two others for the depth of the thread, with dividers, space off the outer lines, or only the center, into divisions equal to half the pitch, and draw light lines across the screw at right angles to the center. With a proper drawing board the dividers are not needed.

Fig. 3

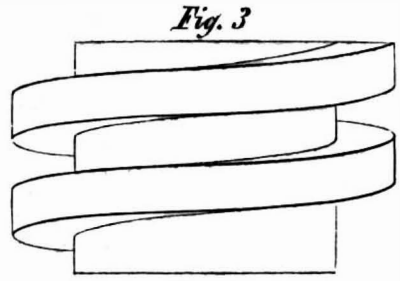
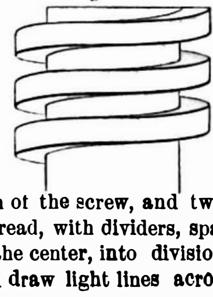


Fig. 4



Let the base line of the parabola coincide with the center line of the screw to be drawn, and the center line of the parabola coincide with any one of the half pitch lines, and then draw the under side of the thread first and then the upper, as in Figs. 3 and 4.

These examples are sufficient to illustrate the principle and convince the critic of its correctness. All bodies thrown into the air, out of a line perpendicular to the earth's surface, describe parabolas. In cutting a screw, the force moving the tool corresponds to gravity; that of the screw, to projectile force. The resultant of these two forces, when seen in a line perpendicular to the center of motion, is a parabola.

The perspective line, showing the bottom of the thread in the example, is drawn by another parabola whose hight is less than the first by the depth of the thread. JOHN B. KELLOGG.

Birmingham, Conn., April 6, 1866.

FINANCIAL BREAK-DOWN IN ENGLAND.

Recent news from Europe represents affairs as generally very serious. Austria is arming. Prussia is arming, and Italy is arming, and Napoleon has, in a recent speech, uttered a significant word which has added fuel to the flames. It appears as though Austria was about to be ground between the upper and nether millstones. The effect of all this has been to create a wide spread distrust in financial and business circles. In England it amounted to a very critical panic among the bankers, which resulted in the suspension of several large firms. The old banking house of Overend, Gurney & Co. suspended with liabilities amounting to $50,000,000, of which sum $30,000,000 were due to depositors. This firm was doing this immense business on a paid-up capital of only $7,500,000. We do not wonder that the concern went *over end* or overboard. We are thankful to believe that, with all our varied faults, our bankers do not transact business in this loose manner.

We regret that the firm of Peto & Betts, of which Sir Morton Peto is the senior member, and who cut such a figure in this country, was also compelled to succumb. Their liabilities are some $15,000,000, which is considered secure.

The effect of the news in Wall street stimulated the shipment of gold, and the consequent advance of 10 per cent in its price. Over $10,000,000 in gold have been shipped from New York within the past two weeks. The effect of such a large and sudden drain of the precious metal cannot be otherwise than injurious, though we do not anticipate any serious financial trouble in this country as likely to result therefrom.

Napoleon's little speech of a few words, in which he declared that he despised the Treaty of 1815, produced all this sad result. This is the whole of it in a sentence.

FOOD AND ITS ADULTERATIONS.

High prices for food lead to the introduction of injurious substitutes and adulteration. At the present time an unusual number of articles of food in daily use are badly adulterated. Common scandal for years has assigned to the milk vended from the wagons a reputation by no means creditable to the salesmen. Whiting, flour, water and many other things have been found to constitute the ingredients of the produce which confiding persons have supposed to be elaborated by the mammary glands of the cow. Cream is a mythical affair altogether.

Butter has also been found to be extensively adulterated in England. About fifteen years ago the owners of the London *Lancet* employed Arthur Hill, Hassel, and others, to investigate the matter of the adulteration of food, and published the results of their experiments in a series of papers. The scales and test tubes were employed in the endeavors to determine the quality and ingredients of the various staple articles employed in diet by the inhabitants of the British metropolis. Dr. Hassel afterward embodied the results of his labors in a volume, which is declared to be a very cyclopedia of dishonesty. No less than forty-eight samples of butter were examined by these investigators, and their discoveries were recorded at full length. They ascertained that about one-fifth of the whole weight consisted of salt and water, the water having been stirred up with the butter rendered half fluid by heating. Potato flour was also detected.

The adulteration of coffee is more notorious. Chiccory and dandelion are commonly mingled with it; and, indeed, peas, barley, sweet corn, wheat, are substituted in its place. Even the chiccory itself is too valuable to escape analogous treatment. Doctor Hassel and his associates examined thirty-four samples of the prepared sort, and found carrot, parsnip, beet, beans, acorns, roasted corn, biscuit powder, and burnt sugar.

These gentlemen examined forty-two specimens of coffee, finding thirty-one to be adulterated purely with chiccory; twelve chiccory and roasted corn; one with beans, and one with potato flour. A packet of "Jamaica coffee" was found to be composed almost entirely of chiccory; the "finest Java coffee" consisted of half coffee, much roasted corn, and a little chiccory; "surperb coffee" was princpally chiccory and roasted corn; "fine Plantation Ceylon" was almost entirely chiccory; "fine Java" was heavily charged with chiccory and potato; "delicious drinking coffee" was chiccory and roasted corn. The more imposing the name, the grosser the counterfeit appears to have been. We remember some months since to have been presented with a sample of made coffee, the flavor of which greatly resembled that of charred wool, and its effect upon the stomach was anything but agreeable. Indeed, in this country, as well as elsewhere, there are but two certain plans to follow to obtain real coffee: to witness the grinding of it or to purchase it whole and grind it at home. Nevertheless, there are honest coffee merchants occasionally.

The same remark applies with equal justice to the trickery played upon tea. The Chinese adulterate it themselves before selling it to the "outside barbarians" by mixing it with ash or palm leaves. The English are large in the practice of gathering the "grounds" or exhausted leaves, mixing them with a solution of gum and drying them; after which by adding rose-pink and black lead to "face" them, they are made into black tea, and by using copperas they have green tea. The leaves of the beech, elm, chestnut, plane, oak, willow, poplar, hawthorn, sumach, holly, sloe, are used more or less in the work of adulteration. Black tea, however, does not appear to suffer much in reputation in this manner; but of green teas this cannot be said. Of course, it is not necessary to remark that the difference between genuine green and black teas consists in the peculiar manipulation given them by the Chinese.

Chocolate has also become notorious by reason of its adulterations. Flour appears to be the principal ingredient employed for this purpose; starch, sugar, cocoa-nut oil, lard, tallow, sweet ocher, and chalk, have also been used. The very mode of preparing it affords facilities which the dishonest could not leave alone. The proclivity is unfortunate, for the beverage is cheaper and more wholesome than its rivals.

The corruptions of sugar are less numerous, and are confined principally to confectionery. Gamboge, starch, flour, pipeclay, plaster of Paris, chalk, and even copper, lead, and mercury, are used in the preparation of cheap candies.

Wheat flour is generally sold in this country in a pure condition, owing to its cheapness. But in England, it has been found upon analysis to yield such queer constituents as white corn meal, potato flour, plaster of Paris, ground bones, chalk, rye, bean, pea, and rice flour. Bread, however, is badly adulterated. There is some reason for our people to adopt the suggestion of the French tiger Marat, and hang up the bakers at their own doors. The bread which they serve becomes thoroughly unpalatable when but a few hours old, owing to the improper ingredients employed in its preparation. Alum, either pure or mixed with salt, is a familiar article in the manufacture, making inferior flour white, and enabling it to absorb a larger quantity of water.

The remedy for these evils is an important topic for consideration. Legislation has often been proposed, but we cannot quite agree with those who regard it as the panacea of human ills. Indeed, it is hardly possible to establish in any large community, like Boston, New York, or Philadelphia, a system by which unwholesome or adulterated articles would be excluded from the market. Beside, we are a people jealous of much governing. We prefer to be cheated in the weight or quality of our bread, the quantity of our berries, the constituents of our milk, or even the ingredients which constitute our coffee or wine, to the alternative of an espionage into our habits and employment. The surveillance which in many European countries exposes every man's most trivial acts to the cognizance of government, would be resented by us as an unpardonable outrage on personal rights. We prefer to take our chances with the petty knaveries of our neighbors, to hourly contact with the informer, the policeman, or the magistrate. —*Merchants' Magazine.*

Magic Photography.

Two sheets of paper are supplied to the purchaser, together with instructions. One of these sheets is albumenized, the other is a sheet of blotting paper. There is no picture visible on the albumenized paper; but when, in accordance with the instructions given, the sheet of blotting paper is moistened by means of a few drops of water and pressed in contact with the face of the albumenized paper, a picture immediately springs into existence. The question now arises, How is this accomplished? Light has evidently nothing to do with it, seeing that the same phenomenon occurs both in sunshine and in comparative darkness.

The following is the method by which these "magic photographs" are produced:—Print a picture on albumenized paper in the usual way, taking care not to print so deeply as ordinarily. Fix the print (without toning) in plain hyposulphite of soda, wash thoroughly, and then immerse it in a saturated solution of bichloride of mercury till the image disappears. Again wash thoroughly and dry. The paper now appears like a piece of plain albumenized paper, without any appearance of a picture on it, and in this condition it may be kept for an indefinite time.

To cause the image to appear instantaneously and in more than its pristine vigor, dip the paper in a weak solution of hyposulphite of soda; or, preferably, dip a piece of white blotting paper in a solution of hyposulphite of soda and dry it. This prepared paper may be kept in contact with the latent picture so long as moisture is excluded. When it is required to develope the image, moisten the blotting paper with common water and press it against the albumenized surface of the print, when, presto! the "magic photograph" is produced, and is, when well washed, as permanent as many of the photographs of the present day. The image, by being again immersed in the bichloride of mercury solution, may be once more rendered invisible, and by the hyposulphite solution again restored as often as may be desired.

The amusement that can thus be introduced into the social circle by the "magic photographs" may be easily conceived.—*British Journal of Photography.*

"Magic Photographs."

The familiar experiments of the laboratory have in the present day a great tendency to become the magic of the drawing room. Magic photographs are among the most recent of the scientific toys which take the public attention. These are of various kinds. The first and most common mode of producing them consists in placing an apparently common piece of blotting paper upon an apparently plain piece of white albumenized paper, moistening the two and producing at once a photographic picture. The explanation of this is simple, and is doubtless familiar to old photographic experimentalists; we practiced the same feat a dozen years ago. It consists in bleaching, until it is white and invisible, by means of bichloride of mercury, a silver print; then taking a piece of blotting paper which has been previously immersed in a solution of hyposulphite of soda, and placing it in contact with the immersed print; this, when moistened, at once darkens the bleached image, and a picture, consisting chiefly of sulphide of mercury, is produced. We have received some examples from Mr. Swan, and details will be found in Dr. Vogel's German letter in this number. We have just received from Mr. Hughes's establishment a still prettier application of parlor magic, in which, by placing an apparently blank piece of paper into a solution—the material for which is inclosed in the packet—a beautiful blue print is produced. This is doubtless the result of one of the applications of the Cyanotype process of Sir J. Herschell, which may be made to produce many beautiful transformations. —*Photographic News.*

The Sterhydraulic Press.

The above is the name given to the new hydraulic press, invented by MM. Desgoffe and Olivier, civil engineers, which has excited considerable attention, owing to the satisfactory results obtained after a long practical trial. The principle on which it acts is so simple that we wonder it was not thought of long ago. There is no forcing or injecting pump, and instead of a liquid being introduced into the press, already filled, a rope is made to enter, and as it enters, it gradually displaces the liquid, causing the plunger to rise. As the substance introduced into the apparatus is solid, the inventors have given it the appropriate name of sterhydraulic press (stereos). According to the description given in the *Mining Journal* there appear to be two pulleys or drums, one inside the press and the other outside; on the outside pulley is coiled a rope, which passes through a stuffing box into the interior, when it is wound round the other pulley. The recipient being full of liquid, the inner pulley being set in motion, it is plain that the rope as it coils will occupy the place of the piston and cause it to rise. When the reverse motion is required the outer drum is set in motion, and the cord is wound out of the press, the piston descending accordingly. Oil is the liquid with which the chamber is filled, and the rope is made of gut. The joints of the piston and of the axes of the internal pulley are made stanch with leather collars; that of the rope is simply tow. There is no leakage where the rope enters, as when the press is at work any tendency of the liquid to escape is met by the velocity of the rope as it enters in a direction opposed to the effect of the liquid to escape. As these presses are, for the present, only to replace vineyard and oil presses of the olden times, they have as yet only been made up to a force of fifty tuns.—*Mechanics' Magazine.*

PATENT-OFFICE DECISIONS.

BEFORE THE EXAMINERS IN CHIEF, ON APPEAL.

Application of Thomas W. Roys and G. A. Lilliendah for a patent for Improvement in Harpoon Guns

E. Foote, S. H. Hodges, and S. C. Fessenden, for the Board.—The Harpoon in this device is propelled by a rocket shot from a case to direct it in the usual manner. The instrument as formerly constructed and patented by one of the applicants had, at the end of the tail or shank, a hook that, on its passage out from the case, caught and carried with it the rope that connects it with the boat, and a groove was provided in the case for the hook to slide in and to insure its catching the rope.

In the improved instrument the tail consists of a long loop to which the rope is attached by a ring that can slide from the front to the rear end. A slot in the case for the ring to slide in extending from the front a short distance, only, back, completes the arrangement.

A patent has already been issued for all the novelties in the instrument. A separate patent is now asked for, for the slot in the case.

In Whitely's application we had occasion to examine the subject of severel patents for one invention, and came to the conclusion that when two or more distinct inventions related to the same subject matter, there might be one patent for all, or separate patents for each, as the applicant desired, but that for a single invention there could be but one patent.

This case comes within the same principle. The slot is a part of the invention that attaches the rope to the harpoon; without it the instrument would be useless, the invention imperfected, and no patent should have been granted for it. The slot of itself, separately considered from the harpoon, has no novelty, utility, or invention. It is found in many tubes for different purposes, as well as in the gun to which the Examiner referred. Should two patents be granted, neither of them without the other would give any right to use the invention, or convey anything of the least value. A practice of issuing such patents might lead to frauds upon the community, and great injury to the character and value of patented property.

Had the features for which a patent is now asked been claimed in the formor patent, they might perhaps have been allowed as parts of the same invention, but they are not the proper subjects of a separate patent.

The decision of the Examiner is affirmed.

EFFECT OF SINKING ARTESIAN WELLS.—The San Jose (California) *Mercury* reports that a great number of flowing artesian wells in and about San Jose have completely dried, rendering worthless hundreds of acres of lagune in the southern part of the country.

TALL RYE.—A California paper says rye stalks seven feet high and yet growing, are to be seeen on Sutton's ranch, Nevada county.

Re-touching Negatives.

BY J. GRASSHOFF.

By the above it is to be understood only a touching up and improving of the plates, which is especially of advantage in the portrait department, especially it it aid in the removal of freckles and other yellow and brown spots which show themselves in the complexion, as disturbing and too dark. Following the instructions in a communication of Herr Hummel, photographer, I employed for this purpose the common soft lead pencil, and that in simple application to the varnished plate.

For parts to be very strongly re-touched (*e. g.*, in the case of enlarged copies of pictures, where the fiber or texture of the paper proves a disturbing cause) it is preferable to use a black "oil chalk" (*creta polycolor*). With this it is more easily drawn, especially in the dark parts under the eyes, etc., which are often taken too dark. In order to have a clearer and better view or insight into the work itself, it is best to work at a lamp which has an opal glass shade. A round piece of pasteboard, bent so as to suit, and in which a hole is cut of 1½ to 2 inches, is put over this as a dark shade. The plate is so directed that the light is always chiefly thrown upon the head, or the part to be wrought upon. If one works by day, however, lay the plate on a fine thin-cut pane of glass; cover the varnished side with a piece of pasteboard, which has a sufficiently large piece cut out, hold the whole toward the window, and get the light cast only on the parts to be worked on. By this arrangement the eye is kept from over-exertion, and protected from the dazzling light; and the attention is concentrated on those places which are just to be worked upon. One perceives then the defects to be covered more easily and quickly.

The lead pencil or the "oil chalk" adhere both fast enough to the layer of varnish. There is no danger at all of the one or the other coming off on the paper in the copying.

Spots and pin-holes are best closed with India ink.

A certain skillfulness, however, is always necessary for this easy method, especially in the fixing of the lights; but one can very soon and very easily make himself thoroughly acquainted with the work, since it is always easier to work with pencils than with brush and colors. It should be noticed that in places where there is penciling, the oil chalk no longer adheres. In such places, therefore, where lead pencil has not sufficiently covered, India ink must be used to intensity.—*Photographische Mittheilungen.*

Ascent and Return of the Aereon.

In our last number we alluded to the Aereon, then constructing by Dr. Andrews. On Saturday, the 26th, the aerial ship was launched for a trial trip, ascending to a considerable elevation, apparently for a time under the perfect control of the aeronaut, rising but slowly, and going rapidly forward at an angle of less than forty-five degrees in the direction of Westchester county. Having reached somewhere about Harlem, the Aereon seemed to be less under control than before, being drifted forward in the direction in which the wind was blowing, following in that course till she was lost sight of.

The Aereon crossed the East River with a south-west wind, passing over a portion of Blackwell's Island, and on getting over Hunter's Point she was turned head to wind. In this position she lay perfectly still for nearly five minutes, the breeze passing by and being distinctly felt, by the occupants of the car, blowing in their faces. The ship was then put about and slowly sailed away toward Ravenswood. Owing to the fact that rather too much gas had been let out, the car touched the tops of the trees and was dragged along in this manner for some distance. On gaining an open space the Aereon was allowed to descend, and the party finally alighted in a field near Astoria, where every assistance was rendered them. The gas was then permitted to escape, and the apparatus was brought back to the city.

It appears that it had been the intention of Dr. Andrews to sail against the wind, but this was found to be impracticable from the fact of the rudder not being sufficiently large and strong. The ship was three times turned head to wind, but she could not be held in that position. Another difficulty arose from the car not being long enough, and consequently not permitting the forward end of the ship to be sufficiently elevated. The greatest altitude reached is supposed to have been about 2,000 feet.

The inventor and his friends express themselves well satisfied with the results of the trip, and feel assured that when a few more improvements have been perfected they will be enabled to navigate the air with as much certainty and more safety than we now navigate the waters.

NEW INVENTIONS.

Among the large number of patents issued on the 22d inst., we note some of the most prominent, with the names of the patentees :—

BURGLAR-PROOF DOOR AND WINDOW BOLT.—H WOODMAN, Dubuque, Iowa. Date of issue, May 1, 1866.—This is a mortise bolt fastening, and appears externally, when adjusted, for use simply as a small ornamental knob, being wholly concealed from view and consequently inaccessible to a burglar. In fact the knob is the key which, after the door or window is fastened, may be removed and applied at pleasure. The advantages of this bolt are its great simplicity, neatness, durability, strength, and cheapness, together with its burglar-proof quality, and ease with which it may be inserted, making it a very desirable door and window fastener. The manner of moving the bolt is novel, not liable to get out of order, and is so arranged, that any number of bolts can be operated by the same knob at the same time, and cannot be moved by the application of force at any other place than the point reached by the adjustable knob applied within the house. Manufacturers and others wishing to learn further particulars, can do so by addressing the inventor as above, who, we learn, has already had several applications for manufacturing rights.

WATER WHEEL.—JOHN C. MILLER, Amsterdam, N Y.—The design of this invention is to give increased power to water wheels receiving water at the center, and discharging it at the perphery, by giving the water a spiral direction before it is received in the wheel.

CHURN DASHER.—DAVID A. MAURICE, Springfield, Ohio.—This dasher consists of two circular disks attached to a revolving shaft, connected together by a number of slats arranged so as to introduce the needed amount of air to the cream. This is done by each alternate slat causing a vacuum at its rear, thus breaking the current formed by the preceding one.

HARVESTER RAKE.—CHARLES F. DAVIS, Auburn, N. Y —This harvester has its several parts so arranged as to bring it under the control of the driver to so revolve the rake teeth that they will pass over the platform without coming in contact with any grain thereon and also regulate the size of the gavels in cutting uneven grain.

TRAP.—A. A. FRADENBURG, Dutch Flat, Cal.—The object here is to provide a self-setting trap for vermin, which has provision also for forwarding the animals entrapped through an inner apartment into a common receptacle in the rear, whence they may be removed through a door.

ANCHOR.—C. F. BROWN, Warren, R. I.—This invention consists in making anchors, wherein the main part is cylindrical in form, the flukes being connected therewith by being bolted transversely on the inside of the lower part of the cylienrical body.

STOVE FOR RAILROAD CARS.—B. G. DAYTON, Maysville, Ky.—This stove is intended particularly for railroad cars, but it can also be used for steamboats or in buildings. It is composed of an inner fuel and combustion chamber, which is surrounded by an air jacket, to which the cold external air is admitted through a suitable pipe near its base.

NAIL MACHINE.—RIVERA WARD, Alder Creek, N. Y.—This machine is intended particularly for the manufacture of horse-shoe nails. The rods from which the nails are to be forged, are passed, two at a time, through a furnace, the fire box of which is furnished with an adjustable bottom, so that the fuel can be gradually fed up from below, and an even heat can be maintained. When fresh fuel is to be introduced, a piece of sheet metal is inserted between the bottom of the furnace and the top of the fire box, and the incadescent fuel already in the furnace is sustained until the bottom of the fire box has been lowered and the box is filled with fuel. The rods after being heated in the furnace are exposed to the action of two hammers which operate at right angles to each other, and the faces of which are made in the form of two steps, and which operate in combination with an M-shaped anvil in such a manner that each hammer operates simultaneously on two rods, one to produce the flat side and the other the edge of the nails to be made.

HAT TIP GAGE.—H E. BODWELL, JR., Paterson, N. J.—The object of this invention is to facilitate the work of making the tips and side linings. It consists in a device by means of which the embroidering and the attaching of the lining to the tip are accomplished by the same act of stitching.

COTTON-SEED PLANTER.—ALBANY PACKHAM, Prestonville, N. Y.—A conical hopper is here provided with a rotating spiral tooth and distributer on a mounted frame, having a furrow opener, covering shores, and roller.

STOVE PIPE HEATER AND DAMPER.—FRANK B. HUNT, Medina, N. Y.—This device is to regulate the draft of a stove so as to save the heat; this is done by two interior perforated flanged cylinders combined together and with the exterior cylinder.

DEVICE FOR SHELLING PEAS AND BEANS.—W. K. LEWIS, Boston, Mass.—The improvement in this device is in operating the endless feed apron, which may be tightened as deemed necessary without affecting the driving mechanism. By an auxiliary attachment the proper feeding of the peas or beans to the rollers is effected, and the splitting of the pods insured.

RIVETING MACHINE.—JOHN ADT, Wolcottsville, Conn.—A reciprocating tube is employed in this machine, having a hammer, rod, and spring, operated by a crank and pitman. The tube having a pulley on it is rotated by a belt from the driving shaft; and the pulley and tube are connected by means of a feather and groove. The parts are so arranged as to give a rapid reciprocating motion to the drill rod, and also a moderate rotating one, and thus the riveting is rapidly accomplished.

LOCOMOTIVE HEAD LIGHTS.—PETER BUDENBACH, New York City.—This device consists in a combination of plates standing out and covering holes in the sides of the base of locomotive head light lamps, so as to admit air obliquely, with a circle of radiating oblique plates at the bottom, for the same purpose.

ROCK-DRILLING MACHINE.—WALTER HYDE, New York City.—This machine is intended for horizontal, vertical, and oblique rock-drilling, for tunneling and mining purposes.

SWITCH STAND.—CHARLES E. BYERS, Mahanoy Plain, Pa.—This device consists in the construction and arrangement of the suitable stand and lever that shifts the rails. If a rail is broken, it can be removed and replaced without removing the stand; the bolt is also so constructed that the bolt which holds the lever in position, can be unlocked and withdrawn by one turn of the key, and at the same time well secured from reach, and from being operated without the key.

APPARATUS FOR PRESERVING DEAD BODIES.—JACOB KUNSMAN SEN., Reading, Pa.—The object of this invention is to preserve dead bodies in any climate, till ready for interment. A box with perforated supports fitting different parts of the body is provided, by which they are kept cool. Pipes and stop-cocks are also employed to draw the water from the boxes when required.

READING DESK.—ERNST KAST, Waterbury, Conn.—This desk has a shank fitting into a tubular arm adjustable in a vertical direction on the supporting column of a table. The shank has also set screws to adjust it on the column and desk to suit the convenience of the user, while a light can be used on the table when necessary.

PILE FABRICS.—JAMES W. CROSSLEY, Bridgeport, Conn.—This invention retains in the loops of pile fabrics, the wires used in weaving the loops until the fabric has been cemented to the back. These wires thus take the place of the weft, and when the back has been cemented to the fabric they are withdrawn.

HAND PROTECTOR FOR FLAT IRONS.—J. R. BATEY, New York City.—The object in this device is accomplished by means of a wrapper of leather or other material placed on the iron to guard the hand from the heated handle and other parts.

HOOP SKIRT.—CAESAR NEUMANN, New York City.—The inventor arranges the pockets or shirrs which support the hoop in sections of two or more shirrs thus bringing two or more wires close together; he also arranges single or double wires in sections of two or more to give the skirt strength and lightness.

MEDICAL COMPOUND.—E. G. PERRY, Boonville, Ill.—This is a compound for the prevention and cure of hog cholera.

SHADE HOOK.—SAMUEL WHITE, Philadelphia, Pa.—The object of this device is to hold and keep taut the cord used in drawing up window shades. A screw socket with screw for securing it to the window frame, is employed and a screw rod passes through this locket having a hook on one end and a nut on the other; by the latter the rod can be thrown up or drawn down at will.

CALK FOR HORSESHOES.—FREDERICK JUDSON, Jersey City, N. J.—A shoe plate is here provided with sockets at the toes and heels passing through it which taper gradually upward; calks with tapering heads are provided to correspond to the sockets, which become wedged therein and securely fastened to the shoe plate. By cutting slight notches in the edge of the hoof the upper ends of the socket are reached to remove the calks at any time without removing the shoe.

ATTACHMENT TO GAS FIXTURES.—BERNARD JACOB, New York City—In this invention a spring valve is employed inside the gas pipe where it joins a chandelier or at any convenient point between the upper pipe and burner, which will shut off the gas automatically when the pipe is detached.

Notes & Queries

R. H., of N. Y.—An experiment tried by a French philosopher demonstrated that rotary pumps, of approved construction, did more work with less power than reciprocating pumps. The wings or vanes of centrifugal pumps are made taper so as to equalize the pressure or strain upon the surface, being of less area at the ends where the greatest strain would be if they were parallelograms.

W. L., of Ill.—We do not believe that an ox weighs more, all things being equal, when hot than when cold.

S. P., of Mass.—You can obtain a nautical almanac of G. W. Blunt, New York.

J. S., of N. Y.—A shaft 2 inches diameter is amply strong enough for a flutter wheel 28 inches diameter; 3½ inches is out of all reason. A balance weight would be an advantage.

A. B.—of——.We should esteem an article on moderate length, on making steel direct from malleable iron in a refining furnace, very much; particularly from the inventor of malleable iron.

E. S., of Mass.—If you had trouble with the solution of shellac in alkalies, others have not. We have seen very clear and perfect solution made in this way.

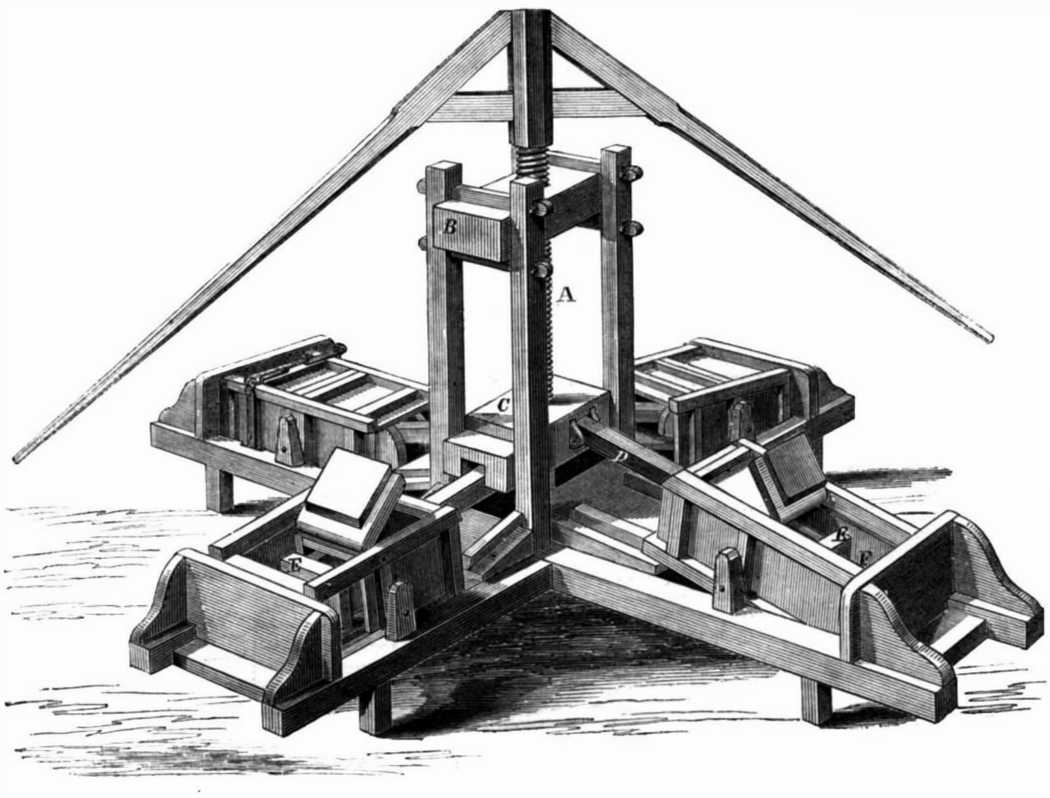
J. C. F., of O.—"Is there any mordant that will set a yellow ink made of chromate of potash? I have tried a number but all failed to prevent the corroding by exposure of light." We are very anxious to answer the queries of correspondents satisfactorily to them and to the public. But unless a question is clearly put, and the drift of it is apparent, we cannot give a straight-forward answer. Perhaps we do not understand J. C. F. and therefore may tell him something very wide of what he needs. If writing be made with chromate of potash, and after it is dry be washed with a solution of almost any metallic salt, the writing will become fixed and changed in color, the colors produced are yellow and red, and are not materially affected by light provided that the excess of soluble salts be removed by washing the paper in water.

Improved Toggle Joint and Screw Press.

The transportation of such a bulky flocculent material as cotton would be practically impossible but for the existence of presses which enable the producer to pack it in a small compass, so that hundreds of pounds can be stowed away in a comparatively small bale.

It is obvious that for plantation use, where unskilled labor is employed—that of negroes—any thing like cumbrous machines, delicate adjustment, or mechanical accuracy, is entirely useless. Force is the one thing needful, and to get this other considerations must be laid aside.

In this engraving we have shown a cotton press which is well designed for its purpose, being strongly built and put together, and without any details that cannot be put in place as readily as an ox can be yoked.



GRIFFIN'S TOGGLE JOINT AND SCREW PRESS.

It consists of a strong screw, A, working in a nut, B, through which it is driven by horses or mules attached to the sweeps. The end of the screw is connected to a bed piece, C, in which four toggle arms, D, are jointed, the other end of said arms being fastened to a sliding head, E, working in the box.

It is not necessary to multiply phrases to show that, as the screw is forced down through the nut the bed piece is carried before it, which extends the arms and the sliding head with terrific force, determined by the pitch of the screw, its velocity, and the approach of the arms to a straight line. As the cotton is placed in the compartment, F, it meets the full pressure of the ram or sliding head, E, which speedily reduces it in bulk. Any substance of a similar nature can be compressed, such as hay or straw.

Patented Jan. 8, 1861, through the Scientific American Patent Agency, by Isaac B. Griffin, Milford, Ga.; address him for further information.

One of the Lost Arts Found.

Fifty years ago the hand-loom was a household institution. Linen, flannel, carpets, and other domestic goods were wrought in a majority of families. In process of time the hand-loom was neglected, and finally became an obsolete affair. The power loom at the factory and excessive importations seemed to remove the necessity for hand-wrought fabrics. Here and there one held fast to the old custom, and covered the bed with snowy linen and the floors with honest, home-wrought carpets. But these were so rare as to become rather objects of curiosity than the fruits of ordinary industry.

The first revolution and the war of 1812, quickened the energies and inventive talent of the people for all sorts of home productions. It is interesting to note that the late rebellion has not been void of the same salutary influence. All textile fabrics commanded excessive prices during the war, and productive industry hardly kept pace with consumption, while so much of the industrial energy of the nation was swallowed up in that great contest. Necessity brought out the old hand-loom, stored away in forgotten garrets. But as the world had been progressing for fifty years, it was hardly up to modern ideas of handcraft. It has been reconstructed with many modern improvements, so that the new loom is a light, comely and ingenious piece of mechanism, fit to adorn any household. It is now manufactured with various improvements under different names, by two or more of the leading iron workers of Cincinnati, and we presume is produced in some of the other large cities of the Eastern States. Whether it will have such universal introduction into families as the old loom obtained, may be an open question. But we should suppose, that in the present time of high prices, a hand-loom which a child can operate, capable of turning out from fifteen to thirty yards of linen or woolen goods per day, readily adapted to all sorts of light and heavy fabrics, and afforded at moderate cost, would still be a most desirable thing. In new countries, remote from market, where there is an abundance of cheap raw material, it would add greatly to the comfort and independence of the household. The people of the Pacific slope are quick to find out and utilize any new invention, and are fertile in all inventive expedients. We lack machinery to supply home necessities. The factories now in existence here supply but a tithe of the fabrics needed. Our raw material is sent out of the country and we buy it back again in manufactured goods at an advance of 300 or 400 per cent. and often with no little discouragement of home industry. The hand-loom may be set up with little capital, and if it should become popular, one of the nearly lost arts would be restored. A little skill and patience in this development of our resources would add greatly to the wealth of the State.—*San Francisco Bulletin.*

DEMBOIS'S CULINARY VESSEL.

The wise saw says, "a watched pot never boils," but the modern instance shows that it does—it boils over.

When milk that is scalded on the fire suddenly rises up and foams over on to the stove, a stench is created that is exceedingly unpleasant. So with other culinary processes, as when sirups are boiled.

The engraving annexed represents a cooking utensil so made, as to its cover, that it cannot boil over. The vessel may be of any shape, having a flaring rim, A, and a cover, B, fitting tightly as usual. The cover has a central tube, C, which communicates with the interior, and also holes, D, all round the outer edge. The inventor says that when the fluid gets so hot as to boil over, it rises up through the central tube and falls over on the cover, which lowers the temperature so much that the ebullition on top ceases, and the fluid subsides, which is the end he desires. This, it is claimed, will save much time and material.

It was patented through the Scientific American Patent Agency on March 27, 1866, by F. W. Dembois, of East Saginaw, Mich.; for further information address him at that place.

A STUBBORN ENGINEERING JOB.

To make use of a trite figure of speech, it would appear, from recent reports, that the ancient Commonwealth of Massachusetts had bargained for, and made a considerable advance on account of, a very large elephant, known as "the great bore," or Hoosac Tunnel. It appears that the whole cost of the road and tunnel, when completed, was estimated at a trifle over five million dollars, but owing to high prices and other unforeseen difficulties, it is likely to reach nearly, if not quite, twelve millions.

The total length of the proposed tunnel is $4\frac{66}{100}$ miles, or 24,586 feet. The total length of the bore or excavations in the main tunnel, to Nov. 1, 1865, was 3,598 feet, leaving nearly four miles unfinished. The size of tunnel proposed by the Commissioners requires an excavation of 433 cub. feet to a lineal foot. For the entire tunnel the excavation required would be 10,645,738 cubic feet. But there had been excavated, before the work was assumed by the State, 565,848 cubic feet, leaving over ten millions of cubic feet to be excavated when the Commissioners commenced. Of this amount the Commissioners have excavated 108,000 cubic feet, or a fraction more than the one-hundredth part of the whole, and yet they have expended about $1,500,000 in two years of actual work.

When we consider that this is the total progress made in the tunnel, which was to have been completed in anticipation, from time to time, in from three and one-half to five and one-half years; and when we consider that the State has had undisputed control, with unlimited means at her command, for a time, that should complete it some time during the coming year, we are satisfied that the plan of constructing a road over the mountain is entitled to favorable consideration.

We have not had much experience in tunneling mountains for railroad purposes, and it is not strange that miscalculations should be made in such gigantic enterprises. There is a great deal of pluck in Massachusetts, and the work must be very formidable to deter its final accomplishment.

Our Boston friends, it appears, have been imposed upon by the ice companies, and they threaten a terrible vengeance. They propose to go out to sea, hook into a few icebergs, and then tow them into the city. Mountains of ice cream, and seas of root beer and lemonade, and a good hitch on the ice companies, are in prospect. On the other hand the ice companies, of course, warm up in the discussion of the subject, and denounce the scheme as a cool swindle.

M. Torreggiani recently informed the Academy of Sciences that after repeated experiments he had proved that a pile, in which the positive pole was represented by metallic lead, and the negative by carbon, and which contained a saline solution (an alkaline acetate), gave a large quantity of pure carbonate of lead besides electricity, which might be profitably employed. M. Torreggiani considers that is an easy and innoxious way of making white lead.

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NEW YORK, SATURDAY, JUNE 2, 1866.

Contents:

(Illustrations are indicated by an asterisk.

No SUPPLEMENT is issued with the present number.

THE LIMITED NATURE OF PATENTS.

We think, beyond doubt, that the practice of making grants for the sole use of inventions originated in England, and that this English system of rewarding inventors has since been adopted by all civilized nations. Among the earliest grants of which we have any record, was that of Edward III., of England, who was persuaded by two friars and two aldermen, that a philosopher's stone might be made; the king, therefore, granted a patent privilege, that they and their assigns should have the sole making of the philosopher's stone. It was early contended that inventors were not entitled, as of *right*, to Letters Patent, but as a matter of *grace* and of favor. If an inventor was entitled to the exclusive use of his discovery as a right, merely, there could be no good argument against the enjoyment of this right in perpetuity, the same as other species of enduring property.

The idea of a limited right was early adjudged to be based upon sound philosophy, and, as a matter of public expediency, a term of fourteen years was fixed as the proper duration of exclusive privilege. Our statute was based upon this limitation to which was also added the right of extension for an additional seven years in case it could be made to appear that, without fault of his own, the patentee had failed to receive a sufficient reward for his discovery during the first term of the patent.

It was the intention of our patent law, that the real inventor of any valuable improvement should be liberally rewarded for his time and ingenuity, under the expectation that it would stimulate an eager search after improvements in the useful arts.

If an inventor could maintain his right to a patent in perpetuity, or if the grant of a patent conferred exclusive privilege for a half-century or more, it is very evident that such grants would operate as a bar to all improvements in the same branch of invention, as they would compel every subsequent patentee to pay tribute to the original inventor and patentee. The justice and expediency of limited patents will therefore be apparent to all reflecting minds. The public welfare requires such limit, and the practice of extending patents under our liberal system had been so frequently perverted that Congress enacted a law limiting the grant of Letters Patent to a period of seventeen years, without the privilege of an extension. We do not doubt that, under this very liberal term of protection, some cases of extreme hardship—very exceptional in their character—will arise, which would justify an extension, but the law abridging the right of extension was deliberately enacted by Congress, and was intended to subserve the general good, and not to meet merely such exceptions as might happen to exist.

The recent action of the House of Representatives, in regard to the extension of patents, points to the theory that Congress will not directly extend patents. The SCIENTIFIC AMERICAN has uniformly opposed such special legislation. We have regarded it, in a general sense, as unwise and unjust, and especially when it was attempted to revive *expired* patents.

We have always held to the reasonable doctrine that, after a patented invention had become public property, the right of all to use the invention, without let or hindrance, was fully assured; and, furthermore, that Congress had no right to deny to the whole public, thereafter, the free use of such invention.

The proposition of the House Committee on Patents is to authorize the Commissioner of Patents to hear and decide upon testimony, such cases as do not come within the intent of the general law, and, therefore, beyond his legal jurisdiction. We much prefer this course to a special act of extension by Congress, and are free to say that some of the cases reported in our last number are meritorious and worthy of the attention bestowed upon them, but we still most seriously question the propriety of allowing the Commissioner to extend expired patents.

If this system is to obtain, Congress will have plenty of such cases, and the Commissioner of Patents will have his whole time taken up in considering them. We suggest, therefore, before this proposition is carried into effect, that Congress establish a new office entitled the "Bureau for the Resurrection of Dead Patents," with a dead house or "Morgue" attached, where parties interested could view the subjects to be operated upon.

HOW FAST DOES THE WORLD MOVE.

Now-a-days it is very easy to go a great way without knowing it. It is a common thing, for example, to be asleep in New York or near by, and wake up in Boston, Albany, or Washington. Those who go to sea in ships have a custom of now and then making an observation and a reckoning in order to determine how far they have sailed and where they are. Those who sail with the current or drift with the tide, unless they watch the landmarks or make some mathematical calculation, may not be aware of the motion, it is so gentle. How few people think or even know that they are whirling about the axis of the earth at the rate of a thousand miles an hour, and around the sun at the rate of a million miles a day. If people would only think, there might be less complaint of slowness and dullness.

Some people find that we get on very slow in the arts and sciences, and there is nothing new under the sun, that all the inventions are trivial or worthless. Such sailors have lost their reckoning and do not look out for the landmarks.

The fact is that every civilized man carries about with him some evidence of recent progress in the arts. He does it unconsciously perhaps, for improvements may come on by such small degrees that it is not easy to fully appreciate their amount or their value. We would suggest, as a profitable exercise to the reader, to enumerate and fix the value to himself and to the world of the novelties he uses. This exercise will show him perhaps that there is not an article of clothing or of household use, or of use in his avocation, which is not in some respects better than what his grandfather possessed, and that the latest perfections of all these things have been recorded at the Patent Office within his life time.

A useful art may be compared to a tree which, from a small beginning, becomes by degrees a stately form. An art always originates from some isolated fact, which at first may seem insignificant; the finding of such a fact is what we call a scientific discovery. The discovery may be announced in the societies or the newspapers in a few uninteresting words, and it soon becomes forgotten by the world. But the inventor gives nourishment to the germ and out of it grows the useful art. When the art has reached to large proportions, those who do not observe carefully, do not take notice that new buds and new twigs are being constantly added. What a bright vision it would have been to the discoverers of the expansive force of steam, or of new substances like phosphorus, chlorine, iodine or chloroform, if they had but the slightest glimpse of what has grown from their discoveries in the nineteenth century!

We are often told by those who cynically criticise new inventions that in, a machine, for example, it is only that another screw is put in, or that a part is made straight which before was crooked. The test of an invention is the improvement; if the addition of a single screw makes the machine better, let us have it, and let us thank the inventor. Some wise man has said, that he who makes two blades of grass grow, where was only one before, is a benefactor of mankind; might not the wise man with as much grace pay such a compliment to the inventor?

EXHAUSTION OF BRITISH COAL FIELDS.

The idea of a possible exhaustion of the coal fields of England is a subject that now excites apprehension in the minds of English statesmen and manufacturers.

The Right Hon. J. Stuart Mill, the able writer upon political economy, in a recent speech in the House of Commons, the delivery of which occasioned great interest, spoke as follows upon this subject:—

"The termination of our coal supplies, though always certain, has always, until lately, appeared so distant, that it appeared quite unnecessary for the present generation to occupy itself with the question. The cause of that was that we had calculated upon the then rate of consumption; but the fact now is that our consumption of coal increases with such extraordinary rapidity from year to year that the probable exhaustion of our supplies is no longer a question of centuries, but of generations. I hope there are many members in this House who are acquainted with a small volume written by Mr. Stanley Jevons, entitled 'The Coal Question'; and it appears to me that Mr. Jevons's treatment of the subject is almost exhaustive, for he seems to have anticipated everything which it is possible to be said against the conclusion at which he has arrived, and to have answered it; and that conclusion is, that if the present rate of consumption of coal continues, three generations at the most, or very possibly a much shorter period, will leave no workable coal nearer to the surface than 4,000 feet in depth; and that depth will entirely put it out of the power of the country to compete in manufactures with the richer coal fields of other countries. I think, then, if there be any one in this house or out of it, who knows anything that will invalidate these conclusions of Mr. Jevons, it will be right of him to come forward and make it known. I have myself read several attempts to answer Mr. Jevons, but I may say that every one, admitting the truth of everything said, has only made out that our supplies will continue a few years longer than Mr. Jevons has assigned."

Mr. Gladstone, Chancellor of the Exchequer, in a recent speech of wonderful power, perhaps never before excelled in the British Parliament, fixes the time when this anticipated calamity will be nearly reached, and bases thereon an argument that it is the duty of the government, as representing an industrious and honest people, to provide now for the gradual extinguishment of the national debt. He argues that whenever the period is reached that the coal fields can no longer be worked profitably, the country will not be able to bear the taxation necessary to support so large a public debt. It is quite certain that whenever Great Britain reaches the point of dependence upon other nations for her supply of coal, that moment will witness the rapid decline of her industrial resources and political power. The ratio of annual consumption of coal must continue to be very great.

PROF. CHARLES A. SEELY, the distinguished practical chemist, has removed his laboratory from Canal street to No. 26 Pine street, New York. We would recommend any of our readers who may desire to obtain analyses of any substance, to communicate with Prof. Seely. We have known him for many years, and can bear testimony to his extensive knowledge of the chemical arts.

ISSUED FROM THE U. S. PATENT OFFICE

FOR THE WEEK ENDING MAY 22, 1866.

Reported Officially for the Scientific American

☞ Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required, and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

54,836.—Drilling Machine for Wells.—M. E. Abbott, Summit Hill, Pa.:

First, I claim the arrangement of devices herein described for imparting to the drill rod a movement in a vertical plane, the same consisting in securing it within the frame or cross bar, o, moving on suitable vertical guide rods or bars, p p, and connected with the engine beam, g, in proper manner, substantially as set forth.

Second, Revolving the drill through the vertical movement of the same, by means of the sliding plate, x, moving in and between parallel inclined guides, b' b', and provided with a spring pawl, a', engaging with the ratchet wheel, s, of the frame, v, arranged and operating substantially in the manner described.

Third, The combination of the jaws, q' q', and bent arms, s' s', arranged and operating with the rod, v, in the manner and for the purpose herein specified.

Fourth, The combination of the jaws, t' t', and lever frame, v', arranged and operating with the rod, v, in the manner and for the purpose herein specified.

Fifth, In the described combination with the drill rod, v, and the beam, g, for operating the same, I further claim the crank arms, d' h' m', rods, f n', and adjustable tappets, g' g', arranged and employed, substantially as set forth, to regulate the stroke of the drill.

54,837.—Riveting Machine.—John Adt, Wolcottville, Conn.:

I claim the reciprocating and rotating tube, I, operated substantially as shown, in combination with the internal hammer rod, O, arranged with the springs, P Q, and the nut, R, or its equivalent, substantially as and for the purpose set forth.

I further claim the adjustable or rising and falling disk or bed, T, in combination with the reciprocating tube, I, and the hammer rod, O, and spring, P, all constructed and arranged substantially as and for the purpose specified.

54,838.—Method of Combining Wrought Iron with Cast Iron.—W. M. Arnold, New York City. Antedated May 18, 1866:

First, I claim the mode, hereinbefore described, for combining and uniting wrought with cast iron, that is to say, forming a skeleton of wire, which has been coated or tinned, and so arranged and placed at such intervals, that the melted metal can penetrate all portions of such skeleton, and then filling those interstices with cast metal, substantially in the manner and for the purpose above set forth.

Second, I also claim, in this connection, the tinning or coating of iron wire in such a way as to prevent the molten metal, which shall afterwards be combined with it, from producing any injury to such wire, substantially as above set forth.

Third, I also claim forming a skeleton of metallic wire, and then filling up the interstices with molten metal, for the purpose and substantially in the manner above set forth.

54,839.—Apparatus for Preparing Peat.—Edward H. Ashcroft, Lynn, Mass:

First, I claim the hollow perforated shaft, B, and the screw, C, or their equivalents, in combination with the cylinder, A, the whole being constructed and made to operate together, substantially as described, and for the purpose set forth.

Second, The combination of the steam jacket or cylinder, F, with the inner or forming cylinder, E, constructed and operating substantially as described, and for the purpose set forth.

54,840.—Coupling for Carriage Thills.—C. H. Bassett, Derby, Conn.:

I claim the employment of centers, or taper bearings, in combination with the tongue piece and clip, and a suitable means of holding the parts in adjustment, substantially as set forth.

54,841.—Hand Protector for Sad Irons.—J. R. Batey, New York City:

I claim a hand protector for flatirons composed of a wrapper, A, and guard, B, substantially as described, as a new article of manufacture.

54,842.—Furrowing Machine.—Francis M. Birdsall, Martinsville, Ohio. Antedated May 16, 1866:

I claim the plow frames, e, longitudinal strips, e', and levers, d, in combination with plows, g, frame, A, and sliding strips, h, constructed as above described, and for the purposes set forth.

54,843.—Sash Fastening.—Eli S. Bitner, Lockhaven, Pa.:

I claim the lever, D, with flange, C, and knob, E, constructed and connected with plate, B, as shown in combination with the spring, C, having the spur, A, at its end, all arranged and operating as herein shown and described.

54,844.—Sewing Machine Guide for Stitching Hat Tips to the Side Linings.—H. E. Bodwell, Jr., Paterson, N. J.:

I claim the combination of the hemmer, C, and gage plate and guide, D F, constructed and arranged substantially as above set forth, for the purpose of stitching, and also of connecting a side lining to a hat tip, at the same operation.

54,845.—Hydrant.—B. P. Bower, Cleveland, Ohio:

First, I claim the adjustable toothed plate, B, the corresponding depression in the plate, B', and the pipes, C' and D, arranged in the manner, and for the purpose set forth.

Second, I claim the adjustable tooth plate, B, with the corresponding depressions in the plate, B', arranged in relation to the screw stem, h, and cap, F', the washers, m, valve, L, packing, q, and groove, e, in the manner and for the purpose set forth.

Third, The cylinder, F, with flaring end, G, pipes, E, and pipes, D, in combination with packinig, t, and induction pipe, H, arranged as and for the purpose set forth.

54,846.—Churn.—J. C. Bridgman, London, Ohio:

I claim the combination of the cover, B, and pin, H, with the handle, D, having spiral thread, D', the loose collar, E, and dasher, C, the parts being severally constructed and arranged for use substantially in the manner and for the purpose set forth.

54,847.—Anchor.—E. F. Brown, Warren, R. I.:

First, I claim forming the sides of anchors of continuous bands, with the flukes arranged across the inner sides thereof, substantially as described.

Second, I also claim strengthening the body of an anchor whose sides are made continuous, by means of an inner rib or membrane, E, and by a stay rod, C, one or both, substantially as described.

Third, I also claim cutting away the upper parts of the body of an anchor, whose sides are continuous, as at D D, and forming points, F F, at one side of the center of gravity, so that the anchor will right itself, substantially as described.

54,848.—Croquetrie.—Lewis Bradley and Milton Bradley, Springfield, Mass. Antedated April 17, 1866.

First, We claim the combination of arch, a, and sockets, b c, to form a croquet bridge or arch, substantially in the manner and for the purpose herein set forth.

Second, An iron croquet bridge or arch coated with zinc, tin or other similar metal, substantially in the manner and for the purposes herein fully set forth.

Third, The method herein fully described of painting croquet balls in which the light balls are designated by black or dark stripes and the dark balls by white or light stripes.

54,849.—Trunk Lock.—T. Stewart Brown, Philadelphia, Pa.:

I claim the combination of the two bolts, b and b', arranged in respect to the case, a, and operating substantially as and for the purpose herein set forth.

54,850.—Head Light for Engines.—Peter Budenbach, New York City:

I claim the combination of the plates, B, covering and extending beyond the margin of the aperture, C, with the radial and oblique director plates in the lower opening of the tube of A, the combined devices operating to deflect the entering currents of air to prevent the direct infringement of the air upon the flame and the consequent disturbance thereof.

[This improvement consists in a combination of plates standing out and covering holes in the sides of the base of locomotive head light lamps, so as to admit air obliquely with a circle of radiating oblique plates at the bottom for the same purpose.]

54,851.—Steam Valve.—M. Burnett and H. Comstock, Boston, Mass.:

We claim as an improvement in stop valves, the arrangement of the seat, a, and valve, b, when constructed substantially as described.

54,852.—Ice Pick.—E. G. Burnham, Bridgeport, Conn.:

I claim the pick iron or steel point formed on the tube which is held in the hand in combination with the solid metal rod fitted within the tube, so as to work up and down therein, and act as a hammer upon the pick, all substantially in the hammer and for the purpose described.

54,853.—Rail for Railroads.—Jesse S. Butterfield and M. S. Green, Philadelphia, Pa.:

We claim the rail, composed of the upper portion, A, with its longitudinal groove, and pins, S, and lower portion, B, with its longitudinal rib, b, adapted to the said groove, and its openings, e, substantially as set forth.

54,854.—Cultivator.—H. F. Byerly, Clinton, Ill.:

First, I claim the sliding bolts, K K, slots, i i, and pendants, b b, combined and operated, substantially as and for the purpose specified.

Second, The rolls, L, lever, f, and chain, M and h, combined and operated substantially as and for the purpose set forth.

54,855.—Switch Stand for Railroads.—Charles E. Byers, Mahanoy Plain, Pa.:

I claim the combination of the bolt, G, lever, K, piece, I, and spring, J L, applied to lever, D, arranged relatively to each other and with the top, F, of the switch in the manner and for the purpose herein specified.

54,856.—Needle Wrapper.—William Byfield, New York City:

I claim the combination of a wrapper having two flaps with a holder, substantially as described, so that the opening of two flaps will permit the points and eyes of the needles to be seen while they are held securely to be removed one at a time.

54,857.—Flour Dipper, Measure, and Sifter.—George G. Carver, Roxbury, Mass.:

I claim the combination of the dipper with ridges or lines indicating quarts and pints, the horizontal beater with radial flexible rubbers and concave seive, all as specified.

54,858.—Paper Neck Tie.—Elisha Childs, Jr., Springfield, Mass.:

I claim the ornamental neck tie composed of a paper scarf, stock, and band, and the metallic clasp carrying an elastic loop, combined and arranged substantially in the manner and for the purpose set forth.

54,859.—Apparatus for Inducing the Flow of Oils from Wells.—John B. Christian, Mount Carroll, Ill.:

I claim the combination of the flanged pipe, A, with the slotted, double hollow cylinder, B, and the hollow cylinder, Y, as arranged in relation to each other, substantially as and for the purpose specified.

I claim lowering the pipe, A, or its equivalent, and securing it firmly to its place in the well, by means of the tube, D, with its circular base, E, in combination with the rod, H, substantially as set forth.

54,860.—Mop Head.—Charles B. Clark and O. S. Garretson, N. Y.:

We claim the nut, K, with the collar which carries the movable jaw, E E, by means of the lugs, g g, or their equivalent, in combination with the threaded shank of the jaw, C, arranged and operating substantially as set forth.

We also claim connecting the movable jaw, E E, with the collar, D, by means of the bows, l, l, constructed and operating substantially in the manner and for the purpose specified.

54,861.—Churn.—Amos Clift, Jr., Mystic River, Conn.:

First, I claim the combination of the hollow journals or axles constructed with flaring enlargements on their inner ends, with the revolving churn box, substantially in the manner and for the purpose described.

Second, Making the inner funnels removable, substantially as and for the purpose described.

54,862.—Horse Rake.—Lyman Clinton and Ezra S. Munson, North Haven, Conn.:

First, I claim combination of the slide, c, the rod, h a, and axle, A, with the double acting lever, I, substantially as and for the purpose specified.

Second, The combination of the slide, c, the rod, b, and axle A, with the lever, G, substantially as and for the purpose specified.

Third, The combination of the lever, L, with the axle, A, when arranged upon a movable fulcrum and constructed so as to operate substantially as and for the purpose specified.

54,863.—Chair, Sofa and Car Seat.—G. W. Cochran, New York City:

I claim the employing the perforated or whole sheets of hardened or enameled india-rubber or gutta-purcha for chair, sofa, car and carriage seats, substantially as above described and set forth

54,864.—Apparatus for Preparing Hay for Market.—Samuel Colahan, Cleveland, Ohio:

First, I claim the arrangement of the follower, a, and sheaves with their respective ropes or chains in combination with the side doors, L M, trap door, R, loops, V, and clamps, P, substantially as and for the purpose set forth.

Second, The followers, m, bolts, L, and ratchets, p, in combination with the follower, constructed and arranged in the manner and for the purpose, substantially as set forth.

Third, The adjustable ends, e, connected with the frame, as specified, in combination with the followers, a m, and side doors arranged as and for the purpose substantially as set forth

54,865.—Cow Milker.—L. O. Colvin, New York City:

First, I claim the construction of a cow milker in such manner that it may be operated by water or other fluid acting upon its flexible diaphragms, substantially as herein specified.

Second, So constructing the water spaces on the backs of the several flexible diaphragms of a cow milker that all are in free communication and made to communicate with a single pipe, substantially as herein specified.

Third, The combination of two or more cow milkers with a pump, L, or its equivalent by means of a pipe or pipes filled with water or other fluid, substantially as set forth, for the purpose specified.

54,866.—Detecting Check Boxes.—John P. Conkling, Batchellerville, N. Y.:

First, I claim the combination of ratchets and pawl, c d, and gravitating follower, G, substantially as and for the purposes described.

Second, The open-bottom ticket boxes, in combination with the follower, G, or its equivalent, substantially as described.

Third, The stops, g g, substantially as and for the purposes described.

Fourth, The use of locking bars, a' or J, applied substantially as described.

Fifth, The removable transparent graduating face plate, E, in combination with ticket holder, substantially as described.

54,867.—Sand Pump.—Robert Cornelius, Philadelphia, Pa.:

First, I claim the employment of wire gauze or perforated metal in the sand pump, in the manner and for the purpose substantially as described.

Second, The employment of the turning plate, D E F, in the interior of the sand pump.

Third, The combination of the sand pump, having an interior turning plate, with the drill

54,868.—Railway Chair.—D. W. Crocker, Deposit, N. Y.:

First, I claim dividing the chair into two similar parts or sections in the direction of its length, in combination with the wedge-shaped plate or regulator, G, having the general form and construction herein above described, which plate is driven in and between the bases of the said chair, suitably constructed or formed therefor, and the rail, extending across from one section to the other and operating upon the same, substantially in the manner and for the purpose specified.

Second, The combination with the two-part chair, a, and its regulator, G, of the spring catch, t, interlocking with suitable notches made in the base of the chair, and arranged substantially as and for the purpose specified.

54,869.—Chair.—M. E. Cronk, Auburn, N. Y.:

First, The combination of the rod, s, and plate, n, constructed and operating as and for the purpose herein described.

Second, The combination of the rod, s, the plates, n, the hinges, h, and rubber springs, the whole constructed and operating in the manner herein set forth.

54,870.—Pile Fabric.—James W. Crossley, Bridgeport, Conn.:

I claim the process herein described of producing the pile fabric by the aid of wires which are withdrawn after cementing the warp upon the backing.

54,871.—Harvester Rake.—Charles F. Davis, Auburn, N. Y.:

I claim the combination in a harvester rake of the lever, L, springs, M, or equivalent latches, I, and catches, J K, with each other and with the rake heads, F, arms, D E, and frame or guide, B, substantially as described and for the purpose set forth.

54,872.—Stove for Railroad Cars.—H. G. Dayton, Maysville, Ky.:

I claim the arrangement of the flanges, F, the combination chamber, B, air jacket, E, and pipe, G, substantially as and for the purpose described.

54,873.—Machine for Turning and Jointing Screw Blanks.—Jonathan Dennis, Jr., Washington, D. C.:

I claim pointing screw blanks, rivets, and other articles at the same time their heads are turned or shaved, by the devices shown and described or their equivalents.

I claim arranging the pointing tool behind the griping jaws for turning the heads of screw blanks, rivets, and other articles, so as to point them the same time their heads are turned or shaved.

I claim the rod, H, made hollow or otherwise, and arranged in the arbor to hold the pointing tool, substantially as described, in combination with a pointing apparatus.

I claim arranging the shanks of the griping jaws, the levers, and other devices in the arbors of screw machines, in such a way and manner as to allow the rod which holds the pointing tool to traverse in the arbor between them, substantially as described.

In combination with a pointing tool arranged behind the griping jaws, I claim the cross, L, pins, L', lever, N1, springs, N3, and cam, N2, or such other equivalent mechanism as will hold and traverse the pointing tool to do its work, substantially as described.

In combination with the pointing tool I claim the mechanism described, or its equivalent, for pushing the blanks out of the griping jaws after they are pointed.

I claim making the cutting edges of tools for turning the scored, nicked, or grooved heads of screws, screw blanks, or other articles, curved, or rounded, as shown and described.

54,874.—Hatchway Door.—Marshall S. Driggs, Brooklyn, N. Y.:

I claim constructing a hatch, E, with trucks, D, running upon horizontal ways, B, suspended beneath the floor so that the hatchway may be opened and closed from below, substantially in the manner set forth.

54,875.—Reaping and Mowing Machine.—M. Easterbrock, Geneva, N. Y.:

First, I claim the sliding gears, B and C, connected together by the feathered sleeve, S, and arranged to slide upon the shaft, D, without moving the latter longitudinally, as and for the purposes set forth.

Second, The arrangement of the hand lever, E, ratcheted arch, H, and yoke, y, in combination with the feathered connecting sleeve, S, and gears, B and C, as shown and described, and for the purposes specified.

54,876.—Harvester.—M. Easterbrook, Jr., Geneva, N. Y.:

First, I claim the combination of the hand lever and two loose pinions, p and p', with the double pinion b, and the spur wheel, B, arranged and operating, substantially as and for the purposes set forth.

Second, The two loose pinions, p and p', (whether they are adjusted with a hand lever or other suitable device), in combination with the double pinion, b, and the spur wheel, substantially in the manner, and for the purposes shown and described.

54,877.—Bed Bottom.—Thomas Falloon, Lyons, N. Y.:

I claim the combination of the elastic slats, B B, and the expanding frame, A, as a whole, substantially as and for the purpose herein set forth

I also claim the combination of the caps, f f, covering the ends of the slats, the links, g g, pins, h h, friction rollers, i l, and elastic loops, m m, operating substantially as herein set forth.

I also claim the cross strap or straps, D, provided with the loops, q, or equivalent, and connected with the elastic loops, S, when used in combination with the slats, B B, substantially as described.

54,878.—Churn.—Benjamin S. Fletcher, Cornish, N. H.:

I claim the form and arrangement of the dashers, E E, and the breakers, G G.

54,879.—Bed Bottom.—James H. Fletcher, Lowell, Mass:

I claim the said improved bed foundation or combination and arrangement of the frame, A, with its mortices, a a a a, and india-rubber springs, c c c c, the cross bars, B B, with their series of notches, d d d, and the series of slats, C C C, with their supporting springs, e e e, or the same and the holding bands, D D, the whole being substantially in the manner and for the purpose specified.

54,880.—Machine for Stripping Cane.—Delos C. Flint, Bushnell, Ill.:

First, In combination with the strippers, E' H, I claim the auxiliary hinged or jointed strippers, F' F, attached to the movable stripper, E', and operated by the action of the upwardly divergent grooves, h h, in the fixed stripper, H, on the ribs or points, f f, all arranged and constructed substantially as shown to operate as set forth.

Second, The combination of strippers, E, vertically slotted, parallel guides, B B, spring, D, and screw, C, all arranged and operating in the manner herein described.

Third, The slotted vertically adjustable angular plate, G, when used for the purpose herein described.

54,881.—Pump.—Nelson T. Fogg, Lewiston, Me.:

I claim the described arrangement and combination of the rod, y, the bail, A, the screw, B, the cross-bar, C, valve, d, screw, k, and fastening rods, M M', as and for the several purposes herein set forth.

54,882.—Tool Holder for Dentists.—George F. Foote, New York City:

I claim the combination of the slot, P, in the tool rack, with the flattened surface, N, of the tool, and its upper point, C, fitting a corresponding socket of a tool holder, for the purpose herein set forth.

54,883.—Manufacture of India-Rubber Shoes.—Geo. H Fowler, New Haven, Conn.:

I claim the napped woolenet (or its equivalent), in combination with the cottonet (or its equivalent) and the India rubber, for making an elastic ventilating shoe, when they are prepared, fitted together and finished, substantially as herein described.

54,884.—Ore Crusher.—Joseph Fowler, Rahway, N. J.:

First, I claim the crank shaft, e, and connecting rods, h h and l, in combination with the jaws, g and k, when the parts are arranged and operating as and for the purposes specified.

Second, In combination with the jaws, g and k, I claim the adjustable side pieces, n n, and screws, o o, for the purposes and as set forth.

54,885.—Animal Trap.—A. A. Fradenburg, Nevada City, Cal.:

I claim, in traps for vermin, the combination of the grating, D, on the platform, P, with the revolving door, E, the stops, N and F, substantially as shown.

54,886.—Clothes Dryer.—William Gallaway, Sheboygan Falls, Wis.:

I claim the annular channel, c, around the point or shank of the staff so that when the arms, D I, are wholly or partially distended the head cannot be lifted from the staff, substantially as set forth.

The revolving head, F, resting upon the projecting metallic shoulder, E, in combination with said shoulder and the notched braces, D, for the purposes specified.

The collar, G, attached to the heads, for the purpose of preventing the same from being split, substantially as described.

54,887.—Apparatus to Prevent Horses from Kicking.—Elijah H. Gammon, Batavia, Ill.:

I claim the device to prevent horses from kicking, etc., constructed substantially as herein described, as a new article of manufacture.

54,888.—Wrench.—George P. Ganster, New York City:

I claim a wrench constructed of the hollow frame or bundle, A, the moveable rack or hammer bar, B, and the volute toothed wheel, c, these several parts being combined and arranged in the manner substantially as set forth, and operating as described.

54,889.—Shackle for Prisoners.—John C. Gardner, Portland, Oregon:

I claim the invention of an improved shackle and the supporter, and the mode of fastening them upon the ankle, as hereinbefore described.

54,890.—Machine for Jointing Oval Frames.—David Garrison, Philadelphia, Pa.:

I claim the combination of two saws, the cutting planes of which are at an angle to each other, a table having a movement parallel with the cutting planes of the two saws, and a set of adjustable stops or guides arranged upon the said table, in relation to each other and to the saws, substantially as and for the purpose herein specified.

54,891.—Churn Dasher.—John Gelston, Cincinnati, Ohio:

First, I claim the provision in the tubular handle of a churn dasher, of the apertures, F, for passing compressed air through the body of the cream, at right angles to said tubular handle, substantially as described, and for the purpose set forth.

Second, The arms, E, when provided with deflecting faces, e, in combination with the perforated dash, D, all arranged to operate substantially as and for the purpose herein described.

54,892.—Washing Machine.—Franklin A. Gleason, Brooklyn, N. Y.:

I claim constructing the tub and cone of corrugated sheet metal, in combination with the balance wheel, gear wheel, and pinion, substantially as herein described, and for the purpose specified.

54,893.—Machine for Making Auger Bits.—W. W. Grier and R. H. Boyd, Hulton, Pa.:

First, We claim a machine for twisting auger bits, drill, and similar articles, and consisting essentially of the shaft, B, and a series of dies, arranged to operate substantially as and for the purpose set forth.

Second, The rotating and longitudinally moving shaft, B, having a hole made longitudinally therein, of proper size and form to receive the blank and hold it while being twisted and drawn out, as shown and described.

Third, In combination with said shaft, B, we claim the tongs, L, having their jaws constructed as shown and described.

Fourth, In combination with the shaft, B, we claim the screw, C, with its thread, constructed as described, for the purpose of imparting to the shaft an intermittent longitudinal movement, while it has a continuous rotary movement during the operation of twisting the blank for the purpose of both twisting the blank and setting the lips at one operation.

54,894.—Filter.—Frank P. Griffitts, Philadelphia, Pa.:

I claim the frame or stand clamped between the permanent flange, d, and the movable flanged ring, F, for the purpose of firmly clamping the felt diaphragm to its seat, and allowing it to be readily removed, cleansed and replaced, substantially as described and represented.

54,895.—Grain Separator.—P. Griswold, Hudson, Mich.:

First, I claim the arrangement of the frame, L, with its vibrating bottom and trough, N, attached with the screw, I, substantially as and for the purpose herein specified.

Second, The arrangement of the shaft, H, rod, P, and curved plate, b, with the frame, L, for the purpose of giving the bottom of said frame and the screw, I, a vibratory as well as a vertical motion, as and for the purpose specified.

Third, The adjustable cleat, O, as constructed when arranged with the screen, J, as and for the purpose specified.

Fourth, the arrangement of the bar, R, button, S, and screw, C, the same being constructed and used as and for the purpose herein set forth.

54,896.—Machine for Cutting Corks.—George Hammer, Philadelphia, Pa.:

I claim the use of pressure pad, E, when arranged and operating in combination with a cutter and cutting block, substantially in the manner and for the purpose set forth.

54,897.—Broom Clamp.—Asaph S. Harwood, Malone, N. Y.:

I claim the mode of strengthening and supporting corn brooms by means of the ring above described, attached to springs made of wire and arranged as above specified.

54,898.—Die for Swaging Hands for Watches.—George Hastings, Waltham, Mass.:

I claim the combination and arrangement of the tube projection forming chamber, f, with the finger and ring forming parts, a b d, made as described.

I also claim the combination and arrangement of the eye former, c, or c c', the tube projection forming chamber, f, ring former, d, and the finger dies, a b, the whole being substantially as and for the purpose specified.

54,899.—Fodder Cutter.—Thomas Hazard, Wilmington, Ohio:

I claim, First, the provision of the guard or mouthpiece, H, having the slotted arm, I i, and screw bolt, N, and being formed and adapted to operate in connection with the throat, G, and knife, K, in the manner explained.

Second, The arrangement of obliquely moving knife, K, pressure board, 12, arm, 13, and roller, 14, for the purpose described.

54,900.—Machine for Making Cigars.—Isaachar A. Heald, Carlisle, Mass.:

First, I claim mounting the roller, D, in such a manner that it can be moved in the arc of a circle, without throwing it out of gear, substantially as and for the purpose set forth.

Second, I claim forming a filler or body of a cigar, by rolling it between two disks more or less inclined, substantially as shown and described.

Third, I claim smoothing and cutting the wrappers for cigars, substantially as herein shown and described.

Fourth, I claim cutting the end of the cigar off, by moving it past a knife fixed in position, substantially as shown in fig. 1, and herein described.

Fifth, I claim the socket or cup, t, arranged to operate substantially as described, to hold and form the end of a cigar ready to receive the wrapper.

Sixth, I claim providing the surface of the rollers with a series of cavities increasing in size and depth toward the center and decreasing toward the end of the rolls, as shown and described.

Seventh, I claim the revolving and sliding fingers, e', for seizing and holding the wrapper, substantially as set forth.

Eighth, I claim holding the end of the wrapper upon the cup, t, or other device more unyielding than the cigar itself, said device being arranged opposite to the end of the cigar and caused to revolve with it, for the purpose of drawing the wrapper sufficiently tight.

54,901.—Corn and Seed Planter.—John L. Heisey, Elizabethtown, Pa.:

First, I claim the radiating rods, M, with their markers, N, across the periphery of the wheels, supported by and made adjustable by the loose cog wheels, G' G2, in combination with the gear, I, shifting and turning levers, E, and side toothed pulley, D, all on the seeding or roller shaft, B, arranged and operating substantially in the manner and for the purpose specified.

Second, I claim the combination of the seed valves, when placed in the bottom of the spouts, P, and operated in unison with the markers, N, simultaneously actuated by the seeding or roller shaft, B, with its gearing, I, and depressing loops, F, arranged substantially in the manner and for the purpose set forth.

Third, I also claim the adjustable mold board-like side plate, x, adjustable on the supporting bars, T, of the shovels, R, constructed and operated in the manner specified.

54,902.—Bed Bottom.—A. R. Henderson and James Ford, Andover, N. Y.:

We claim the combination of the side rails, C D, hanging webbing, G, double slats, E F, arranged in the manner and for the purpose herein specified.

54,903.—Window Sash Spring.—Foster Henshaw, Washington, D. C.:

I claim the construction of the steel wire spring with its incline slot at top, in which the grooved axle of the roller operates and is combined as herein described and for the purposes set forth.

54,904.—Bung for Beer Casks.—Michael Hey, Philadelphia, Pa.:

I claim the sharp edged disk flure, 3, when applied to operate upon a flat seat in a ventilating beer bung, as and for the purpose described.

54,905.—Air Compressing Pump.—Birdsill, Holly, Lockport, N. Y.:

First, I claim the combination and arrangement of the air and water reservoir, L, with the water extension, B', of the pumping cylinder, B, operating substantially as described.

Second, I also claim the cylinder, B, constructed substantially as described in combination with the reservoir, L, and water extension, B'.

54,906.—Steam Engine.—William Cleveland Hicks, New York City:

I claim the arrangement of the cylinder, valvular pistons, and steam admission and exhaust passages, substantially as herein described, to operate in the maneer and for the purpose set forth.

54,907.—Disinfecting Composition.—Fred. Hoffman and Robert Wendler, Brooklyn, N. Y.:

We claim a disinfecting compound made of charcoal and hydrated oxide of phenyl, substantially as described.

A disinfected compound of charcoal hydrated oxide of phenyl and burned lime, as described.

A disinfecting compound made of charcoal, hydrated oxide of phenyl, burned lime, and hypochloric acid, and with or without the addition of an indifferent vegetable cellulose, as specified.

54,908.—Window Shade Fixture.—Joseph Horner and Silas Van Doren, New Brunswick, N. J.:

We claim the brackets, B B, for supporting a roller, D, constructed with flanges which are applicable to the top of the frame, substantially as shown and described.

Second, Attaching the roller to its journals, by forming in its ends a T-shaped groove into which is inserted an I-shaped arm or plate extending from each journal, substantially as shown and described.

54,909.—Manufacturing Flexible Tubing.—David K. Hoxsie and Thomas L. Reed, Providence, R. I.:

I claim in combination with flexible gas tubing, as a finish for the same, a covering of webbing or braid of many single strands, plaited in minute stitch-like wales, substantially as described for the purpose specified.

54,910.—Process of Building Concrete and Mortar Walls for Buildings.—Ebenezer Hunt, Danversport, Mass.:

First, I claim the construction of concrete or mortar walls for dwelling and other houses by the use of cores made of sand, loam, or some other cheap material, so arranged within the molds which form the walls as to leave a space for the concrete or mortar forming the exterior surface of the wall, and from this outer face of the wall projections of the same material extending perpendicularly from top to bottom and inwardly as far as the contemplated thickness of the wall, strengthened, if required, by horizontal projections of the same material at proper distance, substantially in the manner and for the purposes set forth.

Second, I claim the building of posts, fences, roofs, floors, flagstones and other like structures of concrete or mortar, or their equivalents, by the use of cores, substantially in the manner and for the purpose set forth.

54,911.—Stove Pipe Drum.—Frank P. Hunt, Medina, N. Y.:

First, I claim the interior perforated cylinders, I and K, and the perforated disks, J and L, constructed and arranged substantially as described in combination with each other and with the exterior cylinder, A, substantially as and for the purpose set forth.

Second, The combination of the damper, O, with the interior cylinder I, and the exterior cylinder, A, substantially as described and for the purpose set forth.

54,912.—Heat Radiator.—Jacob B. Hyzer, Janesville, Wis.:

I claim the combination and arrangement of the flues, F, and hot air chamber, T, (when constructed with the partition, U, and damper, s), with the flues, C, hot air chamber, I, and return flues, H, substantially as and for the purpose set forth.

54,913.—Car Coupling.—Marshall Ingersoll, Grafton, Ohio:

I claim the arrangement of the coupling hooks, C, connected to the springs, g and a, in combination with the lifting hook, J, lever, m, pawl, E, and bumpers, operating in the manner and for the purpose set forth.

54,914.—Hay Rack for Wagons.—Albert Jackson, Clifton Springs, N. Y.:

First, I claim in connection with the frame, A, the detachable bars, B, constructed of two parts, a a, and fitted to the frame in the manner substantially as shown and described.

Second, The removable wheel fenders, G, attached to the cleats, E E', H, on the bars, B B B I, substantially as and for the purpose set forth.

Third, The removable boards, F F, placed between the cleats, E E, substantially as described.

Fourth, The combination of the frame, A, bars, B, fenders, G, and ladder or guard, L, all arranged substantially as and for the purpose specified.

54,915.—Attachment to Gas Fixtures.—Bernard Jacobs, New York City:

I claim the spring valve, b, or its equivalent, in combination with the pipes, A and B, or in the joints between two pipes bearing a similar relation to each other as said pipes, substantially as and for the purpose set forth.

54,916.—Shuffle Hoe.—J. D. Jenkins, Jackson, Ill.:

First, I claim the combination of a rake and a hoe blade, A, when arranged to operate substantially as described.

Second, Making the blade, A, with a concave bottom surface and connecting this blade to the forked head at a point which is beneath the rake teeth, substantially as described.

54,917.—Collecting the Light Oils from Oil Wells.—John Johnson, Saco, Me. Antedated May 10, 1866:

I claim the separating and gathering at the wells, a new article of commerce, viz: the light condensable vapors which rise with petroleum and which may be pumped off, under any suitable seal and condensed, substantially as herein set forth.

I also claim volatilizing and condensing the condensable products from petroleum at the wells, by forcing air or gases through petroleum as carriers of the light products, for the purpose herein described.

54,918.—Calks for Horse Shoes.—Frederick Judson, Jersey City, N. J.:

I claim the tapering calks, C C', constructed as described in combination with the projections, B B and tapering sockets, A A, of the shoe, A, arranged and operating in the manner and for the purpose herein described.

54,919.—Reading Desk.—Ernst Kast, Waterbury, Conn.:

I claim the reading desk, A, provided with an adjusting shank, B, in combination with the tubular arm, C, which is adjustable on the vertical column, D, and with the table, E, constructed and operating substantially as and for the purpose described.

54,920.—Machinery for Forming Flanges upon Boiler Heads.—Joel F. Keeler, Pittsburgh, Pa.:

I claim the rotary tables, b d and e e, in combination with the cone, g, or their equivalents, for the purpose set forth.

54,921.—Broom Head.—John Kiefer, Hamilton, Ohio:

I claim the two series of leaves, a a a, and a' a' a', in combination with the central continuous leaf, b, each of which is provided with teeth by punching the sheet metal, as described, and so arranged as to be capable of self-adjustment upon the stalks of broom corn constituting the wisps, when compressed thereon, in the manner and for the purpose herein set forth.

54,922.—Alarm Whistle.—Patrick Killin, Mount Healthy, Ohio:

I claim the bellows, B, in the cylindrical chamber, A, the spring, C, rod, D, and whistle or horn, G, constructed and operated as above described and for the purpose set forth.

54,923.—Machine for Making Tin Fruit Cans.—August Kollenberg, Owensboro', Ky.:

I claim the combination with the adjustable cylinder, A, of the retaining lever, C, arranged to operate substantially as described.

54,924.—Heating Stove.—Leonard Lakin and Norman Hall, Brodhead, Wis.:

We claim the construction of a stove with its fire chamber surrounded by a smoke chamber and an open space between said fire and smoke chambers, and the conveyance of heat and smoke from the one chamber to the other, by means of the flues, in such manner as to secure three heating or radiating surfaces and a draft of air between said fire and smoke chambers, substantially as herein set forth.

54,925.—Car Wheel for Lubricating Purposes.—John W. Latcher, Albany, N. Y. Antedated, May 7, 1866:

First, I claim forming an oil reservoir, B, in the body of independent revolving car wheels and the oil retained therein for gradual use, by means of plugs, d, in combination with stationary journals, C, substantially as described.

Second, Forming an oil reservoir in such a manner as shall compromise unequal shrinkage, as shown and described.

54,926.—Sewing Machine.—William M. Leavens, Philadelphia, Pa.:

First, I claim preventing the operation of the thread carrier, F, by throwing it back and securing and retaining it in that position, so that the stitch may be changed without further modification or substitution of the parts, substantially as described.

Second, I claim securing and retaining the thread carrier, F, in a position to prevent it from operating by means of lever, P, pin, n, arm, m, or their equivalents, substantially as described.

54,927.—Pea and Bean Sheller.—W. K. Lewis, Boston, Mass.:

I claim the serrated wheels, I, placed on a shaft, D, over the front part of the apron, C, when used in combination with the endless apron and rollers, B B, and as an auxiliary feed for said rollers, for the purpose specified.

54,928.—Buckle.—Henry Loewenberg, New York City:

I claim a buckle having sectional cross bars with points turned toward each other, and that will hold and be adjustable on both straps without being permanently attached to either, and constructed substantially as herein described and represented.

54,929.—Device for Opening Fruit Cans.—William W. Lyman, West Meriden, Conn.:

I claim the fulcrum bridge or yoke, d, and lifting lever, e, substantially as and for the purpose as described.

54,930.—Churn Dasher.—David W. Maurice, Springfield, Ohio:

I claim an improved churn dasher, constructed and arranged substantially as herein described for the purpose set forth.

54,931.—Refrigerator.—James McKelvey, Ogdensburg, N. Y.:

I claim the filter, J, in combination with the ice chest, I, and refrigerating chamber, H, arranged substantially in the manner and for the purpose set forth.

54,932.—Manufacture of Paper Pulp.—Harrison B. Meech, Fort Edward, N. Y.:

First, I claim the method of treating hay, hemp, flax, and other grasses for the manufacture of paper, substantially as described.

Second, Using liquors in a rotary boiler prepared in the manner and for the purpose herein set forth.

54,933.—Making Coffee.—Josiah V. Meigs, Washington, D. C.:

First, I claim making coffee by inclosing the ground coffee in an immersed chamber through which hot water is forced, substantially in the manner herein described.

Second, The combination of the kettle or boiler with the coffee chamber, when arranged and operating substantially in the manner and for the purpose set forth.

Third, The combination of the coffee tube with a check, substantially as and for the purpose described.

Fourth, Cleansing the coffee tube by condensing the steam in it, as described.

Fifth, The combination of the coffee pot and inclined planes, I J, substantially as and for the purpose described.

54,934.—Breech-loading Fire-arm.—J. V. Meigs, Washington, D. C.:

First, I claim reciprocating the breech block vertically by reciprocating the guard, or its equivalent, horizontally.

Second, The combination of the trigger with the dog and sliding guard, to fire the gun, and lock, or release the breech block, substantially in the manner described.

Third, The combination of the reciprocating guard and vertically sliding breech block with the bar carrying a rebate to correspond with the recess of the barrel for the purpose of removing the cartridge case, substantially as described.

54,935.—Lamp.—Rufus S. Merrill, Boston, Mass.:

First, I claim the method herein described of insulating the wick tube from the cap of the vessel by the interposition of a non-conductor of heat, in the manner and for the purpose set forth.

Second, I claim the combination with a cap provided with a socket to contain the insulating cementing substance of the wick tube provided with an annular plate, to prevent its being moved within the cementing matter.

Third, As an attachment to and in combination with the wick tube, I claim the chambers or reservoir arranged in the manner and for operation as described.

54,936.—Loading Attachment to Hay Wagons.—James Madison Miller, Greenwood Township, Pa.:

I claim the wheel, m m, attached to the wagon wheel in combination with the wheel, N, lever, D, bar, E E, and the crane, P O O, when the same are constructed in the aforesaid combination, for the purpose set forth in the manner described.

54,937.—Water Wheel.—John C. Miller, Amsterdam, N. Y.:

I claim as an improvement in water wheels, the arrangement of the spiral or helical scroll, F, and curved buckets, C, of the wheels, D, when constructed and operating in the manner and for the purpose herein specified.

I further claim the combination of the helical or spiral scroll circular bottom plate and curved buckets, when applied in connection with a water wheel which receives the water at its center and discharges it from its periphery, in the manner substantially as herein described.

54,938.—Heating Stove.—Geo. Rodney Moore, Lyons, Iowa:

First, I claim the construction of a fire chamber with a part, H, shelving inwardly and terminating at any desired distance above the grate, I, for the purpose and in the manner herein set forth.

Second, I claim the recess or chamber between the fire, J, the plate, H, and door, D, as and for the purposes described.

54,939.—Machine for Attaching Clasps to Skirt Hoops.—C. Newmann, New York City:

I claim the cup-shaped receptacle with flanged edges to its conducting chute, constructed, arranged and operating substantially as described and represented.

54,940.—Feed Water Heater.—John Nicholson, Allegheny City, Pa.:

I claim the steam chamber, A, furnished with an inlet, B, and outlets, C e, for steam, and placed within a water chamber, D, which is connected to the steam boiler by pipe, x', and to the supply of water by pipe, O, the whole being constructed, arranged and operating substantially as herein described, and for the purpose set forth.

54,941.—Spring Balance.—John K. O'Neil, Kingston, N. Y.:

I claim the arrangement of any desired number of springs, so that by detaching or attaching they may be used either separately or conjointly for a weighing instrument, substantially in the manner herein described, for the purposes set forth.

54,942.—Cotton Seed Planter.—Albany Packham, Prestonville, Ky.:

I claim the inverted conical hopper, F, in combination with the rotary spiral toothed strip or seed distributor, G*, with bar, H, attached, all arranged on a mounted frame to operate in the manner substantially as, and for the purpose herein set forth.

54,943.—Lime Kiln.—Halsey Pelton, Erie, Penn.:

I claim making the furnaces of lime kilns, with upper openings or doors for admitting coal in combination with horizontal doors or openings for admitting wood, so that either kind of fuel can be used, substantially as described.

Second, I also claim the blocks, G, made substantially as described for filling the front part of a furnace when coal is to be used as fuel, and for conducting the coal to the grate, as above shown.

Third, I also claim making the body of a lime kiln substantially as above described, that is to say, with a metallic outer cylinder, a fire brick or equivalent lining, and a non-conducting material between the two, with a projecting base for the arrangement of flues.

Fourth, I also claim making a horizontal flange on the inside of the metallic cylinder, I, for the purpose of separating the upper part of the inner lining from the lower part, substantially as above described.

Fifth, I claim the arrangement of the grate, H, and base of the kiln, in the manner and for the purpose herein specified.

54,944.—Medical Compound.—E. B. Perry, Knoxville, Ill.:

I claim the within described compound made of the ingredients set forth, and mixed together, substantially in the manner specified.

54,945.—Apparatus for Making Extracts from Bark, Etc.—Francis W. Perry and John H. Pierce, Woburn, Mass.:

First, We claim a revolving and self-emptying leach for extracting or displacing tannic acid from bark, substantially as herein described.

Second, We claim the combined arrangement, substantially as herein described, for revolving the leach and introducing steam thereto, or any analogous device to produce the same results, when used for extracting tannic acid from bark for tanners use.

54,946.—Harvester.—John G. Perry, South Kingston, R. I.:

First, I claim the centrally open rim or axle, z, or its equivalent of the main wheel, C, in combination with the frame, B, constructed substantially as herein described and for the purpose set forth.

Second, I claim the brace rod, J, passing through the open wheel, C, or axle, z, in combination with the drag bar or shoe, V, connected to the frame, B, substantially as described and for the purpose set forth.

Third, I claim the combined hand and foot lever, s a, arranged for raising either or both ends of the cutting apparatus, substantially as described and for the purpose set forth.

Fourth, I claim the arrangement of the bevel gears, a m, crank, b, or its equivalent and pitman, S, in combination with the open wheel, C, or axle, Z, and main frame, B, substantially as herein described and for the purpose set forth.

54,947.—Horse Rake.—William M. Platt, West Liberty, Ohio:

I claim the arrangement of engaging and releasing mechanism, J K L M N P, all constructed and operating as and for the purpose specified.

54,948.—Boot Jack.—Asahel Pierpont, New Haven, Conn.:

I claim the combination of the two parts, A and D, for a folding boot jack, when hinged laterally and constructed, arranged, and fitted for use, substantially as herein described and set forth.

54,949.—Vegetable Slicer.—J. C. Plumer, Boston, Mass.:

I claim the disk, P, with the raised cutting edges, E E', as described, in connection with the support, S, and receptacle, R, all substantially as and for the purpose specified.

54,950.—Method of Preparing Vacuum Vessels for Condensing Milk, Etc.—Julius R. Pond, New Hartford, Conn.:

I claim treating metal with an oily or greasy substance, substantially such as set forth, or its equivalent, in the manner and for the purpose substantially as described.

54,951.—Corn Harvester.—William E. Prall, Knoxville, Tenn.:

I claim the combination of the cutter provided with the ratchet edged upon its under side, cutter bar, R, provided with a lip, S, and friction wheel, P, when arranged and operated substantially as and for the purpose set forth.

54,952.—Lock.—D. A. Pratt, New York City:

First, I claim the employment or use of the movable lip, c, on the key, C, in connection with a notch in the stationary plate, B, attached to the lock, or to the escutcheon on the door, arranged in such a manner that the one will, as the key is turned in order to lock the door, engage automatically with the other, substantially as set forth.

Second, The tumbler, E, arranged within the plate, B, so as to be operated by the turning of the key in the manner shown, or in any equivalent way, so as to serve as a guard to the key hole to prevent the passing of a rod or instrument through the key hole to act upon the lip, c, and thus admit of the key being turned from the outer side of the door.

Third, The combination of the lip, c, upon lever, d, applied to the key, C, the arm, k, the notch, b, in the plate, B, and the rotary tumbler, E, all arranged and applied to operate in the manner substantially as and for the purpose set forth.

54,953.—Sash Fastening.—D. A. Pratt, New York City:

I claim the sash fastening in a sash frame with its catches, d, placed on separate rods, d d', arranged and constructed as described, so that the point of contact with the stile, B, of the window, is at the center of frame of the fastener, b.

I further claim the combination of the catches, secured laterally to the levers c c', end springs, e, applied to the frame, A, arranged to operate with the notches on the stile, B, of the sash, in the manner and for the purpose herein specified.

54,954.—Shoe Jack.—Levi H. Proctor, East Sangers, Mass.:

I claim the combination and arrangement of the arms, d c, the spring, o, the grooves, i l, the racks, k m, and the sets of teeth, f g, with the heel and toe rests, F G, the plate, C, and its plates, E E, the whole being substantially as and to operate as described.

I also claim the arrangement and application of the pin, p, the bolts, r, and spring, s, and nut, t, with the heel rests, F.

I also claim the application of the curved bar, H, to the plate, B, by means of the socketed projection, w, the hole, b', and the ears, y y, arranged as described, whereby the two may be connected or disconnected as circumstances may require.

54,955.—Car Coupling.—George Quick and John N. Wallis, Fleming, N. Y.:

First, I claim the swinging bolt, F, when combined with the link, A, slotted piece, K, and shaft, G, in the manner and for the purpose described.

Second, The arrangement, as described, of shaft, G, with its arms, J and I, and slotted piece, K, to release the coupling of the cars without passing between them, in the manner and for the purpose described.

Third, The combination of the hook, N, upon the link, A, with the lug, M, or shaft, G, so that the withdrawal of the link the coupling will be restored to its nominal position as herein described.

54,956.—Hay and Cotton Press.—Thomas D. Read, F. R. Read, and Cyrus Dorrel, Rising Sun, Ind. Antedated May 3, 1866.:

I claim the combination of the levers, d e and i, rollers, f and h, inclined plate, g, and notch, j, in the guide of the beater, constructed as above described and for the purpose set forth.

54,957.—Manufacture of Dyes and Colors.—George H. Reed, Boston Mass.:

I claim, First, As a new manufacture or composition of matter, and as a new article of commerce, liquid dyes produced from vegetable or mineral coloring matters, so mixed and prepared with the proper proportion, or quantity, or mordants, and glycerin, alcohol, pyroxylic spirit, or naphtha, or either of them, that the same will endure both heat and cold, and may be kept for any period without undergoing change, and will produce a complete and effectual dye upon either silk, or woolen cloth, or fabric, at one application.

Second, I claim the process of making liquid dyes in all colors by the mixture and preparation of coloring matters, and mordants, either of vegetable or mineral origin, or both, with the addition of glycerin, alcohol, pyroxylic spirit, or wood naphtha, or either of them, in such manner that the dyes will endure both heat and cold, and may be kept for any length of period without undergoing changes, and will produce a complete and effectual dye upon either silk, or woolen cloth, or fabric, at one application, in the manner substantially as above set forth.

54,958.—Fifth Wheel for Vehicles.—Uel Reynolds, New York City:

I claim a stop guard for preventing the wheels coming in contact with the body, formed by projections or stops upon the fifth wheel, substantially as set forth.

I also claim the anti-friction rollers, and jaws in combination with the fifth wheel circle or arcs, as set forth.

54,959.—Balance Valve for Steam Engine.—Thomas Richards, Lansingburgh, N. Y. Antedated May 7, 1866:

I claim the within described arrangement of the ports in valve seat and valve, so as to make the steam and exhaust ports balanced, under any pressure of steam, substantially as set forth.

54,960.—Cane Mill.—John W. Richardson, Daniel L. Davis, and Wm. C. Howell, Sligo, Ohio:

We claim, First, The provision, in a cane mill, of the series of feeding chopping, crushing, and expressing apparatus, arranged and co-operating as set forth.

Second, The combination of the revolving sickle-formed knives, E, throat piece, F, and intermittent feed mechanism, G g g' H I J K, substantially as set forth.

Third, In a cane mill, arranged and operating substantially as described, we claim the nozzle, z', when used for injecting steam upon the cane while in the operation of being crushed, for the purpose set forth.

54,961.—Sash Fastener.—W. J. Ross, Worcester, Mass.:

First, I claim the combination with the case, A, of the lift piece, C, lever, D, with its locking projection, J, and springs, f, substantially as set forth.

Second, Making or coring out the case, A, as seen at h, in combination with the use of spring, f, as and for the purpose stated.

Third, The combination with the projections, d and e, on the end, F, of lever, D, of the edge, g, as and for the purpose stated.

54,962.—Tool for Removing Scale in Boiler Tubes.—Philip C. Rowe, Boston, Mass.:

I claim, in combination with a cutter head, the tubular screw, d, and its internal screw, i, arranged to operate substantially as described.

Also, in combination with the piece, c, supporting the nut for the screw, d, the turn-buckle clamping device, substantially as set forth, and the construction and arrangement of the parts described, by which the cutters of the head are adjusted, substantially as specified.

54,963.—Gang Plow.—Jacob L. Runk, James H. Brown, and Elias M. Morgan, Nashville, Ill.:

First, I claim the plow beam, attached to a bolster, the latter being hinged or pivoted to the axle or carriage, substantially as and for the purpose described.

Second, Attaching the draft-rod to the beam in such a manner as to utilize the draft of the team in raising the plows from the ground, when the forward support of the beam is removed.

Third, the combination of the beam, A, and tongue, G, or its equivalent, affixed to the carriage, with the toggle, V U, the latter forming a brace, when straight, and a means, by deflection, of depressing the fore end of the beam.

Fourth, the combination of the beam, A, tongue, G, or its equivalent, and the notched stay hook, X.

Fifth, The arrangement of the hand lever, S, connecting rod, T, beam, A, and carriage or tongue, operating as described.

Sixth, The arrangement of the hand lever S, connecting rod, T, toggle, U V, beam, A, and tongue or equivalent, substantially as described and represented.

Seventh, Attaching the draft rod to a point so far removed from the fore end of the beam, and above and near the axis of vibration of the latter, as to maintain the draft point, when the plows are out of the ground, at or about the same hight as when in working position.

Eighth, The combination of the beam, hinged to the bolster of the foot board and pivoted hand lever, as described and represented.

Ninth, The seat post, pivoted to the carriage and beam, substantially as and for the purpose described.

Tenth, The arrangement for the lateral adjustment of the tongue, for the purpose described, consisting in the pivoting of the tongue on a vertical bolt in the axle, and the side braces adjustable as to length, as described and represented.

54,964.—Boiler for Culinary Purposes.—Sarah E. Saul, New York City:

I claim the combination of the hinged cover, b, and tube, C, arranged relatively with the boiler, A, and escape pipe, a a d', constructed and operating in the manner and for the purpose herein specified.

54,965.—Washing Machine.—Emery Sawyer, Millbridge, Maine:

I claim the hinged cover, with its washing ribs, C, when operated by the cam wheel, G, as and for the purpose described.

Also the wringing box, working between the arms, f, and furnished with the rubber bottom and screw pressure, as and for the purpose described.

54,966.—Instrument for Cutting Finger Nails.—Charles C. E. Schwartz, Philadelphia, Pa.:

First, I claim the plate, A, the circular shaped opening, a, and the straight opening or guide, b, substantially as specified and set forth.

Second, The combination of the plate, A, the circular opening, a, the straight opening, b, the sliding knife, B, and set screw, d, and the serrated edges or files, e, as specified and described.

54,967.—Brick Press.—David W. Seeley, Albany, N. Y.:

First I claim a brick press which is so constructed that the brick will be supported on two opposite sides during the act of releasing the other sides of the brick, substantially as described.

Second, The combination of a reciprocating mold box, D, a reciprocating piston, E, and a platen, G, the piston and platen having each an irregular motion, and all operating so as to press and release bricks, substantially as described.

Third, Discharging the bricks from the pressing devices, substantially as described.

Fourth, Constructing the ends of the rectilinear moving piston and platen, substantially as described.

54,968.—Slide Valve for Steam Engines.—John F. Shearman, Brooklyn, N. Y.:

First, I claim the cover, g, forming a termination to the exhaust pipe, h, within the steam chest, in combination with the exhaust port, 3, passing through the slide valve, substantially as and for the purpose specified.

Second, I claim the arrangement of the exhaust pipe, h, and cover, g, to the exhaust port of the valve, and the expansion joint or stuffing box on the valve chest, around the exhaust pipe, as and for the purposes specified.

54,969.—Mode of Ventilating Grain.—John Shone, Blackwoodstown, N. J.:

First, I claim combining with the main tubes, C C, the auxiliary vertical tubes, G, and horizontal tubes, H, constructed, arranged, and operating substantially in the manner and for the purpose hereinbefore described.

Second, The combination of the cap pieces, C', with the main tubes, C, substantially in the manner and for the purpose specified.

Third, Combining the perforated tubes, I, with the sides of the bin, substantially as and for the purpose set forth.

54,970.—Artificial Leg.—S. P. Sleppy, Wilkesbarre, Pa.:

First, I claim the combination of the lever, a, connecting rods, d and f, thigh, c, leg, e, and foot, g, in the manner and for the purpose described.

Second, The combination of the straps, j j j and i, with the lever, a, thigh, c, leg, e, foot, g, connecting rods, d and f, all arranged and operating substantially as described.

Third, The combination of lever, a, straps, i, and connecting rod, d, substantially as described.

54,971.—Gas Burner.—J. Lawrence Smith, Louisville, Ky.:

I claim a gas burner, constructed as herein described, with an aluminium tip, to adapt it to resist corrosion, and to be readily and safely cleansed.

54,972.—Mechanical Movement.—Peter J. Smith, Philadelphia, Pa.:

I claim the combination of the two shafts, A and A', arms, D and D', rods, E and E', and the radius rod, F, the whole being arranged and operating substantially as and for the purpose herein set forth.

54,973.—Tumbler Washer and Cooler.—D. M. Somers, Washington, D. C.:

I claim the combination of the tumbler rest, D, the spring, K, and valve, J, when constructed and operated, substantially as herein described, and for the purposes set forth.

54,974.—Hen's Nest.—Hiram Stevens, New Haven, Conn.:

I claim the construction and arrangement of the box, C, within a case, A, so as to operate substantially in the manner specified.

54,975.—Railway Truck.—Hiram Strait, Cincinnati, Ohio:

I claim, First, The arrangement or combination of car wheels, brackets, springs, and cross and longitudinal ties, either with or without the rubbers, substantially as herein specified.

Second, The grooved or flanged rubbers, (either adjustable or fixed) attached to either the ends of the brackets or to brakes, to remove all obstacles from before the car wheels, substantially as herein specified.

54,976.—Stovepipe Damper.—Daniel Sweeney and Stephen Sweeney, Constableville, N. Y.:

I claim, First, The damper composed of the annular concave disk, a, and cap, e, in combination with the cross bar, E, constructed and operating substantially as and for the purpose described.

Second, Also the perforated diaphragm, D, in combination with the damper, C, and cross bar, E, constructed and operating substantially as and for the purpose set forth.

54,977.—Horse Rake.—Benjamin C. Taylor, Dayton, Ohio:

I claim, First, The supporting pieces, p and q, constructed and arranged substantially as described, and for the purpose specified.

Second, The adjustable spring bar, b, when arranged with reference to the springs, s s, and the rods, o o, substantially as and for the purpose specified.

54,978.—Treating Oil.—H. C. Taylor and D. M. Graham, Cleveland, Ohio:

First, We claim the treatment of petroleum and other similar hydrocarbons by means of nascent hydrochloric acids, chlorine, flourine, or other equivalent chemical reagents, so as to change the constitution of the oil, and purify it, substantially as herein described.

Second, We also claim the use of sulphuric acid, nitric acid, or salts containing these, or either of them, when used in combination with other materials, such as herein described, or their equivalents, for the purpose of treating petroleum or other hydrocarbons, as described.

54,979.—Composing Stick.—William T. Tillinghast, Dayton, Ohio. Antedated May 7, 1866:

I claim the gaging slide, B, screw shaft, g, and clamping nut, h, in combination with check blocks, c c c, and the checking bar, b, constructed and operating as above shown, and for the purpose set forth.

54,980.—Refrigerator.—Peter A. Vogt, Buffalo, N. Y.:

I claim the arrangement of the induction air passage through the drip pipe, l, and extension pipe, m, in combination with the trap, k, or its equivalent, whereby the air entering is carried to the top of the ice chamber and cooled in its passage, substantially as set forth.

54,981.—Nail Machine.—Rivera Ward, Alder Creek, N. Y.:

First, I claim the arrangement of a movable fuel box, C, with adjustable bottom, e, in combination with the furnace, A, feed rollers, n o, hammers, H H*, and shears, M M*, substantially as and for the purpose set forth.

Second, Imparting to the nail rods a retrorgade motion before cutting, and a forward motion after cutting, by means substantially such as herein described, or any other equivalent means, for the purposes specified.

Third, The oscillating guide, G, in combination with the M-shaped anvil, I, constructed and operating substantially as and for the purpose set forth.

Fourth, The hammers, H H*, in combination with M shaped anvil, I, constructed and operating substantially as and for the purpose described.

Fifth, The oscillating jaw, M*, in combination with the feed lever, F, clamps, S and t, disk, E, and feed rollers, n o, constructed and operating substantially as and for the purpose described.

Sixth, The dog, b, and pin, i, in combination with the arms, j' l', rod, m', lever, n', bolt, q', and jaws, M M*, constructed and operating substantially as and for the purpose set forth.

Seventh, The rock shaft, y', and tappet, t', in combination with the jaws, M M*, and cam, K, constructed and operated substantially as and for the purpose described.

Eighth, The tappet, b2, in combination with the studs, a2, on the cam, K, and with the arms, j' b', jaws, M M*, and rock shaft, g', substantially as and for the purpose set forth.

Ninth, The ratchet wheel, c2, and stud, g2, in combination with the catch, h', spring, u', arm, j', and with the rods connecting said arms with the jaws, M M*, substantially as and for the purpose set forth.

Tenth, The disk, k', with its cavity, l'', in combination with the dog, i2, catch, h', and hammer, H, substantially as and for the purpose described.

Eleventh, The hand lever, N, with springs, o2, in combination with the catch, s2, and hammer, H*, constructed and operating substantially as and for the purpose described.

Twelfth, The combanation of the catch, S2, dog, j2, disk, k2, and catch, h2, with the hammers, H H*, substantially as and for the purpose described.

Thirteenth, The spring catch, b2, in combination with the annular grooves, w2 w2*, in the cam, K, and with the hand lever, N, constructed and operating substantially as and for the purpose set forth.

54,982.—Rock Drill.—Owen G. Warren, New York City:

I claim loading the shaft with the collar weight, to render unnecessary a high lift for rapid boring.

54,983.—Steam Engine.—George J. Washburn, Worcester, Mass.:

I claim the arrangement of the piston, B B', and valves, D D', the latter being respectively actuated by one piston and the means of actuating the other piston, substantially as described.

54,984.—Process of Refining Hydrocarbon Oil.—Phillipp Weisenberger, Pittsburgh, Pa.:

I claim the above described process of purifying distilled petroleum or other liquid hydrocarbons, without the aid of any alkalies, by means and with the use of water at 212 degrees Fah. or approximate degrees of temperature, in the manner specified.

54,985.—Shade Hook.—Samuel White, Philadelphia, Pa.:

I claim the combination of the socket, A, screw rod, B, and nut, d, the same constituting an improved device for holding and regulating the tension of the cords used for raising window shades.

54,986.—Hat and Cap.—William H. White, West River, Md.:

First, I claim making metallic or hard rubber sweat bands, with flanges, as and for the purposes set forth.

Second, The combination of a sweat band, with a hat rim or cap visor, when made in one piece.

Third, The combination of a metallic or hard rubber sweat band with a wrapper provided with draw cases and draw springs, substantially as herein set forth.

54,987.—Potato Masher.—A. L. Whitney, Brooklyn, N. Y.:

I claim an implement consisting of a suitable handle and provided with a series of arms, D, constructed, arranged and operating substantially in the manner described, and for the purpose specified.

54,988.—Tweer.—Levi Wilkinson, New Haven, Conn.:

I claim a cast-iron tweer, when constructed, shaped (both inside and ontside), and fitted for use, substantially as herein described and se forth.

54,989.—Fence.—Samuel B. Williams, Sheridan, N. Y.:

In combination with the iron stapled-shaped posts, I claim the scarfed and scored rails, arranged substantially as described.

And in combination with the posts and rails, I claim the iron rod or wires extended between the tops of the posts, as described.

54,990.—Securing Bits in Braces.—William Wimmer, Elizabethport, N. J.:

I claim the combination of the entire socket, A, the sliding ring, C', and the catches, B B, each of said catches being formed with a flange, a, and a nose, b, to dispense with the customary pivot pins, and all arranged as herein described, so that the torsional strain shall be sustained by solid socket, and the bit firmly secured within said socket, by the noses, b b, engaging beneath its head.

54,991.—Means for Holding Glass Bottles.—John Wood, Brooklyn, N. Y.:

I claim the adjustable holder for receiving and retaining articles of glass while being heated and formed, substantially as speified.

54,992.—Flying Machine.—John Wootton, Boonton, N. J.:

First, I claim in combination with a parachute, A, constructed substantially as described, the arrangement of one or more screw propeller, placed underneath said parachute and operated by a suitable engine, and arranged on a movable frame, N, operated in the manner and for the purpose substantially as described and set forth.

Second, I claim the parachute, A, composed of a large ring or hoop, B, with numerous rods or braces, G G, running from the central frame to the ring, thereby making it into a continuous arch, or rigid circle, said circle to be covered with oil cloth or its equivalent on the underside of the rods or braces, and to be held in its proper or rigid position, at right angles with the frame of the machine by rods or braces, C and C', fastened to the ring, B, and to the top, D, and lower part, D', of the frame of the machine, substantially as described and set forth.

Third, I caim in combination with the parachute, A, and the propeller wheels, M M, arranged as described, the coil of their copper pipes, P, when arranged in the manner and for the purpose as specified.

Fourth, I claim in combination with a flying machine, constructed as described, the arrangement for hoisting up and lowering the car from the machine, substantially in the manner and for the purpose set forth.

Fifth, I claim in combination with the car of a flying machine arranged and constructed as set forth, the wheels, f, rollers, R, and springs, Q, when arranged in the manner and for the purpose substantially as described and specified.

54,993.—Apparatus for Washing Paper Pulp.—Larnard M. Wright, Fort Edward, N. Y.:

I claim the adjustable arms, S, in combination with a shaft, A A, cog wheels, B and C D F K L and M, with their shafts and the clutches, H and H', and the pullyes, 1 2 3 4 and 5, and the rack, R, R, and the guide, x x x x, substantially as and for the purposes described.

Second, I claim broadly the application of an adjustable revolving beater or washer to a tub or vat containing stocks to be beaten or washed in the manner and for the purposes above described.

Third, I claim broadly the reciprocating, or back and forward or right and left motion which may be given to the revolving arms, s, by which they rotate both ways.

54,994.—Flour Sieve.—Charles E. Yager, Hudson, N. Y.:

I claim the attachment consisting of the removable radial frame, C', with the clamp and set screw, a b c, carrying the rotary scrapers, D, shaft, e, and crank, f, arranged and operating with reference to each other, when applied to a circular flour seive, substantially as herein set forth, for the purpose specified,

54,995.—Seed Drill.—Elijah Young, Fayetteville, Mo.:

First, I claim extending the mold boards of the plows, D, out behind the other parts of the plows as and for the purpose set forth.

Second, I claim the rock shaft, H, the lever, H, and links, g g, or their equivalents, in combination with the beam, E', and tubes, C', when employed for the purposes herein set forth,

54,996.—Blind Fastener and Operator.—James Aborn (assignee to Henry H. Gibbs) Providence, R. I.:

I claim the hinge provided with the arm, e, in combination with the connecting bar, S, and the sliding bolt, G, the whole being constructed and operating substantially as described and for the purpose specified.

I do claim the combination of the apparatus employed as described for swinging the blind with a series of notches in the sliding bolt, G, and a button or key, d, substantially as described.

54,997.—Punching Machine.—George A. Alger (assignee to himself and Waldo Whitney) Manchester, N. H.:

I claim the use of two revolving cams and collars or double cam on the punch bar, one cam to set the punch to the thickness of the metal plate or other material, and the other cam to force the punch through the metal plate or other material to be punched.

54,998.—Hoop Skirt.—Anna M. Bardwell (assignor to C. D. Clapp and H. C. Bardwell) Amherst, Mass.:

I claim, First, The combination of the hoops, C, and tapes, B, B', the ends of the hoops being arranged as described in the manner and for the purpose herein specified.

Second, I also claim in combination therewith the tubular fastening, D, with a loop at one end, made substantially as shown.

54,999.—Hand Corn Planter.—Orson Billings, Lagrange, Ohio, assignor to himself and Russell H. Penfield and Homer Penfield, Elyria, Ohio:

I claim, First, The angularly shaped rubber spring having the two upper surfaces plain and the lower surface convex, and having the inner end cut at right angles to its axis, and the outer end cut at such an angle, that when adjusted, and the handle of the machine is extended that it just corresponds to said angle, thus obtaining an equal pressure on all parts as described and set forth.

Second, I claim spring, D, inclined apron, E, and seeding slide, F, in combination with the inserters for the purpose of delivering said seed to said inserters in a uniformly divided state, in the manner described and set forth.

55,000.—Device for Attaching Handles to Hoes, Rakes, Etc.—Alexander Boydon (assignor to Alfred Fales and Erastus P. Carpenter), Foxboro, Mass.:

I claim the stationary jaw, B, in combination with a movable jaw, F, operated by a screw nut, C, or equivalent device, for receiving and holding the implement, substantially as described.

I also claim in combination with the above, a blade or other implement provided with a lip, projection or recess, substantially as and for the purposes set forth.

55,001.—Guide for Boom Jaws.—Mellen Bray, Newton, Mass, assignor to himself and William Woodbury, Chelsea, Mass.:

I claim the guide piece, d, in combination with the boom, C, and saddle, D, substantially as and for the purpose set forth.

55,002.—Welt Trimmer.—John Brooks (assignor to himself and Joseph Brooks), North Bridgewater, Mass.:

I claim as my invention, the improved welt trimmer as made not only of the guard, C', and grooved handle or stock, A, but with the long knife, B, to fit into the groove of the stock, and be confined by means, substantially as described.

I also claim the arrangement of the lip, f, with the guard, C', and the knife, B, when arranged with, and applied to the stock, substantially as described.

I also claim the combination and arrangement of the adjusting screw, g, with the knife stock and guard arranged and applied together, substantially as specified.

55,003.—Sash Supporter.—Charles E. Condon, (assignor to himself and G. B. Hammer), Harrisburgh, Pa.:

I claim the bar, a, with the reversed notches, arranged to operate in connection with the hook, e, substantially as shown and described.

55,004.—Apparatus for Tempering Steel.—C. B. Cottrell (assignor to himself and Nathan Babcock), Westerly, R. I.:

claim in the draw tempering of steel the employment of a vessel constructed substantially as described so as to admit of the tempering process, and prevent the ignition of the tallow, oil, or other oleaginous tempering medium, as herein set forth.

I also claim the employment of an independent perforated basket for holding the steel, in combination with oil vessel, constructed substantially as herein described.

55,005.—Machine for Folding Paper Collars.—John J. Currier (assignor to himself and James H. Plaisted), Boston, Mass.:

First, I claim a machine consisting of plates, C and D, a roller, G a beam, F, and guide, H, constructed and operating substantially as described and for the purpose specified.

Second, I also claim the two plates, C and D, in combination with the roller, G.

Third, I also claim the plate, C, in combination with the roller, G, substantially as and for the purpose specified.

Fourth, I also claim the mode of perfecting the fold by guiding the roller, G, under the plate, C.

55,006.—Machine for Shaping Wood.—John Dane, Jr., Newark, N. J., assignor to W. J. Dudley and W. U. Dudley, New York City:

I claim, First, The vise or clamp, I, arranged to rotate upon a pivot, K, which attaches it to the table, H, substantially as and for the purpose herein specified.

Second, The vertically movable frame, G, carrying the revolving cutter, spindle, and tracer, and the horizontally-sliding cross head, F, carrying the said frame, arranged in relation to the universally-movable table, H, upon which the work is placed, substantially as herein described to operate as set forth.

55,007.—Fly Trap.—James Emery and Joseph E. Gott (assignors to James Emery), Bucksport, Me.:

We claim the said improved fly or insect trap as composed of the box with a foraminous top and partition, or its equivalent, the tapering mouth or entrance frustum, the escape opening with its valve or damper and the receiver or glass bell, arranged together substantially as specified.

55,008.—Clothes Sprinkler.—William P. Gannett, Boston, Mass., assignor to himself and Isaac Gannett, Chicago, Ill.:

I claim the clothes sprinkler herein described, the same consisting of a water reservoir, provided with a valve, the air passage through the stem of which is so made that the opening of the valve establishes a communication through the air passages of the stem with the interior of the reservoir, and the closing of the same shuts off or closes such communication, substantially as and for the purpose specified,

55,009.—Rock Drilling Machine.—Walter Hyde (assignor to Deborah A. Ballou), New York City:

I claim, First, The eccentric gear, J K, in combination with the platform, A, handle, D, and hammer, E, constructed and operating substantially as and for the purpose specified.

Second, The slot, E, on the bracket, F, in combination with the eccentric gear, J K, and hammer, E, constructed and operating substantially as and for the purpose set forth.

Third, The curved rod G, and double cranks, H, in combination with the eccentric gear, J K, and hammer, E, constructed and operating substantially as and for the purpose described,

55,010.—Heddle Motion for Looms.—Barton H. Jenks and Robert B. Goodyear (assignors to Barton H. Jenks), Philadelphia, Pa.:

First, We claim giving the drawbars, J', a reciprocating motion of graduated degrees diminishing throughout the series by means of the cross bars, I' I'', and the slotted and removable frames, E' E'', substantially as described.

Second, We claim the combination of the supporting bar, X, with the draw bars, J', shaped substantially as described.

Third, We claim giving to the ratchet, S, which operates the cylinder, Q, a double-acting motion by which the operator can vibrate the lathe without making a mistake or losing a twill, substantially as described.

Fourth, We claim the combination of the ratchet, S, pawl, R', pin, R'', and incline, S'', substantially as described.

Fifth, We claim the lifting cross head, W, in combination with the loose cam, W', operated substantially as described.

Sixth, We claim the combination of the loose cam, W', with the crank, N, and clutch pieces, W3, attached to it, or their equivalents, substanttally as described.

55,011.—Loom.—Barton H. Jenks and Robert B. Goodyear (assignors to Barton H. Jenks), Philadelphia, Pa.:

First, We claim regulating the movements of the shuttle boxes and also the picking motions by two or more sets of pins on the same chain, when these motions are imparted from the chain through the intermediary means, substantially as described.

Second, We claim the combination of the box chain, P, lever O, the double arm, M, the forked swivel, J, and eccentric disk, H, or their equivalents, for operating the pick, substantially as described.

Third, We claim the combination of the knuckle lever, U, attached to the breast beam, v, with the stop rod, X, to stop the loom and so prevent the yarn from being broken, when the shuttles fail to leave the box, substantially as described.

Fourth, We claim the combination of the sliding rod, E, arm, G, sliding tappets, C' C'', and caps B' and B'', operating substantially as described.

55,012.—Magazine Fire-arms.—Nelson King, Bridgeport, Conn., assignor to O. F. Winchester, New Haven, Conn.:

I claim forming an opening through the frame relatively to the carrier block and magazine, and in combination therewith, so that the magazine may be charged through the carrier block from one side of the arm, substantially in the manner herein described.

55,013.—Apparatus for Preserving Dead Bodies.—Jacob Kinsman, Sen., assignor to himself and Frederick J. Nagle, Reading, Pa.:

First, I claim the combination of the perforated supporting plate, B, with the box, A, substantially as described, and for the purpose set forth.

Second, The combination of the perforated adjustable head supports, E, with the perforated plate, B, and the box, A, substantially as described, and for the purpose set forth.

Third, The combination of the neck box, O, provided with a cover, o', and exhaust pipes and stop cocks, O'', with the perforated plate, B, and box, A, substantially as described, and for the purpose set forth.

Fourth, The combination of the detachable part, N, with the box, A, substantially as described, and for the purpose set forth.

Fifth, The combination of the board or shelf, 1, with the hinged legs, H, and with the box, A, substantially as described, and for the purpose set forth.

55,014.—Furnace for Annealing Sheet Iron.—Joseph Malone, assignor to himself and George Wettengil, Temperanceville, Pa.:

I claim constructing a furnace for annealing sheet iron and other articles, having a fire-chamber at one end, and an annealing chamber, surrounded at top and bottom, and both sides with flues for the passage of the flame, hot air, and products of combustion, constructed and arranged substantially as, and for the purposes hereinbefore described.

55,015.—Seams for Sheet Metal Ware.—Peter H. Niles, Boston, Mass., assignor to himself and Augustus Russ, Cambridge, Mass.:

I claim the socket joint, e, formed by the articulation of the socket, a, and the bead, d, substantially and for the uses and purposes above described.

55,016.—Mode of Attaching the Sides of Sheet Metal to each other.—Peter H. Niles, assignor to himself and Augustus Russ, Cambridge, Mass.:

I claim the lips, b and c, interlocked so as to form the rivet joint, a, substantially and for the uses and purposes above described.

55,017.—Stove Pipe Damper.—Ephraim Parker, Marlow, N. H., assignor to Alfred A. Parker, Orange, Mass.:

I claim the above described arrangement of annuli, A B, and a concavo-convex disk, C, namely in a conic frustum, and with the convexity of the disk extending within the damper, in the manner and for the purpose as specified.

I also claim the damper as made with the series of annuli, and the disk arranged in a conic frustum, and with each ring or annulus concavo-convex, as set forth.

55,018.—Peat Machine.—Julio H. Rae, Syracuse, N. Y., assignor to himself and Edwin L. Buttrick, Milwaukee, Wis.:

First, I claim enlarging the corners or angles of the opening, R, through which the peat is received into the conveyer chamber, P, substantially as described, in combination with the conveyers, I.

Second, I also claim contracting the diameter of the condensing and delivering tubes for a portion of their length, and then enlarging their diameter towards their discharge ends, substantially as described.

Third, I also claim making the outer portions of the tubes, J, square or straight on their under sides, substantially as described.

Fourth, I also claim making the upper sides of the tubes, J, at their discharging ends of an elevated form, so that the peat discharged therefrom will shed falling water, substantially as described.

Fifth, I also claim the combination of the conveyers, I, with the condensing and delivering tubes, J, substantially as described.

Sixth, I also claim the arrangement and combination of the driving shaft, O, and its spur wheel, M, with the conveyers I, and the pinions, N N, of the conveyer shafts, in combination with shaft, B, substantially.

Seventh, I also claim the arrangement and combination of the driving shaft, O, with the vertical shaft, B, and the wings and blades, C, the cutter arms, E, and the propeller, F, and the perforated steam pipe, "G," substantially as described.

55,019.—Horseshoe.—Henry Schreiner, Philadelphia, Pa. assignor to himself and Wm. H. Bowyer, Tamaqua, Pa.:

I claim a nailless shoe for horses and mules, consisting of the sole, A, clips, b c c', belts, d d', and nutted screw bolt, e, the same being constructed, combined together, and applied, as and for the purposes described.

55,020.—Stove Door.—Robert Simpson, assignor to Joseph Pratt and Charles C. Wentworth, Boston, Mass.:

First, I claim the arrangement in combination with the door, D, of the guide bars, x, damper, V, rack, R, pinion, W, and its shaft, H, passing through slot, P, of the damper, substantially as described.

Second, The arrangement in combination with door, D, of the twin buckle, F, bars, B, and stops, s, substantially as described for the purpose stated.

55,021.—Spring for Beds.—Lewis Smith, assignor to himself and Geo. F. Ryder, Foxboro, Mass.:

I claim the duplex spring composed of the ring, C, and the two springs, A B, formed and arranged substantially as described as represented.

55,022.—Pump.—E. L. Staples, assignor to James E. Rust, Nashville, Tenn.:

I claim connecting to the piston, B, of a pump, a chamber, B', open at its inner end, and connected to the piston by bars or rods, C, said chamber having a hollow piston rod screwed into its closed outer end, substantially as described.

Second, I also claim in combination, the pump cylinder, A, the piston, B, and the chamber, B', connected with it the hollow piston rod, G and the side eduction pipe, I, substantially as shown.

55,023.—Cover for Sewing Machines.—Augustus J. Thompson, Malden, Mass., assignor to himself and A. B. Lincoln, Roxbury, Mass.:

I claim the sliding hanged cover in combination with a sewing machine table, when constructed and operating substantially as and for the purpose set forth.

55,024.—Rotrary Harrow.—Henry Thompson (assignor to himself, D. C. Haskell, and C. H. Haskell,) Rockland, Me.:

I claim the revolving harrow head, made of the series of rotary wings, B, their studs, e, the harrow teeth, a, and arms, A, or their equivalent, the whole being arranged substantially in manner, and so as to operate as described.

55,025.—Water Drawer.—John W. Wheeler, assignor to H. H. Wheeler and S. R. Boardman, Cleveland, Ohio:

I claim a water elevator as described having a circular curb, A, and spout, B, bucket, J, with valve, K, and tripping lever, M, windlass, G, with brake, U, lever, S, and hook, r, all combined, arranged, and operating in the manner substantially as set forth,

55,026.—Apparatus for Raising Sunken Vessels.—Thomas Whittaker, (assignor to himself and Wm. P. Simpson) Buffalo, N. Y.:

First, I claim the tube, n, in combination with the air cask, E, or its equivalent, constructed and arranged substantially as and for the purpose set forth.

Second, In combination with the cask, E, and tube, n, I also claim the pawls, o o, operating in the manner and for the purpose described.

Third, I also claim the combination and arrangement of the pendent bars, D D, provided with the curved arms, b b, guide frame, B B, with windlass, F, and guide rope, l, for lowering casks to submerged wrecks, constructed and operating substantially as set forth.

55,027.—Knitting Machine.—James G. Wilson (assignor to the Union Seamless Knitting Machine Company), New York City:

First, I claim providing the needles of that class of knitting machines in which stitch hooks are used to throw off the stitches, without any longitudinal movement of the needles or closing of their beards, with additional hooks or projections, b b, at their back, so constructed, arranged and operating in combination with the stitch hooks as to confine the last formed loops on the needles, while the previously formed loops are being taken off from the needles by the stitch hooks, substantially as herein described, whereby I am enabled to dispense with the operation of the pressers at the time of taking off the loops, and to take off the loops simultaneously for many immediately adjacent needles.

Second. Giving the pressers, v v, a movement in a vertical line only, but of such character that they are removed from between the needles and out of the way of the yarn guides and stitch hooks at the time the latter operates to throw off the loops.

Third, Making the stocks in the arms, V V', of the stitch hook bar, V, of curved form substantially as herein described.

55,028.—Rudder for Vessels.—Peter Dinzey, Island of St. Bartholomew, West Indies:

I claim the rudder, B, with its shaft, C, and pinions, e, in combination with the segment, D, the whole being arranged and operating substantially as and for the purpose specified.

55,029.—Sewing Machine.—James Hayes, London, England:

I claim the stud, I, in combination with the hooked instrument, H, for opening and holding the loop of the looper thread, in the manner herein represented and described.

55,030.—Apparatus for Obtaining Motive Power.—Robert W. Thompson, Edinburgh, Scotland:

I claim the obtaining and applying of motive power by means of pistons or diaphragms revolving in a cylinder in a continuous manner, but connected to an external shaft having a different axis from that of the cylinder, so that their velocities vary, that of one or more increasing whilst that of the other or others decreases, and vice versa, the parts being constructed and arranged, and working, substantially in the manner herein described.

55,031.—Reducing Wood Fibers to Paper Pulp.—Henry Voelter, Heidenheim, Kingdom of Wurtemberg, Germany:

First, I claim the use of mill stones, N N, constructed and operating substantially as described, for reducing particles of wood to paper pulp.

Second, The combination of the rake, H, projection, I, sieve, J, and pipe, K, and K', with the box, B, and stone, D', the whole being arranged and operating substantially as, and for the purpose set forth.

Third, The spring pawl, b, and ratchet, a, constructed and operating in combination with the shaft, F, and pulley, 9, substantially as and for the purpose specified.

Fourth, The elastic cushion or spring, d, in combination with the crosshead, 15, and rod, 11, for the purpose set forth.

Fifth, The block, e, formed substantially as described in combination with the stone, D', and boxes, G G', the whole being arranged and operating substantially as for the purpose set forth.

Sixth, The boxes or cross pieces, G G', constructed with parallel slides, for the purpose specified.

Seventh, The tanks, L L1, and, L2, with their gauze cylinders, R, and paddle wheels, W W', the whole being constructed and arranged for joint operation, substantially as and for the purpose set forth.

Eighth, The vibrating basket, P, arranged and operating in the tank, L, for the purpose described.

Ninth, The rotating comb, K, and the scraping plate, m, in combination with the cylinder, R, the whole being constructed and operating substantially as for the purpose specified.

Tenth, The hopper, V, with its sliding door, n, and rotating fluted cylinder, v, arranged in respect to the tank, L2, substantially as and for the purpose described.

Eleventh, The tanks, Y Y1 and Y2, with their gauze cylinders, R2, and R3, paddle wheels, W2 W3, sieve, v, rollers, y, and plates, z, the whole being constructed and operating substantially as and for the purpose set forth.

Twelfth, The bands, h h, of leather or other suitable, material secured to the rollers, y y, for the purpose specified.

55,032.—Petroleum Stove.—Oscar F. Morrill, Chelsea, Mass.:

First, I claim providing the perforated air-heating tube with a shield having an extended base and a contracted top, the shield surrounding the tube with their tops united and operating substantially as described.

Second, Also the base shield surrounding the wick tube and the opening through the reservoir top where this shield enters and discharges into the space between the perforated airheating tube, and its shield substantially as described.

Also the expansion of the wick tube, k, at its top into a cup, l, of such size, form, and location as to receive and steady the perforated air tube, m, holding it properly in place with reference to the wick, and also receiving any fluid overflow therefrom.

Also the combination and arrangement of the spunned wick tube wheels, r, on one side of the wick, with counteracting smooth-surfaced yielding presser rolls, q, on the other side of the wick, substantially as described.

55,033.—Apparatus for Cooking by Coal Oil Burners.—Oscar F Morrill, Chelsea, Mass.:

I claim the deflector, c2, placed within the cylinder, b, to give an upward tendency to the lateral currents of heated air, substantially as set forth.

I also claim placing an interceptor plate between the fuel reservoir and the flame chamber, as set forth.

I also claim making the ioterceptor plate, n, the wheel for regulating the hight of the wick, substantially as set forth.

Also the vapor passages, c', for conducting vapor from the reservoir into the cone.

Also in combination with such passages, the ring, b', for preventing lateral escape of such vapors.

Also supporting the plate, n, or wick tube, r, upon points or projections, v, to insulate the reservoir from the head of the flame, substantially as described.

Also the construction of the top of the tube, n, or the plate, r, with projections, t, to centralize and keep in position the outer disseminator when they are arranged in the manner discribed.

Also the conical or tapering tube for so supporting the nner disseminator, as to permit it to be adjusted, substantially as described.

Also placing in the inner chimney, S, a tube which is insulated from the oil reservoir, substantially as set forth.

REISSUES.

2,248.—Waterproof Fabric.—Ruben G. Allerton, New York City. Patented Jan. 23, 1866:

I claim the waterproof fabric formed in the manner specified.

2,249.—Magazine Fire-arm.—Joshua Gray, Milford, Mass., S. S. Bucklin, Providence, R. I., and William G. Langdon, Malden, Mass., assignees by mesne assignment to Joshua Gray, Milford, Mass. Patented Dec. 20, 1864:

First I claim the rack, F, arranged below the sector, D, for the purpose described.

Second, Moving the cartridge-carrier from the magazine to the barrel, and vice-versa, by passing it through a longitudinal slot in the breech-pin and sliding the latter over it.

Third, so constructing the end of the cartridge lifter as to cover the post of the magazine when the piece is used as a breach-loader.

Fourth, The slot, L, to guide the cover, or end, K, of the cartridge carrier, as described.

Fifth, The cartridge extraction, M, in combination with the arm, N, provided with the knob. c, or its equivalent, as descrided.

Sixth, The cam, R, in combination with the hooked lever, S, or their equivalents, for the purpose of withdrawing the cartridge case without uncovering the magazine, when it is required to use the piece as a breech-loader.

Seventh, The guide pin, H, in combination with the groove, J, for stopping and guiding the breech pin as described.

Eighth, The combination of a breech-loader, a cartridge shell extractor and a convertible magazine stop, substantially as described.

2,250.—Mode of Melting and Aggregating Iron Chips. Turnings, Etc.—E. C. Huserick, Lake Village, N. H. Patented March 13, 1866:

I claim the within described process of protecting iron chips, shavings, turnings, or other fine particles of iron, and preventing them from being burned and blown away by mixing them with water or a solution of clay or earth or other material, in water, or with any liquid capable of producing the same result.

2,251.—Felted Fabric.—Moses A. Johnson, Lowell, Mass. Patented Jan. 5, 1864:

I claim the sheet felted fabric herein described having one or both surfaces coated with a film of sizing, as set forth, but the body of the fabric not saturated or impregnated with the sizing material.

2,252.—Writing Tablet.—George Munger, New Haven, Conn. Patented Sept. 27, 1859:

I claim a new article of manufacture, to wit: An argillaceous surfaced wood writing slate which is formed by uniting two or more layers of veneering or thin wood, and then coating the exterior surfaces of the compact mass with a composition of slate emery or other similar argillaceous material, substantially as and for the purpose set forth.

2,253. — Apparatus for Carbureting Air. — George Odiorne, Boston, Mass. Patented Nov. 1, 1864:

First, I claim so constructing and arranging a float in connection with a suitable air forcing apparatus as to invariably cause the air to be forced through the liquid hydrocarbon, in the manner herein described, that is to say, by dividing the volume of air into uniform streams which shall flow from or escape through apertures at the periphery of the float, as set forth.

Second, The air forcing apparatus herein described, the same consisting of a hollow drum having a series of buckets or chambers arranged upon the periphery of the same and communicating with the interior thereof, all as specified.

Third, I claim the combination of the air forcing apparatus and float arranged and operating with regard to each other as described.

2,254.—Surface Condenser.—Thomas Prosser, New York City. Patented Dec. 15, 1857. Antedated Oct. 31, 1854:

I claim a condenser consisting of two hollow slabs or other equivalent chambers connected together by concentric tubes and communicating with each other by means of the annular spaces formed by said tubes, said slabs and tubes being arranged within a cistern, and operating substantially as herein specified.

2,255.—Surface Condenser.—Thomas Prosser, New York City. Patented Dec. 15, 1857. Antedated Oct 31, 1854:

I claim a surface condenser constructed to obtain distilled water from the condensing water, by making the heat of the steam to be condensed, converts a portion of the condensing water into vapor, and afterward condensing such vapor by the cool in-coming condensing water, by means of a distilling condenser, substantially as herein described.

2,256.—Direct-action Engine.—Thomas Thatcher, Danville, Pa. Patented Dec. 1, 1863:

First, I claim the two tappet levers, J J', applied and combined with each other with the valve and with the plungers, C' C', substantially as herein described.

Second, The rim or casing, h h, around the exhaust post of the valve seat in combination with the two cavities, g and j, in the valve, substantially as and for the purpose herein specified.

Third, The arrangement of the cylinder, A, pump cylinders, B B', plungers, C C' and E, piston, F', and tubes as constructed and operating in the manner and for the purpose herein described.

DESIGNS.

2,323.—Goblet.—Charles Ballenger (assignor to McKee & Brothers), Pittsburgh, Pa.

2,324.—Wheel of a Harvesting Machine.—Amos Rank, Salem, Ohio.

2,325.—Trade Mark.—Samuel F. Stone (assignor to himself and Levi H. Stone), Providence, R. I.

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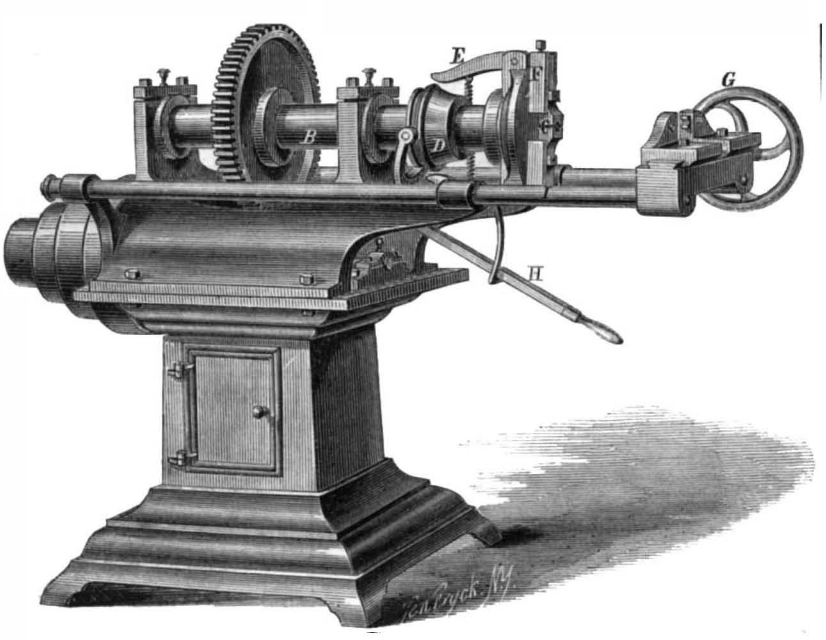
Improved Bolt Cutter.

If there be any that read this article who, in earlier days, have been compelled to cut bolts in a vise with stocks and dies, they may remember what meager results followed after a hard day's toil. A pitiful little heap that a man could carry in his pocket was all the reward of ten hours' tugging on the handles of the stock. It is good to think of these things sometimes when we pick up bolts and strip the threads off or trample them under foot as rubbish.

Many bolt-cutting machines have been introduced in the past few years, and there is room for more, although each one has its peculiar features.

In this engraving we have shown a new machine which is a good one. It is capable of cutting threads on bolts of any practicable length from twenty inches to twenty feet. This is a great advantage in many instances, especially in bolts for bridge work, bolts for the gallows frames of marine engines and similar structures.

It also runs back clear of the thread, thus avoiding the back set to the top of the thread, which is often given by the drag of the dies in backing off. It is easily and instantly set to take bolts of any size. In detail the machine consists of a framing, A, in which the revolving mandrel, B, works. This has the dies at one end, C, which are operated as follows:—



THOMAS & SEAMAN'S BOLT CUTTER.

When the machine is started, the cone, D, is shipped up so that the ends of the levers, E, resting on it are raised. These levers being fastened, or having a fulcrum on the die plate, depress the dies so that they may engage with the bolt to be cut; this is held between the jaws, F, operated by the hand wheel, C. It is easy to see that so soon as the bolt is cut the handle, H, when lifted, disengages the dies from the bolt so that it can be readily taken back without running on the thread, thus saving time and avoiding injury, as before explained. The mandrel, B, is hollow and allows the bolt to enter it while the carriage is drawn along with the guides, I.

The base of the casting is occupied as a closet for the dies and other tools. It cuts at the rate of 1,000 ¾th bolts, two inches of thread, in ten hours, larger and smaller in proportion. Taps and dies from ½ inch to 1½ inches, also counter shifts and pulleys go with each machine. For further information address Thomas & Seaman, Box 1,476, Elmira, N. Y.

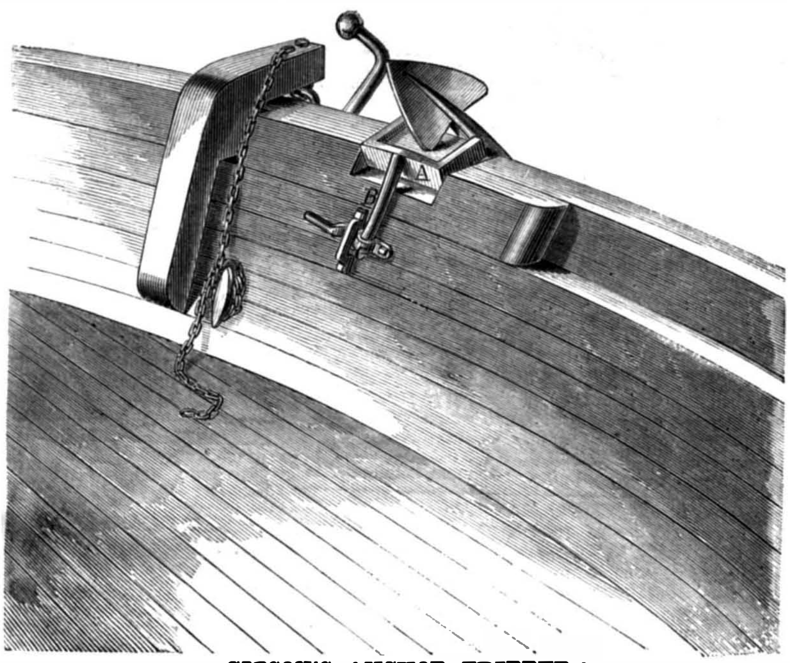
Improved Anchor Tripper.

The object of this invention is to drop an anchor from a vessel's bow without the trouble and labor of hoisting the flukes off the rail and swinging the anchor to cat-head which requires time; and the vessel, being in a sea-way, the chain often gets foul around the stock, and the anchor is always knocking and picking the bow to pieces.

With the advantage of the tripper the anchor is always ready and requires one man only to drop any anchor from the bow of a vessel without delay, which, in a close anchorage, is of great importance. It consists in so forming or arranging, on the upper edge and the inner side of bulwarks of a vessel's bow, a resting surface or support for the fluke of an anchor, that, when desired, by simply releasing or unfastening the said support, the anchor will readily fall by its own weight.

The invention consists in a casting, A, supported on gimbals and furnished with a projecting bar, B. The latter has a staple, C, which confines it in a certain position. The staple has a handle which permits to be wound up and down. When the casting is fixed, as shown in the engraving, the inclination of it is in-board, and tends to hold the anchor firmly by its fluke, but when the handle of the staple is pushed down, the projecting bar is set free, and the weight trips the casting, A, so that it permits the anchor to fall overboard.

This invention was patented through the Scientific American Patent Agency on Dec. 5, 1865. State rights for sale. Address Clendenen Gibson, Port Richmond, N. Y. More & Chapman, ship chandlers, agents, No. 304 West street, New York.



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We understand that Prof. E. L. Youmans has been appointed to the chair of chemistry in Antioch College, Ohio. Prof. Youmans is a live man, and will be a valuable accession to the college.

Of 177 lighthouses destroyed during the rebellion, 69 have been re-established.

Another New Developer.

Having read and tried most of the different new developers that have lately come to light, and not finding any of them equal to the following one, which I have used for some time in my gallery, I now send it to you for the benefit of the photographic fraternity. I claim for this developer the following (that is to say, as herein set forth! I don't intend to take out a patent)—Cheapness, the ease with which it is made, less time in the camera, no fogging, and an extra roundness to the picture when printed from the negative developed with it. It can be used immediately after being made, and it has the important improvement of preventing the collodion from cracking or peeling off. There is no necessity for dashing or wasting the developer by overflowing the plate with it, as most operators do; for this developer flows as even and free as any collodion. One ounce is abundance for a 4-4 plate.

FORMULA.

Just as I use it. Put one quart of water in a half-gallon or five-pound bottle; dissolve in it (after being pulverized) six ounces of protosulphate of iron; shake well until dissolved (any kind of water will do, but distilled is always preferable for mixing of chemicals in the business); then add to it twelve ounces of good cider or wine vinegar; shake it well; then add again to it one ounce of sulphuric acid; shake again well. Then put in another bottle or vessel one quart of water; add to it the white of one egg, or one ounce of the white; shake it, beat it, or mix it well up with the water; then pour it into the already mixed solution; shake it all then well up; filter it, and it is ready for use.

Recapitulation—Water, ½ gallon; vinegar, 12 ounces; sulphuric acid, 1 ounce; albumen, 1 ounce. The cost of half a gallon or five-pound bottle of this developer will not be over 15 cents, when heretofore the alcohol alone, that generally was put in the old developer to make it flow, cost more than that amount; so I say, good-bye acetic acid and alcohol for developing purposes! I never produced as good negatives, in all respects, with the old developer as I now do with this present one; and I hope the time is not far distant when another new developer will be given to the world, by which the time of sitting will be all but instantaneous, so that we then can certainly catch expressions as well as pictures; for there is no doubt but what the latent image is made immediately when the plate is exposed to the rays of light through the camera. All we now want is, *the real developer*.—*Humphrey's Journal.*

FROM THE STEAM PRESS OF JOHN A. GRAY AND GREEN