## MECHANICAL INVENTIONS.

A novel spring hinge joint fastening for pocket books has been patented by Mr. John Menahan, of New York city, which consists in a spring hinge joint fastening with a plate provided with an elastic beut hinge bar, whereby the fastening can be readily opened and closed.

A novel hoof trimmer has been patented by Mr. William M. Cleeland, of McCauleyville, Minn. The implement consists of a device for trimming the edges of animal hoofs even witb the edges of the shoes. The lever device supporting the trimmer knife is provided with a gauge to regulate the amount required to be cut off.

A new and simple brake lever has been patented by Mr. William Moore, of Clear Spring, Ind. The invention consists in an improved brake lever for use with wagon brakes, the object being to secure great power when the brake is applied, and a greater extent of movement of the brake shoes when released from the wheel than heretofore.

An improved ventilating screen for windows has been patented by Mrs. Sarah B. Stearns, of Duluth, Minn. The object of the invention is to secure a thorough ventilation of schoolrooms and other rooms without exposing the occupants of the rooms to currents of air. A screen is provided and attached to the casing of the window, and operated by a cord and pulley similar to an awning.

A novel piston packing device has been patented by Mr. Delbert W. Jewell, of Alexander, N. Y. The invention consists in packing segments fitted to slide radially of the piston head, and in cams carried by a sleeve on the piston rod for forcing the segments outward, whereby the adjustment of the packings is accomplished from the outside and without removing either head of the cylinder.

An improved saw table gauge has been patented by Mr. Daniel K. Barnhart, of Gaines, Pa. The invention consists of a saw gauge for setting lumber to a sawing machine and gauging it to measure, the setting gauge having a scale combined and arranged with it, by which to indicate the distance necessary to shift the gauge for setting it to cut strips of any required width, also having a dividing plate and stop device for setting the gauge to special sizes.

A combined hat and coat hanger and button hook, so contrived that it may be conveniently carried in the pocket, has beeu patented by Mr. William R. Cole, of Pottsville, Pa. The invention consists in a spring hook adapted to hold a hat, of a hook for holding one or more coats, and also adapted to be used as a button hook, and of a hook for suspending the device, the whole being arranged to be readily folded for putting away when not in use.

An improved holder for mower and reaper knives, which is of a very simple and inexpensive construction, has been patented by Mr. Jonathan R. Hamilton, of Kingston, Mo. The invention consists in a frame for holding the cutter bars of reapers and mowers while being ground. The cutter bars are held fixed at a certain inclination to the stone, yet permitting the cutter bars to be slid lengthwise, so as to bring their knives successively in contact with the grindstone.

An improved car wheel chill has been patented by Mr. William Wilmington, of Toledo, O. The invention consists in a car wheel chill having in its flange face a peripheral receptacle for sand or other non-conducting material, an annular opening communicating therewith, and an annular reservoir of greater capacity than the opening, which serves to convey away the gases generated in the receptacle. By this arrangement the cost of the chill is lessened, the removal of the accumulations in the annular opening facilitated, and the pressure of gases in the receptacle relieved.

An improved valve for pumps has been patented by Mr. James E. Sinclair, of Baltimore, Md. The invention consists of an elastic valve, preferably of hemispherical form, having a round orifice of comparatively small diameter, which is adapted to be dilated in size by the pressure of fluid against the concave surface and contracted by pressure against the convex surface of the valve. Combined with such a valve a metallic hemisphere formed in sections is secured to the outer surface of the valve in such manner that they shall fit close together edge to edge, and brace each other under pressure.

An invention designed to prevent the freezing up of hydrants has been patented by Mr. William H. Fromm, of Elizabethport, N. J. The hydrant is constructed with an elbow coupling divided into two unequal compartments by partitions, and provided with two valve openings and an outlet opening, the two valves having gear wheels and left and right screw threads upon their stems. The intermediate gear wheel has a hand wheel attached to its shaft, whereby by the same movement that closes the inlet valve another valve will be opened to discharge the water left in the hydrant.

A new millstone driver has been patented by Mr. Amos Callahan, of Maryville, Tenn. The invention, which is an improvement on a patent granted to the same inventor February 14, 1882, No. 253,681, consists in a millstone driver formed of two semicircular or like sections, having cushions interposed between the ends, and provided with arms and with undercut jaws, and transverse grooves or recesses in the upper and lower surfaces, combined with a top and bottom plate provided with lugs fitting under the undercut jaws, and with lugs fitting in the transverse grooves or recesses in the sections, whereby all the parts will be held together without the use of bolts or screws, and the construction of the driver materially simplified.

A hydropneumatic engine of novel device has been patented by Mr. Levi G. Cook, of Mapleville, R. I. This invention relates to the application of air and water combined for the production of a motive power; and it consists in a novel method of utilizing atmospheric air under pressure and subject to its percolation or passage up through a column of water which acts on a series of submerged wheels, from the shafts of which the power is obtained, and which may be transferred as required. The air after having been once used passes out through the top of the column and into the blower, whence it is forced into the air chamber, and thence in the bottom of the water column, and so may be used over and over again.

A device for utilizing the force of currents and streams adapted for use in driving centrifugal or reciprocating pumps to raise water for irrigating or mining purposes, and for various other objects, has been patented by Mr. Franklin M. St. Clair, of Silver City, Idaho. The invention consists of anchoring or otherwise making fast in a swift running stream two scows fastened at suitable distances apart by crossbeams. Between these two scows an ordinary undershot wheel is placed, its shaft resting on either scow. From the shaft the power is transferred to wherever wanted, by the use of the ordinary rack and pinion gearing, or belts and pulleys, as may be desired. The more rapid the current of the stream, the greater the power delivered. To the prows of the scows adjustable gates are provided for directing the flow of the water to the wheel. For grinding, dredging, or sawing lumber the inventor claims his invention to be specially adapted.

Mr. William M. Elrod, of Marshall, Mo., bas patented a camera box of improved form, the object of which is to provide a camera box for taking successively a number of pictures without exposing the plates to the light except when taking the picture. A camera box is constructed with a hinged section containing a mirror or reflector for adjusting the camera without exposing the plates to the action of the light. These plates are contained in a sliding box below the hinged section, and are raised successively for exposure by means of a plunger contained in a tube attached to and projecting from the bottom of the camera box. This plate holding box is inserted in the camera box and can be moved forward, as may be necessary, by means of a gauged handle rod projecting from the rear or front end of the camera box. The plate holding box contains a ground glass plate, which is raised when the camera is to be adjusted.

## AGRICULTURAL INVENTIONS.

A new harvester reel, the object of which is to give a horizontal raking movement to the beaters, whereby the grain shall be held back over the table while being severed by the sickle, has been patented by Mr. Sylvan B. Robbins, of Lawrenceburg, Ind. The invention consists in providing a reel having sliding bars for the beaters and a stationary cam, with which the bars are adapted to engage to give a definite movement to the beaters. The same inventor has patented an improved grain binder for harvesters, which consists of an oscillating needle combined with certain rotary and oscillatory devices operated by a rack bar which is connected to the elbow lever carrying the needle, whereby the cord is held, tied, and cut in binding the gavel, all being accomplished by one operation in a very simple manner. The same inventor has also obtained a patent for an improved cutter bar for harvesters. The invention is designed to cause the cutting operation to be performed with facility and the least strain on the cutters, and at the same time to reduce the power required to operate the latter. By this new cutter bar a joint shear and sickle cut enables the cutters to act upon the grain or grass to the greatest advantage, and protects the cutters from possible contact with substances liable to notch the edges and cause the premature dulling of the cutters. The same inventor has further patented an improved harvester rake. The special advantages of the invention are to obtain a powerful action of the rake as it is raised and lowered, while at the same time it is held firmly against the grain being raked or formed into a bundle upon the gavel platform. Taken altogether, Mr. Robbins has added to harvesting machinery some very desirable improvements.

## MISCELLANEOUS INVENTIONS.

An improved whisk broom holder has been patented by Mr. Rudolph Skoog, of New York city, the object of which is to provide receptacles for whisk brooms and brushes, so constructed that the brooms and brushes can be readily put in and taken out.

An improved label and ticket receptacle has been patented by Mr. Samuel M. Holton, of Battle Creek, Mich., the object of which is to provide a receptacle for labels, tags, tickets, etc., and so securing them in the tills as to render it impossible to get the labels mixed, and at the same time enables a person to remove them one by one with facility.

A soldering lamp, the object of which is to furnish a lamp for jewelers, dentists, and others in the work of soldering has been patented by Mr. Charles W. Hoehn, of Bloomington, Ill. The invention consists in a laterally adjustable wick tube, by which the flame is brought to any desired point to insure an accurate regulation of the flame, for intricate work.

Mr. Patrick G. Clancy, of Lexington, Miss., has patented a side bar wagon, which consists in the construction and arrangement of curved side bars in relation to the body of the carriage and the springs, whereby great strength and elasticity are obtained for these parts, and the backward and forward pitching of the body is avoided.

A new method for preparing oxyquinoline has been patented by Mr. Otto Fischer, of Munich, Bavaria, Germany. It consists in a peculiar method of treating quinoline—sulphuric acid with caustic soda or potash under the action of heat. The oxyquinoline thus obtained and its salts are new antiseptics, and designed in many cases to take the place of salicylic acid.

A novel riding saddle has been patented by Mr. James A. Wynne, of Poore's Mills, Ga. The invention consists of a saddle provided with a top and a bottom seat. The top seat is supported upon the lower seat, four springs being interposed; thus the motion of the horse is counteracted, and less fatigue is experienced by both horse and rider.

An improvement in fishing rods has been patented by Mr. William Mitchell, of New York city, which consists of a butt or handle into which is inserted the rod itself, the interior of the handle being enough larger than the rod to admit of plenty of play, so that the strain and spring of the rod will be uniform throughout its entire length.

A boot and shoe stretcher possessing several improved features over the ordinary stretcher has recently been patented by Mr. Horace Glines, of West Stratford, Conn. The stretcher is not only adapted for stretching all the parts of a boot and shoe which the ordinary stretching implement is intended to do, but it is especially adapted for stretching the instep part of the boot in a more effective manner.

An improved cart spring has been patented by Mr. Gustav Walter, of Sandwich, Ill. The invention relates to an improvement in vehicle springs of the class known as village cart. The improved springs have their forward ends extending downward and connected to a transverse spring secured to a crossbar of the shafts, which provides an easy riding seat of ornamental appearance.

An improved button has been patented by Mr. Julius Weis, of Chicago, Ill. The invention consists in a button having a wire ring formed on its shank provided with two overlapping tongues, one of which has the end turned upward, the other downward, pressing upon the lower tongue. The button is secured to a garment by passing one tongue into the buttou hole and then turning the button.

An improved lamp wick to be used in burning heavy oils has been patented by Mr. Ives Lynd, of Troy, N. Y. The invention consists in a woven lamp wick having selvaged or firm edges and a nap rising on one or both sides from the warp, whereby the flow of the oil is facilitated, and the wick tube prevented from clogging, crusting, or receiving the flame downwardly.

A new and improved cider mill has recently been patented by Mr. J. L. Wilcox, of Flint, Mich., which consists in an endless bag and roller presses for conveying the pomace from the mill between the pressing rolls. A bag of canvas is filled with pomace from the hopper of a grinding mill and then is passed between a series of rollers, a place being provided for receiving the juice.

Mr. Lewis H. Rhoades, of Bay Center, Washington Ter., has obtained a patent for an improved anchor. The invention consists of dividing the flukes and connecting them to the shanks by two arms, each of the said shanks being bent at right angles, or thereabout, at the upper ends. A single cable ring is located midway between the arms. The anchor, it is claimed, will have greater holding power and will not be liable to foul.

A novel covering for door steps has been patented by Mr. Stephen Barnwell Trescot, of Pendleton, S. C. The invention consists in a step covering bolted to jointed braces in such a way that when the covering is not required for use it may be folded and easily removed. The bolts fit into sockets in the steps prepared to receive them, and which serve thus to keep the covering from becoming displaced.

An improvement in flannel or outer shirts for bicyclers, lawn tennis, etc., has been patented by Messrs. Howard Lynch, of New York city, and Frank L. Sheldon, of Rahway, N. J. The invention consists in a shirt front constructed with a series of cord loops passed through eyelet holes in the outer part of the shirt front and interlocked with each other, which allows the shirt front to be very quickly closed and opened.

An improved combined tub stand and clothes rack has been patented by Mr. James S. Duncan, of Browning, Mo. This invention consists in a novel arrangement of two frames pivoted at their inner ends to each other and to standards, and provided at their outer ends with legs or supports, these frames forming, when lowered, a stand for tubs and like articles, and when raised it serves as a rack for hanging clothes, etc.

An improved milk temperer for churns has been patented by Mr. William H. Swinford, of Cherokee, Ala. The object of this invention is to control the temperature of the milk while churning. A circular metallic water tight vessel, which may be filled with ice, or hot water, or chemicals, as desired, for regulating the temperature of the milk, and through which a sleeve is provided for the handle of the dasher rod to operate.

An improvement relating to tubular lanterns has been patented by Mr. David Curtin, of Jamestown, Dak. The object of this invention is to secure the guard rings which surround the globe to the upright pieces in such a manner that they will not be readily detached and lost, which often happens in the ordinary hand lantern. The guard rings may be slid up and down on the upright pieces, so as to readily allow the removal or replacing of the chimney globe.

Messrs. Charles Falkenberg and Jacob Lederer, of New York city, have patented an improvement in shirts, which has for its object to strengthen the yoke and make the shirt stronger and more durable under the arms and on the shoulders, where the coat chafes the shirt. This is accomplished by re-enforcing or backing the sleeves, from the shoulder seam toward the elbow, with an additional thickness of the same material of which the shirt is made.

An improved gusset for wearing apparel which is stronger and more durable, and which can be made more cheaply, than those at present in use has been patented by Mr. Charles Owen Reed, of Chicago, Ill. The invention consists in a gusset formed of a strip of material made in the shape of a lengthened and pointed ellipse, and in the method of attaching the gusset to the material, and sewing on the gusset at the same time while forming the hem and by the same stitches.

A novel slate frame has been patented by Mr. Robert F. Walsh, of Brooklyn, N. Y. The invention consists in a slate frame furnished at the upper end with a slot in which is pivoted a rotatable polygon designed to bear a copy in penmanship or the name of the owner of the slate. At the other end is provided a recess for receiving the copies and protecting them from injury. In one of the side bars of the frame is formed a pencil receiving groove provided with a sliding cover, while on the other side bar is formed a slot for receiving a knife for sharpening pencils.

An improved heating furnace has been patented by Mr. David W. Robb, of Amherst, Nova Scotia, the object of which is to provide a sufficient quantity of air to the fuel, and to prevent a hinderance of the draught by the formation of clinkers, which consists in a lining for a firepot formed of a series of sections provided with ribs which are curved inward. These sections are hung by hooks on internal flanges of the firepot. Flanged wheels which run on rails below the grate enable the grate to be drawn forward for the purpose of removing the clinkers.

An improved machine for mixing and working oleomargarine has been patented by Mr. Joseph H. McDonald, of New York city. A hollow vertical cylinder contains a central vertical shaft resting in a foot step in the bottom of the cylinder. A bracket is attached to and overhangs the top of the cylinder and supports the shaft. Upon the shaft adjustable blades are attached which stir the oleomargarine material. The machine is operated on the same plan as a pug mill. The peculiarly twisted propeller-shaped blades are not only effective in stirring, but force the material into discharging arms located at the bottom of cylinders.

An improvement in window screens has been patented by Mr. Richard J. Parrett, of Portland, Ind. The object of this invention is to provide a screen so attached to the window sash, that when the window is raised the screen covers the opening, and when closed the screen is automatically wound around a spring roller at the bottom of the window, so that the view from the room is not obstructed. The upper sash opening may be protected in the same manner by placing the spring roller at the top of the window and attaching the screen fabric to the upper sash.

An improved kiln head guide, the object of which is to facilitate the setting of the green bricks in preparing brick kilns, and also to promote accuracy in forming the heads of the kilns, has been patented by Mr. Charles F. Lacour, of Grassy Point, N. Y. This is a kiln head guide constructed with a frame having a close panel in its lower part, and cross slats in the middle and upper parts. The upper part is provided with adjustable fastenings for connecting it with a side prop of the kiln. The guide is also provided with cords for giving a true taper to the sides of the center arch, so that the arch will have a uniform inclination upon both sides.

A novel balloon or aerial vessel, as the patent terms it, has been patented by Mr. Joel Ray, of Philadelphia, Pa. The invention consists of two inflated bags or balloons placed parallel to one another horizontally, and from which is suspended a car in which is carried a motor of any suitable construction, and using any kind of fuel best adapted to the purpose. Two propellers are located one above the other, and the machine is guided by two rudders located in the rear of the machine, and one in front. The car is provided with two large wings, one on each side, to assist in supporting the car after the desired elevation has been reached.

An improved banana crate, constructed in such a way that bunches of bananas may be handled and transported without danger of injuring the fruit, has been patented by Mr. William Davenport, of Philadelphia, Pa. The invention consists of a frame of suitable size to receive a bunch of bananas, lined with canvas or similar material. The frame is preferably made of two parts hinged together. The canvas is so attached to the frame that when the frame is opened the canvas will be spread out similar to the sacking bottom of a catbed, to receive the bananas, and when closed will suspend the bananas on the stretched canvas in the frame, so that the fruit will not be injured from contact with the wood.

An improved ladder adapted for fruit picking, tree trimming, or other outdoor purposes has been patented by Mr. Charles Bridges, of San Fernando, Cal. The ladder is mounted on a parallel bar which rests on blocks or legs which are slotted for the tenons on the crosspiece to rest in. When the ladder is used on a side hill, one side of the crossbar is raised at one side and supported at any degree of elevation desired by a pin extending through the slotted legs. This provides for any unevenness of the ground, and renders greater safety to the person using it. An ingeniously arranged seat or foot rest is provided for attaching to the ladder at any height desired. This rest is movable, and may be placed high or low on the ladder at the will of the operator, or dispensed with entirely.

An improved apparatus for the manufacture of fertilizers from offal and refuse, by means of which gases and vapors are brought into a liquid form ready for use as a fertilizer, has been patented by Mr. Joseph N. B. Bond, of New York city. The invention consists of a decomposing retort, which is located in the smoke chamber of a furnace, and is connected by a pipe with the drier on one side and with the condenser on the other. The gases and vapor generated in the drying chamber pass through the pipes into the retort and from thence into the chamber where they are condensed by admitting a supply of water. When the chamber has become full of condensed matter, it is drawn off through a pipe. This problem of how to dispose of offal in our large towns and cities is getting to be more serious year by year, and inventors can find no fitter province for investigation than this.

Mr. Nelson Seymour, of Erie, Pa., has recently received letters patent for an improved gold separator. A pan or other receptacle for bolding a bath of quicksilver is provided with a series of pipes, so arranged as to admit a discharge of jets of water down upon the quicksilver and ore which lie at the bottom of the vessel. A feed trough and overflow outlet are both arranged above the ore to be separated, so that the waste matter is readily carried off, while the finest particles of gold will be held by the quicksilver at the bottom of the pan. A vibratory motion is imparted to the separator when in use. When the quantity of ground ore or sand fed into the pan rises to the level of a plate, the sand and other waste matter will, owing to the agitation produced by jets, gradually pass out at the discharge opening as it overflows the plate, and the gold, including the finest particles, will be collected in the quicksilver bath in the bottom of a pan.