

## ENGINEERING INVENTIONS.

A novel apparatus for hoisting and dumping ores, etc., has been patented by Mr. John C. Dougherty, of Sedgwick, Col. The invention consists in a bucket or box, of semi-cylindrical form, hung in a rack frame, and held to the track by guide rollers. The frame of the bucket is provided with handles for propelling it upon the level track, and it is so arranged as to adjust itself to the track without the liability of spilling its contents. The improvement is intended for use at mines for elevating the ore upon inclined shafts, and for hoisting or moving other materials, either upon level or inclined tracks or upon vertical ways.

A steam rock drill of considerable novelty has been patented by Mr. Simon Ingersoll, of Stamford, Conn. The invention consists in a steam rock drill constructed with the way plate that carries the steam cylinder connected by bolts having L-heads and bearing blocks with a sleeve, to the ends of which the side legs are connected by universal joints, that the steam cylinder and the legs can be readily adjusted in any desired position. Within the steam chest two valves are attached to the outer ends of two levers, the inner ends of which are connected by an equal armed lever. The valve carrying levers are so arranged that the valves will be operated at the proper times by the movements of the piston.

An improved railroad switch has been patented by Mr. Charles F. A. Eddy, of Greenfield, Mass. The invention consists of a latch and spring contrivance with the switch bar and switch rail, whereby the spring will set the switch for main line automatically when detached from the latch of the switch bar; and also of devices by which the latch may be detached by the flange of the pilot wheel of the locomotive, to enable it to be set for main line by the spring in advance of the wheels, when the locomotive is running along the main line from rear of the switch. It also consists of a contrivance whereby the attachment on the locomotive will unlatch the switch, either way the locomotive may go, at the will of the engineer, thus insuring safety to the train.

## MECHANICAL INVENTIONS.

An improvement in sewing machines has been patented by Mr. Luther E. Higby, of Brattleborough, Vt. The invention consists of improved combinations of parts, for an adequate explanation of which engravings would be necessary.

A thread card holder for sewing machines has been patented by Mr. Gustav Wicke, of Barmen, Prussia, Ger., which consists in a device for holding cards on a sewing machine in such a manner that this card can rotate freely to permit the thread to unwind from the same as it is used.

Mr. William L. Roberts, of Ellenton, S. C., has patented a machine for drawing and edging shingles, constructed in such a manner as to taper the shingles uniformly and upon both sides from butt to point, take the twist out of the timber, and make the side edges of the shingles straight at one passage of the shingles through the machine.

Mr. Julian Lane, of Moss Run, O., has patented an improved churn. The object of the invention is to provide simple means for securely holding churn bodies of different diameters upon the frame; and it consists of an adjustable and hinged holder extending transversely across the base frame, and adapted to securely hold churns of any diameter or height during the operation of churning.

An improved wet gas meter has been patented by Mr. William Mackintosh, of Callao, Peru, S. A. The invention consists in certain novel features of construction, having the object to secure correct and unvarying measurement of the gas at all times without regard to the change in the water level, and also to furnish a meter that shall not require to be charged with water except at long intervals.

A novel snap hook for holding rings has been patented by Mr. Francis A. Hake, of Cuero, Tex. The invention consists in a hook provided with a sliding latch on the shank and on the end of the hook, whereby the hook will remain closed in whatever position it is placed; and also in sliding bolts and sliding sleeves on the shank and on the end of the hook, whereby double latches will be formed on the end of the hook and on the shank.

A device for facilitating the insertion of dredging buckets into sand, clay, or other hard and resisting substances has been patented by Mr. William H. Wood, of New York city. The invention consists in a dredging bucket having double sides and ends, forming water spaces in the ends and sides, into which spaces water is forced by a suitable pump when the bucket cuts into the bottom, which water issues from the openings of the water spaces and loosens the bottom.

A novel device for tightening the bands of elliptical springs has been patented by Mr. William Wallace Bruce, of Western Port, Md. The invention consists in a box in two parts or dies, constructed to receive the spring in between them, and having the opening for such purpose arranged obliquely to the closing line or plane of motion of the dies, whereby the pressure put upon the band is equal on all sides and instantaneous, and the whole accomplished in a simple, rapid, and effective manner.

An improved apparatus for converting motion has been patented by Theophilus Sargent, of Lowell, Me. This invention relates to the lever contrivance for producing rotary motion by means of a couple of toothed segments on the lever working loose pinions on the shaft, which alternately gear with it by ratchets and pawls, one going forward and turning the shaft, while the other is going backward to the starting point; and the invention consists of a stopping and reversing attachment to be applied to the above.

An improved bending machine has been patented by Mr. Lindsay B. McNutt, of Ashtabula, O., which has for its object the bending of buggy shafts, carriage poles, pole bars, etc., the apparatus being arranged to be operated by steam or compressed air or by hand. The essential feature of the invention

consists of a former and attachments wherewith a pair of carriage shafts or couple of poles, pole bars, or other like pieces of carriage or wagon stock may be secured by one set of apparatus and be bent at the same time.

An improved invalid bedstead has been patented by Mr. John Baggs, of Baltimore, Md., and it is especially adapted to the wants and convenience of invalids. The occupant of the bed may be raised easily by an attendant and supported in a sitting or reclining posture; the same may be readily attached to or detached from common bedsteads, and the lower extremities of the occupant may be supported in a raised position for the convenience of the attendant or surgeon, or for relief to the occupant by change of position.

An invention which consists in an improved cut out for systems for electric lighting employing either arc or incandescent lamps has been patented by Messrs. Charles F. Coleman and Henry A. Smith, of Atlanta, Ga., the object of which is to avoid the liability of warping and the burning of the cut out and connecting wires, which is a great objection to cut outs as heretofore made. In this improved device the lamps are cut out without breaking the circuit, so that the current has a continuous unbroken connection without the aid of springs or switches to convey the current.

A safe of novel construction for use on ship board has been patented by Mr. David W. Smith, of Port Townsend, Washington Ter. The invention consists in a safe which is cheap as to cost compared to other burglar and fire proof safes, simple in construction and operation, waterproof and buoyant, burglar proof while on board ship, and fireproof. Free itself to float from a sinking ship without assistance, to keep afloat for an indefinite time until washed ashore or picked up, and to preserve its contents from loss by sinking or injury by water, and endure being thrown upon a rocky coast without breaking. The inventor claims all these advantages for his new invention.

A fire engine of simple construction, light weight, and easy transportation has been patented by Mr. Lyman H. Zeigler, of Redkey, Ind. The invention consists in a pump pivoted in a frame mounted on a U-shaped axle supported on wheels, whereby the axle can be swung upward, so that the pump and frame will be raised during transportation; or the axle can be swung downward, so that the frame rests on the ground and forms a firm bearing for the pump during operation. The frame is provided with a tongue or pole for pulling or pushing the engine, and with pivoted braces for locking the parts in position when the axle is raised.

## AGRICULTURAL INVENTIONS.

Mr. Michael Kite, of Prairie Township, Jackson Co., Mo., has patented a novel sulky plow, an improvement upon patent No. 251,895, granted to the same inventor on Jan. 3, 1882. The present invention consists in a double hinge coupling for sulky plows, constructed with a clamp to hold the plow beam, and connected to the draw bail, whereby the plow beam will firmly control the sulky and prevent side draught, while at the same time it will have free lateral and vertical movement.

Mr. Mark Vasbinder, of Warren, O., has patented an improved seeding machine, the object of which is to provide a practical and efficient seed sower having such construction that it shall be adapted to sow all kinds of grain and grass seed with equal facility and to enable grass or clover seed to be sown in windy weather. The invention consists of a seed box divided into compartments for the distribution of the grain, of an agitator which is kept in motion by a pawl and ratchet combination, connected with the wheel of the vehicle, and of proper conduits and spouts for the scattering of the grain in an even manner.

## MISCELLANEOUS INVENTIONS.

Mr. Edward Squires, of Portland, Ore., has patented a novel fifth wheel, which consists of half circle plates, one having its straight portion provided with an apertured lug fitting in a socket in a sleeve formed upon the straight portion of the other plate, combined with a tubular bracket belted to the axle and the king bolt.

An improved wagon box has been patented by Mr. Eugene F. Chapman, of Wilson, Neb. The invention relates to improvements in the end boards of wagon boxes, and to the means for attaching them to the box and holding them in place for closing the ends of the box; also to separate side and end boards for enlarging the wagon box.

A fowl fetter, the invention of Mr. Sanford J. Baker, of West Waterville, Me., has recently been patented. A metallic collar is fastened around the leg of a mischievous fowl, to which are attached wire spurs of considerable length. This collar is beveled at the edge to prevent chafing of the manacled leg of the disobedient fowl, who is thus restrained from doing damage about the premises.

Mr. John J. Kimball, of Naperville, Ill., has patented an improved churn. The invention consists in a box, through the diagonally opposite corners of which passes a bar or axle ending in a crank, and to which is attached internally two circular blades at right angles to one another, which are rotated by means of the crank without. A breaker is placed in the corner of the churn, which greatly facilitates the process.

An improved wagon seat spring, the object of which is to provide light, strong, cheap, and elastic springs for carts and wagons, has been patented by Mr. Montillion H. Cassidy, of Wakefield, Va. The invention consists of a narrow strip of steel, the ends of which are curved over in the form of a C, to which extremities is attached the seat. The straight portion of the spring is provided with pendent legs for use in attaching it to the wagon body.

An improved compound for preserving eggs, by which it is claimed they may be kept for nine months, has been patented by Mr. Bernard L. Castor, of Wilber, Nebr. It consists of the following ingredients: fresh slaked lime, one pint; salt, one pint;

Portland cement, sometimes called "water lime," one ounce; white glue, one-half ounce; water, three gallons; all of which must be thoroughly stirred in the water, care being taken that the eggs, when inserted, are well covered by the compound.

An improved coffee urn has been patented by Messrs. Louis F. Duparquet and Pierre Huot, of New York city. The object of the invention is to facilitate the removal of the receiver for the decoction from the water tank of a coffee urn. For this purpose the receiver is provided with a flange adapted to rest on the rim of the water pot, which is provided with an inwardly projecting flange that rests upon the flange of the decoction receiver.

Mr. Vital Bessier, of New York city, is the patentee of a novel fire escape, which consists of a folding ladder combined with the shutter frame of the window. A strong shutter frame of either wood or iron is hung upon strong hinges capable of supporting, in addition to the shutter, a ladder, and the weight of persons who may have occasion to use it. The ladder is folded into the shutter frame, so that the appearance of the fire escape is not objectionable.

A novel device for holding coins of various denominations has been patented by Mr. George W. Rowley, of Caledonia, Wis. The invention consists in a coin holder formed with a plate having recesses for receiving and means for securing the coins therein, a flanged cover hinged to the same, connected with which are spring strips having their ends provided with tongues for holding the coins in place. Joined to the lower end of the plate or cover is a pouch or bag for receiving bills or foreign coins.

An improved fabric for boots and shoes, which is at once warm and easy for the feet, preventing the drawing action of rubber, has been patented by Mr. Henry E. Urann, of Providence, R. I. A sheet of cork is first affixed to canvas or other material suitable for backing, and in turn cemented or otherwise secured to the material of which the boot or shoe is made. This fabric is not only employed for the upper or leg part of the boot, but likewise for the sole.

Mr. Camille Poirier, of Duluth, Minn., has patented an improvement in pack straps. The invention consists in a bag formed with a flap and provided with shoulder straps and a head strap for supporting and carrying the bag on the back. Sliding pads are provided on the shoulder straps, which are united by a transverse strap. A socket for the purpose of holding an umbrella or sun shade over the head of the traveler is also attached to the sack.

An improved sign consisting of a frame with a transparent plate set in it, with letter color or gilt on its inner face, and a filling applied on its front face to form margins for letters, has been patented by Mr. Frank E. Munn, of Dallas, Texas. Instead of employing a single strip of glass for the ground work of all the letters, separate pieces are employed for each letter, so that in case one piece should be broken it will not be necessary to insert glass for all the letters of the sign, but simply for the broken or defaced ones.

Messrs. Isidor and James French, of New York city, have patented an improved necktie. The invention consists in a band bow neck tie constructed with a bow provided with a shield recessed and slotted to receive the collar button, and having a band holding pin attached to it. A separate band is provided with an eye plate at one end to receive the collar button, and at the other end with a scale to facilitate the adjustment of the band to the size of the collar upon which it is to be worn.

An improved invalid bedstead has been patented by Mr. Isaac D. Johnson, of Kennett Square, Pa. It consists of a combination whereby a portion of the bed may be elevated so as to bring the invalid into a semi-sitting posture, this being accomplished by a system of ropes and pulleys which the invalid can operate himself without the aid of an attendant. The invention possesses other devices for the comfort of invalids, and seems to have many advantages over the invalid bedsteads now in common use.

Mr. Goldsborough Robinson, of Louisville, Ky., has patented an improved process of and apparatus for moistening leaf tobacco. The invention consists in subjecting the tobacco in a chamber to a blast of moist air and by the blast returning the air partly deprived of moisture from the tobacco room to the vapor room, and so on continuously, until the tobacco is moistened sufficiently for work. This is a great economy over the old method, in which so much of the steam was lost.

An improvement in lanterns whereby is obviated the necessity of soldering the lantern to the bottom of the light chamber has been patented by Mr. William Porter, Jr., of New York city. The invention consists in securing the bottom of the light chamber to the base of the lantern by means of a three-ply flange, which more firmly secures the parts together than when solder is employed, and at the same time forms a three-ply stiff internal flange, better adapted to support the springs of the lamp than the two-ply flange ordinarily employed.

An invention in merchant's shelf box for facilitating the inspection of goods has been patented by Mr. Benjamin F. Robinson, of New York city. The invention consists in such a manner of construction of the box that the side pieces confine the goods in the box only at one end, so that the outer ends of the pieces are left free to be raised for inspection upon both sides and turned back, one off from the other, for exhibiting the varieties. When the box is closed it protects the goods from dust, saving the goods from the wear and damage incident to frequent handling.

An improvement in saw filers has been patented by Mr. Harvey P. Jones, of Winterset, Ia. The invention consists of devices in combination with a clamp for holding the saw and a frame for carrying the file to gauge the depth, pitch, and inclination of the teeth; and it also consists of a contrivance of the file frame, whereby the file is made to run with a rising and falling guide, on which its frame rides from end to end of the range of the file, so that the curved edge of the file acts uniformly on the saw the whole length of the file.

A compound for coating the inside of vessels which are intended to contain butter, lard, oils, beer, wines, liquors, or mineral waters, which is insoluble by any of these liquids, and at the same time impermeable to fluids, has been patented by Mr. Edgar G. Frisbie, of Monroe, Mich. It consists of the following ingredients: For every gallon of this compound is used shellac, one pound; beeswax boiled in alcohol, one-half pound; whiting in alcohol, one-fourth pound; and alcohol sufficient to make up the gallon. The mixture may be applied to the vessel on the inside like any paint or liquid by means of a brush.

A novel railroad signal has been patented by Mr. David C. Baughman, of Albion, Ind. The invention consists of a lantern, two sides of which are furnished with bull's eyes, and the other two sides with signal wings, the whole being mounted upon a rotary carrier or table, so arranged that by means of a cog wheel it may be rotated so that the position of the signal in relation to the track may be changed. The axis turning the cog wheel passes through the tubular arm supporting the signal and carries a grooved wheel on its further end, which may be turned by means of a chain or rope connecting it with the ground or with the signal station.

A device called a sand band, for preventing sand, dust, and water from passing into the space between the axle and the axle box in a hub, has been patented by Mr. John Schoelkopf, of Tidioute, Pa. The invention consists in a cup shaped ring, mounted loosely on the axle between the inner end of the hub and a collar on the axle, which ring is provided with an external shoulder, between which and the collar a spiral spring surrounds the axle, and presses the ring against the hub. The ring is provided with an annular flange having notches through which studs pass, which project from the collar on the axle and prevent the ring from rotating with the hub.

A novel oil pail, designed to provide a new and improved receptacle for oil, which can be filled easily, and from which the oil can be drawn readily, has been patented by Mr. John W. Collier, of Lockport, N. Y. The pail, one portion of which is left flat, so that it may be hung against the wall, has an opening in the top to facilitate the filling of the pail, which opening is provided with a stopper, and a strainer, to prevent dirt from entering the pail. It is also provided with a tube and vent valves, connected with the faucet for admitting of air while drawing or filling. The pail is coated on the inside with a solution of glue to prevent the oil from entering the wood.

An ingenious device for a lantern has been patented by Mr. David C. Baughman, of Albion, Ind. The invention consists in a false top forming an air space in the upper part of the lantern, from which the air is conducted to the lamp by downwardly projecting air tubes. The invention also consists in an exterior and an interior chimney in the upper part of the lantern, which chimneys are covered by a cowl provided with a side opening and a weather vane, whereby the air inlet and outlet can be covered and the wind prevented from passing through the opening of the cowl, by which device the air as it reaches the lamp flame is warm and the brightness of the light increased.

An improved water lac varnish for finishing wall paper and for similar purposes has been patented by Mr. George H. Beck, of New York city. The composition consists of the following ingredients, combined in about the proportions stated, viz.: ammonia, one hundred and forty grammes; shellac, 907.15 grammes; water, five thousand grammes; gelatine, one hundred and thirty-two grammes; glycerine, sixty grammes. When the varnish is ready for use, it may be applied by rollers or by a grounding machine, and will give the paper an even, rich, and waterproof leather finish, furnishing a surface that may be washed with warm or cold water.

The object of the invention of Mr. George Baum, of Arbon, Switzerland, is to provide an improved device for holding the bodkins or stilettoes of an embroidery machine in such a manner that they can easily swing into position when required, and out of position when not required for use. The invention consists in a tube held in swinging arms on the needle-rail of an embroidery machine, on which tube clamp rings are held, to which the bodkins are attached. The invention also consists in stop rings held on the tube adjoining the clamp rings, which stop rings have side projections on which the bodkins rest when in position for operation.

An invention, the object of which is to provide a new and improved vessel for packing butter in such a manner that it will remain fresh and sweet, and will be protected from the action of the air, has been patented by Messrs. John J. Carey and Patrick Cavanaugh, of La Salle, Ill. The invention consists in a jar provided with an inner and outer cover, resting on packing rings, and held on the jar by means of clamps passed over a circular ridge on the outer cover. The clamps are provided in their lower hooks with rubber blocks, resting with their upper edges against the lower edge of an external collar of the jar, which collar is provided with beveled recesses. By moving these clamps out of the recesses and along the edge of the collar, the outer cover will be held and pressed on the jar and its packing rings.

An appliance for galvanizing or coating fence or other wires with metal has been patented by Mr. Henry Cull, of Johnstown, Pa. The invention consists in two chambers connected by a pipe or tube, one of which is to be heated and supplied with metal for galvanizing until the melted metal shall have flowed into and nearly filled the second receptacle, which must be kept hot also. The wire, after being properly treated with acid, is passed through a pipe arranged for the purpose, and up through the top over an apparatus for coiling, which gives the wire a steady and continuous motion through the metal. As the liquid metal in pipe and receptacle is being gradually taken up by the wire, more is gradually flowing in from the receiving pan, which must be supplied from time to time as it runs low. By this arrangement the addition of cold metal has so little effect upon the temperature of the metal at the point where it is applied to the wire, that the coating is at all times light, even, and smooth.