ENGINEERING INVENTIONS.

An improved balanced slide valve is the subject of a patent granted to Mr. Jeremiah Murphy, of Brooklyn, N. Y. This invention provides a valve which is balanced by the steam, thus relieving the valve of undue friction and requiring less power for operating the valve.

An improved journal box for car wheels and loose pulleys has been patented by Messrs. George Sargood and F. L. Hemmer, of East Arlington, Vt. This box is air tight, and is so constructed that the bearings may be adjusted as the axle wears away, the air being excluded from the box to prevent the gumming of the oil.

A novel switch lock has been patented by Mr. David H. Speer, of Pittsburg, Pa. This invention relates to locks for securing the lever by which a railroad switch is operated; and consists in a spring-actuated bolt, combined with devices for setting the same in such a manner that it will be tripped by the disengagement of the lever and thrown into position for automatically locking the lever.

A very simple, and we should think effective car coupling has been patented by Messrs. B. W. Harry and J. C. Kieffer, of Milton Center, O. A sliding block is projected by a spring within the aperture in the head block, through which the coupling pin passes. In coupling the cars the connecting link passes into the drawhead, depresses the sliding block, which liberates the link pin, and couples the cars automatically.

A relief valve for steam fire engines to prevent the occurrence of the water hammer and reactionary force of the water when the jet from the hose is suddenly stopped, has been patented by Mr. Richard H. Atwell, of Baltimore, Md. This valve is located in the case which forms a part of the water conduit to the hose, doing away with an extra valve chamber, and it is so arranged as to be opened automatically by the dynamic force of the water.

Mr. Edward Ebi, of Cedar Rapids, Iowa, has patented a novel coupling for brake rods, which is an improvement upon a patent granted to the same inventor October, 1882. The present invention consists of guide blocks loosely mounted on the brake rods, and provided at the outer ends with beveled prongs. These guide blocks guide the clutch disks at the ends of the brake rods together, so that they can engage. The brake rods throughout the whole train are connected, and may be operated simultaneously.

Mr. Clarence C. Delano, of Musson, La., is the inventor of an improved car coupling, which is so constructed that when the cars are to be coupled the pin of the one into which the link is to enter is made to rest on a lever. The link raiser of the car containing the link is then turned so as to raise up the projecting link high enough to enter the socket of the drawbar to which it is to be coupled, and so held until the link enters and trips the pin, thus enabling the cars to be securely coupled.

A railway signal in which a vane, a gong, or other signal is operated by the locomotive at a considerble distance from the signal, is the subject of a patent granted to Mr. W. C. Beckwith, of Norwalk, O. Two air pumps are located at each end of a section of the rail track, and connected together by an air tube. An engine passing over the section in either direction will operate the pump and display the signal, and then conceal it, and the pump first actuated is restored to its normal position by the air pressure.

Another novelty in car couplings has been patented by Mr. J. C. Look, of Yuba City, Cal. The drawhead of the coupling in this instance consists in two horizontal parallel plates connected with one another by studs, each plate being provided with a hook on each side of it over which the grid is passed for coupling the cars. The cars may be uncoupled by a chain which is connected at one end with the grid and at the other with a capstan which is rigged on the top of the car.

An improved rock drilling machine is the subject of a patent granted to Mr. Henry Dunham, of Glen Aubrey, N. Y. The drills are held in position for work by clamps arranged in a row in the lower part of the frame of the machine, and sledges are suspended from an oscillating beam above in such a way that they may be raised and brought forcibly against the ends of the drills for producing the holes in the rock. A pawl and ratchet is provided for rotating the drill at each blow of the sledge. The frame of the machine is mounted upon wheels which move on a track, and it is also provided with cog wheels which mesh with a rack for setting, feeding up, and removing the drills.

An improvement in feed water regulators has been patented by Mr. J. S. Clarke, of East China, Mich. The feed water pipe which connects the pump with the boiler is provided with a waste pipe and a valve, to open the waste pipe when the boiler is full, and to close it and cause the water to enter the boiler when the water begins to fall in the latter. This valve is controlled by a float in the boiler, which float operates a whistle of alarm in case the pump fails to act and the water falls too low in the boiler. The same inventor has more recently obtained another patent for some improvements upon the above invention. These relate, in the first place, to a device for obtaining a uniform pressure both externally and internally upon the float, and to prevent water from entering the same, and further, of a device for relieving the pressure when the main valve is closed, by means of a relief valve which is operated automatically by the main valve. An improved method of working the injector for feeding the boiler is likewise provided.

MECHANICAL INVENTIONS.

Messrs. Geo. B. McCracken and Samuel Hamer, of Willimantic, Conn., have received a patent for improvements in spindle bearings for spinning frames for insuring proper support and lubrication of the spindle without a loss of oil.

A tension device for sewing machines has recently been patented by Mr. Hiram Holden, Jr., of Spencer, Mass., which is intended for use for either wax or dry thread sewing machines, and insures the tightening of the thread in the work and prevents breaking or cutting of the thread.

An improved gear cutter for cutting beveled, straight, spur, and worm gearing has been patented by Messrs. John Brooks and William Scully, of Detroit, Mich. This machine is designed to provide a gear cutter that can be used upon any lathe or upon any machine provided with a pair of centers and a driving pulley.

Mr. D. H. Lord, of Northfield, Minn., has patented a mill stuff recovering machine, by which any surplus meal or dust accumulating in different parts of the mill may be returned to the proper channels for passing to the dressing machinery in a much more satisfactory manner than by the common method of feeding it directly to the elevator by hand.

Mr. Hugh O. Ames, of New Orleans, La., has patented a pan for evaporating cane juice which is an improvement upon a patent granted to Mr. Ames in December, 1880. The object of this improvement is to give the liquid a uniform heat and a steady circulation for the purpose of expediting the process of evaporation and of cleansing the liquid of scum more perfectly than by methods formerly employed.

An improved ice cream freezer has been patented by Mr. Ferdinand Espel, of San Francisco, Cal. The salt is kept from settling at the bottom by changing the horizontal position of the freezer from time to time, so that what was at first the lower part of the freezer will be at the top, and thus cause continual circulation of the salt, greatly expediting the freezing process.

An improved ear corn cutter has been patented by Mr. J. N. Howser, of Sidney, Ill. The object of this invention is to provide a cutter having a yielding gauge to permit the slice to recede as the thickness of the blade parts the corn from the ear. The gauge is made adjustable as to the thickness of the slice to be cut. Means are provided whereby the cut corn shall be turned away from the lower gearing of the machine.

A removable valve cover is the subject of an invention of which Mr. E. E. Carter, of Waynesburg, Pa., is the patentee. The object of this improvement is to provide a valve cover which can be readily taken off and replaced, so as to afford easy access to the valve and its seat, and to the interior parts of the adjacent pipes for convenient inspection and to facilitate the cleansing of the valves and pipes.

A cotton gin of improved construction has been patented by Mr. Thomas Camp, of Covington, Ga. The lower edge of the gin breast is provided with a series of slots adapted to register with the spaces between the ribs, so that the cotton shall be ginned through the slots instead of between the ribs, thus separating the cotton fiber from the seed without matting and napping the fibers.

A very simple but effective device for leveling pendulum clocks has been patented by Mr. R. B. Freeman, of Blossburg, Pa. The clock is provided with an adjustable back to which the works are attached. This supplementary back is changed to any necessary degree to bring the pendulum in plane with the works, so as to insure accuracy of beat without disturbing the position of the clock case.

An improved curd mill has been patented by Messrs. Goswin Castle and George D. Pohl, of Ava, N. Y. This invention consists of an apparatus for grinding curd in cheese factories before it is taken out of the vat and preparatory to putting it in the hoops, and consists of a pair of toothed rollers working together, the teeth being contrived for tearing or breaking up the curd rather than cutting or squeezing it. An attachment is provided for salting the curd while grinding it.

An ejector for the purpose of raising water or other liquids from wells by the means of compressed air has recently been patented by Mr. W. O. Robbins, of New York city. As compressed air is very apt to bubble through liquids without raising them, the inventor provides a series of check valves, so arranged that they cannot pass through the discharge pipe without forcing the air to act on the column of liquid and to raise it.

An improved lifting jack is the subject of a patent granted to Mr. Marcus Eaton, of Circleville, O., which is so constructed that the axle of a light carriage may be elevated, so that both wheels will be raised from the ground at the same time. This jack is especially recommended to the attention of carriage builders, where it is necessary, in painting and varnishing the gearing, that all the wheels of the vehicle should be raised from the floor.

An improved vehicle wheel which the inventor terms a "steel suspension wheel," and designed to be applied to buggies, wagons, bicycles, etc., has been patented by Mr. E. G. Ferguson, of Macon, Ga. The spokes of the wheel are secured in two pairs of disks at the hub. A spiral spring around the hub holds the two sets of disks apart with a yielding strain, to compensate for the expansion and contraction due to variation in temperature.

An ingenious combination lock has been patented by Mr. William B. Atkinson, of Franklin, Ky. The invention consists of a combination lock having a ward wheel in engagement with each side of the bolt, and means for controlling the operation of the tumbler in rotating the ward wheels and moving the bolt, and in certain means for converting the bolt into a spring bolt at will, whereby a very simple lock is provided which is at once durable and inexpensive.

Mr. W. H. Davis, of Verona, Miss., who obtained a patent in May, 1882, for driving machinery especially adapted for cotton gins, mills, etc., has patented recently some improvements on the same. The invention consists in arranging the driving wheel, the counter shaft pulley, the guide pulley, and the sliding frame which carries the guide pulley in such a manner that the driving band will pass squarely upon the counter shaft pulley, economizing space, and avoiding friction.

An improved hoisting device to be employed in elevators for coal, ore, etc., in which a winding drum is used to elevate coal from a vertical shaft by hand by means of bucket and rope, has been patented by Mr. C. W. Baldwin, of Denver, Colo. A reciprocating lever is provided by means of which intermittent motion is communicated to the winding drum in one direction. Devices are also provided for lowering the bucket rapidly into the shaft, and for regulating the descent by a controlling brake.

A flexible fire escape ladder of improved construction has been patented by Mr. Wesley C. Bush, of Brooklyn, N. Y. This improvement consists of two series of links which form the side support of the ladder, and are united by rungs. These links are of metal and are pivoted one to the other in such a manner that the ladder may be wound on a drum in one direction, while it is entirely stiff and inflexible in the other direction. In this way the ladder may be rapidly unrolled and put in position in case of fire.

Mr. G. W. Pittman, of Keokuk, Iowa, is the patentee of an improved bench vise which the inventor claims may be operated more quickly and more easily than those commonly in use. In this vise of Mr. Pittman both large and small objects may be held by the jaws with equal facility and without the necessity of unscrewing and screwing up the jaws, as is the case with vises of the ordinary construction. It is likewise a simply and cheaply constructed implement, and is equally adapted for heavy and light work.

An improved coke furnace and apparatus for the delivery of the coke into cars has been patented by Mr. Richard Thomas, of Carbondale, Ill. The object of the improvement is to provide for the withdrawal of coke from the furnaces in which it is made, and for the loading of the coke into railroad cars, without the use of rakes, forks, or other devices, thereby reducing the labor heretofore required in handling the coke, and saving the waste resulting from such handling. This is an improvement upon a patent granted to the same inventor in November, 1881.

An improved davit and chair for life boats has been patented by Mr. J. H. F. Meyer, of Philadelphia, Pa. The chairs upon which the boat rests, instead of being stationary as is ordinarily the case, are hinged and connected with one another in such a way, that when the boat is to be swung out for use, these chairs are lowered out of the way which obviates the necessity of raising the boat for clearing the chairs. Further, the davits are hinged at their lower ends, so that when the boat is to be lowered, the davits are swung forward, thus bringing the boat into position for clearing the side of the ship. At the same moment the pin which retains the boat in its elevated position is liberated by the swinging of the davit, and the boat being lowered into the water will be automatically released from the ropes by the action of the connecting gear. This so far simplifies the operation of lowering boats at sea, that only one or two men are required for the purpose.

AGRICULTURAL INVENTIONS.

Mr. David Wise, of Paradise, Texas, is the patentee of an improved seed planter, so constructed as to operate automatically by the action of the wheels. A lever is provided by means of which the opening plows may be adjusted to work at any desired depth in the ground, and can be raised from the ground when desired. A foot lever is provided for throwing the gear wheels into and out of gear.

An improved hay stacker which greatly economizes time and labor has been patented by Mr. J. C. Testman, of Wisner, Neb. The machine consists of an inclined way upon which is arranged on wheels a movable frame provided with a series of hook teeth, for grasping the hay at the bottom of the inclined way. The truck with its load is then hauled by a rope and pulleys to the top of the frame, where the hay is discharged, the forks being raised automatically.

MISCELLANEOUS INVENTIONS.

Mr. Henry Hirsh, of New York city, has patented an improved frame or cap for holding pictures or other souvenirs in the case of a watch.

The subject of a patent recently granted to Mr. E. W. Free, of Baltimore, Md., is an attachment for drills for facilitating the spreading of either grain or fertilizers. The attachment is simple and is intended to supply a long felt want.

Mr. Leonard Tilton, of Brooklyn, N. Y., has patented a blind stop which is a cheap, efficient, and easily operated device for holding the slats of window blinds open or closed, or at any desired intermediate position.

An improved compound for preserving belts, keeping them soft and pliable, so that they will lie close to the pulleys, and prevent the slipping of the same, has been patented by Mr. W. H. Durkee, of Cincinnati, O. This mixture consists of tallow, light resin, and castor oil compounded in certain proportions.

Mr. William S. Appleget, of Cranbury, N. J., has obtained a patent for an improved platform gear for wagons which consists in so constructing and combining the several parts, the elliptic springs, the braces, the bars, and the pole with the axle of the wagon that greater firmness and durability is secured.

A combined refrigerator, filter, and water cooler is the subject of a patent granted to Mr. T. C. Nativel, of Brooklyn, Cal., whereby in one apparatus the water may be filtered and kept cool for drinking purposes, and at the same time a sufficient amount of space is provided for keeping butter, meats, etc.

Mr. James H. Russ, of Providence, R. I., has patented an improvement in spring balanced rollers for window shades, which is so constructed that the energy stored up in pulling down the shade will be sufficient for raising it again when necessary. The invention is simple in construction, and provides a shade roller not likely to get out of order.

An improved awning to be attached to the side of a hop box to protect the pickers from the rays of the sun has been patented by Mr. Jacob Engle, Jr., of Sharon Center, N. Y. This consists in a folding sunshade supported on an extension staff, provided with a universal joint, so that the shade may be shifted to any desired angle as the sun's rays change.

Mr. D. W. Wilkins, of Boston, Mass., has patented a device to be applied to shirt bosoms for preventing the screws of spiral studs from irritating the skin and cutting holes in the underwear. This shield consists of two disks secured to each other at the edges, one of which is provided with an aperture through which the screw of the stud is passed.

An improved nut lock has been patented by Mr. G. P. Minarich, of Del Rio, Tex. The bolt to which the nut is attached has a longitudinal groove, into which a key slides, and connects with the nut which is so constructed as to prevent it from unscrewing. The inventor intends to have the key made out of a metal which is not liable to rust.

A brake block which acts by friction on the tire of a wheel is the subject of a patent granted to Mr. M. J. Siqueira, of Brooklyn, Cal. This brake block is furnished with a leather strip to receive the friction wear from the wheel. The friction leather is secured by hooks and pins, so that when it is worn out a new one may be substituted without difficulty.

Mr. Charles H. Bennett, of Halifax, Nova Scotia, has recently obtained as assignee a patent on a stencil holder, the invention of J. W. Bennett, of the same place. The object of the improvement is to permit stencil, name, or number plates to be inserted and removed readily, and for holding them firmly while in use, whatever may be the shape of the plate.

Mr. William Standing, of St. Louis, Mo., has patented an improved safety trace holder which is so constructed, that by simply inserting the trace in the holder it will be firmly held by the same, and the greater the pull on the trace the more firmly will it be retained, but should the horse or horses become unmanageable, by pulling a cord the trace will be detached, and the unruly beast will be set at liberty.

A pocket button hook has been patented by Mr. George Clark, of Brooklyn, N. Y. The hook shank slides up and down in the handle, which consists in a hollow flattened metal case. When the hook is not required for use, it is pushed into the handle, and thus will occupy but little space. The implement is intended for pocket use, and will be found quite a convenient article.

An improved hood for electric lamps has been patented by Mr. Samuel H. Tacy, of New York city. This hood consists of a conical upper part having a sleeve at its apex, and the lower part in the form of an inverted cone and hinged suitably to the upper part. The object of the hood is to protect the operating mechanism of the lamp and increase its effectiveness by reflecting the light downward.

A molasses evaporator for concentrating cane juice or other kinds of saccharine juices to form sugar and molasses, has been patented by Mr. J. S. Boren, of Booneville, Miss. The improvement consists in the construction of the box, which is made up of several independent troughs of copper or other metal connected by suitable conduits, the corners at the bottom being round, so that they may be more readily cleaned.

An improved truck designed to facilitate the handling and transporting of bricks has been patented by Mr. J. S. Armstrong, of Republic, O. The platform upon which the bricks are loaded is suspended by rods to the frame of a barrow-like vehicle by means of which they may be wheeled from one spot to another, where they may be deposited without removing them from the platform by detaching the rods from the frame of the truck.

An improved fastener for gloves, shoes, etc., is the subject of a patent granted to Mr. D. T. Chambers, of Washington, D. C. The slit of the gloves is provided with a flap which has a buckle loop attached to one of its edges through which a strap passes for holding down the flap, this strap being attached at the free end to a button located on the back of the glove, making it fit the wrist snugly, and giving the glove an ornamental appearance.

Mr. S. B. Bartine, of Tottenville, N. Y., has obtained a patent for an improved sun shade hat which consists in a hat having a crown, that in hot weather may be raised, furnishing an umbrella-like sunshade protecting the head of the wearer from the rays of the sun, and permitting at the same time a free circulation of air. In cool weather the shade may be collapsed and a hat of the ordinary appearance will be provided.

Mr. John Lutz, of Xenia, O., has patented an improved end gate for wagon boxes. The upper end board is arranged to swing down upon a lower end board, so that the former will rest in an inclined position between side wings which retain the contents of the box. The special advantage of this improvement is that it greatly facilitates the use of a shovel in the removal of the load, and in the case of loads of potatoes, apples, etc., enables the shovel to be inserted underneath the produce without damage to them.

Mr. J. Harris Rogers, of Washington, D. C. is the patentee of an improved automatic telegraph, which consists in a novel arrangement of stylus and indented metal foil or sheet in an automatic telegraph, for the purpose of transmitting electrical impulses by breaking connection over the indentations in the strip or sheet and making contact with the intervening spaces lying in the normal plane of the strip or sheet, in contradistinction to making contact with raised embossments. Devices are provided whereby a message may be transmitted without removing the strip from the carrier, and also for avoiding static charges on the line.

Mr. F. M. White, of Winigan, Mo., is the inventor of a new harness pad press for the use of harness makers for forming and pressing the leather into the proper shape, preparatory to the pad stuffing process. The body of the press is of metal, and is provided with a form or mould over which the leather is stretched. The leather is confined to the form by a metallic hoop, which fits closely around the outer edge of the form, holding the leather securely on all sides, but leaving the central portion free to conform to the mould. The frame may be constructed to hold two or more formers, and thus the manufacture of harness pads is greatly facilitated.