

## ENGINEERING INVENTIONS.

An improved mechanism for applying brakes to the wheels of cars has been patented by Mr. John C. Glass, of Verona, Pa. The brake shoes are suspended by links and are fitted on their rear sides with toothed wheels. On the piston rod of a steam or air cylinder, placed above the brake shoes, is adjustably secured a wedge-shaped block that is toothed on its edges to correspond with toothed wheels with brake shoes. When the piston is drawn upward the wedge block draws between the brake shoes, pressing them against the wheels.

Mr. Henry D. Thorp, of Fort Wayne, Ind., has patented an improved car coupling. In the opening in the drawhead is placed a latch, bent upward at its front end to form a head, and having behind it a spring that presses it outward. In the latch is an aperture through which the coupling pin can pass, and when the latch is pressed out the coupling pin rests on the rear side of the aperture. When the cars are run together the bumper strikes the head of the latch, pressing it back and allowing the pin to drop to couple the cars.

Mr. John Houpt, of Springtown, Pa., has patented an improved pump for supplying steam boilers with hot water. The feed pump of the boiler is vertical and of the usual construction, and between the feed pump and the feed water heater is placed an auxiliary force pump. The pistons of the two pumps are reciprocated simultaneously in the same direction, thus always supplying uniform charges of hot water to the feed pump cylinder.

Improvements in automatic car brakes have been patented by Messrs. Lafayette D. Hawley, of Ada, and Addison R. Spalting, of Lake City, Minn. The brake cars and shoes are of ordinary form, and upon the brake bar at the end of the car is pivoted an angle plate which carries a buffer rod provided with a spring to throw it forward. On the outer end of the rod is a buffer plate, and when the cars are run together, the buffer heads come together, the rods are moved, moving the brake bars to brake the wheels.

Mr. Jackson J. Kennedy, of Cleveland, Tenn., has patented a car coupling in which the draw bars are oscillating shafts, having on their outer ends peculiarly constructed goose-neck coupling hooks, which are permanently held in a position for coupling by weights that tend to rock the shafts. When the cars come together, the hooks strike each other, and by their peculiar shape cause the shafts to rock and the weights to throw and hold the hooks into a coupled connection. Devices are provided for locking the hooks open or closed.

## ELECTRICAL INVENTION.

A device for giving an alarm as soon as the locking bolt is thrown back in the lock has been patented by Mr. James P. Freeman, of New York city. Contact strips attached to the sliding bolt of the lock rest in such a manner against a slide for closing an electric circuit, that when the door is locked the circuit will be broken, and when the bolt is drawn to unlock the door the circuit will be closed and the alarm sounded on a bell placed in the circuit.

## AGRICULTURAL INVENTIONS.

Improvements in thrashing machines, by which grain is prevented from being carried over the tailboard of the machine with the straw, and also that prevent the sieves from clogging, have been patented by Mr. Henry M. Green, of Lowell, Wis. To the lower edge of the board that feeds the thrashed straw and grain to the sieves are attached fingers that allow the grain to drop through, while the straw and chaff are brought into suitable position to be operated upon by the air blast. A tail board inserted in the shoe of the sieves catches the headings, and they are returned to the cylinder to be re-thrashed.

Mr. Fountain P. Hoke, of Sullivan, Ill., has patented an improved method of adjusting the rear end of a plow beam to or from the land. The landside of the plow is secured to a standard that is provided with a rear brace that is curved forward at its upper end, and is provided with an inwardly projecting arm that is serrated on its under side. The beam is pivoted to the standard, and at its rear end is slotted and secured by a bolt to the arm of the brace, the head of the bolt engaging with the serrations to hold the beam firmly in place as adjusted.

Mr. William Scott, of Buffalo, W. Va., has patented improvements in wheel cultivators, whereby the axle is adapted to pass over tall plants. The connection between the axles consists of arched bars that are sufficiently elevated to allow the plants to pass under. The tongue is also so secured to the arched bar that the whiffletrees do not break the plants. Between the front and rear bars is a connecting reach, upon which is placed a driver's seat, and also levers by which the cultivator bars are raised or lowered as desired. The driver's seat is provided with a cover, and foot rests are secured to the reach.

A combined scraper and cultivator has been patented by Mr. Dabney Hardy, of McFarland's, Va. The plow beam and handles are of the usual construction, and near the rear end of the beam are secured adjustable standards that support the cultivator plow in such a manner that they can be raised or lowered as desired. In front of the cultivator plow is adjustably secured a standard, to the lower end of which is attached a scraper, placed in an inclined position with the plow beam. The machine may be used as a scraper and cultivator combined, or as either singly.

An adjustable furrow opener for attaching to the legs of a land marker has been patented by Mr. George W. Nutter, of Corinna, Me. The furrow opener is made with a double mould board, and has on its back a curved bar that fits into a corresponding recess in a bearing block that fits upon the leg of the marker to which it is held by an eye bolt and nut. By loosening the nut the opener may be adjusted to work deeper or shallower as desired for planting the seed.

Mr. William B. Packard, of Bloomington, Ill., has patented improvements in sulky plows by which they are more easily controlled and adjusted.

The axle of the wheels is bent at right angles to raise its middle part to enable it to pass over tall plants, and support a frame to which the driver's seat is secured. The plow beam is adjustably pivoted at a little distance from its end to a bail that is adjustably secured to the axle, and is raised or lowered by suitable devices under control of the driver from his seat.

## TEXTILE INVENTION.

Messrs. John Wiggins and John B. Greenhalgh, of Waterford, Mass., have patented a mechanism for reversing the rotation of the spindles of spinning jacks and mules, without changing the bands or reversing the race belt. The main pulley of the shaft of the mule frame that carries the cylinder from which the spindles are revolved is so secured to the shaft that it may be fast or loose, and to one end of pulley a bevel gear is secured that engages with other bevel gears to turn the cylinder in either direction according as the pulley is tight or loose on the shaft.

Mr. Isaac W. Lamb, of Parshallville, Mich., has patented improvements in knitting machines for moving the needles in and out of the path of the cam, so as to increase the range of work and avoid the risk of injury to the needles. The needle beds are constructed in sections, providing grooves of sufficient depth to receive the needle shifters and suitable devices for controlling and operating them, thereby adapting any machines to have needle shifters, and their corresponding advantages.

## MISCELLANEOUS INVENTIONS.

An improvement in sights for firearms has been patented by Mr. Frederic J. Gardner, of Elm St., Walnut Hills, Cincinnati, O. This improved rifle-sight is more particularly intended to be used for target practice; and it consists of both a front sight and rear sight of peculiar and advantageous construction, the fore or front sight being opaque, of tubular construction, with a transparent cross plate or disk of glass having a sight-hole in it, and the rear sight comprising a transversely-slotted body and a transversely-adjustable cross-slide provided with a sight-hole within range of the slot in the body of the rear sight.

An improved vessel anchor has been patented by Mr. Abram A. Goldsmith, of Charleston, S. C. The anchor has two circular concave surfaces, and on periphery between the surfaces is a V-shaped groove. In this groove is placed a loose band that encircles the anchor, and to it is secured the anchor chain. With this construction the chain is free to play with the tide without disturbing the anchor.

Mr. J. E. Tynan, of Paterson, N. J., has patented improvements in machines used for spinning, doubling, and respinning silk by a continuous operation. The improvements consist in driving the spindles by means of friction wheels, or disks, and also in a peculiar combination of devices by which, when a thread breaks, the bobbin ceases to wind and the feed pulley to operate.

Improvements in machines for felting and scalding hat bodies have been patented by Mr. Jarvis C. Brush, of Newburg, N. Y. The machine consists of a vat having a perforated steam pipe or chest in its lower part and above the pipe polygonal rollers of different diameters connected and operated by sprocket wheels and a chain at one end of the rolls. The hat bodies are rolled up and placed in the space between the rolls and the rollers revolved, the shape of the rollers causing them to beat and turn the hat bodies.

Improvements in tuyeres have been patented by Mr. Jacob Stoll, of Milwaukee, Wis. The pipe that leads from the blower is curved and threaded at its external end, and to it is attached a perforated and chambered head. The head is perforated in such a manner that a portion of the blast escapes into a chamber formed around the pipe, carrying out all gases or dust from the forge and preventing them from entering the blower, to interfere with its action or to cause explosion.

Mr. William E. Smith, of Berwick, Pa., has patented an ink well for school desks, that is adapted to be hermetically closed when not in use to avoid the waste of ink. The ink well is placed in a hole in the top of the desk, and is provided with a pivoted cover having a yielding packing, and the cover is held to the top of the well when it is closed by a pivoted curved arm attached to the frame of the well and engaging an inclined surface on the top of the cover.

A device for adjusting the tension of eye glass springs has been patented by Mr. Frank R. Woodard, of Hill, N. H. The eye glass spring is formed of two spring strips attached to the respective lens frames, one of the springs being provided with a longitudinal socket for receiving the end of the other spring, and in which the strip slides, permitting the spring to be lengthened or shortened, and by this means its tension to be increased or diminished, as desired.

An improved grain meter has been patented by Mr. Robert H. Edmiston, of Americus, Kan. A rectangular bin is divided into two compartments of equal size, their bottoms being hopper-shaped and provided with delivery openings over which are gates hinged to open outward. The compartments are filled with grain from a movable spout. When one compartment is filled the grain runs over into a pan. The weight of the grain in the pan serves to operate a lever that carries the spout and grain to the opposite compartment, and opens the gate at the bottom to discharge the grain.

A faucet adapted to be fastened in a barrel and removed again without causing any loss of the contents of the barrel has been patented by Mr. Gustav A. Naumann, of Newark, N. J. A screw plug is closed at its inner end by a swinging valve, having on its upper end teeth that engage with teeth on a block mounted on a screw-spindle in the plug. When the spindle is turned the valve is moved to or from the inner end of the plug.

An improved iron post for fences, to which the wires are easily applied and that is strong and durable, has been patented by Mr. John J. Kimball, of

Naperville, Ill. The post is formed with three wings at equal angles, two of which are in the line of the fence, and the third at right angles to the line. On the faces of the two wings are recesses to receive and hold the wire, and above the recesses are lugs, and nails are driven between the wire and the lugs to hold the wire. Suitable braces are provided for holding the posts upright.

A clothes drying apparatus that furnishes a large amount of line in comparison with the length and width of space occupied, has been patented by Messrs. David H. and Jerome H. Payne, of Troy, N. Y. A post is set a suitable distance from the house, and at its upper end has a cross bar. Stout wires extend from the ends of the cross bars to a window in the building to which they are attached. Racks carrying lines for clothes are suspended by sheaves on the wires, and are moved out from the window as they are filled with clothes.

An improved optometer for ascertaining the proper correction for defects in sight has been patented by Mr. Alfred A. Trowbridge, of Danbury, Conn. A plate having two apertures for lenses, the centers of which are on a horizontal line, has also a nose opening and a handle, and from the back of the plate a hood extends to the sides of the face to shut out the light from the eyes. The lenses are on adjustable slides, so that the center of the lens may be exactly in front of the eye looking at a test object.

An improved milk strainer has been patented by Mr. George W. Sutfin, of Dunee, Ill. The body of the strainer is in the shape of an inverted siphon, in the bottom of which is placed a removable strainer and pocket to collect the sediment from the milk. The receiving side has been placed in a deflecting cone to break the fall of the milk when poured in, and the delivery side has a fine strainer through which the milk passes to the drawing faucet.

A device for providing oil for the purpose of lubricating oil stoves has been patented by Messrs. James B. and Burrell A. Pierce, of Browne Hill, Va. In the lower side of the block in which the oil stove is set is placed an oil reservoir, having a filling and a discharge tube. The oil is forced from the reservoir by a piston attached to a rod protruding from the end of the block, and flows through the discharge tube on to the surface of the stove.

A mechanical movement for producing reciprocating motion has been patented by Mr. Anton Diger, of Rockville, Wis. A horizontal shaft fitted in a frame has at one end a pinion that engages with a rack fitted for vertical movement in an upright secured to the frame. Upon the outer end of the shaft is hung a weighted pendulum. When the pendulum is vibrated the pinion imparts a reciprocating motion to the rack bar.

An improved fastener for securing buttons upon shoes has been patented by Joseph C. F. Dick, of Belvidere, Ill. The fastener is made in the form of a staple, with two points for entering the leather, having a groove to receive the button eye or shank. A tongue formed by cutting out the metal of the staple between two of the prongs, is of such a length that it covers and holds the eye of the button in the groove, and it cannot slip on the fastener in securing it to the shoe.

A double tree, adapted to be used without single trees, and capable of equalizing the draught when one horse gets ahead of the other, has been patented by Mr. Jeremiah C. Jones, of Whitt, Texas. The double tree is formed with a mortise in the center and has hooks at each end. In the mortise a pulley is secured, upon which is placed a chain provided at each end with a hook to which the inside trace chains of the harness are to be hooked. It will be seen that the action of the chain on the pulley is such as to equalize the draught between the horses.

Mr. Henry F. W. Koehler, N. W. cor. of Twenty-third and Calhoun streets, St. Joseph, Mo., has patented a dumping wagon that is adapted to be used also as an ordinary carrying wagon. The box consists of fixed side board secured to the stakes at one end of the bolsters, and a dumping portion consisting of a bottom board, side board, and end pieces, all rigidly secured together. A central bar, secured to the underside of the bottom board, is journaled in bearings on the bolster. By suitable devices the dumping is retained in position to carry a load, also to be dumped to empty its load.

An adjustable tracing wheel for marking garment patterns to give the proper width for basting the seams has been patented by Martha E. Kellogg, of Flint, Mich. The handle of the wheel has a metal shank having at its lower end a transverse shaft. A tracing wheel with a toothed edge is mounted on one end of this shaft, and a sharp edged cutting disk is mounted at the opposite end. The cutting disk cut the cloth or paper, and the toothed disk marks the lines for basting the seams.

Mr. Martin B. Wood, of Estillville, Va., has patented an improved heel for boots and shoes that is lighter and more durable than heels of ordinary construction. The heel is made of iron, and is a hollow cup of the shape of the heel placed against the heel tap on the bottom of the sole. The under surface of the heel tap is recessed around its edge to receive the edge of the heel cup, and the cup is held to the tap by screws which are screwed into the sole.

Mr. William F. Crowell, of Las Vegas, N. M., patented an improved wheel for vehicles that is so constructed that any shrinkage of the wheel may be taken up without removing and resetting the tire. The improvement consists in constructing the wheel with a wedging device between the ends of the felloes, that when the tire becomes loose may be drawn down by bolts to spread the felloes and to tighten the tire.

Mr. Frank M. Harris, of St. Charles, Mo., has recently patented a device for splicing wires. The device consists of two bars of iron or steel connected by a handle at one end, and having at the opposite end tapering notches opening toward the handle, and a similar device having notches projecting from the handle, the two forming a clamp to hold the lapped end of the wires when their handles are drawn together. By

means of a twisting tool the wires are then twisted to form the splice.

Mr. Peter Goergen, of Buffalo, N. Y., has patented a coal box that takes but little space, and from which the coal can be shoveled very conveniently. The box has an opening at the bottom of one of its sides, and opposite the opening is a trough placed parallel with the side that has an inclined piece extending from the top to the bottom of the trough. At the inner corners of the box are bevel corners for guiding the coal through the opening.

A combined book marker and paper cutter has been patented by Mr. Frank D. Adams, of Auburn, Cal. The cutter is formed of a straight elastic blade for cutting the leaves of a book, and also with a tongue connected to the blade at one end. The tongue is curved toward and then from the plane of the blade, so that it may readily pass into books, while the blade acts as a spring to grip the back of the book to hold the marker in place.

Improvements in water tuyeres for forges have been patented by Mr. Nils O. Swenson, of Terraville, D. T. In the face of the tuyere, which is of the usual form, is a large opening surrounded by four smaller openings, and to these openings the upper ends of the air pipes are connected, the lower ends being connected with openings in the valve plate of the air chamber. Beneath the face plate is a water chamber that surrounds and protects the air pipes, and is provided with an inlet and outlet pipe for the circulation of water.

Mr. Angus McKellar, of Fort Douglass, U. T., has patented an improved carriage brake in which the thrust of the brake is taken up by the axle instead of by the body and springs, as in the usual construction. The brake-shoe is suspended from the body in front of the wheels, and is connected by rods to the short arm of a rock shaft pivoted to the rear axle. The long arm of the rock shaft extends forward and is connected by a rope passing over pulleys on the body to a foot lever to be operated by the driver.

An improvement in the centerpiece of stove tops that prevents warping from heating, has been patented by Messrs. William P. Buell and John Wright, of Gallipolis, O. The piece is divided transversely at its middle in two parts, each of the parts having at their adjacent ends lugs that overlap each other, are pivoted together, forming a hinge in the center of the plate, so that they may rise from the pressure of expansion.

Mr. William McAfee, of Independence, Mo., has patented an improved apparatus for scouring and wringing yarn. The hanks of yarn are placed on rollers that revolve in the bottom of a tank and are thorough scoured by the action of the water and soap in the tank. When sufficiently scoured the hanks are attached to a hook at one end and a lever at the other. The hook is adapted to be revolved by a friction disk when the lever is pulled, thereby wringing the yarn.

A life-preserving mattress has recently been patented by Marshall H. Holmes, of St. Paul, Minn. The mattress is similar in shape to the ordinary mattress, and is filled with cork shavings to give the necessary buoyancy. The mattress is inclosed in a wooden frame and fitted to slide in ways like a drawer in a state room, and may be easily taken out to be used as a life-preserver. The mattress is secured to the frame, as are also oars for propelling it. A central hole in the mattress is closed with a removable filling, and under the hole is a strap secured to the frame to support a person in the hole.

Mr. Chapin C. Brooks, of Lancaster, N. H., has patented an improved log setting apparatus. A shaft runs lengthwise of and is mounted on the log-saddle, having a spirally grooved drum near each end of the saddle. On each of the drums a chain is wound that extends to the two sides of the carriage. The shaft is turned to draw the saddle back and forth on the head blocks of the carriage by means of a hand lever and toothed wheel and pawl.

Messrs. Henry M. Wise, Victor M. Stevens, and Bennett Chapman, of Oskaloosa, Kan., have patented an improved churn power. A spring power motor is combined with a churn having a rotary dasher, the power being secured to the cover of the churn, and the speed shaft that rotates the dasher being provided with a weighted brake lever on which the weight may be moved from time to time as the spring relaxes, to regulate the motion of the dasher.

Improvements in shoes, by which they allow more freedom to the feet of the wearer, have been patented by Mr. Thomas J. Strickland, of Randolph, Mass. The instep portion of the inner sole is left free, and the edge of the forward part is sewed to and between the out-turned edge of the vamp and the edge of the outsole. The rear part of the vamp and the forward part of the quarters are sewed to the edge of the outsole. The edges of the rear part of the quarter and the counter are turned in and secured between the inner and outer sole in the usual manner.

A device for opening and closing gates from a distance either side of them has been patented by Mr. James W. Morrison, of Logansport, Ind. The gate is of the ordinary construction, and on the upper end of the rear end bar is a spindle, upon which is placed a cap wheel. Around the spindle a spring is coiled that brings the wheel back to its normal position after being turned in either direction. On the under side of the wheel is a cam recess in which the upper end of a lever moves that operates the catch of the gate. Chains attached to the cap wheel and operated by levers, turn the wheel to operate the catch and swing the gate in either direction.

Improvements in "tubular" lanterns, by which the operations of lighting the lamp, cleaning the globe, and trimming the wick are facilitated, has been patented by Mr. G. E. Fifield, of Danforth, Me. The lantern has the lower ends of the tubes attached to a wire pivoted on the lamp, and a circular wire attached to the tubes rests on the top of the lamp, where it is held by a spring catch. A swinging plate on which the globe rests is pivoted to the tubes. With this construction the upper part of the lantern can be readily swung back and the globe removed and lamp cleaned.