

## Recent American and Foreign Patents.

## NEW MECHANICAL AND ENGINEERING INVENTIONS.

## IMPROVED HORSE POWER.

William H. House, Bennett's Cross Roads, N. C.—This invention has for its object to provide an improved horse power for operating cotton gins and other mills.

## IMPROVED METHODS OF CASTING CAR WHEELS.

William Wilmington, Toledo, O.—The first of these two patents is for an improvement in the manufacture of cast iron wheels for railway cars, the purpose being to lessen the cost and increase the durability of the wheel. The method consists in casting car wheels from two different qualities of metal by pouring in first the superior metal to form the tread and flange of the wheel, and afterwards the inferior metal to form the central parts of the wheel, and regulating the inflow of both by radial passages, whereby circulating currents and the homogeneous mixture of the two metals is avoided, and the proper disposition of the two metals in the car wheel is secured. The second method here consists of casting car wheels from two kinds of metals, or composition of metals, by first introducing the inferior metal until it shall have attained the level of the barrier formed by the outer raised or swelled portion of the plates next to the rim, then introducing the superior metal to the rim portion through separate channels, and finally continuing the inflow of the inferior metal through these channels to force the superior metal contained in the outer plate portion of the wheel outwardly and upward to cause the latter to fill the upper rim and tread portion of the mould.

## IMPROVED METHOD OF CHARGING BLAST FURNACES, ETC.

Charles Himrod, Youngstown, O.—This invention relates to a method of charging and managing blast furnaces having longitudinal compartments, which consist in feeding ore and flux into one compartment and fuel into the next, and at intervals reversing this mode of charging to distribute the furnace burden, the generated gases being compelled to traverse the compartment in which the ore is uppermost on their way to the exit to their entire exclusion from the ore in which the fuel is uppermost. The means for carrying out the method consists in a longitudinally divided stack having an exhaust pipe that communicates with each compartment of the divided stack through separate pipes with dampers arranged to be alternately reversed and separately controlled.

## IMPROVED PNEUMATIC PUMP FOR REFRIGERATING APPARATUS, ETC.

Daniel L. Holden, Covington, Ky.—This invention belongs to that class of pneumatic pumps in which a valve of greater diameter than the bore of the cylinder is used to form the cylinder head. The improvement consists in combining an imperforate piston with a valve of the above construction, and a cylinder having but a single inlet valve, in such a manner that the piston in forcing out the charge of air or gas produces a partial vacuum beneath the same and passes the inlet orifice, whereby the compressed gaseous charge held in said inlet valve chamber is allowed to pass beneath the piston and to expand into and be absorbed by the partial vacuum, so that, upon the downward exhaust stroke of the piston, there will be no charge of compressed air or gas in the inlet valve chamber to expand above the piston and prevent by its elasticity the perfect exhausting stroke of said piston. An outlet check valve is employed in the opposite end of the cylinder from the inlet for the discharge of the compressed charges of the air or gas taken from the said inlet valve chamber.

## IMPROVED TOBACCO AND COTTON PRESS.

Allan Talbot, Richmond, Va.—This invention has for its object to enable the operation of compressing tobacco in hogsheads, etc., to be effected with greater convenience and celerity than heretofore. The special feature of the invention is a plunger pivoted to and beneath the immovable head of a hydrostatic, or other form of press, in such manner that, while it is fixed in position as relates to the reciprocating plunger, it may be turned or swung out from under the head of the press in order to facilitate filling the hogshead, preliminary to the compressing operation. A new supply may then be placed in the hogshead, and the compressing operation quickly repeated.

## IMPROVED RAILWAY CHAIR AND TIE.

Norman S. White, Millerstown, Pa.—Metal ties are employed, and these are joined at the ends to continuous chairs or rail-beds. The ties are preferably + or H-shaped in transverse section, and detachable clamp pieces secure the rails to the beds. The beds or sleepers are grooved to receive wooden strips on which the rails are laid.

## IMPROVED SEWING MACHINE.

William G. Cummins, Cokeville, Tenn.—After passing through the fabric or goods to be sewed, the needle is raised a little, to spring the thread loop sufficiently for the point of the shuttle to enter, and is then carried down again, to allow the loop to pass easily on the body of the shuttle, after which it is held stationary, to give the shuttle time to pass through the loop before it is drawn up. The needle is then raised while the shuttle thread is tight, or before the shuttle starts back. The machine is adapted to sew from or toward the operator at will. This function is especially useful when it is desired to double or duplicate a row of stitches, and thereby strengthen or fasten a seam.

## IMPROVED SAW-SHARPENING MACHINE.

Parker D. Robbins, Harrellsville, N. C.—This consists of a circular or rotary file having a diagonal groove on its face for carrying the saw forward placed on a suitable mandrel. The said mandrel is journaled to a table which can be adjusted to give the proper bevel to the teeth being filed. The object of this invention is to rapidly file the teeth of a saw at any desired bevel, by rotating the file by means of a crank and suitable gearing, the saw being drawn forward by the diagonal slot in the edge of the file.

## IMPROVED MOTIVE POWER.

Jarratt Gross, Catlettsburg, Ky.—Around a large wheel passes a band, which passes around a shaft pivoted to posts, and from which motion is communicated to the machinery to be driven. To the journals of the wheel are pivoted two levers, the outer ends of which are heavily weighted, so that when the levers are raised and allowed to rest upon the shoulders of the projections, attached to the sides of the rim of the wheel, their weight may revolve the said wheel, and thus give motion to the machinery to be driven.

## IMPROVED BELT SHIFTER.

William W. Hubbard, Manchester, N. H.—This consists in the combination of a stationary drum, for receiving the belt from the driving pulley, and a follower moved over the said drum by levers or suitable gearing, for forcing the belt from the drum on to the pulley, and also for removing it from the pulley. The object of the invention is to provide a means for shifting belts which shall obviate the difficulties hitherto experienced in using loose pulleys or idlers with the ordinary means for shifting.

## IMPROVED ROTARY ENGINE.

Philo A. Knapp and Ira S. Knapp, Danbury, Conn.—This consists of a cylinder having an annular space, in which a rotating piston is placed, and a shaft running through the central portion or core of the cylinder, and connected with the said piston by a thin arm, which passes between annular spring plates, secured in the center of the core of the cylinder. The said plates form a packing, which permits the piston arm to rotate, but closes together after the arm passes, preventing the steam from coming into contact with the shaft.

## IMPROVED WIND WHEEL.

George W. Penn, Onawa, and William S. Sharpneck, Missouri Valley, assignors to P. D. Mickel, Missouri Valley, Iowa.—As the velocity of the wheel increases weights are thrown outward by centrifugal force, and mechanism is actuated to turn the fans away from the wind. New means are provided whereby the wheel may be easily adjusted to run at any desired velocity.

## IMPROVED DISCHARGE NOZZLE FOR GRAIN ELEVATORS.

Frederick J. Kimball, Philadelphia, Pa.—This is an improved nozzle for the spout of grain elevators, by which the grain may be discharged into a vessel or car in any direction and angle under pressure of air, so as to dispense with the shoveling off and leveling of the heap of grain forming under the spout of the elevator. The device consists of a discharge spout with a valved air blast pipe, and a check plate or telescoping nozzle turning on the spout, and being directed by a forked handle applied thereto.

## IMPROVED CAR COUPLING.

James C. Pugh, Ambia, Ind.—This invention consists of a drawhead with recessed and weighted drop gate that bears on the link, which is coupled by a spring hook at the bottom of the car coupling. The spring hook enters through a recess at the bottom of the draw-head. For coupling, the lever is released from the spring hook, the link passing then over the same by raising the gate and coupling automatically by dropping back of the hook.

## IMPROVED MACHINE FOR MOUNTING HAIR SWITCHES.

Charles Bourgard, New York city, assignor to himself and Jones Waters, Brooklyn, N. Y.—This is an improved machine for mounting human hair switches, by which one hand may work the machine, while the other hand feeds simultaneously the web of hair in convenient manner, winding it regularly and without danger of taking in or catching any part of the hair. The device consists of a loose cord spool, revolving with a vertical shaft by the tension of the cord, that passes through an end hook of the shaft, and is clamped at the lower end to a tension weight.

## IMPROVED EARTH AUGER.

Orson H. Polley and Dwight W. Toles, Plymouth, Mich.—In this device there is an adjustable feed gage, which is slotted vertically, to receive the two bolts by which it is secured to the body, so that it may be adjusted to project less or more, to cause the auger to enter the ground slower or faster, according to the hardness of the earth upon which the auger is operating.

## NEW AGRICULTURAL INVENTIONS.

## IMPROVED COMBINED HARROW AND CLOD CRUSHER.

William H. Kuhn and Samuel Miller, Albany, Oregon.—This implement is constructed in sections, which are provided with teeth and hinged in such manner that one or all of the sections may be detached as required, or the whole weight of the frame and the driver may be imposed upon any one section when passing over a clod or other obstacle.

## IMPROVED PLOW.

Errin D. French, Byhalia, Miss.—This invention consists in an improved point for plows, so arranged that all the various plows ordinarily used in farm labor may be run with the same point.

## IMPROVED GRAIN SEPARATOR.

William Edr. s. Eugene City, Oregon.—This machine consists of an inner and outer reel located concentrically upon the same shaft, in combination with a trough and spiral conveyor adapted to carry away the impurities passing through the outer reel and a subjacent case connected with the annular space between the two reels by means of a chute, and containing a fan and a set of shaker sieves, which devices effect the new result of eliminating both the large and the small impurities from the commingled wheat and chaff before the latter is admitted to the shaker sieves, which latter, in connection with the fan, separate the chaff.

## IMPROVED GANG PLOW.

John R. Cummins, McKinney, Tex.—This gang plow is so constructed that it may be readily adjusted to cause the plows to take or leave land. The wheels may be adjusted closer to or further from the plows.

## IMPROVED STRAW STACKER.

William Deetz, Saltville, O.—The carrier is made of two sections, which are adjustable to different lengths, so that the same may be lengthened or shortened, according to the distance and height to which the straw has to be conducted for storage or stacking. An endless belt takes up the straw and conveys it up along the carrier to the upper end for dropping. Rigid supports at the lower front part secure, in connection with the uprights and brace rods, the rigid position of the carrier in whatever direction the same may be run from the thrasher, the supporting and stiffening rods being merely transposed from one side to the other, and adapted to the position of the carrier when the same is placed in position to run to either side or in straight direction from the machine.

## IMPROVED CHURN.

James A. Duryee, Nunda, N. Y.—This churn dasher is so constructed that it may be readily adjusted according to the amount of milk in the churn. It is claimed to bring the butter very quickly, gather the butter thoroughly, to be easily operated, and to work equally well when turned in either direction.

## IMPROVED SULKY PLOW.

William N. Riddle, Caddo Grove, Tex.—This sulky plow is so constructed that it may be readily adjusted to take or leave land, and to work at any desired depth in the ground. It may also be readily raised from the ground.

## IMPROVED GRASSHOPPER KILLER.

Charles Hoos, Arago, Neb.—This consists of a frame mounted on wheels and having a platform with fingers, which are curved upward, and are designed to enable the machine to pass over obstructions, and to cause the grasshoppers to rise from the ground and fall upon the platform. The platform is grooved and is made highest in the center, and declines toward the front and rear, so that the grasshoppers may be crushed against the shoulders of said rabbits by cross bars attached to endless belts. Rollers are placed at the rear edge of the platform so that any grasshoppers that may not be killed by the cross bars may be crushed.

## IMPROVED HAY LOADER.

David F. Roach, Atlanta, Ill.—The construction is such that as the machine is drawn forward one of each pair of toothed bars will rise, carry the hay a little distance toward the wagon, and then descend and move back, while the other bars rise and carry the hay forward a little farther, and so on, until it has been delivered upon the wagon, the alternate bars always moving in opposite directions.

## NEW HOUSEHOLD INVENTIONS.

## IMPROVED FURNACE.

Edwin Varney, Leavenworth, Kan.—This invention consists in constructing the combustion chamber in a double conical form, and combining it by means of down draft fire flues with the base having side compartments provided with partitions, whereby the smoke and flame is made to emerge from the swelled or enlarged portion of the combustion chamber and pass down the fire flues to the side compartments of the base, and by means of the partition in the same is first directed forward, and then back-

ward, as in a return flue, and thence passes to the exit smokepipe, which arrangement serves to produce a stronger and more compact form of furnace, a better distribution of heat, and a larger radiating surface.

## IMPROVED AIR-HEATING ATTACHMENT.

David McAlliston, Walton, N. Y.—The object of this invention is to furnish an improved attachment for hot air or other furnaces, for the purpose of utilizing and economizing the heat which ordinarily escapes into the flue and is thereby wasted. The device is simple and inexpensive in construction, being formed by combining two drums of different size, one being placed within the other, and also provided with partitions or diaphragms of peculiar form for directing the course of the products of combustion in such manner as to most completely eliminate the heat, and thus attain the most economical result. For details of construction and arrangement of parts, see patent.

## IMPROVED AIR-HEATING STOVE.

John B. Oldershaw, Baltimore, Md.—This invention covers certain implements in air-heating stoves of that class in which a drum is arranged in the upper part of the combustion chamber, to which drum air is admitted to be heated and thence escapes into the room. The improvements consist in making the drum detachable, arranging its inlets and outlets to register with corresponding openings in the outer case, and combining with the said drum and outer case detachable sleeves containing dampers or registers, to regulate the admission and escape of the air, which sleeves form break joints to the registering openings of the drum and outer case that prevent the gases from the combustion chamber from commingling with the fresh heated air and escaping into the room.

## IMPROVED DRAWER DESK.

Ernest N. Doring, New York city.—This is a desk with a double set of pigeon holes, the whole being so arranged as to shut up and slide into a chiffonier, the back of the pigeon holes being finished the same as the chiffonier front.

## IMPROVED TEAPOT.

Ebenezer Oliver, New York city.—This is an improvement in the class of teapots which are provided with a removable perforated or wire-gauze holder or receptacle for tea leaves. The improvement relates to the construction of parts, whereby the tea holder is attached to the bottom of the pot; and also to the combination, with said holder or receptacle, of a device employed for removing the tea leaves subsequent to the steeping operation.

## IMPROVED EGG HOLDER.

Pantalio M. Leprohon, Brooklyn, E. D., N. Y.—This consists of clamping leaves or plates, curved to the shape of an egg and supported on spring arms or posts attached to a base plate.

## IMPROVED KEROSENE LAMP.

Samuel Dodsworth, Leavenworth, Kan.—This embodies a new arrangement of the oil reservoir and a novel wick tube made with flanges upon the inner surface of its edges, to adapt it to receive a permanent wick, and also the burning wick. The permanent wicks serve to keep the burning wick constantly supplied with oil.

## IMPROVED SPRING BED BOTTOM.

John F. Coder, Toledo, O.—This consists of a spring bed bottom made in two sections, one of which is made of thicker strips than the other. It also consists in cross bars for supporting the slats that are covered with chamois skin, or other material, to prevent noise, and rest in notches in side piece of the bedstead.

## IMPROVED LAMP BURNER.

Wirt L. Carter, Monroe, Mich.—This is an improvement in Argand lamp burners, and consists in means for steadying or equalizing the action of the air current to prevent flickering of the flame.

## IMPROVED ASH SIFTER.

Thomas H. Badger, Boston, Mass.—This invention consists in placing below the hopper of an ash sifter fingers that are inclined downwardly from each other, and others that are inclined from the side of vessel downwardly toward each other. The coal is conducted from one series of fingers to the other, while the ashes are screened off and conveyed through the channels to a suitable receptacle.

## NEW WOODWORKING AND HOUSE AND CARRIAGE BUILDING INVENTIONS.

## IMPROVED VEHICLE AXLE.

Patrick F. White, Westernport, Md.—The body of the axle is + shaped in transverse section, and blocks are attached to its ends which are bored longitudinally to receive detachable journals. The object is to provide an axle which is strong and light, and which may be easily and cheaply supplied with new journals when required. The axle is particularly applicable for carts, mining cars, etc.

## IMPROVED CONVERTIBLE WAGON BED AND HAY RACK.

James M. O'Neill, Fort Worth, Tex.—The body of the wagon is so constructed that it may be readily converted or changed from its ordinary form to adapt it for use as a lumber, wood, cotton, or hay frame, etc. For details, see patent.

## IMPROVED SCREW.

James Plenkharp, Columbus, O.—This invention has for its object to provide a cheap wood screw for use in securing the legs of tables to the top or frame thereof; also for securing together other parts where it is particularly desirable or necessary the connecting device shall possess flexibility as well as strength. To this end, the screw is formed of a wrought iron core and cast metal thread or flange, the screw being double ended and provided with a central circumferential flange or rib.

## IMPROVED FACING FOR WALLS OF HOUSES.

Thomas Walton, Wheeling, W. Va.—This invention relates to a facing for the outer and inner walls of buildings, also for floors, ceilings, etc. It consists in an ornamental plate of glass, or other suitable material, provided with lugs or projections which enter the spaces between the stones or bricks, and are imbedded in the mortar or cement.

## NEW MISCELLANEOUS INVENTIONS.

## IMPROVED SCISSORS.

Amos W. Coates, Alliance, O.—This invention covers certain improvements in guarded scissors, or scissors provided with protective end guards, designed for the use of little children, to protect them against accidents which are liable to occur from their careless handling of scissors provided with sharp points. The improvement consists simply in bending the points of the scissors around so as to form a loop, ring, or an eye, which with but little expense secures the desired result in a simple and durable manner.

## IMPROVED CALENDER.

Oscar P. Morse, Batavia, N. Y.—This invention consists in a paper card-board having a top ring by which it may be hung up, and a slit connecting with two others at right angles thereto. There is thus formed a flap that can be pushed aside or lifted with the finger. It is provided with twelve monthly calenders with a line to the right of each day of the month, so that memoranda may be noted. After a month has elapsed, a calendar is turned up, passed through slit, and held on the opposite side of card-board for future use.