

**SASH BEAD FASTENER.**—Daniel W. Dyer and James H. McVauzh, Philadelphia, Pa.—This invention has for its object to furnish an improved means for removably securing sash beads to the casing which shall be simple in construction, easily attached, and easily operated.

**LUBRICATING BOX FOR CRANKS, ETC.**—T. J. Rowley and Wm. Poland, Chillicothe, Ohio.—The object of this invention is to feed the oil for lubrication of cranks, crank pins or wrists, and journals, in stationary bearings.

**ROLLING IRON, ETC.**—W. P. Porter, Pittsburgh, Pa.—This invention relates to an improvement in rolling iron and other metals in the form of railroad axles and other metal bars.

**ANVIL CUTTER.**—Valmore A. Dunn, West Peru, Me.—This invention relates to an anvil cutter, and consists in a pair of shears one jaw of which is fixed by an arm with a block or anvil, and the shears are thrown open by a spring.

**Basin Water Cock.**—Robert P. Ross, Bethlehem, Pa.—This invention consists in arranging a drop valve with an elastic face which is operated by a screw whereby all leakage is prevented.

**WELL BORER.**—George W. Bowen, Fort Wayne, Ind.—This invention relates to an implement for the boring or sinking of wells in quicksand, or for cleaning out wells; it is of such a construction as to enable the work to be done with great rapidity, facility, and safety, and in the most satisfactory and perfect manner.

**COTTON-BALE TIE OR HOOP LOCK.**—E. S. Roberts, Columbus, Ga.—This invention consists of a metallic box of quadrilateral form, having an open outer side to receive the ends of the hoop, which are bent so as to form loops through which and the sides of the box metal pins pass and firmly connect the ends of the hoop together, the box, under the expansion of the bale when relieved of pressure, sinking into the bale so that the ends of the hoop, which are secured in the box, will not project out beyond the side of the bale.

**IRON AND STONE RAILROAD TRACK.**—Dominicus N. Clark, Eastport, Me.—This invention has for its object to furnish an improved railroad track, superior to those now in use in durability and safety.

**SCHOOL DESK.**—Rev. R. Cruikshank, Lawrenceville, N. J.—This invention has for its object to improve the construction of the school desk patented by the same inventor May 24, 1864, and numbered 42,859, so as to make it more convenient and satisfactory in use.

**CAR MOVER.**—H. B. Morrison, Le Roy, N. Y.—This invention has for its object to furnish an improved machine by means of which freight cars may be easily moved about in the freight house, for convenience in loading or unloading them.

**DOVETAILING MACHINE.**—Robert Wolf, Burlington, Iowa.—This invention relates to a machine for dovetailing the side pieces as well as the front and back pieces of drawers, boxes, and other articles, and consists of two parts, one for sawing the side pieces and the other for chiseling the front and back pieces.

**PHOTOMETER.**—H. Vogel, Berlin, Prussia.—The object of this invention is to determine with exactness the time required for copying photographic negatives.

**CUTTING AND CARVING MACHINE.**—Isaac Hall, New York city.—This invention has for its object to furnish an improved machine by means of which any desired design or pattern may be cut or carved upon ivory, wood, stone, metal, or other suitable substance.

**PETROLEUM STOVE.**—Daniel Kellogg, Jackson, Mich.—This invention relates to a stove for burning petroleum or other inflammable oils or fluids, and consists of a tripod base supporting a burner within a chamber provided with a bottom dish for adjusting the supply of air, a lateral damper and a disk of radial wings, the latter being situated immediately over the flame, for aerating the same and causing the more perfect oxidation of its carbonaceous particles.

**CRIBBING PREVENTER.**—Ben. J. Davis and Isaac S. Cramer, Sergeantsville, N. J.—This invention relates to an attachment for bridles, for the purpose of preventing horses from indulging in the vicious and hurtful habit of cribbing, so called. It consists of a pricking point inclosed and guarded by a cylindrical cap working within a larger cylindrical base, to which it is attached by a telescopic point. The two cylindrical parts inclose the pricking point, which is firmly seated in the throatstrap, and presents its point through a central hole in the cap when the latter is pressed against the tension of a spring which otherwise keeps the cap out and over the pricking point.

**DREDGING SCOOP.**—Harris W. Thornburg, Shelbyville, Ind.—This invention refers to a scoop which is particularly designed for cleaning out wells and sinks, but may successfully be employed for other purposes where the conditions of operation are of the same nature. It consists of a scoop formed in two equal parts hinged together and so attached to ropes or chains that the scoop can be lowered into a well or sink in such position that the lower edges of the parts will encounter the bottom of the well, and when the lifting rope is drawn these parts will be brought together, thus scooping up a portion of the bottom on which they rested.

**HAT BUCKLE.**—J. A. Burton, Senola, Ga.—This invention relates to a buckle for hat bands, and its object is to so arrange it that railroad or other tickets can be firmly held by the same, and can, whenever desired, be easily removed therefrom.

**BEDSTEAD FASTENING.**—J. E. Milliken, Bridgeton, Me.—This invention relates to a method of securing the rails to the posts of bedsteads, so that they are more easily taken apart or moved, and rendered more secure. It consists of a metallic hinge attached to the side rail of the bedstead, the pivot of which may be easily removed, and upon which the post is turned upon the side rail. It consists, also, in a hook and staple, by means of which the post is secured to the nail in an upright position.

**WHIP LOCK.**—Francis M. Gifford, Erie, Pa.—This invention relates to a method of constructing locks for securing the whip within the socket by an attachment independent of the socket itself, whereby the whip cannot be moved from the socket without the key. It consists of two metallic arms provided upon each end with jaws, the upper side of one of the arms having a nut, the other a socket, this socket having a nut, and the nut a thread to receive a screw by means of which the jaws are drawn or forced together the head of the screw being so constructed and concealed so that only a key of a peculiar construction will unscrew or unlock the jaws, and loose the whip from the socket.

**CORN PLANTER.**—William Daggert, Cordova, Ill.—This invention relates to a method of constructing hand corn planters, whereby corn is more rapidly and economically planted. It consists of a planter composed of three chambers, through which slides a plunger provided with a valve by means of which the required quantity of corn is carried from one chamber to another, and finally to the ground. Also, in the bottom of the under chamber, being formed of steel or other elastic substance, which closes the outlet of the same, until the plunger in the downward movement of the same forces the corn upon the said springing bottom through the outlet into the ground, whereby the required quantity of corn for a single hill is always in readiness to be forced into the ground at the next downward movement of the plunger.

**PAPER "LINEN."**—B. M. Smith, No. 4 Dey street, New York city.—The manufacture of paper collars and cuffs, scarcely yet fifteen years old, has been carried to a perfection, while the consumption has risen to a magnitude, of which few persons have any conception. These articles, every one of which, of course, is thrown away as soon as soiled, are made and used up in the United States by hundreds of millions every year. Three or four hundred manufacturing establishments are in operation, some employing a capital of no less than \$500,000, and thirty or forty paper mills run constantly on paper of the various qualities required. The styles in which collars and cuffs are manufactured of paper, for both sexes, are as varied, and some of them as elaborate and beautiful, as those made of linen and lace. The best substitutes for linen collars and cuffs are exquisitely stitched and corded at the edges (in appearance), and are even made to imitate exactly the surface of a starched and ironed linen fabric. Their chief imperfection has been the lack of strength in the button-holes, which are often torn out in the first attempt to put them on, and still oftener fail to serve a second day. For this defect a variety of remedies have been tried one of the best of which was the com-

binaton of two thicknesses of paper with an intermediate layer of coarse linen. This gave all the strength desired, but doubled or tripled both the cost and the clumsiness of the article. A cheaper but less effective expedient is adopted by some manufacturers, who paste a small patch of linen under the place of the button-hole. Most of these goods, however, are punched without any strengthening whatever. We have just been shown a novel specimen, having a perfect button-hole, durable enough for a hundred buttonings and unbuttonings, yet not appreciably increasing the cost of manufacture. Indeed, it is said that the machinery to be employed will turn them out cheaper than ever. The improvement consists in binding the edge of the rounded end or eye of the button-hole with a delicate film of silver metal, not over one thirty-second of an inch broad, and so thin as not to increase the thickness of the paper edge, into which it is stamped with a minute bead to hold it immovably in place. The open ends of the metallic edging are each brought to a point and turned backward into the paper, so as not to catch and tear out. The button-hole works freely and flexibly; and never tears. This is a smaller invention than the wire connections for Venetian blinds, and like many a small thing, will be among the most profitable of improvements for the inventor.

Answers to Correspondents.

*CORRESPONDENTS who expect to receive answers to their letters must, in all cases, sign their names. We have a right to know those who seek information from us; besides, as sometimes happens, we may prefer to address the correspondent by mail.*

*SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisements at \$1.00 a line, under the head of "Business and Personal."*

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

**A. G. F., of Ohio,** is running a saw and grist mill combined and the end of the main shaft to which the saw gate is attached thumps everytime the gate is about half way coming down. The shaft is in line and the top box of the end journal has been screwed down until it heated but all to no avail. We think our correspondent will find, on examination, first, that the cap does not have a bearing on the box; second, that the interior of the box, as a whole, does not show a complete circle in cross section, but an ellipse. The box should be of the exact diameter of the shaft, and no box, especially one for a shaft subjected to reciprocatory motion should be left partly open.

**W. L. B., of Mass.,** asks what is the composition of the glossy black paint used in lettering show cards. Lamplach from which the oil has been burned by roasting is the basis and may be used by mixing with the whites of eggs, which makes a very brilliant paint, or varnish, turpentine, and Japan may be the vehicle.

**A. S. S., of Mich.**—The information you require in relation to atmospheric currents can be obtained from Espy's "Theory of Storms" or Maury's "Physical Geography of the Sea," and other meteorological works.

**S. J., of N. J.**—How many pounds of steam pressure is equal to 130 pounds cold water pressure? 130 pounds pressure is that and nothing else whether created by steam or water. Probably, however, our correspondent wants to know how much steam may be safely carried on a boiler which has had a hydrostatic test of 130 lbs. The general practice is to reduce one fourth, which would give a steam pressure of nearly 100 lbs.

**F. G. S., of Mass.**—Your theory of the explosive quality of non-aerated water in a steam boiler is not new, and it has heretofore been quite extensively discussed in our columns. Devices for forcing air into the water are in use, but we more strongly approve of your advice to blow off often.

**R. M., Jr., of Canada,** asks for a recipe for opaque glue. Boil ordinary glue with very fine bonedust. This correspondent also says that a friend from Spain left with him, last summer, a quantity of clay, called terra de vino, used in Spain for clarifying wine, which it did excellently well also in Canada. It will also remove grease and other stains from cloths. He offers to send a sample. We shall be glad to have him. Perhaps we will analyze and test it.

**P. G., of N. Y.**—Why is the sun's center on the meridian ever back of the clock? Because of the elliptical orbit of the earth and the inclination of the earth's axis to the ecliptic.

**W. P. T., of N. J.**—Is there any coating or solution which will cause brass wire to permanently resist the action of carbonic acid? Yes; electroplating or gilding.

**S. B., of Mass.**—We know of no liquid solution equal to good glue for immediately and permanently uniting two pieces of cotton webbing. It will unite leather belts, subjected as they are to enormous strain, it certainly should answer for a cotton fabric.

**C. W. D., of Md.**—We believe there are tables of latitude and departures calculated for the quadrant in some treatises on surveying but cannot name them. Send to D. Van Nostrand, 192 Broadway or to John Wiley & Son, 585 Broadway, New York city.

**W. R. W., of N. H.**—This correspondent asks, "which way should a fly wheel run having curved arms, in the direction that the arms crook or the opposite?" With the letter comes a drawing representing a wheel with the ordinary curved arms so frequently used on pulleys, fly, and other wheels. We presume that it makes, practically, little difference which way the wheel turns, as the arms are usually slight and their cross section is of oval or lozenge form; but, preferably, we have always in practice presented the convex side of the curve to the line of motion, the result of which, if any, would be to direct the air impinging on the arms to slip or slide off toward the rim of the wheel.

**G. S. D., of Tenn.,** asks how to deposit pure iron on iron or steel by the battery. In one or two of our back numbers we described or alluded to the process. We presume that there is no secret in the matter. Those who understand the deposition of metals by the battery will probably find no peculiar difficulties in the management of iron.

**R. S. T., of Mass.**—"I have observed that in 'blowing off,' the steam pressure, by the gate, does not lessen perceptibly until the water is all or nearly all blown out of the boiler. Now if the steam that was in the boiler has to fill its own and also the space occupied by the water, why, as the water blows out, does not the steam pressure proportionally diminish?" Our correspondent is wrong in two of his above assumptions. For an understanding of the matter, for the details of which we have no room, we refer him to "Heat, Water and Steam," by Charles Wye Williams, published by Henry Carey Baird, Philadelphia, Pa.

**E. C. J., of Conn.**—"What will remove superfluous hair from the face without injuring the skin?" We know of no chemical preparation having those qualities. The razor or tweezers will do best.

**R. R. M., of Cal.**—"What is the recipe for japan for iron work. That which I have tried is not so hard, smooth, and durable as I would like." We give Cooley's recipe for black japan, which, however, may have been improved upon by practitioners, to whom our correspondent had better apply for information. Cooley says, "burnt umber, 8 oz.; pure asphaltum, 3 or 4 oz.; boiled linseed oil, 1 gallon; grind the umber in a little of the oil; add the asphaltum, previously dissolved in a small quantity of the oil by heat; mix, add the remainder of the oil, boil, cool, and thin with a sufficient quantity of the oil of turpentine. It is flexible."

**R. D., of Conn.**—"How are saws straightened?" Simply by judicious hammering. It requires an expert to do it, but an experienced hand can straighten the most crooked saw. All saws have to be straightened, by hammering, after being hardened.

**I. L., of Ind.**—"What amount of water per hour is required per horse-power to run an ordinary steam engine?" One cubic foot per hour per horse-power is the general rule, modified, of course, by the condition of engine, at what point it cuts off, etc.

**J. C., of Pa.**—"Our large leather drying loft is heated by steam, the pipes fed by an inch pipe with a return pipe of the same diameter discharging into our engine exhaust pipe. Can we get as much heat with the return pipe wide open as partially closed?" Have your "return" or exhaust wide open to get the full heat. Is not live steam hotter than condensed, or than warm water?

**J. S., of Iowa.**—Like others, this correspondent has experienced difficulty in the management of his feed pump for a steam boiler. He proposes to build an elevated water heater or tank, connecting with a supply tank at a lower elevation—the bottom of the first being on a level with the top of the latter—a steam pipe leading from the boiler to the upper part of the supply tank, and a water pipe leading from its bottom to the waterspace of the boiler. (The plan is illustrated by a diagram we do not think it necessary to reproduce.) Our correspondent thinks it would save power. In reply we would say that a boiler may be fed by this device. Several patents have been granted within the past thirty-five years for boiler feeders involving the principles in various forms. We have never investigated their practical workings; but, from the fact that none of them have come into general use we infer that they are not reliable feeders, under all circumstances.

**J. A. G., of Me.**—"How can I cut a piece of glass five eighths of an inch square into sections of one eighth thick?" By employing a practical glazier, skilled in the use of the diamond to do it for you.

**J. O. L.**—The use of sponge for mattresses is old.

Business and Personal.

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

A Gentleman late of the Paris Exhibition, going to Europe, solicits the sale of American Inventions and all kinds of Machinery. Address Abelseh, 817 Race st., Philadelphia, Pa.

Mill-stone Dressing and Glaziers' Diamonds. Also, for all Mechanical purposes. Send stamp for circular. John Dickinson, 64 Nassau st., New York.

For Patent Engine Lathes and Upright Drills, Planer Centers, Lathe Chucks, Planer Chucks, and all kinds of Cutlery Machinery, address Thomas Iron Works, Worcester, Mass.

For sample of a neat little Self-lighting Pocket Repeating Cigar Lighter, with wholesale price, send 65c. to L. F. Standish, Springfield, Mass.

Two Valuable Patents for sale—one for a Fertilizer, and the other for Harness Wardrobe. Address H. E. Pond, Franklin, Mass.

Bartlett's Reversible Sewing Machines are the cheapest reliable Machines. Bartlett Machine and Needle Depot 569 Broadway, N. Y.

Merriman's Patent Bolt Cutters—Best in Use. Address, for circulars, etc., H. B. Brown and Co., New Haven, Conn.

For all sizes of Tube for Steam, Gas, or Water, and the most improved Tools for Cutting off and screwing the same, address Camden Tool and Tube Works Co., Camden, N. J.

Waugh's Combined Circle and Square Shears for Tanners and Paper-box Manufacturers. For circular address J. Waugh, Elmira, N. Y.

Pistol Machinery. Parties desirous of manufacturing wrought iron carriage hardware, address J. H. Atkinson, 31 Chambers st., N. Y.

Winans' Anti-incrustation Powder, (11 Wall st., N. Y.), reliable and unobjectionable in preventing scale in Boilers. 12 years in use.

Parties knowing where fibrous Asbestos or Amianthus can be obtained, will please address Geo. Raymond, Fitchburgh, Mass., stating quantity, color, price per ton, or any other facts respecting it.

For Sale—One half interest, or whole of the most valuable Plow improvement of the Age. Address L. G. Binkly, Baughman P. O., Wayne county, Ohio.

Wanted—Address of Manufacturers of Inkstands. J. M. Kennedy, Box 15, Vicksburgh, Miss.

Manufacturers of all kinds of Woolen Machinery please send catalogues with prices to Garrett & Brown, Manchester, Tenn.

For Sale—A valuable Patent Right for the State of Kentucky. Address Lament Brothers, Milford, Pike county, Pa.

EXTENSION NOTICES.

John Brown, of New York city, having petitioned for the extension of a patent granted to him the 30th day of May, 1854, for an improvement in hot water apparatus, for seven years from the expiration of said patent, which takes place on the 30th day of May, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 11th day of May next.

Thomas T. Jarrett, of Hershram, Pa., having petitioned for the extension of a patent granted to him the 30th day of May, 1854, for an improvement in hay elevators, for seven years from the expiration of said patent, which takes place on the 30th day of May, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 11th day of May next.

Levi Dederick, of Albany, N. Y., having petitioned for the extension of a patent granted to him the 6th day of June, 1854, for an improvement in hay presses, for seven years from the expiration of said patent, which takes place on the 6th day of June, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 18th day of May next.

Charles F. Martine, of Boston, Mass., having petitioned for the extension of a patent granted to him the 6th day of June, 1854, and reissued the 25th day of December, 1855, and again reissued the 27th day of August, 1867, for an improvement in sofa bedsteads for seven years from the expiration of said patent, which takes place on the 6th day of June, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 18th day of May next.

Edward Harrison, of New Haven, Conn., having petitioned for the extension of a patent granted to him the 6th day of June, 1854, and reissued the 16th day of November, 1858, for an improvement in grinding mills, for seven years from the expiration of said patent, which takes place on the 6th day of June, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 18th day of May next.

Jacob Sennett, of Philadelphia, Pa., having petitioned for the extension of a patent granted to him the 18th day of July, 1854, for an improvement in weavers' heddles, for seven years from the expiration of said patent, which takes place on the 18th day of July, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 29th day of June next.

Jacob Sennett, of Philadelphia, Pa., having petitioned for the extension of a patent granted to him the 22d day of August, 1854, for an improvement in machines for casting metallic eyes, or malleable heddles for looms, for seven years from the expiration of said patent, which takes place on the 22d day of August, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 3d day of August next.

Caleb Swan, executor of the estate of Daniel Hayward, deceased, of Easton, Mass., having petitioned for the extension of a patent granted to the said Hayward the 29th day of August, 1854, for an improvement in manufacture of India-rubber, for seven years from the expiration of said patent, which takes place on the 29th day of August, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 3d day of August next.

**Improved Self-Delivering Harvester.**

This machine differs from other self-delivering harvesters in depositing the gavels on a table or platform, instead of the ground, and in carrying the binders on the machine, their work, as seen in the engraving, being done with the body in an upright position, involving much less labor and fatigue than when the binding is done in a stooping posture. The driving wheels are four feet in diameter, making the draft quite light. From the main wheels the motion is given to the cutters, in the usual method, by means of internal gears, pinions, and bevel gears, one of the latter of which is on the cutter bar crank shaft, which crosses the machine at a point between the two main wheels.

From this crank shaft the vibrating connecting rod that drives the cutters, runs to the further or outer end of the cutter bar, giving thus a long connection with much less friction, wear, and tear than when the connection is short.

The binders stand on a foot-board suspended at one end from the axletree and resting at the other on the finger bar. They stand back to an endless apron or carrier, by which the grain is carried from the finger-bar platform to a table in front of the operators. The endless apron passes over a roller at the outer end of the finger bar, and then horizontally the length of the cutters to the cross crank shaft, rollers upon which hold it in place and guide it in an inclined direction to a roller at the top of the machine, the roller being driven by pulley and belt from the crank shaft. The inclined portion of the endless apron is covered by a guard of wooden slats, the grain being carried by the apron under these slats, which are pivoted to the crank shaft and may be made to rise and fall according to the quantity of grain that is passing up.

The table, upon which the grain is delivered, is made to slide transversely across the machine on a track which is slightly oval or inclined from the center to each end. This is designed to be moved by the binders, giving each an alternate gavel, and when slightly pushed, runs on its inclined track without assistance. There is a stop of hooked rods secured to the upper part of the guard, which, by rungs on the sliding table, is raised or lowered as desired. When the table is being moved from one operator to the other, this stop is down, the hooked ends preventing the delivery of the grain until the table is in position, when they rise and allow the grain to pass. The reel for holding the grain to the knife is driven by a belt from one of the main wheels.

The seat of the driver is a saddle on a pivoted lever, the seat being arranged to be moved toward or from the end of the lever. The weight of the driver can thus be utilized to balance that of the finger bar and its appurtenances, and to accommodate that portion of the machine to inequalities of surface.

As a mowing machine, the endless apron, carrier, and binders' platform can be removed in a few minutes, as also the double divider, when it becomes a complete and effective mowing machine.

Patented through the Scientific American Patent Agency, Jan. 28, 1868, by Ezra Emmert, who may be addressed on the subject of territorial rights or for other information, at Franklin Grove, Lee county, Ill.

**Improved Apparatus for Punching Shoe Uppers.**

The machine illustrated in the engravings is intended for punching the eyelets or string holes in shoes, and the apparatus for the tongues of buckles for straps, harnesses, etc. It is simple, elegant, and easily adapted to any required curvature of the work. It can be operated by any person of ordinary intelligence; even a child of ten years of age can work it with ease.

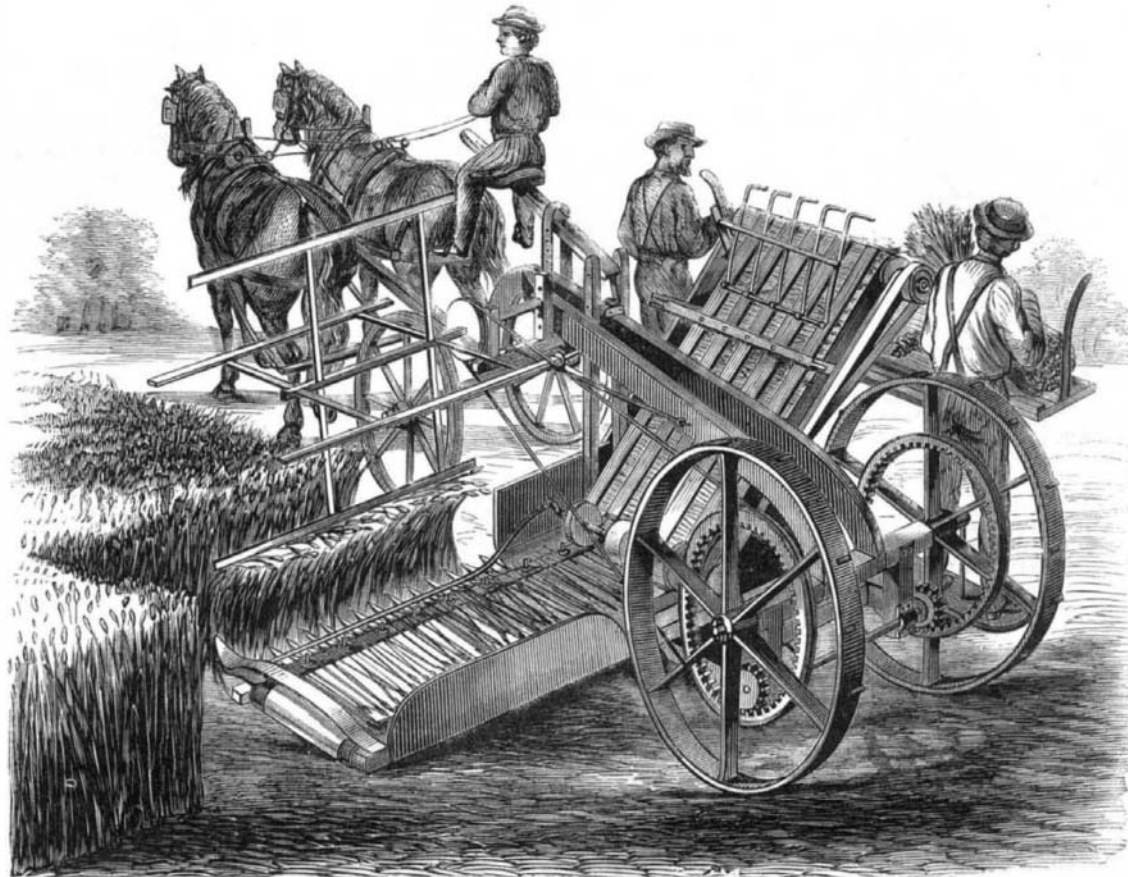
Fig. 1 shows the power, a toggle joint, adjusted by a nut and screw, A, so that the punches, B, are prevented from cutting into the copper bed, C, after they have passed entirely through the leather to be punched, thus protecting the punches from any unnecessary wear and tear.

Fig. 2 shows the arrangement of the punches, B, which by the use of a key on the axes of the screws, D, are moved to any position required, so as to correspond with the shape of the shoe to be punched. The machine is set for use by drawing the punches, by the use of the key, to the edge of the patterns, from which the shoe itself has been cut, and setting the stops, three of which are seen under the punches, so that these will cut at the proper space on the upper of the shoe to be punched. By this the holes in the shoe will be found to be on a perfect line from the edge, and of equal distances apart.

The upper part of the shoe is placed under the puncher,

B, or rather upon the bed, C, and gently pushed up to the stops. The lever is brought down by the foot, and the work is done.

The engraving shows twelve punches, but the number can be increased or diminished; twenty-four can be used at one time, as well as three or four only. For small sizes of children's shoes, a supplementary set of punches, placed to act nearer together, may be used. There are several other claims contained in this patent, which may be used, but the inventor has thought best to have the machine as simple as possible in its operation, and at the same time a strong and perfect machine. For punching harness and skate straps, it is only



**EMMERT'S COMBINED HARVESTER AND MOWER.**

necessary to set the punches in a straight line. Patented through the Scientific American Agency, Oct. 30th, 1866, by J. H. Keating. The entire patent for sale. Address P. K. Holbrook, 135 Federal street, Boston, Mass.

**A New Invention in Gas Illumination.**

M. Bourbouze, a French physician, has lately contrived an ingenious apparatus, which will undoubtedly be received with great satisfaction by all those who take interest in improvements in gas illumination. In presenting his invention to a learned society in France, it was done with a view to facilitate the experiments with the solar microscope, in the courses of public instruction; but to-day we are led to believe that it will have a more general application. It is well known that it was proposed, some time since, to substitute for the ordinary gas light the more intense Drummond light, which is produced by introducing a piece of quick lime or magnesia into the flame of a mixture of oxygen and street gas. The effects thus obtained surpass those of the latter so considerably, that this mode of creating light, in regard to the illumination of cities, was doubted the less the more progress chemistry made in the manufacture of oxygen gas. M. Bourbouze has now constructed an apparatus which does away entirely with the preparation of oxygen, affording at the same time a great economy in regard to the quantity of gas employed. The former is substituted by atmospheric air, the practical arrangement for effecting the combustion being the following: The gases are admitted into one common tube, from thence they pass through a sheet of metal, perforated with a great many holes, in order to be divided

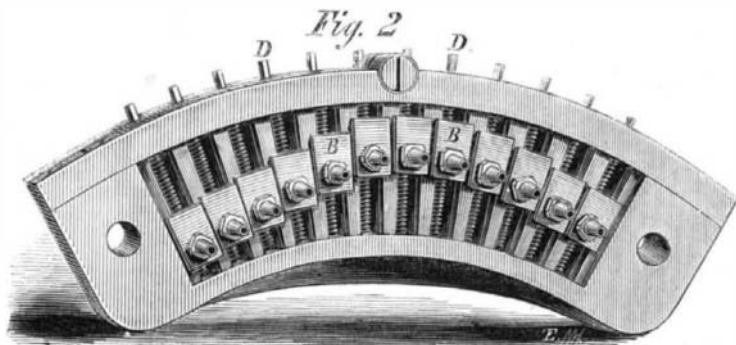
will be still more economical. We are informed that some places in Paris will be illuminated in the mode described.

**Pickling Brass.**

The work, to be brightened and colored, is first annealed in a red hot muffle, or over an open fire, allowing the cooling to extend over one hour; the object of the heating being to remove the grease or dirt that may have accumulated during the process of fitting. Soft soldered work, however, must be annealed before fitted together, and afterward boiled in a lye of potash; this is also done with work having ornamental surfaces. Next, it is immersed in a bath of diluted oil of

vitriol or aquafortis, which may be made with two or three parts of water, and one of acid; but the old acid that contains a small quantity of copper, in solution, is frequently preferred. The work is allowed to remain in this liquid for one or two hours, according to the strength of the acid; it is then well rinsed in water, and scoured with sand, which is applied with an ordinary scrubbing-brush, and washed. The "pickling bath" is made by dissolving 1 part of zinc in 3 parts of nitric acid of 36° Baumé, in a porcelain vessel, and adding a mixture of 8 parts of nitric acid, and 8 parts of oil of vitriol. Heat is then applied, and when the liquid is boiling, the work is plunged into it for half a minute, or until the violent development of nitrous vapors ceases, and the surface is getting uniform. Then it is plunged into clean water, and well rinsed, to remove the acid. The ordinary, dark grayish, yellow tint, which is thus very often produced, is removed in immersing the works again in aquafortis for a very short time. Then they are plunged into clean or slightly alkaline water, well rinsed to remove the acid, and plunged into warm dry beech or boxwood sawdust, and rubbed until quite

dry. To prevent the action of the atmosphere they are lackered; if a green tint is to be produced, the lacker is colored with turmeric. A dark, grayish, but agreeable tint,



**KEATING'S ADJUSTABLE GANG PUNCH**

into many small jets; these are delivered through a gauze of platinum wire, when they are lighted. The metal, in being heated, soon becomes red, then white, and thus diffuses a dazzling light. Experiments have shown, that, with a tension of 15 inches mercury, 1,308 cubic yards of gas are consumed per hour, the light emitted being equal to that of seven lamps of Gilbert. With a pressure of 7 1/2-5 inches, 45 cubic inches are burned per hour, they giving a light of four lamps of Gilbert. In employing low carburetted gas, this process

is obtained by immersing the work previously in a solution of white arsenic in hydrochloric acid, or in a solution of bichloride of platinum, under addition of some vinegar, or rubbing with plumbago.

A PIECE of lace has been woven by a native of India, ten yards long and one yard wide, weighing but 3 oz. 2 dwts., and which could easily be passed through a very small finger ring.

