

## ENGINEERING INVENTIONS.

A rotary engine has been patented by Mr. John C. Wharton, of Nashville, Tenn. It consists of a cylinder with a vibrating piston pivoted at one side, to swing upon a center of motion apart from the axis of the cylinder; a crank shaft is connected to the vibrating piston to be revolved by its movements, or the shaft may be fixed and the cylinder revolved by the same movement.

An improved car coupling has been patented by Mr. D. P. Kahl, of Linville, Pa. It is automatic and intended to provide so that the common link will be held in position in one drawhead and properly guided into the other drawhead when two cars come together, without manual assistance, the link pin being held until this is effected, and then released or sprung into its place.

An improved hoisting car for elevating ores out of an inclined shaft has been patented by Mr. L. D. Davis, of Salt Lake City, Utah Ter. Pivoted bars are combined with the ordinary drawbar, and intermediate chains connect said bars to a common cable, the strain being taken alternately as the track is inclined or horizontal, thus adapting the car for convenient use under a variety of circumstances without the need of special adjustment.

A car brake has been patented by Mr. Alfred A. Lambrigger, of Big Horn, Wyoming Ter. A revolving longitudinal shaft on the under side of the car has a pinion engaging with a crown wheel on a vertical shaft, to which the brake chains are fastened, and thus drawn taut when a horizontal shaft or rod is revolved. The rods or shafts have on each end a head and spirally twisted part in which clutch collars are mounted for coupling, so they will revolve together.

An engine lubricator has been patented by Mr. William J. Horn, of Chicago, Ill. It is intended for the cylinders of steam engines, and in combination with an oil reservoir the oil chamber has a steam vent and two independent plungers above and below. A valve stem is adapted to close the bottom of the reservoir, which screws into a perforated tube arranged therein and has a conical end, so the oil and steam vents may be opened simultaneously.

An ore concentrator has been patented by Messrs. Edward L. Doyle, of Lynn, Mass., and George S. Burr, of Montezuma, Colo., being a new and improved device for washing pulverized ore to separate the metal particles from the gangue, sand, mud, etc. The trough rocks longitudinally and laterally, and its standards may be lengthened or shortened as desired. The flow of water is so arranged that the trough is not likely to be drained, and the matters of the pulp are thoroughly separated and washed. The device is easily arranged to operate on either rich or poor ores.

A balanced slide valve constructed in combination with a shield plate of special form has been patented by Mr. Joshua P. McCook, of Richmond, Va. By this invention it is intended that an engine carrying 150 pounds of steam can be easily reversed at full throttle. The wear on eccentricity, links, rocker boxes, etc., is much reduced, the shield plate supporting the entire pressure on the top of the valve; and the pressure being equal on the sides causes the valve to be very nearly balanced, the preponderance at the lead or crack of the port being in favor of the valve.

An improved method of casting car wheels has been patented by Mr. William Wilmington, of Toledo, O. The present invention is in furtherance of methods for which two former patents have been granted Mr. Wilmington, and is designed to make certain the melting of powdered or granulated ferro-manganese or its equivalents by contact with molten cast iron during the process of casting, and to cause the same to be carried down and diffused in the iron forming the hub and plates, the molten iron forming the tread being at the time in contact with the chill of the mould, and having become so far solidified as not to be subject to the action of the ferro-manganese.

## MECHANICAL INVENTIONS.

A sawing machine has been patented by Mr. R. J. Henson, of Cairo, Ill. It has a rock shaft with rigid arm and tilting platform, and vibrating levers connected with the rock shaft arm, the arm being also connected by a bar with the horizontal sliding bar and the vertically sliding frame that carry the saw.

A match sawing machine has been patented by Messrs. Gifford Flewelling and Gilbert J. Harris, of Hampton, New Brunswick, Canada. It consists of an improved arrangement for holding and shifting the blocks of wood and presenting them to the saws, where they are carried on slowly revolving disks to the grinding or pointing saws, also to the slitting and cutting off saws, in order to improve the efficiency of such machines.

A heel burnisher and edge setter has been patented by Mr. Joseph P. Dion, of Biddeford, Me. The burnishing tool may have a rising and falling motion, also a back motion against a spring when the shoe is pressed upon it. There is a gauge for the bottom of the heel to control the action of the face, and the whole action is designed to be very smooth and easy on the leather, instead of the more positive and harsh contrivances in use.

An improved saw mill feed mechanism has been patented by Mr. George F. Lidy, of Waynesborough, Pa. The paper frictional roller as now used having frequently flat surfaces formed thereon, rendering it irregular and unsteady in action, this invention provides for locating the roller on the saw arbor, in order that its continuous rotation with the arbor shall cause its periphery to be run uniformly when the friction is not great enough to drive the disk.

## AGRICULTURAL INVENTIONS.

A corn harvester has been patented by Mr. John Fry, of Mount Jackson, Va. A traveling apron with crossstrips, and rollers with adjustable bearings, and means for driving the rollers, is arranged in combination with a sickle or saw and the reel with a rearwardly-inclined endless belt with projections thereon, and means for running, all forming a novel construction in corn harvesters.

A combined cultivator and planter has been patented by Mr. John W. Pool, of Smithfield, N. C. By a special combination of two cultivators or seed droppers with one pair of shafts the horse is enabled to travel between the two rows, each cultivator running directly over the row, so that twice as much work as usual can be done by one horse. There is a special arrangement for setting the cultivators to be run at such distances apart as may be desired for different widths of field rows.

## MISCELLANEOUS INVENTIONS.

A portable door fastener has been patented by Mr. E. F. Pfund, of Sacramento, Cal. It is adapted to be jammed in between the door and the casing and held by a part which is then set against the door, for which the inventor has devised a novel construction.

A hinge for toilet glasses and mirrors has been patented by Mr. C. S. Fleming, of Shelbyville, Ind. It is simple in construction and cheap, but has sufficient tension to hold the mirror at any desired inclination, from the friction of the head in a countersink and the friction of the plate against a washer.

A letter box to attach to the doors of dwellings has been patented by Mr. John H. Carter, of Keokuk, Iowa. The box is cheap, simple, and convenient for the mail carrier, requiring no time to close it, and a bell operated by a spring gives notice when the mail is deposited.

Mr. F. P. D'Opdorp, of Brussels, Belgium, has obtained a patent for an improved article of manufacture consisting in a sheet provided with blank spaces for holding advertisements and holding in the middle letter paper sheets which can be torn off and folded into a letter and mailed.

A boot for horses has been patented by Mr. James O'Brien, of New York city. The invention consists in a novel construction whereby a yielding material is made to form a part of the fastening device, so the circulation will not be impeded, and there will be more freedom of motion in the joint or joints of the leg where it is applied.

A washing machine has been patented by Mr. David S. Hart, of Paradise, Ill. In combination with a covered tank or tub there is a series of pumps with cylinders passing through the cover, and grated and funnel-shaped at the lower ends; the pumps are operated by hand mechanism, and a spring supported rack receives the clothes.

A band shaper for shirts has been patented by Mr. Charles H. Keyon, of South Glens Falls, N. Y. It is designed more particularly for shaping the neck bands of shirts when ironed, to make them stand up straight and round from the bosom of the shirt; also for shaping other articles, including hat bands and hats, the form of the shaper being varied as required.

A fire escape has been patented by Mr. James H. Downing, of Lare, Kas. This is one of that class of fire escapes in which a frame is suspended from a rope or cable passing over a pulley and extending to the ground. It is small, can be folded compactly, is light, and easily governed, so that it may be made to descend rapidly or slowly as desired.

A fire escape has been patented by Mr. John M. Cunningham, of Flora, Ill. The invention relates to that class of escapes attached to or permanently secured in the upper parts of houses, for lowering from the windows to the ground outside; but by special contrivances it is made to operate so the descent of a person will be automatically governed to a safe speed.

An apparatus for extinguishing fires in oil tanks has been patented by Messrs. George and E. H. Drulam, of Olean, N. Y. The invention provides for annihilators for generating non-inflammable gases, a cylinder having a piston operated by such gas, a mechanism operated by the cylinder piston for spreading a cloth over the tank, and a pipe for conducting the gas into the tank.

An automatic sanding box has been patented by Mr. William Garkill, of Pittsfield, Mass. It consists of devices in a small box, to be held up in the hand, for blowing sand in a regular and uniform jet upon freshly painted work, in lieu of the common paper box device, having a revolving perforated feeding cylinder and fan blower, with spring power apparatus for working.

A hot air furnace has been patented by Mr. Charles B. Boynton, of New York city. By means of a special construction and combination of parts it is intended to promote economy of fuel by retarding the products of combustion in their passage to the chimney until all of the available heat is extracted therefrom, while the draught is facilitated and the furnace is made entirely gas tight.

An improved lock and latch has been patented by Mr. Henry R. Freeman, of Milton, Ontario, Canada. The knob at the outside of the door may be disconnected at will from the bolt throwing tumblers of the lock or latch to prevent opening the door from the outside, so the lock has increased advantages over the ordinary rim lock, and no key hole need be cut, all effected by special devices and combinations.

A self-acting faucet has been patented by Messrs. Anton Prier, Charles Doherty, and P. E. Everett, of Kansas City, Mo. This invention is for an improvement on a former patent, and by specially disposed cams and levers, the valve stem being guided by a cap, increased facility of operation is given, and the stem being constantly in contact with the valve seat, hammering and rattling are prevented.

A tricycle has been patented by Mr. Heinrich Sachs, of Washington, D. C. The invention is designed to increase the power and speed of that class of machines in which the seat is made movable, and is connected with the crank axle in such a manner as to co-operate with the foot treads in imparting a rotary motion to the axle, and for this purpose some novel features of construction and arrangement are proposed.

A chicken coop has been patented by Mr. E. L. Nash, of Parkersburg, W. Va. A wooden frame is bound together by corner bolts, has a board bottom and wire slats but so the bottom may be removed when

the coop rests on the ground without the chickens cawing, or the bottom may be so put back with the chickens in, and they will hop on without being injured.

A bee hive has been patented by Mr. Alexander Fralay, of Grayson, Ky., the object being to improve the construction of a hive formerly patented by the same inventor. When the lower section or brood chamber is to be used for two colonies it is divided by a gauze frame, so that should one colony be weaker it may receive heat from the stronger; there is also a special ventilating device, and a contrivance to prevent moths and other insects from entering.

A vehicle spring has been patented by Mr. Patrick G. Clancy, of Lexington, Miss. It is styled "arco equilibrating," and is a particular construction and arrangement of a pair of semi-elliptical spring bars coupled at their middle by a spring, and at their ends supported on end springs above the axle, the whole having a peculiar coactive effect in preventing the side and forward and back movement, but securing a perpendicular rebound.

An improved dental plugger has been patented by Mr. Benjamin F. Eshelman, of Harlan, Ia. It is a right angle attachment for dental engines, and may also be used as a hand plugger; by its use a reverse motion is prevented from being transmitted to the plunger or bit holder and spring of the device, but the hammer may make a widely varied range of blows—a spring, or live blow, as distinguished from a dead blow, without recoil, etc.

An improved truck has been patented by Mr. R. W. Fisk, of Strong City, Kas. A couple of reversely curved arms have handles at one end and clamping disks at the other, for seizing barrels, boxes, etc., the arms being fitted with locking ratchets and pawls, and one of them having adjustably or removably connected to it a wheeled truck, so barrels may be rolled on their bilge or on the truck, and barrels and boxes may be readily placed on either side or end.

A cartridge extractor for breech loading guns has been patented by Messrs. Peter and Charles G. Tissier, of Selma, Ala. This extractor is withdrawn by a spiral spring immediately after the gun is opened and before closing it, but it forces the cartridge out further than usual, projecting it half an inch, and so providing for its ready removal. It is automatic, and so constructed as to work equally as well after long use as at the beginning.

A window cleaning guard has been patented by Marion R. Jabonof, of New York city. It is to provide against accidents by falling from a window sill or frame in case of one's losing their balance or releasing their hold of the sash. Two uprights are made to form inner and outer legs, and a strap or flexible stretcher is arranged to connect the upper outside legs and a sill board, with which the lower ends of the outer legs are connected.

An improved tumbler washer has been patented by Mr. John T. Whittle, of Baltimore, Md. In ordinary devices where tumblers are placed bottom up over and pressed down upon a rotary support, thus opening valve and allowing the water to play upon the inside, the arrangement is such that the pressure varies a good deal according to the work being done; this invention provides for such construction of a washer as shall avoid interference, and also permit the tumblers to rotate more freely, thus facilitating the cleaning.

A burglar proof safe has been patented by Mr. W. H. Hollar, of York, Pa. The invention consists of an improved construction for better resisting attacks by means of wedges driven in at the edges of the door. The bars that carry the locking bolt are interlocked with the inner plate of the safe door by means of flanges, of dove tail or other form, so that the resistance to breakage is taken from the fastening bolt and transferred to the bar and inner plate of the door. The safe door also has interlocking ribs to resist the action of wedges in forcing the door outward from its seat.

A spike extractor for pulling nails and spikes quickly and easily has been patented by Mr. John Ebbert, of Rockaway Beach, N. Y. A pair of quadrantal toothed sectors are so pivoted to each other as to compel the engagement of the curved sectors with each other by mesh of their teeth, one sector having a hook for engaging the spike, and a lever at the opposite end or side of its toothed rim, the lever to be worked to rock its sector on the relatively stationary sector, so that the greatest leverage is obtained when required in starting the spike.

A time shell has been patented by Mr. Thomas J. Armistead, of Lancaster, Pa. This invention relates to shells or projectiles with interior clock work, whereby a firing mechanism may be operated at any desired moment, and provides a new and novel arrangement of parts. The shell is a cylinder holding the explosive, to which is secured a conical point with the timing and firing mechanism, this being affixed by a water tight joint. By a special arrangement the timing and firing mechanisms are firmly held until the desired instant required for the explosion.

Mr. James N. Douglass, of Dulwich, Surrey, England, has obtained a patent for an improved burner for gas or oil. This invention consists in a number of concentric rings adapted to receive either the gas or the wicks in case oil is to be employed. Deflectors are provided for inclining the outer flames into the inner one for the more thorough combustion of the flames. If the intensity of light of the oil burner is to be diminished, the wicks may be lowered in the inner rings and the light extinguished. In decreasing the light of the gas burner the flow of gas is cut off from the inner rings by the usual cocks.

A useful and exceedingly simple crank coupling has been patented by Mr. Ely E. Hyatt, of Salona, Clinton Co., Pa. The crank may be fixed to the end of the driving shaft in the same way as a handle, but is bent outwardly with a right angled twist, and the other end, or that which is to apply the power, has an elongated slot. By this means a churn or other machine having a rotary motion, and provided with a hand crank, can readily be connected with power without pulleys or gearing, and as readily changed back to be worked by hand.

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