

**Responsible Advertising Agencies**

Are a great advantage to both advertiser and publisher. That of George P. Rowell & Co., No. 40 Park Row, New York, is considered by many the most complete establishment of the kind in the United States.

**Business and Personal.**

The Charge for Insertion under this head is One Dollar a Line. If the Notices exceed Four Lines, One Dollar and a Half per Line will be charged.

The paper that meets the eye of manufacturers throughout the United States—Boston Bulletin, \$1 00 a year. Advertisements 17c. a line.

For the best, purest, and most economical Machinery Oils, of all kinds, send to Oil House of Chard & Howe, 184 Maiden Lane, N. Y.

Wanted.—A small wire Staple Machine, for Blind Staples. Manufacturers will please send their address to Laughland & Co., 212 Franklin St., New York.

Wanted.—Situation as foreman, by a machinist of 22 years' experience at the trade, and 15 years as foreman in building locomotives, and stationary and portable engines. Understands drafting. References exchanged. Address Box 26, Bryan, Ohio.

Map Surveyor wanted. Address H. F. W., Box 4118, Boston, Mass.

Wanted to buy, an interest, on easy terms, in some shop, to start the Thresher business. Address "Machinist," Box 805, Canton, Ohio.

New Railroads are fully described in the RAILROAD GAZETTE

Tin Presses and Hardware Drills. Ferracute Mch. Works, Bridgeton, N. J.

A. G. Bissell & Co. manufacture packing boxes in shooks at East Saginaw, Mich.

Small Portable Steam Engines, cheapest and best in market. For Circulars address Skinner & Walrath, Chittenango, N. Y.

Two experienced young men desire situations to design and superintend the building of first class machinery. The best of references given. Address W. C. H., Springfield, Mass.

For Sale.—To a practical man, or manufacturer, one half of a Patent for a Bottle and Demijohn Lock. Address Sam'l L. Gouverneur, Frederick, Maryland.

Wanted.—A responsible dealer in every town in the United States, to sell "The Tanite Co.'s" Emery Wheels and Emery Grinders. Extra inducements from May 1st. Send for terms to "The Tanite Co.," Stroudsburg, Pa.

Wanted, on a salary, an experienced traveler, to sell Mechanical Goods. Address, with full details and references, Morgan, Box 2874 New York.

A. M. Towl, Sevastopol, Ind., wants a Machine to make shoe pegs. To Builders of First-class Houses.—"Broughton's" Faucets cannot leak, never want repairs, and are the most durable made. Send to H. Moore, 41 Center st., for Circulars.

The "Broughton" Lubricators are the most durable and effective. The tendency of the valve is to improve and tighten by wear. Send to H. Moore, 41 Center st., for Circulars.

Hardware and House Furnishing Patents wanted. Inventors' Co-operative Manufacturing Co., 258 and 260 Broadway, New York.

American Manufacturer's Review," Pittsburgh, goes over the whole country. Subscription, \$4. Advertisements, 15c. per line. Try it 1 year.

A Company, with a large cash capital, wish to add to their business the manufacture of some small patented articles of hardware. Address, with full particulars, J. W. W., Box 1971, New York.

Important to Painters, Grainers, etc.—New, quick, clean, and easy mode of wiping out the hearts, lights, crotches, knots, veining, etc., of all kinds of wood, through perforated metal plates cut from choice natural designs. Price of 10 plate set, \$40; 7 do., \$30; single plates, \$5 each. Rights for sale. Address J. J. Callow, Cleveland, O.

For Hydraulic Jacks, Punches, or Presses, write for circular to E. Lyon, 470 Grand st., New York.

The new Stem Winding (and Stem Setting) Movements of E. Howard & Co., Boston, are acknowledged to be, in all respects, the most desirable Stem Winding Watch yet offered, either of European or American manufacture. Office, 15 Maiden Lane, New York.

Belting that is Belting.—Always send for the Best Philadelphia Oak-Tanned, to C. W. Army, Manufacturer, 301 Cherry st., Phil'a.

Send your address to Howard & Co., No. 865 Broadway, New York, and by return mail you will receive their Descriptive Price List of Waltham Watches. All prices reduced since February 1st.

Balloons made to order, with instructions, by John Wise, Lancaster, Pa.

Ashcroft's Low Water Detector, \$15; thousands in use; can be applied for less than \$1. Names of corporations having thirty in use can be given. Send for circular. E. H. Ashcroft, Boston, Mass.

To Cotton Pressers, Storage Men, and Freighters.—35-horse, Engine and Boiler, with two Hydraulic Cotton Presses, capable of pressing 35 bales an hour. Machinery first class. Price extremely low. Wm. D. Andrews & Bro., 414 Water st. New York.

Use Rawhide Sash Cord for heavy weights. It makes the best round belting. Darrow Manufacturing Co., Bristol, Conn.

Millstone Dressing Diamond Machine—Simple, effective, durable. For description of the above see Scientific American, Nov. 27th, 1869. Also, Glazier's Diamonds. John Dickinson, 64 Nassau st., N. Y.

Peck's Patent Drop Press. Milo Peck & Co., New Haven, Ct

Brown's Coal-yard Quarry & Contractors' Apparatus for hoisting and conveying material by iron cable. W. D. Andrews & Bro., 414 Water st., N. Y.

American Boiler Powder Co., P. O. Box 315, Pittsburgh, Pa.

See advertisement of L. & J. W. Feuchtwanger, Chemists, N. Y.

Carpenters wanted—\$10 per day—to sell the Burglar Proof Sash Lock. Address G. S. Lacey, 27 Park Row, New York.

Manufacturers' and Patentees' Agencies, for the sale of manufactured goods on the Pacific coast, wanted by Nathan Joseph & Co., 619 Washington street, San Francisco, who are already acting for several firms in the United States and Europe, to whom they can give references.

All parties wanting a water wheel will learn something of interest by addressing P. H. Wait, Sandy Hill, N. Y., for a free circular of his Hudson River Champion Turbine.

For mining, wrecking, pumping, drainage, and irrigating machinery, see advertisement of Andrews' Patents in another column.

Twelve-horse Engine and Boiler, Paint Grinding Machinery and Feed Pumps, two Martin Boilers, suitable for Fish Factory. Wm. D. Andrews & Bro., 414 Water st., New York.

Improved Foot Lathes. Many a reader of this paper has one of them. Selling in all parts of the country, Canada, Europe, etc Catalogue free. N. H. Baldwin, Laconia, N. H.

Cold Rolled-Shafting, piston rods, pump rods, Collins pat. double compression couplings, manufactured by Jones & Laughlins, Pittsburgh, Pa.

For Solid Wrought-iron Beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa., for lithograph, etc.

The Merriman Bolt Cutter—the best made. Send for circulars. H. B. Brown & Co., 25 Whitney ave., New Haven, Conn.

Glynn's Anti-Incrustator for Steam Boilers—The only reliable preventive. No foaming, and does not attack metals of boilers. Price 25 cents per lb. C. D. Fredricks, 587 Broadway, New York.

For Fruit-Can Tools, Presses, Dies for all Metals, apply to Bliss & Williams, successor to May & Bliss, 118, 120, and 122 Plymouth st., Brooklyn, N. Y. Send for catalogue.

Presses, Dies, and Tinners' Tools. Conor & Mays, late Mays & Bliss, 4 to 8 Water st., opposite Fulton Ferry, Brooklyn, N. Y.

English and American Cotton Machinery and Yarns, Beam Warps and Machine Tools. Thos. Pray, Jr., 57 Weybosset st. Providence, R. I.

Taft's Portable Hot Air, Vapor and Shower Bathing Apparatus. Address Portable Bath Co., Sag Harbor, N. Y. (Send for Circular.)

Winans' Boiler Powder.—15 years' practical use proves this a cheap, efficient, safe prevention of Incrustations. 11 Wall st., New York.

To Ascertain where there will be a demand for new machinery or manufacturers' supplies read Boston Commercial Bulletin's Manufacturing News of the United States. Terms \$4 00 a year.

**Answers to Correspondents.**

**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."

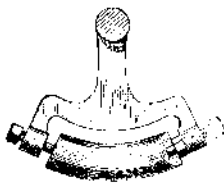
ALL reference to back numbers must be by volume and page.

D. D., of Ind.—Put in flues 8 inches in diameter behind the bridge wall of your furnace. The size of the perforations should be about one half inch, but there should be plenty of them. Provide them with first class dampers, and arch over your mud drum. It is a too common practice not to have dampers in furnace doors, but to keep steam from getting too high by opening the furnace door. Such practice is a disgrace to engineering. Your ideas in reference to setting boilers and cleaning them are right; stick to them.

J. B., Jr.—An extension bridge of ordinary width and construction requires the aid of machinery in laying up the cables, but one may be made by stretching single wires by hand over a stream a quarter of a mile in width, if only enough wires are used, and all are made to receive their share of the weight to be supported.

**TANNING SHEEP SKINS WITH THE WOOL ON.**—Take one part of alum and two of saltpeter; pulverize and mix well together; then sprinkle the powder on the flesh side of the skin, and lay two flesh sides together, having the wool side out. Then fold up the skins as tight as you can, and hang or lay them in a dry place. As soon as they are dry (which will be in two or three days), take them down and scrape them with a blunt knife till they are supple, and rub them over the edge of a board, if necessary, to make them soft. Other skins, which you wish to cure with the fur on, may be treated in the same manner.—H. A. C., of N. Y.

**TURNING CURVED PLUNGER.**—In regard to "turning curved plunger," I would state for the benefit of S. G. S. (whose inquiry is given in your issue of 15th ult.), that the flange plate can be cut nearly off with safety, after the body of the plunger is finished, by using an acute angular-pointed turning tool. By proper care the body of the plunger can be finished over the reduced part, the flange plate being cut away, or reduced on each side. The plunger can then be separated from the plate by scoring with a square-nosed tool, on each side of plate, about one-sixteenth inch from the body; and the slight projection, or fin edge, can be removed with a file and scraper. If desired, a carrier can be used, that will allow the entire body of the plunger to be turned. I enclose sketch of the device; it consists of a flange plate and center shaft, the plate being furnished with bosses that are drilled and tapped for set bolts, that support and retain in position the plunger to be turned. One of the bolts has its end squared, to enter a similar shaped hole cast in end of plunger, a jamb nut on the bolt preventing its turning. The set bolt in the other boss, upon being screwed up, secures the plunger in position in the carrier. The turning tool can be fed through from each side, by working the lathe, by hand, the thickness of the flange plate of the plunger carrier.—W. P. P., of Pa.



**LEAKY FAUCETS.**—Let C. H. K. take pulverized grindstone (procured at any place where a stone is being turned up to true) and use it with water. File off the plug of the faucet (in diameter) above the seat or shell, so there shall be no shoulder to prevent the plug going to its seat after it has been cleaned off.—C. H. J.

**CUTTING THE TEETH OF SMALL WHEELS IN A LATHE.**—Let B. B. L. turn a rod or cylinder of the material, to the diameter he wishes his wheels to be, and as long as he likes. Keep it on the centers where turned. Allow it no play in the driving connection with the face plates. Have the dial plate on the lathe spindle, attached to the face plate or otherwise. Make a tool the exact size and shape, inversely, of the space between the teeth. Make the tool to use in the chisel stock (or tool stand of the lathe) as a planing or grooving tool; flute the cylinder around, space by space, to the depth proper for the length of the teeth. Then with a thin cutting-off tool, cut off the wheels the thickness wanted, after which they may be chucked and bored, as required. Internal gears are cut in the same way. Keep the chuck where bored until cut. He had better procure a small gear cutter to attach to his lathe. They may be procured at reasonable rates, of many of the tool makers of the Eastern states. I have one of my own arrangement and make, with which, with one row of one hundred holes, I can get quite a goodly number of divisions, from one up to ten thousand.—C. H. J., of N. Y.

H. L. C., of Mich.—When air is taken under water, its bulk, submitted to the pressure of the water, is reduced more than is that of the water by the same pressure. Its relative buoyancy is therefore lessened as it is sunk deeper. At a depth of 33 feet, it would only be about half as buoyant as just beneath the surface; at 99 feet only about one fourth, and so on. At a depth at which it would receive a pressure of 314 atmospheres, it would become as dense as water, provided Mariotte's law of the relative volumes and pressures, held good for such high pressures; but it has been shown that it does not apply exactly, as pressures increase.

**PLATING ON IRON OR STEEL.**—If your inquirer will follow the directions below, he will have no trouble in plating on iron or steel. Take two quarts rain water, dissolve two pounds cyanide of potassium, and filter. This solution is only for steel or iron. In order to plate steel or iron, dip it into pure sulphuric acid for one minute, then clean with pumicestone and brush; rinse, and hang in cyanide solution of potassium for three minutes, or until it becomes white; then hang in silver solution until plated heavy enough.—C. E. B., of Ill.

H. W. C., of Vt.—You are right in supposing the principal difficulty in the direct application of steam to the raising of water, without the intervention of pistons, is the condensation and consequent loss of power. Attempts to avoid this have been made in various ways, such as lining the pump cylinder with non-conducting material, the introduction of flexible non-conducting diaphragms, to separate steam and water, etc. Were it not for this loss, the most economical application of steam to raising water, would be directly upon the water surface in the cylinder, provided we were confined to the use of steam non-expansively; but to use steam expansively necessitates the use of a cylinder and piston, or their equivalent, as it is obvious that steam pressing directly upon water, even if it would not condense, could never expand below the pressure of the water. With the use of a steam cylinder and piston, and a smaller piston in the pump, we can expand the steam to any limit desired.

D. C. A., of N. H., asks "what is considered, by scientific men, to be the strictly true definition of the word 'machinery?'" In other words, what is a machine? Is a planer, or lathe, or drill (for either iron or wood) a machine, or simply a tool? The question is of importance to mechanics here, from the fact that machinery is taxable, while tools are exempt. The courts, or other authorities, in whom the power to regulate the working of the tax law is vested, must decide what is the distinction between the terms "tools" and "machines" within the meaning of the law. Scientifically speaking, any instrument, if only a simple lever, by which power is applied to the performance of work, is a machine.

T. P. M., of N. J.—The scales of pyrometers are marked either in degrees centigrade or Fahrenheit, to which they are reduced by immersing the instrument in boiling mercury, and noting the degree of expansion (contraction, in Wedgwood's pyrometer), and dividing the rest of the scale proportionally. The Wedgwood pyrometer is very inaccurate; Daniell's is the best of the older instruments, while the new one of Siemens, not long since described in these columns, is probably better than either.

W. B., of Mass.—Glucose and starch sugar are the same thing. It is made by the action of dilute sulphuric acid upon starch. For particulars of the process, we refer you to Miller's "Organic Chemistry," Dr. Ure's "Dictionary of Art and Manufactures," etc. The constituents of glucose are 72 parts carbon, 14 parts hydrogen, and 12 parts oxygen, by weight.

**IMITATION OF EBONY.**—If E. E. B. will take a solution of sulphate of iron, and wash the wood with it two or three times; let it dry, and apply two or three coats of a strong decoction of logwood; wipe the wood when dry, with a sponge and water, and then polish with oil; he will have a very good imitation of ebony.—W. A. P.

**NEW BOOKS AND PUBLICATIONS.**

PART II. of "The Dictionary of Words and Phrases Used in Commerce," has come to hand, and gives increased evidence of the ultimate value of the work. Several items, among which is one on carpets, another on camel's hair, etc., will be found in our issue this week. They illustrate the real character of the work better than we can describe it in a notice like the present. The editor is Mr. Thomas McElrath, and the publishers are N. Tibbals & Son, 37 Park Row, New York.

**AMERICAN HORTICULTURAL ANNUAL.** Orange Judd & Co., 245 Broadway, New York. Price, 50 cents.

This is a valuable hand-book for gardeners and horticulturists, full of well-executed engravings of new varieties of fruits, flowers, and vegetables with practical hints on growing them.

**Recent American and Foreign Patents.**

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

**TELEGRAPH SOUNDERS, RELAYS, ETC.**—This invention consists in arranging, in an open rectangular wooden box, the usual coils and magnets, having between them and parallel to them, a straight, solid or hollow cylindrical bar, hung on two pivoted arms, which extend from shafts, having their bearings attached to the side of the wooden case. Both arms being of the same length, the bar which they carry, will, in any position, be parallel to the line it occupies in any other position. At right angles to this bar, is attached to it, the armature, which in its motions must, therefore, also move in parallel lines, and strike the magnet square on their faces. The ends of the bar which carries the armature, strike upon sounding pivots, and the arrangement enables the instrument to give a very clear and distinct sound. The bar is operated by springs which pull against each other in such a way that when no current is passing about the magnets, the armature is held at the proper distance from the poles. In the vertical position of the apparatus the weight of armature and bar are made to aid in imparting force to the blows upon the sounding points, but the instrument may be used in any position. This instrument has been patented by Hugh Swinton Legare Bryan, of Cedar Rapids, Iowa.

**DIVIDING WHEELS OF WREFT THREAD KNITTING MACHINES.**—This is an improvement upon the dividing wheels of the wref thread knitting machine or loom, patented July 19, 1870, by William H. Abel, and which our readers have noticed recently in this journal. The invention is to increase the capacity of such looms to weave or knit a variety of patterns. To this end, the teeth of the dividing wheel are made radially adjustable, so as to throw out of line one or more needles, as may be desired, at intervals to form stripes, etc. The invention has been patented by Horace Woodman, of Saco, Me.

**WASHING MACHINE.**—James M. Noble, of Delhi, Iowa.—This machine consists of a cylindrical rocking suds-box, with a funnel-shaped opening in the top, the ends of the funnel forming flanges for arresting the motion of the suds. It also has a perforated false bottom, through which, when the cylinder is rocked, the suds rush backward and forward, to act forcibly upon the goods to be cleansed.

**WIRE FENCES.**—This is an improvement in fences, invented and patented by Zebdee Nicholson, of Haddenfield, N. J. The fence is formed of a series of straight strands of wire, between which other strands of wire are made to assume a curvilinear zigzag course, crossing each other at points lying in vertical lines, over which intersections are placed "stiffeners," or plates of iron riveted together. The "stiffeners" occupy a position midway between the wooden posts which support the fence. This makes an apparently strong and secure, as well as a neat looking fence.

**MILLSTONE DRESSING MACHINE.**—Samuel East, Memphis, Mich.—This invention relates to a millstone dressing machine, which operates a common mill pick for cracking, facing, and furrowing, in which the pick is supported on a handle in such a manner that it can be moved laterally to any desired point, said frame being made to slide, by means of a screw, so that it can be moved forward or backward, for the purpose of setting the pick in position to make fresh "cracks" in the "land" of the stone.

**LIFE PRESERVING TRUNK.**—Lawrence Rebstock, Hollidaysburgh, Pa.—This invention relates to a trunk, so constructed that it may be converted at pleasure into a boat, and thus serve as a life preserver in cases of shipwreck.

**BREECH LOADING CANNON.**—The construction of the barrel is that of longitudinal bars, hooped by iron bands shrunk on, a collar over all carrying the trunnions. The barrel is hung in a U-shaped frame, and is provided with a grooved breech block, actuated by a lever in such a way, that when the lever is swung down, the breech end of the barrel is raised above the block, so that the charge or cartridge can be inserted, and vice versa. The inventor and patentee is H. J. Allen, of Arkadelphia, Ark.

COAL SCUTTLE.—James C. Parrish, Petersburg, Va.—This invention relates to that class of coal scuttles that are provided with a sifter within the scuttle, situated above and parallel with the bottom, and the invention consists in the peculiar connection or combination of a handle with the door or hinged cover for the outlet of the shaft.

WASHING MACHINE.—John Hilger Doll, of Etna, Ill.—This consists of a rubbing board, having a similar surface to that of ordinary rubbing boards, but placed so that the rubber surface is uppermost, and in a horizontal position. Upon the rubbing board are brought to bear a series of rubbing rollers, attached to a swinging frame, pivoted at some distance above it. The whole is fitted into a suitable tub or receptacle.

BABY TENDER.—This consists of a cloth seat, with an open dress, which is designed to be hooked or buttoned about the waist of the child, and is attached to a hoop a little distance above by means of cords or chains, the hoop being in turn attached by cords or chains to a swivel at the end of a rod, which is attached to a coiled spring, the whole being suspended from a hook in the ceiling. The cloth seat is passed through between the legs of the child, and hooked to the waist of the loose dress. This arrangement gives great freedom of movement to the limbs of the child, and holds it in a comfortable position. This is the invention of Alexander H. Carson, of Newport, R. I., and Andrew Brown, of Troy, N. Y.

DOUBLE CHURN DASHER.—William F. Jones, of Easton, Kansas.—The lower end of the vertical dasher shaft is pivoted to the bottom of the churn. A transverse pin or round passes through the shaft, to the ends of which are attached curved wings of peculiar form, and within these wings are two other blades or wings, which force the milk or cream upward and outward, while the outer ones force it downward and inward. The several parts are all detachable, so that they can be thoroughly cleaned.

FURNITURE CASTER.—Augustus G. Stevens, of Manchester, N. H., has invented a furniture caster, in which the outer surface of the socket is notched or serrated, so that when driven into the wood the notches will hold the socket fast by the expansion of the wood into them. The screws driven into the ends of the furniture legs frequently get loose; the notches are intended to hold the socket without the screws, should the latter get loose. The stirrup and socket are held together by a hook which engages with a collar on the bottom of the socket.

ADJUSTABLE SCAFFOLD BENCH.—An improvement in scaffoldings made by James Pettit, of Rochester, Indiana, consists in making bench pieces, braces, and legs, movable independently, so that adjustments in length and height may be made either simultaneously or separately as may be desired. To this end he uses slotted legs and slotted sliding pieces at the top, which allow the pieces to be slipped in either direction; and adjustable braces to hold them in place, the scaffolding being self supporting.

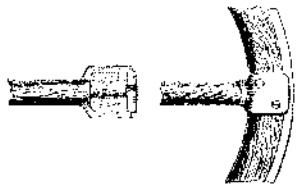
WAGON BRAKE.—In this invention, the brake beam is hinged to the reach of the wagon, and connected with the draft bar, so that, whenever the team ceases to pull, the brakes are brought into instant and forcible contact with the wheels, the weight of the brake bringing it down against the face of the wheel. The connection between the double tree and the hinged brake is effected by rods and links. Patented by R. C. Shockley, of Fayette, Wis.

NEWSPAPER ADDRESSING MACHINE.—Patrick O'Connor, of Youngstown, Ohio.—The principle of this machine is that of stencil plate printing. An endless stencil plate belt is moved around rollers, the impression being given by a hammer, as the plates of which the belt is composed pass over the upper roller. Instead of an endless belt, the inventor uses, when desired, a ribbon belt, winding upon one roller, as it unwinds from another.

DUMB BELLS.—Ellis Ballou, of Zanesville, Ohio.—The essential feature of this invention is the protection of the hand by placing the handle within a cavity of a shell formed between the balls or spheroids of the bell.

VALVES AND STEAM CHESTS.—The chief feature of this invention is the employment of a conical steam valve, flattened on two sides, within a steam chest that has four parts, two of which admit steam to the cylinder, and the other two of which are respectively the inlet and outlet. The parts are all equal distances apart, so that the proper connections of the parts with each other are established either by oscillating or by rotating the valve, in the latter case acting as a cut-off. The improvement is the invention of Peter N. Woods, of Fairfield, Iowa.

RECOLORING FABRICS.—After the fabric to be recolored has been properly dusted and freed from grease marks and stains, by the usual means employed for the purpose, it has applied to it a hot solution of aniline color, dissolved in alcohol and diluted with boiling water, in the proportion of one part dry color to ten parts alcohol, and as much water as may be required to obtain the desired tint, or shade. While the fabric is still damp from this application, the inventor applies, by another sponge, a suitable mordant, such as bromide of potassium, or other equivalent, the surplus mordant being finally removed by sponging with cold water. This process is the invention of John Murray Wallace, of New York city, assignor to Bernhard Weber, also of New York.



CARRIAGE WHEELS.—The invention of James Y. Sifton, of Due West, S. C., is illustrated by the accompanying diagram. It consists in making the spokes of carriage wheels with clamps for the felly and tire, as shown, and metal sockets for the spokes, each being cast in one piece, and one being used for each spoke. The engraving shows an elevation, and also a section through the device, which will give a clear idea of the invention.

MACHINE FOR MAKING SKEWERS.—This is the invention of Chauncey Andrews, of Patterson, N. J. By its use skewers are split out, smoothed off, and pointed conveniently and rapidly. The parts of the machine cannot be intelligibly described without drawings.

BRICK LIFTER.—In certain kinds of brick machines, where the clay is pushed by a piston through a nozzle upon a table or set of rollers, to be subsequently cut into blocks by wires or cords, the rapid removal of the blocks or unburnt bricks is difficult. It is the design of this implement, invented by K. Julius Rugg, of Cincinnati, Ohio, to facilitate this operation. It consists of two parallel wooden board jaws, with arms pivoted together, after the manner of tongs, to which another set of bars are pivoted, so as to form lazy tongs, the upper ends of the latter bars being attached to the hoisting rope by a ring, which passes through suitable sheaves. This enables the block of clay to be rapidly removed to a truck, so as not to interfere with the action of the machine.

CHURN.—Henri Schuldtrees, of Brookville, Ind.—This invention consists in an arrangement for the bearing of a horizontal beater shaft, to be raised as the butter begins to form for gathering it, and also for supporting the shaft at an elevated position.

VAPORIZING VOLATILE HYDROCARBONS.—This invention provides an apparatus for vaporizing volatile hydrocarbon oils, in such a way that only a small quantity of the oil may be in the gas house at a time, and which prevents the escape of the vapor into the gas house. The main body of the oil is kept outside the gas house, and is led in, through a pipe, to be vaporized in a coil heated by a hot water bath. A cold water condenser also surrounds the pipe, just previous to its reaching the vaporizer, which condenses any vapor that might seek to return through the pipe, and thus prevents its escape into the room. The oil is thus vaporized in small quantities as it flows into the gas house. The inventor is John Butler, of New York city.

PISTON PACKING.—Phillip Estes, Leavenworth, Kansas.—This invention relates to piston heads provided with expansible packing rings, and it consists in the means employed for forcing said packing ring outward, whenever it may be necessary, in order to the preservation of a steam-tight joint between the piston and cylinder.

PENDULUM LEVEL AND CLINOMETER.—This invention has for its object the adaptation of a stand pendulum pointer and scale (such as are used for ascertaining the deviations of the earth's surface, of the surfaces of other objects, from a horizontal line) to use as a plumb for determining the lines of objects standing vertically, or nearly so, and of overhead walls and ceilings.

It has for its distinctive feature a scale arranged relatively to the height and stretch of the forked measuring legs of the stand, so that measurements in right lines vertically, of the inclinations of the surface may be indicated on the curve which the index describes. It was invented by Rev. William Johnson, of Edisto Island, S. C.

HINGES FOR TABLE LEAVES.—The invention of Philip Hires, of Columbus, Ky., has for its object an improved hinge for table leaves, etc., which shall render the knuckle in table leaf joints unnecessary, while the hinge will be out of sight, and will hold the leaf firmly.

APPLICATIONS FOR EXTENSION OF PATENTS.

METALLIC BRIDGES FOR PIANOFORTES.—G. Henry Hulskamp, New York city, has petitioned for an extension of the above patent. Day of hearing, July 5, 1871.

SAWING MILL.—William M. Ferry, Grand Haven, Mich., has petitioned for an extension of the above patent. Day of hearing, July 5, 1871.

ARTIFICIAL LEGS.—Robert H. Nicholas, Chicago, Ill., and Douglas Bly, of Rochester, N. Y., have petitioned for an extension of the above patent. Day of hearing, July 12, 1871.

COMPOUND CAPSTAN FOR SHIPS.—Charles Perley, New York city, has petitioned for an extension of the above patent. Day of hearing, July 19, 1871.

CARRIAGE PROPS.—Chauncey Thomas, Boston, Mass., has petitioned for an extension of the above patent. Day of hearing, Sept. 6, 1871.

BOBBINS FOR ROVING AND SLUBBING.—Isaac Hayden, Boston, Mass., has petitioned for an extension of the above patent. Day of hearing, July 19, 1871.

Value of Extended Patents.

Did patentees realize the fact that their inventions are likely to be more productive of profit during the seven years of extension than the first full term for which their patents were granted, we think more would avail themselves of the extension privilege. Patents granted prior to 1861 may be extended for seven years, for the benefit of the inventor, or of his heirs in case of the decease of the former, by due application to the Patent Office, ninety days before the termination of the patent. The extended time inures to the benefit of the inventor, the assignees under the first term having no rights under the extension, except by special agreement. The Government fee for an extension is \$100, and it is necessary that good professional service be obtained to conduct the business before the Patent Office. Full information as to extensions may be had by addressing

MUNN & CO., 37 Park Row.

Queries.

[We present herewith a series of inquiries embracing a variety of topics of greater or less general interest. The questions are simple, it is true, but we prefer to elicit practical answers from our readers.]

1.—CEMENT.—How can I make a cheap waterproof cement for roofs, and to be used about chimneys, and other crevices?—H. A. C.

2.—CREOSOTING BOAT BOTTOMS.—I noticed in your issue of the 1st inst. that creosote oil is mentioned as a preventive for the sea worm. What would be the cost of same per gallon, and could it be successfully applied to old boats just hauled out, whose bottoms are thoroughly soaked with salt water? Or should the wood be in a comparatively dry state, before using the oil? A preventive of this kind is very much needed in the bays here, as we have a large number of small vessels which have to be hauled out frequently and repainted with verdigris, etc., to preserve the timber from the worms.—J. E. M.

3.—HONING RAZOR.—In honing my razor, I always get a rough wiry edge. What is the reason? If any one will tell me how to do this, so that I can at last get a good, smooth, satisfactory shave, they will confer a favor upon—P. R.

4.—STAMPS FOR PRINTING CARDS.—How are the elastic hand stamps for printing cards made?—C. F. M.

5.—ASPHALTE WALKS.—What is the experience of Southerners in the use of asphalt walks? How does heat affect them, and how do they compare in point of cost with other walks?—N.

6.—SMOKED BRICK WALLS.—How can wood smoke stains be removed from a new brick wall?—D. P. S.

7.—MENDING CAST IRON PATTERNS.—How can a broken piece of cast iron be so mended that a founder may use it for a pattern in molding a new piece?—J. G. G.

8.—STRENGTH OF BEAMS.—I would suggest to those having so much controversy about the strength of beams, that a beam will support its own weight inversely as the square of its length. For, as you double the length (which is its breaking leverage) you double the load. But for a uniform load, supposing the beam to weigh nothing of itself, the strength decreases as the length increases. If I am not right, will some one tell why?—W. G. B.

9.—DRAFT OF VEHICLES.—If a wheel be rolled over a plain of mud, of uniform consistency, and so loaded that it sinks a part of its diameter into the mud, should the line of traction be horizontal or inclined upwards? Suppose a block weighing 100 pounds rests on a level surface, and requires a force of 100 pounds exerted horizontally to move it: can it be moved more easily by pulling in any other direction? If so, what angle does the line of traction make with the base, and what is the force necessary to move the block?

10.—GEARING SLIDE REST.—I am an amateur turner, and I want to gear my slide rest to my lathe mandrel, to cut small screws. I don't know very much about gear wheels, and would like to ask one or two questions in regard to them. What would be the best number of teeth, to the inch of the diametrical pitch, for a lathe like mine, which is small (10 inch swing) and light? Would 16 teeth to the inch of the diameter of the pitch circle be too small or too large? If so, what would be a good number? Sixteen teeth to one inch of the diameter of the pitch circle would give, on a wheel of 8 inches in diameter of pitch circle, 48 teeth on the pitch circle, would it not? And would a wheel so small as 1 1/4 inches, with 20 teeth, work well with one of 2 1/4 inches with 40 teeth? In giving the size of the wheels, I mean the diameter of the pitch circle. I have made all the calculations as to the size of the wheels I want but do not know how to get at the number of teeth to the inch that will work nicely on so small a lathe as mine?—G. J. Van D.

11.—ELECTRIC LIGHT.—What is the most economical way to produce the electric light? The direct way, by a Grove battery, or by a revolving magnet, or by Ruhmkorff's coil? Has an estimate been made as to the cost of its production, compared with that of any other illuminator? What would be the cost of apparatus, and are there persons in New York who sell the proper apparatus? This subject has been discussed by several scientific men and subscribers to your valuable paper, and all are anxious to hear what light can be thrown upon the subject.—L. K., M. D.

12.—CHEAP BATTERY.—In your issue of March 11, 1871, there were directions to make a cheap galvanic battery. I undertook, in company with a friend, to construct one of these, and although we followed the instructions to the letter, as we thought, yet the result was an ignominious failure. It did not generate one particle of electricity, not even so much as is produced in the humble experiment of a silver coin and piece of zinc placed on the tongue. We first procured a glazed earthen bowl, holding about a gallon; inside this was fitted a cylinder of sheet zinc; within this cylinder we placed an unglazed earthen flower pot, medium size, the hole stopped with shoemaker's wax, and inside this again was a cylinder made from the bottom of an old copper wash boiler. Then, dissolving

nearly half a pound of sulphate of copper in water, we poured it into the flowerpot containing the copper, filling it full, and also filled the outer earthen pot with a strong solution of salt and water. Having attached copper wires to both zinc and copper, we now naturally expected the machine to work, but never a bit of it. Up to this writing, it has stood as complacently innocuous as a barrel of slop. Is anything wrong with our apparatus? We have modified, altered, improved and experimented, all to no purpose. So let A. G. please inform us where the difficulty is, or we shall be confirmed in the opinion, gradually gaining ground in our minds, that his directions are a fraud, or at least of no use to novices like—F. R. S.

Official List of Patents.

ISSUED BY THE U. S. PATENT OFFICE.

FOR THE WEEK ENDING MAY 2, 1871.

Reported Officially for the Scientific American.

SCHEDULE OF PATENT FEES: On each caveat \$10; On each Trade Mark \$15; On filing each application for a Patent (seventeen years) \$25; On issuing each original Patent \$20; On appeal to Examiners-in-Chief \$10; On appeal to Commissioner of Patents \$20; On application for Reissue \$20; On application for Extension of Patent \$50; On granting the Extension of Patent \$50; On filing a Disclaimer \$10; On an application for Design (three and a half years) \$10; On an application for Design (seven years) \$15; On an application for Design (fourteen years) \$30.

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MUNN & CO., Patent Solicitors, 37 Park Row, New York.

- 114,248.—WEIGHING SCALES.—D. D. Allen, Adams, Mass.
114,249.—MILLSTONE.—J. A. Althouse, New Harmony, Ind.
114,250.—WASHING MACHINE.—A. Assmann, Rahway, N. J.
114,251.—GRAIN SEPARATOR.—S. K. Ayres, Dellton, Wis.
114,252.—STALK CUTTER.—Josiah Babcock, John F. Stilson, and James C. Leidy, Galesburg, Ill.
114,253.—SASH HOLDER.—W. Bacheller, West Newbury, Ms.
114,254.—SEWING MACHINE.—N. and R. S. Barnum, Chicago, Ill.
114,255.—BOILER FEEDER.—Robert Berryman, Hartford, Ct., and R. N. Pratt, Philadelphia, Pa.
114,256.—FIRE EXTINGUISHER.—C. Blake, Boston, Mass.
114,257.—STEAM TRAP.—J. H. Blessing, Albany, N. Y.
114,258.—THRILL COUPLING.—G. I. Bradley, Boston, Mass.
114,259.—FIREARM.—Heinrich Buchner, New York city.
114,260.—STOVE.—E. Bussey and A. Hamlin, Troy, N. Y.
114,261.—INFANT'S SHOE.—W. M. Carpenter, Rowley, Mass.
114,262.—INKSTAND.—C. C. Catlin, Cleveland, Ohio.
114,263.—CHEESE HOOP.—Azer Chandler, Rome, N. Y.
114,264.—MEDICAL COMPOUND.—A. R. Clapp, Boston, Mass.
114,265.—NEEDLE SHARPENER.—C. P. Clark, Lock Haven, Pa.
114,266.—HOE.—Isaac Cook and J. T. Bever, Haynesville, Mo.
114,267.—METER.—T. Kent, Old Kent Road, and J. Watson Victoria Chambers, Westminster, London, Eng.
114,268.—PRINTING PRESS.—C. B. Cottrell, Westerly, R. I.
114,269.—WHIFFLETREE.—H. Crocker, Jr., Montrose, Pa.
114,270.—STENCH TRAP.—Thomas Dark, Buffalo, N. Y.
114,271.—COTTON PRESS.—Henry J. Davis, Wetumpka, Ala. Antedated April 26, 1871.
114,272.—GAS REGULATOR.—Otis Dean, Richmond, Va.
114,273.—PRINTERS' CASE.—A. T. De Puy, New York city.
114,274.—MULE.—John Dodd, Oldham, England.
114,275.—GAS PURIFIER.—E. Duffee, Haverhill, Mass.
114,276.—TUCK MARKER.—G. L. Du Laney, New York city.
114,277.—IRON AND STEEL.—Z. S. Durfee, New York city.
114,278.—EVAPORATOR.—S. P. Dyer, Ankeny Town, Ohio.
114,279.—PIPE SHELF.—J. P. Elliott, Bridgeport, Conn.
114,280.—GRATE BARS.—W. H. Farris, Cairo, Ill.
114,281.—NIPPLE SHIELD.—G. T. Foster, New York city.
114,282.—INVALID CHAIR.—S. T. Fowler, East Somerville, Ms.
114,283.—HYDRANT.—J. P. Gallagher, St. Louis, Mo.
114,284.—PUMP.—J. P. Gallagher, St. Louis, Mo.
114,285.—PRINTING PRESS.—M. Gally, Rochester, N. Y.
114,286.—BOOK BINDING.—John Glass, Greenpoint, N. Y.
114,287.—RUBBER.—John Greacen, Jr., New York city.
114,288.—SPINNING MULE.—F. W. Greenwood, Landenberg, Pa.
114,289.—SLATE FRAME.—W. W. Hamilton, Flushing, N. Y.
114,290.—GRATE.—C. R. Harvey and J. H. Foote, New York city.
114,291.—DRAFT.—B. A. Haycock, Richmond, Iowa.
114,292.—CRIB.—W. T. Hazard, Randolph, Mass.
114,293.—OIL.—S. A. Hill and C. F. Thumm, Oil City, Pa.
114,294.—SEWING MACHINE.—J. A. and H. A. House, Bridgeport, Conn.
114,295.—APPARATUS FOR EVAPORATING LIQUIDS.—J. Howarth, Salem, Mass.
114,296.—ENGINE GOVERNOR.—R. K. Huutoon, Boston, Mass.
114,297.—PUNCHING MACHINE.—W. H. Ivens and William E. Brooke, Trenton, N. J.
114,298.—LUBRICATOR.—James Ives, Mt. Carmel, Conn.
114,299.—CAST STEEL.—P. E. Jay, J. A. Rafter, Montreal, Can.
114,300.—STEAM ENGINE.—Asa Johnson, Brooklyn, N. Y.
114,301.—PAPER PULP.—M. L. Keen, Jersey City, N. J.
114,302.—LAMP.—H. Kelley and W. H. Locke, Boston, Mass.
114,303.—GRINDER.—F. J. Kimball, Philadelphia, Pa.
114,304.—DRYER.—F. J. Kimball, Philadelphia, Pa.
114,305.—WASHING MACHINE.—J. M. Kimball, Woodstock, Ill.
114,306.—CHURN.—J. J. Kimball, Naperville, Ill.
114,307.—WEFT FORK.—J. H. Knowles, Lawrence, Mass.
114,308.—STALK CUTTER.—M. K. Lewis, J. Munger, Malcom Iowa.
114,309.—WINDMILL.—G. Mahie and T. C. Little, Dixon, Ill.
114,310.—BELT SHIPPER.—H. Macon, Providence, R. I.
114,311.—CUTTING METAL.—J. R. Maitland, Little Rock, Ark.
114,312.—COAL BOX.—John Mallin, Chicago, Ill.
114,313.—THRASHING MACHINE.—M. H. Mansfield, Ashland, ●
114,314.—BIT STOCK.—Charles Manson, Boston, Mass.
114,315.—CORPSE PRESERVER.—M. R. Margerum, Trenton, N. J.
114,316.—CARBURETER.—L. Marks, San Francisco, Cal.
114,317.—LUBRICATOR.—C. Mather, Steubenville, Ohio.
114,318.—HAME.—Asa McCracken, South Byron, N. C.
114,319.—EXTENSION TABLE.—F. Menzer, Flint, Mich.
114,321.—BARREL MACHINE.—Wm. R. and E. Middleton, Cleveland, Ohio.
114,322.—SHINGLE MACHINE.—U. D. Mihills, Fond Du Lac, Wis.
114,323.—MATCH SAFE.—J. Musgrove, Newark, N. J.
114,324.—HUB CAP.—G. H. Nevins, Liverpool, Cal.
114,325.—ROOFING.—E. P. Newton, Clintonville, Pa.
114,326.—MILLSTONE GUIDE.—J. North, New York city.
114,327.—HAT.—J. Northrop and J. F. Emmons, Bridgeport, Ct.
114,328.—LIFTING LOCOMOTIVES.—G. T. Nutter, Jersey City N. J.
114,329.—GAS BURNERS.—R. Nutting, Randolph, Vt.
114,330.—COFFEE ROASTER.—A. Obst, Cambridgeport, Mass.
114,331.—CORN SHELLER.—C. M. O'Hara, Cincinnati, Ohio.
114,332.—NEEDLES.—C. H. Palmer, New York city.