

## ENGINEERING INVENTIONS.

Mr. W. B. Turman, of Waldron, Ark., is the patentee of an improved valve gear for steam engines constructed to allow convenient reversal of the engine, and for regulating the amount of steam admitted to the steam chamber.

Mr. Isaac Cumberbatch, of Newark, N. J., is the patentee of an ingenious device for regulating the draught in a steam boiler. At the top of the boiler is located a hollow cylinder which connects with the boiler and has a movable rod passing through its center, which is connected with the top of a series of disks in such a way that as the steam is admitted the rod will be raised proportionately to the steam pressure, and the damper in the flue of the boiler which is connected with this rod by a series of levers will be correspondingly closed and the draught diminished.

An improved steam engine in which the dead center point is obviated has been patented by Mr. Carl Baumgarten, of Berlin, Germany. A block is secured to the piston rod, which block is provided with a diagonal slot through which the crank pin passes. The slot has concave edges facing each other and is provided with a recess at each end. The slide valve is attached to a rod provided at the lower ends with tappets, against which the ends of the sliding block strike, thereby reciprocating the slide valve rod. The levers from which the rods are suspended are provided with spring arms for giving the desired degree of expansion.

A device for regulating the valve or cock in the pressure pipe of a Westinghouse brake has recently been patented by Messrs. Albert Thayer and M. J. Connelly, of Roxbury, Mass. The cock for permitting the air to pass out of the pressure pipe is provided with a weighted lever which is operated by a cord extending to the engine box. The compressed air cylinder is connected with this lever by the rod of the piston, so that when the cord is pulled the piston will be raised, and the cock or valve in the pressure pipe will be closed, and the air escapes gradually through an aperture in the piston head. The time required for the closing of the cock depends upon the size of the aperture in the piston head.

## MECHANICAL INVENTIONS.

The Hamilton Lead Bath Company, of New York city, by assignment from Mr. Henry T. Vanderhoof, have recently obtained a patent for an improved amalgamator. A caldron of molten lead is provided, and into this lead an endless chain of buckets conveys the ore down into the molten lead, where it is distributed and the process of amalgamating is effected.

Mr. William N. Mills, of Truro, Nova Scotia, Canada, has patented a knob attachment to facilitate the locking operation and avoid the troublesome application of a screw to hold the pawl in place. A pawl spring connects the knobs to the spindle. It consists of the bow spring provided with a shank having a lip to adapt it to be applied to and held between the knob and spindle.

Mr. Abram N. Ackerman, of Passaic, N. J., has obtained a patent for an improvement upon guage rollers such as are commonly used in machinery employed in the manufacture of paper or textile goods. The end of the roller is provided with a metal bushing through which the guage is passed, when it is inserted into the end of the roller and is held fast by the expansion of the central portion of the bushing, rendering the roller exceedingly strong and durable.

An improved vertical disk grinding mill has been patented by Mr. Henry Cutler, of North Wilbraham, Mass. This is a self-adjusting mill constructed with the bed stone firmly set in a strong iron case, from which it need never be moved until entirely worn off. The running stone is attached firmly to a spindle. The case has journals or trunnions which are fitted in a housing frame standing on the base, which has a vertical center pivot or journal, on which the frame may turn or adjust horizontally. The case also has a bracket in which the spindle has a bearing at one end, so as to turn with the case, while the other end of the spindle, on which the driving pulley is mounted, has a bearing in a standard, which is secured to the foundation independently of the stone supporting frame, so that the spindle stones, case, and bearings may all turn on a single pivot to line properly with the bearing, as it may wear laterally by the pull of the belt. At the same time the trunnions allow the case to shift vertically, so as always to line with the spindle bearing, no matter how much it may wear vertically.

## AGRICULTURAL INVENTIONS.

A very simple and easily constructed hay and cotton press has recently been patented by Mr. John Cooke, Jr., of Greensborough, Ala. The press is worked by forcing the follower block against the material by means of hand levers, thus forming the bale.

Mr. W. R. White, of Aurora, Neb., has recently patented a simple, effective, and inexpensive seed planter for planting corn and other seed in hills, or by drilling in rows. The invention consists of certain novel devices for operating the feed slide, and in improvements in some other parts of the machine.

Mr. M. L. Battle, of Bainbridge, Ga., has patented an improvement in plows. The plow plate is formed with a heel plate, having its rear end slotted, and provided with lugs to receive a bolt for fastening the plow to the standard of a plow stock. The plow plate is strengthened against the pressure of the soil by braces extending from its upper part to the heel plate and to the plow beam.

Messrs. O. H. Judd, of Fairfield, Neb., and C. W. Judd, of Meadville, Pa., are the patentees of a weed and grass turning attachment for plows consisting of a lever having a spring arm with a curved bar pivoted to the furrow side of the plow beam, and extending in a bow shape to near the bottom of the furrow previously made. The bar is located a suitable distance in advance of the mould board to catch the grass, weeds, or other growing crop, bending it over into the furrow, so as to be effectually covered. This attachment is also contrived to be adjusted higher or

lower for different conditions. By means of a spring lever it is held to its work, so as to yield in case of too much resistance, and for raising it up to shift the plow.

An improved pulverizing, seeding, and fertilizing harrow has been patented by Mr. John Stephens, of Hanoverton, O. This harrow has revolving drums similar to rollers, except that the shells are of flat sections of planks in which the teeth are inserted by screwing through the planks into a metal bar. Each plank or section has one row of teeth, and the planks are suitably secured to cast iron heads which are journaled in frame bars to which the tongue is secured, and which extends beyond the back of the drums and have a connecting bar behind them to balance the tongues. For a means of readily transporting this harrow, wheel rims made in sections, jointed together, and fitted with right and left connecting screws, together with detachable bracket arms, are connected with the drums.

A very convenient device for receiving hay, transporting it to the stack, and for depositing the hay upon the stack, has been patented by Mr. T. L. Vought, of Madelia, Minn. The frame is mounted upon high wheels at one end and rollers at the other. A tilting frame upon which the hay is pitched and transported is elevated by a rope passing over a windlass, when the place is reached for depositing the hay in the stack. The same inventor has also obtained a patent for a very simple and easily constructed press for forming and compressing cornstalks, straw, etc., into bundles to be employed as fuel. This press is provided with the ordinary press box, and with a follower which is actuated by a pointed lever, that engages with the teeth of a ratchet bar, and a knife is pivoted at one end of the frame for cutting the bundle into any desired length according to the size of the furnace in which it is to be used. The machine may be also used as a straw cutter for preparing feed for stock.

## MISCELLANEOUS INVENTIONS.

Mr. Moses Cook, of Ashfield, Mass., is the patentee of an improved folding table, which is readily adjusted when required for use, but which may be folded into a small compass and laid aside when not in use.

Mr. Thos. Henderson, of Nashville, Tenn., has patented a simple and effective flushing tank for water closets, urinals, etc., in which a siphon is used in an ingenious manner for conveying the water from the tank to the bowl of the closet or urinal.

A monthly calendar composed of a rotating disk having a peculiar arrangement of figures, which is combined with a card or frame having an opening for exposing a portion of the disk, has recently been patented by Mr. C. H. Dana, Jr., of West Lebanon, N. H.

Mr. Paul Otto Kessler, of Darien, Ga., has patented a cartridge shell made with lugs upon the inner surface of its base, and angular slots in the flange of the cover, and provided with a spring catch, whereby the cover will be held from being drawn off the shell, and will be locked from turning.

Mr. Andrew F. Baum, of Allentown, Pa., has obtained a patent for an improvement in shirt bosoms, and the manner of attaching them to the shirt body, the object being to provide a bosom which, shall always take and preserve a high finish when laundered, and at the same time admit of the greatest freedom of movement of the wearer without wrinkling the bosom.

Mr. James N. Dudley, of Petrolia, Cal., is the patentee of an improved saw handle by which the connection of two handles by one socket enables both hands to be used to better advantage than with one handle. The saw handle socket is made with a T-shaped slit on its opposite sides to form a spring clamp, and the parts are expandable to receive the handle.

Mr. N. D. Swift, of Petrolia, Ontario, Canada, has secured letters patent for a "table tray" used for preventing children from dropping food upon and soiling the table cloth while eating at the table. It is fastened to the table by a thumb screw, and is of a form that extends from the table and fits around the front of the child.

Mr. Edwin Ivey and Andrew Uren, of Seattle, Wash. Ter., have patented a device for holding oil cans or like vessels in such a manner that they can be easily tilted and the liquid drawn. The invention further consists of a can with inverted V-shaped standards, of a U-shaped shaft journaled in the same, braces, and a can holding frame formed on the shaft.

Mr. J. T. B. Lee, of Toronto, Canada, is the patentee of an improved mop holder. The jaws for holding the mop are hinged at one end, and when closed with the mop between the jaws, the latter are secured by a cam lever which not only holds the jaws firmly, but they can be quickly opened to release the mop.

Mr. F. J. Evans, of Iowa Falls, Iowa, has patented a magazine breech-loading firearm of the class in which the breech is opened by a breech block sliding longitudinally with reference to the barrel, and consisting in novel features of construction and arrangement both of the breech block and cartridge elevator and the mechanism for operating them.

Mr. William J. Devers, of Providence, Pa., has obtained a patent for an improved extension table which consists in a stationary and a movable section, the movable section being moved by a rope which passes over a pulley under the tabletop, and is provided further with a lever for starting the section, and for relieving the strain to a certain extent from the rope.

Messrs. John H. Bonn, of Weehawken, and Alfred De Bevoise, of West Hoboken, N. J., have patented a combined chair, knee, and truss bracket, consisting of a trough-shaped box, and a transverse inverted trough-shaped box, the said boxes being made integral and the upper one provided with strengthening ribs.

For the convenience of builders, machinists, and others who have occasion to use a plumb and level, Mr. Bozwell B. Butt, of Richmond, Va., has patented an instrument which he calls a right-angle level. By applying the instrument at the corner of the timber

it plumbs two ways at the same time. The level may be also used as an inclinometer.

Mr. Wilhelm Ludowici, of Ludwigshafen-on-the-Rhine, Germany, has patented an improved roofing tile, in which very close joints are formed which connect off all water, and cannot be raised by wind. The tiles are so constructed as to prevent the wind from driving the rain through the joints, and are very light and durable, and can be attached to the roof very easily.

An improved method of making small shovels or scoops used about stoves and ranges for replenishing the latter with coal or relieving them of their ashes, has been recently patented by Mr. C. E. Edwards, of Boston, Mass. The scoop portion is made from one piece of metal, and by having the raised back of double thickness of metal, the strength and durability of the shovel is greatly increased.

A very simple and portable fire escape has recently been patented by Mr. Horace D'B. Cutler, of Glenwood, Mo. This consists in a broad leather belt designed to be passed around the chest of a person under the arms, and having a metal back to which are attached several hooks in such relation to one another that proper friction will be secured to insure the safe descent of the person wearing the belt.

Mr. Peter Smith, of Cato, Kas., has patented an improved fire escape which consists of suspending a strong canvas web between benches by weighted cords, which will yield to the stress of persons jumping from buildings on to the canvas. A safe means of landing is effected by the large measure of relief the rising weights lend to the canvas, greatly relieving the shock to the person jumping upon it.

Mr. Charles Egan, of Zanesville, O., has recently patented some improvements in telephones for transmitting sound and speech. A duplex instrument is formed of two magneto-telephones, one in the main line circuit, the other in a local circuit, which are operated by electrical contact points controlled by the diaphragm of the main line instrument. Communication is received and transmitted through one and the same mouthpiece.

An automatic stove damper, graduated in the extent of the opening for the escape of the products of combustion, has recently been patented by Mr. J. C. Higdon, of Kansas City, Mo. The damper rests upon a vertical projection and is supplied with an adjustable weight which slides upon a lever. When the draught becomes too strong, by reason of too rapid combustion, the damper is raised and the draught stopped, and when the heat subsides the damper gradually opens again, allowing the products of combustion to escape.

An ingenious method of ornamenting walls, ceilings, paper hangings, etc., has recently been patented by Messrs. Gustav Giersberg and Richard Wirth, of New York city. This invention consists in preparing the wall with a thin layer of plastic material consisting of white lead, whiting, plaster of Paris, and oil of turpentine, and producing relief ornaments of various designs upon this plastic mass by means of combs or other suitable implements.

A very novel device for facilitating the measuring and fitting of dresses, and adapted to be used by persons unaccustomed to such work, has been patented by Mr. Jean Monjon, of Paris, France. This consists in making a jacket or bodice out of elastic bands which will yield equally in all directions, and adapt themselves perfectly to the figure of the person who is being measured, and will thus enable the fitter to take exact measurements of all the different parts with great facility and accuracy.

Messrs. James A. Holbrook and Ginot Montgela, of Grenoble, France, have obtained a patent for an improved glove blank, in which the opening for the thumb piece is not cut in the body of the skin or leather in the usual manner, but is formed by partially uniting the edges of the pattern on the inner side of the hand, whereby the glove will be greatly strengthened, and will not be likely to rip or tear at this point, and at the same time the skin or kid will be cut in the most economical manner.

Mr. Franklin Pierce, of New York city, has obtained a patent for a hod elevator which is an improvement upon a patent granted Nov. 7, 1882. The elevator is provided with a frame having a cross bar with hooks for supporting the hods when placed in the frame, and this is so constructed that when the elevator has been raised to the necessary height the cross bar may be lowered by an attendant, permitting the hods to be swung out without the necessity of their being raised off the hooks by the workmen, and thus saving a great amount of labor.

A novelty in ornaments and trimmings of chenille—for instance, such ornaments as branches and twigs of leaves and flowers, rosettes, hat bands, and other ornaments—has been patented by Messrs. George Dietzel and Samuel Green, of New York city. The invention consists in ornaments formed of pieces of chenille having a varying diameter or wefts of different lengths, which pieces of chenille are secured to stems or branches. Overspun balls, pellets, beads, or tufts can also be suspended from the stems by means of cords, in addition to the pieces of chenille.

An improved dumping cart has recently been patented which embodies several improvements over those commonly in use. The body of the cart is mounted in such fashion upon boxes on the axles of the cart that it may be swung underneath the cart sufficiently far to clear the body completely of its contents. This obviates the necessity of employing a back board and greatly facilitates and expedites the operation of dumping. A simple device in the form of a hasp and latch is employed for securing and locking the body when being loaded. Mr. Thomas Hill, of Jersey City, N. J., is the patentee of the above invention.

An improved memorandum pointer has been patented by Mr. Alexander J. Young, of Atlanta, Ga. This invention is designed to provide means whereby a person who is suddenly called away from reading or from adding a column of figures, may mark the place where he left off without defacing the book; and, further, to provide means for recording the sum of the addition at the place marked. To the retail

store keeper, and to others who are liable to be interrupted while posting books, and to those who are reading any book with care, this device for indicating the point of interruption and for holding a record of the matter in mind at that moment is of great importance.

Among the recent improvements in fire escapes we note the invention of Mr. Madison M. Ormsby, of David City, Neb., for which letters patent have been granted him. A series of platforms are arranged to be raised vertically in the frame of the apparatus, and these platforms are provided at their outer ends with ladders to be inserted in the windows of the burning building, and a vertical ladder is provided for connecting the different platforms. These platforms are raised by means of windlasses located at the base of the escape near the ground, and the top platform is provided with an extension ladder which may be raised to a considerable height above the platform by means of suitable ropes and pulleys.

Mr. J. J. De Rycke, of New York city, has obtained a patent for an adjustable elevator platform for vessels carrying railroad cars. In this invention the platform may be raised for bringing the cars on the level of the dock according to the condition of the tide. The platform is raised by a number of vertical screw spindles mounted upon the bottom of the vessel, and having worm wheels at their lower extremities which engage with transverse shafts which in turn are actuated by a shaft driven by any suitable motor. In this way the spindles are all rotated simultaneously and the platform is elevated or lowered to the same extent at every point.

Mr. James J. Bush, of Tacoma, Wash. Ter., has obtained a patent for an improved vehicle wheel which is so constructed that it may be readily adjusted to the tire, and new spokes may be easily inserted when necessary. With a wheel constructed as described the tire can always be kept tight, and if it should get off can readily be put on by any person unskilled in such work. Provision is made for either expanding or contracting the wheel to its tire on the road, and in a few minutes of time. In case of a broken spoke a new one may be inserted with equal facility. It is designed to have all spokes turned to a gauge, and marked with a number corresponding to the size of the wheel they are designed for, and to similarly mark the hub. Whenever such parts require to be replaced, duplicates of such parts may be ordered, and be sure to fit. By thus making the wheels with their parts in duplicate, the same may be very cheaply manufactured.

Mr. Solomon M. Eiseman, of New York city, has patented a process for treating volatile or inflammable fluids and oils, such as petroleum, kerosene, turpentine, and any of their manufactured products, including the most volatile and inflammable—such as gasoline, etc., whether they are of light or heavy specific gravity, of mineral, vegetable, or animal origin—in such a manner that they will be converted into a granulated state. The invention consists in mixing the volatile or inflammable fluid or oil with a fatty substance or substances, together with a suitable acid. When the proper incorporation and combination of the substances is effected, the fluid or oil thus obtained is thoroughly mixed with a suitable cold alkaline lye, which causes an almost immediate coagulation or granulation of the inflammable and volatile fluid or oil treated.

An improved aligner for type writers has been patented by Mr. Charles J. Baker, of Topeka, Kas. This invention consists, in connection with a type writer, of an aligner bar having a slot and letters or type. The method of aligning the type by this device is as follows: A type is found by trial that will fairly strike the platen—the plane where the letters are impressed on the paper. This type is then taken as the key to the series of type to be aligned. The aligner is then put on and adjusted by said type and clamped to the machine. The remaining arms are then brought so that the type will similarly strike the plane of the platen. Said type are then adjusted all alike by setting them alike with respect to the letters on the aligner. Each type writer arm works in a suitable chair, and each chair is attached to the margin of a type writer basket by means of a screw passing through said chair into the bed plate of the machine. When said screw is loosened, the type arm is free to describe an arc, either in a vertical or horizontal direction, and also has a lateral motion, enabling the requisite adjustments to be made.

An improvement in casting car wheels has been patented by Mr. William Wilmington, of Toledo, O. This invention has special reference to the application to the chill of materials for modifying the chill-hardening qualities of the iron forming the central parts of the wheel. Heretofore this inventor has practiced different methods of modifying the chilling qualities of the iron, forming these parts of the wheel by placing in the receiving basin of the mould, or in a pouring ladle, finely powdered ferro-manganese, or its equivalents in other powdered metals, the same to be melted by contact with the molten iron in the basin or in the ladle, and conveyed into the mould by different methods, to be diffused through the molten iron forming the central portions of the wheel. These different methods have produced very beneficial results upon the car wheels, but are attended with much cost and delay when casting the wheels. The present method consists in affixing to the desired portions of the outer surfaces of the cores of the mould, by suitable adhesive compositions used in foundry work, about half a pound of very finely powdered ferro-manganese having a large per cent of carbon and silicon in its composition, allowing the same to be melted by the molten iron which comes in contact with the ferro-manganese, when the mould is being filled, which ferro-manganese, being melted, will be diffused through the hub and inner plate parts of the wheel, thereby modifying the chilling qualities of the iron forming these parts, and preventing the same from being too hard and rigid. To accomplish the same result in modifying the chilling qualities of iron in these parts of the wheel the inventor uses, instead of ferro-manganese, very finely powdered spiegel-eisen having a large per cent of carbon, silicon, and manganese in its composition.