Recent American and Foreign Patents.

Improved Type Writing Machine.

John Galloway, New York city.—There is a roller, of sufficient size to receive a sheet of the paper to be used, and covered with cloth. This is mounted on a horizontal shaft which revolves in bearings attached to the frame. The paper, in connection with the colored paper or cloth from which the color is obtained for the impression, is rolled around the roller, and its edges are secured by a clamp. To the inner end of the roller is attached a spiral thread, which works between the pins of a shaft, so that the roller may be moved longitudinally upon its shaft at the same time that it is carried around thereby. By suitable means, the teeth of the shaft may be turned down out of gear with the thread, so that the roller may be pushed back at once, when required. By suitable construction the roller is rotated by the upward movement of the forward parts of the frames, the downward movement of said parts raising a push pawl one tooth. A pawl, which is pivoted to the frame, has its engaging end resting against the teeth of the wheel, to prevent said wheel from being turned back by the friction of the pawl as it is raised. A long block or hand piece is perforated longitudinally to receive a slide upon the forward bar of the movable frame. Upon the inner side of the forward end of the sliding block is formed an arm which projects through a slot in a plate, the ends of which are secured to the side bars of the frame. In the plate, at the upper and lower edges of said slot, are formed notches, and the free end of the arm is so formed that it may fit into the upper or lower notches, according as it is inclined upward or downward. Upon the top of the slotted part of the plate are formed the letters of the alphabet, the nine digits, a comma and a period, which characters are arranged in two rows, one row corresponding with the upper and the other with the lower row of notches. Upon the lower side of the sliding block are formed two rows of raised type corresponding with the characters, and which project at such an inclination that, when the arm is in the notch of either the upper or lower row of notches, the corresponding row of types will be in proper position for making the impression. In using the machine, the paper is placed upon the roller and the block is grasped with the hand, and is moved to bring the arm successively into the notches corresponding to the letters of the word to be formed upon the paper. As the arm is brought into each notch, the block is forced down, and the letter is printed upon the paper. At the end of each word the roller is caused to rotate twice the usual distance, and thus forms a space between the words.

Improved Safety Attachment for Car Trucks.

George C. Offen, Portland, Me.—The rollers are about three times as wide as the truck wheels, and are provided with short side flanges, and turn in bracket-shaped bearings, which are pivoted in suitable manner to the cross piece, to keep square on the track in case the truck is thrown off the track. They are hung at such hight above the track that they just clear the same, the flanges keeping them on the track when thrown into use. The rollers may be connected suitably to the engine, to notify the engineer when the wheels are off the track. On the damaging or detaching of any wheel, they carry immediately the truck, taking the place of the wheels, and may prevent damage and accidents.

Improved Lock.

Herrmann Stein, New York city, assignor to himself and Herman Dale, Brooklyn, N. Y.—This invention consists in a revolving tumbler which acts directly on a recessed bolt, and is retained in opened or closed position by a disk-shaped spring plate with projecting teats. The small slots or recesses for the key prevent the introduction of wires of sufficient strength to overcome the strong pressure of a plate on the tumbler, so that the lock cannot easily be tampered with, while the direct action of the tumbler on the bolt prevents the forcing back of the same by a chisel or other implement.

Improved Burglar Alarm.

Henry L. Brown, Middletown, Conn.—The object of this invention is to provide simple and convenient means for detecting burglars when entering buildings; and consists of an alarm movement and bell, in combination with a wire or cord and gas burners, so arranged that, in the act of opening the door or window with which the alarm is connected, gas is turned on, a flame is produced, and the alarm given. A wire or cord is attached to an arm in the wall and to a second arm, which is attached to and projects from the escapement shaft of the alarm movement. The alarm movement is wound up by means of a key on the main shaft, and is held and prevented from giving the alarm by the wire. This wire is attached to the vibrating escapement shaft by a crank, so that the movement is held stationary by it. When this wire is broken or parted, the alarm is given. A gas pipe is connected with the service pipe, and the burner on the end thereof is supplied with a small jet of gas, which is ignited when the alarm is set for use. When the door is opened a bar is drawn back, a gas cock is turned, which admits of a flow of gas through a pipe to a second burner. The two burners are so formed and placed so near each other that the gas which escapes from the second burner is ignited by the flame from the first burner. The former gives a full flame, which envelopes the wire and, in a few seconds, burns it off, and allows the alarm movement to vibrate the hammer and give the alarm.

Improved Machine for Printing Oil Cloth.

William E. Worth, San Francisco, Cal.—This invention consists of a vertically moving press for carrying the printing block and pressing it on the cloth. The block is mounted on a frame carrying a platform for the operators, and shifting laterally on another frame, which shifts forward and back over the printing floor, whereon the cloth to be printed is laid. The principal frame is provided with mechanism for shifting it, and both frames are capable of having their movements arrested by stops, so that the prints will match properly.

Improved Bench Plane.

George W. Huber and Aaron E. Flickinger, Norwalk, O.—The object of this invention is to construct a plane, which is light, handy, and easily adjustable to any thickness of shaving without the use of a hammer. It consists in the firm mounting of the plane iron between a cap piece with connecting clamping bolt and set screw, and a supporting shoe, which is pivoted to the sides of the base piece, and adjusted, together with the plane iron by a conical eccentric pivoted to the base.

Improved Saw Gumming Machine.

Henry Baughman, Dorn's Gold Mine, S. C.—In this invention an emery or vulcanite gumming wheel is used. The tool overhangs an oscillating frame at one end, so as to be presented to a circular saw by means of two handles. An eccentric dog regulates the depth of the cuts in the saw by the tool by coming against the side of the frame. It can be set for cutting deep or shallow notches by turning it on its pivot. The tool is driven by a belt operated by any suitable driving mechanism. The contrivance for holding small circular saws consists of a clamp and center pin fitted on a slotted bar which is detachably connected to the frame. The clamps slide along the slotted bar through which the center pin passes, and are secured at any point for saws of any size by nuts on the center pin screwing all fast. There is a bar with a gage screw for controlling the edge of the saw by being screwed fast during the operation of the gumming tool. It is released to shift the saw. A stop button is employed to engage with the frame and hold the securing frame when gumming straight saws, which are moved up to it instead of moving the tool down to the saw, as when gumming round saws. The saw frame is weighted, so that the end on which the tool is mounted is borne upward.

Improved Gauntlet Glove.

Frederick Farrant, Gloversville, N. Y.—This invention consists of a novel construction of the wristband of a gauntlet glove, of two or more pieces, contrived to arrange one or more pinked or otherwise ornamented edges of the material of which the glove is formed, around the band at the middle, to make a more stylish finish than is afforded by the plain surface of a band composed of only one piece.

Improved Culinary Tongs.

Alfred Greenleat, Brooklyn, N. Y.—This is a pair of wire tongs of which the middle part of the lower prong is bent upward above the other and has a coil formed on it to give it elasticity so that the points are held closely together. A thumb piece is affixed to the bend, by pressing down which the prongs are forced apart.

Improved Device for Converting Motion.

Joseph P. Taylor, Hudson City, N. J.—This is an improved apparatus for applying motive power for propelling machinery, and for other purposes, by a pendulum lever connected with a rotating wheel, a continuous rotary motion being produced by means of a ratchet wheel and two ratchet pawls. The wheel and the ratchet are revolved on a central shaft, and the pawls are carried one to the right and the other to the left, by the oscillation of the pendulum lever, and alternately drop into gear with the ratchet by their own gravity and rotate the wheel. They are thrown out of gear with the ratchet wheel at the completion of each stroke by means of weights. An impulse is given the pendulum lever by means of a cord attached at the bottom.

Improved Automatic Railroad Signals.

Jane D. Evans, West Chester, Pa., executrix of Henry S. Evans, deceased.—This invention is an improved device, by the use of which railroad trains will be enabled to set the signals automatically as the train approaches and leaves a station, a crossing, a curve, or other place requiring care. Posts are set upon each side of the dangerous place, and in such positions that the signals attached to said posts may be readily seen from such a distance as will enable the engineer to readily stop his train before reaching said point. The signals are pivoted to the posts and are connected by chains which are attached to the rotating part of said signals, so that each signal may be operated by and from the other. As a train passes in the opposite direction, a projecting wheel placed upon a journal extending from the side of the engine strikes and presses down inclined bars arranged upon the other side of the track, which bear down upon the ends of levers, which are pivoted to the ties, and the inner ends of which are jointed to the inner ends of other levers, which communicate with the chains which work the signals. The inclines when relieved from the downward pressure of the car wheels are again raised to their former position by coiled springs placed beneath them in recesses in the ties.

Improved Ventilating Car Window.

Charles B. Knevals, New York city.—This invention consists in a horse-shoe-shaped plate, provided with stop flanges upon the ends of its arms and perforated. It is secured to the lower part of the casing around the lower pivot of the sash, and with its circular part inward and its ends outward. The flanges serve as stops to limit the movement of the window upon its pivots. With this construction, the forward side of the sash, whichever end of the car moves forward, is swung inward, so as to form front and rear openings between the side bars of the said sash and the frame. The inclination of the window not only ventilates the car by causing a movement in the air, but the window serves also as a shield to prevent cinders and dust from entering the car, which cinders and dust strike against the inclined surface of the window and are projected outward. Small bolts are secured to the bottom bar of the sash upon the opposite sides of its pivot, and in such positions that their lower ends may enter holes in the side bars of the plate and thus lock the sash in place when adjusted.

Improved Washing Machine.

Moses L. Hawks, Kinderhook, Mich.—This invention has for its object to improve the construction of the washing machine for which letters patent No. 140,625 were issued to same inventor, July 8, 1873. The journals of a large roller are held down by the half bearings which slide up and down in the slots of the standards. The half bearings are rounded off to receive the rubber bands. The journals of two inner small rollers revolve in bearings in the standards, and the journals of two outer small rollers, all four being below the large roller, pass through short curved slots in the standards and revolve in bearings in the ends of the cross bars, which are placed upon the outer sides of the standards. The upper parts of the rubber bands are whole, but their lower parts are split. The improved construction allows the outer lower rollers to yield more readily as the clothes are entering and leaving the machine, and prevents the tendency to press the rollers out of position. The cross bars are connected and held in place against the outer sides of the standards by the wires, the ends of which are attached to the ends of the said cross bars. The wires pass across the edges of the standards, and, at the inner side of said standards, are bent twice at right angles, so as to pass beneath the outer small rollers, and thus be out of the way of the clothes.

Improved Car Coupling.

William Charles Brooks, Stoneham, Pa.—The upper part of the drawhead comprises the top and two sides, between which is a hollow longitudinal space, in the lower part of which is the other part of the drawhead, which is pivoted to the sides at its middle part. At the inner end this lower portion has a spiral spring arranged with it, so as to force the front end up and press a coupling link, which has a hook on the upper side, up into a notch behind a corresponding hook on the lower surface of the top side of the drawhead. The two parts of the drawhead are beveled at the front end to form a bell mouth to guide the end of the coupling link into the space at the front end when the cars come together. The link forces the front end of the lower part down sufficiently for its hook to pass hooks on the under side of the top of the drawhead, and the spring instantly forces it up again, and holds it so as to keep the hook of the link in connection with the hook of the drawhead. To disconnect the hooks a push pin and a lever are arranged with the drawhead and link and provided with a spring to hold it up. The push pin is arranged above the link, so that, by being pressed down by the lever, it will press the link and the lower part down so as to disconnect the hooks. The lever will extend to the side of the car, where it can be reached to uncouple the cars without going between them.

Improved Umbrella.

James H. Dugan and George Moncrief, Stoneham, Mass.—This invention consists of an arrangement of an umbrella top, so as to revolve upon the handle to relieve it when strong gusts of wind blow against it quartering, or when the top strikes against other umbrellas or other objects in crowded places. The said arrangement consists of a notched revolving ring for the ribs, between two collars on the handle, and a revolving notched ring on the runner, also between two collars.

Improved Portable Fire Extinguisher.

Isaac C. Andrews, New York city.—There is an inner bucket for containing the acid, in the opposite sides of the lower part of which are formed V shaped notches to receive pins formed upon the inner sides of the arms of the bow or U shaped bar. The ends of the arms of the bow pass up through stuffing boxes in the cover, and their ends are secured to the ends of the yoke. Upon the lower or inner side of the cover is formed a stopper which fits into the mouth of the acid bucket. The bottom of the acid bucket is recessed to receive a loop, which is connected with the bow by a short chain. To the upper or outer side of the cover is rigidly attached the end of a rack bar, which passes up through a longitudinal slot in the yoke, in which slot is pivoted a lever, upon the lower end of which is formed a segmental gear wheel, the teeth of which mesh into the teeth of the rack bar, so that by operating the lever ratchet the bow may be lowered or raised. Upon the inner sides of the arms of the bow are formed toes which, as the said bow is lowered, strike against the upper edge or mouth of the acid bucket and push it off the stopper. This allows the bucket to tip over, and as it approaches a horizontal position the peculiar form of the sockets allows it to escape from the bow, and it drops, bottom upward, into and hangs suspended in the alkali solution in the middle of the lower part of the outer or alkali vessel. The rapidity of descent of the bucket causes it to carry the greater part of the acid with it, which acid is thus discharged in the midst of the alkali solution, with which it thus becomes thoroughly and evenly mixed, the swinging motion of the suspended bucket greatly assisting the mixing.

Improved Button Holder.

Minor J. Cooper, New York city.—The holder consists of two plates of meta which are forked at one end, the space between the prongs being V shaped. One of these plates has grooves on the inner edges of the prongs, which grooves receive the buttons. This V shape of the openings adapts the holder for buttons of different diameters. The cloth passes in between the two plates, and is pressed upon the buttons by the prongs of back plate as the two plates are pressed together or toward each other when the holder is in use by the fingers of the operator. The button is then sewn on with a needle and thread, in the usual manner. The advantages claimed are that the fingers are not exposed to the needle, and the sewing on is performed with much greater ease.

Improved Machine for Shaping Brush Woods.

John Ames, Jr., Lansingburg, N. Y.—Through a hole in the bench or table of the machine passes a vertical shaft, upon which is formed a spiral cutting edge. To the upper side of the forward edge of the base plate is attached a flange of such a hight as to afford space for the bristles of the brush, so that the said bristles may serve as a guide in placing the brush. The brush is held securely, while being operated upon, by the plate, which rests upon the back of the brush, and its forward edge is made of the exact form to be given to the edge of the brush, so as to firmly support the said brush while being operated upon. A cam is made to press against the base plate, so that the brush may be securely clamped in place. The part of the plate opposite the cutter is further supported against the upward pressure of said cutter by a ring guard through which the cutter passes, and which is supported in place adjustably. By this construction the brush is shaped with an upward cut toward the back of the brush, which leaves the edge around the bristles perfectly true and smooth, the trifling sliver ing that may be made being around the back of the brush, where it can be readily worked out.

Improved Cotton Seed Planter.

Zimri Carter, Line Creek, S. C.—This invention is an improvement in the class of planters having a furrow opening plow and covering devices arranged, respectively, in front and rear of a hopper, from which the seed is centrally discharged as the machine advances. The improvement relates to the arrangement of plows or shovels in rear of a centrally discharging hopper, whereby one distributes or disperses the seed after being deposited in the furrow, and the others cover it.

Improved Machine for Removing Snow from Roadways.

George Hart, Tarrytown, N. Y.—This invention consists of a small locomotive engine, which is surrounded at the sides by a casing, with inclined endless belts with buckets, which take up the snow from rotating brushes or wings and convey it over connecting chutes to a separate tank, where the snow is melted by steam connecting pipes and the direct application of heat. The different parts which come in contact with the snow are heated by steam from the boiler, to prevent the clogging of the machine and insure a rapid delivery of the snow to the tank.

Improved Skate.

James A. Whelpley, Dartmouth, N. S.—The runner has standards formed together with it, and projecting upward from the upper edge, for the support of the heel plate, sole plate, heel clamp, heel dog, and toe clamp. The toe clamp and heel dog are mortised to fit on their standards so as to slide freely back and forth, and they extend down to the upper edge of the runner, and have a thumb nut screwed on the lower extremity, so as to cramp and bind them fast at any point by screwing the nuts down on the runner. The sole plate and heel plate are also notched a little to receive projections and lock together with them when said plates are connected to the runner. Said plates have a strong semicircular brace attached to the under side, and these braces are engaged with the standards by entering longitudinal notches, when the plates are placed on, sprung down, and moved endwise. At the same time the notches of the plates and the projections lock together. The standards also have a projection passing entirely through the plates, to secure them against lateral movement. There is also a vibrating heel piece, clamped by means of a pendant shank and a cam lever. The latter has a slot and a projecting point, in combination with the shank of the heel piece, provided with an incline, to operate the same. It will be seen that all the several parts of the skate can be cut or formed in the shapes required by the dies by which they are punched out of the plates of which they are formed, and that the only fitting necessary besides the smoothing and polishing is a little bending of the clamps and dog, the fitting of the nuts, and the fastening of the braces to the plates.

Improved Water Closet.

John F. Neilson, New York city.—A round valve in a water chamber is opened by a lift handle, when all the water and other matter are discharged from the basin and elbow pipe through the valve seat. A float then sinks in a second chamber, carrying with it a valve which opens the supply pipe and admits water through to the basin, thence through the elbow to the chamber first mentioned. On releasing the handle the round valve resumes its former position, having sufficient weight to carry it to its seat. Water now gradually enters and raises the float and closes the supply pipe. To avoid overflow, a third chamber and an intervening piston that works between the valve and float are used. This greatly lessens the chances of sticking, but will not always prevent it. To provide an outlet to meet this contingency, a piston on the same rod that carries the round valve is employed. This piston not only serves as a guide to cause the valve to pass perpendicularly to its seat; but as soon as the water reaches it, it will be lifted and carry with it the valve, thus opening an outlet for the surplus water, and preventing an overflow.

Improved Spinning Mule.

Thomas Houlding, Ipswich, Mass.—This invention consists of a shaft extending the whole length of the carriage of a spinning mule or jack, and gearing at each end, by a toothed flanged pinion, with a kind of toothed chain, stretched from end to end of the carriage track, and prevent one end from over running the other. The chains are adjustable in their supports at the ends, as may be needed from time to time, to adjust the carriage.

Improved Corn Sheller.

John Marshall, Cordova, Ill.—The corn to be shelled is placed in the hopper, from which it is fed to an endless apron or elevator, which consists of a wide belt provided with cross slats, and passing around rollers pivoted to the frame work of the machine. From the upper end of an elevator the corn falls into the space between a cylinder and concave, where it is shelled. The cylinder is cast hollow, and with its shell is about half an inch thick, and revolves in bearings upon the frame work of the machine. In the shell of the cylinder are formed a number of pairs of holes to receive the shanks of ribs. These holes are arranged in rows, longitudinal with the cylinder, and in such a way that the ribs of one row may be opposite the spaces between the ribs of the adjacent rows. The ribs are made of steel or wrought iron, are half round in form, and are provided at their ends with shanks projecting at right angles from their flat sides. The concave is made of cast iron, in sections, with semi-cylindrical ribs upon their inner or concave sides. The sections are arranged about a quarter or three eighths of an inch apart, and their edges have oblong or oval notches formed in them, which are so arranged that the notches of the adjacent edges may alternate with each other. It will be seen that while the said notches supplement the function of the parallel spaces between the sections in aiding the ready discharge or escape of the shelled corn downward, their form and size are also such as to prevent the cobs taking the same course.

Improved Fish Grappling Spear.

Jonah W. Knapp, Cross River, N. Y.—The spear hooks are jointed together and provided with springs, which are bent when the hooks are opened, and held by the toggle joint until the latter is sprung, and then close them with sufficient force to secure the fish. The springs are jointed to the stock instead of being permanently attached as they have always been arranged, so that the hooks can be released from the power of the springs, to facilitate the opening and setting of them. One of the hooks is connected with sliding sleeves on the stock by a rod and wires passing up and down on the rod and over a pulley, and communicating with slides; so that by the sliding of one sleeve toward the spear hooks, and the other sleeve toward the top of the handle, the rock lever will be turned around to open and reset the hooks; and by moving the sleeves in the opposite directions, the lever will be turned back again to free the connecting rod so that said rod will allow the jaws to close when tripped, also to subject the springs to the required tension for actuating the hooks, which is effected by the action of a cam on one of said springs. The springs are arranged in a clip to which a rock lever and cam are pivoted; and the form of the rock lever and the connection of the rod with said lever are such that, during the first part of the movement of said lever in the direction for opening the hooks, the tension of the springs is so lessened that when the opening of the hooks begins the springs have but little power to resist it, thus making it so easy that it can be readily effected. This clip has a set screw which acts in conjunction with the cam for producing and varying the tension of the springs; and the clip is made adjustable forward and backward on the stock along the springs, also to vary the tension.

Improved Corn Dropper.

Robert M. Bowman and William H. Bowman, London, Ohio.—This invention consists of a nopper bottom having a hole for dropping the grain into it, with a supplementary slide for closing the hole arranged on its under side. The bottom is constructed to slide forward and back to bring the hole under the grain in the hopper, and then move it beyond the cut-off to the place of delivery. At the same time, the hole is opened by carrying the supplementary slide against a stop, which holds it against moving with the hopper bottom as soon as the hole has passed beyond the cut-off. The bottom continues its motion as far as the width of the hole, and then goes back for another charge, the supplementary slide being closed during the back movement by a spring. The arrangement is designed to prevent the choking and clogging common to most droppers in use.

Carbonic Acid Gas Generator and Soda Water Fountain.

Friederick W. Wiesebrock, New York city.—The first invention is an improved apparatus for generating carbonic acid gas for charging soda fountains, and for other uses, which shall be so constructed that the operator can discharge any desired amount of acid into the generator, as may be required, and know exactly how much remains in the acid chamber, and which can be operated without an agitator. To facilitate and insure the thorough intermingling of the acid and marble dust, cross bars are extended across the middle part of the generator, and have their ends secured to the shell of the said generator. The dome or gas chest is connected with the generator by one or more pipes, and in the top or cover of the dome are formed two openings. One opening is closed with a screw cap, and the other is connected with a pipe which leads down at one side of the dome and passes through or is connected with the hollow gudgeon of the receiver, so as to conduct the gas to the washer without being disturbed by the oscillation of the generator. The acid chamber has gudgeons formed upon its sides, which work in bearings in the sides of the dome. One of the gudgeons projects and carries an index finger which moves along an index plate on the side of the dome, and thus indicates the exact amount of acid that is poured out of said chamber. In the upper side of the acid chamber is a hole which, when the generator stands at rest in a horizontal position, is directly beneath one of the dome openings, so that the acid poured in through the said opening may flow into the acid chamber. By this construction, the contents of the generator will be thoroughly intermingled, by simply oscillating the said generator, which movement does not affect the acid chamber, which swings upon its pivots and is kept right side up by gravity. This construction also enables the generator to be turned into a vertical position, so that the refuse can be readily discharged without its being necessary to retain sufficient gas in the generator to blow out the said refuse, as is the case with the ordinary apparatus, thus effecting a great saving of gas. The same inventor has also devised an improvement in fountains for soda water, etc., in which the cylinder has a removable bottom, with a downward flange. There are hoops around the cylinder, and a lining; and an overlapping cover, a discharge pipe, and a discharge cock are also provided. The lining is made to loosely fit the cylinder, and is held to the cover and to the discharge tube by flanged nuts. The bottom is attached to the lower end of the cylinder by means of a peculiar base piece, hoop, and screws, so that it may be readily detached. When the bottom pipe and nut are removed, the lining and nut may be taken out. By making the fountain in this manner, it is claimed, the expense of the cylinder is greatly lessened, and all needed repairs to the lining easily and cheaply made.

Improved Railway Car Brake.

Luther Adams, Mattoon, Ill.—A friction disk or wheel having a notch is the chief medium for bringing the brake mechanism into action. This disk is mounted on journals in the bifurcated end of a plate which is hinged to a cross bar or timber. A spring is attached to said plate, and has a hole in its free end to receive a rod which forms the short arm of a bent lever. This last extends above the platform, and is pivoted thereto so as to be easily accessible. A spring also holds the disk out of contact with the axle. When it is desired to apply the brakes, the lever is operated to depress the spring plate, and thus bring the disk to come in frictional contact with the axle, which causes it to revolve one half a revolution, or until the axle enters the groove or notch, when the disk will remain locked until the pressure on the spring is relieved. This movement of the disk upon its axis applies the brakes, since it winds up the chain, which is secured in a circumferential groove of said disk, and extends back and connects with one end of a bar that is pivoted to the brake beam. By suitable mechanism, the action of the friction wheel is made automatic.

Improvement in Heating Air and Supplying Boilers therewith.

George E. Hibbard, Fond du Lac, Wis.—There is an air holder on the top of the boiler, near the smoke stack, into which air is forced by one or more air pumps, worked by the engine and connected with it by pipes. A pipe, with a check valve, connects this holder with a heating coil in the space, at the front, from which the hot air and exhaust steam escape. This coil is continued from the bottom of the space to the top of the boiler, where it connects with a pipe inside the boiler, which extends back into the steam dome, and discharges the air into the throttle pipe. The cold air is condensed to the extent of the boiler pressure, when it passes the check valve by the pumps, and what is gained afterward by the expansion is utilized as working force in the engines. In case air brakes are used on the cars, it is proposed to take the air for working them from this holder by a pipe, and thus utilize the same air pumps for supplying them. By the use of expanded air in connection with the steam, it is claimed that a large measure of heat which is otherwise wasted is utilized, thus economizing about twenty per cent of fuel.

Improved Dust Pan.

Orlando C. Forsyth, Jr., Newburgh, N. Y.—This invention is a dust pan provided with a handle made of wire bent at the middle to form an oblong end loop, next twisted together, then bent laterally and downwardly to support the rear of pan, so as to form legs of such a length as to support the pan in proper position for the dirt to be swept into it, and which will at the same time prevent the dust pan from being pushed back by the broom when sweeping the dust into it.

Improved Meat Holder.

Sarah Beissel, Shamokin, Pa.—This invention serves to hold meat while the same is being cut. It consists of a board clamped by set screws to the table and carrying two upright adjustable rollers between which the meat is placed. Vertical screw bolts also support a concave cross bar, which, on being forced down upon the meat, holds the same firmly in place.

Improved Car Mat.

John O'Neill, Brooklyn, N. Y.—The floors of street cars are usually covered with a wooden grating, made in sections, called car mats. As these mats are now made, the slats or bars are made to run all in one direction, either longitudinally or transversely with the car. The present invention consists in forming each separate section with groups of slats, arranged at right angles with each other, thereby, it is claimed, greatly strengthening the mat and rendering it durable.

Improved Till Alarm.

John F. Baldwin, Nashua, N. H., assignor to himself and Miles Alarm Till Manufacturing Company, Providence, R. I.—The receptacle in which the bolts and levers are placed and work consists of a box, the front and sides of which are cast in one piece, and the rear side of which is closed by a guide plate. Bolts are arranged so that their bodies fit into an upper chamber of the box, and their tops project in front and rear to rest upon the upper edges of the box and guide plate. The lower ends of the bolts are inclined and rest upon the upper ends of the one armed levers which have their fulcrum in the guide plate. By suitable construction, when the lower parts of the one armed levers are held back by springs, their upper ends are inclined to correspond with the inclined lower ends of the bolts. When the bolts are so arranged that the inclination of their lower ends may correspond with the inclination of the tops of the levers, the forward movement of the lower ends of said levers will raise the said bolts; but when the bolts are reversed, the forward movement of the lower ends of the said evers will lower them. By other construction, when all the bolts are down, lugs, when the drawer or till is drawn outward, will pass out beneath other lugs; but should the till or drawer be drawn upon without all the bolts being down, the first lugs will strike against and cannot pass the others, There is other apparatus so arranged that, when the drawer or till is drawn upon without all the bolts being down, a lug releases a lever from a ratchet and sounds the alarm.

NEW BOOKS AND PUBLICATIONS.

A SELF-MADE WOMAN: or Mary Idyl's Trials and Triumphs, Price $1.50. New York: S. R. Wells, 389 Broadway.

This little tale is one of an unexceptionable moral tendency, in which the value and importance of the publisher's specialty of hygienic treatment is thoroughly displayed.

A NEW PATH IN ELECTRICAL THERAPEUTICS: also, a Thorough System of Hygiene. By Dr. Elizabeth J. French. $2.50. Philadelphia: E. J. French, 1609 Sumner street.

This work is lucidly written, and contains much that is new and even surprising to the reader, especially the accounts of the diagnosis of diseases in various parts of the body by applying the voltaic current to different parts of the cranium. Dr. French also publishes a lecture on alcohol, and sells an electric baking powder.

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