

NEW BOOKS AND PUBLICATIONS.

ON THE MECHANICAL TREATMENT OF DISEASE OF THE HIP JOINT. By Dr. Charles F. Taylor, Surgeon to the New York Orthopaedic Dispensary and Hospital, etc. Illustrated. New York: William Wood & Co.

In this work, the author describes a number of ingenious devices of his own invention having for their object the cure of disease of the hip. Dr. Taylor has become quite celebrated for his successful treatment of hip and spinal diseases by mechanical means. We may state that the appliances indicate considerable mechanical genius, and appear to be of a nature well adapted to alleviate the suffering incident to that common but very distressing malady. We notice that the apparatus of Dr. Taylor received the honor of a medal at the Vienna Exposition.

AN ELEMENTARY COURSE IN FREE HAND GEOMETRICAL DRAWING, for Schools, etc. With Chapters on Lettering and on Geometrical Symbolism. By S. Edward Warren, C. E., Professor in the Massachusetts Institute of Technology. Price 75 cents. New York: John Wiley & Son, 15 Astor Place.

This is a little book especially adapted for beginners, in which the lessons are arranged in such steady progression that the merest child can follow them, almost without aid from a teacher.

ILLUSTRATED CATALOGUE AND QUARTERLY FLORAL WORK. 25 cents per annum. Rochester, N. Y.: Briggs & Brother, Seedsmen.

This catalogue contains an amount of botanical information which is out of all proportion to the price asked for it.

ELEMENTS OF PHYSICAL MANIPULATION. By Edward C. Pickering, Thayer Professor of Physics in the Massachusetts Institute of Technology. New York: Hurd & Houghton. Cambridge: The Riverside Press.

The author of this book has given the world the results of a practical experience of the very highest order. The chapter on the graphical method of teaching physics (which, the author believes, has not attracted the attention it deserves) will interest every one who is concerned, either as teacher or pupil, in the great work on technical education.

ON THE ARRANGEMENT, CARE, AND OPERATION OF WOOD-WORKING FACTORIES AND MACHINERY, forming a Complete Operator's Handbook. By J. Richards, M. E., Author of "A Treatise on Wood-Working Machines." E. & E. N. Spon. New York: 446 Broome Street. London: 48 Charing Cross.

The author, of the firm of Richards, London & Kelley, of Philadelphia, Pa., is well known, by his mechanical productions and his previously published writings, to be a constructive engineer of the highest class; and the very numerous woodworkers of this country will find his new book to be full of sound, practical instruction on all branches of the trade, from designing a factory to the use of the simplest hand tool.

WORKSHOP RECEIPTS, for the Use of Manufacturers, Mechanics, and Scientific Amateurs. By Ernest Spon, L. & F. N. Spon. New York: 446 Broome Street. London: 48 Charing Cross.

This book contains an extensive collection of recipes and directions for manipulation in every branch of the industrial arts. The value of such a work is in its accuracy and trustworthiness; and a careful examination of this volume gives us a very high opinion of the manner in which it has been compiled.

THE THEORY AND PRACTICE OF LINEAR PERSPECTIVE, applied to Landscape, Interiors, and the Figure. Translated from the French of V. Pellegrin, formerly Professor of Topography at the Military School at St. Cyr, etc. New York: G. P. Putnam's Sons, Fourth Avenue and Twenty-third Street.

This concise and lucid treatise was selected, in 1870, by the French government for circulation in the public schools and libraries of France, a tribute to its merit which the work deserves, apart from the reputation of its distinguished author.

THE TANIÉ COMPANY of Stroudsburg, Pa., have recently issued a handsomely illustrated pamphlet, describing their excellent emery wheels, and, besides, containing a large amount of useful information regarding the proper employment of the same. The emery wheel has sprung into universal favor, and has proved itself a valuable addition to the resources of the shop.

Recent American and Foreign Patents.

Improved Metallic Roof.

Isaac S. Mettler, Jersey City, N. J.—This invention relates to the construction of roofs of buildings, and consists of channels or openings formed beneath the outer covering of the roof, by interposing a layer of corrugated tin, or other sheet metal, between such outer covering and an inner layer, said openings or channels being designed for the passage of currents of air from the eaves of the roof to the ridge or cornice. The channels or openings formed by the corrugations may be connected with a pipe for admitting and conducting steam for melting snow or ice from the roof in winter, if desired.

Machine for Forming the Hooks of Machine Needles. Nathan Paine, Milford, Mass.—The object of this invention is the improvement of machines for making the hooks of needles used in machines for sewing or stitching leather, also to improve the quality of the work. The prevailing fault of the machine made needles now in use is a too angular form of the inner side of the hook through which the thread passes, which impedes its passage and often chafes the thread and causes the breaking of the needle by the strain of the thread when obstructed by the edge of the hook. This machine obviates this defect by giving the needle a certain compound motion while the hook is being cut, by which the required curved form is secured instead of the angles.

Improved Screw Valve.

Phillip Corrigan, New York city.—This invention, a patent for which has also been obtained in England, has for its object to furnish an improved valve so constructed that the valve plug may be conveniently ground to its seat without detaching the valve from its connections. The invention consists in a nut made in sections and provided with lugs having screw threads cut upon their outer surfaces. With this construction, when the valve plug requires to be ground into its seat, the cap nut is screwed out and the valve stem screwed back as far as it will go. The valve stem is then pushed forward, carrying the sectional nut with it, which sections drop off. The cap nut is then screwed back into the screw hole of the body and serves as a guide for the valve stem, so that the plug can be readily ground into its seat. The cap nut is then removed and the sectional nut replaced and the valve is ready for use.

Improved Car Coupling.

Luman D. Bennett, Willimantic, Conn.—Upon the upper side of the drawhead is formed a flange, passing around the pin hole and extending to the cap to keep the end of the pin always in place upon the upper side of the coupling block, the stop in the lower end of the outer arm of the coupling pin being so arranged that the end of the shorter arm of said pin can never rise above the said flange. Upon the upper part of the shorter arm of the pin is formed a collar, which rests upon the flange when the coupling pin is in working position. In adjusting the pin for automatic coupling, the end of the pin is allowed to rest upon the block. As the link enters, it pushes back the block and the pin drops through the link. To uncouple the cars the pin is raised, and its lower end is placed upon the upper side of the drawhead; then, as the link enters the drawhead to couple the cars, the inward movement of the block causes the block to move outward, pushing the pin forward to the pin hole, through which it drops, coupling the cars.

Improved Butter Tub.

Andrew J. Drake, Middletown, N. Y.—This invention has for its object to improve the construction of the ears of that class of tubs known as return butter tubs in such a way as to enable them to hold the covers securely, and at the same time allow said covers to be readily and conveniently detached. The invention consists in securing the cover of a tub by means of two pairs of metal plates, so constructed as to prevent said cover being lifted off, while a screw is arranged to prevent a horizontal or sliding movement thereof.

Improved Stove Pipe Joint.

Jacob Weaver, Tipton, Iowa.—This is a revolving stove pipe, which may be adjusted or twisted to any desired position to be used without delay on putting up the stove, avoiding thereby the annoyance arising from badly fitting or imperfect joints. The stove pipe connection is composed of three sections having elliptical joints, on which they are adjustable.

Improvement in Securing Wheels to Axles.

Robert J. Lessor and John B. Shambo, Brandon, Vt.—The axle box, which is driven into the hub in the ordinary manner, is secured in place by a nut screwed into its outer end, and which overlaps the end of the hub. The inner end of the axle box projects beyond the inner end of the hub, and has a ring groove formed in its outer surface. A lever is pivoted to ears formed upon the axle or clip yoke. Upon the inner end of the lever is formed a lip or straight hook, which fits into the ring groove of the axle box. The lip of the lever is held in the groove of the axle box by a spring, which is secured to the axle by the yoke, and the free end of which presses against the outer end of the said lever as shown in the figure. By this construction the wheel will be held securely upon the axle and held in such a way that the said wheel may be easily and quickly detached when required for oiling the axle or other desired purpose.

Improved Fire Escape Ladder.

Walter W. Parsons, Stanstead, Canada.—This is a pair of suspending ropes, with cross bars at intervals, constituting a rope ladder. At the lower end of the ladder a hook is attached for fastening it. At the upper end the ropes are connected to a roller which is mounted in a frame so as to revolve, and has a crank for turning it by hand to wind the ladder on or off. The roller constitutes one of the bars of the ladder, and another roller of the frame constitutes another bar; and this roller has hooks, by which to attach the ladder to the building. The crank can be folded down in the roller compactly for storing the ladder. For securing the cross bars to the ropes cheaply, a hole is bored through them near each end, and a slot extends from the ends to said holes, so that the latter can be contracted a little to bind the rope so as to be held fast. Slightly conical ferrules are driven on the bars, which are slightly tapered from the holes to the ends so bind the bars upon the ropes, whereby the said bars will be firmly held in their places.

Apparatus for Cleaning Cesspools, Sinks, etc.

J. P. Flarmond Datchy, Brooklyn, N. Y.—The object of this invention is to empty and clean sinks, privies, cesspools, sewers, marshy lands, etc., in a perfectly odorless manner, so that the work can be done in the day time without the least discomfort and annoyance to the occupants of the dwellings, and without the use of separate machines by which the vacuum in the tank is created. The invention consists of a tank of suitable capacity, which is provided with double acting pneumatic pumps and all necessary appurtenances to insure the efficient working of all the parts. The tank is carried on a four wheeled truck of suitable strength, and the vacuum is created by the hind wheels working the air pumps by eccentrics, said action to be discontinued by the application of a regulating gear, which frees the piston from its shaft, according to a gage placed on a cupola connected with the tank, which assists also the perfect working of the machine. From the model which we have examined we should think this a very useful improvement over the ordinary machines used for emptying and cleansing cesspools and the like.

Improved Windmill.

Ovett B. Knapp, Brandon, Wis.—This invention is an improvement in the class of wheels with which a weight is so connected as to keep them turned in a direction at right angles, or nearly so, to the direction of the wind at any given time. A spiral wind wheel is mounted on the end of a horizontal shaft, which is mounted on the top of a turntable and gears with a vertical shaft through which power is communicated to the pump or other apparatus. The turntable is supported on and secured to a bevel gear which meshes with a pinion on the same horizontal shaft as the pulley. A belt connects the pulley with the axis, which is to be turned by a weight, for acting in conjunction with the vane, for controlling the wheel, the vane being attached to the turntable at one end of its arm, in the plane of the wheel or nearly so, so that its tendency is to turn the wheel out of the wind—that is, edgewise thereto—so as not to work, while the tendency of the weight is to turn it into the wind. This weight is connected with the axis by a rod engaging with the curved teeth of a disk. To start the wheel, the weight will be put on the disk at about the middle of its height, vertically, in case it is desired to obtain the full power. This will cause the wheel to turn about one fourth of a revolution into the wind, in case the latter is not so strong as to prevent the weight from turning it too much. If it is not desired to obtain the full power, the weight will not be placed quite so high.

Improved Revolving Fire Arm.

Benjamin K. Dorwart, Rockland, assignor to himself and Ira C. Winsor, Coventry, R. I.—The opening through the front end of the inclosing case, through which the cartridges are introduced, is closed by a cap which is held by a spring joint. The cartridges are, by the rotation of the chamber cylinder, carried in front of a pusher, which is in line with the bore of the barrel, the flanges being engaged by a catch. The pusher slides forward and pushes the cartridges out of the chambers into the barrel, to be exploded therein. It is moved forward by a slide. When the pusher withdraws from the chamber, it draws the expended shell into it, and the shell is retained in the cylinder until it comes around to the opening, when it is expelled through a passage by the next cartridge put in. The firing rod is arranged inside of the pusher, which is made hollow for the purpose, and has a spring to throw it back. By pulling the slide back and pushing it forward, the cartridge shell will be withdrawn from the barrel, the hammer will be cocked, the cylinder revolved, and another cartridge introduced into the barrel ready for firing.

Improved Brick Machine.

Peter K. Dederick, Albany, N. Y.—By a weight and the screw a tripping latch and bar are so adjusted that the requisite force for pushing out the mold boxes will be sustained without tripping, but any considerable increase, such as will be caused by the binding of the mold boxes by a stone or the like wedging in between them and the press box, will instantly cause the tripping of the latch, and thus save breaking the machinery. The device on the mixershaft, by which the clay can be at the same time worked along the mixed clay holder laterally and discharged, and still be of the same consistence throughout the length of the press box, consists in broad arms on the mixer shaft with their planes oblique to the axis of the shaft; arms with their planes parallel with the axis of the shaft; oblique vanes on the arms next to the screen; and discharging blades on the ends of the arms, the said blades being slightly spiral to the shaft, also tangential to a circle about two thirds of the size of the one described by the outer edges of the blades. The oblique or spiral inclinations of the arms, vanes, and blades are all, of course, in the direction required for working the clay across the mixed clay holder from the screen, while the shaft turns in the direction for pushing the mixed clay out through the throat. The lower part of the side of the case of the mill, whereon the press box is arranged, is constructed so as to incline inward as much as possible into the angle of the lower part of the case cut off by the circle described by the discharging blades, and construct the press box on the same inclination and attach it to the said part, and so considerably lessen the waste space through which the clay has to be pushed, and also lessen the mass of clay to be moved, and thereby economize power.

Improved Harvester Cutter.

William E. Shoales, Sherburne Four Corners, N. Y.—This invention pertains to the construction of the shanks of harvester cutters and their mode of attachment to the finger bar. By moving the bar until the end of the forward edge of the shanks comes opposite a notch, the shanks may be

raised and withdrawn. In this way any desired section may be detached and replaced without disturbing the others. By this construction, also, the cutters will operate with a shear cut, and the rear ends of the shanks being pivoted, the cutters will have a greater movement than the bar, so that the pitman crank may be made shorter than is necessary when the cutters are rigidly connected with the cutter bar.

Improved Railway Car Brake.

Wille D. Pope, Gadsden, Ala.—This invention has for its object to furnish an improved brake, which shall be so constructed that it may be instantaneously adjusted to give a greatly increased power. To the shaft, to which the brake chain is attached, is rigidly secured two gear wheels, one wheel being considerably larger than the other. There is another shaft placed with that just mentioned, and to which are attached two gear wheels of different diameters, and in such positions that when the second shaft is raised or lowered to bring one or the other of the wheels into gear, the other of said wheels will be free. A lever, which is swiveled to the shaft and pivoted to a ring bolt, is attached to the platform. The other end is held up by a spring strong enough to support the shaft and its attached wheels. To the upper end of the shaft is attached a hand wheel. By this construction, when it is necessary to apply the brake with increased power, the brakeman presses the free end of the lever down with his foot, which throws the one set of wheels out of, and the other set of wheels into, gear with each other, which gives a greatly increased leverage.

Improved Spring Bed Bottom.

Charles H. Dunks, New York city.—This invention consists in the combination, in a bed bottom, with longitudinal slats, of transverse plate springs, supported upon coiled springs, arranged between the slats. Two slats are arranged to each spring over the sides, so that the thin cross strips of steel will not be bent between them and the top of the spring, and the slats are permanently attached to the cross slats by rivets.

Improved Loom Shuttle.

Joseph Brown, Brooklyn, E. D., N. Y.—A wheel is used for the bobbin, and is fitted on a hub, having a series of tension springs between it and the wheel. The hub having a limited rotation in the direction for reeling off the thread, the bobbin turns on the springs, which thus produce the regular tension required. This hub is made hollow, provided with a volute spring. The spring will turn the hub to wind on the thread whenever there is any slack, and thus prevent the jerking which is liable to take place whenever the slack of the thread is taken up by the motion of the shuttle.

Improved Slings for Loading and Unloading Hay, etc.

George W. Long, Delaware Center, Iowa.—The object of this invention is to provide efficient means for the rapid unloading of hay, corn fodder, sugar cane, manure, and other farm products, by which the whole load is packed and hoisted up directly from the wagon and conveyed and stored at the place of destination. The invention consists of two strong pieces of wood, which may be connected and disconnected by means of lever hooks and string attachment, to which the load is attached by knotted ropes, in connection with a double hook for hoisting. After conveying and hoisting the load to the point desired, it is detached by disconnections of the main pieces.

Improved Gage for Gang Saws.

Norman C. Moody, Manistee, Mich.—This invention consists in mounting the gage blocks, used for gaging the distance of the saws of a gang of saws from each other, on a rod before or behind the saws, so that they can be readily swung into the spaces between the saws and out of them, and be put on and taken off without having to remove the saws.

Improved Corn Planter.

George W. Starrett, Dublin, Ohio.—The drive wheels are made broad to cover the seed, and revolve upon the axle attached to the frame. To the ends of a cross bar are secured the forward ends of the openers, which are made something like a sleigh runner, and the rear ends of which are widened and made open to receive the conductor spouts, so that the seed may be deposited in the bottom of the furrow before it becomes partially filled by the falling in of the soil. To the dropping side are pivoted the outer ends of two rods, which are pivoted to the forward arm of a three armed lever. By adjusting the ends of the said rods the movement of the dropping slide may be regulated. To the side arms of the three armed lever are pivoted the connecting rods, by adjusting which the throw of said lever may also be regulated. The rear ends of the rods are pivoted to the lower ends of the treadles, which are so arranged that by working his feet the driver can operate the dropping bar to drop the seed. To one of the treadles is attached a rod which projects upward into such position that it can be conveniently operated by the driver with his hand, if desired. This rod has a weight attached to its upper end to adapt it to serve also as a balance to the treadles. The bar can also be operated to drop the seed by means of a hand lever.

Improved Heat Regulator.

Henry Boyle, London, England.—This invention is an ingenious self-acting apparatus for maintaining an equable temperature, chiefly applicable for the purposes of incubating, forcing, etc. The regulator consists of a closed cylindrical vessel, filled with water and wholly or partly surrounded by a jacket, also filled with water but having no communication with the vessel. In connection with the upper part of this vessel is a U-shaped tube of glass, one leg being connected to the vessel, and the other and shorter leg terminating in a contracted neck, to which a long slender glass tube is connected by a flexible joint. This latter tube is disposed in a horizontal or nearly horizontal position, and is suspended at the other end from one end of a counterpoised arm or balance. The vessel and tubes having been first filled with water, mercury is poured into the open end of the balanced tube, and, displacing the water, fills the shorter leg and so much of the slender tube as will cause the latter to balance the counterweighted arm when the water in the vessel is at the temperature it is desired to maintain. Heat is applied, either directly to the vessel, by which it is transmitted to the water in the jacket, or the jacket is heated, and the heat transmitted to the water in the vessel.

Improved Metallic Piston Packing.

James Massey, Chester, Pa.—This invention is designed to furnish an improved piston, which shall be so constructed as to adjust itself to take up the wear, and thus be always steam tight. In the face of the piston head are cut recesses to receive blocks by adjusting which the piston is centered in the cylinder. A cast iron spring or coils placed upon the piston head, by the elasticity of which the open rings are held out against the cylinder. The open rings have inwardly projecting flanges formed upon their outer edges, which rest upon the edge of the spring. The rings are beveled upon their inner sides, from their outer to their inner edges, to allow the spring to be made heavier in its middle. By the follower of the piston the spring and open rings are held down upon the stationary edge of said piston. A stop piece is attached to one end of the open rings to overlap the other end and keep it in place.

Improved Spring Hinge.

Stephen Joyce, New York city.—This invention is an improvement in the class of hinges specially adapted for use on doors which swing in either direction and are self closing. It consists in the construction and arrangement of a tubular pintle provided with heads or plugs connected by a spring, and having a series of holes to adapt them to receive stop screws for regulating the tension of said spring, and the pintle being enclosed by sleeves having radial wings which form the leaves of the hinge.

Improved Car Brake.

William Warinner, Creelsborough, Ky.—The brake chain is attached to the front end of a main bar, the rear end being connected to a strong spring to assist and accelerate the release of the brakes after use. To both ends of main connecting bar are welded a three pronged fork, between which move the ends of levers. A tongue in the shape of a cross forms the extreme end of main bar, being pivoted to the pronged front end and connecting with links pivoted to the inner ends of the levers. These levers are placed under the truck frames and connect with the brake beams hung at suitable distance from each pair of car wheels from the truck frames. On putting on the brakes, the hand wheels turned, which cause an forward motion of cross tongue and bar, which is communicated by links to the levers. The latter again, by means of lever rods, force the brake beams on the wheels, so that the powerful friction exerted thereon will soon stop the car.