

**ENGINEERING INVENTIONS.**

An improved hand car has been patented by Mr. Allen M. Stoner, of New Albuquerque, New Mexico. This invention relates to that class of railroad hand cars which have only three wheels; and it consists principally in the employment of a double-acting lever having pawls, in combination with a large wheel for driving the car.

Mr. Theodore M. Sharpe, of Salisbury, Mo., has patented an improvement in car couplings. The coupling has a hook pivoted in a drawhead and pressed downwardly by a spring to cause it to engage with a link secured in an opposite drawhead after the link has raised the hook by its impact with it, thereby automatically coupling the cars.

An improved governor for steam engines has been patented by Mr. Joshua P. McCook, of Richmond, Va. This invention is an improvement in the class of valve gear governors having weighted arms or levers that operate by centrifugal force to regulate the cut-off according to the speed of the engine, thus in turn increasing or diminishing the speed correspondingly. This governor has a compound or variable eccentric in connection with the weighted levers, a spring applied to the latter, which supplements the effect of gravity in resisting centrifugal action, and thereby serves as a means for regulating the action of the governor upon the eccentric that reciprocates the valve or cut-off.

Messrs. John Wilson Brown and John Wilson Brown, Jr., of Baltimore, Md., have secured patents for apparatus for loading and unloading vessels. The apparatus consists in a removable frame work, which is to be located above the hatchway of the vessel, provided with independently-moving and downwardly extensible sections of frame work, which may be extended a greater or less depth into the hold of the vessel. These sliding sections of the frame work are provided with guides for and are combined with an endless carrier, to which the packages are slung, and by which they are raised or lowered and transported across the deck to or from the wharf. This apparatus is calculated to greatly facilitate the work of loading and unloading vessels.

**MECHANICAL INVENTIONS.**

Mr. William A. Mahaffy, of Rushford, Minn., has patented certain improvements in that class of flouring mills in which rolls revolving in close proximity to each other are employed for reducing the grain. The improvement consists in the peculiar construction and arrangement of the adjusting devices for the laterally-movable roll, and in the means for locking the movable roll in working position.

Mr. John C. Wilson, of Washington, Pa., has patented an improvement in that class of washing machines in which the box or tub oscillates and the rubber is stationary within the box. The machine washes by squeezing the clothes introduced into the box at each end between the slats at the ends of the box and the stationary rubber, the box being suspended and oscillated and the clothes turned with each swing of the box.

An improved circular sawing machine has been patented by Messrs. Florian Reinhart and Theodore R. McDonald, of Toledo, O. This invention consists of rotary feeders and saws for cutting off both ends of felly and shaft sticks for wagon stock, also any other sticks to be equalized in length, the rotary feeders being provided with means for taking the sticks up one by one on the faces of the feeders from a table whereon they are placed for the purpose, carrying the sticks past the saws, by which the sticks are cut to the lengths required.

An improved wagon spring, patented by Mr. Albert H. Cadogan, of Wales Center, N. Y., consists in coiled springs arranged between the bolsters of a farm wagon, and riders for the wagon box bed to rest on, the riders being located over the bolsters, and secured and guided by the bolster stakes in their play upon the springs, the springs being so contrived that as they are compressed by the load, their power is proportionately increased by the shortening of the distance between the bearing points of the supporting arms and the coils of the springs for uniformity of elasticity with light and heavy loads.

A machine for forming and sharpening horseshoe calks has been patented by Mr. James Elliott, of Jefferson, Wis. This machine has two upright plates, between which slides a plate carrying a knife and operated by a cam-lever, to which power is applied by means of a hand lever and connecting bars. The front plate of the machine is provided with a sliding plate for clamping a shoe against a die secured in a slot in the front plate, the clamping-plate being operated by a cam-lever and held in place by a lever-pawl engaging with ratchet teeth upon the upper edge of the front plate.

Mr. Alexander Melzer, of New York city, has patented an improved loom which can be adjusted to be adapted for weaving netted fabrics of any desired pattern. The loom is provided with a loosely mounted twister for each pair of warp threads, the warp threads passing longitudinally through the twister and through opposite eyes at edges of one end of the twister, whereby the warp threads will be twisted when the spool is rotated. Around each twister a cord is coiled having a weight attached to its lower end and having its upper end attached to a pivoted lever connected with a treadle, whereby all the twisters connected with this treadle will be revolved when the treadle is depressed, and all the corresponding warp threads will be twisted, and the combination of the twisters and treadles being varied as the design may require.

**AGRICULTURAL INVENTIONS.**

An improved sulky plow has been patented by Mr. Eugene Powell, of Delaware O. This is an improvement in the class of plows managed by the driver, who rides and operates the various levers while sitting. It is readily controlled and renders the work of plowing easy.

An adjustable straw stacker, patented by Mr. William R. Maloy, of Wayland, Mo., facilitates the stacking of straw as it comes from a thrasher and sepa-

tor. This is a carrier of novel construction mounted on a pivot and capable of swinging laterally to deliver the straw to any portion of the stack.

Mr. John M. Walden, of Fort Valley, Ga., has patented an improved cotton chopper, consisting of a frame of beams and crossbars with runners and chopping hoes, the beams being adjustable toward and from each other to vary the distances of the hoes apart, and according to the distance required between the chops in the rows of plants. The hoes are adjustable in height and in their pitch to regulate the depth of the chops.

Mr. George L. Gifford, of San Antonio, Texas, has patented a combined seed planter and cultivator. The cultivator is constructed in such a manner that the plows may be adjusted up and down for depth of cut, and also for width. Detachable seed dropping and planting devices are adapted to be attached to the cultivator, and are operated from the wheel that supports its forward end. In planting the plows of the cultivator are removed and furrow-opening and covering plows are substituted.

Messrs. Thomas J. Lindsay and William J. Miner, of Windfall, Ind., have patented improvements in corn planters. The bottom of the seed hopper is slotted for the passage of an endless chain, that carries blocks, in each of which is formed a cavity of such a size as to receive enough seed for a hill. The chain revolves around a hexagonal pulley in the bottom of the hopper and a pulley in the upper end of the spout that conducts the seed to the hill. The seed is kept in the blocks by an angle plate until the pulley is turned far enough for the seeds to drop together from the block.

**ELECTRICAL INVENTION.**

Improvements in secondary batteries have been patented by Mr. Nicholas De Kabath, of Paris, France. The electrodes for the battery are formed of very thin sheets of lead coated with weak sulphuric acid to form a thin coating of sulphate of lead. Thicker sheets of lead are treated by the same process, and bent over the thin sheets, and the whole are wrapped and packed in artificial parchment, one or more layers being used according to the internal resistance to be obtained. The battery thus formed is placed in a lead box lined with thin sheets of lead.

**MISCELLANEOUS INVENTIONS.**

An oil conductor for car axle boxes, patented by Mr. Julius De Long, of Allegheny, Pa., consists in animal hair, washed, picked, carded, and oiled, to adapt it for use as an oil conductor for car axle boxes.

Mr. Robert D. Green, of Columbus, Miss., has patented an improved permutation padlock. The object of this invention is to increase security in this class of locks. The lock is an ingenious combination of ratchet wheels, tappets, and tappet wheels.

Mr. Charles T. Hayden, of Whitesborough, Tex., has patented an improved tanning compound, composed of soft water, sulphuric acid, terra japonica, leachings from horse manure, starch, dog fennel, cured leaf tobacco, bromweed, and common salt. This preparation is said to tan skins very quickly, and to produce leather that is tough and durable.

An invention to prevent the noise caused by the running of trains on elevated roads has been patented by Mr. Thomas Coates, of Waterville, N. Y. The invention consists in the combination with the stringers, girders, and columns of iron bars extending into the ground. The bars are connected to these parts by eye screws, clamps, or any other suitable means.

A new design for watch chain and attachment has been patented by Mr. Calvin W. Little, of Denver, Col. The strips of metal of which the links of the chain are formed are of equal width through their length, and the link is doubled upon itself twice, in such a manner that it has two loops opening at right angles to each other. The attachment is made to resemble a mail bag having loops at the top and bottom.

A handsaw and spirit level, combined in one instrument, has been patented by Mr. John E. Tyler, of Roxobel, N. C. A hole is bored in the saw handle, from the end to which the blade is attached that is parallel to the back of the saw, and in such a relation to the handle that the level inserted in the hole will be seen from within the hand hole when the saw lies on its back edge. Suitable devices are provided for adjusting the level.

Mr. Thomas H. Chubb, of Post Mills, Vt., has patented a novel tie-guide for fishing rods, made of a piece of metal having pointed ends, inclined side edges leading inward from the bases of the points, and curved recesses between the inner ends of the inclined side edges and the bases of the points. This piece of metal when bent into its final shape forms a short thimble with projecting arms, which are to be tied to the fishing rod.

Mr. John W. Hazelrigg, of El Dara, Ill., has patented an improvement in grain-separators, in which the blast through the flue is varied at will by varying the speed of the hand crank to be suited to the weight of the grain and the matters to be separated from it; the chaff and other light matters are separated from the grain by a current of air passing upwardly through a flue down which the grain falls, the lighter particles passing through the fan producing the upward current.

A device for holding coupling links in a drawhead at the proper inclination for coupling has been patented by Mr. Francis M. Wilson, of Tekamah, Neb. A double U-shaped spring frame is passed through the link and back into the drawhead, in which it is held by the pressure of the separated ends of the two shanks of the spring against the sides of the drawhead, the opposite ends of the shanks being connected.

Mr. James O. Neill, Lolland, Minn., has patented improvements in devices for holding bags. In the bottom of a tubular standard is a coiled spring, on which the stem of the hopper of the device rests. The hopper is funnel shape, and flanged or flared at its lower end. The bag is held to it by any suitable tie. The spring in the standard holds the bag from the floor until the bottom is filled out, after which the contents of the

bag are allowed to carry it down until its bottom rests on the floor.

A simple and inexpensive support for wagon tongues has been patented by Mr. Ela Moore, of Walla Walla, W. T. To the center of an ordinary half-elliptic spring is secured a bar that extends forward under the tongue of the wagon. The ends of the spring are secured under plates attached to the axle. The bar secured to the spring is formed with a series of holes, and is held in place on the tongue by a bolt, the position of the bolt in the bar regulating the tension of the spring.

Mr. Wesley F. Collie, of Barren Fork, Ark., has patented a device for drawing water from a well or cistern at some distance from the house. A cable extends from the house to the well on which a carrier is mounted. A rope attached to a windlass at the house passes through the carrier and has a hook at its end from which a bucket is suspended. The bucket is run from the house to the well on the cable and lowered to fill with water, and drawn up and back by the windlass.

Mr. Arthur O. Barnes, of Moore Park, Mich., has patented improvements in the journal bearings of axles that lessen the friction and insure continuous oiling of the journals. The journal box has heads fitted into it that have openings to receive the journal, and a set of friction rollers, and a shell attached to the heads incloses the rollers and forms an oil chamber. The journal box is kept in its place by collars screwed into the countersunk sides of the head, and a nut screwed on the end of the axle.

Mr. George Ellsworth, of Bowling Green, O., has patented a bee hive which may be opened at any time by taking off the top sides, and ends, without disturbing the frames nor materially disturbing the bees within the spaces between the frames, thus exposing the frames to the view of the keeper to see the condition of the bees at any time, enabling him to handle the bees and frames without crushing the bees or breaking combs or frames.

A showcase that is especially adapted for grocers' use for showing tea, coffee, etc., has been patented by Mr. Robert S. Williams, of New York city. The case consists of a frame formed with inclined shelves for supporting in an inclined position the boxes on which the goods are, glass covers being provided for closing over the boxes. The edges of the covers are hinged to the bottoms of the inclined shelves, and are held open by means of jointed braces attached to the ends of the covers and to the sides of the case.

Improvements in stereoscopes have been patented by Mr. W. Le Conte Stevens, of New York city. The stereoscope is so constructed that the lenses may be adjusted independently of each other, to be adapted to any pair of eyes, and for any stereograph, and is also provided with movable screens, by which either eye may be permitted to see either the whole or part of the stereograph. The lens cells are so constructed that the lenses may be removed or reversed, or replaced by other lenses or prisms.

An improved fire escape consisting of a friction device by which a person may safely descend a rope, has been patented by Mr. Winfield S. Beebe, of Middletown, Conn. The friction is applied to the rope by a grip consisting of a couple of studs, attached to the opposite side of a disk which turns in a block through which the rope runs. The rope also passes between the studs, which are so fixed with respect to the handle attached to the disk that when a person is suspended from the handle the studs make short reverse bends in the rope, creating friction to retard the descent.

A device for working fans on rocking chairs has been patented by Mr. Alexander Mrozowski, of Newark, N. J. A lever is pivoted to one of the rockers of the chair that has a roller in its outer end and is attached at its inner to a cord wound on a shaft at the top of the chair back, that carries the fans. The shaft is provided with a spring that holds against the action of the cord. When the chair is rocked in one direction the lever draws the cord and rotates the fans, and in the opposite direction the cord is released and the spring rotates the fans and winds the cord.

An apparatus for preventing sea bathers from being carried out by the waves, tide, or undertow has been patented by Messrs. Lorenzo D. Smith, of Baldwin, and John B. Smith, of Patchogue, N. Y. A movable carrier is loosely mounted on a cable attached to a float some distance from the shore and to a standard on the shore. Ropes attached to the carriers are also attached to the bathers, and the carriers are moved to or from the shore by means of ropes passing over a pulley on the float, and connected to a windlass on the shore.

Mr. Frederick W. Hawes, of Algona, Ia., has patented an improved snap hook which can readily be attached to ropes or round straps. The invention consists in a hook provided with a grooved shank to which is pivoted a latch provided with a cam-projection and with jaws fitting against the sides of the hook. Into this grooved shank the rope or round strap is passed, and a grooved strip provided on its inner sides with studs is placed on it, and pressed upon the rope by the cam-projection of the latch, when the latch is swung down, thus holding the rope to the shank.

A jointer for jointing basket staves has been patented by Mr. Warren E. Hinchey, of Evanswood, Wis. A vertically moving sash moves in guides on the frame of the jointer, and is provided with knives for jointing the staves, while they are supported by a form attached to the frame. The forms have clamping faces of curved form, and holding blocks, having similar form, compress and hold the staves on the form to the desired curvature to cause the descending knives to suitably cut and bevel the edges of the staves.

An ear piercing implement, so constructed that the lobe of the ear is pierced and the hook of the earring inserted in the ear at one operation, has been patented by Mr. Frederick Rosenberg, of New York city. A point, sharp at one end and hollow at the other, is placed upon a handle and pressed through the ear, leaving the hollow end of the point protruding a little from the ear. The handle is removed and the hook of the earring is inserted in the hollow end of the point,

and both are drawn through the ear. The point is then removed, leaving the ring in the ear.

A new process of manufacturing photographic emulsions has been patented by Mr. Thomas H. McCollen, of Philadelphia, Pa. On an upright shaft fitted for revolution at a high speed, is a crossarm, from which are suspended vessels by jointed links. Within these vessels are filled glass vessels provided with funnels near their lower ends. The emulsion is placed in the vessel and the shaft rotated, the centrifugal force and gravity causing the excess of silver salts to pass through and beneath the funnels to be used again.

A simple and reliable escapement for mechanisms that require a reciprocating rotary movement, has been patented by Mr. Charles T. Mason, of Sumter, S. C. To the post of the last wheel of a clock train is attached an escapement wheel, that is made in the form of a bevel gear wheel with part of its teeth cut away. The teeth of the escapement wheel mesh successively into the teeth of two bevel gear wheels, on a shaft at opposite sides of the escapement, and give to the shaft and its attachments a reciprocating rotary motion.

An improved cattle guard for railway crossings has been patented by Mr. Robert Armstrong, of Neodesha, Kan. It is a vertically-swinging gate pivoted to suitable standards, with its lower end jointed or hinged to one end of a platform, having its opposite end hinged to a crank shaft journaled in short standards, so that when an animal steps on this platform the gate will be swung upward toward the animal and will stop it. The platform can be provided at its inner end with a projection which strikes against the rail and forms a check for the movements of the platform.

An improved method of taking up the wear of vehicle axles has been patented by Mr. Emery Brulé, of Neillsville, Wis. On the outer end of the axle journal is a screw threaded tenon that is of more than twice the length of the ordinary tenon. On this tenon is applied a screw threaded sleeve of such length that its outer end shall be flush with the outer end of the axle box. When the axle and box have worn, so that there is too much play, the sleeve is taken off and is turned off to reduce its length, so that when again put in place its outer end will be flush with the end of the box.

Mr. Benjamin Verity, of St. Pancras, County of Middlesex, England, has patented an improved burner for gas fires, made of fire clay or a mixture of fire clay and silicate, or of other plastic material. The improvement is designed to facilitate the manufacture of the burner, to afford the necessary freedom for expansion and contraction, and prevent fracture when in use; to insure a more complete and intimate mixture of the gas and air, and to raise the temperature of the gases before they enter into combustion. The invention consists in constructing the burner of a number of sections or parts juxtaposed and fitted together.

A novel vessel for preserving butter has been patented by Mr. William D. Sprague, of Henry's, N. C. The jar or vessel is made in the form of a tube open at both ends. The exterior ends of the cylinder are provided with screw threads upon which screw rings work to close the vessels after the butter or other material has been placed therein. The vessel is filled by pressing the open cylinder directly into a mass of butter until the cylinder is filled up even with both ends. Disk covers are then placed against the butter at each end of the cylinder, and over these disk covers the screw rings are applied and screwed firmly up, effectually closing both ends of the cylinder.

An improved eaves trough hanger has been patented by Mr. William F. Stoetzel, of Omaha, Neb. This invention consists in a hanger of peculiar form, adapted for a roof of any pitch, and shaped to prevent sagging of the trough. The hanger is a strip of metal having its upper end bent at an angle to suit the pitch of the roof to which it is to be attached, and split at its lower end to form the two tongues which are bent in opposite directions for attachment to the crossbar of the trough. The split end of the hanger, provided with the tongues, bent as described, gives a wide bearing and support for the trough, so that it is retained in shape and prevented from sagging to either side in case ice or dirt accumulates upon the trough.

An improved centrifugal honey extractor has been patented by Mr. Joseph K. Rudyard, of East Northport, N. Y. The machine consists in a series of comb holders resting on a plate or frame loosely mounted on a vertical shaft in a vessel, the comb holders having pivots or pintles projecting from the bottoms, on which pintles pinions are mounted, which engage with a cog wheel rigidly mounted on the shaft below the loosely mounted plate, this cog wheel being provided on its upper surface with a series of notches, and the plate or frame being provided on its under side with a pawl strip adapted to catch on the notches, so that the honey will be thrown from the combs by the centrifugal force when the shaft is rotated, and when the motion of the shaft is slackened the comb holders will be reversed. The comb holders can thus be reversed very rapidly and easily by simply retarding the motion of the cog wheel by holding back on the crank.

Mr. William W. Goodwin, of Philadelphia, Pa., has recently patented an improvement in gas heating stoves. The object is primarily to utilize the heating power of the gas to the greatest possible extent, and at the same time to get rid of the products of combustion without allowing them to enter the room where the stove is used. Gas stoves have heretofore been connected with an escape flue, so that the burned gases may escape to the chimney; but as formerly made such stoves have not been economical in the use of gas on account of the escape to the chimney being too direct and free. In burning gas for fuel it is not necessary to provide a draught in order to promote combustion, as is the case in using solid fuels; but all that is required is to carry off the burned gases or products of combustion after their heating properties have been utilized to the greatest possible extent. To attain the best possible results this inventor constructs stoves to give heat by reflection and radiation from the gas flames, and by convection by heating a current of air passed through the tube, and further provides for detaining the heated products of combustion as long as possible within the heating chamber of the stove.