

COMBINED WASHING, WRINGING AND CHURNING MACHINE.—Andrew J. Mapes, Independence, Mo.—This invention has for its object to furnish an improved machine by means of which clothes may be quickly and thoroughly washed and wrung, and by means of which churning may be easily, conveniently and quickly accomplished.

GLAZIER'S DIAMOND.—Phillip Sinz, Baltimore, Md.—This invention consists in pivoting the breaker to the handle and swiveling the diamond block to the breaker so that the breaker and block may be closed upon one end of the handle at the same time thus enabling the instrument to be conveniently carried in the pocket.

TICKET FASTENER.—Samuel B. Fay, Franklin, Pa.—This invention consists in the use of a loop made of wire for the purpose of holding tags or tickets to fine fabrics to supply the place of pins which have heretofore been used for that purpose which injures the fabrics to a greater or less extent by being perforated.

CULTIVATOR.—Oliver Etnier, Mount Union, Pa.—This invention relates to an improvement in cultivators and harrows and consists in attaching an adjustable guide blade or rudder to the rear end of the center beam for steering or controlling the movement of the cultivator so that it shall run straight on hillsides.

LANTERN.—William Porter, Sen., and Wm. Porter, Jr., New York City.—This invention consists in arranging an upright flange around and on top of the base of the lantern. A hook-shaped extension of one of the guard wires is passed through a hole in the flange; the opposite guard wire has an eye or ring-shaped prolongation which also passes through a hole in the upright flange. A hook or catch arranged on the underside of the covering plate of the base engages the ring or eye and thus holds the guard securely to the base and consequently also the globe and cap of the lantern; by simply detaching the catch from the eye the upper portion may be removed from the base of the lantern.

ORE WASHER.—John Wicks, Greenland, Mich. The nature of this invention consists in the combination of an ore separator with a slime pit and the form of the separator and its connection with its slime pit. It also consists in the combination of a walking beam and connecting rod with a hutch, and also in the combination of huddles with slime pits.

DRAW BAR FOR LOCOMOTIVES AND CARS.—Daniel C. Cannell, La Fayette, Ind.—This invention has for its object the constructing and arranging of a link and draw bar in such a manner that a sufficient degree of vertical adjustment will be allowed the link to admit of its being adapted to car platforms of different lengths thereby preventing the breaking of bumpers, a contingency of frequent occurrence with the ordinary draw bars.

COMBINED RANGE AND AIR-HEATING FURNACE.—William H. Armstrong, New Brunswick, N. J.—This invention consists in arranging an upright range in a fireplace in such a manner that the former may perform its legitimate functions of cooking, baking, etc., and at the same time made to perform the function of an air heater or furnace and also as a water heater. The object of the invention is to combine a range and air-heating furnace at a cost not materially exceeding that of the range alone, and economize in fuel by utilizing all the heat radiated from the range.

QUARTZ CRUSHER.—Robert Bailey, Idaho City, Idaho.—This invention consists in constructing a rotary battery for crushing gold and other ores for the extraction of the metals they may contain by amalgamation with quicksilver, the object of which is to combine the principle of action of the ordinary stamp battery for breaking or crushing the rock by a blow, with that of the Mexican muller which reduces it to a fine powder by friction or rubbing.

SHOEING HORSES.—Pierre Charlier, Paris, France.—This invention relates to a new and improved method of applying the shoes to the hoofs of horses and other animals, the hoof being provided with a recess extending around its edge of such a depth and width as to allow the shoe to drop in flush with the sole of said hoof in such a manner that the animal is enabled to walk on its own sole with much more steadiness and safety than it can on the shoes as generally applied, and at the same time the shoes applied according to this new method form a perfect protection to the hoof.

OILING DEVICE FOR JOURNAL BOXES.—G. M. Morris, Cohoes, N. Y.—This invention has for its object to furnish an improved device for oiling journals which shall be simple in construction, effective in operation and easily removed and replaced when worn.

VENTILATING SMOKE STACK.—Joseph A. Miller, New York City.—This invention consists in providing the top of a smoke stack with conical channels, which form sharp corners at their inner lower edges, and expand outward in such a manner that by said channels the wind is caught from whatever quarter it may blow, and caused to create a powerful current up through the smoke stack, whereby the draught of the same is materially increased. If the smoke stack stands on low ground, or is exposed to downward currents of wind, it will be provided with a cap in addition to the conical sharp-cornered contracting channels.

STREET PAVEMENT.—Geo. W. Grader and Matthias H. Baldwin, Memphis, Tenn.—This invention consists in the use of a cast-iron framework, which is arranged so as to form a number of square or polygonal cells, in which wooden blocks are arranged; these blocks project above the iron framework, so that the latter does not come into direct contact with the hoofs and wheels, and is consequently not so easily worn. The wood when worn can be easily removed and replaced by new blocks.

BALANCE VALVE.—George H. Myers, Philadelphia, Pa.—This invention relates to a slide valve, which is provided on its back with a cavity to receive suitable springs and packing pieces, together with a top plate, which is faced off so that it works steam-tight against the inner surface of the valve chest cover, and the valve is relieved from the pressure of the steam on its back. Through the top plate of the valve, and the packing pieces extends a pin which has its bearing in a socket in the body of the valve, and which is secured to a slide, which takes the place of the valve rod and moves in suitable guides on the top of the valve chest, in such a manner that no stuffing box is required, and the valve can be operated with the least possible friction.

ROTARY ENGINE.—Spencer H. Brown, M. D., New York City.—This invention relates to a rotary engine, the piston wheel of which is composed of a thin disk, which works steam-tight between two annular rims projecting from the inner surfaces of the cylinder heads, and which is provided with one or more pistons, the ends of which are faced off to work steam-tight against the inner surfaces of the cylinder heads, while their top and bottom edges are so shaped that they work steam-tight against the inner circumference of the cylinder and against the peripheries of the annular rims, the whole being so constructed that the weight of the piston wheel is reduced as much as possible without reducing the effective area of the pistons, and furthermore, by using ground joints all packing is rendered superfluous and the friction is reduced to the lowest possible point.

RAILWAY SWITCH.—James McLaughlin, Duncannon, Pa.—This invention relates to an improvement in railway switches, and has for its object the dispensing with the frogs now used in switches, and which are the fruitful source of accidents. The invention consists in the application of a supplemental rail, whereby the switch is rendered perfectly safe and reliable. The invention also consists in an improved means for operating the switch, whereby the same is prevented from casually moving.

METALLIC BOBBIN.—Charles T. Smith, Utica, N. Y.—This invention relates to a useful improvement in the construction of metallic bobbins, patented by this inventor October 16, 1866. The present invention consists in the means employed for securing the wooden heads or flanges on the metallic tubes.

LINING FOR CARPETS.—William Fuzzard, Chelsea, Mass.—Carpets when laid upon a naked floor soon become worn and materially disfigured on account of a lack of elasticity, and to obviate this difficulty linings of various kinds have been employed. The original lining consisted simply of straw spread evenly over the floor, and old newspapers have been used for the purpose, but more recently factitious linings have been devised, the one in most general use, and now extensively manufactured, consisting of "shoddy" batting interposed between paper sheets. This lining greatly protects the carpet, preventing abrasion and wear, but it is objectionable on account of furnishing a harbor for moths, and not permitting the dust to pass through it. This invention is designed to obviate these difficulties, and at the same time retain the advantage of elasticity pertaining to the present lining in use.

PONTOON BOAT.—John Hegeman, Vischer's Ferry, N. Y.—This invention has for its object to furnish an improved pontoon boat, which can be built very light, and which will, at the same time, be very strong, and which can be folded into the smallest and most compact compass for transportation, without injury to the strength of the boat.

GAME REGISTER.—John Enright, Louisville, Ky.—This invention has for its object to furnish an improved instrument, by means of which the number of points made and the number of games played may be accurately and conveniently registered.

SHAPING SHEET METAL.—Morris Wells, Williamsburg, N. Y.—This invention relates to a machine for shaping sheet metal, in which the die, together with the bed supporting the same, are raised against the clamp and plunger, the clamp being secured to a cross plate, which bears against an adjustable spring, whereby it is rendered yielding, and the plunger being secured to a cross head, to which a rising and falling motion is imparted by a crank in the same shaft, which also carries the cams or eccentrics which serve to impart the required motion to the die and bed supporting the same. The clamp being secured to a yielding plate, is capable of accommodating itself to blanks of unequal thickness.

COMBINATION TOOL.—John Lyle, Newark, N. J.—This invention consists in a tool provided with a V-shaped jaw, which forms the bearings for the fulcrum pins of two movable jaws, which in combination with the ends of the V-shaped jaw form two tools of a different nature, such as pliers on one, and a punch on the other side, or a punch on one, and an eyelet fastener on the opposite side, and a tool is thus obtained which is cheap and of great convenience. A suitable stop which passes through holes in the V-shaped jaw and in the movable jaw, serves to throw either of said movable jaws out of work.

STEAM PUMP.—James Edward Thorp, Erie, Pa.—This invention consists in operating directly on the water by pistons or plungers with the ordinary valves.

CORN PLANTER.—John Clarridge, Pancoastburgh, Ohio.—This invention has for its object to furnish an improved corn planter, by means of which the corn may be dropped promptly and accurately, and covered properly; and which may adjust itself to the unevenness of the ground over which it passes.

SPRING SHADE ROLLER.—Stewart Hartshorn, New York City.—This invention relates to an improvement in spring shade rollers, those which have a spiral spring connected or applied to them in such a manner as to roll up the shade and thereby dispense with the cord and pulley originally used for that purpose.

MILL FOR ROLLING CLEAVISES AND SHARES FOR PLOWS.—Felix Murray, Pittsburgh, Pa.—This invention relates to a rolling mill for rolling cleavises and shares for plows, whereby said articles may be manufactured very expeditiously and at a moderate cost.

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 50 cents a line, under the head of "Business and Personal."

J. H. S., of Pa., asks:—"What is the best and most practical method of hardening cast iron, steel, and wrought iron?" As our correspondent appears to be a practical man we do not think we can assist him, but the best method of hardening steel we know, is heating and plunging, in water, and of cast iron to cast it in chills, or, like wrought iron, to heat and saturate with prussiate of potash and cool in water, or by the ordinary process of case hardening by packing in an iron box with ground bones and leather scraps.

B. H., of Ky., in reply to J. E. of Pa., in our issue of April 15th, says a piece of grindstone makes a good float for a steam boiler but that a cast iron float is better than either stone or copper.

J. M., of Ill.—The varnish usually employed for maps, lithographs, etc., is a solution of gum mastic in alcohol.

P. J. S., of Ohio asks how he can secure the eccentric of his engine without keying. The set screws do not hold it. Probably the valve works too hard, but replace your ordinary set screws by cast steel ones, the ends of which drill slightly and turn the outside bevelling until you make a concentric edge around the hole; then harden the end or point and draw to a dark straw. The bevel should not be over 45°. This annular edge will cut a ring on the shaft and seat itself firmly.

H. C. V., of Texas, desires to know how to color his meerschau. He has smoked it eight months and only partially succeeded. We know of no better way than to "light it out on that line." The pipe is probably not a meerschau.

J. C. L., of Pa.—If you wish to construct an underground cistern it may be done in a hard dry soil by plastering with hydraulic cement—one-third cement and two-thirds clean sand—directly upon the earth. In this case the bottom must be much smaller than the top, so that the sloping sides will retain the plaster in place until dry. If built of bricks the cistern may take any other form. In a valuable treatise called "The House," published by G. E. and F. W. Woodward, 37 Park Row, New York city, you will find full particulars on this subject.

A. F., of Pa.—Sulphurous acid is much used for fumigation, due regard being had of the precautions, mentioned on page 187 Vol. XV. You need have no fear in using it in an empty house. All sensible traces of the gas are promptly removed by ventilation. There is no difficulty in burning sulphur. Sulphur takes fire at a low temperature and burns very persistently; it burns in an atmosphere when ordinary fire would be smothered.

J. H. W., of Wis.—A patent covers and includes all the exact equivalents of the invention. But the question whether a legal equivalence exists is often doubtful, and is only to be decided in the courts.

C. R. of Mich.—A few drops of bi-sulphide of carbon mixed in the plating solution will cause silver to be deposited bright. The process is however not much used, for a better surface is given by the ordinary burnishing.

W. B., of Ala.—The sample you send is mica, often called isinglass. It is a valuable mineral and we recommend you to secure it.

W. K., of Tenn.—The solution of chloride of gold in ether is sometimes used for gilding on steel. If you add to it just before using a small quantity of oil of cloves or cassia the gold will be deposited on glass.

D. C. H., of N. Y.—The virtue of copying ink consists in its non-drying property. This property may be given to any ordinary ink by the addition of sugar. Lately, however, glycerin has been substituted for sugar, and is decidedly to be preferred. The quantity of glycerin needed may be easily determined by trial.

J. N., of Pa.—To make soldering fluid get 1 pound of muriatic acid and put into it ½ lb. of zinc in small lumps. As soon as the bubbling ceases, the acid has dissolved all the zinc it can, and the fluid is ready for use. Some think it advantageous to add an ounce of sal-ammoniac to each pound of the fluid.

J. W. B., of Ill.—No useful solvent of vulcanized rubber is known, and there is no good cement by which broken or torn vulcanized rubber goods can be mended. These two things are much desired, and any one who finds them will be handsomely rewarded.

F. B., of Mass.—The acids used for pickling and coloring brass and other alloy castings, are sulphuric, nitric and hydro-chloric. These are used in mixture of various proportions.

W. A. Moore, of Pa.—The most durable varnish contains linseed oil, and is the only sort which will bear much handling or rubbing. One of the best spirit varnishes is four parts shellac and one part sandarach dissolved in alcohol.

V. L. C., of Miss.—"We are running an engine from a cistern and wish to know the cheapest method of condensing steam." The meaning of this question is not clear.

F. P. M., of Tenn.—The brilliancy of shellac varnish is increased by adding sandarach. The final polish of spirit varnish is often given by rubbing it with a rag which has on it a little raw linseed oil.

O. C. M., of Pa.—Plaster of Paris is used to make the molds for soft rubber which is to be vulcanized.

Business and Personal.

The charge for insertion under this head is 50 cents a line.

W. G. Burgin, Carthage, Mo. wishes to purchase machinery for manufacturing straw paper. Manufacturers and patentees will please send circulars and address as above.

I. F. Beach, of Bastrop, Bastrop county, Texas, wishes to correspond with makers or dealers in machinery for the manufacture of tubs, buckets, and churns from red cedar.

Manufacturers and dealers in aluminum please send their address to Wm. Hoeden, Box 1,444, Philadelphia, Pa.

Manufacturers of pottery or stone ware please send their address to Dr. W. W. Smith, Montrose, Susquehanna county, Pa.

Wanted to purchase the best lathe for turning taper pen-handles. Address W. A. Morse & Co., Philadelphia, Pa.

NEW PUBLICATIONS.

WEIGHTS AND MEASURES ACCORDING TO THE DECIMAL SYSTEM; with Tables of Conversion for Commercial and Scientific Uses. By B. F. Craig, M.D. New York: D. Van Nostrand, 192 Broadway, New York.

An excellent little treatise on the decimal system of weights and measures now legalized in this country by act of Congress, containing tables, simple in arrangement and easily understood, for reducing common measures to the new system. The reading matter is so plain and logical as to enable any one of ordinary capacity to understand the principles of the decimal system and familiarize himself with its details. The volume is of a convenient pocket size and will prove a valuable manual to the masses as well as to the scientific man.

WOODWARD'S RECORD OF HORTICULTURE FOR 1866, edited by Andrew S. Fuller. New York: Geo. E. and F. W. Woodward, 37 Park Row.

This is the first of a yearly series of books giving the actual state of horticulture, the additions to the list of fruits and flowers, the improved methods of cultivation, etc. It contains a list of treatises on the subject, which will be found not the least valuable portion of the volume, as it is not a mere catalogue, but a series of descriptions. Methods of propagation, cultivation, and management of our small fruits, ornamental plants, and flowers, with useful hints in gardening, laying out walks, etc., illustrated by engravings, make this a welcome treatise to all who desire to make home surroundings useful and beautiful.

EXTENSION NOTICES.

Thomas D. Burrall, Geneva, N. Y., having petitioned for a patent granted to him the 6th day of Dec. 1845, extended for seven years the 6th day of Dec. 1853, renewed the 10th day of Oct. 1865, for an improvement in Corn Shellers, for seven years from the expiration of said patent, which takes place on the 6th day of December, 1867. This second extension having been authorized by act of Congress, it is ordered that the said petition be heard at the Patent Office on Monday the 2d day of September next.

Richard Montgomery, of New York City, having petitioned for the extension of a patent granted to him the 12th day of July, 1853, for an improvement in sheet metal beams, for seven years from the expiration of said patent, which takes place on the 12th day of July, 1867, it is ordered that the said petition be heard at the Patent Office on Monday, the 24th day of June next.

Simon M. Elder, administrator of the estate of John A. Elder, deceased, of Portland, Me., having petitioned for the extension of a patent granted to the said John A. Elder the 26th day of July, 1853, for an improvement in curving the backs of books for seven years from the expiration of said patent, which takes place on the 26th day of July, 1867, it is ordered that the said petition be heard at the Patent Office on Monday the 8th day of July next.

George T. Parry, of Philadelphia, Pa., having petitioned for the extension of a patent granted to him the 2d day of August, 1853, for an improvement in anti-friction boxes, for seven years from the expiration of said patent, which takes place on the 2d day of August, 1867, it is ordered that the said petition be heard at the Patent Office on Monday the 15th day of July next.

Samuel Darling, of Bangor, Me., having petitioned for the extension of a patent granted to him the 30th day of August, 1853, for an improvement in apparatus for grinding and shaping metals, for seven years from the expiration of said patent, which takes place on the 30th day of August, it is ordered that the said petition be heard at the Patent Office on Monday the 12th day of August next.

William Butterfield, of Boston, Mass., having petitioned for the extension of a patent granted to him the 4th day of July, 1851, for an improvement in sewing machines, for seven years from the expiration of said patent, which takes place on the 24th day of November, 1867, it is ordered that the said petition be heard at the Patent Office on Monday, the 2nd day of September next.

Nathaniel Gear, of Marietta, Ohio, having petitioned for the extension of a patent granted to him the 8th day of November, 1853, for an improvement in machine for turning or cutting irregular forms, for seven years from the expiration of said patent, which takes place on the 8th day of November, 1867, it is ordered that the said petition be heard at the Patent Office on Monday the 30th day of September next.

Inventions Patented in England by Americans.

[Condensed from the "Journal of the Commissioners of Patents."]

PROVISIONAL PROTECTION FOR SIX MONTHS.

- 3,163.—**PTEROTYPE OR MACHINE FOR WRITING WITH TYPE.**—John Pratt, Greenville, Ala. December, 1866.
- 538.—**COVERING OR CUSHION FOR HORSES' FEET.**—Samuel Adlam, Jr., Charlestown, Mass. Feb. 27, 1867.
- 549.—**RAILWAYS AND MEANS OF PROPULSION USED THEREON.**—Joseph A. A. Fontaine, New York City. Feb. 27, 1867.
- 643.—**SAFETY VALVES FOR STEAM BOILERS OR GENERATORS.**—George W. Richardson, Troy, N. Y. March 7, 1867.
- 675.—**BRIDLES AND REINS CONNECTED THEREWITH.**—Samuel B. Hartman, Millersville, Pa. March 9, 1867.
- 838.—**MACHINERY FOR MANUFACTURING FLOUR.**—John Brown and Alexander Hart, Utica, N. Y., and Allen B. Ralph, James H. Cutler, and Dexter N. Knight, Providence, R. I. March 22, 1867.
- 740.—**BOXES FOR CONTAINING, PRESERVING, AND TRANSPORTING BUTTER AND CHEESE.**—Wm. B. Guernsey, Norwich, N. Y. March 14, 1867.
- 742.—**CRAMPING AND LIFTING APPARATUS.**—Henry H. Baragwarath, New York City. March 14, 1867.
- 751.—**BALE TIE OR FASTENING.**—Osborne MacDaniel, New York City. March 15, 1867.
- 753.—**ROTARY ENGINE AND PUMP.**—Dexter D. Hardy, Covington, Ky. March 15, 1867.
- 760.—**BELT HOOK OR FASTENER FOR PIERCING DRIVING AND OTHER BELTS OR BANDS.**—Frederick G. Wilson, Lowell, Mass. March 16, 1867.
- 761.—**BREECH-LOADING FIRE-ARM.**—Benj. S. Roberts, Maj. Gen. U. S. Army. March 16, 1867.
- 766.—**BREECH-LOADING FIRE-ARM.**—Silas Crispin, New York City. March 16, 1867.
- 792.—**SEWING MACHING.**—James S. McCurdy, Brooklyn, N. Y. March 19, 1867.