

## ENGINEERING INVENTIONS.

An improved steam motor boiler, in which steam is generated by employing a large proportionate heating surface, has been patented by Mr. Josef Schreiber, of Vienna, Austria. A series of tubes depend from the bottom of the boiler into the furnace, and within these are suspended smaller circulating tubes. The object of the series of tubes is to produce superheated dry steam.

An improvement relating to refrigerator cars has been patented by Mr. Charles P. Jackson, of Chicago, Ill. An ice chamber extends the whole length of the car. An inside partition extends all around the car, which serves to prevent the passage of the hot air from without and the cold air from within. The ice rests upon supports at the top of the car. These supports may be raised or lowered to admit of a greater or less quantity of ice for lowering or increasing temperature. Pans are provided for receiving the drip from the melting ice.

An improved traction engine, which is claimed to be lighter and to have its weight and strain more equally distributed upon the supporting wheels than any previously constructed, has been patented by Mr. L. E. Bandelier, of New Haven, Ind. In this machine all four of the wheels are made to act as drivers, and any one of them may be driven by itself independently of the others, to facilitate turning. The invention relates also to improved construction of the wheels, which are provided with radial spokes, and with oblique and angular thrust braces, which it is claimed greatly increase their strength.

An improvement relating to balanced slide valves for admitting steam to the cylinder of steam engines, has been patented by Mr. James B. Allfree, of Cumberland, Md. The object of the invention is to prevent the thump consequent upon the sudden shutting off of the steam. The improved valve is provided with two valve seats placed parallel with one another, and having two other valves arranged to reciprocate thereon and held together by clamps at the ends, which fix the limit of separation. Springs are provided which retain the valves in proper relation to one another, to permit their approach to each other when unduly pressed.

An ingenious device for opening up snow banks to permit the passage of trains has been patented by Mr. G. A. Gunther, of New Utrecht, N. Y. The locomotive is provided with a long tube, one end of which terminates within the caboose, while the other projects in front of the locomotive. The locomotive is likewise furnished with a snow plow, and when this is insufficient for clearing away the snow a torpedo is inserted in the tube, which is exploded by coming in contact with an anvil at the end of the tube, thereby scattering and loosening the drift for the more ready entrance of the plow. The same inventor has also obtained a patent for another powerful device for clearing away snow on a railroad track. The invention consists in a cannon for loosening the snow, which cannon is preferably provided with side apertures or tubular arms which serve to loosen up the snow in front of the plow for facilitating the action of the latter. The same inventor has also obtained a patent for still another form of device for exploding torpedoes in snowbanks. Upon a car suitably arranged for the purpose, is raised a tower having a shaft projecting horizontally from its top. The torpedo is run out on this shaft to its extremity, and then dropped into the snow bank, where it is exploded by jerking the rope which regulated the descent of the torpedo into the snow bank. The car is likewise provided with a plow for clearing the track when the snow has been loosened by the explosion.

## MECHANICAL INVENTIONS.

A very simple and inexpensive hand press has been patented by Mr. Thomas L. Vought, of Madelia, Minn. The especial object of the improved press is to facilitate the compression of corn stalks, straw, hay, and other combustible substances into bundles for fuel.

Mr. John J. Myers, of Baltimore, Md., has obtained a patent for an improved dry gas meter, in which the stop-plates are so constructed that it is impossible to pass a wire down the inlet passage and tamper with the works. With this meter persons with dishonest intent are prevented from disturbing the flow of gas, or its registry.

A very simple meat chopper, an improvement upon a patent granted to some inventor July 4, 1882, has been patented by Mr. Adam Metz, of Burlington, Iowa. The improvement consists in suspending from the rocking lever a series of segmental knives, by which means the meat is more quickly chopped, and at the same time more effective work is claimed to be accomplished than with most other meat choppers.

Mr. George W. Converse, of Spokane Falls, Washington Ter., has obtained a patent for an improvement in turbine water wheels of that class in which the water descends in an annulus through chutes which cause it to project obliquely against the sides of the bucket, on which it acts both by its impact and its weight, escaping from the bottom of the wheel in an annular stream.

An improved mill in which the grain or other substances are crushed between rollers has been patented by Mr. James B. Allfree, of Cumberland, Md. This machine is provided with two permanent rollers and with two revolving rollers, which are provided with springs, so that when any hard substance is encountered, the rollers will yield and save the mill from breakage.

A very simple washing machine has recently been patented which consists in a box having a semi-cylindrical batted bottom, and a dasher provided with projecting teeth which is so mounted on the box of the machine that either a pounding motion or a lateral to and fro rubbing motion is brought to bear on the clothes. The inventor is Mr. L. N. Myers, of Middleburg, Pa.

An improved sewing machine shuttle has been patented by Elizabeth Chavers, of Siddon, Mich., which consists in a shuttle containing a spool of thread or silk, which spool is mounted on a spindle in the

shuttle, the thread passing through an aperture in the shuttle through a U-shaped slot in a blade pivoted on the shuttle, and then through the opening in the sewing plate of the machine.

Mr. Samuel N. Silver, of Auburn, Maine, has recently patented a very simple spring motor intended for propelling sewing machines, bicycles, and like purposes where small power is required. By the use of a spring connected to the driving shaft, and the adaptation of clutches, the inventor has produced a very simple motor and one for which he claims considerable merit.

Mr. Edgar T. Gordon, of New York city, is the patentee of an improved method of manufacturing turning lathes for light work. This consists in preparing the wearing portions of steel or iron, and completing the structure by casting the metal in and around these parts. This avoids all labor of tapping, drilling, keying, etc., and enables a very good machine to be made at little cost.

A simple but practical device to prevent doors from rattling has been patented by Mr. John Milton, of Hamilton, Va. This improvement is designed to be attached to the ordinary latch of a door, and consists in an accessory latch operated by the knob and simultaneously with the ordinary latch, and so connected with it that when the door is closed this latch will press against the keeper, and thus close the door firmly and prevent rattling by the wind.

Mr. James Hobson, of Bury, near Manchester, England, has obtained a patent for an improved pile wire motion for looms used for weaving carpets, velvets, plush, etc. A stationary track is provided upon which slides the carriage for inserting the pile wires into the fabric, and this is further provided with an oscillating switch pivoted to the outer end of the track in such manner that it shall be capable of movement to and from the carriage track to receive and properly transfer a newly withdrawn pile wire for re-entrance into the fabric.

Mr. Geo. W. Wilson, of Lanesborough, Minn., is the patentee of a very simple separator and purifier for grain, meal, etc. This machine is provided with a number of sieves which are set in a frame, and shaken by the rocker that is mounted upon a rotary shaft, the grain being delivered on to these sieves through a spout. In the space above these sieves is arranged a suction blower for carrying away the dust and chaff from the grain. Suitable slides are arranged for regulating the power of the blast, and the sieves are so arranged that they may be changed according to whether grain, fine middlings, or meal is to be purified.

An improved machine for cutting out and stamping crackers from sheets of dough has recently been patented. The dough is pressed out into a sheet by rollers, and is then delivered upon an endless apron which carries it beneath the stamps, and cutters. By pressing the dough before stamping the crackers are rendered of a more uniform diameter and appearance. The bed plate, which is located underneath the cutters to resist the pressure from the latter, is supported by rubber blocks upon a secondary plate, which is adjustable upon four screws, so that it may be regulated according to the thickness of the dough. The inventors are Messrs. D. H. Cornell, of Brooklyn, N. Y., and August Schincke, of New York city.

Among the recent inventions in treating ores, of which Mr. W. H. Howland, of San Francisco, Cal., has patented many, is a new machine for grinding and pulverizing ores. The ore is deposited in the present machine at the center, and when the driver is rotated the ore is thrown out by centrifugal force, and by rotating arms. In this way the fragments of ore are ground against one another and against the serrated surface of the internal wall of the mill, and become pulverized. Water is supplied to the mill for washing and separating the ore. In case the mechanical action is not sufficient for pulverizing the ore, steam is used for heating the water, which facilitates the grinding.

An improved instrument for measuring distances, called a geodometer, has been recently patented by Mr. Samuel Dewell, of River Sioux, Ind. A large wheel is journaled between two shafts and an odometer with dials and pointers is placed on the axle to record each revolution of the wheel, the rim of which is marked off into twenty-five equal parts, each division representing one link of a surveyor's chain. One of the several spokes in the wheel is painted a different color from the rest, so that every revolution of the wheel is observed, and the distance traveled recorded. A novel arrangement is attached for calculating the distance across streams, etc., where the machine cannot be propelled. With the geodometer an inexperienced person can take measurements, and determine numbers of acres without much calculation, the distance traveled being automatically recorded by the odometer.

## AGRICULTURAL INVENTIONS.

A machine which combines the whole operation of harvesting and husking corn has been patented by Mr. William H. Secor, of Farragut, Iowa. This machine is designed to be driven over the row of corn, and the ears are stripped from the stalks as the machine passes along, by radial wings, which are connected with a rotating shaft. The ears are then carried by an endless apron to the rollers located in the back part of the machine, which rollers strip the husk from off the ear and deposit the latter in a receiver.

An improved draught equalizer has been patented by Mr. Elmer E. Stevenson, of Quincy, Minn. This is adapted especially to be applied to harvesting machines, and consists in a bar secured transversely to the tongue of the machine and having two oscillatory metal triangles at the ends pivoted to the bar. A chain passes around a pulley connecting the triangle draught attachment in such a way that the draught is equalized, so that a less powerful animal does only the work relative to his strength.

## MISCELLANEOUS INVENTIONS.

Mr. Frank A. Buell, of Brooklyn, N. Y., has patented an improved saw handle. The object of the invention being to avoid any cramping of the fingers,

and to enable the operator to grasp the handle more firmly than is possible with the ordinary hand saw handle.

Mr. Charles H. Niggeman, of Lexington, Mich., is the patentee of an improved stud button, in which two heads are connected together by a cylindrical shank within which is a spiral spring. One of the heads is detached from the shank to admit the latter being attached to the shirt, and then so firmly secured again as to render it impossible to become detached.

For forming dove-tailed mortises in the front of drawers, and like purposes, the Eagle Lock Company, of Terryville, Conn., have by assignment from Mr. W. D. Bradt, of Jackson, Mich., just had a patent granted to them for an improved router bit. By this implement locks are made to fit in cupboard and other doors without screws, as well as bureau drawers without screws.

Mr. P. J. Leonard de Rache, of New York city, is the patentee of an improved fireproof ceiling. The ceiling is composed of tiles supported from the joists by hangers, and having facing tiles placed against the sides of the joists, and top tiles placed between the upper parts of the joists. The top tiles and the tops of the joists are covered by a layer of cement, rendering the ceiling secure against fire.

An improved manner of balancing two wheeled vehicles has been patented by Messrs. John W. Coe and Daniel Merritt, of Brooklyn, N. Y. The body is hinged at its forward end to the crossbar of the shafts, and connected at its rear ends with springs which rest upon adjustable supports attached to the shafts in the rear of the crossbar, so that by simply turning the set screws of the crossbar the cart body will be raised or lowered at the rear, to balance the cart properly for persons of different weights or horses of different size.

An improved sash holder, for holding and locking a sash in any desired position, is the subject of a patent granted to Mr. William Conner, of Missouri Valley, Iowa. Within the window casing is placed a wedge-shaped piece to which is attached a link movement. A handle is placed inside the room connecting with the link attachment. By operating this handle the wedge is brought more or less forcibly against the edge of the sash, holding the window partially open or closed as desired.

An improved device for holding a door open against the wall of a room, and which serves likewise as a buffer, has been patented by Messrs. G. G. Matthews and Rudolph Matthews, of Wichita, Kan. A beveled catch is attached to the lower edge of the door and a spring catch is fastened to the base board of the room, so that when the door is swung open the catch on the door hooks into the spring catch on the base board, holding the door ajar against the wall.

A machine for cleaning small fruit, such as currants, huckleberries, etc., has recently been patented by Mr. J. F. Hudson, of Brooklyn, N. Y. The fruit is deposited in a receiver whence it passes into a cylindrical screen composed of longitudinal wires and furnished with a brush which rotates concentrically within the screen. In this way the stems, dust, and other refuse pass through the wires and fall into a receiver below, while the berries are carried down and delivered into a box underneath the machine.

Mr. Alex. G. Points, of Staunton, Va., is the patentee of an improved dinner pail for the use of workmen and excursionists. The casing is cylindrical and provided with a series of circular pans placed one above the other within the outer case, they being designed for meats, eggs, or other foods. The opening at the top of the cylinder is closed by a tea kettle. A receptacle is formed at the end for carrying knives, forks, etc. Provision is made for carrying a tin cup on the tea kettle. The pail seems to be very compact and well arranged for the purpose for which it is intended.

Mr. Michael Hannan, of New York city, has obtained a patent for an improved snow melting apparatus intended to facilitate the removal of snow from streets. This consists in a tank open at the top, so that the snow may be readily shoveled into it. A cylindrical furnace is placed within the tank. The snow as it falls upon the heated wall over the furnace flues is immediately melted, and the water flowing into a reservoir may be used for clearing away any remaining snow upon the street, and in the gutter.

An improvement in blackboards used in schools for displaying examples in mathematics and similar purposes has been patented by Mr. Otis M. Mitchell, of Marathon, N. Y. It is so constructed that an example or copy may be exhibited in connection with the board, and at the same time the latter may be used as a desk, arrangement being made for swinging it from the wall, and lowering the upper portion to form a table or desk. A convenient table or desk for making drawings, etc., is thus improvised, when the article is not required for a blackboard.

Messrs. Silas B. Hazen and G. L. Van Gorder, of Winamac, Ind., have obtained a patent for a very simple device for holding a door open or in any position desired. This device is not permanently attached to the door or wall, but consists in a wedge-shaped strip of metal, or a spring wire frame may be used with like good results. When in use the metal strip or wire frame is laid upon the floor, and the door is swung over it and a latch prevents the door closing again, and the wedge-shape of the check prevents the door swinging further open, so that the door is held in any desired position by very simple means.

An invention which recommends itself to the attention of grocers is the patent of Mr. Addison M. Herman, of Newtonia, Mo., for an improved tilting barrel or bin. This improvement not only facilitates access to the contents of the barrel, but protects the contents against insects and dust. The barrel or bin is secured to bars which are mounted on pivots, the sockets of which are provided with annular recesses to hold a liquid for preventing the passage of insects into the barrel. To the rear ends of the tilting bars are hinged links fastened to the cover of the barrel or bin, so that when the barrel is tipped forward the lid will be simultaneously raised, affording ready access to the contents of the barrel.

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