

**ENGINEERING INVENTIONS.**

Messrs. S. H. Knapp and A. E. Adams, of Danbury, Conn., have patented a novel and ingenious elevated wire railway for carrying mail, dispatches, etc. Small cars run on wires which are supported on posts in the same manner as telegraph wires. The cars are propelled by a small electro-motor which receives its electric current from a battery on one of the cars.

A device for operating air compressor valves which obviates the necessity of employing spring valves, which are apt to get out of order and which enables the cylinder to be more properly filled, has been patented by Mr. Charles A. Bennett, of Dover, N. J. This device opens and closes the inlet valve of the compressor automatically, and is operated at the same time by the machinery of the compressor.

Mr. Joseph Torras, of Red River Landing, La., has patented an improvement in levees for preventing low lands from inundation, and which are built in sections, consisting of metal plates having one end set in the earth and supported in an inclined position by a suitable frame. The invention consists of a supporting frame combined with the inclined and partially embedded plates, and consisting of a base having uprights and inclined bars secured to the uprights and to one side of the base.

An improvement relating to stock cars, and consisting in devices for facilitating the watering and feeding of the stock, has been patented by Mr. James C. Weaver, of Cutler, Ind. In this car spring racks are arranged along the sides which receive the hay as it is stuffed through openings in the sides, and which when the hay has been consumed are closed up by springs and thus do not occupy the space of ordinary hay racks. The car is likewise provided with a partition which is arranged to be suspended from pivots at different points in the car.

**MECHANICAL INVENTIONS.**

Mr. Oakley S. Walker, of Carthage, N. Y., has patented a ratchet drill having the working lever provided with a boss or socket which forms a bearing for the feed mechanism, whereby the feed mechanism may be extended and utilized the full length of the drill spindle.

Mr. Erastus B. Barker, of New York city, has obtained a patent for an improved manner of mounting a photographic camera box upon a circular support; the object of the invention being to enable the box to be readily reversed and adjusted to any desired position, so that pictures of different horizontal and vertical lengths may be taken.

Mr. J. M. Matthews, San Antonio, Texas, has received letters patent for an improved apparatus for destroying insects. A furnace is provided in which obnoxious substances such as sulphur are burned, the fumes of which are forced into the ant or mole hole by a machine connected with the furnace. In this way the ants or moles are either destroyed under the ground or are driven out of their holes, when they can be seen.

An improvement in the manner of connecting the escapement of a clock with the pendulum rod, and which serves to lessen the friction in the pendulum action of the clock, has been patented by Mr. John Blanshan, of Le Fever Falls, N. Y. A pin on the rod of the pendulum strikes a notched lever and gives it a back and forth movement, while by a similar movement of its lower end the verge is caused to operate the escapement wheel.

A device for removing piston rods from cross heads has been patented by Mr. James E. Worswick, of Montgomery, Ala. This invention is designed for the purpose of removing piston rods from cross heads without the injury of any part, and it consists in a base piece having a threaded projection, provided with a bore, and a cylinder formed with an internal nut screwing on the projection and connected to the cylinder by feathers and adapted to bear against an annular shoulder in the cylinder.

A patent has been granted for a mechanism for raising lines to the upper parts of buildings to enable ladders or other escape mechanism to be elevated in case of fire. This mechanism is designed to be clamped to the top of a ladder or telegraph pole, and by manipulating the crank a long rod bearing one end of the rope at its extremity will be elevated until the window or roof from which the people are desiring to escape has been reached. Mr. George O. Daw, of New York city, is the inventor of this device.

A machine for preparing batches for glass furnaces, and also for promoting thoroughness in the preparation of such batches, has been patented by Mr. George S. Crofts, of Philadelphia, Pa. The invention consists in a batch mixer constructed with a series of elevators, and a box and a discharge slide, and spouts for introducing the material into the mixing cylinder, where it is thoroughly mixed and then discharged upon the screen, so that the material will be mixed and screened with one handling.

Mr. Benjamin E. Sergeant, of Greensborough, N. C., has obtained a patent for an improvement in the manner of adjusting logs to the saw in saw mills. In this invention the log may be adjusted on the carriage in such a way that either end may be approached to the work separately, or both ends may be moved forward with an equal adjustment. The machine is so constructed that the workman, without moving from his position, may attend to the adjustments of the different parts, the setting of the log beams separately or together, the reversal of the movement of the log carriage, the adjustment of the saws, etc.

A very cheap, durable, and convenient handle for carboys and other vessels has recently been patented by Mr. Fred A. Howard, of South Easton, Mass. The handle may be made in the form of an oblong loop of a convenient shape for the hand, and is terminated in a ball which fits within a cup-shaped socket, thus forming a ball and socket joint. With this construction the carboy may be readily carried by one person, and at the same time, if it is rested by the handles on any suitable support, the contents may be drawn out by simply tipping the vessel forward.

An automatic egg boiler has been patented by Messrs. William P. O'Brien, of San Jose, and Walter B. O'Brien, Jr., of Santa Clara, Cal. This invention consists of a dish made to set in a boiler on a spring that is held in check by a catch to be tripped by a spring power time train of gears that may be set for running the length of time the eggs are required to boil, and is provided with means for tripping the spring at the proper time. This spring pushes the egg dish up out of the water, and thus automatically takes up the eggs at the precise predetermined time, and insures the cooking of the eggs to the required extent.

Mr. Norton A. Ellis, of Boonesborough, Iowa, has patented an improved siphon faucet in which the pump for withdrawing the air from the faucet is located on the top of the faucet cock, which has a passage that opens from the siphon to the pump, when the main discharge passage through the cock is closed. The pump has a discharge pipe which swings into position over a receptacle in the nozzle of the faucet, for the discharge of the liquid that may escape from the pump into the nozzle when the passage from the siphon to the pump is open, making a simple and efficient siphon faucet having only one cock or handle to manipulate.

It is a great advantage in laying tin roofs to shape the tin and prepare everything that is possible in the shop, as any work can be done there more handily, rapidly, and more thoroughly than on the roof. Mr. Robert C. Snowden, of Elizabeth, Pa., has patented a machine for bending the edges of the sheets of tin, so that they may be joined upon the roof. The machine is provided with a folding bar or brake, and with a bending plate hinged so that it may be swung down upon the edge of the table, and thus bend over the edge of the tin for the purpose described. This invention is an improvement upon a patent granted to same inventor in March, 1883.

An improved saddler's sewing horse has been patented by Mr. Joel Thomas Ward, of Piedmont, W. Va. The invention consists in a sewing horse constructed with a fixed jaw and a pivoted jaw connected by a spring, the lower end of which pivoted jaw is connected by a connecting rod with an arm of one end of a pivoted foot lever, which can be locked in position by passing the edge of a plate on the lever under the teeth of a rack secured on one of the legs. A rod provided at its upper end with a hook bend passes loosely through the bench, and can be locked in the desired position by means of a suitable binding screw, which rod serves to support the work.

A cotton cleaner and feeder for removing sand, stones, leaves, and other refuse from seed cotton previous to ginning, has been patented by Mr. A. J. Williams, of Macon, Ga. This saves the labor of picking stones from the cotton by hand, which is necessary when it is cleaned only by a fan. As the cotton passes from the feeder it is carried between the beater and the apron, which operation loosens the cotton and permits the stones and sand to fall through openings prepared for the purpose in the apron. The cotton then passes into a tray, where it is cleaned up by a fan over a suitable roller, while the stones and heavy refuse pass down and collect in a suitable receiver. The same inventor has further secured a patent for an improved rib for cotton gins to prevent seeds and other refuse from collecting in the space between the ribs and preventing the proper action of the saws. This improved rib is beveled on the front side and the opening is flared forward toward the upper end, so that the faulty seeds and lint are allowed to slip up and out, thus keeping the space clear and free.

**AGRICULTURAL INVENTIONS.**

Mr. G. A. Merriam, of Sharon, Wis., has patented an improved hay fork, which consists of two arms hinged together and provided at their outer ends with pivoted tines, which are held in place when in the hay by latches or triggers fitted upon the arms of the fork.

A combined cultivator and planter has recently been patented by Mr. John B. Newsom, of Near Eufaula, Ala. This implement is provided with a plow at the front for opening the furrow, and with a hopper and a star-shaped wheel located within the hopper for regulating the distribution of the seed in the furrow, and it is further provided with two pairs of plows at its rear end, which serve to cover up the furrow when the seed has once been deposited therein. One plow of each pair may be detached in case one horse is to be used and it is necessary to lighten the draught.

An improved grain separator has been patented by Mr. William Crain, of Castroville, Cal. This invention relates to that part of a grain separator which effects the first separation of the straw from the grain before the delivery of the grain and chaff to the shaking shoe. The separator has two screens arranged in the same plane at a distance from each other, and combined with suspending arms and a rake for continuing the passage of the straw from one to the other, and a reversely-gear pitman for giving opposite oscillatory movements to the screens.

An improved harrow has been patented by Mr. Sven Anderson, of Humboldt, Neb. This invention consists of improved contrivances for extending and contracting a V-shaped harrow, to widen and narrow it to suit different conditions and kinds of plants to be cultivated. The handles are crooked, and they are detachably connected to the bars by clips, enabling them to be taken out and shifted from side to side to range in proper relations to the attendant, whether the harrow be contracted or extended, and the clips are fitted to shift up and down on their pivot, and be fastened by the bolt to alter the pitch of the handles to suit the attendant.

**MISCELLANEOUS INVENTIONS.**

Mr. Lorenzo D. Hurd, of Candor, N. Y., is the patentee of an improved running gear for wagons. The object of this invention is to provide mechanisms for locking and releasing the axles, fifth wheels, and tongues of wagons, and also for regulating the gather of the forward wheels.

Mr. William W. Wythe, of Red Bank, N. J., has added to his list of patents recently obtained an improvement upon clutch pulleys. This mechanism is to be used with pulleys with hoisting drums for engaging and disengaging a prime mover, and at the same time holding the object being raised at any elevation desired.

Messrs. F. C. Smith and John W. Weitzel, of Atlanta, Ga., have obtained a patent for an improvement in the side springs of vehicles, the object of the invention being to give greater strength to the spring gear and to prevent the lateral swinging motion of the wagon body.

An improved fruit basket in which the cover is made integral with the basket has been patented by Messrs. John W. Rockafellow, of Stockton, and P. T. B. Nevius, of Flemington, N. J. The invention consists in a basket made of splints projecting above the top ring, and adapted to be folded over the top of the basket and to form the cover.

Mr. Julius Stommel, of Washington, D. C., has invented a foundation for a pavement, consisting of a number of single cells made in the form of iron boxes or tubes, having interlocking parts, substantially as shown and described, whereby any desired curvature may be given to the foundation, and the latter may settle uniformly after the superstructure is placed upon it.

A composition to be applied to roofs and walls for rendering them water and fire proof has been patented by Mr. R. J. Pattison, of New York city. This compound consists of mineral wool, plaster of Paris, oil, liquid glue, all thoroughly mixed together and moulded, after which it is subjected to a heat of from 100° to 160° Fahr.

Mr. William S. Mallard, of Darien, Ga., has patented an improved rice field trunk and gate, consisting of a trunk having an upright water receiving chamber, communicating with a passage through the trunk, and the gate fitted in and adapted to be moved vertically in the chamber, and having a hinged part adapted to open a passage through the trunk when the gate is down.

A novel attachment to the treadle of a sewing machine for aiding and facilitating the operation of the treadle has been patented by Mr. J. A. Robison, of New Washington, Ind. A weight is secured to the treadle above the treadle shaft, and a spring is attached to the weight and frame, both of which serve to aid in depressing the treadle.

Mr. William Wilmington, of Toledo, O., has patented an improvement in car wheel chills of that class which have in the outer portion of the flange face a peripheral receptacle for the reception of sand, or its equivalent, the purpose of which is to retard the cooling of the molten iron composing the outer portion of the flange to increase the depth of the chilled iron in the concave part of the tread and flange of the wheel.

An improved fire escape ladder has been patented by Messrs. Handley B. Kimball and Cornelius S. Barrett, of Charlotte, Mich. This ladder consists of joints with shoulders, so that the bars will assume a zigzag shape, and the rounds of the ladder will be held away from contact with the side of the house, and descent on the ladder thereby very greatly facilitated.

Mr. F. W. Coddington, of Barre, Mass., has patented a device for tightening automatically the belts of machines. A ring or ferrule is slipped over the double end of the belt before the latter is passed over the driving wheel of the machine, and in this way all slack is taken up and the driving wheel is operated to the best advantage, there being no loss of power by the slipping of the belt.

Messrs. J. S. Pardee and Albert Morley, of New Troy, Mich., have obtained a patent for a nut lock for bolts which is an improvement upon a patent granted to Mr. Morley, in May, 1872, and the invention consists in making the locking key slightly eccentric, so that when it is turned it will have a binding action upon the nut, and will take up any play there may be between the nut and the bolt.

A patent has been granted to Mr. William C. Seaton, of Quebec, Canada, for an improved wick trimmer, and the invention consists in a wick trimmer consisting of a box containing a removable box in which a revolving brush is journaled, which wick trimmer is provided with single and parallel slots and recesses, to adapt the device to be used for cleaning and trimming single, double, and circular wicks.

An improved insole has recently been patented which consists of a pair of outer sheets of perforated material, with a woolen sheet between them. This renders the insole a non-conductor, and permits the perspiration to escape at the same time. The insoles are provided at the heel and toe with roughened plates which hold them in place and prevent them from slipping. Mr. Oliver Long, of Brooklyn, N. Y., is the patentee of this invention.

An improved hame tug has been patented by Mr. William Fawcett, of New York city. The draught arm of the hame is provided with an outwardly projecting hook to receive the eye of the hame tug, and with a suitable device for securing the same in place, the object of the invention being to enable the ready attachment and detachment of the hame tugs from the hames, and so that the former may be made separately from the latter.

Mr. F. D. Hill, of New York city, has patented an improved burglar alarm which is constructed with a spring clamp connected with a bar jointed to a suspended frame carrying a clock work and gong, and a sliding rod provided with a spring, and having hangers to engage with the escapement anchor, and a catch attached to the suspending bar, whereby the alarm can be readily suspended from a door knob, and will be sprung by the movement of the knob.

An improvement in chronometer escapements has been patented by Mr. August W. Kientoff, of Dallas, Oregon. In this improvement a lever is provided in connection with the balance wheel so as to be oscillated by it, striking at the same time a second lever, which thereupon unlocks the escapement wheel, this

lever being thrown forward immediately by a spring to lock the escapement wheel after it has moved the distance of one tooth. The invention relates also to other details of arrangement and construction.

A very simple type writing ruler has been patented by Mr. Henry B. Mead, of Stonington, Conn. This type writing ruler is very inexpensive and simple and may be used for printing addresses, show cards, etc., where stenciling or other methods are less desirable. This ruler has a bed plate and guide holes for securing the paper firmly while being marked. The ruler is provided with graduated marks which correspond to the spaces occupied by the type.

An improved hand truck has been patented by Mr. William P. Brown, of Zanesville, O. This truck is provided with hooks which pass over the top of the object to be handled, serving to retain it firmly on the platform of the truck, and also to assist in loading it on the same. A bail is provided also which may be passed over the top of barrels or sacks for holding it in place. The truck further may have two sets of wheels, one back of the other, to facilitate the passage of the trucks over obstructions.

Mr. Juhel Jackson, of Fort Atkinson, Wis., has obtained a patent for an improved buckboard. The spring boards, instead of extending continuously from one axle to the other, are made much shorter than in the common buckboard, and meet in the middle, where the body or box of the wagon rests on the springs and are there held together, and so as to support the box by suitable arch boards and bolts. This construction relieves the wagon of much of the disagreeable jarring or shaking common to the ordinary buckboard.

Mr. Fletcher Joyner, of Glens Falls, N. Y., is the patentee of an improved center board for sailing vessels. This invention consists of an improved arrangement of contrivances for raising and lowering the center board, and for holding it up in the trunk of the vessel in such position that when the vessel heels over by the force of the wind, the center board will maintain a position perpendicular to the surface of the water, and thus have better power to keep the head of the vessel up to the wind than when the common center board is used, which inclines with the motion of the vessel.

An improved device has recently been patented for ascertaining the flow of electrical current in a circuit and for recording such flow. This device is called an electrical meter, is specially applicable for indicating the current in a system for running incandescent electric lamps. An electro magnet will be employed in conjunction with a recording mechanism, and the number of revolutions made by the motor will be exactly proportioned to the flow of current. The inventor of this device is Mr. Edward Weston, of Newark, N. J., and the patent has been assigned to the United States Electric Lighting Company, N. Y.

A gymnastic chair has been recently patented which consists in a rocker provided with two side supports carrying crutches at their upper ends to be placed under the arm of the occupant of the chair. The crutches are arranged so that they will support the occupant of the chair, and the tube is arranged to swing longitudinally or laterally, being mounted upon a universal joint. This chair may be found of service to support aged or weak persons, or it may be found convenient for use on shipboard. The inventor of this device is Mr. W. E. Kelly, of Rockville, Pa.

Mr. William M. Brock, of Shamokin, Pa., has patented an improved telephone annunciator, switch board, and transfer table for facilitating connecting two telephone subscribers with each other in such a manner that they do not interfere with the other lines, and are not disturbed themselves. This switch board is divided into a series of annunciator plates, each provided with a like number of plugs, combined with as many wires or rods as there are plugs in each annunciator section, which wires or rods are attached to the back of the switch in such a manner that the like plugs of each annunciator section can come in contact with the same wire or rod.

Mr. John W. Resor, of Jem, Mo., has patented an improved chimney sweeper, consisting of a frame carrying brushes around the edges and suspended on an endless chain in the chimney, and capable of being moved up or down in the chimney by the chain. It will be seen that the chimney is only obstructed by the chain itself, as the brush will be shifted down below the smoke inlet to the chimney when it is not in use, and the slight obstruction of the chain will be much less than soot would obstruct if the brush were not employed. The splints of the brush are preferably made of thin, flat steel, but may be round if desired, and brass or tough iron may be used.

An automatic car scale for weighing the car body and its contents, and designed to be attached permanently to the car, has been patented by Mr. Chas. Lederer, of Norfolk, Neb. The body of the car is supported on the trucks by springs, which latter are depressed proportionately to the superimposed weight. A registering apparatus is placed underneath the car, and this is connected with a bracket over the springs by means of suitable rods and belt crank levers, and as these brackets at both ends of the car are depressed by the weight on the springs, the two rods connecting the bell crank levers and the register will be recessed and the weight of the load thereby indicated on the scale.

A very simple automatic telegraph has recently been patented by Mr. James W. Rogers, of New York city. The apparatus consists in a cylinder having a spirally-grooved periphery and a jacket having characters indented therein below the normal plane of the jacket, and two terminals of an electric circuit arranged upon the indented side of the jacket, one of which is made movable and traverses the route of the indentation, being thrown into contact with the other terminal by the non-indented portion or normal plane of the paper. With this apparatus, when a message has once been transmitted on the paper in the form of indentations in the Morse character, the message may be immediately retransmitted without the necessity of removing the paper from the cylinder upon which the message was first recorded.