

around said beams and diagonally around said standards, and tightened in place by wedges or other suitable means, so that the scrapers can be readily adjusted to work deeper or shallower in the ground, and easily detached when not required for use. Cultivating plows or dirers have standards which are attached to the side beams, the plows and standards of the inner side beams being placed in advance of those attached to the outer side beams. When the machine is to be used as a cultivator, the scrapers are detached, and may be replaced by cultivating plows.

#### IMPROVED CULTIVATOR.

Austin S. McDermott, Prairie Creek (Mellera P. O.), Iowa.—The object of this invention is to furnish a cultivator which shall be readily adjusted as the character of the work to be done may require, and easily guided and controlled. The tongue of the machine is made in V shape, and its rear end is attached to the axle. The arms of the tongue are connected by a crossbar, to which the doubletree is pivoted by a hammer bolt. To the ends of the axle are attached, or upon them are formed, crank axle arms, upon the journals of which the wheels revolve. To the arms of the tongue, near the forward end of said tongue, are bolted the ends of the forward arms of the three-armed bar, the third arm of which projects to the rearward, and its rear end is bent into U form to receive a curved bar, which is pivoted to the three-armed bar by a bolt that passes through the bend of the three-armed bar and through the center of the curved bar. The ends of the curved bar are secured to the forward ends of the beams by bolts, two to each end. To the rear ends of the beams are attached handles which may be strengthened by braces, and are designed for use in guiding the plows when the machine is used as a walking cultivator.

#### IMPROVED CHICKEN COOP.

Daniel M. Sullivan and Thomas A. Retallic, Montgomery City, Mo.—This invention consists of a coop adjustable vertically on a standard, and provided with removable partitions and doors for convenience in cleaning. The frame of the coop is placed on a standard, at the top of which is placed a pulley. A cord is attached to the top of the coop frame, and runs over the pulley, and is attached to a counterweight. The coop is divided by a central transverse partition into two compartments, which are subdivided by transverse partitions composed of slats, and held in place by a dowel pin at the bottom and by a pin at the top. The vertical strips that hold the slats of the partitions together are grooved on each side to receive sliding partitions which are arranged on a central longitudinal line of the coop, and at right angles to the partitions. Grooves are also made in the ends and central partition of the coop to receive these sliding partitions.

#### NEW TEXTILE INVENTIONS.

##### IMPROVED FULLING MILL.

James Hunter, North Adams, Mass., assignor to himself and James E. Hunter, of same place.—The object of this invention is to improve the construction of fulling mills in such a way that there can be no possibility of injuring the cloth while passing through the rollers, and in such a way as to give the operator full control over the friction caused by the tongue or lever upon the goods, whether said goods be heavy or light.

##### IMPROVED SHUTTLE-DRIVING MECHANISM FOR NARROW-WARE LOOMS.

William B. Willard, New York city.—This invention, relating to looms for weaving narrow ware, consists in the arrangement of a spur wheel traveling on a fixed rack, and actuating a movable rack attached to the shuttle carrier. Motion is given to the spur wheel by a cam on the main shaft of the machine, which acts through a slotted lever and a connecting rod. The object is to provide mechanism for throwing the shuttle in such looms. In the loom the shuttle race is divided at its center, leaving a space of sufficient width to admit of the passage and shedding of the warp. The shuttle slides in the race, and is of such length as to overlap the opening, so that it may pass smoothly from one section of the shuttle race to the other. The shuttle is pierced to receive the fingers of the shuttle carrier, which slides on the bar. The latter is a piece of sheet metal, which is turned over at its upper edge to receive the bar, and is provided with guides for the fingers. The said fingers are capable of engaging with the holes in the shuttle and project below the piece of sheet metal, and are bent at right angles, and provided with grooved friction rollers, which engage with a cam slot of such form that it will draw the fingers, one at a time, downward out of the shuttle, and retain them below the warp during the passage of the portion of the shuttle with which they engage, through the threads of the warp, and replace them after that part of the shuttle passes the warp.

##### IMPROVED LOOM TEMPLE.

Christian H. Schlaf, Rockville, Conn.—This is an improved device for stretching the cloth while being woven. It is so constructed as to adjust itself as the cloth is being woven and carried forward to the cloth beam.

#### NEW WOODWORKING AND HOUSE AND CARRIAGE BUILDING INVENTIONS.

##### IMPROVED THILL COUPLING.

Josiah Kitzmiller, Keedysville, Md.—This is an improvement upon that form of thill coupling in which a pivoted cap is employed to slide over the end of the bolt or pin which secures the eye of the thill iron to the lugs or ears of the axle clip, the said cap serving to prevent the said pin from becoming accidentally displaced without the use of a screw nut or other securing device. It consists in the construction and arrangements of a spring catch for holding said pivoted cap down to its place against any tendency to rise accidentally, the said spring catch being located in a transverse groove or recess in the cap and between the cap and the adjacent lug and being provided with a beveled head and square shoulder, which engages with the under side of the lug to hold the cap down. The merit of this arrangement is that the catch is concealed from sight by the complete inclosure of the spring and the position of the beveled head beneath the coupling, and hence the exterior of the coupling presents a plain, smooth, and neat appearance, free from catches or projections, which would be liable to hook into the clothing in getting into or out of the carriage.

##### IMPROVED VEHICLE SPRING.

Fredrick W. Faber, Columbus, Texas.—This invention consists in combining an auxiliary spring with a spring suspended from goosenecks attached to the axle, the said auxiliary spring being attached to the axle, and provided with yokes for embracing the suspended spring, the object being to provide a device for steadying the main spring and preventing lateral motion.

##### IMPROVED TIRE HEATER.

Philip W. Cassell, New Athens, O.—To the top of the furnace or firebox is secured the ring heating chamber, which consists of the ring plate having a ring flange or rim formed around its outer edge. To the ring plate are attached the outer ends of a number of arms, the inner ends of which meet in the center of the ring plate, and have a journal attached to them. The journal may be hollow or solid, and upon it is placed a hub to which are attached a number of radial arms, to the outer ends of which is attached a rim. The rim fits against the inner part of the ring plate, and forms the inner wall of the heating chamber.

##### IMPROVED CHIMNEY COWL.

Andrew F. Barry and Ira G. Lane, New York city.—This invention is a chimney cowl or ventilator which will deflect the natural current of air, so that a draft is continually maintained. To the upper end of a sheet metal chimney top is attached a strip of metal, bent into a spiral form, and having

spaces between the successive convolutions of the spiral. The spirals overlap each other, and increase in diameter toward the top. The coils are connected at intervals by stays, and the end of the upper and outer coil is tapped on to the one that precedes it, and is trimmed off horizontally, and upon it is placed an ornamental border. The wind, striking this top from any direction, is deflected so as to cause a draft. The device is claimed to be ornamental in appearance, is cheaply and easily made, and does not obstruct the chimney.

#### IMPROVED WAGON AXLE.

Wilbur F. Buckelew, Shreveport, La.—The object of this invention is to strengthen the wooden axles of wagons, and to fasten the skeins so that they will not become loose. A wooden axle is grooved longitudinally upon its under side throughout its entire length, to receive a rod, which is reduced in size at its ends, and threaded to receive the nuts. This rod is bent so as to conform to the tapering portion of the axle upon which the skein is placed. The skeins, having countersunk outer ends, are placed on the ends of the axle, and nuts having a beveled face corresponding to the countersunk ends of the skeins, are placed on the ends of the rod, and clamp the skeins securely on the axle. By giving the nut this peculiar form, it contains more threads than it otherwise would, and is in consequence stronger. The rod not only serves to retain the skeins securely in their places, but it also acts as a stay or truss rod for the axle, greatly strengthening it.

#### IMPROVED WAGON BRAKE LEVER.

Jacob P. Outson, Racine, Wis.—This invention consists of a curved ratchet bar and two levers working on the same pivot, one carrying a spring pawl, that engages with the curved ratchet bar, and the other carrying a stud for throwing the pawl out of the notches of the ratchet bar. When the brake is to be applied to the wheels of the wagon, one lever is thrown forward, carrying with it the other lever; and the pawl, by engaging the notches of the bar, holds the lever at any desired point. When it is desired to release the brake first named, the lever is drawn back, moving first the length of the slot, the stud striking the pawl and throwing it out of engagement with the ratchet bar, when the lever may be carried back to any required position.

#### NEW HOUSEHOLD INVENTIONS.

##### IMPROVED BAKER.

Luna Drew, Irving, Wis.—This is an improved baking attachment to heating stoves of all kinds, so that the heat of the same may be utilized for baking, warming, raising bread, and other purposes. It consists of a baker supported on adjustable legs, and secured to a round, oval, or square heating stove by suitable top and bottom slides. A warmer is arranged below the baker. The front of the baker is detachable, to admit its use for baking or warming purposes.

##### IMPROVED FIRE KINDLER.

John G. Distler, Brooklyn (Greenpoint P. O.), N. Y.—This invention is an improved fire kindler, simple in construction, convenient in use, and effective in operation, burning freely, and lasting long enough to fully kindle the fire. It is formed of corncobs, steamed, having a number of transverse holes formed through them, dried, dipped in melted white resin, and wrapped in paper. The corncobs are steamed to prevent them from breaking while being bored. The cobs, while still moist with the steam, have a number of transverse holes bored in them with a rapidly revolving bit, and are then thoroughly dried. When dry the cobs are dipped in melted white resin, and before they are fully cold they are wrapped in ordinary paper, which adheres to them, prevents any odor from passing off into the room, and prevents them from soiling the hands while being handled.

##### IMPROVED MATCH SAFE.

John A. Field, Racine, Wis.—This is a match safe, the back, top, and front of which are made from a single piece of tin, and to which a lighter of wire cloth is attached, which is placed over a picture, to give the match safe an ornamental appearance. It is so arranged that the matches are delivered singly to a pair of hooks, from which they may be readily taken by the fingers.

##### IMPROVED NURSERY CHAIR.

Luther I. Adams, East Templeton, Mass.—This chair may be readily converted into a high or low chair, and in which an attached toy box retains the toys when the chair is in either position. The armed low chair has curved legs. Between the rear legs a shaft is journaled, upon which two wheels are placed. The support for the low parts when it is used as a high chair consists of two similar sides, each composed of two curved strips, which are held together partly by crossbars and partly by triangular metallic pieces that are attached to their upper ends and pivoted to the center of the crossbars that connect the legs. A shaft, having upon it wheels, is journaled in the curved strips at the back of the chair near the lower ends. The toy box consists of a tray that is concave at its upper edge and is made convex at its lower end, and is provided with a cover that extends over a portion of it, and forms a receptacle for toys when the box is in a vertical position.

##### IMPROVED FRUIT JAR.

Catherine Hastings, Oswego, N. Y.—This is an improved attachment for fruit jars, to enable them to be conveniently handled when filled with hot fruit, and at other times. It does not interfere with standing the full fruit jars upon their tops, if desired, and enables the jars to be used for holding and carrying various articles. There is a metallic screw band, by which the cover is secured upon the mouth of jar. To the opposite sides of the band are soldered lugs to which are pivoted the ends of a wire bar.

##### IMPROVED VENTILATOR.

Charles E. Darling, Lewiston, Me., assignor of two thirds his right to Henry Free and John E. Lydston, of same place.—This ventilator for wind, doors, etc., works in noiseless manner, and is watertight. It consists of radially recessed face disks, clamped to the glass frame, and having an intermediate pivoted disk with corresponding recesses that are set by a crank lever and cords into open or closed position.

##### IMPROVED BAKING PAN.

Charles I. Kagey and Fred W. Stoneburner, Arcola, Ill.—The body of this roaster is made of sheet iron, and is rectangular in form. To one end of the body a cap is secured, and to the other end a rectangular cast iron frame is fitted, to which a cast iron door is hinged. At the top of the roaster, at or near its center, an aperture is made, which is closed by a tapering projection that extends downward from a plate that is hinged to the top of the roaster. Rings are attached to the top of the roaster near each end for convenience in handling. The apparatus, when in use, is placed upon a stove or in an oven.

##### IMPROVED STOVEPIPE SHELF.

John W. Jackson, Sharpsville, Pa.—A wire of the requisite strength is bent into the shape required to form the horizontal support. To this the shelf is attached, and also the bracket, which rests against the pipe for supporting the same.

#### NEW MECHANICAL AND ENGINEERING INVENTIONS.

##### IMPROVED WATER WHEEL.

Isaac Mallery, Dryden, N. Y.—This invention relates to downward discharge turbine waterwheels; and it consists in the employment, in combination with a stationary chute case and an independent adjustable frame, of a series of gates, which are pivoted to this frame and adjustable to the periphery of said case. The bucket wheel is formed of curved and inclined

buckets arranged around a hub, and applied to a cap ring and a skirting. This wheel is keyed on a driving shaft, stepped on a bridge, and passed up through a tubular sleeve, which is cast on the top of a cylindrical chute or guide case. This case is rigidly secured to the base or bed frame, and constructed with oblique issues, which direct the currents of inflowing water against the buckets of the wheel.

#### IMPROVED VALVE MOTION FOR STEAM ENGINES.

Henry Haering, New York city.—This is an improved device for operating the slide valve of a steam engine from the piston rod of said engine, in such a way that the valve will be moved slightly to partially uncover the inlet and exhaust ports as the piston completes its stroke, and its motion will be continued in the same direction as the piston begins to move upon the return stroke, until the ports are fully opened, and will then stand still, with the ports fully open, until the piston has nearly completed its return stroke. It consists in the combination of a three-armed bar, two levers, connecting bar, and connecting lever, with the piston rod and the valve stem of a steam engine; and in the combination of a lockbar, spring, two cylinders, and pin, with the two levers and the three-armed bar. As the piston approaches the end of its stroke, the upper end of an upright arm of a bar strikes the concave side of the upper part of one of the levers operating it, and moving the slide valve to close the ports and admit steam in front of the piston. As the piston begins its return stroke the inclined upper surface of one of the side arms of the three-armed bar comes in contact with the lower end of the said lever, and continues its motion in the same direction, fully opening the said inlet port, which remains fully open until the piston has again nearly completed its stroke.

#### IMPROVED REVERSIBLE ECCENTRIC.

George G. Lafayette and Pitt W. Strong, Brockville, Ontario, Canada.—This is an improved device to act as a substitute for the link motion on a reversible engine, or for adjusting the stroke of a boiler-feed pump, while in motion, so as to regulate the amount of feed water supplied to the boiler, without the use of an overflow pipe and cock, and keeping thereby the pump constantly in motion, which will save the annoyance frequently experienced in pumps by their refusing to prime after having been stopped for a short time. It may be further used to control the speed of all kinds of engines, whether with plain slide valve or with a cut-off valve working on top of the other by connecting directly to the device a suitable governor, so as to automatically shorten and lengthen the stroke of the valve, and give a uniform motion to the engine under different loads.

#### IMPROVED EXPANDING REAMER.

Robert Blair, San Francisco, Cal.—In this improved tool there is a clamping bolt by which the cutters are clamped fast after being adjusted. The cutters are arranged to slide directly across the stock in dovetail grooves, and are slotted to slide along the clamping bolt and washers, by which they are clamped fast after they are adjusted to the position required by a toothed pinion and racks. The pinion is arranged in the stock between the cutters, and the shaft extends out of the end of the stock, with a nick in the end for a screwdriver to turn it.

#### NEW MISCELLANEOUS INVENTIONS.

##### IMPROVED TORTOISE-SHELL HANDLE.

Christian W. Schaefer, New York city.—The object of this invention is to mount the handles of canes, umbrellas, parasols, whips, opera glasses, and similar articles with a tortoise-shell covering, in such a manner that the present inefficient mode of attaching the same by glue may be dispensed with, the covering attached in tightly fitting and durable manner, and the joint or weld of the edges be not noticeable in the least.

##### IMPROVED HAND STAMP.

Leonard Tilton, Brooklyn, E. D., N. Y.—This invention consists in novel devices for giving positive rotation to the stamp heads after the impressions are made, in combination with a reciprocating inking pad, and in means for adjusting the throw of the inking pad with respect to the printing faces of the stamp heads.

##### IMPROVED BUCKLE.

John Fenton, Indianapolis, Ind.—This invention is an improved buckle, neat in appearance, strong and durable, which may be easily fastened and unfastened, which will not require the strap to be perforated, and will hold it securely in any position into which it may be adjusted. The buckle is formed of a plate having holes in its middle part to receive the rivets by which it is secured to the strap, and having cross slots formed in its ends to receive the free end of the said strap, and the eccentric, having its outer side corrugated radially, and provided with a handle.

##### IMPROVED LIQUID DIFFUSER.

George M. Smyth, Brooklyn, N. Y.—This invention consists in the combination of an air compressor, an air reservoir, and a receptacle for the liquid, and an arrangement of pipes and nozzles for atomizing the liquid. An air compressor of any ordinary construction is connected with the reservoir by a pipe, in which two stopcocks are placed. There is a receptacle for containing the liquid to be diffused or atomized. A pipe passes through a stopper placed in the neck of the said receptacle, and extends nearly to the bottom of the same, and its upper end is provided with a stopcock and nozzle. A nozzle is arranged at right angles to the first-mentioned nozzle, and is attached to a brace that is secured to the pipe.

##### IMPROVED OIL CAN.

John Graves, New York city, assignor to himself and James L. Miller, Westfield, N. J.—This is an improved case for packing oil cans for transportation, the case furnishing the additional facility that the can may be readily inserted into the same and tilted for use. The invention consists of a wooden projecting case with side slots, in which trunnions of the can are guided and supported for swinging the can on pivot hooks, which serve also for the purpose of locking the lid to the case.

##### IMPROVED HARNESS TUGS.

Charles Hauff, Ashland, O.—The body of the carrier is made in the form of a ring with outwardly projecting flanges around its edges. The strap is passed around the ring in the groove formed by its flanges, and its inner end is sewed to its body at the side. Small wedge-shaped blocks of leather are inserted in the angle between the parts of the strap where they meet and the ring, which angular blocks are covered by angular projection of the flanges of the ring.

##### IMPROVED COMPOSITION FOR CASTING ORNAMENTAL FIGURES.

August Kieselee, New York city.—This consists in a composition formed by the admixture of dry pulverized sugar, melted paraffin, and stearine. It is poured into moulds and allowed to cool. The article is then removed from the mould, and powdered starch or sugar is dusted over it to destroy the gloss and give it the appearance of alabaster.

##### IMPROVED PEN RACK.

Harvey W. Forman, Golden City, Col.—This consists of an upper frame with intercrossing wires, forming wide spaces or meshes, and of a second frame with closer wires below the same, for holding the pen in upright position, in connection with a bottom pad or absorbent below the rack frames.

##### IMPROVED STOPPER FOR MUCILAGE BOTTLE.

James Tilghman, New York city.—This is a combined brush and stopper, consisting essentially of a handle having a stem and a flat end corresponding to the top of the cork. The brush has a flat head, corresponding to the bottom of the cork. The cork is interposed between the said head and end of the handle, and held in place by the central stem.