

RECENTLY PATENTED INVENTIONS.

Railway Appliances.

METALLIC CAR TRUCK.—James S. Hardie, El Dorado, Kansas. The invention covered by this patent consists principally of truck arches carrying the journal bearings and formed with transverse openings for the spring seats and springs, a truck bolster sliding in the opening and resting on the springs. A truck made is of strong and simple construction, not liable to get out of order, readily set up without the aid of skilled labor, and may be conveniently inspected and repaired whenever necessary.

HOSE COUPLING.—Sherman W. Day, Avonmore, Pa. A hose that works automatically in coupling and uncoupling, requiring no personal attention when cars come together or are separated, has been devised by this inventor. The head carries a valve, and in the head is a rocking valve block having a port, there being a connection between the port and the valve and the block and the valve, whereby the valve may be opened and closed by the movements of the block. The coupling may be attached by bolts or otherwise to the drawhead of the car coupling, or to the sill or framework of the car at one side of the drawhead, projecting slightly forward, to insure close connection when the cars come together.

RAIL JOINT.—Carl W. Dehn, Topeka, Kansas. This joint comprises two fish plates, made approximately L-shaped in cross section, and base plates integral with the outer sides of the bottom parts of the fish plates to form a rest for the base of the rail, the base plates having S shaped edges abutting against one another and extending in direct line with the rails at their meeting points, the plates having on their under side longitudinal ribs to fit snugly between adjacent ties. This joint cannot become loose, and on the loosening of the bolts and spikes the parts cannot be removed unless the rail is raised to permit of sliding the base plates longitudinally over the ties.

SWITCH.—Charles H. and Wilbur H. Sturgis, Swartz Creek, Mich. This switch has a rocking instead of the usual sliding lateral movement, and is designed to be inexpensive and durable, unaffected by snow and ice, and safe under all conditions. A switch member comprising a rounded bottom and sides and a flat top is mounted to rotate between adjacent ends of a track rail, and a switch rail is located on the flat upper portion of the body, the switches being so shaped that the point thrown from the rail will have a surface adapted to be engaged by the wheel flanges of a train, in such manner as to prevent accidental displacement of the switches when the train first reaches them or while it is passing over them.

ELECTRIC BRAKE.—Edgar A. Hauerwas, Saratoga Springs, N. Y. This invention relates to auxiliary or emergency brakes, and provides a brake that may be used in connection with the ordinary brakes to stop a car or train. Electro-magnets normally in open circuit are arranged to engage with the track rail on closing the circuit, and means are provided whereby the magnet circuit may be closed by the opening of a normally closed main circuit either at the engine or upon any car. The circuit will be automatically closed and the air brakes operated should a truck be derailed.

PNEUMATIC SIGNALING SYSTEM.—Abner J. McGehee, Jackson, Tenn. According to this improvement a conductor's release valve on the cars has combined in it both a brake-operating valve and a signal valve, capable of discharging a limited volume of air to operate a whistle on the engine without applying the brakes. The conductor's valve is adjustable to the length of the train, from any part of which a signal may be transmitted to the engine, and all extra train pipes and hose connections are dispersed with, air to blow the whistle being taken from the main reservoir back of the engineer's valve. The improvement may be adopted without changing any brake system.

Mechanical.

DRILL DRIVING MECHANISM.—Foster Milliken, New York City. According to this invention a skeleton frame carries a seat or saddle, with pedal shaft, driving cranks, etc., together with a balance wheel, connecting gears and driven shaft for imparting motion to a drill, thus affording a convenient and efficient bicycle driving mechanism for drills, reamers, etc. The construction is such as to enable the drill or other tool to be carried within a certain radius of any desired point, particularly in iron buildings, and there operated to great advantage with the least possible exertion.

BICYCLE WHEEL TRUING.—Frederick Schraeder, Rockaway, N. J. This invention provides means by which a workman may accurately true a wheel, consisting of a series of pivoted jaws arranged in a circle and adapted to engage the inner face of the wheel rim, with means for simultaneously moving the jaws in and out of engagement with the rim. The jaws are pivoted on blocks arranged in a circular series on a carrier which may be turned and moved axially, there being means for moving the jaws into engagement with the wheel rim when the carrier is moved.

DRIER FELTS OF PAPER MACHINES.—Thomas Pusey, Stockton, Cal., and Thomas H. Latimer and Thomas H. Savery, Wilmington, Del. An automatic tightener for the drier felts has been patented by these inventors, giving the felt at all times a uniform and proper tension without undue strain on any of the rolls and insuring the proper drying of the paper. A normally stationary but adjustable tightening roller is engaged by the felt at one side, while another tightening roller arranged to move freely in the same plane is engaged by the felt on the opposite side, a weight connected to the second roller automatically tightening the felt, so that no attention is required on the part of the machine tender for compensating in the varying length of the felts.

FLUXING MACHINE.—Nehemiah R. Sausbury, Ridgely, Md. In the capping of tin cans this machine is designed to deliver the proper amount of acid to the cans preparatory to soldering them. It has a tank with bottom outlets closed by vertically sliding

spring pressed valves, and the valves are raised to open the outlets by pivoted levers controlled by the movement of the cans. The amount of acid delivered to the cans can be readily regulated and the acid may be sprayed or delivered in bulk.

Mining, Etc.

QUARTZ MILL.—Frank P. Snow, Baker City, Oregon. This invention provides, within a suitable casing, a circular grinding track on which a series of balls is propelled by the material fed to the mill, there being below the track a channel containing mercury to take up any precious metal in the material ground by the balls. The fineness of the product may be governed by changing the speed of the mill or the supply of water or material to be ground, particles too coarse and heavy to be partially floated and carried by the current remaining in the path of the crushing balls until they are reduced to such fineness that they will pass with the current to the overflow.

ALLUVIAL GOLD WASHER.—James Miller, Sault Ste. Marie, Canada. This is a trough made of pressed metal, such as copper, zinc, aluminum or galvanized iron, and having transverse interior corrugations or ribs, over which are inverted V-shaped riffling plates, there being at each end rockers or crescent-shaped ribs of steel in the exterior depressions. At each end are lugs or rings by which the washer may be suspended from the inside or the outside. The washer, when supplied with the material to be treated, with sufficient water, is rocked to allow the gold to settle below the edges of the riffles, when the treated material is shoveled out and new thrown in until enough gold has collected to serve as amalgam in the usual way.

Agricultural.

GRAIN DRILL.—Calvin C. Blair, Beloit, Kansas. For a grain drill or other form of planter, this invention provides disk furrow openers, each consisting of two disks having independent supports, each pair of disks so mounted that they will come together at their forward edges and remain so while the seeds are being dropped, the point of contact regulating itself according to the depth to which the disks enter the ground. The disks may be straightened to use for pulverizing purposes, or when the machine is to be moved to and from the field, and the seed-dropping mechanism is driven from a castor wheel at the front of the machine.

CLOVER SEED HARVESTER.—Samuel Hamilton, Wilson, Mo. According to this improvement, a gathering device and rake and mechanism for operating the rake are so attached to a mowing machine that the gatherer will at all times travel close to the ground, and it and the rake will be unaffected by the vibratory movement of the mowing machine, the stubble also assisting in carrying the harvested straw to the rake. A drop bar attached to the mower bar by short links has rearwardly projected teeth with upturned ends which direct the cut material to the rake, and the latter may be conveniently rocked to and from the drop bar teeth.

TRANSPORTING TREES.—Charles O. Halling, Minneapolis, Minn. A simple and easily operated truck, by which trees of large growth may be safely transported from one place to another, has been devised by this inventor, the truck having a divided axle, a winding and hoisting mechanism, and a collapsible and expandable basket in which the roots of the tree are placed, the members of the basket being made, by compressing devices, to clamp firmly the roots and the earth incasing them.

Miscellaneous.

LANTERN HOLDER.—George T. Van Riper, Freeport, N. Y. Instead of suspending lanterns loosely on stakes, when using them as signals during building or excavating operations, the lanterns being thus liable to be stolen, this inventor provides a special form of lantern holder and means of securing it to a stake driven into the ground, or to a flat surface, such as a board or flooring. It comprises a casing having an opening through each of its walls, one of the walls being hinged, there being also an opening in the top of the casing, and means for locking it, and for conveniently attaching the casing to a support.

POST FASTENING.—Joseph Schuidt, New York City. This is a device for securing standards or posts to a flooring, to facilitate erecting partitions, or for anchoring railing posts, stair posts, etc. It comprises a casing to be secured in a floor opening, with its top plate flush with the floor, while in the casing is movable a screw whose shank has a worm thread. A shaft extended through the casing has its outer end adapted for engagement by a turning tool, and a worm gear on the shaft meshes with the worm thread on the screw shaft, whereby the latter may be turned and the screw entered into a post or standard.

WHEELED SCRAPER.—William Ackerman and Albert A. Hasselquist, Elgin, Ill. This invention is for an improvement on a formerly patented invention of the same inventors, providing a scraper in which the scoop will be entirely under the control of one man, who may also drive the machine, the parts being so arranged that the entire machine will be better under the control of the operator, and so that the scoop may also be more readily carried to the dumping position or restored to the working position.

CALCINING CEMENT.—Clifford Bonneville, Allentown, Pa. This invention is for a method of and apparatus for calcining cement, the raw cement material and a portion of cement being combined with a combustible material, the mass made plastic with water and then immediately subjected to a calcining and rolling action to form balls or lumps prior to the setting of the cement contained in the mass, after which the balls or lumps are immediately calcined, the apparatus affording convenient means for effectively carrying out this process.

GAME BOARD.—Harold Gregson, Detroit, Mich. This board has an inside cushioned marginal flange, various designated bottom spaces with elas-

tic projections, with balls arranged in the field, in which also turns a catapult adapted to expel projectiles. The game is designed to represent a battle field, the balls representing men arranged as bodies of soldiers, against which the projectile is thrown from the catapult.

SLEIGH TRUCK.—Seth C. Nutter, Sherbrooke, Canada. To facilitate the transfer of sleighs over floors or over ground not covered by snow, this inventor has devised a light and simple truck consisting of a pair of reach bars, on each of which is a grooved track rail, there being casters on the under side of each end of two connecting cross bars and a buffer block with downwardly inclined nose projecting from each end of the truck, but avoiding contact with a level surface.

HARNESS.—Nelson H. Mesick, Glencoe Mills, N. Y. In harness used on horses drawing two-wheeled vehicles, this inventor has devised improvements whereby the jars and jerks incident to the stepping or shoulder motion of the animal are not transmitted to the vehicle, making easier riding for the occupants. A strap connected with the saddle is also connected by a link with a tug, the strap being arranged to yield longitudinally and vertically to relieve the tug of the shoulder motion.

VEHICLE POWER STORAGE.—Martin J. McDonald, Trenton, N. J. This invention covers a mechanism for accumulating and storing the power lost by vehicles in descending grades, and its subsequent efficient application to propel the vehicle. A power-transmitting gear engages the driving mechanism, and a clutch-controlled gear carried by an accumulator shaft on which are coiled springs is in winding connection with the transmitting gear. There is a second clutch connection between the accumulator shaft and the transmitting gear, and a third clutch connection whereby the springs may be wound up by the winding mechanism. The apparatus is particularly adapted for use in connection with velocipedes.

FENCE.—John F. Melvin, Mayfield, Ky. This is a picket fence made without posts, and composed of vertical slats connected by upper and lower longitudinal wires looped around each picket, bracing wires extending outwardly and downwardly from both sides of the fence, at suitable intervals, to separate anchorages in the ground. Corner brace wires are crossed as they extend downward and outward, preventing sagging and holding the fence straight and firm.

RULING PEN AND HOLDER.—Albert N. Dow, Exeter, N. H. This is an improvement designed to be especially useful to accountants for ruling single and double lines, the holder being made to serve as a guide to the alignment without the assistance of an ordinary ruler. The holder has bearing surfaces or points near the pen end and farther back, designed to slightly sink into the paper by pressure, and permit the holder to move over the paper only in a straight line. The device is also designed to be useful as an ink eraser, pencil mark eraser, paper cutter, etc.

STRINGED INSTRUMENT IMPROVEMENT.—William H. Richardson, Trenton, N. J. This invention provides a wrist guide especially adapted for mandolins, and which is an integral portion of the tail piece, the guide and tail piece being so shaped as to be readily placed in firm position on the instrument, and the guide supporting the wrist during the work of playing without interfering with the freedom of a full or forearm movement.

STEAM RADIATOR.—Augustus Eichenhorn, Orange, N. J. This is a single inlet radiator, adjustable to different degrees of radiation, and with a central inlet pipe, improving the symmetry of the radiator. It is composed of a series of loops forming two separate sections, there being inner loops shorter than the outer loops, forming a space at the lower central portion in which is a three-way valve communicating with each section and with the steam feed, and capable of independently controlling the inlet of steam to the sections.

STOVEPIPE HOLDER.—Frank J. Norton, Ithaca, N. Y. For holding a stovepipe safely connected to the chimney into whose flue it is entered, so that it will be impossible for it to become accidentally detached, this inventor has devised a holder consisting of a piece of strap iron having one end bent to form a stop on the inside of the chimney, an adjustable stop sitting on the body of the iron outside the chimney, and the device being secured in position on top of a pipe as the latter is placed in position, when the pipe and holder are secured together by a rivet or nail passed through one of several apertures in the holder and an aperture made in the pipe.

ASH SIFTER.—John N. Fordham, Brooklyn, N. Y. To effectively separate the cinders from the fine ashes without raising any dust, this invention provides a circular casing adapted to be placed on an ash can or barrel, there being within the casing an inclined pivoted grate, from whose lower end extends a discharge chute and from whose upper end extends a hopper in which the ashes and cinders to be sifted are placed. The hopper has a hinged cover, which is closed while the sifting is being done, which is effected by turning the grate on its pivot pin by means of a handle extending through one side of the casing.

FILTER.—Joseph T. B. Selman, Toronto, Canada. This is an inexpensive filter designed for attachment to an ordinary service pipe and having automatic mechanism which makes it self cleaning, the filter being easily taken apart and put together when necessary. In passing through the T connected to the water supply pipe the water is made to revolve a brush shaft, the brushes on which scrub a screen through which the water passes to a filter bed, and when the water is turned off the impure water runs back and off through an automatically opening valve at the bottom.

DESIGN FOR A DISPLAY BOX.—Charles Spilka, New York City. This box contains one or more small pockets, each pocket of a set having one end of approximately semicircular shape.

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NEW BOOKS AND PUBLICATIONS.

SHAKESPEARE'S TOWN AND TIMES. By H. Snowden Ward and Catharine Weed Ward. London. New York: Truslow & Combs. London: Daborn & Ward. Pp. 176. Price \$3.

The book is beautifully gotten up, having nearly one hundred and twenty illustrations, most of which are from excellent photographs by Mrs. Ward, handsomely reproduced by the half-tone process. The interior views of the Shakespeare historical buildings are superior to any in that line we have seen. In addition to the numerous illustrations, we note the excellence of the letterpress and the remarkable freedom from errors.

The authors confine themselves strictly to the town of Stratford-on-the-Avon and a chronological statement or arrangement of the various incidents of town life as gathered from the accessible records relating to William Shakespeare's parents and other relatives prior to his birth, during his life, and after his father's and his own death. Any contributory evidence that can be found bearing on the life of the family and its probable effect in preparing the young poet for his future work is candidly given, and weight is also given to the strained religious state of affairs that occurred during the early part of his life. All of the facts are written in the usual pungent, clear cut, entertaining style that Mrs. Ward is noted for.

The book is divided into nine chapters, arranged in progressive sequence, as, for example, chapter one relates to "The Town and District," the next is on "Some Historical Notes," the third relates to "Shakespeare's Ancestors," the fourth to "Shakespeare's Childhood," the fifth to his "Boyhood," the sixth to his "Youth and Courtship," the seventh to "Seeking a Fortune," the eighth to "Manhood and the Close of Life," the ninth to "A Great Man's Memory." There are also three appendices, one giving Shakespeare's will in full, and another relating to "New Light on Shakespeare's Lineage," and two very good maps of Stratford and vicinity.

One of the valuable historical features of the book is an illustration showing a profile of the death mask and of the Davenant bust beside each other. The resemblance is striking. The bust is one but lately discovered, having been bricked in out of sight in an old theater building in London, and only found when the building was torn down. The bust is now preserved in the museum of the memorial building at Stratford. A reproduction of the only letter found written to Shakespeare, October 25, 1598, by Richard Quiney, is an interesting relic. The book is certain to be a valuable addition to the many that have been published on the life of this great poet, and gives a candid and accurate view of domestic life at that period, which has heretofore only been lightly touched upon. We regard it as a very necessary and useful book to all interested in the life and works of the immortal Shakespeare.

LEE'S VEST POCKET POINTERS. Chicago: Laird & Lee. Pp. 220, vest pocket size. Price, cloth, 25 cents; morocco, 50 cents.

For "busy people" this little book is designed to be a convenient and always accessible repository of facts most likely to be asked about, either from interest or curiosity.

ALTERNATING CURRENTS AND ALTERNATING CURRENT MACHINERY. By Dugald C. Jackson, C.E., and John Price Jackson, M.E. New York: Macmillan & Company. Pp. 730. Price \$3.50.

This book is issued as Volume II of a text book on electro-magnetism and the construction of dynamos, by Dugald C. Jackson, who is professor of electrical engineering in the University of Wisconsin, John Price Jackson being professor of electrical engineering in the Pennsylvania State College. It is a book designed to be of high value to electrical engineers who labor to keep abreast with the complex problems almost daily presented in the steadily enlarging scope of modern electrical development.