ENGINEERING INVENTIONS.

A car coupling has been patented by Charles M. Ingersoll, of Summit Hill, Pa. This device consists of a novel construction and combination of parts, whereby the cars will be coupled automatically when run together, and can be readily uncoupled, while it is simple in construction, strong, and not liable to get out of order.

A railway switch has been patented by Mr. John T. Rider, of South Oil City, Pa. It is so made that the front wheel of an approaching train presses down the inner end of a dog, which withdraws a latch, when by another dog the switch is automatically thrown, while it will remain locked for switching or shunting trains moving about the switch.

A steam boiler has been patented by Mr. Micheal E. Herbert, of St. Joseph, Mo. It has base sections, each with vertical side and end chambers, a horizontal crown sheet chamber communicating with the side chamber at a point below its upper end, with various other novel means of forming the water space into a number of chambers.

A feed water regulator has been patented by Mr. Leonard P. Foss, of Kalamazoo, Mich. It consists of a valve inserted in the boiler feed pipe and operated by a float working in a chamber connected with the boiler above and below the water line, and is calculated to always maintain a uniform water level in the boiler.

A boiler furnace has been patented by Messrs. John, Joseph, and Francis Zerr, of Keokuk, Ia. It has two fireboxes, and a novel arrangement of parts, whereby, when in operation, the products of combustion of one firebox, after having given out their principal heat to one boiler, will be made to pass through the other firebox, whereby all the smoke, gases, and other consumed particles will be fully burned and thoroughly utilized.

A condenser has been patented by Mr. Augustus Fletcher, of Hazleton, Pa. It consists of a section of pipe formed with a globe-shaped enlargement or chamber into which the exhaust steam is led, through which is passed a central imperforate cylindrical tube, with induction and eduction ports, there being flowing cold water in the chamber to condense and carry off the steam, so that with this device there will be no jarring in the working of a pump.

AGRICULTURAL INVENTIONS.

A cultivator tooth has been patented by Mr. Leander Burk, of White Cloud, Mich. (Charles Burk, of Wilcox, Mich., administrator of said Leander Burk, deceased). It is formed with two prongs at its lower end, and a mouldboard adapted to either prong, with special devices for supporting the mouldboard on the tooth and allowing its adjustment to either of the prongs.

A thrashing machine has been patented by Mr. Horace A. Wetsell, of Tracy, Minn. It has two thrashing cylinders to act in succession on the grain, and the concave and grids will yield if any heavy obstacles get into the machine, so as not to bend the teeth, choking off the grain is avoided, and the operator is not exposed to dust and sticks thrown by the cylinder.

A combined seed planter and fertilizer distributer has been patented by Mr. John I. Boswell, of near Chase City, Va. This invention covers various novel features and combinations of parts in a machine constructed to drop the seed at uniform distances apart, and which may be arranged to drop the fertilizer either with the seed or before and after it, or in continuous drill.

MISCELLANEOUS INVENTIONS.

A churn has been patented by Mr. Almer Farley, of Coomer, N. Y. It has a supporting swing frame and attachments of the churn body, so that it can be worked by an endwise rocking motion with but little fatigue to the operator, and it can be packed in a small space when out of use or for transportation.

A combined pole and shafts for vehicles has been patented by Mr. Aaron J. Martin, of Evansville, Ind. By this invention one construction is made to answer the purpose of a pole or shafts, making a simple, improved draught attachment, easily adjustable for use with one or two horses.

A horse tail holder has been patented by Mr. Frank H. Turnure, of Graham, Mo. It consists of a frame having a movable cross bar, and with a strap and buckle, the same being adapted to receive the bushy end of a horse's tail and hold it in a compact but easily released knot.

A washing machine has been patented by Mr. John Barr, of St. Louis, Mo. It is a revolvable wash boiler made to rest on a stove, with trunnions supported by a hoisting apparatus, so that the boiler may be readily raised and revolved, and thus cleanse the clothes.

An egg register has been patented by Mr. Casper Marti, of Minneapolis, Minn. A suitable box has a pivoted platform, with apertures at one end for receiving eggs, a counting device being operated from the platform, whereby the eggs will be automatically counted and the number registered.

A bung lifter has been patented by Mr. William Nahrung, of Brooklyn, N. Y. It has a screw to screw into the bung until the legs of a stand carrying it shall rest upon the staves, when the bung can be lifted vertically from its seat by a simple cam lever arrangement.

A journal box has been patented by Mr. Charles L. Morehouse, of Brooklyn, N. Y. It has tubular rollers, sleeves, collars, and rings, so arranged as to secure a perfect circulation of the lubricant, while the lateral jolts of the wheels will not be transmitted to the car body, and friction will be reduced to a minimum.

A summer house and bath house has been patented by Mr. Francis I. Palmer, of New York city. It is composed of a suitable frame, prepared in sections to be portable, to be readily set up and taken down, with a detachable roof, and having curtained sides, to be raised to form an open summer house, and lowered to convert it into a bath house.

A tobacco pipe stem has been patented by Mr. William B. Kennedy, of Silver Reef, Utah Ter. It has transverse grooves at intervals through the body, in connection with other grooves and openings and plates for covering them, in order to form a pipe which will cool the smoke and which can be cleaned very easily.

A broom has been patented by Mr. Richard D. Gallagher, of Plattsmouth, Neb. The stick is slotted at its lower end, with a shoulder against which rests a collar, and an elongated cup against the collar, with other features for stiffening the upper part and making the lower part more elastic or springy, and so the broom will be firmly held in its handle.

A handkerchief box has been patented by Mr. Louis P. Shuler-Shutz, of New York city. The box has a removable frame with tapes or ribbons secured to it to hold the handkerchiefs in place, and permit them to be removed without disturbing the tapes or ribbons, while they are held as nicely in the box as though tied in bunches.

A punching machine has been patented by Mr. Willis Whited, of Lachine, Quebec, Canada. Combined with its sliding head and the operating mechanism are certain devices which can be used to stop the movement of the head at a certain point, which is variable by adjustment, so that the punch may be brought to rest in any desired position.

A bag or satchel catch has been patented by Messrs. Louis B. Prahar and Charles S. Shepard, of Brooklyn, N. Y. The frame has a stem attached, on which is mounted a hollow rotary thumb piece, a spiral connecting the stem and thumb piece, while there is a spring latch attached to the other part of the frame, to engage with the stem and thumb piece.

A musical top has been patented by Mr. Robert Richardson, of Detroit, Mich. It has a toothed cylinder arranged to operate a comb, a fan supported partly or entirely within the shell of the top, with a worm wheel on the periphery of the toothed cylinder, so the comb will be operated by the rotary motion of the top.

A carriage top has been patented by Mr. Rasselas E. Earl, of Dunkirk, N. Y. This invention relates to carriage tops constructed with the bow arm eyes made of bars bent to form the eyes, and having arms of equal or unequal length, the object being to increase their strength and durability and promote convenience in their use.

A fire escape has been patented by Mr. Joseph H. Clifton, of Weston, W. Va. The device covers a main supporting plate that can be conveniently secured to the framing of a house, in connection with a swinging arm and pulley, making a fire escape which may be adjusted entirely out of sight from the street when not in use.

A press has been patented by Mr. Julius H. Holmgreen, of San Antonio, Texas. It is to facilitate the baling of cotton and other fibrous substances, and consists of compressing rollers in suitable bearings to coincide with an inlet channel to guide the substances into the baling box of a press after the rollers have effected a preparatory pressing.

An automatic water service system for windmills has been patented by Mr. Calvin G. Frushour, of La Gro, Ind. It is designed so that the windmill will start to operate a pump as the water is drawn off from a tank connected therewith, and will stop when the tank is refilled, and will operate similarly in connection with any number of connected tanks.

A wood-type case has been patented by Mr. James O. Stewart, of Spirit Lake, Iowa. It is composed of a series of rack frames or leaves hinged to open or close like a book, partitioned by narrow shelves made removable, with guards in front to hold the type, so that the latter may be kept free from dust and at the same time readily accessible.

A lifting jack has been patented by Mr. Henry Walther, of Clinton, Ind. Combined with a toothed rack mounted in a standard is a pinion, and crank arm secured to the shaft of the pinion, the shaft carrying a ratchet to engage with a pawl, and the rack carrying two arms, so that a wagon axle can thereby be readily raised, held, and again lowered to the ground.

A folding camp stool has been patented by Mr. Charles von der Linden, of Rhinebeck, N. Y. It is made with two socket pieces and legs to be held therein, pieces for holding the legs in the socket pieces, and a screw and nut for holding the socket pieces and pressing pieces together, making a stool which can be compactly folded and quickly put together.

A chicken house has been patented by Mr. Richard Bentley, of Corning, Iowa. This invention covers a novel construction, which may be large enough to shelter a dozen broods, and so light that two persons can pick it up and carry it, giving the chickens plenty of air and light in the daytime, and affording protection at night.

A pipe wrench has been patented by Messrs. Christian Bonnichsen and Michael R. Chrystal, of Newburg, N. Y. The wrench handle has lugs on its butt end, a bifurcated swinging connection, and jaws, in connection with a gripping chain, and other novel features, making a very efficient wrench, readily adaptable for different sizes of pipe.

A wear plate for harness has been patented by Mr. La Fayette Hartson, of Wyoming, Iowa. It is made with the usual keepers, a drawhook at one end and a hook at the opposite end to receive an independent detachable buckle, with a draw stud projecting from the face of the plate adjacent to the end of the buckle hook, to receive a detachable strap.

A door spring has been patented by Mr. Daniel W. Frost, of St. Louis, Mo. It is a device which can be made fast to the door a greater or less distance from the top edge, a spring being compressed by opening the door, which afterward operates to close it, while the whole construction is simple, effective, and capable of easy adjustment.

A harness has been patented by Mr. John H. Whitaker, of Davenport, Iowa. It is designed to improve the trotting of a horse by causing the hind legs to be spread apart, two lines being connected to and combined with a brace, adapted to be secured under the belly of the horse, the ends of the lines being secured to the ends of the shaft and the body of the vehicle, and passing between the horse's hind legs.

A churn has been patented by Messrs. James E. Shaw and James T. Simpson, of Holden, Mo. It has two concentric frames to revolve the dashers in opposite directions, to alternately elevate and depress the cream, with an inner dasher to throw the cream to the blades of the outer dasher, or which, when reversed, will throw the cream or gather the butter in the center of the churn.

A clothes washer has been patented by Mr. Henry Wright, of Sigourney, Iowa. It has a funnel-shaped plunger, with tubes and valves so arranged that on the downstroke of the plunger the air within the funnel is forcibly expelled through the water, forcing the water and suds through the clothes in a current toward the bottom, thus dislodging the dirt and cleansing the clothes.

A seal lock has been patented by Mr. George B. Williams, of Las Vegas, New Mexico. It is keyless, and in the casing is journaled a rotary hook adapted to be rotated through a complete revolution, with means for locking it, and other novel features, so that the lock cannot be opened without destroying the seal, and is especially adapted for car doors and similar uses.

A riving machine has been patented by Mr. George E. Cooke, of Clarksville, Tenn. This invention covers various novel features in the construction and combination of parts of a machine adapted more particularly for riving bolts or blocks of timber in the manufacture of shingles, to enable the machine to perform good work continually with economy of time and labor.

An adjustable holder for scarfs for neckwear has been patented by Mr. William B. Pope, of New York city. This invention consists in a holder with a bar fitted for attachment to a collar button, and held in the face of the holder, together with a cam or equivalent device for holding the plate and bar adjustably together, the holder being secured to the back of the scarf.

A gate has been patented by Messrs. Josiah Austin and Rossco Chamberlain, of East Liberty, O. A cranked rod passes loosely through the gate bearings, having springs, and pivotally connected to the gate post, the cranked rod having a recessed plate rigidly secured to one end, with mechanism for operating the same from opposite sides, and so that the gate may be opened or closed by persons at some distance away.

A method of making button holes in leather gloves has been patented by Mr. Joseph Whitby, of Yeovil, Somerset County, England. By this invention the edges of button holes are bound with silk, linen, or other suitable material, the stitches penetrating the material of the glove as well as the binding, in as many rings as desired, the stitching being conveniently made by a sewing machine.

A polishing machine has been patented by Mr. Joseph H. Cutler, of West Medway, Mass. It has a swinging frame, polishing head, and rotating shaft, combined with a rack plate, pinion, pawls, and other special features, to form a machine for finishing, dressing, and polishing the surfaces of granite or other stone, and one which can be quickly adjusted for flat surfaces and angles or corners.

A refrigerator for oysters has been patented by Mr. Alexius T. Lundqvist, of Brooklyn, N. Y. It consists of a wire netting casing placed on a base having a groove, and an interior wire netting frame resting on the floor formed on the base, the floor having a funnel and tube for conducting the water therefrom, so that the contents of the refrigerator will be kept cool and fresh and the drip water will be carried off.

A machine for scraping rattan has been patented by Mr. James M. Devany, of Hoboken, N. J. Combined with a table having feed rollers and a frame with radially movable knife holders is a sliding bar operated from one of the feed rollers, the bar having a cam piece and a rocking lever for moving the knife holders, on which lever the cam piece acts, for scraping rattan at the offsets or rings.

A watch regulator has been patented by Mr. George I. Tuttle, of Aurora, Ill. It has an adjustable and detachable connection of the dial, pointer, and pinion, with the regulator arm, admitting of the invention being applied to an ordinary push regulator, and saving the expense of making a special regulator arm, the invention being an improvement on a former patented invention of the same inventor.

A lemon holder and squeezer has been patented by Mr. Edward G. Day, of Riverside, Conn. The jaws or cup portion of the squeezer are compo. of two series of rings, which intermesh with each other to form when closed a chamber or cup to receive the lemon, the construction being such that the squeezer with a part of a lemon may be placed on a table without soiling the table linen.

A permutation lock has been patented by Mr. William B. Turman, of Waldron, Ark. This invention covers novel details in a lock, by which the door can be readily locked from the outside, but cannot be again unlocked without a knowledge of the combination at which the lock had been set, while it can be easily locked or unlocked from the inside without the combination.

A weighing scale has been patented by Mr. George W. Craig, of Grimm's Landing, W. Va. The platform box has a flexible top and bottom, with a single lever, and bearing upon which is a frame that rests upon the lever, and prevented from tilting or moving sidewise by the flexible top and bottom, but allowed to move up and down with the lever by the flexibility of the top and bottom sections.

A controlling mechanism for power driven machinery has been patented by Mr. James H. Rohme, of Newburg, N. Y. Its construction is such that by bearing down upon a treadle with one foot a driving pulley will be moved into and held in contact with a drive wheel, the pulley being revolved with a speed in proportion with the contact pressure, while by bearing upon the treadle with the other foot the driving pulley will be withdrawn from the drive wheel.

A pulverizer has been patented by Mr. William H. Howland, of Englewood, N. J. It is for pulverizing ore and similar substances, and has a disk revolving on a shaft, a ring eccentrically surrounding the disk and resting thereon at the top, with annular side pieces secured to the sides of the surrounding ring and overlapping part of the disk, the machine being so arranged that the coarse material will remain in a pocket, and only that which is fine will be discharged.

NEW BOOKS AND PUBLICATIONS.

BELTS AND PULLEYS. By J. Howard Cromwell. New York: John Wiley & Sons.

There have been several treatises published, giving rules and formulæ for ascertaining the belting required to transmit a given horse power, with different kinds and weight of belting, and varying conditions as to shafting and pulleys, but the ground has never yet been satisfactorily covered. This volume is a valuable contribution to the literature of the subject, and should be carefully studied by the mill engineer or master mechanic who has charge of this part of the business of fitting up or carrying on the work of a large manufacturing establishment. The smaller shops will probably go on, as they have done for so long a time, with a sort of rule-of-thumb calculation, contenting themselves with the reflection that to provide rather too large or heavy belts for their regular work, while costing a little more at first, adds correspondingly to the life of the belt and gives greater immunity from accident or break-downs.

THE COST OF MANUFACTURES AND THE ADMINISTRATION OF WORKSHOPS. By Captain Henry Metcalfe, U. S. A. New York: John Wiley & Sons.

The author who would write all that might be profitably said under the above title would need to fill a library rather than a single volume with his subject. Captain Metcalfe has had an extended experience in the Ordnance Department of the army, in the management of work at the arsenals, and in the examination of the wide variety of supplies required in all departments of the service, and it is safe to say that there are few men in the employ of any government in the world who have so systematically traced up, in a practical way, the questions of quality and absolute first cost covering so many and such different kinds of articles. The details of the present system in the government workshops are here given with great minutiæ, but the author proposes material changes therein that would constitute a really new system, also adapted for a model in the conduct of business in private workshops. The book has numerous examples of special kinds of bookkeeping, in connection with an elaborate system of cards for keeping track of every detail of a large and complicated business, such as many of our representative manufacturing establishments have been for years working out for themselves in their special lines of business.

STATICS AND DYNAMICS FOR ENGINEERING STUDENTS. By Irving P. Church, C.E. New York: John Wiley & Sons.

This volume is in the form of a compact text-book, with examples for exercise in the rules given, and, being by a Cornell professor, probably outlines a portion of the class work in the mathematics of civil engineering, to which the book is exclusively devoted.

INORGANIC CHEMISTRY. By Professor Victor von Richter. Translated by Edgar F. Smith. Philadelphia: P. Blakiston, Son & Co.

This is the second American, from the fourth German, edition of a text-book on chemistry which has long been deservedly popular. It is markedly practical, clear, and direct in its statements, bringing out prominently the relations between proved facts and theories or hypotheses, so as to preclude as far as possible speculative inferences from the mind of a student beginning the study of chemistry. In the present volume, many parts of the original work have been rewritten, and much new matter added, as called for by the recent progress in chemical science.

INDICATOR PRACTICE AND STEAM ENGINE ECONOMY. By Frank F. Hemenway. New York: John Wiley & Sons.

The author has, in this book, endeavored to present his subject so comprehensively that any engineer will be able to apply the indicator, take the diagrams, and make all necessary calculations, while the terms used are such as can he readily understood by any mechanic, and no mathematical demonstrations are required that involve the use of anything but simple arithmetical calculations.

U. S. DIRECTORY OF THE MUSIC TRADE AND MUSICAL PROFESSION. New

This cannot fail to be a very useful work to all who make their living as musicians, or who are specially interested in that line, as well as the various departments of the music trade. It has the names of 4,000 musicians of the better class in the United States, and 6,000 names of firms engaged in the music trade.

Received.

THE NEXT WORLD INTERVIEWED. By Mrs. S. G. Horn. New York: Thomas R. Knox & Co.

MECHANICS AND FAITH: A STUDY OF SPIRITUAL TRUTH IN NATURE. By Charles Talbot Porter. New York: G. P. Putnam's Sons.