

## ENGINEERING INVENTIONS.

Mr. Walter L. Phelps, of Wortendyke, N. J., has patented an improved railroad torpedo. The invention relates to the construction and shape of the plate to which the torpedo is attached, and to the provision which is made for attaching two or more torpedoes on one plate, so as to insure an explosion.

Mr. Arthur G. Leonard, of New York city, has obtained a patent for an improved railroad signal which consists in a novel mechanism by which when a danger signal is set the same mechanism by which the semaphore is raised will deposit a torpedo upon the track. In this way a double safeguard is provided, for in case the engineer from any cause fails to observe the semaphore his attention will be drawn to the signal by the exploding of the torpedo.

A very simple and inexpensive steam whistle has been patented by Mr. Frank McCabe, of Providence, R. I. The steam is admitted into the steam chamber by depressing an ordinary check valve, and the said chamber is provided with a longitudinal slot for the escape of the steam. By increasing or diminishing the size of this slot different tones may be produced in the whistle, and in order to enable the size of this aperture to be varied the inventor has provided the whistle with a movable lip plate which may be adjusted in the desired position.

Mr. John Hought, of Springtown, Pa., has patented an improved compound feed pump for steam boilers. In this invention the force pump which supplies the water to the boiler has combined with it an auxiliary pump, with check valve between them, the auxiliary pump being arranged between the first named pump and the heater, and both pumps working simultaneously in like directions to produce an artificial pulsation and overcome any undue back pressure in the cylinder and supply pipe. This invention is an improvement upon a patent granted to same inventor in August, 1882, and the especial feature of the improvement consists in using elongated plungers in the pump instead of pistons with valves in them.

## MECHANICAL INVENTIONS.

Mr. William Lane Hutson, of St. Lawrence, N. C., has patented a lever wagon brake, the simple mechanism of which keeps the brake applied to the wheel without effort on the part of the driver, and by which the brake is instantly released by a movement of the lever precisely like that which engaged the brake, thus greatly simplifying the operation of the brake.

Mr. Joseph W. Davis, of Port Jefferson, N. Y., has obtained a patent for a very efficient road scraper. This scraper is mounted upon wheels and is so arranged that the scraper may be raised or lowered by means of a windlass, so as to avoid any obstructions that may be in the way, and so that the machine will not do any work while passing from place to place.

Mr. Matthew Newlove, of Grand Island, Neb., has patented an improved chain saw, which is especially adapted for cutting mortises. This invention consists in an endless chain composed of links or sections having teeth or cutters at their outer edge, and united together by pivotal connections, and driven by a sprocket or notched wheel, with which the chain saw engages.

A new lever cotton and hay press is patented by Mr. Thomas G. Holloway, of Boston, Ga., in which two combined levers act, the long ends of the levers being connected and moving through the same arc, the radius of which is greater than that of the shorter, unconnected ends. An immense advantage is thus gained over any toggle lever whose unconnected ends are extended from each other.

An improved grinding attachment for valves has been patented by Mr. A. Wells Case, of South Manchester, Conn. The invention consists in a valve head constructed with a square recess in its face to receive the square end of a rod which slides longitudinally through a stuffing box in a screw plug opposite the face of the valve head, thus enabling the engineer to grind the valve heads to their seats without removing them from the valves.

An improved flour and meal bolt has recently been patented by Mr. William Mosher, of Poughkeepsie, N. Y. In this machine the coarse particles are separated first instead of last, as in the ordinary revolving bolt, and in consequence the large flakes which commonly cover the meshes, and prevent the escape of the finer particles will be disposed of at first, whereby the separating will be greatly expedited and facilitated.

An improved evaporator is the subject of letters patent recently issued to Mr. T. L. West, of Palatine, Ill. The improvements consist in the construction and arrangement of the evaporating pan, the means of supplying the sirup to the pan, the means of regulating the application of the heat, and for the management and action of the sirup, and the separating of it from the semisirup, as well as discharging it from the pan. The inventor claims it is more economical in the use of fuel and is better in its application of heat than the evaporators now in general use.

Mr. John Spengler, of Clarion, Iowa, is the patentee of a car mover adapted to move railroad cars by means of a lever power applied to the railway track at one end, and to a frame beam of the car at the other end. The lower end of the implement grasps the head of the rail by means of jaws and a chisel edged lever, and the upper end is attached to the floor beam of a car. A horizontal lever with connecting bars is used to work the device, and it may be used attached to the middle of a car instead of at the end, as the operator stands outside of the track.

An improved annealing furnace has been patented by Mr. Daniel G. Barnard, of Winslow, N. J. In this furnace the machinery is very simple and is designed to reduce to a minimum the breakage of the glass while it is being carried through the tunnel. The glass rests upon a series of parallel bars while a secondary set are so arranged that they may be raised between the stationary set, and thus will carry the glass forward a certain distance when they deposit the glass

once more upon the stationary set, and then are moved back again to the position they were in at first, and then the glass will again be raised and carried forward as before. The invention consists in the improved arrangement of the mechanism.

## AGRICULTURAL INVENTIONS.

Mr. G. W. Hunt, of Muscatine, Iowa, has patented an improved wheel plow by which the driver can instantly adjust the depth of the plowshare without leaving his seat, and without interfering with the management of the team. The plow being held rigidly in any position by a very simple device that is self-locking, and that may be disengaged by the movement of a simple lever.

Messrs. Louis C. Rummel and Emil J. Fiedler, of Leabetter, Texas, have invented a new and useful improvement in self-packing cotton presses, the object of which is to facilitate the baling of cotton as it comes from the gin. The invention consists in a cotton press constructed with a pivoted double baling box, a pair of rolls and their driving mechanism for packing the cotton into the baling box automatically, and a screw driven follow block for compressing the cotton into bales.

A combined harrow and clod crusher has been patented by Mr. Samuel Miller, of Moweaqua, Ill., which is an improvement on one for which letters patent No. 188,379 were issued to him and Mr. W. H. Kuhn. The machine consists of a series of independent frames carrying the harrow teeth and suspended side by side from a common rod or bar on which they swing vertically. Each frame acts independently of the others, thus adapting the harrow to unevenness of surface, and clods are broken up by the combined weight of the entire harrow and of the driver seated upon it.

## MISCELLANEOUS INVENTIONS.

A simple and efficient device for cleaning sinks has recently been patented by Mr. C. R. Turner, of Brooklyn, N. Y. It consists of a suitable brush or scraper for collecting the refuse in the sink, combined with a shovel for scooping it up.

Mr. Elijah Tolman, of Taunton, Mass., has invented an improved form of spoons and forks intended to retard the wear at the convex portions of the articles. Instead of more heavily plating these portions or of forming projections at their points, he flattens the portions slightly, so as to give greater area of wearing surface, without disfiguring the spoons or forks.

When wash tubs are packed for transportation there is often some difficulty in getting them in compact shape, owing to the awkward shape of their handles. Mr. W. H. Parrish, of Richmond, Va., has avoided this objection by an improved metallic handle made of such a shape that the sections of the tub may be packed with the greatest facility.

Mr. J. W. Page, of Rollin, Mich., has patented a wire lock which relates to locks for worm rail fences, in which wire is drawn around the rails to prevent the fence from being blown down or from being pushed down by animals; also provision is made for tightening the lock from time to time, as shrinkage or wears may render necessary.

A patent has recently been issued to Mr. F. S. Gulick, of Bolivar, N. Y., for an improved stove pipe holder, which consists of an extensible hanger and an extensible hoop, contrived in a simple arrangement for suspending stove pipes from the ceiling in a better way than by the wire suspenders commonly employed.

An improvement in table casters for holding condiment bottles is the subject of a patent by Mr. Orin F. Bacon, of Taunton, Mass., which provides an anti-friction bushing, or collar, for the holder, or for the standard, by which the wear of the holder on the pintle and the consequent rattling of the caster when turned are obviated, and the durability of the caster is greatly extended.

A fire escape has been patented by Mr. Richard E. Andrew, of Shepherdstown, West Va., which is intended to lower, by weights, one or more ladders from the eaves of a building to the ground. The entire mechanism, and the ladders themselves (which are flexible, being made of jointed rods or plates), are located in the attic of the house, and the ladders pass out through openings under the eaves, the openings being closed automatically when the ladders are wound up.

A gate has recently been patented which is provided with a long arm, so arranged that by raising this arm the gate itself will be raised in the post rails upon which it is hung. This enables the gate to be swung out readily in snowy weather, and the invention recommends itself on account of its simplicity and the readiness with which the contrivance may be applied to an ordinary gate. The inventor of this device is Mr. Bernard Selting, of Dyersville, Ia.

Mr. P. T. Forsyth, of Memphis, Tenn., has patented a portable fire escape which consists of a belt held to the end of a rope passing over a pulley, and through a sleeve of pliable material provided with a flap. The flap is passed around the strands of the rope when a person is using the fire escape, which sleeve and flap are pressed more or less firmly against the strands of the rope, to increase or decrease the friction, so as to regulate the rapidity of the descent.

Mrs. Augusta Netzer, of New York city, has patented a very strong suspender end. This suspender end is provided with a cord between the two strands of each strap, which cord has its lower end secured at the lower end of the strap, and its upper end secured to the upper part of the strap. This cord is thus made to bear the greater part of the strain and the ends thus rendered exceedingly durable.

Mr. William Gosshorn, of Waterloo, Pa., has obtained a patent for a very convenient gate for use where pedestrians and horses and carriages are likely to pass. This gate is hinged at one end and at the end

opposite the point where it is hinged is provided with a sliding section, so that foot passengers will not be compelled to open the whole gate in order to pass through. The gate is further arranged so that it may be raised at its hinges in order that it may be swung out readily even if the ground be covered with snow.

Mr. Emil C. Eyl, of Jefferson City, Montana Territory, has patented a combined folding fire escape and ladder, the platform or fire escape being a net work frame of iron or steel, hinged against the house in such a position that when lowered it forms a platform just below the window sill, a chain ladder at the same time unfolding from it to the ground. When not in use the ladder is folded into the frame and the frame is turned up against the wall of the house and secured to the window sill.

An improved gate has been patented by Mr. J. L. James, of Forsyth, Ill. This gate is constructed in two sections, only one of which is swung open under ordinary circumstances, but the whole being so arranged that in case the opening is too narrow the two gates may be swung open as one. Further, a long crossbeam is provided carrying pulleys at the ends over which pass ropes arranged conveniently, so that a person riding or driving in a wagon can open the gate without being compelled to alight.

Mr. Lorenzo D. Cather, of White Pigeon, Mich., has patented an improved "stake and rider" fence for farms, the supports of which are two braces crossing each other, with a vertical binding stake which with longitudinal riders are held securely by wires, forming a fence so rigid that it may be moved bodily without falling apart. It has no stakes or posts inserted in the ground, but the leaning stakes may rest upon blocks or stones. It may be put up by unskilled labor and may be made close enough to keep out sheep, dogs, and other small animals.

Mr. Edward A. Hemphill, of Elizabeth, N. J., has invented a new and improved memorandum book, having its covers stitched to each other a short distance from the back, forming a pencil pocket along the back of the book. Preferably both covers are made in one piece, and the pocket is formed by stitches a short distance from the back, and the book is then pasted to the covers. The pencil in the pocket stiffens the book and prevents it from being doubled over or bent, and does not interfere with using the book and turning the leaves, and is entirely out of the way when not in use.

Mr. Walter S. Bishop, of New Haven, Conn., has obtained a patent for some improvements relating to polishing wheels. The object of this invention is to construct polishing wheels in such a manner that they will not become changed in shape from dampness, and will be strong and durable, and Mr. Bishop accomplishes this by providing the emery wheel with a metallic rim and with a web of peculiar form, and in covering the rim of the wheel with a leather band and covering this band with a second band cemented thereto, and sewed together at the ends. A wheel thus constructed will not be changed by swelling or warping.

## NEW BOOKS AND PUBLICATIONS.

A SUMMARY OF THE LAW OF PATENTS FOR USEFUL INVENTIONS, WITH FORMS. By William Edgar Simonds, Hartford, Conn. New York: L. K. Strouse & Company, 95 Nassau Street.

This is an enlargement of a volume issued by the author as a manual in 1874, which combined the laws relating to the issuing of letters patent, and the compilation of rulings under the law as it then existed. The present volume may be considered a compendium of patent law and patent law practice, being intended, not only as a guide to patentees, but as a help to patentees' attorneys. The volume, which is neatly bound in sheepskin, is provided with a copious index which enables it to be used as a ready reference book.

FINLAND: ITS FORESTS AND FOREST MANAGEMENT. By John Croumbie Brown, LL.D. Oliver & Boyd, Edinburgh; Simpkin, Marshall & Company, and William Rider & Son, London; Dawson Brothers, Montreal.

The first fifty pages of the book are taken up by descriptions of the lakes and rivers of the country, but a serious mistake was made by omitting an examination into the relations they bear to the climate. This branch of the subject was treated very cursorily. The old practice of clearing the land by burning the forests, the custom being known in Finland as *svedjande*, is described at length, together with the methods pursued in other countries, and a discussion of the evils following the practice in India and an account of the merits and demerits of the practice as now pursued in France. Several chapters are taken up with forest economy, administration, protection, exploitation, and the kinds of trees. A valuable account is given of the school of forestry, its management, method of instruction, and work it accomplishes; and also of ship and house building, and industries in which wood is made use of. The last part of the volume treats of the physical geography of Finland and its flora, fauna, and climate. The author has contributed a valuable book to the literature of forestry, and his work clearly shows much study and an intimate acquaintance with the labor of those who have preceded him in similar paths.

THE MACHINIST'S AND STEAM ENGINEER'S PRACTICAL CALCULATOR. By D. B. Dixon. D. Van Nostrand, New York City. Price, \$2.00.

The author, recognizing the need of a rudimentary manual for the use of machinists and steam engineers, has succeeded in producing a book admirably filling the want. The ground is very thoroughly covered, and yet no useless subject is admitted. Algebraic formulas and technical phrases are entirely avoided, and all the rules laid down are illustrated by examples worked out in plain arithmetic. The language is well chosen, simple, and direct.

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