Inventions Patented in England by Americans.

From August 28 to September 11, inclusive.

BREECH-LOADING GUN.—A. J. Crocker, Providence, R. I.
BINDING WIRE.—S. G. Mason, Vicsburgh, Mich.
CONVERSION OF IRON ORES.—M. J. Hamilton, St. Louis, Mo.
LABELS.—A. Kimball, New York city.
LOOM.—W. Riding, Norristown, Pa.
PROPELLING CARS.—J. B. Tibbitts, Hoosic, N. Y.
REFRIGERATING APPARATUS.—G. C. Roberts (of New York city), London, England.
RESTORING CRAPE, ETC.—Eva B. Reid, New York city.
SEWING THREAD.—A. R. Arnold, Newark, N. J.
SHOE STIFFENINGS.—D. Scrymgeour, Boston, Mass.
SPRING TRAP.—I. A. Paine, New York city.
TACKS FOR SHOE SOLES.—L. Goddu, Winchester, Mass.

Recent American and Foreign Patents.

Notice to Patentees.

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NEW MECHANICAL AND ENGINEERING INVENTIONS.

IMPROVED MACHINE FOR BUNCHING HAY FOR FUEL.

Marcus E. Getter, Alden, Minn.—The box or frame of this machine is supported upon legs, and a shaft is journaled in the side of the box, and is provided with steel tines which extend horizontally through the box and project through a circular opening in the side of the box opposite that in which the shaft is journaled. Short tines are placed in altercation with longer tines, and both are tapered throughout their entire length. A semi-cylindrical presser is placed directly under and parallel to the tines, and is connected by a bar with a foot lever which is pivoted to the crossbar that connects the legs. A slide, moving in guides at the side of the box, closes the opening, and is notched to fit over the ends of the tines, and prevents the hay from escaping at the side of the box. The operation is as follows: Hay is introduced into the box as the tines are revolved, and as it is wound upon the tines the presser is thrown upward by means of the foot lever. This causes the hay to wind closely upon the tines. When the bunch is sufficiently large the slide is raised by moving the lever. The bunch is then discharged from the tines through the opening by throwing the forked lever forward.

IMPROVED APPARATUS FOR HEATING AND LIGHTING.

Charles Ritchie, Brixton, Eng.—The vapors arising from the combustion of coal gas are highly injurious to health, and greater in volume than is generally supposed, exceeding, as they do when condensed into liquid form, a half ounce to every foot of gas that is burned. These vapors contain sulphurous acid, carbon, and other deleterious matters, which, especially the sulphurous compounds, have great affinity forwater, and may hence be gotten rid of by condensation. The object of this invention is to condense the vapors and separate them so far as possible from other products of combustion; also to heat and ventilate the apartment in which the gas is burned for illuminating purposes. Siphonic action results naturally from the arrangement of passages or flues so that the combined currents of heated air, vapors, and products of combustion from the gas flames at burners are curved downward and then upward through a long circuitous route, whereby the heat becomes mostly radiated or absorbed from the traveling vapors, and the vapors and gases, being rendered heavier than the air, fall to the bottom of the apparatus, where condensation takes place. The noxious substances are thereby eliminated, and the heated air and certain light products of combustion pass on into an apartment which is ventilated by the constant change of air without the delivery of noxious matter into the same.

IMPROVED BEDPIECE FOR CLOTH-PRESSING MACHINES.

Herman Springborn and Christian H. Baush, Holyoke, Mass.—The present invention relates to improvements in that class of cloth-pressing machines in which a pressing roller is fitted to a heated concave bed. The invention consists in a hollow bedpiece, made in two parts, and connected by means of dovetail projections and recesses, and having between them air spaces. The object of the invention is to provide a bed for cloth-pressing machines in which both heat and cold may be employed, so that the cloth may be both hot and cold pressed in passing over the bed. The side parts of the bed are made of cast iron or other suitable material, and are each chambered out or made hollow—one to receive a current of water, cool air, or other suitable medium for cooling the bed, and the other for receiving steam, or for containing a gas flame or other suitable heating medium. The parts are connected together by dovetail projections formed on one part and a dovetail slot formed in the other part, the side of which is cut away, forming air spaces that prevent the intercommunication of heat and cold. The parts are put together by sliding the dovetail projections of the one part into the dovetail slot of the other part. This arrangement permits of the expansion of one part of the bed independently of the other part, so that as one part of the bed is warmed and the other cooled, neither part will be strained. Steam is taken into one part through an aperture and the water of condensation is removed through another aperture, and cold water is taken one part through one aperture and escapes through the other aperture. Cloth, in passing over the concave surface of the bed, is first subjected to hot pressure between the roll and the bed, and is afterwards subjected to cold pressure beneath the same roll.

IMPROVED COTTON GIN.

Robert Dickinson, Darlington Court House, S. C.—This invention relates to cotton gins, and consists, first, in constructing the ribs forming the breast in pairs or gangs, for the purpose of allowing them to be secured firmly and substantially in their places; second, in flanges or fins fixed to the ribs, and so constructed and arranged that foreign substances cannot be brought in contact with the saw teeth; third, in clearing-brushes arranged between the saws and the brush cylinder, and receiving the saw teeth through them, for the purpose of preventing clogging and danger from fire, and also for the purpose of carding and straightening out the lint on its way to the brush cylinder. The saw shaft is journaled in boxes on the main portion of the frame, and is consequently detached from the driving shaft, and will not be thrown out of true thereby, nor caused to heat in its bearing. This arrangement prevents any grinding or rubbing of the saws against the ribs or bars, and lessens vibration and wear. Hitherto the ribs have been made separate. In this improvement they are constructed in pairs or gangs, for the purpose of more rigidly securing them to the end rails. Single ribs work loose, and have less bearing on their rails than the double or triple ribs, and are more liable to cause clogging. The ribs are all provided with flanges, which are constructed of an angular form, with the lower ends rounded and the upper edge sloping upward. These flanges serve as guards, and protect the saw teeth from contact with sticks, nails, matches, and other foreign substances which might be in the cotton. This brush cylinder is constructed in the usual manner, and its shaft is entirely independent of the saw shaft; consequently the latter will not be subjected to strain or wear, which is so objectionable in gins where the saw shaft and brush cylinder are geared or bolted together. The brushes are designed to extinguish fire which may take place, from any cause, in the gin, and they also operate to card and straighten out the lint on its way to the brush cylinder.

IMPROVED JACQUARD MACHINERY.

Warren P. Jennings, Brooklyn, N. Y.—This invention has relation to jacquard machinery, and the nature of the invention consists, first, in the employment of a cam wheel of peculiar construction, in combination with gearing and rotating arms, for giving more positive intermittent rotation to a card cylinder during its vertical movements; second, in combining a heater with the cards, which is so arranged that the latter are prevented from being injured by moisture in the air. A cam wheel communicates a positive rotary motion to the card cylinders, giving them one eighth of a revolution at each stroke, and bringing them into proper position at the termination of every ascending stroke. The movements are so direct and timed that there will be no tendency to displace the cards on the cylinders while bringing them successively into position for operation. The chain of cards is constructed in the usual well known manner, and near the guide roller, over which the cards pass to the cylinder, is arranged a heater, covered by a shield. This heater may be a perforated gas pipe, where it is desired to use gas jets, or a lamp or steam may be used where gas is not to be had. In damp weather cards absorb moisture and swell, so that they do not work true. To prevent this the heater is so arranged that the cards are kept dry.

IMPROVED MACHINE FOR PICKING STONES, ETC.

Charles Fuller, Little Marsh, Pa.—The object of this invention is to furnish an improved machine for picking, hauling, and delivering stone, manure, dirt, etc., which shall be simple in construction, effective in operation, and conveniently operated and controlled. The invention consists in the combination of the hinged crossbar and the U-rods, connected by crossbars with the frame work of the machine; in the combination of the adjustable crossbar and the guide rods with the hinged crossbar to which the U-rods are attached, and with the frame of the machine; in the combination of the lever provided with the slotted curved arm and the pin with the frame of the adjustable crossbar and the hinged crossbar, to which the U-rods are attached; in the combination of the notched fulcrum bar with the crossbar of the U-rods, and with the axle of the carriage; in the combination of the ratchet bars, the pawls, the rod, and the lever with the crossbar of the U-rods, and with the frame of the carriage; and in the combination of the scraper provided with the keepers and the flange socket with the lower arms of the U-rods. When the machine is to be used for handling dirt and other fine substances a scoop or scraper is placed upon the lower arms of the U-rods. The scraper has two or more keepers formed upon its bottom to receive two or more of the rods, and thus keep the rear part of the scraper in position.

IMPROVED WINDMILL.

Oscar B. Fuller and Leonard A. Fuller, Mount Pulaski, Ill.—The object of this invention is to furnish an improved windwheel, which shall be simple in construction, inexpensive in manufacture, reliable in operation, and easily controlled. The wheel is formed by attaching wings to the radial arms of a hub, which revolves upon a journal formed upon or attached to the outer end of a bar or beam. To the inner side of the wheel is attached an eccentric flange to receive the forked outer end of a lever. The lever is pivoted to a short fulcrum post, the lower end of which has a T formed upon it to fit into a T groove formed in the plate attached to the bar or beam, so that the fulcrum point may be adjusted as required. To the inner end of the lever is attached the upper end of the rod, which passes down through the tube and hollow stop, and from the lower end of which motion is taken to the machinery to be driven. Upon one end of the shank of the vane is formed an arm which strikes against a shoulder formed upon the side of the inner end of the bar or beam. By this arrangement the vane cannot turn out of line with the bar or beam in one direction, but may turn in the other direction into a position at right angles with said bar or beam. A special advantage of this improved windwheel is that the lever so greatly increases the power of the wheel that it may be used for raising water from deep wells while using a small wheel, which could not be done with the old construction, as the resistance of the pump was so great that the wheel had to be made very large, and on this account was very expensive in construction, and very liable to be broken by a heavy wind.

IMPROVED DRILL CHUCK.

Henry B. Beach, West Meriden, Conn.—This invention relates to an improved chuck of simple and effective construction, which gripes the object with considerable power as the same is inserted into the chuck, passing nearly through the entire length of the same, so as to obtain a greater bearing surface, and hold the object rigidly and without vibration. The solid center piece is made in one piece with the spindle to be placed in the arbor of the lathe, or to be screwed to the face plate. The center piece is provided with an exterior screw thread, and with guide recesses for the jaws, which are side grooved to receive tenons of the part, so that no vibration of the ends of the jaw may be produced, and are pressed in outward direction by spiral springs resting between the center piece and in sockets of the rear ends of the jaws. The jaws are moved inward by an outer cap that turns by an interior thread on the center piece. The cap bears, by its conical front end, on the corresponding tapering jaws, exerting a uniform pressure upon the outer tapering surface of the same, so as to accurately and steadily draw in the jaws on screwing back the cap over the center piece, the springs returning the jaws when the pressure is relaxed by the forward screwing of the outer cap. The chuck is readily adjusted to the work by turning the cap forward or backward on the center piece, the jaws clamping by their interior faces the work with great power.

IMPROVED BULL WHEEL FOR DERRICKS.

William J. McKee, Petrolia, Pa.—The object of this invention is to furnish an improved bull wheel which shall be stronger, and at the same time lighter, than wheels constructed in the usual way. The outer ends of the arms or spokes are notched and slotted, so that the segments of every other one of said layers may pass through the ends of the said arms or spokes, and the segments of every other layer may abut against said arms or spokes. By this construction the strain will come right over, and will be distributed among, the arms or spokes of the wheel, and a lighter and stronger wheel will be produced. The face of one of the wheels is grooved to receive the driver or tug rope, and the other has a wide flat groove formed upon it to receive the brake strap or band.

IMPROVED MIDDLINGS SEPARATOR.

Myron H. Alberty, Cherokee, Kan.—The object of this invention is to purify middlings and separate the fuzzy and branny particles, and at the same time separate the heavier from the lighter middlings, by subjecting them to currents of air while passing through the machine. The invention consists in the combination of a series of air passages provided with gates at their outer and inner ends, with a blast fan and a set of air chambers; in the combination, with the blast fan and the inlet air passages, of adjustable riddles, an exhaust or settling chamber, and an exhaust fan. The middlings are introduced through an opening in the case into the chamber and fall upon inclined boards, and pass through an opening between said boards into the first air chamber, where they are met by one or more currents of air from one or more of the passages, and by currents of air through the holes in the first riddle, and the fuzzy or branny particles are carried over the upper end of the riddle into a chamber. The heavier middlings fall upon the riddle and pass down through its holes against the air passing through said holes into the second air chamber, where they are met by a current or currents of air. The fuzzy and branny particles are again blown off by the air from the passages and the air passing up through the holes in the second riddle, and are driven over the upper end of the said riddle into a chamber. The heavier middlings fall upon a riddle and pass through its holes into the third air chamber, where they are again met by a current or currents of air, and the fuzzy and branny particles that may still remain are driven over the end of the inclined board into a chamber.

IMPROVED SPINDLE, BOLSTER AND STEP FOR SPINNING MACHINE.

John T. Beall, Petersburgh, Pa.—This invention relates to certain improvements in the construction and adaptation of the spindle, bolster, and step of a spinning machine, designed to secure automatic lubrication, the best bearing surfaces for the parts, and to prevent the tendency of the oil to exude at the joints and spread over the entire surface of the same. The invention consists mainly in arranging the bushing in the upper end of the bolster slightly below the upper edge of the bolster, so as to form a cup or recess to receive the oil, which has a tendency to rise upon the spindle and spread upon the outside of the bolster, and in surrounding said upper bushing with a packing of fibrous material which retains and filters the oil and resembles that which accumulates in the cup or recess. It also consists in the particular arrangement of parts whereby the two bearings of the bolster and the toe of the spindle in the step are all oiled at a single joint instead of permitting the spreading of oil upon the outside surfaces.

IMPROVED TREADLE-OPERATED CONFLUENT PUMP.

Richard H. Schenck, New York city.—This invention relates to an improved suction and force pump of effective construction, that is operated by the feet, and arranged to throw a uniform stream of water; and it consists of two cylinders with alternately treadle-acted pistons, that are connected by a chain or rope passing over a central pulley between the same, each stroke of the pistons producing the induction and eduction of the water, in connection with suitable valves and channels connecting the cylinders, suction and discharge pipes. The stroke of each treadle produces the lowering of one piston and the raising of the other piston, the pistons exerting thereby, simultaneously, a suction and force action, so as to draw in the water by the induction pipe and discharge it by the eduction pipe. The eduction pipe takes up the water in the air chamber and passes out at the top of the same, the air in the air chamber regulating the flow of water and keeping it up in uniform manner.

IMPROVED SCRAPER AND DITCHER.

Joel Rice, Liberty, Mo.—The object of this invention is to furnish an an improved machine for opening ditches, grading and repairing roads, grading yards, lawns, etc., and for various other uses where earth is to be moved short distances. The sides of the ditcher are jointed together at one end, set at an angle to each other, and connected adjustably by means of curved overlapping arms which are perforated to receive locking pins. Said arms support a platform, upon which the driver is to stand or sit, when he desires to add his own weight to that of the scraper. To the bars, at their angle, is attached a notched bar to which the draught is applied. The outer side of the side bar is made straight, and is designed to rest against the land side of the furrow opened by the plow which the scraper is following, and the outer side of the side bar, that pushes back the dirt, is slightly concaved. With this construction the scraper may be used to throw the dirt to the right hand or to the left, as may be desired, or in following a left or right hand plow, or to throw the dirt to the same side while passing back and forth along the same furrow in opening a ditch, by using it with one or the other side upward, as may be required, to throw the dirt in the desired direction.

IMPROVEMENT IN SECURING HANDLES IN TOOLS.

Lazare Landecker, San Luis Obispo, Cal.—The object of this invention is to furnish an improvement in securing handles in hammer heads, and in all other tools in which the handles are inserted in eyes, by means of which the handles will be held firmly and securely in place. The invention consists in the teeth, points, or other projections formed upon the surface of the eye of a tool, to be forced into the handle as it is spread by the wedges, for securing said handles immovably in said eye. The projections also prevent the handle from turning in a round eye, and hold it immovably in place.

IMPROVED HYDRAULIC CEMENT.

James C. Gostling, New York city.—This invention relates to an improved hydraulic cement; and it consists in a composition formed by mixing together calcareous shell marl, containing from seventy to eighty per cent of carbonate of lime, silicious clay, pozzolana or anthracite coal ashes, and ribbon stone containing a large percentage of magnesia. When sufficiently dry, place it in a kiln, in alternating layers with coal or coke, and burn it to a moderately hard clinker. After burning, grind it, by means of burr stones or other suitable machinery, to a powder sufficiently fine to pass through a sieve of fifty meshes to the square inch.

IMPROVED TYPE-DISTRIBUTING MACHINE.

Robert T. P. Allen, Farmdale, Ky.—This invention consists in the construction and combination of devices whereby the types (composing the column or page of matter to be distributed) are individually and successively forced into spring clamps, or holders, that are carried by a rotating wheel, and by such holders delivered to automatic releasing mechanism, and distributed into separate receptacles. For details, see patent.

IMPROVED ROAD SCRAPER.

Samuel Pennock, Ithaca, N. Y.—This invention relates to machines for scraping and leveling roads, and it consists in a scraper supported by a suitable frame carried by wheels, and adjustable as to its height, and in a toothed bar carried in front of the scraper, to be used or not, as occasion may require. By operating one or the other lever the end of the scraper bar may be raised, so that by driving up on one side of the road and down on the other the road may be ridged or rounded, as may be desired, or by arranging the scraper bar in a horizontal position the road may be made level. The bar is adjusted so that its teeth cut away the projecting and uneven portions of the surface before it is scraped.

IMPROVED DIRECT-ACTING FORCE PUMP.

John K. Van Pelt and Washington Lee, Texarkana, Ark., assignors to themselves and William H. Elliott, of same place.—This invention has reference to an improved direct-acting force pump of extremely simple and durable construction, that is adapted particularly to mining and other purposes, as no valves are used and no parts are liable to get out of order by sand and grit. The invention consists of direct-acting plungers that force the water from the cylinders, having supply holes through bottom channels to a discharge pipe having a swinging or sliding cut-off that alternately establishes and interrupts communication with the cylinder and channels. The top part is provided with cylinders and plungers, sliding therein, and being operated by plunger rods and a fulcrum lever. The water enters the cylinder through supply holes at both sides, and is forced by the direct action of the plungers down into the water channels of base part and into a connecting chamber, with which the discharge pipe communicates. A swinging and balanced cut-off is arranged in connecting chamber at the foot of discharge pipe, and carried by the alternating action of the plungers from one side to the other, so as to rest on seats of chamber. The cut-off produces the connection of the cylinders with the discharge pipe at the descent of the plungers, and forces at each stroke the water through one of the channels into the discharge pipe. The pump works in simple and effective manner, without valves or suction, and is readily filled at each upward stroke of the plungers as it is submerged in the water. When the motion of the plunger is stopped the water falls back into the water chambers, and remains cool, without being exposed to freezing as in the valved pumps, in which the water is sustained above the plungers. The pump is not liable to become filled with sand or sediment, so as to get out of order, being thereby of special advantage for pumping gritty or impure water.

IMPROVED STREET-CAR ENGINE.

Francis V. Mathews, New Orleans, La.—This invention relates to motors for driving street and other cars, and it consists of a pair of oscillating steam cylinders supported under the car by the truck, and provided with vertical shafts upon which are placed worm wheels that engage with wheels on the car axles. The frame of the engine is attached to and supported by the truck frame of the car. The cylinders are oscillating, and with their upper trunnions journaled in a support, and the lower trunnions are journaled in the main frame. These cylinders are provided with central ports at their ends, and with a face that is fitted steamtight to the part of the engine frame. Between the ports there is an exhaust port and a valve capable of covering either of the ports, and the exhaust port is pressed against the valve seat by a spring. The valve is provided with a rod that is connected with an arm on a rocking shaft that is connected with a suitable lever in the car by which it is moved. Vertical shafts are journaled in the frame and provided with crank disks at their upper ends, from which the crank pins project. The piston rods of the cylinders are connected with the crank pins. Upon shafts are endless screws or worms, which engage the wheels on the car axles. The engines run in opposite directions, which gives to both axles a motion in the same direction, the screws being placed on opposite sides of the axles. The valve is placed so that it covers one of the ports and the exhaust port when steam enters the exposed port and drives the engine, the used steam escaping through the covered port and the exhaust port. When it is desired to reverse the engine the valve is moved so as to admit steam through what was before the exhaust port, and to permit the used steam to escape through the other port. The crank pins may be connected by a rod when the cylinders will assist each other. The frame of the engine is constructed so as to inclose the cylinders, worm wheels, and other working parts of the engine, so that none of the parts are exposed to dust, and all noise is confined, so as to be unobservable.

IMPROVED FIRE ESCAPE.

Henry Elbe, Niagara Falls, N. Y., assignor to himself and Adolph Goldsmith, New York city.—This invention relates to means for removing persons and furniture from the windows of a building which is on fire. To the wall of a building a rail or track is strongly secured by means of brackets. This rail is set off a little from the wall, and, if desired, it may be inclosed inside of the cornice or a receptacle especially provided for it. A car is constructed to move up and down the track. To this car are attached chains of sufficient length to be controlled by persons on the sidewalk below. The chains are intended to enable a person to move the car at any desired point on the rail. The ladder is made of metal, and the side bars of short links pivoted together, which will allow the ladder to be rolled up when not in use. In combination with this apparatus is used a fender or shield, made of sheet metal plate, of suitable size to cover one or more windows, and it is perforated at different points for allowing the nozzle of a hose pipe to be inserted through it. The fireman will thus be protected from flame and smoke while playing on the fire.

IMPROVED HORSE POWER.

Edwin R. Lancaster, Alum Mills, Va.—The object of this invention is to furnish an improved horse power which shall be so constructed as to economize space without sacrificing power or effectiveness, and which shall be simple in construction and convenient in use. To the base frame of the machine is attached a large internally toothed gear wheel, the upper side of which is made wide and smooth, to serve as a way for the small wheels or rollers, pivoted to the corners of the frame. To the center of the frame is attached a post, the lower end of which revolves upon a pivot attached to the center of the frame. A small gear wheel meshes into the teeth of the large gear wheel. Another shaft revolves in bearings attached to one end of the frame, and to its upper end is attached a large gear wheel, the teeth of which mesh into the teeth of a small gear wheel attached to the upper end of the shaft, which revolves in bearings attached to the middle part of the frame, and to it is attached a large gear wheel, the teeth of which mesh into the teeth of a small gear wheel attached to another shaft, which revolves in bearings attached to the frame, and to its upper end is attached a grinding mill, which is thus carried around by and with the frame; no more space will be required than enough for the driving mechanism, and a neat and compact machine is produced. By this construction the machine will be evenly balanced, so that it will run steadily and easily.

IMPROVED CONNECTING ROD.

George W. Wilks, Roberson Fork, Tenn.—This invention consists in the arrangement in the straps of a connecting rod of side pieces between which are placed boxes, which are so proportioned that their surfaces that come into contact are reduced to a knife edge to admit of adjusting the boxes without filing, so that they may be forced together by the screws as the box becomes worn, and the necessity of filing the boxes is avoided. By means of this improvement the boxes of a connecting rod may be accurately adjusted without removing and filing them, and when adjusted cannot become accidentally loosened or disarranged.

IMPROVED WASHING MACHINE.

James H. Calvert, Princeton, Ky.—The object of this invention is to furnish an improved washing machine which shall be simple in construction, convenient in use, and effective in operation, washing the clothes quickly, thoroughly, and without injuring them. The invention consists in the combination of the crossbars, the pivoted bent levers, the connecting rods, and the springs with the suds box and the platform attached to said suds box, to form a yielding bed for the clothes while being operated upon. By this construction the clothes, while being operated upon, will be supported by a yielding bed, which will adjust itself to the varying thickness of the clothes being operated upon, so that the clothes may be operated upon evenly by the washing cylinder, thus protecting them from being cut or injured.

IMPROVED DOUBLE ACTING PUMP.

Riley I. Knapp, Guilford, Ill.—The object of this invention is to provide a simple and efficient pump that may be used either as a lift or force pump. To the cylinder a piston is fitted which is attached to parallel rods. This piston is provided with the usual leather packing, and with a central opening that is closed by a valve. In the cylinder a tubular piston is placed, which is provided with a valve and packing. To this piston, rods are attached which extend upward, and are pivoted to a lever that is pivoted to the standard. The piston tubular is fitted to a stationary hollow piston, which is attached to the standard by means of a strap. This piston is provided with packing and a valve, and to its upper end a pipe is attached. This hollow piston serves as an air chamber in equalizing the flow of water through the pipe.

IMPROVED BALING PRESSES ON WHEELS.

Michael McCarty, Pueblo, Col.—The object of this invention is to furnish an improved baling press, which shall be simple in construction, convenient in use, strong and durable, and so constructed that it may be readily moved from place to place. The baling box is made in two equal parts or halves connected together, held in position and strengthened to withstand the outward pressure of the bale while being compressed by three iron bands. The rear end of the baling box is closed by a door, which serves as a stationary follow block, and is hinged at its lower edge to the bottom of the box. The material to be pressed is introduced through a door formed in the forward part of the top of the baling box. A crossbar is attached to the outside of the movable follower, the ends of which project so as to pass through the spaces between the parts of the box, and to the projecting ends are attached the forward ends of rack bars, which pass back along the sides of the box. The racks are drawn back to compress the bale by gear wheels which mesh with them, and with which are rigidly connected the wheels or pulleys around which are wound, and to which are attached, the draw ropes.

IMPROVED TRICYCLE.

Matthew E. Croft, Horicon, Wis.—The object of this invention is to furnish an improved tricycle designed for use by mechanics and others for going to and from their places of business, by merchants and others for sending small parcels from one place to another, and by youths and others for amusement and exercise, and which shall be simple in construction and easily operated. The invention consists in the combination of the arched bars, the block, the seat, the cord, the stirrups, the rods, and the stay bars with the wheels, the axles, the tubes, and the bolster. The rear ends of two arched bars are bolted to the end parts of the forward bolster. The arched bars incline toward each other, so that their middle parts may be near each other, and to said middle parts is secured a block, which gives strength and rigidity to the bars, and to which is secured the seat or saddle upon which the rider sits. Over the forward part of the seat passes a cord, to the ends of which are attached stirrups to receive the rider's feet. To these stirrups are pivoted the rear ends of two rods, the forward ends of which are pivoted to the forward axle, near its ends, so that the rider can guide and turn the machine with his feet. The rider propels the machine by means of two rods which he holds in his hands, and which he presses against the ground. In starting, the rider presses both rods against the ground at the same time, but after he has got up enough motion to give momentum to the machine he can use the rods alternately.

IMPROVED MACHINE FOR SEWING BUTTONHOLES.

Richard M. Melhuish, Hoxton, Eng.—This invention relates to mechanism adapted for sewing machines of the Thomas or Howe type, for the purpose of sewing straight buttonholes and fancy stitching. By this invention this is accomplished with ease and rapidity, it not being necessary to turn the fabric round in order to work the two edges and finish off the ends of the buttonhole. The mechanism is for imparting to a movable cloth plate, upon which the work is clamped, a vibrating to and fro motion across the line of the hole, and also a traversing motion in the direction of the hole to feed the work as required. In sewing a buttonhole two parallel lines of stitches are made, the vibrating feed plate being caused to traverse first in one direction and then in the other by turning round a cam, each end of the intended buttonhole being barred as the needle arrives thereat, after which the hole is cut.

IMPROVED DEVICE FOR LOWERING FLUIDS INTO OIL WELLS.

Sebastian A. Fithian and Isaac N. Fithian, Karns City, Pa.—The especial object of this invention is to furnish an improved device for lowering fluids into the bottom of oil wells to cleanse them from obstructions, open the crevices, soften the paraffine so that it can be pumped out, etc., and which shall be simple in construction, convenient in use, and effective in operation. The invention consists in the combination of the barrel provided with the bail, the bottom at a little distance above its lower end, and the perforations in its sides below said bottom, the single or double valve, the spring catch, and the closely fitting cover. When the retaining valve is open the closing valve rests against and closes the lower end of the barrel, so that the fluid contained in the barrel will be forced out through the holes formed in the sides of said barrel below the bottom, and will thus be forced against and clean the sides of the well.

IMPROVED PISTON PACKING.

Isaac H. Congdon, Omaha, Neb.—This invention relates to an improved piston packing, by which the packing rings are evenly pressed against the cylinder, so as to wear in uniform manner; and the invention consists of a solid and annularly grooved ring resting against the lugs of the piston head, and having cylindrical pockets in which adjustable spiral springs are placed that press against an inner sectional ring and outer sectional packing rings. The packing is specially adapted for locomotive and stationary engines, and is cheaper than the semi-elliptic springs and brass packing in use. The pressure of the springs adjusts itself as the packing rings wear off, the springs being readily reset by taking out the follower bolts and head and turning the set bolts to the required degree of tension, the follower being readily replaced without interfering with the packing rings, as they remain in the solid and circumferentially grooved ring.

IMPROVED GRAIN SEPARATOR.

Reuben Sprenkel, York, Pa.—The action of an oscillating rocker, made of longitudinal slots on the carrier, shakes the grain in effective manner out of the straw as it is conveyed up by the carrier, the grain being collected below the carrier in any suitable manner. The carrier shafts run slower than the rocker operating shaft, giving thereby the rocker a chance to take out all the grain. The straw passes slowly over the machine, being thoroughly agitated by the quick beats of the rocker, without throwing any grain off the shaker. The machine runs without jarring, and takes the straw as fast as it is fed from the cylinder, so as to obviate the choking of the same. The shaker is secured by end hooks to eye bolts of the thrasher, and readily connected or detached from the same, it being also so supported as to be raised or lowered at the upper end to provide for the condition of the straw.

IMPROVED STUMP EXTRACTOR.

Charles Tener, New Market, O.—This invention relates to machines which are designed for extracting stumps and stones, and the nature of the invention consists in a portable frame, which can be taken apart or erected at pleasure, and which affords a substantial support for two rack bars, spring pawls, a vibrating actuating lever, and a lifting link. A strong timber is secured midlength of beams, and constructed with openings through it to receive two rack bars, the teeth of which are pitched forward. The lower ends of these bars are slotted and pivoted to a long lever, which is made of sections secured together so that they can be readily detached. The operation of the machine is as follows: The link is made fast to a stump, and the lever is vibrated, which gives alternate upward movements to the two ratchet bars, the pawls holding them firmly after each upward stroke.

IMPROVED APPARATUS FOR STRETCHING FELT JACKETS FOR ROLLERS IN PAPER MACHINES.

Luther Cole, Corinth, N. Y.—This invention relates to apparatus for stretching felt covers for couch and other rolls in a paper machine, and it consists of two tapered bars and two oppositely arranged wedges placed between the tapered bars, and operated by a spindle having cut upon it a right and left hand screw thread for moving the wedges simultaneously in opposite directions, so as to spread the tapered bars upon which the jacket is placed. The felt jacket to be stretched is drawn over the bars when the instrument is contracted. The bars are spread by drawing between them the wedges by turning the threaded spindle. The bars, the outer edges of which are parallel, stretch the jacket evenly and uniformly throughout its length.

IMPROVED SAW FEEDER.

James G. Cofman, Pierpont, Mich.—This invention relates to devices which are designed to hold a hand saw down to its work during the operation of cross-cutting logs. The nature of the invention consists in combining, with a spike, an adjustable spring roller and one or more dogs, so arranged that, when the spike is driven into the ground alongside of a log, and the latter firmly secured thereto, one man can conveniently manage a hand saw in the operation of cross cutting. This roller is arranged a little to one side of the spike, and presses upon the bowed back of the saw, holding it down to its work and guiding it. The sawyer regulates the pressure of the roller on the saw by means of a crank and its attachments, which are just in front of him while at work. The spike is driven into the ground alongside of a log, the latter is firmly secured to the spike. The saw is then started into the log, and the roller adjusted down upon it, and kept down with the required pressure during the entire operation.

IMPROVED DOG FOR SHEET-METAL ROLLING MILLS.

Edward C. Hegeler and Frederick W. Matthiessen, La Salle, Ill.—This invention relates to the dogs (so called) that are placed at the rear side of the rolls used in the manufacture of sheet metal, and it consists in a jointed dog, provided with friction rollers, and with a tail piece or lever that sustains the weight of the dog, and also any pressure that may be exerted upon it by the sheets of metal passing through the rolls. A nose piece is jointed to the front end of the casting and rests upon the roll. The sheet metal, as it passes from the rolls, is received by a nosepiece, and directed so that it will pass over the roll to the table of the rollingmill. The weight of the casting and friction rolls, and the pressure of the sheets, are sustained by the tail piece, and only a part of the weight of the nose piece rests upon the roll.

IMPROVED MACHINE FOR WELDING TUBES.

John French, South St. Louis, Mo., assignor to himself and James W. Hill, of same place.—The flue or tube to be welded is placed upon a mandrel which rests in semicircular notches in the ends of the arms of the holder, which is secured to the base, and the notch in its inner arm is made the same size as the cavity of the die, and is beveled so that, when the end of the tube or flue is placed upon the forward end of the mandrel and is slipped back, it can readily pass through the said notch. The forward end of the mandrel is tapered so that the flue or tube can be slipped upon it without its being necessary to take hold of the said mandrel. Upon the mandrel is formed, or to it is attached, a collar which is placed between the arms of the holder to prevent the mandrel from getting out of place.

NEW AGRICULTURAL INVENTIONS.

IMPROVED SULKY PLOW.

Roberson A. Renfro, Rockwall, Tex.—The object of this invention is to furnish an improved sulky plow, which shall be simple in construction and convenient in use, and which shall be so constructed that it may be adjusted to run level when used as a breaking plow, with one wheel in the furrow, and when used as a cultivator with both wheels upon the surface of the ground. The axle at the inner end of each journal is bent twice at right angles, the right-hand crank thus formed having a drop of six inches, and the left-hand crank having a drop of four inches. The right-hand wheel is made four inches more in diameter than the left-hand wheel, so that the frame of the sulky may be level when the right hand wheel is running in a furrow four inches deep. When the machine is to be used as a cultivator the wheels are exchanged, and the frame will then be level, with both wheels running upon the surface of the ground. The plow beams may be provided with breaking plows or with cultivating plows, according to the kind of plowing required to be done, and one or more plow beams may be used, as may be desired.

IMPROVED CALF MUZZLE.

Henry W. Fuller, Seneca, Kan.—This invention has reference to an improved anti-sucking bit and muzzle for calves, which may be attached without straps, so as to form an effective weaner; and the invention consists of a spiked and jointed noise piece, attached to a side wire that is extended in bow shape over the head, and connected by an anti-sucking bit of spiral wire. The ends of the sections that enter into the nostrils are made of ball shape, and press lightly, without hurting the calf, on the nose by the flexible joint of the sections. The nose piece is provided with spikes, attached to the sections, that extend at right angles from the nose piece in forward direction. The bottom spikes act as guards to prevent the teat from coming into the mouth, while the front spikes are pricking the cow, so that she does not allow the calf to take hold of the teat.

IMPROVED ROTARY CHURN.

Jacob Wolf, Henderson, Minn.—This invention relates to rotary barrel churns, and the nature of the invention consists in a novel mode of applying the dashers inside of the churn barrel, whereby they can be easily removed for cleaning. There are three sets of dashers inside of the barrel, arranged equidistant apart. Each set of dashers consists of a bar, having broad tapered blades fixed into it. The bars are notched at their ends to receive shouldered cleats, and by means of turn buttons, pivoted to one of the blades, the bars are rigidly held in their places. Holes are made through the end and side of the barrel, and provided with plugs for drawing off fluids.

IMPROVED TOBACCO HARVESTER.

Horace Janes, Knobnoster, Mo.—The object of this invention is to provide an instrument for splitting and cutting tobacco stalks at one operation. The manner of using the instrument is as follows: The handle and the short arm of the lever are grasped by the hand, and the knife is forced downward through the stalk, splitting it as far as may be desired. The edge of the chisel stands in the same direction as the knife, and does not interfere with the leaf. After the stalk is split the knife is withdrawn by closing the short end of the lever and the handle together, which operation also turns the chisel a quarter of a revolution, bringing it into position to cut off the stalk. By an endwise movement of the chisel the stalk is easily severed.

IMPROVED HARVESTER RAKE.

George H. Goetze, Lake Creek, Mo.—The object of this invention is to furnish an improved machine which shall be so constructed that it may be readily adjusted for use as a reaper or mower, as required, and which shall be provided with an adjustable rake for sweeping the cut grain from the platform. The two rakes may be adjusted wider apart or closer together, according to the length of the grain, by adjusting bearing blocks upon the rake shaft. The rake shaft is secured adjustably in place in its bearings by one of bearing blocks, and by a collar secured to the shaft by a set screw. When the machine is to be used as a mower, the reel and the rakes and their attachments and the platform are detached, and the cutter bar is shortened to reduce it to the proper length. The center bar is made in two parts, the adjacent ends of which are halved and bolted or otherwise secured to each other, so that it can be readily extended to adjust it for cutting grain, and shortened to adjust it for cutting grass.

IMPROVED ROTARY HARROW.

Cornelius Watson, Yanceyville, N. C., assignor to himself and James G. Gunn, of same place.—The object of this invention is to furnish an improved rotary harrow, which shall be simple in construction, strong and durable, effective in operation, and inexpensive in manufacture, being so constructed that it need not cost any more than an ordinary harrow. To the lower side of the beam is secured a plate, to the center of which is attached an axle which has a collar formed upon it at the lower side of the plate to prevent the upper end of the hub from rubbing against the plate. The axle passes down through a box inserted in the hub to prevent wear, and the hub is secured in place upon it by a washer and pin. To the hub are attached radial arms, the outer parts of which are held in position by a rim. The forward ends of the handles are inserted in a keeper attached to the beam, and are further secured in place by pins, which pass through them and into the beam, and which are covered by the keeper. By withdrawing the pin and detaching the keeper the handles and their standard may be detached when desired.

IMPROVED ADJUSTABLE WHEEL CULTIVATOR.

David Archer, Jr., Brier Hill, N. Y.—The object of this invention is to furnish an improved cultivator which shall be so constructed that it may be readily adjusted to work at any desired depth in the ground, which may be raised above the ground for convenience in passing from place to place, and which shall be simple in construction, convenient in use, and effective in operation. The frame of the cultivator is of a V form, the draft being applied at the apex. The frame is supported at front and rear on caster wheels, the supporting sides of which are so arranged that by raising a