ENGINEERING INVENTIONS.

An improvement upon a slide valve shown in Letters Patent No. 250,176, and granted to William B. Turman, of Waldron, Ark., upon November 29, 1881, has been patented by same inventor, and relates to the packing of the valve and the arrangement of the steam ports.

Mr. John T. Davis, of New York city, has patented some valuable improvements upon that class of rotary engines in which a disk provided with valves or pistons that are fitted for transverse movement is combined with a case, the sides of which are formed with one or more helicoidal planes, in contact with which the pistons move, so as to form steam chambers of gradually increasing and decreasing area.

Another improvement in rotary engines has also been patented by Mr. Davis. It is constructed with four laterally swinging valves pivoted in as many chambers in a piston wheel capable of turning between the flat sides of the steam cylinder. Steam is admitted alternately on opposite sides of the valves, and the steam admitted upon one side, after doing its work, acts as a cushion for the valve, preventing it from being drawn forcibly against the side of the cylinder.

An invention designed to transmit power by compressed air or other fluids in a manner to insure the greatest economy of initial power and to overcome the disadvantages heretofore experienced in using compressed air, has been patented by Mr. Alfred D. F. Parley, of Leavenworth, Kan. In this improved apparatus the fluid has continuous circuit, first from the compressor to the distant engine, and from thence back to the compressor.

An improvement in lubricators has been patented by Mr. Peter Barclay, of East Boston, Mass. The invention consists in delivering the oil from a cup or reservoir through a fluid of greater specific gravity than water, preferably an acidulous one, within a glass or glazed chamber, and discharging the same through a suitable outlet, whereby the transparency of the glass chamber is preserved and other advantages are obtained.

An improved steam pump has been patented by Mr. William Hopkins, of Dubuque, Iowa. The invention consists in construction of parts by which the pumps will operate alternately to draw the feed water in at the suction pipe and through the suction chamber, and by their return strokes the water will be forced into the discharge chamber and to the discharge pipe, which being connected to the boilers insures a continuous supply of feed water to the boilers

An improved car coupling has been patented by Messrs. Stephen L Davidson and Chester L. Davidson, of Virden, Ill. The invention consists in the combination, with a drawhead having a recessed side wing for receiving the coupling pin when the same is not in use, of a transverse shaft held on the end of the car, and provided with an arm to which the coupling pin is pivoted. Also in the combination, with a drawhead, of a chain attached to a transverse shaft on the end of the car.

A car coupling of novel device has been patented by Messrs. Ezra Taylor and Asa Taylor, of Indianapolis, Ind. The invention consists of contrivances designed to enable the coupling and uncoupling to be effected from either side or the top of the cars by swinging the link down over the stnd pins of the draw bars to couple. The uncoupling is accomplished by means of a crank mechanism attached to the end of the car. The invention also comprises an ordinary link attachment for coupling with cars not provided with the improved coupling.

A novel device for causing steam wheels to run in either direction has been patented by Mr. Samuel J. Webb, of Flat Lick, La. The invention consists of a wheel or drum having two buckets or pistons located on the face at opposite points, and arranged to run in a case partly encircling the face of the drum, and packing steam tight at its edges on the face of the drum, with abutment valves at the end of the case to open automatically by the pistons for allowing them to pass, and with reversing devices for causing the wheel to run in either direction, all being constructed and arranged in a simple, cheap, and durable manner.

A car brake which can easily be applied at any time from any part of the train, and which need not be operated by manual labor, has been patented by Mr. George F. Bond, of Troy, N. Y. The invention consists in a car brake formed of brake shoes attached to the ends of a toggle lever, connected by means of an elbow lever with a longitudinally movable rod held on the bottom of the car and provided with a bumper head at one end. The opposite car is provided with a vertically adjustable bumper head, and when the same is lowered and the cars come together on checking the speed of the engine, the rod is moved longitudinally, the joint of the toggle lever is forced downward, pressing the brake shoes against the wheels.

An improvement upon that class of rotary engines provided with radially moving gates or pistons has been patented by Messrs. James Gillespie and Martin Gillespie, of West Point, Ohio. When the gate reaches its extreme outward movement, it remains in that position from that point to the exhaust port, where the steam is exhausted, and the pressure being at that moment taken by the other gate, the first one is moved readily inward by the eccentric surface of the steam way until it reaches the under side of the wheel, in position for again receiving steam. In this manner a continuous rotation is ootained, and the parts being retained in position by the steam pressure, no springs or other devices that are liable to get out of order are required.

Mr. Eugene Moreau, of San Francisco, Cal., has patented an improved stand for rock drills. The invention consists in a stand for rock drills of novel construction, and in a novel mode of attaching the drill thereto, whereby increased facility is afforded for varying the positions in which the drill is arranged to work, and for olding and securing it in place, and for centering the drill or its support to prevent the apparatus from canting or falling over when not secured, as well as to bring the drill within the compass of the platform, thereby facilitating transportation of the apparatus. The same inventor has also patented a hand rock drill, an improvement upon a patent obtained by him on January 28, 1882. This invention consists in a novel method of automatically feeding the drill, whereby the drill is made to advance toward the rock as fast as required by the progress of the boring. It also consists in a certain combination of swivels and slides with the stand which carries the machine, whereby the machine may be easily and quickly placed in any desired position.

An improvement in rotary steam engines, the object of which is to promote efficiency, durability, and economy of steam has been patented by Mr. Friederich Muller, of Elizabeth, N. J. The invention consists in a drum provided with hinged wings, and a cylinder provided with an interior abutment, having its middle part concaved to fit upon the winged drum, and having its forward end concaved to allow the wings to open quickly and its rear end inclined to close the wings. The interior abutment is provided with two inlet ports—one in the rear of the said forward shoulder of the abutment to admit steam intermittently to open the wings, and be then closed by the wing carrying drum, and the other in advance of the forward shoulder of the abutment to admit steam continuously to drive the engine. The wing carrying drum is provided with channels at the rear edges of its wing receiving recesses to receive steam to open the said wings. The cylinder is made with an eccentric inner surface, whereby the steam space will be gradually enlarged from the inlet to the outlet ports, and the rotary motion obtained.

MECHANICAL INVENTIONS.

An improved automatic advertising device of the following construction has beeen patented by Mr. William Akin, of New York city. Two clock works, one driving a drum carrying a series of advertising sheets, and so constructed as to display a number of advertisements successively and for fixed times.

An improved tread power has been patented by Mr. Samuel Douglass, of Texas, Mich. This invention consists of a supporting frame carrying a movable platform, a shaft, a spur wheel, and a weight box having a chain and whiffletree. The object of this invention is to render greater power by less expenditure of force than other machines afford.

A novel fanning attachment for sewing or other machines operated by the treadle has been patented by Mr. Stanislas Fossier, of New Orleans, La. The invention consists of a fanning attachment formed of a vertical pivoted rod held on the machine top, in which vertical rod a fan handle is pivoted, and which is connected by a cord with the treadle of the machine. By this device a constant circulation of air is kept up.

A novel machine for drying, cleaning, and calcining grain and other substances has been patented by Messrs. William F. Witherell and Bennett H. Vary, of Chicago, Ill. This invention consists in a revolving hollow cylindrical drier supported in a nearly horizontal position, and provided with hot air tubes and with buckets for distributing the material to be dried or cleaned.

A novel apparatus for raising sunken vessels has been patented by Mr. Henry Schuyler, of Sturgeon Bay, Wis. This invention relates to an improvement in apparatus for raising sunken vessels, by the employment of right and left handed screws carrying alternately ascending and descending bridges, to either of which is connected the hoisting chain or cable, said screws having connected to them driving gear, by which the object is to be raised.

An improvement in folding gates has been patented by Mr. John A. Emery, of Decatur, O. The object of the invention is to intercept the snow and prevent its settling in the space between the sills in which the gate folds, to form a folding bridge over said space for the passage of vehicles, to prevent the bridge from falling back when the gate is raised, and also to combine with the gate certain mechanism that will allow it to be operated from the road without compelling the rider or driver to dismount.

Mr. Thomas W. Steele, of Little Rock, Ark., has invented an improved cotton cleaner for which he has obtained Letters Patent. The invention consists of an endless carrier for carrying the cotton through the machine. The forward part of the machine is covered by a curved casing, and is provided with a toothed shaft to force the cotton out of the receiving chamber. The rear part of the machine is covered with a casing inclosing a toothed cylinder, by which the cleaned cotton is forced out of the machine thoroughly prepared for the gin.

An improvement in knee stops for organs has been patented by Mr. George S. Morse, of Columbia, Mo The invention consists in a device in the knee stop, by which, when applied to the common knee stop, it will open the different hand stops successively; and it consists of an uneven surface or points that come in contact with the different hand stops, opening and closing them successively instead of simultaneously, as is done by the common knee stop, which has its surface plain and all points of contact with the hand stops even.

An improved injector for type casting machines has been patented by Mr. Thomas McKinley, of New York city. The invention consists in the combination, with the pump cylinder or other formed box serving the same purpose, of a sheet metal diaphragm closely secured at its edges to the cylinder or box, and admitting of sufficient vibration of its area within the edges to act as a piston to draw in and expel the amount of metal required by means of a suitable handle or piston rod attached to its center, whereby the difficulties and objections to the process at present in use are avoided.

The invention of a truck for use in the loading, unloading, and transportation of pianos and other heavy articles has been patented by Mr. Lewis E. Hurlbut, of Fort Dodge, Iowa. The truck is furnished with four supports, at the extremities of which are attached rollers. The supports are adjustable to any inclination according as the truck is to be run up an inclined plane or up stairs, and it is fitted with straps and braces for holding firmly the object placed upon it. When the truck is to be placed upon a wagon for transportation, the legs are folded up altogether, so as not to impede the handling of the article, but when unloaded the legs fall automatically into their proper place, and the machine is at once ready to be put in motion.

An improved mechanism for converting motion, which serves as a substitute for cranks, has been patented by Mr. William W. Borden, of San Luis Rey, Cal. The invention consists in a mechanism which combines a ratchet wheel with a double rack fitted for oscillation for engaging the wheel at opposite sides in succession. With this form of mechanism, power being applied to revolve the ratchet wheels, the rack is given the reciprocating movement. To insure the connection of the opposite rack with the wheel in case the teeth do not coincide when the cam acts, a shifting weight is provided. This weight is pivoted for lateral movement, and, being shifted from one side to the other by the cams, serves to hold the rack against the wheel, so that the teeth shall connect at the first movement of the wheel. Suitable stops are provided to limit the swing of the weight.

AGRICULTURAL INVENTIONS.

Mr. Henry Cole, of Cedar Hill, O., has patented a novel seed planter. The invention consists in the application of dropping attachments and drills to the riding attachment to cultivators, whereby the latter may be utilized as a seed planter. The riding attachment was patented by same inventor February 10, 1880.

An invention consisting in a locking attachment for the beams of sulky and gang plows, having the object of preventing oscillation of the forward end of the beam, whereby the annoyance caused to horses by this oscillation is effectually prevented, has been patented by Mr. Charles W. Post, of Springfield, Ill.

A novel plow attachment by which a double and single plow at will may be had has been patented by Messrs. Edward L. Litton and John J. Brown, of Gaffney City, S. C. It consists of two parallel beams to each of which is attached a plow share, one of which is so constructed that it may be removed at will, so that when required only one furrow will be formed at once. It is of simple construction and the invention may be applied to any form or size of plow desired.

An invention for severing the band, wire, cord, or other material around the bundle of grain when thrown into the feeder of a thrashing machine, to facilitate the feeding of the grain, to cause the automatic operation of the band cutter, and to vary the speed of the feeding operation of the machine, has been patented by Mr. Merrick E. Perring, of Eau Claire, Mich. This invention consists in combining with the feed rolls a hopper affixed to the table, and having concaved or V-shaped troughs provided with cutters, etc.

A cotton chopper of improved form has been patented by Laura A. Collins, of Elmo, and William G. Graham, of Terrell, Texas. The invention consists of a hoe suspended to the axle bar of the vehicle, and connected with the wheel by such a system of mechanism that it performs the work of chopping only at stated intervals, and in such a way as to clear the rows regularly and as desired. The construction of the carriage is simple, and if any of the parts becomes injured or worn out, such parts may be easily repaired or replaced.

A fertilizer compound which serves to prevent rust in cotton, prevents ravages of cut worms, destroys smut and rust germs in wheat, and is a permanent improver of soils, has been patented by Mr. William D. Styron, of Norfolk, Va. The composition consists of the following ingredients: Sulphur, twenty-five pounds; saltpeter, forty pounds; salt, two hundred pounds; kamit, two hundred pounds; bone phosphate, forty pounds; lime, one thousand four hundred and ninety-five pounds. These are all thoroughly mixed together, in a powdered state, by any of the usual methods.

Mr. Anthony O. Stiveson, of Pomeroy, O., has patented an improved harrow. The invention consists of a V-shaped harrow divided in half and so arranged on hinges that in case of an obstructing stone or stump, etc., one-half may be raised, thereby avoiding the necessity of moving the harrow out of its line of work. Likewise the harrow teeth are so arranged, that they may be turned half way round from time to time to sharpen by wear, and furthermore between the parallel bars of each side of the harrow are arranged three toothed rollers at right angles to said bars, set obliquely to line of the draught of the harrow, which latter are self-sharpening by the effect of their double action.

An improved cotton chopper for removing or hoeing out a portion of the young cotton plants, leaving only at regular intervals those plants which are to remain, has been patented by Mr. Henry C. Dyer, of Charleston, Ark. The invention consists of a machine constructed with revolving disks or cutters, and of hoes placed in proper relation to the cutter, and in practice the process is as follows: The machine is drawn by horse power across the cotton rows, and at right angles thereto. The revolving cutters are adjusted on their shafts at a distance from each other equal to the space between the stalks of cotton to be left in the ridges to form a stand, and the hoes are adjusted on their shaft. The revolving circular cutters bear the entire weight of the frame, and mark the ground on a cotton ridge, separating the plants to be removed from those to be left. The hoes follow the revolving cutters, remove the dirt on the top of the ridge and the young plants with it, and the adjacent cutters, forming spaces opposite which there are no hoes, protect the young plants left to form a stand.

MISCELLANEOUS INVENTIONS.

An invention which provides a new and amusing game and permits of various novel combinations has been patented by Mr. George O. Warren, of Fryeburg, Me.

An adjustable table for supporting books and adapted to be attached to a chair, table, or any projection of a piece of furniture, to be adjusted higher and lower, and to have any desired inclination, has been patented by Mr. Henry E. Brown, of Lansing, Mich.

A novel automatic top has been patented by Mr. Louis Townsend, of Evansville, Ind. This invention relates to that class of toy spinning tops which are secured to handles and operated by pulling strings. Means are provided whereby not only one but several tops may be kept continuously spinning in one direction.

A novel needle threading device for sewing machines has been patented by Mr. Henry F. W. Seele, of Rolla, Mo. The invention consists of a circularly movable threader, suspended from the presser bar and so arranged that it may be turned to one side when not required for use. A cutter is also attached to the bar for severing the thread.

A novel picture exhibitor, called a metascope, the object of which is to provide a box for the reception and exhibition of pictures, has been patented by Mr. Edwin W. Morton, of White Plains, N. Y. The invention consists in a box provided with suitable openings and a sliding frame which successively carries the several picture frames below the openings, in order that the picture may be viewed.

A hat holding device to be attached to the backs of seats or chairs has been patented by Mr. Francis A. Reichard, of Brooklyn, N. Y. The invention consists of two disks, having rubber coverings on the inner surfaces, and pressed against each other by a spring or a spring hinge. The rim of the hat is placed between the two disks, and the friction caused by the pressure of the springs holds the hat in place.

A cooking attachment for oil stoves has been patented by Mr. Marion E. Porter, of Leon, Iowa. The improvement consists in a heat transmitter provided with a series of top openings, and with a larger central opening and two central collars projecting in opposite directions, by means of which the heat is diffused to the greatest extent possible. The attachment may be constructed on a small scale for lamps, or can be made for gas stoves.

Mr. Henry McCobb, of New York city, has patented a convenient chocolate package which is an improvement upon a patent granted to same inventor June 20, 1882. The invention consists in a box or package made with a removable cover, and having a grater secured to the flanges of the cover of the box, for pulverizing the chocolate, which flanges likewise serve to prevent the scattering and wasting of the grated substance.

An improved automatic damper to be attached to the cold air box of a furnace has been patented by Mr. George A. Lavitt, Jr., of Newburg, N. Y. The invention consists of a box constructed with such a system of valves and swinging doors that, from whatever direction the wind may come, by means of the various positions which the open door or valve of the box may assume, the current of air will be readily deflected or directed to the cold air chamber leading to the furnace.

An improved device for constructing keys from sheet metal has been patented by Messrs. Thomas Donahue and Charles W. Judson, of Terryville, Conn. A blank is first stamped out of sheet metal, one portion of which is so formed as to be readily turned or folded to form the barrel of the key. The folding is done in the usual way by dies. To make a spindle key the folding is done upon a pin, and the pin is left in the barrel so that its projecting end forms the spindle. These operations can be carried out rapidly and inexpensively, and the key made is both light and strong.

An improvement, the object of which is to provide a new arrangement of seats for vehicles which can be so adjusted that when folded they only occupy the space of the front seat, has been patented by Mr. John Moore, of Amherst, Nova Scotia. The front seat, which is mounted on hinges in order that the seat may be raised and tipped forward, is constructed one or two inches higher than the back seat, which latter is so mounted that it may be slid forward to pass directly under the front seat when it is not needed. The front seat is then lowered in place, and the two seats converted into one.

An improved fruit picker has been patented by Mr. Lebreus Simpkins, of Marshfield, Oregon. The invention consists in the placing of a bisected hollow ball, one side of which is fixed and the other movable, upon the end of a tube through which is passed a rod, to the upper extremity of which is attached a spiral spring, the object of the latter being to keep the two cups separate. The other end of the rod is fastened to a lever to which is attached a cord which passes to the operator, by means of which the movable cup is brought in contact with the sharp edge of the stationary section. By this means the picking of fruit may be accomplished without injurying it.

A novel dinner pail has been patented by Mr. Fredrick Reichwein, of New York city. The invention consists of a pail divided into three compartments, in one of which is located a lamp with ingenious devices for raising or lowering the wick, and furnished with a wire covering for keeping the flame from being extinguished by the wind. Above the lamp is the chimney, which is furnished with a non-conducting lining, so that the two other compartments designed to contain food will not be subjected to too great heat. These two chambers are furnished with trays, cups, and other convenient receivers for food. Not only is this pail designed for keeping the provisions warm, but also for cooking them if occasion calls for it.

An improvement in magazine fire arms has been patented by Mr. Josef Schulhof, of Vienna, Austria-Hungary. The cartridge magazine is contained in the stock, which in the case shown is divided into three separate compartments, which are separated by suitable partitions, of which compartments the first contains four, the second five, and the third six cartridges. By utilizing all available space in the stock as many as twenty-five cartridges can conveniently be stored in the stock. All the compartments for the reception of the cartridges are closed by a hinged cover. On one side of the stock a spring is provided within the stock, which throws open the cover as soon as the latch of the same is released. The invention includes other novel points which cannot be described without engravings.