

## ENGINEERING INVENTIONS.

Mr. Benjamin H. Burling, of Fort Ann, N. Y., has patented a steam propelling rudder for vessels—a hollow rudder containing a steam engine driving a propeller wheel. The object is to assist in propelling the vessel ahead when the rudder is in line with the keel, and to assist in turning the vessel when the rudder is at an angle to the keel.

Mr. Charles H. Hyssong, of Altoona, Pa., has patented a piston valve which may be adjusted to vary the lap and lead without removing the heads from the case, and the adjustment of the packing rings can also be made with equal facility, as the valve rod is threaded and the pistons are held in place by nuts, and the packing rings are supported on a conical collar that may be adjusted laterally by a nut.

An improved car coupling has recently been patented by Mr. Matthias Ralph, Sr., of Ursa, Ill., in which the coupling pin is secured by a chain to a lever projecting from the end of the car, the lever being worked by a rod from the top of the car, and by means of a projecting arm, also from the top of the adjacent car if required. This device is intended to obviate the necessity of going between the cars to couple and to uncouple, and to prevent the loss of coupling pins.

Messrs. Adison D. Atwood and Charlie M. Atwood, of East Portland, Oregon, have invented and patented a combined car coupling and drawbar, which is adapted to cars of varying heights of frames, and which is self-coupling with cars of not widely different heights. For uncoupling and for adjusting the link receiver to cars of differing heights the device may be worked from the top of the car, or from either side, as may be most convenient.

Mr. A. J. Redman, of La Cross, Kansas, has invented a safe car coupling device, by which the connecting link may be guided into the link socket of an approaching car without handling the link directly. The link socket is formed with a convex lower face to form a fulcrum for the link, and the inner end of the link is depressed, so as to elevate the projecting end to the proper height for engaging with the link socket of the approaching car, by means of a pusher projecting through the upper portion of the link socket.

A quite ingenious device for placing torpedo signals on tracks without the necessity of stopping the train, has been patented by Messrs. Gilson F. Metcalfe and M. F. Haber, of Baltimore, Md. A wheel with two flanges and having a deep groove between them is mounted upon a movable bar, which is so arranged that it may be raised and lowered by means of a suitable lever, so as to bring the wheel in contact with the track when desired. The torpedo before the train is started is placed between the flanges of the wheel and is retained there by a metal strip; and when the wheel is lowered and rotated by contact with the track, this strip will be clamped on to the flanges of the track, whereupon the torpedo will be securely attached to the track.

## MECHANICAL INVENTIONS.

A nail machine for making horse shoe nails, and intended for the production of two nails simultaneously, has been patented by Mr. John D. Wilkinson, of Plattsburg, N. Y. The machine forges two nails at once, and cuts them apart at the heads, leaving them all ready to be pointed.

Mr. Alexander Scouller, of Davenport, Ia., is the patentee of an eccentric and sliding box for giving the reciprocating motion to shakers, such as are used in grain mills for sifting, screening, and bolting, the intention being to make a simpler, more durable, and less noisy attachment than any at present in use.

An improved feed mechanism for saw mills has been patented by Mr. Edward S. Laughinghouse, of Kinston, N. C. This invention relates to a feed motion in which a shifting friction gear is combined with the saw arbor for securing a reversible rotary motion for operating the carriage.

Mr. Thomas J. Brough, of Baltimore, Md., has patented an improved carbureter for intermingling the vapors of a liquid hydrocarbon with atmospheric air in such proportions as to render the resulting mixture combustible and fit for use as an illuminating or heating agent. The invention consists in the improved construction of the machine.

A hooded circular saw guard has been invented and patented by Mr. Leonhard Hofmann, of Cincinnati, Ohio, which is adjustable to any height above the saw table to allow for the working of any thickness of lumber. The adjustment may be made instantly, and the guard is held rigidly in place at any elevation desired. It is designed to prevent accidents by circular saws.

A novel fire escape has recently been patented which consists in a balcony arranged to be raised and lowered in proper guides on the outside of the building by means of suitable ropes and pulleys. This is designed to be used as a balcony at the windows and doors of the house, but in case of alarm is ever ready to be used as a fire escape. The inventor of this device is Mr. Aaron Walker, of Kokomo, Ind.

An improved fruit drier has recently been patented by Mr. George S. Grier, of Milford, Del. This invention relates to that class of fruit evaporators in which series of trays are made vertically adjustable in an upright case, and the improvement consists in the means for giving to the trays an upward progressive movement, and also means for regulating the ascending current of hot air, so that the fruit will be thoroughly and evenly dried throughout.

Mr. William Maybury, of Garnersville, N. Y., has patented a steam tight journal box for rotary steam boilers, bleachers, and driers, to obviate the necessity for loose packing. The journals are formed with a series of rings which are fitted to corresponding annular recesses in the boxes, and the inner sides of the rings and recesses are held steam tight by the pressure of the steam admitted to the cylinder. Arrangements are made for automatic lubrication.

An improved cotton elevator and distributor has recently been patented which comprises several ad-

vantages over those commonly in use. In this improved machine the cotton is first fed on to an elevator through a suitable hopper and then it is carried on to a distributor. The bottom of this distributor is furnished with openings corresponding to the different stalls in the storage house, and a removable chute is provided which enables the cotton to be deposited into any of the compartments desired, where it is stored previous to being fed to the gin. Mr. Sidney W. Bartholomew, of Castalia, N. C.

Messrs. Samuel S. Hall and Joseph Walmesley, of Bury, near Manchester, England, have obtained a patent for an improved warping and beaming machine. The invention consists in improvements in the construction of the machine, and relates to a device for varying the speed of the section reel, so that the warping will be wound thereon at a uniform rate of speed from beginning to end; so that in spite of the increased size of the section as the work proceeds, the tension on the warp will be kept entirely uniform as the speed of the section reel will be increased proportionately to the increase in size of the section. Devices are also provided whereby some of the sections may be wound in a reverse direction from that of others.

An ingenious mechanical movement for transmitting circular motion, whereby small power applied may serve to overcome great resistance, has been patented by Mr. W. P. Campen, of Wilmington, N. C. Upon a shaft designed to be rotated by hand or cog, are mounted three circular eccentrics one-third of a circle apart, so that their motions are relatively alternate. Each eccentric is provided with an arm which, when it is thrust forward by the motion of the eccentric, tends to act upon a ratchet wheel secured to a second shaft, and since there is one ratchet wheel for each eccentric, when two of the ratchet wheels are at dead center the third will be rotated by the action of its eccentric and a continuous motion thus obtained.

A dumping wagon, so constructed as to adapt itself to the circumstances in which it is placed with the greatest facility, so that it may be relieved of its burden regardless of its position, has been patented by Messrs. Henry S. Bernhart and Isaac R. Ritter, of Reading, Pa. The invention consists in a dumping wagon which can be raised at the rear end by quadrant racks mounted on the frame of the wagon and connected with the box, and at the front end by arms pivoted to the frame and to the box. Both the front and rear ends of the wagon can be raised or the front end only can be raised, by disengaging the quadrant racks from the pinions, for by turning the said shaft the chains will be wound on the same, and will draw the shaft provided with the rollers, and which form a truck with these rollers, toward the rear end of the wagon frame, and will thus swing the arms connected with the box upward.

## AGRICULTURAL INVENTIONS.

Mr. Felix T. Gandy, of Rubens, Kas., has patented a jointed harrow intended for the cultivation of corn planted in furrows between ridges, the harrow being in two longitudinal sections adjustable, so that the two wings will present inclined faces adapted to the slant of the ridges, between the rows of corn.

Mr. William Commeans, of Lilly Chapel, O., has patented a combined pulverizer and grader, intended to break up clods and to level or grade the plowed soil preparatory to planting. The teeth and scrapers are instantly adjustable to any depth in the soil, or may be raised entirely above the surface at the will of the operator.

Mr. H. C. White, of Jug Tavern, Ga., has invented and patented an improvement in cotton choppers, cultivators, and plows, combining the uses of three implements in one, and adapting it to the cultivation of cotton and other crops which are grown in rows or drills. The changes can be readily made, and the cutters, plowshares, and markers can be adjusted to work any width desired and to any required depth.

Mr. John T. Wilson, of Easton, Mo., has obtained a patent for a useful and improved corn sheller. This machine is so constructed that it will receive the ears of corn when thrown into its hopper promiscuously and will shell the corn from the cob, and separate the cobs from the shelled corn, the whole being done automatically and without a second handling being necessary.

Mr. William F. Edwards, of Covington, Ky., has invented a combined seed planter and fertilizer distributor, to be drawn by a team the same as a plow, and to be similarly guided. The hopper contains the fertilizer, which is stirred and comminuted by means of a cylinder armed with forks which receives its revolutions from a wheel on the outside, that supports the hopper and its load. A share in front and a cover in the rear may be attached for seed planting.

Mr. Benjamin F. Christ, of Peabody, Kas., has patented an improved harrow which permits of the adjustment of the teeth from a perpendicular to an inclined position, and allows the teeth to arrange themselves parallel to the plane of draught, while their beams may be oblique to that plane. This construction of the harrow is also specially designed for strength, being strongly braced by diagonal and parallel bars of a Z-form.

A combined seed and fertilizer dropper has been patented by Mr. Geo. E. S. Phillips, of Berryville, Va. This implement consists in a stationary hopper and a rotary hopper within the stationary hopper, and having the devices which carry the valves cups connected to its inner and outside so as to be rotated with it. The outer cups are fed with the fertilizer from the stationary hopper while the inner cups are filled with grain from the inner hopper, and the whole is so arranged that at certain intervals the grain and fertilizer will be deposited together in the mound.

An improved corn planter has been patented by Mr. Charles Porter Phelps, of Princeton, Ill. This planter is provided in front with runners for opening the furrows and with covering wheels located behind them, for forcing the seeds into the ground. Under the hopper are arranged horizontally two wheels carrying cups of suitable size for the grain or corn. These wheels are rotated by an agitating wheel which

strikes against projections on the seed wheel, giving them an intermittent movement. Devices are provided for stopping the flow of the corn, for raising the runners from the ground, etc.

## MISCELLANEOUS INVENTIONS.

A new and improved self-inking hand stamp, which operates easily and without jarring, has recently been patented by Mr. Louis K. Scotford, of New York city.

Mr. Bailey T. Milliken, of Paducah, Ky., has patented an improved design for a bed spring. The upper convolution of each coil is made polygonal instead of curved, and the connecting part is formed in such angles and curves as to render it elastic and springy and at the same time durable.

An abdominal supporter for women has been patented by Mr. Augustus Galny, of Galveston, Texas, the sack being made of fibrous light material, and supported by elastic bands passing over the shoulders instead of being a belt around the waist, thus relieving the liver and stomach from pressure.

A very convenient device for holding twine has been patented by Messrs. W. J. Greene and J. L. Herlick, of Marquette, Mich. The invention consists in a frame carrying a sliding weight arranged for drawing up the twine when released, so as to keep the loose end of the twine from off the counter and retain it in convenient position for use when wanted.

Mr. Hiram M. Wheeler, of Smithson, Ind., has obtained a patent for an apparatus for utilizing waste heat, and the invention relates to means for heating water or generating steam by the waste heat from an ordinary stove pipe or chimney. This tank must be located at a point above the source of heat, and it is adapted for supplying hot water to any floor of the house.

Mr. J. Edward Bicknell, of Cleveland, O., has invented an improved apparatus for making illuminating gas by the distillation of wood, as sawdust, and the decomposition of a liquid hydrocarbon, the apparatus being so contrived as to admit of continuous distillation without the necessity of stopping the work for charging and cleaning the retorts.

Messrs. F. Le Roy Tetamore and S. E. Fordham, of Brooklyn, N. Y., have patented a hand implement for applying and securing barrel head fastenings. The entire operation is performed readily by one person, using a single implement, and the fastenings are forced into the staves at equal distances by means of a gauge and a presser cam.

Mr. Arthur Wilfred Brewtnall, of Westminster, England, has invented improvements in the mounting and suspending of electrolights and other electric light fittings on the principle of the ball and socket joint, permitting free movement in all directions in a segmental plane, and still maintaining the electrical circuit unbroken.

Mr. James Buchanan Mitchell, of Los Angeles, Cal., has obtained a patent for an improvement in fountain pens. In this invention the flow of ink to the pen from the reservoir in the hollow handle of the holder, is to be regulated by a valve placed in such position in the holder as to be operated by compressing the thumb and fingers.

Mr. Samuel Maxim, of Wayne, Me., is the inventor of an oil guard to kerosene lamps by which the rise or overflow of oil lamps is returned to the lamp, and by which any sudden outpouring of oil in case of the lamp being overturned is prevented. It consists of a chambered collar fitted to the neck of the lamp outside the threaded nipple of the cap or burner.

A board for playing a game of marbles is the subject of a patent recently issued to Mr. Edward W. A. Meyer, of Boston, Mass. It is a board inclined from both ends, the marbles being impelled up a long incline over the ridge, whence they roll into partitions or pockets on the short inclined side. This differs from a bagatelle board in being composed of two inclines instead of being on a level.

Mr. Magnus Gross, of New York city, has patented an improvement in an apparatus for decomposing steam for the manufacture of water gas, in order to avoid the unreliable and intermittent operation of the retorts generally used, consequent on the cooling influence of the steam. He makes an additional retort called a superheater, into which the steam is conducted and raised to the proper temperature.

A new folding rocking chair has been patented by Mr. John E. Cotton, of Fairfield, Me. The parts are less in number than usual, and the chair when folded occupies very little space. When erected for use the chair is comfortable, safe, and portable; its method of construction makes the chair, when used, very rigid, giving a sense of safety that does not always accompany this description of portable chairs.

Mr. Arthur Alexandre, of Paris, France, has patented a device for holding the clasps of purses, reticules, and toilet bags without employing any swinging catch, knobs, or similar projections. The two bows are perfectly plain except at their ends near the rivets, or pivots, and there one bow has a convex projection and the other a corresponding concavity, the elasticity of the bows insuring the locking of the bows in position.

A useful commode has been patented by Mr. Hugh H. Hughes, of Fair Haven, Vt., which is adapted to the use of either grown persons or children, by being made in horizontal sections with suitably sized seats for each section, which seats are contained in the cover. The cover is upholstered and may be used as a seat, and if not used for its specific purpose, the commode may be made a receptacle for boots and shoes and blacking materials.

An improvement for drying fruit or for evaporators of fruit has been patented by Mr. Joseph M. Duncan, of Warsaw, N. Y., in which the heated products of combustion are made to do useful duty instead of being allowed to escape while still hot. By this improvement a more even heat is given to the pan, and a larger proportion of the heat is utilized than when

a portion of the products of combustion are allowed to pass over the top of the partition wall of the furnace.

Mr. William Halkyard, of Providence, R. I., has patented a sheet metal covering for telegraph, telephone, and electric light wires and cables, consisting of sheet metal lapped over the wire and its non-conducting envelope, the lap running longitudinally and being preferably soldered. This armor or covering may be very light and at the same time be very strong, so that the wire itself need not be depended upon for tensile strength.

An improved metallic box cover has been patented by Mr. Alton H. Fancher, of Brooklyn, N. Y., which is intended to prevent lateral movement of the cover on its hinge, and to insure a perfect meeting of the lid and the edges of the box all round when closing of the box is attempted. By an improvement in the shape of the cover blank from which the hook hinge is formed, the expense of manufacturing is also greatly reduced.

Messrs. Theodore Hunger and Frederick Bullenkamp, Jr., of Brooklyn, N. Y., are the patentees of an improved wagon end gate fastener, by which the end gate, or tail board, can be held in any position desired, being securely fastened not only when closed, but when on a level with the wagon floor, and also when swinging vertically. The closing and securing are automatic, and the opening more convenient than ordinary spring fastenings.

Mr. Wesley F. Marsh, of North Platte, Neb., has invented and patented a handy trestle for the use of painters, plasterers, carpenters, and others, by the use of which temporary trestles of varying heights and lengths may be avoided. This device allows the top bar of the trestle to be raised and fixed at any required height, within reasonable limits, and permits, also, the extension apart of the end supports. It can be taken in pieces and be easily moved from place to place.

Mr. Charles Maliphant, of New Brighton, N. Y., has invented a fire escape to be used on the outside walls of buildings, which consists of two carriages operated by a single rope, and being guided in their ascent and descent by upright bars extending from the street to the eaves. The movement of the carriages is similar to that of an elevator, and provision is made for checking the descent of either carriage should the suspending rope break. When not in use the carriages may remain as balconies at the windows.

An improved grain separator has recently been patented which consists in a screen having a series of annular compartments, and obliquely arranged chutes adapted to gather the grain in one part of the revolution of the screen in one compartment and discharge it at a different part of its revolution in another compartment, and the screen further consists in an inner apertured cylinder and a return imperforate cylinder, the whole being so arranged as to thoroughly separate the grain from the chaff. Messrs. Milton Forder and T. H. Pendergast, of Dassel, Minn., are the inventors.

An improvement in awnings is patented by Mr. Joseph Moynan, of Brooklyn, E. D., N. Y., designed to firmly secure the awning when spread and to effectually protect it when furled. The triangular end curtains of the awning are folded under the main awning when the awning is to be furled, and the entire awning canvas is rolled on a spring roller contained in a box on the front of the building, the box being an ornamental cornice. When thus rolled, the aperture in the front of the cornice box is closed by a signboard, which depends from the front of the awning when it is extended.

Mr. John N. Purdy, of St. John, Province of New Brunswick, has patented an improvement in the catting and fishing of anchors on board ship, by which all incumbrances, such as wooden frames in the fore-castle, the cutting of holes in the top gallant fore-castle, and the employment of the ship's windlass or capstan in catting the anchor, are avoided. This is effected by using a light windlass and frame on the cat-head, and a small fishing davit on the rail. When at sea this supplementary windlass may be removed from the cathead and stowed.

Mr. Howard R. Burk, of Brooklyn, N. Y., has invented a method of giving a pleasing tint to kerosene oil without impairing its quality, the object being to impart a bluish color, which when burned in glass lamps is preferred by many to the yellowish tint of ordinary kerosene. He employs olive oil, or some other oil dissolvable in kerosene, giving the oil an intense blue and then dissolving it in kerosene, one quart of olive oil being sufficient, when treated according to his method, of tinting two hundred quarts, or more, of kerosene oil.

An improved nose piece for eye glasses has been patented by Mr. William J. Suttie, of New York city. The object of this invention is to provide a nose piece which will be less easily broken when being secured to the eye glass or when dropped than the ordinary nose piece. The invention consists in providing the eye glass nose piece with a covering layer of some non-conductor or poor conductor of heat, such as rubber, varnish, japan, or other gums, which material is applied to the nose piece in a liquid or plastic state, and then dried or hardened. This covering layer does not interfere with the elasticity of the nose piece, and protects the skin of the nose from being disfigured or marred by the metal nose piece.

Mr. Keyran J. Duggan, of Montgomery, Ala., has invented a spike puller for use by railway trackmen, lumbermen, and others requiring a tool of this class which shall not need frequent and expensive repairs. The invention consists in a bar or lever fitted with a removable claw head having an inclined tenon fitting in a flaring mortise of the bar, and locked in place by a tapering stud or key formed on the removable heel piece or block of the tool, whereby different claw heads may be interchangeably and quickly fitted to the main bar should the claw head in use be accidentally broken, the construction thus also permitting the use with the one main lever or bar of claw heads of varying size, shape, and strength, as may be needed.