

## ENGINEERING INVENTIONS.

A novel globe valve has been patented by Mr. George Reimann, of Quincy, Ill. The invention consists of a globe valve which is steam and air tight, and which also has a capacity for the renewal of those special parts which are exposed to wear without the renewal of the remaining parts, and it consists mainly in the combination of the various parts with each other, whereby the valve in its entirety possesses marked advantages over those commonly in use.

An improved indicator for hydraulic elevators has been patented by Messrs. Carl Schon and Calvin S. Brown, of Toledo, O. The invention consists of a roller to bear against and run along the elevator post or guide way, and of recording mechanism which is operated by the roller, arranged in a case attached to the elevator carriage, and operated when the carriage ascends, to show the number of feet the piston is moved by the water pressure, thus recording the number of gallons of water used.

An improvement in railroad switches has been patented by Mr. Martin A. Green, of Altoona, Pa. The invention consists of an arrangement whereby the switch rails carry the wheels over the main rails in such a manner that the main track rails remain solid and the point and frog are dispensed with; and it also consists of a switch contrived in a manner that a train running along the main line will automatically shift and pass the switch when running in one direction, in case the switch is open, and, also, so that a train running from the branch on to the main line will shift the switch automatically, in case it is set for the siding.

A novel drill frame, the object of which is to facilitate the drilling of holes in steam boilers for the attachment of machinery, has been patented by Messrs. David Clark and John Lee, of Hazleton, Pa. The invention consists in a drill frame constructed with a base having points or claws, and a standard provided with an adjustable arm, and an arbor placed at a point above the base. A chain is connected with the arbor at one end by a hook and at the other end by a swiveled screw and a claw hook, whereby the chain can be readily drawn taut to hold the drill frame securely in place.

A car coupling of improved construction has been patented by Mr. Franklin W. Kelly, of Vermontville, Mich. The invention consists in a U-shaped rod passed through the bottom of the drawhead into the cavity, on the crosspiece of which U-shaped rod an eye is loosely mounted, to which eye a lever is pivoted, which is also pivoted to the drawhead or a projection of the same, whereby the U-shaped rod will raise the link in the cavity in the drawhead by pulling this lever downward, by which means the coupling is greatly facilitated, and the great danger to life in the present systems avoided.

An improved escape door for railway cars, which can be opened to permit the exit of the passengers in case the car has caught fire or has been overturned, and the usual outlets are not accessible, has been patented by Mr. Thomas E. Mint, of Middlebury, Vt. The invention consists in a car provided with openings in its bottom, which openings are closed by doors connected with slats resting on sliding bars in the car floor, the sliding bars being provided with racks engaging with pinions on a shaft below the car floor. When the shaft is rotated, the sliding bars, the seats, and the doors will be moved in the direction of the length of the car, leaving the openings in the car bottom uncovered to permit persons leaving the car through the same.

## MECHANICAL INVENTIONS.

Mr. Horace L. Kingsley, of Racine, Wis., has patented a vehicle king bolt connection of peculiar device, the object of which invention is to reduce the cost of construction of that portion of a vehicle or carriage gear which is connected with the king bolt, as well as to increase its strength and durability.

A novel cotton cleaner, designed to remove the dust, trash, and dirt from cotton immediately after the cotton passes the brush, has been patented by Mr. John E. Engram, of Eufaula, Ala. The invention consists of the combination with a cotton gin flue having openings through its bottom, of deflecting wires secured within the flue, which act in such a way as to shake the cotton and loosen the dust therefrom, which latter then passes out of the flue through the openings in the bottom.

An improved converting motion, to be used when power and not speed is required, has been patented by Mr. Edward T. Ailing, of Milledgeville, Ga. This invention consists of shafts upon which are keyed or fixed ratchet wheels having oppositely pointed teeth and meshing or gearing pinions, combined with drums sleeved loosely upon the shafts and surrounding the ratchets, and provided with spring pawls which engage the ratchets. The drums have also depending arms connected to a reciprocating rod.

A simple and convenient improvement in bed lounges is the subject of a patent recently granted to Mr. Philip Herbold, Jr. of Galion, O. The invention consists principally in a double jointed arrangement of the front portion of the lounge, which may be let down when in use as a bed. This front board rests on a couple of extension braces, which are folded out of sight when the article is used as a lounge, but are brought into use to support a mattress of sufficient width to accommodate two persons when used as a bed.

Mr. William W. Wythe, of Red Bank, N. J., has patented an improved hoisting gear, the object of the invention being to secure frictional adhesion of the rope to the drum or pulley of the hoisting mechanism, so that one end of the rope may be left to hang free without danger of the load descending by the slipping of the rope. To that end a friction pulley, arranged to press the rope into the groove of the pulley with more or less pressure in proportion to the load that is being raised, is combined with the hoisting gear and the desired results obtained.

A calendar clock of ingenious construction has been patented by Mr. Mathias L. Jacquemin, of Council Bluffs, Ia. The invention relates to improve-

ments in perpetual calendars adapted to be operated by clock mechanism, or on a smaller scale by watches, or by any kind of time keeper, whereby an efficient and reliable calendar is provided for automatically making the weekly and monthly changes, for showing the names and numbers of the months, for making the changes for the different numbers of days in the months, and the leap year changes, and for showing the number of the quadrennial year.

An improvement upon that class of fire escapes which are formed of extensible parts, and supported upon wheels for convenience in transportation, has been patented by Mr. Richard Bentley, of Corning, Iowa. The invention consists in a hinged folding and extensible slideway attached to the forward end of the truck, which slideway is provided with an endless chain cable by which persons, goods, or furniture may be lowered to the ground in safety. The slideway is elevated by a system of pulleys and ropes, and is held in position by a stout support, so arranged as to hold the slideway in any desired inclination.

An invention relating to improvements in water sealed gas meters has been patented by Mr. Pedro Enrique Perez, of Valparaiso, Chili. These meters, as ordinarily constructed, if tipped out of level, will not register all of the gas that passes through them. This invention consists in providing such meters with valves that will cut off the flow of gas if the meter should be tipped out of level in any direction. To accomplish this, two valves are arranged horizontally and at right angles to each other, one being operated by a float, the other by a pendulum weight or plumb. The valves are by preference made double acting.

An improvement in gauge edgers, the object of which is to promote their efficiency and increase the convenience and simplify the construction and operation of gauge edgers and other sawing machines, has been patented to Clara A. White, of Eau Claire, Wis., executrix of Samuel White, deceased. This invention consists in devices which serve as brakes, and prevents the lumber from flying toward the front of the machine, also of the placing of feed rollers one or more in front, and two or more in the rear of the saws, by which the lumber is passed to the saw more evenly and with less danger of swerving than in the ordinary way.

An improved permutation lock has been patented by Mr. Wilbra W. Swett, of Springfield, Ill., capable of being operated by the sense of feeling instead of the sense of sight. The operation is substantially as follows: The knob handle, after having been turned to the right several times in order to bring the tumbler disks into the proper relation to each other, is moved to the base point—that is, in such manner as to bring the double groove of a disk in the lock into contact with the detent of the spring. Having found the base point by feeling the click as it snaps into the grooves, the grooves are counted in alternate directions until each tumbler in its turn, beginning with the inner one, is brought into the proper position for unlocking. The end of the locking bar being thus disengaged from the stop block, the bolt may be moved into the case to unlock the door. By a proper arrangement of the pins, any desired combination may be obtained in the manner well understood.

An improved extension fire escape has been patented by Mr. Philip Schuh, of Westchester, N. Y. The invention relates to an extension fire escape constructed with a carriage having the rear part of its frame movable and its forward part stationary, the said parts being connected by levers and connecting bars to allow the movable frame to be readily adjusted and controlled. To the movable part of the carriage frame on each side are swiveled two screws provided with a driving gearing, and carrying two pairs of nuts, to which are hinged the lower bars of a lazy tongs, so that the lazy tongs can be raised and lowered by turning the screws. With the lazy tongs and carriage frame are connected a flexible ladder and its reel, and a bail, pulley, rope, and reel, the said rope reel having a brake lever connected with it for controlling its movements. The carriage is also provided with dogs to engage with the ground and hold the carriage stationary while the machine is being used.

## AGRICULTURAL INVENTIONS.

An improved harvesting machine has been patented by Mr. Edson L. Bracken, of Dawson, Ill. This invention consists of the combination and arrangement of a grain table, grain carrier, and a binding table with an ordinary or any special "rear cutting" mower in such manner, as to be readily attached at any time for the purpose of converting a mower into a harvesting and binding machine.

A novel sulky harrow of has been patented by Mr. Leroy M. Gillett, of Lyons, Kan. The invention consists of several novel features of construction, one of which is a device for shortening the axle and bringing the wheels nearer together when occasion requires; also, of an arrangement by which the harrow will be caused to work shallower or deeper as may be desired, and further of a pulley and lever combination, by which a portion of the harrow attachment may be raised to avoid contact with stumps, logs, stones, or other obstructions.

## MISCELLANEOUS INVENTIONS.

Mr. Charles H. Scofield, of Utica, N. Y., has patented a new envelope for dry plates used in photography, which is to be used as a cover for the plates and as a plate holder in the camera, thus permitting the operator to dispense with the camera plate holding frames.

An improved tape line case has been patented by Mr. George Clark, of Brooklyn, N. Y. The invention consists in a tape line case made of sheet metal enameled on the inner and outer surfaces, the bearings for the spindle on which the tape line is wound being punched or pressed in these metal plates.

A combined music stool and pedal attachment is an ingenious invention recently patented by Mr. William E. Leighton, of West Pembroke, Me. It consists of a music stool having a supplementary pedal

attachment for children, the attachment being adapted to be folded and shoved back into the base, or under the stool, when the stool is to be used by adults.

A novel corn popper has been patented by Mr. Jeremiah Wilkie, of Worthington, Ind. The invention consists of a tin, wire, or other receptacle for the corn, mounted upon a handle containing a trigger, spring, and connecting rod, all so arranged that the receptacle can be agitated by working the trigger with a finger of the hand holding the handle.

An improvement in the manufacture of shoes without side seams has been patented by Mr. John Haszinger, of Vicksburg, Miss. The invention consists of an upper having the tongue so formed as to provide edges for attaching tie-straps, the object being to provide a seamless shoe which is strongly supported at the instep and which is made at a minimum of cost.

An improved split bolt wedge has been patented by Mr. John P. Edmonds, of Jacksborough, Tenn. This invention relates to bolts which are partially split lengthwise at one of their ends, and have combined with them wedges, which, on the bolts being forced home, cause the split portions of the bolts to be expanded for the purpose of holding the bolts in their places.

A novel window screen has been patented by Mr. Henry Grimshaw, of Elroy, Wis. The invention consists in the combination with a frame carrying a wire netting screen, of an auxiliary frame, consisting of adjustable bars provided with transverse slots, and a series of corner plates provided with slots at right angles to each other, whereby provision is made for adjusting the screen to windows of different sizes.

An improved telegraph cable has been patented by Mr. Coroden J. Slaughter, of Grand Junction, Mich. The invention consists in a fluted cylinder or bead having apertures and cleats, in combination with a telegraph cable consisting of wires, insulating beads, and coatings, the object of which is to provide for allowing ready access to the separate wires in a cable for repairs and connections.

Mr. Loring Wood, of Greenfield, Mass., has patented a useful improvement in wrenches. The invention consists in constructing an axle nut wrench with a movable bar in its handle, the end of which by means of a spring is forced out, and fitted into a notch made for it in the nut, whereby, when the nut has been loosened by the wrench, it is held in place and kept from falling to the ground by the gripping bar.

A novel paper trimming apparatus for use of paper hangers has been patented by Peter C. N. Pederson, of Neenah, Wis. The invention comprises, first, an improved knife consisting of a handle, a circular rotatable cutter, and a device attached to handle of knife for sharpening the edge of the cutter, and secondly, of a cutting board, and a straight edge which is adapted to be clamped to the latter, so as to confine the paper between them.

A novel improvement in signs has been patented by Mr. Romeo E. Ghezzi, of New York city. The invention consists in a sign having a base of sheet metal or other suitable material, on which is cemented a stencil of water proof paper or other flexible water proof material. The object of this invention is to produce a cheap stencil sign which shall be weather or water proof, and in which the design or lettering shall appear upon a suitable base.

Mr. Robert A. Carter, of Elizabeth, N. J., has obtained a patent for some improvements in spectacles and eye glasses. The invention relates to the construction of frameless spectacles and eye glasses, especially to that class in which a screw or bolt passes through the glass and through the arms of the clip. It consists especially in certain novel features of construction in the clips, and their attachment to the shank and to the nose piece, also in the catch which engages with the handle, and by which the glasses may be kept closed.

A new arrangement of sights for fire arms has been patented by Mr. Walter Cooper, of Bozeman, Montana Ter. The invention has for its object the production of a front sight of ordinary height and simple construction, that will require no special adjustment, yet will provide for dispensing with an elevated rear sight and allow of a stationary rear sight being used, and so that the rifleman may with a glance of the eye aim either for a short or a long range or point blank without moving the rifle from his shoulder.

An improvement in the manufacture of spoons and forks has been patented by Mr. Joseph Sheridan, of Jersey City, N. J. This invention consists in a novel method of and means for forming and cutting, with a shear cut, spoon, ladle, and fork blanks by one and the same operation, and whereby the barb, fin, or selvage is removed at the same time, and the blank is delivered in the required bent form of the article to be produced, and so that it conforms to the shape of the curved die in which is it afterward struck up or embellished.

Mr. John G. Macfarlan, of Richmond, County of Surrey, England, has patented a process of and apparatus for the manufacture of ammonia and animal charcoal. The invention consists principally in a novel application of steam for the distillation of bones, etc. The process consists in making animal charcoal and treating the by-products thereof, by passing superheated steam through carbonaceous matter and then into the bone retorts, and subsequently mixing steam with the vapors and gases from the retorts.

A device for holding a horse's tail after it is plaited or folded up has been patented by Mr. Henry W. King, of Canaan, N. Y. Horse tail holders heretofore have been constructed in the form of a strap with two inwardly projecting tines or prongs that pass entirely around the tail; but in this invention flexible flaps are devised which involve no injury to the stump of the horse's tail, nor to his rump from the switching of his tail, and yet firmly hold the strap in place by a pinching action.

An improvement in ice machines, whereby the latent heat from the water introduced into the moulds is removed and a more rapid freezing of the water secured, has been patented by Mr. John T. Davis, of New York city. To this end the latent heat is extracted by a separate pump, and discharged into a

chamber through which a stream of water is allowed to flow, in which chamber are the separate coils of pipe used for the different menstruums employed in the freezing operation.

A device for cleaning ash pans of locomotive engines by forcing water through them has been patented by Messrs. Alden D. Kilbom and William F. Smith, of Tucson, Arizona. Arranged within the front portion of the ash pan in proximity to its bottom and disposed crosswise of the pan, is a row of straight ejecting pipes of unequal length which force the water in a series of streams striking the bottom of the pan, one in advance of the other, whereby the ash and cinders are blown and washed away, and the pan thoroughly cleaned.

An invention providing a new and improved electrode for treating the uterus, and for bringing it to its normal condition, has been patented by Mr. Albert W. Tipton, of Jacksonville, Ill. The invention consists in an electrode formed of a tube made of a metal section and a hard rubber section placed parallel to each other, and united, to which tube a bell or cup is hinged, which is formed of a metal section and a hard rubber section united to each other. The tube is provided with devices for receiving an electrical conductor.

An invention providing an improved curtain holder which can easily be adjusted according to the length of the curtain roller or width of the window opening, has been patented by Mr. William J. Mullen, of New York city. The invention consists in a tube provided near the ends with clamping or binding screws, in the ends of which tube curved rods are held by the screws. These rods have loops at their extremities for receiving the pintles of the curtain roller, and have loops or eyes near the upper ends for hooks for suspending the curtain roller holder.

An ingenious construction of bridge for streams subject to high floods has been patented by Mr. Ebenezer B. Stephens, of Humboldt, Neb. It consists in so constructing the bridge that the floors may rise off their foundations and float on the surface of the water when the floods overflow the foundations, and at the same time may be crossed by means of aprons at the ends, arranged so as to connect at one end with the foundations at the road levels and with the bridge at the other end, and afford practicable ascent to and descent from the bridge while floating above the foundations.

A novel improvement in windmills has been patented by Mr. Randolph O. Robinson, of Glidden, Ia. The invention consists of a contrivance of the vanes of a wind wheel, whereby the wheel, being arranged on a horizontal shaft the bearings of which are stationary, will run in the same direction, whichever way the wind may blow, the use of a turn table and contrivances for enabling the shaft to shift with the wind being thus avoided. The invention likewise consists of an improved construction of the vanes of the wheel calculated to increase the efficiency of the surface acted upon by the wind.

A novel adjustable funnel holder, for convenience in filling sacks, bags, and other packages of different sizes has been patented by Messrs. John R. Johnson, of Smyrna, and James S. Johnson, of Moorefield, O. The invention consists of a vertically slotted casing through the opening of which is passed one end of the funnel holder, the other end being attached to a sliding block which is capable of elevation and depression by means of a system of ropes and pulleys, and a crank, the latter being located on the outside of the casing. This apparatus may be made of small size to adapt it to the use of druggists, grocers, etc., and of large size for the use of farmers.

Messrs. Robert Pallett and Francis Mahedy, of New York city, have patented an improved fire escape. The invention consists in brief of a carriage upon which are raised four upright hollow telescopic hydraulic columns, upon the extremity of which is placed a platform which may be elevated or lowered at will by means of hydraulic pressure acting upon the extension sections of the columns. A flexible hose is attached to the upper extremity of the support, so that the water discharge may be directed as required. The platform is reached by a chain ladder situated in the center between the supports. The reservoir from which the hydraulic pressure is obtained for the columns is located in the center of the carriage under the columns, and may be filled by as many as four or five engines at a time.

A waterproof, fireproof, and frostproof roof or wall covering has been patented by Mr. Duncan McLean, of Wallace town, Ontario, Can. The composition employed consists of the following ingredients: hydraulic cement, one barrel; clear sand, three barrels; salt, one-half bushel; hair and water in sufficient quantities to form a good mortar of medium stiffness. This mortar is spread to the thickness of about half an inch upon the roof, which is made rough by laths or narrow timber in order to hold the mortar. Then one or more coats of hot gas or coal tar are applied by means of a brush, and as much sand is spread on the tar as it will absorb. This sanded surface is rubbed down, and more coats of tar applied, and clear sand is spread on each coat of tar. When the coating is thoroughly dry and hard, it is rubbed with a suitable tool until it is smooth, hard, and glossy. Linseed oil is used in this last operation to give the coating a good finish.

Messrs. Thomas Rosevear and Richard Bryant, of Negaunee, Mich., have patented an improved apparatus for thawing giant powder. In mining and other operations requiring the use of giant powder and other high explosives, there is frequent loss of life and property from accidental explosions, resulting mainly from the shifts resorted to by miners to warm the powder to blast with. The object of this invention is, besides that of saving life and property, to provide a convenient and efficient apparatus by which the cartridges can be warmed and kept warm until ready for use. This invention consists of a receptacle adapted for receiving hot water, and provided on the interior with cartridge holders. At the same time there is no contact of the water with the cartridges, and no risk of deterioration by the oil being abstracted by the water. There is, further, no risk of accidental explosion, and no loss of time from the necessity of carrying the cartridges to a place where they can be warmed.