

## NEW BOOKS AND PUBLICATIONS.

**THE CITY OF HOLYOKE, its Water Power, and its Industries.** Holyoke, Mass.: Holyoke Manufacturers' Association.

We have received a superbly printed and copiously illustrated sheet bearing the above title, and designed to exhibit the industrial advantages offered by the water power system of Holyoke, Mass. By means of a gigantic dam, constructed at the rapids of the Connecticut river, a total power equal to 80,000 horse power is rendered available, and fractional portions of this are sold with mill sites. Those of our readers who may desire detailed information regarding this exceptionally favored locality would do well to send to the Holyoke Manufacturers' Association for a copy of the above named paper. The illustrations are admirably executed, and give an excellent idea of the extent of the city and its industries.

**THE INVENTION OF PRINTING.** By T. L. De Vinne. New York city: Francis Hart & Co., 12 College Place.

We have already reviewed the scope of this book in some detail, and need only here state that the portions as they appear fully bear out the promises of excellence made in the beginning. Paper and printing are alike admirable, the illustrations are selected from ancient sources with great discrimination, and the entire contents of the volume thus far published bear the marks of deep research into, and a thorough knowledge of, its fascinating subject. The book is one not merely valuable to the craft, but deserves a prominent place in the library of every student of the world's progress.

## Recent American and Foreign Patents.

## NEW MECHANICAL AND ENGINEERING INVENTIONS.

## IMPROVED SCREW PROPELLER.

Joseph G. Hill, Newark, N. J.—This is a contrivance for constructing the hub in sections, so as to attach blades of rolled plate; and it also consists of a propeller blade in half or a lesser portion of a circle, and shaped in a true flat plane, instead of the spiral shape heretofore employed, whereby it is believed that better results can be obtained than from the spiral form.

## IMPROVED TURBINE WATER WHEEL.

Edward Derby, Ridgway, Pa.—The object here is to utilize the entire force of the water, and at the same time balance the thrust upon the shaft, and thus diminish friction. Two direct action wheels and a central reaction wheel are combined with the shaft and case, and the case is suitably constructed to adapt it for use with the triple wheel.

## IMPROVED LABELING MACHINE.

George H. Burrows, Boston, Mass.—This relates to apparatus for labeling packages; and it consists of a combination of levers, worked by suitable gearing, and paste rollers and paste troughs, in such a way that, by moving a hand lever, the rollers charged with paste are thrown out of the paste troughs on the ends of the label and back again into the troughs. It also consists of a platform carrying the labels, which is counterbalanced by a weight in such a way that the pile of labels placed on the platform is always held by the counterbalance against a retaining lip, so that the upper label in the pile is always at a given point. It further consists of a guard thrown over the free end of the label by the action of one of the paste rollers.

## IMPROVED BRAKES FOR FIRE TRUCKS AND WAGONS.

Minford S. Clark, Brooklyn, N. Y.—The first invention is an improved brake for fire trucks, that is worked by the attendant at the steering wheel. The mechanism swings in supporting arms of the fifth or steering wheel at the hind part of the truck, and is operated by intermediate crank shafts and rods, by a fulcrumed treadle from the seat of the attendant. The motion-transmitting crank shafts are swung in bearings of the fifth wheel and of the truck frame, and connected by a swivel chain. In the second invention, a forked and spring-acted lever is worked by swivel chain, crank lever connection, and treadle, from the driver's seat, to engage the tongue and prevent its backward motion when it is desired to back the vehicle.

## IMPROVED PUMP.

William H. Pollard, Seneca Falls, N. Y., assignor to Gould Manufacturing Company, of same place.—The object is to provide for vessels a pump which is attached to a stationary suction pipe, extending down to the bottom of the hold of the vessel, so as to be used as a bilge pump, for removing any water which may collect in the bilges from leaks or any other cause. By means of some small changes the pump may also be used as a force pump. The invention consists, first, of the construction of the cylinder heads and supports in one piece, so as to raise the lower part of the pump, to admit the ready dropping of the bed plate for getting at the lower valves; secondly, of the combination with the suction opening of a T joint, that may be connected to the stationary suction pipe, or to a detachable sleeve to connect with an overboard suction pipe; and, lastly, of the combination of the discharge opening, with an attachment to which a hose may be applied, for using the pump as a hand fire engine.

## IMPROVED DIAMOND MILLSTONE-DRESSING MACHINE.

Aaron C. Fry, Keedysville, Md.—In this invention the diamond tool is set in a vertical holder, attached to a carriage sliding longitudinally in a vertically adjustable main frame. The tool is raised and lowered by a vertical screw, commanded by a gear wheel sliding lever and spring pawl, with an adjustable gage attached to regulate their operation. The tool is adjusted laterally by means of a transverse screw, acting upon the tool holder, to which screw motion is communicated by gearing, driven by a vibrating lever having a reversible detent attached, and which, as the carriage slides back, strikes and slips over an adjustable bar fixed to the rear of the main frame; thus, by means of the gearing and transverse screw moving the tool laterally, more or less, according to the adjustment of the bar fixed to the main frame.

## IMPROVED STEAM HAMMER.

William Walker, Manchester, England.—This invention consists in connecting the trip of the hammer and the spindle by a series of levers, links, and connecting rods, whereby the steam and exhaust parts may be opened and closed automatically. A dropping lever, immediately connected with the trip of the hammer, serves by its unchecked momentum (which is communicated to the valve spindle) to open the lower steam port immediately after the blow of the hammer is delivered, thus securing a dead blow, while a small projection on the trip of the hammer serves to open gradually the upper steam port as the hammer ascends.

## IMPROVED CAR COUPLING.

Robert K. Welch, Philadelphia, Pa.—The end of the drawhead is made of U shape, the outermost ends being provided with inwardly projecting hooks that interlock with spring-acted coupling hooks at the end of the adjoining car. The spring hooks are fulcrumed to a casing bolted to the car frame, and forced to be outside by a spiral spring. The rear ends of the spring hooks are acted upon by an inverted cone that is keyed to a screw spindle, so as to force, when turned down by a suitable key, the rear ends of the spring hooks to the outside, and cause the front ends to approach each other until they release the interlocking hooks of the draw-

head. By turning the spindle and cone back, the spring hooks assume their former position, ready to couple automatically with the drawhead when the cars approach each other.

## IMPROVED SUCKER ROD EXTRACTOR.

George M. Sheffer, Emlenton, Pa.—This is an improved device for extracting sucker rods from bore holes of wells, etc.; and it consists of a spring, with toothed jaws that slide in the socket part of the extractor and bite the rod when properly applied, so as to raise the same.

## IMPROVED GRATE BAR.

Lucien H. Allen and William Barton, Tamaqua, Pa.—This consists of a grate bar made of a longitudinal bearing bar and curved crossbars or ribs at both sides, which extend from the upper part of the bearing bar. The cross bars at one side alternate in breaking joints with those at the other sides.

## NEW WOODWORKING AND HOUSE AND CARRIAGE BUILDING INVENTIONS.

## IMPROVED CHILDREN'S CARRIAGE.

Charles W. Carter, Terre Haute, Ind., and Everett E. Fox, Isle St. George, Ohio, said Carter assignor to said Fox.—This carriage is so constructed that the wheels may be turned down into a horizontal position to adapt it for use as a crib. It may also be adjusted to have greater or less elasticity.

## IMPROVED CHIMNEY.

George F. Knight, Carroll, Ohio.—This invention relates to certain improvements in chimneys, designed for the better ventilation of the rooms, and the rendering of the same fireproof by providing for the easy removal of soot, and arresting the issue of sparks. It belongs to that class of chimneys which have an inner and an outer flue; and it consists in combining with the same a deflector of peculiar construction, which diverts the soot from the inner smoke flue to the outer flue, down which it falls into a removable pan at the bottom, a cage of perforated sheet metal being arranged at the top to operate as an additional security against the issue of sparks.

## IMPROVED SLEEPING CAR.

Gustave Leve, Montreal, Quebec, Canada.—This invention consists in the frames, divided into two compartments by a central partition, and hinged to the side walls of a car in such a way that they may be swung in against said walls, or swung out at right angles with them. The berths may be placed in a vertical position within said frames, or turned down into a horizontal position between two adjacent frames. In the car floor are recesses at right angles with the side walls, to receive the lower ends of the hinged frames when said frames are swung outward.

## IMPROVED DRAFT ATTACHMENT.

Justus P. Luther, Harrison D. Chemberlin, and Nelson De Groff, Berlin, Wis.—This device is intended to equalize the draft and steer the wagon, so as to do away with the movement of the tongue when one wheel strikes a stone. This is obtained by the leverage secured through the difference in distance from draft bolt to arms, and arms to slot. The forward end of the drawbar, being loose, is drawn toward the obstructed wheel, and the bar is caused to slide on a pin, thereby loosening the chain on the opposite side from the wheel obstructed, and giving a quartering draft to the team. This throws the direct draft of both horses upon the wheel obstructed, and lifts it over the obstruction.

## IMPROVED CAR WHEEL.

Louis Le May, Hudson, N. Y.—This is an improved construction of feathered car wheels; and it consists in a car wheel in which the tire is connected to the hub, and supported by a radial spring web on the hub and tire. The hub is made of a flanged section and a removable ring section, secured by connecting bolts. This is claimed to afford a wheel of considerable strength and rigidity, but of sufficient elasticity.

## NEW HOUSEHOLD INVENTIONS.

## IMPROVED WASHING MACHINE.

Chester Allen, Corinth, N. Y.—In using the machine, a cylinder is rolled back and forth upon the clothes spread upon a bed rack, the water is pushed before it, flows through the holes in the end boards, passes down into the channel below the bed rack, and rises through the spaces between the cross bars before and behind the cylinder. The clothes are thus lifted from the rack, and moved so that they will be operated upon each time in a different place.

## IMPROVED SADRON HEATER.

Preston H. Sessoms and Josiah Mizell, Coleraine, N. C.—This invention consists in attaching a sadron receptacle to the top of a combustion chamber, with its rear end formed into a flue. The combustion chamber rests upon a frame which stands over and around a lamp or other suitable heating apparatus, both frame and enclosed lamp being supported by a base plate.

## IMPROVED DOOR CHECK.

James Peirce, Nora, Ill.—This consists in a spring latch attached to the base board or wall, combined with a catch and buffer that is attached to the door, so arranged that it may act as a latch and buffer combined, or as a latch alone.

## IMPROVED SADRON HEATER.

William H. Haylock, Jonesville, assignor to himself and Charles S. Pierson, Sandy Hill, N. Y.—This invention consists in combining in a sadron heater a lamp, having diametrically opposite pins, with a ring of the leg frame. There is also a burner, provided with a partition, so that each flame will have its own separate draft or current of air.

## IMPROVED FOLDING CHAIR.

Thomas M. Wyatt, Russellville, Ark.—This is an improved folding chair, designed especially for dentists. To fold the chair, the back is turned down upon the seat, the seat is closed up, the front legs are turned back between the back legs and turned up against the back, and the back legs are turned up in front, folding the chair very compactly. There is a new lateral and vertical adjustment of the head rest. A greater variety of position is obtained through the rest bar adjusting almost automatically at any desired angle.

## IMPROVED GRIDIRON.

George Cornwall, Garden City, N. Y.—This consists of a close corrugated plate for supporting the meat on the upper angles of the corrugations. To this plate are applied flanges extending down from the sides and back to rest on the stove top. The space under the plate has a trough for receiving the gravy. The close plate protects the meat from the flame and smoke, and cooks the meat better by checking the intensity of the heat.

## IMPROVED CLOTHES PIN.

Uriah D. Mihills, Fond Du Lac, Wis.—This consists of a clothes pin with a notched wooden cross key secured to the head of the pin. The key serves as a handle for the pin, and allows it to be brought close to the line, to prevent, by its rigid position thereon, the chafing of the clothes by the points. The projecting parts of the key also allow the pin to be more easily removed.

## IMPROVED PROTECTOR FOR CHANDELIERS.

Frank J. Symmes, San Francisco, Cal.—This is composed of mica plates and a metal contrivance for suspending the device. It is so contrived as to protect the gaseller from the heat, and from the deposit which collects upon metal deflectors.

## NEW MISCELLANEOUS INVENTIONS.

## IMPROVED CLASP.

Alva M. Butler, Constantine, Mich.—This is a clasp for fastening cigar boxes, etc. It is bent at right angles to fit upon the edge of a box, and has points formed upon its end parts, to enter the cover and side of said box.

## IMPROVED JOINT OF PIANO ACTION.

Frank Preston, Elgin, Ill.—This consists of a pivot pin for the hammer, pointed at each end and fitted in a bush having a conical seat and screwed into the bearings, in which it was held firmly by a clamp contrivance to prevent it from turning after being adjusted. The object is to provide a joint that cannot be affected by dampness.

## IMPROVED SURVEYING INSTRUMENT.

Matthew W. Venable, King's Mountain, Ky.—It is not possible to explain the construction of this instrument without drawings. It is, however, a surveyor's telescope, which may be used for setting slope stakes in a rapid manner on inclined, rough, or broken ground. It also may be used for finding the gradient between two given points, and by simple modifications may serve as a clinometer level. For railroad engineers, it appears to be a useful instrument.

## IMPROVED SPINNING TOP.

Andrew Kern, Utica, N. Y.—The invention consists of a tubular handle on the upper part of the spindle of the top, within which the string for spinning the top is attached to the spindle. The handle allows the top to be held in the hand, after it has been set running, to be set down in any required place.

## IMPROVED HAIR-PUFFING PIN.

Annis Hurd, Waterloo, Iowa.—This is a puffing pin with clasping spring legs and connecting spring coil, the sections of which are arranged slantingly to each other for passing a hair pin readily through either coil section.

## IMPROVED FLAG SIGNALING APPARATUS.

Rufus D. Couch and Jesse M. Lamb, Sharpville, Ind.—The object of this invention is to enable the telegraph operator to signal all approaching railway trains without leaving his office, by a signal flag, which is unwound from a spring roller by a cord, and arranged in a suitable frame in conspicuous position. On releasing the cord the spring roller acts to rewind the flag.

## NEW AGRICULTURAL INVENTIONS.

## ROTARY SPADER, STALK CUTTER, AND FIELD ROLLER.

Peter D. Pelsor and Henry C. Pelsor, Metamora, Ind.—In the face of a large roller are formed rows of slots of such a size that the spades may fit into them, so that all the dirt that may adhere to the said spades may be scraped off every time they are drawn inward. There are devices for removing the spades or cutters; also for preventing them from getting out of place while holding them back, thus adapting the machine to be used as a field roller and enabling it to be readily drawn from place to place.

## IMPROVED STUMP PULLER.

Chester C. Adams, Decatur, Mich.—By alternately driving a team of horses forward and backing them up, a succession of impulses is given to a shaft, winding the rope or chain around it and drawing the stump. The shaft is mounted in a frame and has a ratchet. The power is applied to a lever, on which is a pawl which engages with the ratchet.

## IMPROVED FERTILIZER DISTRIBUTER.

Pleasant P. Linder, Alexandria, Ala.—The novel feature in this implement is a block fitted to slide on the axle, in order to act in conjunction with a slide in regulating the discharge of manure in different states of comminution.

## IMPROVED PLOW.

Melvin P. Sparks, Spring Lake, Mich.—This plow embodies a new mechanical construction, which is claimed to lessen the friction against the bottom and landside of the furrow, to enable the plow to be more easily thrown out of the ground, and to work at any desired depth in or to run above the ground, and to be of lighter draft.

## IMPROVED GRAIN BAND.

John H. Swihart, Upshur, Ohio.—This is a simple and ingenious little device, consisting of a wire pointed about midway its length and attached to a small plate at one end. There is a hole in the plate to receive the other end of the wire when the band is being passed around the sheaf. When the binder is released, the pressure of the bundle upon the inner end of the plate brings the said plate into an inclined position with and causes it to bind upon the wire.

## IMPROVED REVOLVING GARDEN AND FIELD HOE.

David B. Sherman, Castleton, Vt.—Two side boards are connected by a board attached to their forward ends, and by a board attached to the upper edges of their rear ends. Between the side boards is pivoted a roller, to which are attached the shanks of a number of small hoes. The machine is propelled by handles attached to the side boards.

## IMPROVED HARROW.

Jesse G. Stokesbary and John H. Stokesbary, Millersburg, Iowa.—This harrow embodies five new mechanical devices, which enable it to be adjusted for use as a large or as a small harrow, to be cleared of rubbish without stopping the team, and to be used for any kind of harrowing, and upon any kind of ground.

## IMPROVED PLOW.

Swan N. Cedarland, Solomon Rapids, Kan.—The new feature is a flat plowshare having an angular front edge, and a cutter attached to the side thereof, the point or apex of said angle being nearer the cutter than the opposite side of the share. This tends to draw the plow into the ground.

## IMPROVED COMBINED CULTIVATOR AND HARROW.

John R. Dunlap, Sherman, Ill.—By suitable construction, this implement may be guided to follow the row, however crooked it may be, the resistance of the soil against the cutters being sufficient to draw the harrow after them. By bearing down upon the rear end of a lever, the forward end of the harrow is raised from the ground, allowing any rubbish that may be caught upon the harrow teeth and the plows to drop off. The plows may be relatively adjusted as desired.

## IMPROVED COMBINED PLANTER, CULTIVATOR, AND MARKER.

Joseph K. Kelly, Algonquin, Ill.—Four novel mechanical devices are here embodied, producing a machine that may be readily adjusted for use for marking off land for planting the seed, and for cultivating the plants. By an improved construction, the rubbers prevent the kernels from being injured by the movements of the dropping slides.