

## ENGINEERING INVENTIONS.

A car truck has been patented by Mr. Jefferson D. Trammell, of Auburn, Ala. This invention covers the construction and combination of parts to form a railway system for short line railways, in which the car trucks and tracks are made in a novel way to avoid friction from flanges and on sharp curves, and to insure the cars following the tracks.

A steam boiler has been patented by Mr. Henry F. Allen, of New York city. It is made with a hollow shell, with one or more vessels surrounded by the shell and connected therewith, and with water tubes projecting inwardly from the shell and outwardly from the interior vessels, with various other novel features to insure strength and safety, and so steam can be made quickly.

A car coupling has been patented by Mr. Frank Vaughan, of Elizabeth City, N. C. This invention covers a peculiar construction and arrangement of the coupling link and its supporting spring, the drawhead, and the combination of the two on an adjustable frame adapted to be moved to bring either the coupling link or the drawhead to the center line of the car, with other novel features.

## AGRICULTURAL INVENTIONS.

A plow has been patented by Mr. Manfred Call, of Richmond, Va. This invention relates to devices whereby the wearing portions of a plow are attached to the standard, and provides means whereby either the point, the landside, or the mould board may be removed from the post without interfering one with another, and so these parts may be economically attached together without bolt holes through them, the standard being adapted to receive and hold the movable parts in their places.

## MISCELLANEOUS INVENTIONS.

A pail has been patented by Mr. Theodore A. Cook, of Brooklyn, N. Y. This invention consists principally in providing wooden pails or buckets with a specially devised metallic bottom, whereby the pail is made very light, strong, and durable.

An improvement in hames has been patented by Mr. Nicholas G. Schwalen, of Minneapolis, Minn. By means of a screw journaled in eye plates secured to the hame, an adjusting device is so operated that the trace may be fixed at a point higher or lower, as desired.

A fabric turving implement has been patented by Mr. Charles M. Hinkle, of Davis City, Iowa. This invention relates to hand implements for making rugs, etc., and has certain novel features for the regulation of the depth of the looping of the material that forms the nap of the fabric.

A side bar for buggies has been patented by Mr. Robert St. Clair, of Veedersburg, Ind. It is composed of a wooden portion and a bottom plate secured thereto, in connection with specially adapted springs, and other novel features, so that the side bar is made very strong and well adapted to hold its shape.

A cigar perforator has been patented by Mr. Leandro C. Michelena, of Brooklyn, N. Y. This invention covers a novel device for piercing the closed or tip ends of cigars before lighting them for smoking, one which may be quickly and easily used, and without danger of breaking the wrapper of the cigar.

A brick has been patented by Mr. William Heard, of Brooklyn, N. Y. It has a central aperture and intersecting longitudinal and transverse grooves on one of its faces, the object being to thus provide bricks which will form a stronger and better wall, and which can be dried and burned in less time and with less fuel than ordinary bricks.

An ice cutting machine has been patented by Mr. Isaacar Crowfoot, of Hartford, Wis. This invention covers improved mechanism for working circular saws for ice cutting, also mechanism for moving the machine about on the ice, and for cleaning the ice of snow in advance of the saws, the whole being operated by steam power mounted on the machine.

An end gate fastener has been patented by Mr. Bengt J. Swenson, of Sugar Land, Tex. This invention consists in a hook ended lever buckle for drawing up and fastening the ends of chains on presses, wagons, etc., the hook end being caught in the chain and the handle portion then turned down, which draws the two ends of the chain together and fastens them.

A motor, to be operated by weight and drum, has been patented by Mr. William J. Allen, of Norborne, Mo. This invention covers an apparatus comprising a weight and drum, multiplying train, and a regulating escapement, for a motor to operate a pump or other device, making a simple and effective power for use where windmills could not be conveniently placed or profitably employed.

A nut lock has been patented by Mr. William S. Clymer, of Westerville, Ohio. This invention covers a special construction and combination of parts according to which a lock nut stops the main nut, a key stops the lock nut, a wire stops the key, and bends in the wire to stop it from removal, so that neither bolt nor nut will be damaged, and the nut is positively secured and closely locked.

An apparatus for separating oil vapors has been patented by Mr. John E. Bicknell, of Cleveland, Ohio. This invention consists in a special construction to insure the certain condensation of the vapors of heavy oil, while the vapors of lighter specific gravity pass off separately, and there are also means for accurately regulating the temperature of the condenser at all times.

A wagon tongue support has been patented by Mr. William R. Spray, of Ingham, Ill. It is made with a chain or cord held to the forward running gear on the wagon, and passing over a spring held to the tongue to a flange or plate having a series of holes, and fixed to the tongue in front of the spring, which holds the tongue at its outer end to any desired height.

A stencil holder has been patented by Mr. John J. Callow, of Cleveland, Ohio. It is for a graining stencil plate, and has a handle piece with a clamp lip or flange for seizing one edge of the plate only and holding the plate out bodily thereby, with other novel features, so thin or flexible materials may be used for the stencil plates, and ties for strengthening them may be dispensed with.

A siding gauge has been patented by Mr. James H. Jenkins, of Thomasville, Ga. This invention covers a special construction and combination of parts for improving gauges whereby weather boards may be marked to be sawed off as desired, and so two ends may be held at one time ready to be nailed on at the proper distance from a given line or from the edge of a previously fixed board.

A process of purifying metals has been patented by Mr. Charles Edwards, of Paris, France. The metals to be treated are placed in suitable retorts, hermetically closed by covers with sealed joints, and then subjected to a current of moist hydrogen, previously passed through one or more baths, in order to take from the metals all or a part of the metalloids which deteriorate their quality for practical uses.

A grease cup has been patented by Mr. William Schoendelen, of Davenport, Iowa. In combination with an inverted cup is a piston adapted to hold a body of grease above it, and a downwardly projecting feeding tube in open communication at its upper end with the grease space in the cup above the piston, whereby the weight of the cup is made to force the grease down the tube to the part to be lubricated.

A buckle has been patented by Mr. Charles R. Harris, of Cortland, N. Y. It has a fixed, hollow, toothed bar, with teeth along both edges, for use in connection with a presser bar forming part of the folding portion of the buckle, and arranged to press the web of the strap to which the buckle is applied between and against the double row of teeth, to insure a perfect fastening of the buckle.

An improvement for stoves and heaters has been patented by Mr. Thomas J. Trew, of Kirksville, Mo. It is a contrivance for making the top of the stove or heater of a deeply corrugated plate of thin metal, to provide a much larger radiating surface; there is also provided an outside hood, and a deflector plate beneath the corrugated top, connecting the indentations in the top plate.

A carpet fastener has been patented by Mr. John Pearsall, of New York city. It consists of a metal plate with a keyhole slot, and depressed along its middle portion adjacent to said slot to receive the head of a carpet nail, the remaining portion of the edge of the plate being elevated at a uniform height around its entire circumference, so that the carpet cannot be torn, and can be quickly taken up or put down.

A surgical chair has been patented by Mr. George Weber, of Brooklyn, N. Y. Combined with a chain seat and base are crossed pivoted legs, a segmental rack held on the pivot of the legs, and a pawl pivoted to the seat and resting on the rack, with other special features, to provide a chair which can be readily adjusted in height and locked in position, and the leg and back rests of which can also be easily adjusted and locked in place.

A surveyor's instrument has been patented by Mr. John H. Dolman, of Albany, Texas. It consists of a protractor with right angled piece and straight piece pivoted to move independently on the protractor, the inside edges of the right angled piece being spaced and numbered from 1 to 200, and carrying levels on its upper and lower sides, while the straight piece, which carries a telescope, is correspondingly spaced and numbered up to 300, the whole making a convenient instrument for surveyors for measuring angles and plotting.

A carpet stretcher has been patented by Mr. John J. Taylor, 2d, of Warren, Pa. Combined with a grooved bar is a sliding rack, the rack having its front end pivoted on the bar; a U-shaped frame, having at its ends pointed heads for holding it in place, is provided with a wire or rod which serves as a fulcrum for the lever which is engaged with the teeth of the rack, and is used for moving the rack in the direction of its length.

A lock for worm fences has been patented by Mr. Joseph J. Iglehart, of Columbia, Mo. The invention consists in the combination, with the panels of a worm fence, of binding rails crossing the top rails of the panels, and wires passed around the rails of the panels and the adjacent binding rails, whereby the rails of each panel and the successive panels will be firmly bound together, so the fence cannot ordinarily be pushed or blown down.

A double acting water wheel has been patented by Mr. Charles W. Rau, of Allentown, Pa. This invention covers a novel construction of double acting wheel, where the water so acts upon the inclined blades and flanges of the wheel that two shafts are moved thereby in opposite directions, the motions being made similar by using one crossed belt in conjunction with a straight belt to carry the power to main driving pulley.

A mail bag has been patented by Messrs. Michael F. Stellwagen and Alton A. Lytle, of St. Ignace, Mich. This invention covers a mail pouch fastening formed of a four part frame hinged so as to fold closely together along opposite sides of the pouch, and having grooves into which the knuckles of two of the hinges pass, and with holes at one side of the folded frame for studs fixed at the opposite side, with other novel features.

An awning has been patented by Mr. William A. Nelson, of Omaha, Neb. Combined with two pairs of crossed and hinged legs is a board resting in the fork of the legs above the hinge joint, an awning having a ridge pole, and vertical posts located above the joint of the legs and stepped upon the board and extending the ridge pole, making an awning that is very light and strong, and easily put up and taken down and folded for transportation.

A vehicle spring has been patented by Mr. John J. Kalina, of Collinsville, Ill. It has anti-

friction rollers interposed between its opposite sections and elastic buffers or cushions to limit the end motion and prevent shock and noise, with other details, the upper and lower members being movable lengthwise on each other, so the body of the vehicle will be free to adjust or level itself crosswise independently of the running gear.

A process of manufacturing perforated metallic goods has been patented by Mr. John J. Callow, of Cleveland, Ohio. This invention provides a method of producing a plate of perforated metal for graining, frescoing, or other ornamental or printing purpose, by means of electro-metallurgy, the pattern being formed by the sand blast, wheel grinding, or acid etching, in glass, porcelain, etc., so that thousands of copies of any required design can be readily made.

A treadle motion for velocipedes has been patented by Mr. George H. Griffiths, of New Rochelle, N. Y. The axle to which the wheels are secured has opposite cranks to which the treadles are attached by links, the foot movement being rendered natural and easy, to resemble the action in walking, by means of links and springs, the dead center being avoided, and the motion being downward and backward and upward and forward.

A fifth wheel for vehicles has been patented by Mr. Thomas Smith, of Breckenridge, Mo. According to this invention, the head block is braced by a peculiarly constructed plate, which also supports the coupling from strain when the axle rises high enough for the bed to strike the head block, giving such flexibility that the front wheels go over small obstructions without causing any jar or movement at the coupling, and the hind wheels as they rise rock the coupling pieces, in the boxes, thereby easing the twist and strain.

A saw jointer has been patented by Mr. George H. Mayer, of Kansas City, Mo. It has a frame with opposite arms spaced apart to admit the saw blade and connected by a head piece, one of the arms having guide studs on its inner face to prevent contact of the frame of the jointer with the saw teeth at one side, and the head portion of the implement having a tri-form recess made in it, so either a three cornered or a flat file may be held, and the teeth may be evenly and accurately jointed without spoiling the "set."

An automatic stop plug for gas and oil pipes has been patented by Mr. William F. Cosgrove, of Jersey City, N. J. Combined with a coupling having a tapering socket and apertured removable cap is a plug with a slotted stem passing through the aperture of the cap, a fusible key passing through the stem on the outside of the cap; the plug can be drawn up snugly against the cap by a set screw passing in through the upper end of the stem and resting against the fusible key, the object being to prevent the flames in burning buildings being fed by gas or oil escaping from broken pipes.

## NEW BOOKS AND PUBLICATIONS.

HILFSBUCH FÜR DEN SCHIFFBAU (HAND BOOK OF SHIP BUILDING.) By Hans Johow. Berlin: Julius Springer, 1884.

This interesting and valuable work is divided into five parts, viz. I. General Tables. II. The Theory of Ship Building. III. The Practical Part of Ship Building. IV. Mechanism and Machinery for Propelling Vessels. V. The Marine Law. The mathematical tables, tables of weights and measures, the several formulas for constructing curves, the different methods of making calculations, the descriptions of the engines, boilers, rigging, chains, boats, pumps, and the armament of vessels, the methods of launching, docking, etc., are all given with the most minute care and attention. One of the special features of this work is the general arrangement. All the parts are arranged in systematic order, and in such a manner that any one of the parts desired can be found instantly. Nothing is lacking to make this a perfect hand book for ship builders, and it is only to be regretted that the work has not been published in English. In numerous notes, the titles of the different works of reference are given, thus enabling the reader to refer to such works in case he desires further or more detailed information. The work is provided with ninety-six cuts and two lithographic plates.

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