

## ENGINEERING INVENTIONS.

Mr. O. H. Robinson, of Manistee, Mich., is the patentee of an improved rotary engine, in which he employs a wheel or case having internal steamways eccentric to its shaft, and provides the shafts with a radially moving valve which serves as a gate or piston against which the steam acts.

Mr. A. O. Willson, of Madison, Ga., has recently patented a traction or road engine, which provides for the application of increased power on ascending grades, and provision is also made for the convenient and ready turning of the engine in either direction. Increased power can be applied to both wheels at once or to either wheel, as desired. This engine is constructed very cheaply, and possesses useful features not found in other traction engines.

Mr. William Wilmington, of Toledo, O., has obtained a patent for a method of casting car wheels, which is an improvement upon a patent granted to same inventor March 6, 1883. This method of casting car wheels consists of nearly or quite filling the mould of the wheels with suitable chill hardening cast iron, then placing in the receiving basin of the mould finely powdered ferro manganese or its equivalent, and allowing the same to be melted by the molten iron remaining in the basin, and then agitating the iron remaining in the basin and keeping the inlet holes open by churning.

## MECHANICAL INVENTIONS.

A patent has recently been issued to Messrs. F. F. and H. F. Hartwich, of Onaga, Kas., for an improved boring machine. The invention consists of an improved feeding mechanism, and a system of change-gearing for driving the same, whereby the feed gear can be reversed to withdraw the auger to bring the chips from the hole, while the tool continues to revolve in the same direction as when boring.

An improved dredging machine has been patented by Messrs. Larence A. Johnson and Neils E. Johnson, of Portland, Oregon, which consists of one or more spurred cylinders for breaking and loosening the bed of shallow rivers or streams, and with a propeller screw for agitating the water, and causing the loosened sand, mud, etc., to be carried off by the current. The machine is very simple in its construction, and not likely to get out of order by use.

A very simple portable hay press to be worked by hand power has been patented by Mr. Geo. W. Freeman, of Gadsden, Ala. The follower in this machine consists in a plunger with long projecting arms to the extremities of which are attached ropes which pass over a roller that is rotated by a hand lever. A pawl and ratchet wheel is attached to the roller for taking up the slack, and holding the follower up to its work.

Among the recent improvements in fire escapes is to be found the extension ladder patented by Mr. Joseph Spangler, of Rock Island, Ill. The invention consists in contrivances for raising and lowering, and for locking and unlocking the ladder. A seat is arranged on the upper end of the top section to enable the ladder to be used as an elevator to facilitate the rescue of persons unable to descend by the ladder. The ladder is also adapted for the use of painters, builders, and others.

An improved rotary shingle planing machine has recently been patented by Mr. Samuel M. King, of Lancaster, Pa. The invention consists in the combination of two rotary cutter heads journaled in reciprocating frames which are loosely connected together, and reciprocate in planes inclined toward each other. A table upon which the shingle is placed is located between these cutter heads, and both of the tapering sides of a shingle are planed in one operation by this mechanism.

A box nailing machine for making cigar or other similar boxes has been patented by Mr. Samuel Avery, of Phoenix, N. Y. This invention possesses considerable novelty, and by its use would seem to be a great labor saving machine. There is provided an inclined slide, down which the nails are passed, the imperfect ones falling through the opening in the slide into a receiver below, while the perfect nails pass down until they fall into position to be driven into the box. This feeding and driving operation is accomplished by a sliding driver operated by a treadle, which not only inserts the nail in the box with accuracy and precision, but drives it home. As many slides as desired may be arranged parallel to one another, all of them being operated in the same manner and with equal facility.

An improvement in cotton gins has been patented by Mr. David S. Rogan, of Burnet, Texas. This invention provides means whereby the breast and guard can be readily and quickly moved and held out of their normal position for the purpose of clearing or freeing the cotton roll from the saws, and preventing injury to the operator by the saws. The gin breast is raised to clear the roll from the saws by moving a lever, thereby causing cams provided for the purpose to swing the breast out. At the same time the shield remains at the front of the saws as a protection; but when the saws are to be gummed, the breast can be raised and turned back, and the shield, being attached to it, is also carried out of the way, so that the saws are fully accessible.

## AGRICULTURAL INVENTIONS.

Mr. S. O. Mason, of Snow Hill, N. C., has recently patented a cultivator which consists of improvements on the patent issued to him and Messrs. Pate and Dail in January, 1882. The main objects of these improvements are to give greater strength to the cultivator, prevent splitting of the cross beam, prevent turning of the shanks of the shovels, and rendering the blades of the shovels detachable.

A combined grain drill and fertilizer distributor has recently been patented by Mr. D. F. Hull, of Hagerstown, Md. It consists, first, of an adjustable keeper of peculiar construction, adapted to conform with the concave surface of each seed opening, and provided with a pointed lower end, arranged between the ordinary gum rollers of the drill to prevent the lateral

discharge of the grain in passing the rollers. It is so contrived that the flow of the fertilizer is stopped in turning the machine or whenever desired.

A patent has recently been issued to Mr. David Woodward, of Clinton, Mich., for a plow jointer. The invention consists of an improved contrivance for the connection of the plow jointer for facilitating the adjustment of the jointer, and also for facilitating the discharge of the sward, manure, or rubbish into the furrow to be properly covered, and to cause it to escape from the supporting arm of the jointer and prevent clogging, as is common with jointers as ordinarily attached.

Mr. J. A. Bonitz, the well known publisher of the *Messenger*, at Goldsborough, N. C., has obtained a patent by assignment from Mr. L. B. Stith, of the same place, for a cotton stalk chopper, which may also be used on tobacco and corn fields. This machine consists in a series of revolving cutters arranged on radial arms, which operate horizontally with the ground. A conical roller is journaled to the frame in front of the revolving cutters, to direct the stalks to the knives as the machine is propelled over the ground. The machine is strong and simple in its construction, and it is believed that it will be generally adopted at the South when its merits become known. Mr. Bonitz has commenced the manufacture of the machine at Goldsborough.

## MISCELLANEOUS INVENTIONS.

Mr. Abbott Arnold, of Houston, Texas, has secured by letters patent a new bale tie, which has the advantages over many others in cheapness, simplicity, and strength.

Mr. Edward A. Smith, of St. Albans, Vt., has obtained a patent for an improved smoking tube, the invention consisting of a screw threaded plug for holding the cartridge within the tube.

A safety stirrup for riding saddles has been patented by Mr. Philip Ganzhorn, of Washington, Ill. This stirrup is provided with a toe guard, and with a tilting plate for insuring the ready escape of the foot of the rider in case he should be thrown from the horse.

Mr. Ivison H. Huddleston, of New Berne, N. C., has patented a composition for greasing plug tobacco moulds, which consists of olive oil and beeswax mixed together in certain proportions, with or without flavoring, as may be desired. One-half interest in this patent has been assigned to Mr. L. V. Morrel, of Greenville, N. C.

Mr. Arthur W. Bush, of Boulder, Colo., is the patentee of a combination watchmaker's tool for holding second hands while reaming out the socket to fit the watch, also for adjusting the pin jewel in the roller table of a watch and similar other purposes.

Mrs. Jane Amelia Ray, Brooklyn, N. Y., has received letters patent for an improved elastic metal corset stay plate, which is intended to protect the ribs or bones pocketed in the fabric of corsets against breakage, and to afford a better support to the body of the wearer.

Mr. William Clemson, of Middletown, N. Y., has patented a buck saw frame, having two braces reaching from the center of the crosspiece of the saw frame diagonally up to the upper ends of the side pieces of the frame, whereby the frame is braced in a simple and very efficient manner.

Messrs. J. H. McConnell and M. W. Chandler, of Pultney, N. Y., have patented a pail or basket handle. A short distance above the upper edges of the basket shoulders are provided, under which the edges of the basket cover are passed for the purpose of holding it on the basket at the middle.

Mr. Andrew C. Emmick, of Columbus, O., has recently patented an improvement in hollow plugs for axle skeins. The interior of the hollow plugs are welded on the inside of axle skeins, and by running a lag screw from the point of the skein to the axle, all air and moisture are excluded.

A simple and convenient lamp kettle has been recently patented by Mr. William Pountney, of Port Jervis, N. Y. It is so constructed as to rest on the top of a sectional lamp chimney, and does not interfere with the light when in use. A spout is provided which will hold and cook an egg at the same time the water is heating within the kettle.

A quilting frame for suspending a quilt so that a sewing machine can be brought in use in the quilting operation, has recently been patented by Robt. B. Bledso, M.D., of Alvarado, Tex. The apparatus is simple in construction and effective in use, enabling the quilting to be done with expedition and with very little fatigue to the operator.

Mr. H. C. Leonard, of Covington, Ky., has patented a machine intended for use for spinning and twisting all kinds of fibrous materials for the manufacture of rope or cords, or other manufactures produced by twisting or spinning. The machine may twist as many strands as are required, from a smaller machine or from bobbins set in a rack.

A simple and effective faucet for drawing liquids has recently been patented by Mr. Frank McCabe, of Providence, R. I. It is specially designed for a beer faucet, but may be applied to any cask or barrel, and is so constructed as to avoid leakage around the valve when the faucet is open. It is also provided with a plunger for forcing in the bung.

Mr. La Fayette Hartson, of Wyoming, Ia., has patented an improved harness buckle and loop. The object of the invention more especially is the securing of the end of the strap to the buckle, without the necessity of stitching the buckle loop to the main strap. This is accomplished by riveting the strap between two metal plates, thus securing a stronger connection than is possible by sewing.

Mr. John P. Wilkinson, of Abbeville, Miss., is the patentee of an improved guard for the key holes of locks. This guard consists in a sliding block equal in thickness to the space between the plates of the lock case, and arranged to slide backward and forward by means of a thumb bit projecting through the bottom of the lock, and is constructed for right or left hand doors.

Mr. Daniel T. Chambers, of Washington, D. C., has obtained a patent for an improvement in

glove fastenings. This consists in a flap which passes around the wrist. An inner strap is also provided which passes through a loop on the other side and holds the glove close to the hand, leaving the palm entirely smooth. This invention is an improvement upon a patent granted to same inventor in February, 1883.

Mr. W. E. Liddle, of Salem, N. Y., is the patentee of an improved mode of attaching ornamental pendants to the wearer's ears, without the aid of either hook or spring. The ear wire is inserted through the ear in the usual way, but instead of ending in a loop the wire is bent upward, forming a supporting leverage behind the ear, which obviates every danger of the pendant becoming detached from the ear.

Mr. Ernst Caywood, of Vining, Kan., is the patentee of a floor clamp which consists in a clamp holder having a hook on one end and jaws so related to one another as to engage with the joist and prevent slipping. This clamp may be readily removed and adjusted for receiving a new floor board. The boards are pressed into place with but little effort on the part of the carpenter, by the use of one of these clamps.

Mr. Lebbeus Simkins, of Marshfield, Oregon, is the patentee of an apparatus intended to prevent boiler explosions. The inventor provides a broad float attached to a gas pipe, the latter of which has perforations near the float for carrying off the gases which the inventor claims to be the cause of boiler explosions, thus rendering boilers safe with a very simple contrivance.

An improvement in churns in which the ordinary dash is dispensed with is the subject of a patent granted to Mr. W. W. Kitchen, of West Union, Ia. A pendulum is attached to the box, and the globules of butter are released by the impact of the cream in being dashed from one side of the receptacle to the other, by the oscillating movement imparted by the weighted pendulum.

Mr. James Schofield, of New York city, obtained a patent on a speed accelerating machine in December, 1879, and he has recently obtained a patent for some improvements on the original machine which are intended to render the machine more durable and effective in its results. The noise is also very much diminished in the improved machine over the original one when in use.

Messrs. J. C. Jay, Isaac Jay, and B. L. Chambers, of Arapahoe, Neb., have patented an improved cultivator, which consists of a contrivance whereby the wheels of the cultivator may be guided so as to enable the plowman to so control the machine that he can protect the corn from injury by the wheels of the cultivator, when the horses fail to properly guide it.

An ingeniously arranged desk for the convenience and use of draughtsmen, engravers, type setters, etc., has recently been patented. This desk is mounted in such a way that it may be raised by rotating a hand wheel which actuates a pinion gearing with a rack upon one of the supports of the desk. In this way the desk may be raised to any height desired and locked in any position. The inventor of this improvement is Mr. H. William Groebel, of Vincennes, Ind.

Mr. Robert B. Bledso, of Alvarado, Tex., is the patentee of an improved quilting frame, which instead of being supported on legs is suspended from the ceiling, so that when not in use it may be drawn up close to the top of a room out of the way. By a simple arrangement of pulleys the material to be quilted is easily turned, so that only one-half need be exposed at a time, and when that portion is quilted the frame is turned, bringing the other half before the operator.

An improvement in fire escapes has recently been patented by Mr. Henry Redden, of New York city. Two posts are erected on opposite sides of the doorway of a building, and extend upward to the roof. A car is provided to be run up and down in grooves in these posts. The mechanism for operating the car is at the base of the posts. When the escape is not in use, the platform of the car rests upon the ground in front of the door, and serves as a stepping stone.

An improvement in horizontal steam boilers designed to make the most economical use of fuel, and to secure great strength and heating surface, has recently been patented by Mr. Geo. Kingsley, of Leavenworth, Kas. The boiler is also so constructed as to be readily cleaned of scale, and the inventor claims that in case one of the flues should become ruptured, no greater damage than the extinguishment of the fire would be the result.

Mr. A. C. Osborn, of Clarksburg, W. Va., has recently patented an improved mechanism for operating and adjusting the set works of saw mill head blocks. It consists, first, in a device for regulating the throw of the hand lever by which the ratchet wheels are operated to move the log; and, second, in a rack and pinion device for turning the pawl of the hand lever into position for moving the ratchet wheels in either direction.

An adjustable attachment for drawers, which can be used for reading, writing, etc., has recently been patented by Mr. 'I. L. Jowett, of Boston, Mass. A leaf is hinged to the inner surface of the drawer front of a bureau, table, or other furniture, so it can be swung into the drawer, or raised to rest on the edge of the top plate of the table, making a convenient rest for holding a book while reading, and answering for a writing desk.

Mr. W. S. Ditterline, of Mauch Chunk, Pa., has secured a patent on a tremolo attachment for cornets, whereby the tone produced is vibratory. The invention consists of a tube adapted to constitute the echo tube of the cornet, or a mute tube to be applied to the bell of the instrument, said tube having a valve or disk connected thereto by a spring or lever, and arranged to vibrate by the pulsations of the wind escaping from the tube.

An improved radiator has recently been patented which consists in a base chamber having the usual supply and discharge pipe and a series of parallel upright tubes connected with the base. For producing perfect circulation a chamber is located above the tubes. This radiator may be used for either steam or hot water, and secures a larger extent of heating surface

for its size than many other radiators. The inventor is Mr. Thomas McAvity, Jr., of St. John, New Brunswick, Canada.

A ditch and road scraper has recently been patented by Messrs. J. H. and T. J. Gill, and J. W. Hedges, of Richwood, O. It consists of a sheet metal scoop pivoted near the rear and about the top of the sides between a pair of beams, from which pivots a pair of curved braces extend forward along and through the beams to the side of the scoop, to which they are connected. Spring latches are provided for holding the scoop in position. By means of trip levers the scoop is unfastened at will for dumping.

Mr. Joseph Reid, of Wyandotte, Kan., has received a patent for a refrigerating apparatus intended to effect more complete utilization of the cooling power of air, or ammonia, or any other substance which, having been compressed, will absorb heat while it is expanding, particularly in that class of apparatus wherein the gas or ammonia is expanded in pipes. This the inventor accomplishes by an arrangement of a series of cooling pans placed one above another, between and around which the cooling substance is circulated.

An improved washing machine has been patented by Mr. G. F. Knight, of Carroll, O. The bottom of the wash box is in the form of a double curve. Two cylindrical plungers, one of which is convex and the other concave, and they are so arranged as to be brought together and separated from one another by means of a lever. By moving the lever up and down the clothes between the plungers or plungers will be alternately squeezed and released, causing the water to circulate through them. With this machine the labor of washing is reduced to a minimum.

Mr. Max Lesser, of Athens, Ga., has obtained a patent for an improved boot cleaning apparatus. The box of the scraper is provided with brushes on its bottom and sides for removing the remaining mud and dust, after the scraper has performed its office of removing the heavier mud from the shoes. A metal strip with a forked end is likewise provided for removing overshoes from the feet of the wearer. The combined arrangement of the parts, and the handy purposes to which they are put, render the new boot cleaner quite an important article in the household.

A new weather strip for doors has been patented by Mr. John Shoemaker, of Garner, Ia. This improvement consists of a strip of wood secured permanently to the door, and of another strip which is hinged to the first mentioned strip. The latter is provided with a spring which retains it in an elevated position when the door is not closed. A block is attached to the door frame, and when the door is closed the movable strip is brought to bear against the block, and turn the strip down on its hinges, pressing the rubber section against the door sill, which prevents any draught of air or dust from entering the room.

An improved apparatus for fitting felly sections to their places within the tire, before inserting the spokes, has been patented by Mr. Charles H. Smith, of Eau Claire, Wis. The inventor inserts within the closed tire, while hot, a number of felly sections and arranges them so that when bearing one against the other, they will leave a vacant felly section space. By applying pressure to the exposed ends of the separate felly sections to force them apart, then entering a final felly section in the vacant space and allowing the tire to cool after being driven home, the process is completed.

A measuring instrument for the use of tailors has been patented recently. This device consists in a graduated belt to be passed around the body of the person, which belt is provided with sliding plates to extend over the shoulder. Other graduated sliding plates with their free ends turned upward are placed in front and indicate the height of the shoulder and size of the arm. After all the adjustments have been made on the instrument, the pattern is traced from the machine on paper by means of a tracing wheel, for the use of the cutter. The inventor is Mr. Nicholas Lennards, of Harvard, Ill.

An improvement in two wheeled village or road carts has been patented by Mr. Lot Green, of Rushville, Ind. The object of the invention is to relieve the body and seat of the wagon from the sudden jerking motion caused by the motion of the horse. In this improvement the body of the cart is not mounted directly upon the axle, but upon springs which are suspended from the side bars of the vehicle, these latter being supported upon the axle by means of bracket irons. In this way the body of the cart is so loosely connected with the running gear that it is relieved of the jolting, jerking motion so disagreeable to the rider.

An improvement in ore and stone crushers has recently been patented by Mr. Daniel Brennan, Jr., of Orange, N. J. The inventor provides a movable jaw the lower part of which is adjustable, independently of the movement of the upper portion, and has a simple contrivance for regulating the movement. The movable jaw is hinged to the ridged jaw at its upper portion by a U-shaped bolt, which enables the movable jaw to be readily taken from the main jaw and reversed end for end, or side for side, so that as the jaw becomes worn it may be reversed, thus rendering the entire machine more enduring. The inventor is a practical road maker, and his experience in crushing stones for macadamizing purposes has led to this improved machine, which it is believed is destined to supersede many of the stone crushing machines in use.

A very conveniently contrived gate for use on stock farms has recently been patented. The invention is designed to facilitate the opening and shutting of gates, and also to prevent cattle and horses from passing, while free exit to sheep, calves, etc., is permitted. This gate consists of two sections, one of which, the main gate, is constructed so as to prevent the passage even of small stock, while the other section is the stock gate, and allows the passage of small animals. The main gate is actuated by a cord over a rotating drum, and the stock gate is connected with the end of the main gate, and may be opened and closed simultaneously, and by the same mechanism as the main gate. The inventor is Mr. A. J. Sweeney, of Pana, Ill.