ENGINEERING INVENTIONS.

Mr. Nathan M. Hale, of Grand View, Tex., has patented an improved car coupling in which the coupling link is made in two U-shaped parts, pivoted together, and sustained in coupling position by springs.

An improved stock car has been patented by Mr. George F. Oehrl, of Belle Vernon, Pa. This invention is an improvement on the stock car for which United States Letters Patent No. 253,418 were issued to the same inventor on the 7th of February, 1882.

Mr. Edward Ebi, of Cedar Rapids, Ia., has patented an improved device for applying all the brakes of a train simultaneously. The invention consists in a rotating brake rod journaled below the car bottom, and provided at the ends with clutch plates longitudinally movable on the brake rod, whereby the ends of the brake rods will be locked together automatically when the cars are coupled.

An improved boat detaching apparatus has been patented by Messrs. Edward J. Hill and Josiah L. Clark, of Westminster, England. This invention consists in constructing the hooks by which the boats are suspended with their upper or curved part swelled into V or horn shaped lugs provided with downwardly retreating faces, whereby the hooks are prevented from slipping through the rings, links, or shackles, and the latter are held in a forwardly inclined position.

An improved railroad signal has been patented by Mr. Joseph A. I. Claudon, of Titusville, Pa. The invention consists in a spring at the side of the rail, connected with a pawl adapted to act on a ratchet wheel in an underground box, which ratchet wheel is mounted on a shaft in a longitudinal underground box or tube parallel with the rails, which shaft is connected by means of right angled shafts and bevel cog wheels with one or more vertical shafts journaled in vertical frames carrying bells adapted to be sounded by spring hammers, which vertical frames are a greater or less distance from the spring. Every time a wheel depresses the spring the gongs are sounded, and the approach of the train will thus be signaled at stations, bridges, crossings, etc.

An improvement in locomotive driving gear has been patented by Mr. William Crippen, of Cadillac, Mich. This invention consists of a crank shaft ranging lengthwise of the locomotive, and located between the trucks and gearing with them by toothed wheels, the crank shaft having universal joints, and also having provision for sliding in the driving pinions on it in order to compensate for the deflections of the line and the variations of the length of the same, due to the curvatures and grades of the road. The crank shaft and transmitting gears are located in the longitudinal center of the locomotive to lessen the variations as much as possible. The object is to dispense with the expensive and complicated connecting rod and side bar gear and substitute a cheaper contrivance, and also to lessen the friction of the machinery.

MECHANICAL INVENTIONS.

An improved wagon rack has been patented by Mr. John Shafer, of Logansport, Ind. The object of this invention is to provide a wagon bed which may be converted at will into a rack for wood or a rack for hay.

An improved machine for drying calico has been patented by Mr. Francis J. Crowley, of Gloucester City, N. J. This invention relates to a novel construction for preventing escape of steam through the joints of the concentric drying cylinders, and for facilitating the removal of the calico from the outer cylinder.

An improved screen has been patented by Mr. Nicholas W. Godfrey, of Bayville, N. Y. This invention relates to improvements in revolving multiple screens, such as are used for separating sand or gravel into different grades, and it provides a revolving multiple screen that can be easily taken apart for repairs or for replacing any of the screens when they become worn out.

An improved pump has been patented by Mr. David E. Washburn, of Houghton, Mich. This pump dispenses entirely with pistons, plungers, plunger valves, packing, etc., and acts upon the respiratory or bellows principle. Its action is direct and without friction, and the pump, being entirely submerged in water, is proof against all injury from freezing.

An improved washing machine has been patented by Mr. Jonathan E. Hobby, of Omio, Kan. This washer is designed to be placed in a washtub and to be secured to the upper edges or sides. This washer employs a pair of grooved rollers between which the clothes are passed. One of these rollers is provided with a cam to give it end motion to secure a rubbing action.

Mr. William P. Miller, of Tipton, Mo., has patented an improved nut lock in which the plate to which the swinging plate is hinged is provided with two spring tongues having guide loops at the ends, between which a hinged joint on the swinging plate passes, this hinge joint being provided with a cam projection, by means of which and the spring tongues the swinging plate can be held in any desired position.

An improved track lifter and holder has been patented by Mr. Alexander C. Phillips, of New Castle, Pa. This invention relates to means for lifting the rails of railroad tracks, and holding them in position while tamping and filling under crossties, or when taking out old ties and putting in new ones; and it consists in a lever raising device and stand therefor of peculiar construction, and a notched holder for the lever.

Mr. Benjamin B. Powell, of Petoskey, Mich., has patented an improved mechanical movement used to convert rectilinear reciprocating motion into continuous rotary motion. It consists of a segmental cog wheel having a regular series of epicycloidal teeth with a large tooth and a notch at each end of the series; also, in two racks arranged parallel with each other and connected rigidly by end pieces and adapted to engage the segmental cog wheel in alternation.

An improved machine for rolling coupling pins has been patented by Mr. Frank A. Iddings, of Warren, O. In the operation of the machine, the iron rods, in length as required, are first heated and then fed in at the hopper, and by the revolution of the roll they are carried around between the roll and the interior surface of the bed, so that they are thus gradually rolled and pressed to the form and size required until discharged at the under side of the roll.

An improved saw sharpening tool has been patented by Mr. Robert S. Munger, of Mexia, Texas. This invention consists of a rotary tool having an annular rim or a curved rim, made either concentric or helical, and with one or both filing surfaces of the rim inclined inward from heel to edge toward the axis of the tool, whereby the rim is adapted to give to the face or face and throat of a saw tooth a smooth convex surface to prevent it from cutting or napping the lint.

An improved brick machine has been patented by Mr. John Owen Smith, of Savannah, Ga. This invention relates to brick machines having a wheel provided with moulds, in combination with eccentrically operated plungers and propellers for feeding the clay to the moulds. The machine will grind the clay as it comes from the bank, feed it into the moulds, press the bricks into the moulds, and eject them upon boards arranged on a traveling apron, by which they are to be conveyed to the kiln.

An improved dumping wagon has been patented by Mr. James M. Kimball, of Woodstock, Ill. This invention relates to a bottom made in two parts, divided and hinged along the center longitudinally between the axles to swing down from the outsides, with a lever and chain on each side of the wagon box to close the respective parts of the bottom, and another lever to work catches for fastening the bottom, which lever is also a catch for securing the closing lever.

An improved friction clutch has been patented by Mr. Henry James, of Hudson, N. Y. The object of this invention is to provide a simple, economical, and effective mechanism whereby driving pulleys or other wheels of machinery may be readily locked upon and released from their shafts while the latter are in motion. The invention consists in the combination with the wheel or pulley, and its wedge shaped bearing blocks and shaft, of a mechanism that is adapted to move the said bearing blocks longitudinally while the shaft is in motion, and thereby to lock or unlock the pulley upon its shaft.

An improved oiler has been patented by Mr. Edgar James Wells, of Hague, N. Y. This invention consists of the cup which contains the oil, contrived to revolve in the stem by which it is attached to the supporting device, and provided with means for slowly revolving therein to supply the oil by measures, the delivery of which is interrupted by the rotations of the cup and the quantity governed by a variable capacity of the measuring cavity, or it may be by the speed of the cup's motion, to be adapted to the requirements of the case.

AGRICULTURAL INVENTIONS.

Mr. William P. Brown, of Zanesville, O., has patented improvements in wheeled cultivator for which Patent No. 190,810 was granted May 15, 1877, to the same inventor.

Mr. William P. Gard, of Parsons, Kan., has patented an improved seed planter. This invention possesses several novel features which render it efficient and reliable, while permitting of great simplicity of construction.

An improved cultivator has been patented by Mr. Bradford A. Knight, of Beatrice, Neb. This is a novel arrangement of plows and plow beams permitting of a complete adjustment of the parts to the work to be done.

An improved land roller has been patented by Mr. Robert A. Horning, of Brookville, Ill. This invention consists in a novel arrangement of two cylinders, one working diagonally in advance of the other, a new framework to which the cylinders are connected, and in certain details of construction and arrangement of the hubs, axles, braces, and an adjustable seat.

Mr. David A. Yoakam, of Windham, Ia., has patented an improvement in corn planters. By the use of this improved planter the expense of furrowing the ground in advance of the planter by an extra hand is avoided, and by making one mark or furrow at the starting point will save the expense of the wire used by the check rower, also the trouble of moving the wire at every starting point.

Mr. William H. West, of Grand Island, Neb., has patented a cultivating implement which is adapted for several distinct purposes—that is, the preparing of land for grain and the cultivation of corn in all its various stages; and it consists mainly in the special construction of parts by means of which the implement is adapted to cultivate corn two rows at once; and in the combination, with the double cultivator, of a head block of special construction, by means of which the implement is adapted for preparing land for grain.

An automatic check row and drill attachment for corn planters has been patented by Mr. George Marple, of Osage City, Kan. This invention consists of an automatic attachment for working the dropping rod or slide of seed dropping apparatus or the check rower or drills, the same being a ratchet attachment to one of the driving wheels, and a sleeve with tappets to work the slide, and a shipper lever and spring to work the sleeve, combined in a simple and effective arrangement.

MISCELLANEOUS INVENTIONS.

Mr. Thomas I. Kennedy, of Wallingford, Vt., has patented an improved device for holding mops firmly in such a manner that they can be secured or removed very easily and quickly.

An improvement in dressing cases has been patented by Mr. George R Spear, of Brooklyn, N. Y. This invention consists in the peculiar construction and arrangement of parts. The invention comprises a wash stand and dressing case in a handy and compact form.

Mr. Lorenzo D. Clements, of Tallmadge, O., has patented an improved fence post provided with a series of openings along its edge for receiving each loop, having one arm pivoted to the post and adapted to receive and hold the rails by their weight.

Mr. Leonhard Roth, of Brooklyn, N. Y., has patented a calorific compound consisting of the following ingredients, combined about in the proportions stated, viz.: dry sodium, metaphosphate (natrum metaphosphoricum siccum), ten parts; dry sodium citrate (natrum citricum siccum), four parts.

Mr. Wilhelm Heussler, of New York city, has patented a method of making candy, consisting in melting nuts and sugar together, hardening, and then pulverizing the mass, and mixing it with sugar and cream that have been boiled together, whereby a dough is formed from which the candies or pellets are made.

An improved muzzle has been patented by Mr. Edwin Parker, of Council Bluffs, Ia. This device is inexpensive and thoroughly effective, while it does not punish the animal nor retard its growth. The muzzle is adjustable to fit the animal, as is required, on account of the variations in size, so that only two sizes are required—one for calves and the other for cows.

Mr. Arthur W. Brewtnall, of London, County of Middlesex, England, has patented an improved means of coupling branch wires to main conducting wires or cables (as required in the installation of electric lamps, for example), whereby the connections of the wires may be made and the insulation of the couplings effected with great ease and rapidity.

Mr. George W. Griswold, of Pottersville, N. Y., has patented a corkscrew formed of a screw attached to a block mounted to slide on the shanks of a U-shaped frame, which shanks have their ends bent upward and outward to form spring loops, which serve as a handle for the corkscrew, and which can also be used as key rings.

An improved removable wick tube for lamp burners has been patented by Mr. John Sweeney, of Sing Sing, N. Y. The invention consists in a wick tube cut open longitudinally to facilitate passing the wick into it. The wick tube can be passed into a fixed tube of a lamp burner, and can be locked by means of a slot in the fixed tube and a stud or projection on the removable tube.

Mr. Elijah M. Ames, of Pepperell, Mass., has patented an improved warming pan for warming beds. The invention consists of a flat hollow vessel having its edges beveled from the top and bottom, which vessel is provided with a tubular handle open at both ends, through which handle the steam of the hot water with which the vessel is filled can escape, whereby all moisture is be kept out of the bed. As the edges of the vessel are beveled, it can be passed under the covers or sheets without wrinkling or folding them.

Mr. John S. Jenkins, of Lima, O., has patented an improved device for chalking the chalk lines used by carpenters, masons, etc. The chalker is formed of two cylinders provided with outer conical ends, having an aperture in the end of each cone, which cylinders when united form a casing adapted to receive pieces of chalk, through which the cord passes, whereby the line or cord will be chalked by drawing it through the casing.

Mr. Henry Cordes, of Hoboken, N. J., has patented an improved bilge water valve for ships consisting in the combination, with a vessel's hull having an opening in its bottom, of a semi-cylindrical case fitting into the said opening, and having a plate attached to its lower end, a plug fitted into the said case and opening, and rack bars attached, one to the said bars and one to the said plug, and engaged by a pinion or gear wheel having a crank and itself engaged by pawls, whereby an aperture through the vessel's bottom can be opened and closed.

Mr. John A. Titzel, of Allegheny, Pa., has patented a new compound or mixture adapted for rendering waterproof any kind of cloth or fabric, or to be mixed with any kind of paint or varnish for rendering it tough and durable, or to be mixed with any pigment and used as a paint for covering metal or wood, or used in any place where a durable paint is required. It is formed of equal parts of raw resin oil and vulcanized rubber in solution, and mixed with one part of resin, a neutralizer for the sulphur and acid, and four parts of benzine.

A trap and overflow stop for wash basins, etc., has been patented by Mr. William D. Schuyler, of New York city. This invention is applicable to stationary wash basins, bath tubs, and other like structures, and relates to apparatus or devices in which the faucet that lets on the water in the basin or receptacle has combined with it a valve in or connected with a waste pipe, and which opens and closes with the opening and closing of the faucet for the purpose of preventing the escape of the sewer gas up the waste pipe.

An improved gate latch has been patented by Mr. Alfred C. Belt, of Aullville, Mo. This invention is designed to enable persons on horseback to conveniently open and close the gate without dismounting, and to prevent the lifting of the gate and the unlatching and opening it by hogs, which would allow them to escape from the inclosure. The invention consists of a gravity lever or latch arranged obliquely to the front edge of the gate, its shorter arm below its fulcrum and its longer arm above that point and operating in a guide, while its lower end is provided with a notch or beak adapted to engage a stud or catch on the gate post or other surface.

An improved fire escape has been patented by Mr. Elbridge J. Moore, of New York city. This invention relates to fire escapes for buildings in which folding ladders are used; and it consists in a self-adjusting folding sectional ladder of novel construction, designed to be attached to each story of a building, and is or may be made up of independent ladders or ladder sections that combined form a continuous ladder extending from roof to pavement, said sections being secured by hooks to a bar or window sill below, and by hooks to a window sill above. Thus applied, the ladder folds against the building, and when not in use is concealed from sight by a box, case, or cover, which may be of ornamental construction, and which is capable of being thrown open and the ladder being dropped into working position by the mere opening of a clasp or other simple fastening, the whole forming a perfect fire escape ladder free from objections of architectural disfiguration.

[OFFICIAL.]

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A printed copy of the specification and drawing of any patent in the annexed list, also of any patent issued since 1866, will be furnished from this office for 25 cents. In ordering please state the number and date of the patent desired and remit to Munn & Co., 261 Broadway, corner of Warren Street, New York city. We also furnish copies of patents granted prior to 1866; but at increased cost, as the specifications, not being printed, must be copied by hand.

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Notes & Queries

HINTS TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the writer.

Names and addresses of correspondents will not be given to inquirers.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries do not appear after a reasonable time should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Persons desiring special information which is purely of a personal character, and not of general interest, should remit from $1 to $5, according to the subject, as we cannot be expected to spend time and labor to obtain such information without remuneration.

Any numbers of the SCIENTIFIC AMERICAN SUPPLEMENT referred to in these columns may be had at this office. Price 10 cents each.

Correspondents sending samples of minerals, etc., for examination, should be careful to distinctly mark or label their specimens so as to avoid error in their identification.

(1) M. G. F. asks: Can you inform me of the ingredients and the process for making soda water, so extensively used as a summer drink? A. Soda water, so called, is a solution of carbonic acid gas under pressure in water, and is evolved from a mixture of marble dust and oil of vitriol in a peculiar apparatus for the purpose. For the sirups used in flavoring this soda water, see SUPPLEMENT No. 77.

(2) A. B. C. asks whether it is scientifically true that there is an equinoctial storm? A. It is customary to call any general storm occurring any time within a month of the equinoctial passage an "equinoctial." It is only accidentally coincident with the sun's crossing of the "line." Sometimes the season passes without any "equinoctial."

(3) A. J. P. asks: Can water be drawn through a pipe two inches in diameter by a steam pump situated three thousand five hundred feet from the reservoir, and about twenty feet above its level? A. Yes, if the pipe is tight, but the supply of water will of course be much less than if the pipe was but a few feet in length.

(4) M. E. W. writes: I have a telescope with a 1⅝ achromatic object glass, focus about 25 to 30 inches with celestial eyepiece, power 146 times. In using it for star gazing, they look upside down. Could I attach a terrestrial eyepiece to remedy this, and could I see Jupiter's moons and Saturn's rings with the telescope, if I used a terrestrial eyepiece? If so, please let me know the size and power of eyepiece I would need, and if I could attach it to the one I have. A. If your telescope of 25 inches to 30 inches focus bears a power of 146 times, you ought not to complain of the objects being upside down, as all astronomers see them in that position, and get used to it. A terrestrial eyepiece will only magnify from 20 to 40 times in your telescope. You could, of course, have one fitted to your telescope which would do excellent work on terrestrial objects, but would lack brilliancy and power on celestial objects; would show Jupiter's satellites, but would not give satisfaction with Saturn.

(5) T. P., Kansas City: All brook and mountain trout, both Eastern and Western fish, have scales.