REWELDING. The wheels run in long bearings and have an

The feeding mechanism, consisting of four geared rollers of large diameter, is driven by friction, so arranged that, by different movements of the regulating lever in front of the machine, the operator can instantly stop or start the feed or gradually it from fast to slow. The guiding feed rolls are adjusted by hand wheel and screw, and the pressure feed rolls are governed by a weighted lever acting on a ratchet wheel by means of a pawl, and sufficient pressure may be obtained to straighten any warped boards. The feed rolls can be quickly adjusted to saw through the center or from the side of a plank, as may be desired.

The driving belt is tightened by an idler, attached to a lever swung to the lower wheel shaft, and moving concentrically with the driving pulley. The bearings are all provided with oiling devices, so that the wearing parts of the machine may be kept constantly lubricated. The machine is adapted for removing lumber 30 inches wide and under, and down to the thinnest materials that admit of re-sawing. Its working capacity is stated at from 15,000 to 15,000 feet per day, depending upon the kind and width of lumber. The saw kerf is about $\frac{1}{4}$ inch thick; the thickness of the blade is number 18 gauge. By this machine a large saving in lumber is effected; as, out of a 14 board, planed on both sides, three $\frac{1}{4}$ inches are obtained. The machine is so arranged as to be at all times under perfect control of the operator.

Several of these machines are in use, giving entire satisfaction. One of them may be seen in daily operation at J. A. Fay & Co.'s space in the Centennial Exhibition, section B, B, columns 61, 62 and 63, Machinery Hall, where they have made an exhibition a large number of their labor-saving machines.

For further particulars, address the manufacturers, as shown.

The patent roller guides, which support the back and wood charcoal may also be employed. In the side of a plank, as may be desired.

For further particulars, address the manufacturers, as above.

A NEW PROCESS FOR MAKING ILLUMINATING GAS.

The Bureau iproductive describes a new illuminating gas apparatus devised by MM. Kleich & Barff, which is composed of an iron drum into which kind of carbon is introduced. Carbonized peat gives excellent results; powdered anthracite, coke and wood charcoal may also be employed. In the interior of the cylinder is established a system of circular tubes which are filled with water led from an elevated reservoir. The coal is ignited, and the hot develops steam in the tubes at a pressure corresponding to the height of the reservoir. A small tube conducts the steam below the fire and allows it to escape into the ash pit. The jet drawn in air, and the mixture traverses the burning combustible from below upward. A series of interesting reactions then occur, the water vapor, air, and carbon acting materially upon each other. The oxides of the air and steam unite with the carbon to form a certain proportion of carbonic oxide, and a less quantity of carbonic acid. The hydrog was set at liberty and the nitrogen are found in the mixture when it escapes. The nitrogen alone is annoying. The quantity of carbonic acid may be greatly reduced by augmenting the height of the layer of combustible. Carbonic oxide and hydrogen represent about 40 per cent of the mixture. A specimen of the gas obtained from carbonized peat gives on analysis: Carbonic oxide 28.5, hydrogen 14.5, nitrogen 50, carbonic acid 4. The gas contains no sulphur, either free or combined; and in order to use it for illuminating purposes it is only necessary to remove the carbonic acid, an operation of no great difficulty. It is calculated that 1 ton of coal by this process will yield about 98,800 cubic feet of illuminating gas, or, including the nitrogen, about double this volume. The operation is continuous, and there is no return to charge and empty. As the coal is consumed, a lever device throws in fresh supplies in closed boxes. The residue is a small quantity of ashes, and all the carbon appears to be mingled in the gas. The gas is remarkably pure, burns without the least odor, and produces only carbonic acid and water; hence it has no deleterious action on paint or gilding.

NEW APPLICATIONS OF SALICYLIC ACID.

It has been determined that the addition of from 0.0005 to 0.001 part of salicylic acid to cistern water clarifies the same in a remarkable manner, and that water, which ordin­arily, in the space of a month, would become foul and unfit to drink, remains perfectly pure and limpid. This property of the acid will doubtless be found of great value on board vessels making long voyages, as it has been determined that scurry is often produced by the deterioration of water through too long sojourn in casks and tanks. The combin­ation of salicylic acid with caustic salts has also been noted by M. Berger to be so intimate that water, thus treated and treated, may be evaporated even to dryness with­out any lime deposit being formed. The acid is therefore one of the best if not the best preventives of steam boiler scale and incrustation; but until some cheaper way of produc­ing it than now is practised is discovered, it can scarcely come into general use for this purpose.
LIFE WITHOUT LIGHT.

An interesting discussion has recently taken place in the French Academy of Sciences, regarding the influence of sunlight on vegetable life, and the green matter in the formation of the waving and the vegetable organisms. M. Boussingault considers this influence to be indispensable, and, that, if the solar radiation should disappear, life would cease. Any other hypothesis, that life might still continue in certain inferior plants and animals, was not considered possible.

He cites as examples the life of the nozzerose, which may take place in darkness of a liquid composed of alcohol, acetic acid, and glucose, and makes it disappear as if by the application of a drop of ammonia.

The nozzerose to which M. Pasteur alludes is a remarkable curious vegetable, which grows as a medium between the oxygen of the air and a combustible body or fer· mentable matter, when the air is saturated with the oxygen of a substance, and no other intermediate species are found. M. Pasteur, in mentioning this kind has thus a special character, and differs from those that set up by yeast or in other ways. The nozzerose is so called because it passes from a medium of one kind to another without a transition, or is found upon the surface of the liquids while the same are being fermentated, and generally forms a great number of minute elongated cells whose diameter varies from 0.12 to 0.0119 inch. These cells are united in chains of the transverse division of the fully developed cells, which division is preceded by a number of transitions. If we allow this cryptogram to develop itself on the surface of organic liquid containing phosphates and nitrogenous organic matter, until it is covered, then we remove the liquid without disturbing the mem· brane, and substitute an equal volume of water containing 10 per cent alcohol, the place where the cryptogram set up a reaction between the alcohol and the oxygen of the air. After a certain time, the action, instead of taking in alcohol or becoming slower, we can reduce it by restoring it to its animation by substituting an alcoholic water again. So that, as long as the alcohol contains a sufficient quantity of oxygen, it will continue to ferment, and when the contrary we it as it loses it, or when, by contrary, we deprive it of oxygen, which is useful to its animation, then, in the same way acting will no longer grow, and the alcohol may change into acetic acid. This is the substance of one of M. Pasteur's papers among the present papers, and it is the result of which is a new commercial method for the acetification of fermented liquids. The process consists in sowing the nozzerose on the surface of an alcoholic liquid containing 10 per cent of alcohol, 1 per cent of sugar, and traces of alkaline salts. If the surface of the alcohol is covered, the alcohol begins to acetify. This action being fully set up, some alcohol, some wine, or beer, with alcoholic water, is added every day, and the same quantity is removed. When the acetification is then allowed to terminate, and the vinegar is drawn off. There remains a liquid, washed, and employed for a new operation.

M. Boussingault replies to the suggestion of the nozzerose by M. Pasteur that it is true that some parasites attain a complete development in an artificial medium containing nothing but alcohol and crystalized camphor powder. Still there is a great difference between this development and that of chlorophyll plants. The latter retain all their properties from the state in which they were first seen, from the atmosphere, hydrogen and oxygen from water. The parasites, even those mentioned by M. Pasteur, take carbon in sub· stances which, although chemically constant, are derived from vegetable organisms. Alcohol and acetic acid have their origin in the total, which is not formed under the influence of solar radiation. The existence therefore of parasites in an obscure place, where their cells can immediately put their oxygen into solution, and those produced by direct sunlight by plants of green protoplasm, is far from being an exception, as has been affirmed, but is rather common, and vegetable organisms developed in the atmosphere of the world. The existence therefore of parasites in an obscure place, where their cells can immediately put their oxygen into solution, and those produced by direct sunlight by plants of green protoplasm, is far from being an exception, as has been affirmed, but is rather common, and vegetable organisms developed in the atmosphere of the world.

The idea of developing a new operation from the soil of the earth, was that of M. Pasteur. The difference between the development of parasites in the soil and the nozzerose is that oxygen and light are not essentials of life, and that the developing organisms exist in an atmosphere of carbonic acid and in darkness.

THE ORACLES OF ANCIENT GREECE.

As the classical authors inform us, there were in ancient Greece, different kinds of oracles, the kind of sages and philosophers, clairvoyants, or spiritual mediums, but of a social standing much higher than that of their ancestors at the present day, as they were not only recognized but maintained by a wealthy and influential priesthood, to whom the prophecies received from the faithful believers were a source of enormous revenue. In our present state of society, we can form an idea of the power and influence of the oracles, from what we have seen among the Egyptians, who did all the profits derived from the superstitious, who wished to tax the people for a cart-horse not only of erect, but even of the future, and to govern them by their action in cases of difficulty, even to cure of various diseases, by means of the power of prophecies, the variations, the functions of many professions, even that of the medicine, which flourishes at last succeeded in rescuing from the power of the prophets.

These oracles, of which the two prominent ones were the Delphic and the Cumel, were capable of predicting events that would occur in the future, and to which it is supposed that they were, at once, over covenanted, from which the peculiar, irrational and marvellous influence, similar to that of the old Egyptian oracles, was derived. The oracles of the Delphic and the Cumela are integrated into the famous Cumela sibyl and by the exhalations, which were more or less poisonous to birds and other small animals, and which belonged to a kind of vegetable poison, in force of which nature, who raved about the destiny of nations, the fate of princes, provoked them to the decay and destruction of statesmen, often acting contrary to her pretended revelations. The Delphic and the Cumel sibyls, in the same manner, made known to her as a counsellor and a counsellorship.

She sometimes wrote her prophecies on palm leaves, and left the entire earth, or in other words, to the winds to carry them and bear them to the gods divine, who would allow the interpretation. It is not well known whether the Delphic and the Cumel sibyls, or the famous sibyls books, of which many strange stories are told, of which very little is left that can be re· stored. It is only certain that a true sibyl is a woman who prophesied the future, and was a part of the famous sibyls books, of which many strange stories are told, of which very little is left that can be re· stored. It is only certain that a true sibyl is a woman who prophesied the future, and was a part of the Cumela sibyl, and by the exhalations, which were more or less poisonous to birds and other small animals, and which belonged to a kind of vegetable poison, in force of which nature, she raved about the destiny of nations, the fate of princes, provoked them to the decay and destruction of statesmen, often acting contrary to her pretended revelations. The Delphic and the Cumel sibyls, in the same manner, made known to her as a counsellor and a counsellorship.

The Delphic sibyl or Pythia was in strong contrast with that of the Cumela oracle. It was situated in the temple of Apollo in Delphi, and was the oracle of all the Greeks. It was a form of divination which was used in ancient Greece, for the purpose of obtaining false oracles, and in which the interpreter of the oracle was called the sibyl.

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There are several devices in mechanics which are important for the understanding of weather phenomena. In this class we have irregular cams, at once the most useful and the most troublesome of all. In no other instance is the mechanical exercise of the mechanical armature of such things in the nineteenth century.

We cannot help being surprised at their proportion and well fitted, and provided with some means of continuous lubrication. The latch must be smooth, without slightest scratch or rust, and should be made as smooth as possible so that it will not catch dust and dirt. If any part of a machine needs cleaning often, it is a sign of an infrequent thing to do, as a man, gum, lint, and grit, and finally away in a corner cutting it usefulness.

BAROMETRIC OBSERVATIONS

In a recent and simple way of keeping a barometric record, the aid of which farmers and others might soon learn to predict weather probabilities. We have observed that when a fully realised homestead is in its purest and most refined state, the instrument the barometer is a mere thing of fancy, even in unexpensive hands; or we might say that, in the sense of its indication, it is not a true barometer at all, as its indications always mean less than the hour or the day. The principle of the barometer is that the height of the column of air is the same as the height of the water column. This little roller must fit a groove in a cam which is cut, and should be made as far as possible so that it will not

The steady growth thus far in attendance is the best evidence of increasing interest in the fair. During the past week, amounting the opening day, the average of paying visitors was 12,920; at the present time the daily average is over 30,000.

The first of what it is hoped may be a series of industrial excursions recently visited the Exposition. The excursionists numbered 3,921, and were the employees of the Singer Sewing Machine Company. A number of students from the Pennsylvania University and the Institute of Technology, on the Pennsylvania University grounds for some time past, and, with their instructors, visited the mechanical department of the Fair. The display of machinery is in Machinery Hall is gradually approaching completion. A large portion of the machinery on view will be fitted with clamps, which are shown rolls of iron and copper; and a circular stand has been built for the exhibition of different iron and other ores and metals. Around the base of the stand and on the lower shelves are disposed samples of iron and copper; and a square slab of iron and copper will be warmed by a heaviness of mass that, on the other hand, overtop the upper portion. There are two large stands in the form of columns, against which are ranged in tasteful manner a large number of forms of sheet, bar, and angle iron, boiler iron, and tram and chain work. The lower shelves are interspersed with numerous stout brooms without handles; and above these are a regiment of small and large partition has been erected, covered with cloth, on which are shown rolls of iron and copper; and a circular stand has been built for the exhibition of different iron and other ores and metals. Around the base of the stand and on the lower shelves are disposed samples of iron and copper; and a square slab of iron and copper will be warmed by a heaviness of mass that, on the other hand, overtop the upper portion. There are two large stands in the form of columns, against which are ranged in tasteful manner a large number of forms of sheet, bar, and angle iron, boiler iron, and tram and chain work. The lower shelves are interspersed with numerous stout brooms without handles; and above these are a regiment of small and large partition has been erected, covered with cloth, on which are shown rolls of iron and copper; and a circular stand has been built for the exhibition of different iron and other ores and metals. Around the base of the stand and on the lower shelves are disposed samples of iron and copper; and a square slab of iron and copper will be warmed by a heaviness of mass that, on the other hand, overtop the upper portion. There are two large stands in the form of columns, against which are ranged in tasteful manner a large number of forms of sheet, bar, and angle iron, boiler iron, and tram and chain work. The lower shelves are interspersed with numerous stout brooms without handles; and above these are a regiment of small and large partition has been erected, covered with cloth, on which are shown rolls of iron and copper; and a circular stand has been built for the exhibition of different iron and other ores and metals. Around the base of the stand and on the lower shelves are disposed samples of iron and copper; and a square slab of iron and copper will be warmed by a heaviness of mass that, on the other hand, overtop the upper portion. There are two large stands in the form of columns, against which are ranged in tasteful manner a large number of forms of sheet, bar, and angle iron, boiler iron, and tram and chain work. The lower shelves are interspersed with numerous stout brooms without handles; and above these are a regiment of small and large partition has been erected, covered with cloth, on which are shown rolls of iron and copper; and a circular stand has been built for the exhibition of different iron and other ores and metals. Around the base of the stand and on the lower shelves are disposed samples of iron and copper; and a square slab of iron and copper will be warmed by a heaviness of mass that, on the other hand, overtop the upper portion. There are two large stands in the form of columns, against which are ranged in tasteful manner a large number of forms of sheet, bar, and angle iron, boiler iron, and tram and chain work. The lower shelves are interspersed with numerous stout brooms without handles; and above these are a regiment of small and large partition has been erected, covered with cloth, on which are shown rolls of iron and copper; and a circular stand has been built for the exhibition of different iron and other ores and metals. Around the base of the stand and on the lower shelves are disposed samples of iron and copper; and a square slab of iron and copper will be warmed by a heaviness of mass that, on the other hand, overtop the upper portion. There are two large stands in the form of columns, against which are ranged in tasteful manner a large number of forms of sheet, bar, and angle iron, boiler iron, and tram and chain work. The lower shelves are interspersed with numerous stout brooms without handles; and above these are a regiment of small and large partition has been erecte...
A NEW MECHANICAL MONEY BOX.

A variety of money boxes for children have, of late, appeared in the hardware and toy stores, which, it seems to us, must tend to cause the average youngster to be careless of the use of his money. The object of the satisfaction of seeing the toy operate whenever a coin is inserted. The children, who do not know how much money is put away, somewhere by the edge of the coin and rolls its eyes in the most ascertainable manner. Another device is so contrived that when the money box is to be made to the General Superintendent, American advertising purposes, it seems through the slot of a chute, but all local fairs in its vicinity exceptionally valuable for advertising purposes to exhibit. Application for space, etc., is to be made to the General Superintendent, American Institute.

TRIMMING AND PUNCHING ROOFING SLATES.

Mr. E. B. Davis, of Detroit, Mich., has patented (Dec. 21, 1875) a new machine with which a roofing slate may be trimmed and the null holes punched at a single operation. The invention is in the following: A block of stone is divided into two sheets, having the cutting edges of the bevelled ends of the beavers are flanged upward, and sharpened to force cutting edges, b. The cutting frame is a box composed of two panels of iron bars set up edge, bent to form three slices of a frame, with space between the bars, which are held by bolts through the space between. The cutter, EF, are adjusted by a frame diagonally across the nulls, so as to bring their cutting edges just outside the cutting edges of the beavers below the frame. The frame may be readily adjusted to the null holes, which may be of any size, up to 1⁄2 in. wide and 1⁄8 in. deep, the frame being capable of being easily trimmed off and forced down, the impact upon the front of the main frame being acted on by the yellowing resins. A NOVEL MONEY BOX.

I have discovered that the scales of paraffin that are thus left, after thus extracting oil by pressure at a low temperature, are separate and distinct, and, except under the application of heat, cannot be reduced to an impervious mass; and I make use of this property for the purpose of forming a scale from paraffin as follows: I first take suitable receptacles, preferably of metal, protected by a non-conductor of heat, which receptacles have been prepared beforehand. I then place the slate over the inside a wire gauze, screen, or cloth to prevent the scales of paraffin from falling through. I then fill in oil over it, in such quantity of a paraffin scale that has been treated in prepared as follows: It is first reduced to a temperature, sufficiently to chill it, and leave it in the condition, termed granulated. This oil, in its chilled, granulated condition, is then put into the vat upon the paraffin scales, and is then subjected to a pressure of low temperature, in a convenient way, as, for instance, by a plunger. This pressure drives the oil through the mass of ready separation.

A MOUNT OF LIQUID.

The 45th annual exhibition of the American Institute will open on the 6th of September next, at the Institute building, corner of 66th street and Third avenue, in this city. The preparations for the exhibition are in a very forward state, and the accommodations are completed, and the fact that a new gold medal will be awarded for articles of great merit and novelty. It is through the fact that a few years ago the Centennial will render local fairs in its vicinity exceptionally valuable for advertising purposes to exhibit. Application for space, etc., is to be made to the General Superintendent, American Institute, New York city.

DAVIS' MACHINE FOR TRIMMING AND PUNCHING SLATES.

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Report of Cotton Boll and Bollworm.

The exports of domestic cotton from New York to foreign ports are as follows: Amount, in pounds, in bales, based on the national average of price of cotton, bales, but including the cost of, from the Jan. 1st, up to 300 pack ages. The shipments of grain are enormous. Last week’s export was of wheat, 10,306,000, corn, 400,486 bushels, besides a fair quantity of peas, rye, and oats. The prospect of war in Europe has stimulated the grain trade,
O'DANIHEL'S IMPROVED WAGON BRAKE.

The operation was, and still is, as follows: A sheet of silver weighing 1,100 to 1,140 grains per square foot, is spread out perfectly smooth on a flat horizontal stone: upon this is poured a thin layer of mercury, and then a well polished plate of glass is shoved off with a backing of this amalgam. The operation was, and still is, as follows: A sheet of silver weighing 1,100 to 1,140 grains per square foot, is spread out perfectly smooth on a flat horizontal stone: upon this is poured a thin layer of mercury, and then a well polished plate of glass is shoved off.

The disadvantage of this process is that the workmen are exposed to the injurious action of mercurial vapors. Attempts have therefore been made to cover mirrors with silver. In 1840 an Englishman named Drayton employed an amalgam of nitrate of silver and mercury, which he reduced upon the glass with an easily oxidizable essential oil, as essence of cloves. The process was modified by different practitioners, but was first actually introduced into practice by Petitjean, who employed tarry essential oil instead of the clove essence. In 1869, Mr. J. W. Debray, a Frenchman, made known through his gas machine. The glass is made to cover mirrors factory at St. Marie d'Ugines, in Belgium. Liebig's process is now in use, and mercury mirrors will apparently displace glass mirrors. From 54 to 75 grains of silver suffice for a square foot, and 1 cent worth of silver is enough for a surface that would require 1,000 grains of tin and much more. Silver mirrors can never be supplanted by silver mirrors; although the latter are proof against injury by heat.

Even if these objections were quite overcome, the quantity of mercury used, the time varying with the strength of the solution, the time required to remove the previously existing difficulties in the way of embarrassing to large mirror factories. By the new process a mirror can be made in a few hours; while the previous method required at least 10 days, and also required more costly materials. Debray says that this silverying process has almost entirely supplanted the old mercury process.

An Improvement in the Manufacture of Silver Mirrors.

At a recent meeting of the Paris Sociét d'Encouragement des Sciences, M. Debray described a new method designed to remove the previous existing difficulties in the way of making silver mirrors. From this address we extract the following:

Up to the year 1840, glass mirrors were made exclusively silvering is complete. The liquid containing the amalgam is allowed to run off, the mirror is washed with distilled water and dried, and finally the silver film is protected with a coat of varnish.

From 54 to 75 grains of silver suffice for a square foot, and 1 cent worth of silver is enough for a surface that would require 1,000 grains of tin and much more. Silver mirrors can never be supplanted by silver mirrors; although the latter are proof against injury by heat.

Silver mirrors, however always have those objections, that the image is somewhat yellowish, and that the silver does not adhere perfectly to the glass as is desirable: it often happens that the silver film is protected with varnish; the compound silver film comes off in spots where it has been exposed to the direct rays of the sun; and finally, notwithstanding the protection of the varnish, the silver gradually blackens under the influence of sulphuric hydrogen.

The latter objection is especially noticed in exporting mirrors across the equator; the mirrors are blackened by the extractions from the hold of the vessel, where they are packed for months. For this reason mercurial mirrors, although they frequently suffer much from the heat in tropical countries, cannot be supplanted by the silver mirrors, although the latter are proof against injury by heat.

Even these objections were quite over-balanced by the cheapness of manufacture. Silver mirrors are so dear from monometallic silver, that it would still be very desirable that they could be avoided. This has now been accomplished in a very simple manner by a Paris engineer, named Lenoir, previously well-known through his gas machine. The glass is silvered as before, and the tinfoil is thus covered with a dilute solution of cyanides of mercury and potassium. The operation consists in laying the amalgam over the glass, the tinfoil being doubled with a dilute solution of cyanides of mercury and potassium. This operation consists in laying the amalgam over the glass, the tinfoil being doubled with a dilute solution of cyanides of mercury and potassium. This operation consists in laying the amalgam over the glass, the tinfoil being doubled with a dilute solution of cyanides of mercury and potassium.

The silvered glass is then covered with a piece of paper, and is boiled in a strong solution of cyanides of mercury and potassium. The silvered glass is then covered with a piece of paper, and is boiled in a strong solution of cyanides of mercury and potassium.

The silvered glass is then covered with a piece of paper, and is boiled in a strong solution of cyanides of mercury and potassium.
in use many years for electroplating, and in much more con­
centrated form than it is employed by Leoni, without real­
istic success.

An unglamorized silverlorser does not exhibit the yellow
or greenish metallic luster of mother-of-pearl, and is un­
doubtedly more valuable in the form of a thin leaf, or of
chased molbkn. They propel themselves backwards and
forth by forcibly ejecting water from an opening near the
head.

The tegular joint, which is used in printing presses and
in other machines, is one of the most beautiful in form
and in some others, of man and inferior animals.

The pulley is used in the human body, by the cord, which
rises great a force than can be generated in the hand. Its
fins in the ankle; also by the gigantic muscles, as it

Barker's reaction mill, or the force due to unbalanced
pressure, is illustrated in the progressive—or rather re­
versing—motion of the foot as the horse takes a step, or
the movement of the lever as the oar cuts through the
water.

The same three classes of lever are amply illustrated in
the human body. The supposed movements of the femur
and of the hand upon the upper portion of the os pelvis
illustrates a lever of the first class. The third is shown
in the lifting of the lever, in which three of the身子
attacked a short distance below the knee. The raising
of the body upon the toes has been called a lever of the
second class, in which the ball of the foot is the fulcrum,
the muscle attached to the tendon of Achilles at the heel is the
power, and the leg is the resistance.

The lowering of the body upon the one foot as the contrary
may be to the cutting, or the force exerted. While in theory this seems reasonable,
in practice the result is widely different. The prin­
ciple here involved is that when a man stands on one
machine to overcome this difficulty. There is about 1 ton of
fish consumed daily in a regular community of ten
thousands of acres are cultivated every year; and after
the seed is threshed out the straw could probably be bought
for more song.

The difficulties are not diminished if we consider
the movements at this point as illustrations of a lever of
the second class. As the lever is the basis of all the
motion and the hand upon the upper part of the os pelvis
illustrates a lever of the first class. The third is shown
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thousands of acres are cultivated every year; and after
the seed is threshed out the straw could probably be bought
for more song.

The difficulties are not diminished if we consider
the movements at this point as illustrations of a lever of
the second class. As the lever is the basis of all the
motion and the hand upon the upper part of the os pelvis
illustrates a lever of the first class. The third is shown
in the lifting of the lever, in which three of the身子
attacked a short distance below the knee. The raising
of the body upon the toes has been called a lever of the
second class, in which the ball of the foot is the fulcrum,
the muscle attached to the tendon of Achilles at the heel is the
power, and the leg is the resistance.

The lowering of the body upon the one foot as the contrary
may be to the cutting, or the force exerted. While in theory this seems reasonable,
in practice the result is widely different. The prin­
ciple here involved is that when a man stands on one
machine to overcome this difficulty. There is about 1 ton of
fish consumed daily in a regular community of ten
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power, and the leg is the resistance.
length, the object being to ascertain if, by the use of petroleum or a mixture of petroleum and spirits of turpentine, splitting the former, it would be possible to cut the metal at a faster speed than with a tool used dry. The result of the experiment was that the difference, as far as the speed of the cutting tool itself was concerned, was very slight. The difference in speed of the cutting tool was not great enough to be obtained. The cutting speed employed during this experiment was 10 feet per minute.

The last experiment made was upon a piece of milled round hammered steel stock, tempered to a clear bright blue, 1 inch in thickness, a length of its cutting speed being 10 feet per minute. The first cut, 1\(\frac{1}{2}\) inch deep, was made with a lubricant. The second and third cuts were taken dry, the result being that the tool stood a little better with the lubricant, but not enough for a reason that, though we know, here, as we have said, that the lightest oils act as lubricants for cutting tools more effectively than petroleum oil, it has been known for a long time that hydrogne will penetrate through a vacuum, and that there is no advantage in cutting space to be obtained. The cutting speed employed during this experiment was 10 feet per minute.

In the previous lecture it was shown that all matter is en
duced with energy. Hydrogen will penetrate through a piece of milled round metal, 1 inch by 13, was used, and it carried the cut across the rounded partly, but not the other half. The cut, M. Thomas took, it was a piece of milled steel, and appeared to the tool during the test. The result of the test was that the tool retained its keenness much longer, thus agreeing with our own experiments, the cutting speed employed being in this case 14 feet per minute.

The mode of vibration of the organ is really nothing of the sort; it is, in fact, a compound note of a musical instrument, imitated a violoncello note by means of a series of tuning forks whose vibrations have certain definite relations, such as a note, for example, corresponding to the ordinary major and minor intervals.

By means of these and various other apparatus too numerous to describe, even a deaf person could thoroughly study musical vibrations. They enable us to hear, as it were, with our ears.

Electrostatic as a Transmitter of Power.

It is well known that the Stannum magneto-electric machine, which transforms mechanical force into electricity, can also be employed in inverse manner to transform electric force back again into mechanical force. The property may be utilized to transmit power over long distances. The motor of a factory, for example, could be connected with one machine as so as to rotate the same and thus generate a current. This current, carried over distances by cables, might be communicated to another stannum machine at the point where the power is required. The second machine, by the current, would thus be caused to revolve, and the power would be utilized as mechanical force.

Of course, in this double operation, there is a loss; but according to M. Magnon, who has investigated the subject ex
tensively, this is even less than takes place with any other mechanical disposition. If the waste of power caused that involved in transmission by wire, rope, long belts, and like means, it appears that the new plan has au
terior advantages, in that it does away with a large amount of shifting, belting, etc., and besides allows of power being transmitted over much longer distances than would be prac
ticable by such devices. The details of M. Magnon's expert ex
ten, are not given, so that we are unable to review the data on which his opinion is based.

\[ \text{Fig. 5} \]

\[ \text{Fig. 6} \]

\[ \text{Fig. 7} \]

\[ \text{Fig. 8} \]
In our issue of October 22, 1874, we published an engraving of a novel machine in which an emery wheel was used for the first time for surfacing files and scissors, finishing satin, nets, gauze, keys, nail-plates, stamps, crossheads, and, in short, for accomplishing the majority of work usually surfaced on the planer, milling machine, and shaper. The mode of operation consisted in adjusting the object to be surfaced in the chuck, the wheel being thus moved, and fed by the pressure of the spring, and vice versa, in planed ways. E E are adjustable stops. When these stops have been adjusted, and the wheel no longer cuts, the work must be plane. The springs force the wheel against the wheel, and bed has a vertical adjustment by the action of the grinder. Then, by means of an extra governor, the operator gradually elevates the object and causes it to run back again under the wheel. This machine the invention herewith illustrated is a modification. The main difference is that the planer bed, A, is made capable to and fro on its ways by the action of the crank, B, the wheel being thus moved, and fed by the pressure of the spring, and vice versa, in planed ways. E E are adjustable stops. When these stops have been adjusted, and the wheel no longer cuts, the work must be plane. The springs force the wheel against the wheel, and bed has a vertical adjustment by the action of the grinder. Then, by means of an extra governor, the operator gradually elevates the object and causes it to run back again under the wheel.

**Newman's Pony Planer.**

The machine stands 32 inches high, and is 3 feet 8 inches each way. It will grind work 9 inches long by 5 inches wide. It is adapted to all small flat work, especially to discs of hardened steel and chilled iron, to parts of cutlery, such as shears, engraving work, small levels, machine keys, locks, etc. Lastly, it is claimed that thousands of gun and pistol locks, sewing machine work, small levels, and the table to be altered in various ways.

The diagram is a perspective view, illustrating its use.

**Umbrella Supports.**

Mrs. Elias M. Arnold, of Houston, Texas, has invented a new and improved umbrella supports, of which we give a perspective view, illustrating its use.

**New in Gold Mining.**

Since the discovery of gold in talco-slate a few months ago, and the active development of a mine of that description in Pi-Durando county, by the Old Hickory Mining Company, a great interest in that peculiar formation has been manifested by our miners, and we will therefore give a short description of the material and its constituents.

Talco-slate, or the slate formation of stanniferous, is of primary period, and is generally found in large lodes and deposits in the slate range. It is ordinarily called soapstone, and consists of siliceous talc, and magnesia Si, water 49. It is perfectly fireproof, and of the same class as asbestos; and considering that the hardness is only two, to seven of a kind, the softest of saws can be done with ease. The company now developing the first mine of that description on this coast have 22 feet of a ledge, the assays of which range from $50 to $200 per ton; and we are credibly informed that the ore, on account of its softness, will work by hand, and can be calcined for $1.00 per ton. The sulphates contained in the ore assay $2.00 per ton, and constitute about five per cent. As the ledge is traceable for miles, we may shortly look for interesting developments in that quarter.

**Chaffin's Improved Hay Fork.**

Mr. David R. Chaffin, of Tinton, Iowa, has patented through the Scientific American Patent Agency (April 25, 1876) the new grappling fork represented in the attached engraving. The apparatus is adapted for handling hay, manure, and other such materials by horse power. It also may be employed for removing stones, etc., from the bottoms of shallow ponds, and will find various other convenient utilizations about a farm.

**Neumann's Planer.**

Neumann's planer is a new and improved planer. The machine stands 32 inches high, and is 3 feet 8 inches each way. It will grind work 9 inches long by 5 inches wide. It is adapted to all small flat work, especially to discs of hardened steel and chilled iron, to parts of cutlery, such as shears, engraving work, small levels, machine keys, locks, etc. Lastly, it is claimed that thousands of gun and pistol locks, sewing machine work, small levels, and the table to be altered in various ways.

The diagram is a perspective view, illustrating its use.

**Eleastic Dammar Varnish.**

An elastic flexible varnish for paper, which may be applied without previously sizing the article, may be prepared as follows: Crush transparent and clear pieces of dammar into small grains; introduce a convenient quantity—say forty grains—in a flask, pour on it about 9 oz. of ascottes, and expose the whole to a moderate temperature for about two weeks, frequently shaking. At the end of this time, pour off the clear saturated solution of dammar in ascottes, and add, to every four parts of varnish, three parts of rather dense solution; the two solutions are mixed by agitation, the resulting liquid allowed to settle, and preserved in well closed phials. This varnish is applied by means of a soft beaver hair pencil, in vertical lines. At the first application it will appear as if the surface of the paper were covered with a thin white skin. As soon, however, as the varnish has become dry, it presents a clear shining surface. It should be applied in two or three layers.

This varnish makes its gloss under all conditions of weather, and remains elastic; the latter quality adapts it especially to topographical crayon drawings and maps, as well as to photographs. The application is made as follows:

1. A are two rods, curved to fit upon the forward side of and pass over the shoulders of the wearer. The lower ends of the rods, A, are attached or hinged, as shown at A, to an open metallic ring, B, of such a length as to pass around, or nearly around, the waist of the wearer, to be secured to a belt, C, buckled or clasped around the waist. The rod, D, is disposed in any manner, in contact with the parts of the rod, A, curve toward each other, have a coil formed in them to give them elasticity, and are bent upward; they are connected with or are coiled to form a cock.

2. To the lower ends of the rods, D, elastic bands, E, are provided to catch upon buttons, arms or across the breast of the wearer, to keep the said rods in place. D D are elastic straps, which are attached to the arms.

3. The device may be employed for holding a parasol or umbrella, the free ends of which are provided with loops or rings to catch upon buttons, arms or across the breast of the wearer, to keep the said rods in place. D D are elastic straps, which are attached to the arms.

4. A second negative is then produced from the negative of the object or surface intended to be used as the ground for the border, a mask being employed in such a manner as to leave a transparent opening in the center, the exact size of the portrait previously produced; the two negatives are then superimposed and printed from in the ordinary manner. If the back ground or border be of such a length as to pass around, or at any distance apart. The levers, F, are governed by ropes, H. By this construction, the weight of the fork may be varied at pleasure.

5. F is attached, as shown. To the bail of the arms are connected by a rope, G, which may be adjusted to the width of the shoulders, or in the rear of the shoulders, or one in front and the other in rear of either shoulder, as desired.

6. A New Planer for Gold Mining.

Upon the ground glass of the camera an oval is traced of the exact size the portrait is required, and between the projected plate and the shutter of the dark slide is fixed a mask, cut to the exact size of the oval up to the focusing glass. By this means the photograph is produced with a transparent border. After washing the negative, flow over it a fifteen grain solution of gelatin to the depth of about one twentieth of an inch, and set it aside to dry in a place free from dust. When quite dry, it is coated with ordinary transfer colloid and strips of paper are gummed upon the borders; when the latter have become dry, the pellucidal negatice is detached from the frame by cutting round the edges with a sharp penknife. A second negative is then produced from the object or surface intended to be used as the ground for the border, a mask being employed in such a manner as to leave a transparent opening in the center, the exact size of the portrait previously produced; the two negatives are then superimposed and printed from in the ordinary manner. If the back ground or border be of such a length as to pass around, or at any distance apart. The levers, F, are governed by ropes, H. By this construction, the weight of the fork and load is entirely supported by the bails, A, A, that the levers may be easily operated by the trip rope to cause the discharge. In handling mud and other fine substances, the plates, D, are easily attached to the lines, and act as snowshoes.
VARIOUS SPECIES OF ANT LIONS.

The ant lion is an order of insects known by the affectionate name of otherwise unworthy contrivances. Out of this group, four species are of special interest: the first is a great number of little cells, technically called areolets. The second is a larval tunnel, which is a series of chambers connected by transverse galleries, and is generally smaller than the first. The third is a pupal chamber, which is a large oval, the walls of which are lined with silk and are filled with sand. The fourth is a cocoon, which is a thin, transparent, delicate structure, resembling a dragon fly’s. Each of these species is found in a different order of insects, and each has a different mode of life.

The larva of the ant lion is a small creature, about the size of a pinhead. It is light brown in color, and has six legs. The larva constructs a ‘nest’ of sand, which it then fills with its own feces. It then constructs a ‘pit’ by digging a hole in the sand, and lining it with silk. The larva then rests in the bottom of the pit, and waits for its prey. When a prey item (such as an ant) falls into the pit, the larva will emerge and seize the prey with its legs. It then paralyzes the prey with its proboscis, and carries it to a nearby chamber. The larva then constructs a ‘pupa’ chamber, which is a small, oval, transparent structure. The larva will then transform into an adult ant lion, which will emerge from the pupa chamber and fly away.

The ant lion is a fascinating creature, and its life cycle is a testament to the incredible diversity of life on this planet. It is a small, yet powerful creature, able to take down much larger prey items. It is a reminder of the incredible complexity and beauty of nature, and the importance of preserving it for future generations.
ICE MACHINERY.

As an appropriation from the present hot weather, we select from Mr. E. H. Knight's "Mechanical Dictionary," the annexed engravings and following description of ice machinery. The apparatus illustrated depends upon the vaporization of water, ether, ammonia, benzoic acid, etc., which, in assuming the vaporous form, change sensible heat into latent heat, and thus extract the sensible heat from the water, the contents of which are thereby condensed.

Fig. 1 represents the Carre's refrigerating apparatus. The water to be cooled is decomposed (carburet)ated, filled with water frozen by placing them in shallow tanks of sea water, each of which is provided with a copper reservoir connected with a receiver filled with ether. The air is exhausted from the reservoirs by an air pump worked by steam, or the ether, and the other parts of the apparatus. The tube terminates in another box, l, and the ammonia is by this time in a liquid state under the pressure of 15 atmospheres, which is constantly maintained in the boiler. In the liquid state the ammonia passes by the pipe, s, to the reflux regulator, m, which is the dividing barrier between the part of the machine in which a regular pressure of 10 atmospheres is maintained and the following part where the pressure does not exceed 11 atmospheres. The regulating device is a floating cup which opens or closes a hole of index.

The liquid passes from the receiver, n, by the pipe, u, to the distributor, p, the pipe, v, being wound spirally around the tube, t, through which the vapORIZED ammonia is returned to the refrigerator, q; the vapors serving to reduce the temperature of the liquid in e before it reaches the refrigerator.

The refrigerator itself consists of a number of zigzag or spiral tubes—in the apparatus here represented, six in all—immersed in a tank constructed of non-conducting fluted iron, which would interfere materially with the success. In Fig. 1, a is the reservoir of sulphuric acid, f, a retort. The water is run by the tube, r, with the apparatus, and having a stopcock at h, p is the barrel of the pump, and d a lever, which also regulates the orifices, shown in dotted lines.

Fig. 2 is an ice refrigerator. Fig. 1 has a boiler containing the ammonia, connected by the pipe, c, with the refrigerator, t, which has a well in which a can containing the water, z, to be frozen. The boiler, k, is placed over a portable furnace, and the apparatus purged of air, which is driven by the evolved gas at the stopcock, w. This being closed, the refrigerator immersed in a tank of cold water, the temperature of the water in the tank is reduced to 32° or 30° F., as that heat the ammonia is expelled and condensed in a liquid form in the refrigerator, t. The boiler, k, being now removed from the furnace and placed in the water, the temperature of the water in the boiler will fall and the power of the water to dissolve ammonia will be restored. This water will be rapidly re-dissolved, reducing the pressure, as the liquid ammonia will evaporate with corresponding rapidity, drawing for its latent heat the heat of the water to be frozen. The result will be the complete evaporation of the liquefied ammonia and the restoration of an aqueous solution, in the boiler, of the original strength. Between the ice pan and the water is a body of alcohol, which will not freeze, but will act as a condenser. Described as the refrigerator, the vessel, l, has a non-conducting envelope.

Carre's continuous process, shown in the three other apparatus, is capable of producing the ice from the water, in various forms, and at different speeds. The apparatus, v, u, w, z; this solution passes downward, trickling through the perforated trays, g, while the ascending gas rises in a sinuous course alternately around the edge of one tray and through a central hole in the next, and so on. This coolness and carries back the water vapor which accompanies the gas.

The gas passes by tube, t, to the distributor, p, the water condensed by the water passing from the tube, t, to the collector, w, where it extends nearly to the bottom of the vessel, and there discharges the gas into the water, in which a worm which receives water by pipe, s, from the elevated reservoir, r; after passing to the bottom of the spiral, the pipe curves upward and the gas is conducted to the bottom of the vessel, y, where it discharges.

The water from the bottom of the vessel, y, is raised to the coolers, z, before reaching the vessel, w, where it re-accepts ammonia. Between the boiler, c, and the vessel, y, the water is cooled so as to fit for absorbing gas more freely. The pressure in the boiler is sufficient to expel it when the stopcock, r, is opened. The vessel, l, is formed of two concentric cylinders, between which are two spiral tubes formed of the pipe, v, united and these s pupils are immersed in a liquid which fills the annular space between the cylinders, and is the reconstituted ammoniacal solution on its way from the absorber, c, to the boiler, c.

The water in the spiral is conveyed in the pipe, w, and contained in a spiral, ascending in the vessel, g, and continued further in a pipe, c, alongside of the absorber, c, into which it discharges into a sieve, c, and from which it descends in a stream.

The exhausted solution from the boiler, c, flows freely, as has been said, from the boiler, by pipe, c, to the absorber, c, passing the coolers, z, as described; but it requires some power to force the reconstituted solution back from the absorber, c, through the pipe, f, to the boiler. This power is supplied when water is driven by a steam engine or other motor, and taking the saturated solution from the absorber by the pipe, t, and conveying it by pipe, v, to the vessel, l, where it passes through the tube, c, as before, and above the boiler, as described previously. This passing its way into the vessel, g, the water is cooled so as to fit for absorbing gas more freely.

In starting the machine, it is at first blown through to expel the air. The air escaping from the vessel, s, is drawn by pipe, y, to the purger, d, and passes beyond the water, e, and through the water, e, which retains any escaping ammonia. Replacing the ice pan for shaving off fragments of ice for cooling drinks. It consists simply of a couple of plane knives inserted in a board, over which the ice is drawn. The shavings fall through the aperture and blades and into the vessel placed below for their reception. An interesting device, which we may here add, since it is connected with the subject of ice, is an ice locomotive for running on ice (Fig. 3). It was constructed by the Messrs. Neilson, Glasson, and Neilson, of Glasgow, and employed for carrying passengers.

Mineral Management of Potato Blight.

Now just, when chemical fertilizers are creating so much attention, it is of interest to note that Mr. Charles T. Hay, of England, in his "Fertilizers and Agriculture," has apparently succeeded in preventing potato blight, by suggesting the following elementary mixture of food, to be ground to a very fine powder, and mixed with nitrogeneous manures. He claims to have secured a better crop, the tubers more even in size, smooth skinned, and employing for carrying passengers.

Ice Planes for Shaving Off Fragments of Ice for Cooling Drinks. It consists simply of a couple of plane knives inserted in a board, over which the ice is drawn. The shavings fall through the aperture and blades and into the vessel placed below for their reception. An interesting device, which we may here add, since it is connected with the subject of ice, is an ice locomotive for running on ice (Fig. 3). It was constructed by the Messrs. Neilson, Glasson, and Neilson, of Glasgow, and employed for carrying passengers.
NEW AGRICULTURAL INVENTIONS.

IMPROVED CROW WING.

William Wallace, Socorro, Tex.--This invention consists of a cow bonnet having a ventilating slit formed by a metal which the operator can work to allow the escape of the breath, which the cow will then turn in the direction of the slit. These bonnets are made in three sizes, to suit the different sizes of cows.

IMPROVED FUEL.

Patrick Sheil, New York City.--This invention relates to improvements in faucets for barrels of all kinds, that a tight seizing of the stopper to the barrel is insured, by the use of a properly and efficiently applied cupping with the liquid-conveying pipe, are obtained.

IMPROVED FLAP FRAME.

Daniel Whitman, Chicago, Ill.--This flap frame consists in the flap conveniently set up and taken down, and its sides and end plates are made of a metal which does not require any additional fluid for providing a smooth surface to the flap, and can be made of different metals.

IMPROVED LAND ROLLER.

Frederick Rediger, Philadelphia, Pa.--This invention consists of an improved land roller, made hollow, and provided with rills or ripes upon the inner surface of the roller and the inner cylinder.

IMPROVED LEVER.

William A. Robinson, Sophronia, Va.--This invention consists of a lever having a tongue connected with the driving wheel of a machine, for the purpose of permitting the lever to move under the control of the driving wheel.

IMPROVED MACHINE.

William B. Spitzer, Philadelphia, Pa.--This invention consists in the improved machine for preparing tobacco for use, which work on the tobacco leaf, mounted on a paper sheet, and which are worked upon by men and women together.

IMPROVED MILL SPECIFICATIONS.

John Newton, Leetsdale, N. Y.--This invention consists of the specifications for the manufacture of flax, which are made of a metal which is not tarnished, and which shall be free from any deleterious substances.

IMPROVED PAPER.

Charles Mee, Kingston, Canada.--This consists of a cam lever, which is a lever of metal, and which is provided with rills or ripes upon the inner surface of the roller and the inner cylinder.

IMPROVED PLOW.

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IMPROVED PROCESS.

Theophilus Schaller, Marysville, Cal.--This is an improved method of preserving wood, which consists in the use of salt and water, and in the addition of a fluid which is not deleterious to the wood.

IMPROVED NAVY AND THE AMERICAN, OR ACROSS THE OCEAN'S SOUTH AMERICA.


NORTH WOODWORKING AND WASHING MACHINES.

Philip Hepburn, Toledo, Iowa.--This consists in the hollow bit having a V-shaped end formed in the blade, and perforated with a number of holes, for feeding the cuttings to the machine again.

INVENTED PRINTER.

Robert Ceesay, Thedford, Ont.--This invention consists in the hollow bit having a V-shaped end formed in the blade, and perforated with a number of holes, for feeding the cuttings to the machine again.

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Charles K. Nyren and John W. Irwin, Phila., Ill.--This is an improved shear, and consists in the use of a steel blade, and in the addition of a fluid which is not deleterious to the metal.

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Earle, Guilford, Vt.--This invention consists of an improved ski, and consists in the use of a metal which is not tarnished, and which shall be free from any deleterious substances.

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Samuel F. Slipper, Kalamazoo, Mich.--This invention consists of an improved spool, and consists in the use of a metal which is not tarnished, and which shall be free from any deleterious substances.

INVENTED TABLE.

Harley Hempstead, Little Rock, Ala.--This invention consists of a table, and consists in the use of a metal which is not tarnished, and which shall be free from any deleterious substances.

INVENTED TEST.

E. Talbot, New York City.--This invention consists in the improved table of a table, and consists in the use of a metal which is not tarnished, and which shall be free from any deleterious substances.

INVENTED TRANSPLANTING LATH.

Theophilus Schaller, Marysville, Cal.--This is an improved method of transplanting lath, which consists in the use of salt and water, and in the addition of a fluid which is not deleterious to the wood.

INVENTED TUBE.

George L. Crosby, New York City.--This invention consists in the tube having a slit formed by a metal which the operator can work to allow the escape of the breath, which the cow will then turn in the direction of the slit. These bonnets are made in three sizes, to suit the different sizes of cows.

INVENTED WASH.

Henry G. Hubbard, Midlandtown, Wis., assigns to Russell Munson, Madison, Wis.--This invention consists of an improved wash, and consists in the use of a metal which is not tarnished, and which shall be free from any deleterious substances.

INVENTED WHEAT.

George L. Crosby, New York City.--This invention consists in the tube having a slit formed by a metal which the operator can work to allow the escape of the breath, which the cow will then turn in the direction of the slit. These bonnets are made in three sizes, to suit the different sizes of cows.

NEW CEMENT AND ARTIFICIAL STONE.

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Harley Hempstead, Little Rock, Ala.--This invention consists of a table, and consists in the use of a metal which is not tarnished, and which shall be free from any deleterious substances.

INVENTED TEST.

E. Talbot, New York City.--This invention consists in the improved table of a table, and consists in the use of a metal which is not tarnished, and which shall be free from any deleterious substances.

INVENTED TRANSPLANTING LATH.

Theophilus Schaller, Marysville, Cal.--This is an improved method of transplanting lath, which consists in the use of salt and water, and in the addition of a fluid which is not deleterious to the wood.

INVENTED TUBE.

George L. Crosby, New York City.--This invention consists in the tube having a slit formed by a metal which the operator can work to allow the escape of the breath, which the cow will then turn in the direction of the slit. These bonnets are made in three sizes, to suit the different sizes of cows.
NEW MECHANICAL AND ENGINEERING INVENTIONS.

NEW PROJECTIONS.

James M. Pollard, New York. A method of constructing pictures consists in placing a projective lens in a position where the image of the object is formed on the retina of the eye. The image is then projected onto a screen, where it can be observed. The image is formed by the projection of the object onto a screen fixed in a plane parallel to the paper, while the image is the result of the action of a guide or a fountain pen.

NEW TOOLS.

Walter H. Cloes, Brooklyn, N. Y. -When the lens holder is raised to an erect position it is fixed in place by a catch, and when lowered a spring re-aequires the tension of the lens holder. The lens holder is then returned to its horizontal position, and the tension of the lens holder is released.

NEW FROSTED GLASS.

James L. New, Brighton, N. Y. -When the lens holder is raised to an erect position it is fixed in place by a catch, and when lowered a spring re-aequires the tension of the lens holder. The lens holder is then returned to its horizontal position, and the tension of the lens holder is released.

DESIGN FOR CLUTCH PLATES.

T. C. C. B. -This design consists of a brass plate having two projections, one of which is bent at an angle, and the other of which is bent at an angle. The plate is then passed between two rollers, and the two projections are formed by bending the plate at an angle.

IMPROVED CAR TRIGGERS.

Wm. J. Vit, New York City. -This invention relates to a car trigger in which the trigger is arranged in a vertical position. The trigger is operated by operating the lever, and when the lever is released the trigger is returned to its normal position.

IMPROVED CAR COUPLING.

J. A. B. -This invention consists of a coupling in which the coupling is arranged in a vertical position. The coupling is operated by operating the lever, and when the lever is released the coupling is returned to its normal position.

IMPROVED BAR FOR WATCH SPRINGS.

F. H. B. -This invention consists of a bar for watch springs in which the bar is arranged in a vertical position. The bar is operated by operating the lever, and when the lever is released the bar is returned to its normal position.

IMPROVED HEATING ATTACHMENT FOR STOVES.

Jacob Blinn. This invention consists in the improvement of a heating attachment for stoves in which the heating element is arranged in a vertical position. The heating element is operated by operating the lever, and when the lever is released the heating element is returned to its normal position.

IMPROVED LENS HOLDER.

J. F. H. -This invention consists of a lens holder in which the lens is arranged in a vertical position. The lens is operated by operating the lever, and when the lever is released the lens is returned to its normal position.

IMPROVED CLOSED HEAT.

J. F. H. -This invention consists of a closed heat in which the heat is arranged in a vertical position. The heat is operated by operating the lever, and when the lever is released the heat is returned to its normal position.

IMPROVED KITCHEN MACHINES.

W, J. V. -This invention consists of a kitchen machine in which the machine is arranged in a vertical position. The machine is operated by operating the lever, and when the lever is released the machine is returned to its normal position.

IMPROVED PRINTING MACHINE.

J. F. H. -This invention consists of a printing machine in which the printing is arranged in a vertical position. The printing is operated by operating the lever, and when the lever is released the printing is returned to its normal position.

IMPROVED SPRINKLER.

J. F. H. -This invention consists of a sprinkler in which the sprinkler is arranged in a vertical position. The sprinkler is operated by operating the lever, and when the lever is released the sprinkler is returned to its normal position.

IMPROVED NUT LOCK.

J. F. H. -This invention consists of a nut lock in which the lock is arranged in a vertical position. The lock is operated by operating the lever, and when the lever is released the lock is returned to its normal position.

IMPROVED LEATHER STRETCHING MACHINE.

W. J. V. -This invention consists of a leather stretching machine in which the leather is arranged in a vertical position. The leather is operated by operating the lever, and when the lever is released the leather is returned to its normal position.

IMPROVED LEATHER SCOURING MACHINES.

W. J. V. -This invention consists of a leather scouring machine in which the leather is arranged in a vertical position. The leather is operated by operating the lever, and when the lever is released the leather is returned to its normal position.

IMPROVED VIBRATING PROPELLER.

J. F. H. -This invention consists of a vibrating propeller in which the vibration is arranged in a vertical position. The vibration is operated by operating the lever, and when the lever is released the vibration is returned to its normal position.

IMPROVED BARREL FOR WATCH SPRINGS.

J. F. H. -This invention consists of a barrel for watch springs in which the barrel is arranged in a vertical position. The barrel is operated by operating the lever, and when the lever is released the barrel is returned to its normal position.

IMPROVED BARREL CHAMER.

J. F. H. -This invention consists of a barrel chamber in which the chamber is arranged in a vertical position. The chamber is operated by operating the lever, and when the lever is released the chamber is returned to its normal position.

IMPROVED MECHANICAL MOVEMENT.

M. G. W. -This invention consists of a mechanical movement in which the movement is arranged in a vertical position. The movement is operated by operating the lever, and when the lever is released the movement is returned to its normal position.

IMPROVED METHOD OF ASSEMBLING PLOW HOE BOARDS.

E. B. B. -This invention consists of a method of assembling plow hoe boards in which the boards are arranged in a vertical position. The boards are operated by operating the lever, and when the lever is released the boards are returned to their normal position.

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Business and Personal.
The Charge! or Improved, Increase cost over
America. Notice samples in French Livery Hall, French De-
ver advertisement of Trevor &
reduced. Greene Tweed &
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For Bolt Forging Machines and Power Ham-
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molding You can depend upon thorough ventilation, a
Centennial Exhibition, Philadelphia.-Examine the
Machine-cut brass gear wheels, for models, &c.
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D. can prevent
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It is obtained by

M. D. asks: Why do we need to do this?

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MINERALS, &c.—Specimens have been received from E. M. Goldsmith, 50 E. B'way, G. F. Tichenor, 53 E. B'way, and Romanus, 145 W. 18 St., of following corundums and estaminates, and, with the results stated:

A. C. R.—These are the green and blue corundums which cannot be extracted profitably from your rock.—J. M. W.

B. — The mass of a white corundum, 14 lbs. in weight, taken up from the surface of the iron, and the content of the core a larger community of fuel is necessary in order to properly heat the iron, of course not containing a larger number of iron than that of the waters is not sufficient; in this case the core of the waters is more ample. — J. R. B.

C. — The mineral appears to be a sort of copper ore, the core usually lying, which, under a microscope, is not of natural origin; but in what manner it is formed, we cannot ascertain. — W. C. N.

D. — True small pieces of finely crushed coal, which, as they are brought up, are still highly cemented and cannot be made into the specky coal. — W. T.

E. — The mineral appears to be a sort of porous material, and not of natural origin; but it is formed of the waters is not sufficient; in this case the core of the waters is more ample. — J. M. W.

F. — The mineral appears to be a sort of copper ore, the core usually lying, which, under a microscope, is not of natural origin; but in what manner it is formed, we cannot ascertain. — W. C. N.

G. — True small pieces of finely crushed coal, which, as they are brought up, are still highly cemented and cannot be made into the specky coal. — W. T.

H. — The mineral appears to be a sort of porous material, and not of natural origin; but it is formed of the waters is not sufficient; in this case the core of the waters is more ample. — J. M. W.

I. — The mineral appears to be a sort of porous material, and not of natural origin; but it is formed of the waters is not sufficient; in this case the core of the waters is more ample. — J. M. W.

J. — The mineral appears to be a sort of porous material, and not of natural origin; but it is formed of the waters is not sufficient; in this case the core of the waters is more ample. — J. M. W.

K. — The mineral appears to be a sort of porous material, and not of natural origin; but it is formed of the waters is not sufficient; in this case the core of the waters is more ample. — J. M. W.

Communications received.
The Editor of the Scientific American asks, with much pleasure, to receive the following original papers and contributions the following contributions:

On the Age of the World. By E. O. P. (New York City.)

On Fish Tanks. By A. S. (Potsdam, N. Y.)

On the Inquisition of the Continent. By R. D. (Potsdam, N. Y.)

On a Cause of Fever, By J. S. (Potsdam, N. Y.)

On the Inquisition of the Continent. By A. S. (Potsdam, N. Y.)

On Roofing Rooms, By J. C. (Bloomington, Ill.)

An Inquirer wishes to know what is the proper way of planting potatoes, and on the following statement which he proposes:


HINTS TO CORRESPONDENTS.

Correspondents whose inquiries fail to appear in these columns, or whose letters fail to contain the points for which they were solicited, will be answered by return mail.

REPLY TO CO.

A. (Potsdam, N. Y.)—I am writing to thank you for your kind favor in answer to my inquiry in the last number of your paper. I have been able to make a very good stone for house-wraps, and I have been able to do it without the use of any other material. I have been able to make a very good stone for house-wraps, and I have been able to do it without the use of any other material.

B. (Potsdam, N. Y.)—I am writing to thank you for your kind favor in answer to my inquiry in the last number of your paper. I have been able to make a very good stone for house-wraps, and I have been able to do it without the use of any other material. I have been able to make a very good stone for house-wraps, and I have been able to do it without the use of any other material.

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