

ENGINEERING INVENTIONS.

An electro-magnetic car uncoupler has been patented by Mr. John D. Reed, of York, Neb. There is a pivot d shackle on the drawhead with an electro-magnet for operating it, conductors, contact strips on the ends of the cars for uniting them, with numerous parts and details of combinations, whereby cars may be uncoupled by electricity.

A vessel and apparatus for cutting channels in water ways has been patented by Mr. John Gates, of Portland, Oregon. The vessel has propelling apparatus and a movable rudder, with tanks or compartments for sinking the stern to any desired depth, a hoisting apparatus, and cables with anchors, to hold the stern in position to cut a channel by the backwash from the screw.

A pilot car has been patented by Mr. Jose Pasana y Pinol, of Madrid, Spain. It has transverse partitions with buffer springs, with a water tank and bar or block of lead held transversely on the car, the side bars and braces having hinges, so the car can collapse, and the springs, water tank, and lead take up the force of concussion, the car being adapted to be coupled to the front of a locomotive to lessen danger or loss from collisions.

AGRICULTURAL INVENTIONS.

A potato planter has been patented by Mr. Joseph L. Ullathorne, of Memphis, Tenn. It consists of a frame, rolling drum with wheels, and an open sided hopper arranged behind, and will also distribute a fertilizer in the furrows at the time of planting the potatoes.

A combined sod cutter, seeder, and harrow has been patented by Mr. William F. Hubbard, of Walla Walla, Washington Ter. This invention covers a special construction and combination of parts in a machine mounted on wheels, to be drawn over a field by a team, to pulverize hard soil, and at the same time drop and cover seed therein.

A cultivator has been patented by Mr. Thomas E. Gregg, of Mineral Spring, S. C. This invention covers a novel construction and combination to facilitate the cultivation of cotton and other plants planted in rows or drills, and also to promote convenience in adjusting the cultivator to work deeper or shallower in the soil.

A spade wheel plow has been patented by Hiram Skillings, of Minneapolis, Minn. This invention covers modifications and improvements in the construction of a spade wheel plow previously patented by the same inventor, the changes being principally with the view of reducing the expense of manufacture, and to promote convenience in putting in and removing the spades.

A stalk cutter has been patented by Messrs. Guernsey W. Davis and George A. Davis, of Pine Bluff, Ark. A cutter roll has end disks with radial grooves on their inner surfaces, and hubs on their outer central faces, wings with blades secured thereto being held in said grooves, and other novel features, for breaking down two rows of corn, cotton, or other stalks, and cutting them into pieces.

A harrow has been patented by Mr. William W. Robinson, of Odebo, Iowa. The teeth are carried by rocking beams under control of a valve to change the angular position of the teeth relative to the ground, but the beams are of novel construction, with peculiar means for fastening the teeth as well as for carrying the beams and connecting them with the devices by which they are rocked.

MISCELLANEOUS INVENTIONS.

A nut lock has been patented by Mr. Seth A. Lesan, of Mount Ayr, Iowa. This invention consists in a special construction and combination of a screw bolt, a screw nut, washer, and key, for securing nuts upon screw bolts.

A gate has been patented by Mr. Absalom King, of Waupecong, Ind. This invention relates to gates adapted to close by their own weight, on farm and other roads, to prevent the straying of stock, and to this end covers a special construction and combination of parts.

A weather board gauge has been patented by Messrs. William J. Dyer and Thomas W. Maxey of Nevada, Mo. This invention provides a means for carpenters to more accurately space weather boards, and hold them exactly in proper relation to previously placed boards, while nailing them in position.

A log turner has been patented by Mr. William F. Fidler, of Rock Cave, West Va. This invention provides special means, in combination with the hook and tackle, the carriage, and its knees or blocks for preventing the log from sliding laterally out of place while being turned.

A copy book has been patented by Mr. Edward P. Conner, of Alameda, Cal. It includes a book support, which may be shut up with the book or spread out and extended, a novel arrangement of covers and other special features, designed to afford a copy book which will facilitate giving instruction in penmanship.

An ale faucet protector has been patented by Mr. George Hirschman, of Morristown, Pa. It has a flanged base, with an opening and recess in front, so it can be easily secured in place, and the faucet readily applied, detached, and operated, so the faucet will be protected.

A wire fence has been patented by Mr. Lafayette W. Lindley, of Danville, Ky. It is a fence which can be erected or taken down very rapidly, and folded compactly for storage or shipment, and is an improvement on a former patented invention of the same inventor.

A window bead fastener has been patented by Mr. Ezra W. Talbot, of Napoleon, Ohio. This is an improved device for holding the stop of a window in place on the frame in such a manner that it can be readily removed or secured in place, and need not be nailed or screwed.

A stencil holder has been patented by Mr. John W. Bennett, of Halifax, N. S., Canada. This invention covers a peculiar construction and arrangement of two clamp plates or frames for holding the stencil plates, and means for fastening the plates together and preventing them from moving laterally.

A piano forte attachment has been patented by Mr. Emil Hofinghoff, of Barmen, Germany. This invention covers a bar held to be movable across the strings, a series of tongues being fastened to the bar, and these tongues having rubber su faces facing the strings, whereby the tones of the piano are changed.

An anchor support and tripper has been patented by Mr. Rufus P. Trefry, of Bridgewater, N. S., Canada. The anchor is so made as to hold by the fluke, while its stock comes against the hull or the vessel, and it is also so constructed as to facilitate its casting off without danger of fouling.

A game apparatus, or a new and improved game, has been patented by Mr. James A. Fitzgerald, of Salt Lake City, Utah Ter. It is formed of a vertically slotted board held between two side pieces or standards rubber face plates being secured on the surfaces of the bars between the slots, and the game being played with a series of disks or flat rollers.

A device for transmitting power by belts and pulleys has been patented by Mr. Nicholas Yagn, of St. Petersburg, Russia. This invention covers a mean o using pressure rollers upon both driving and driven pulleys to increase the power transmitted by belts, with the design of thus increasing their efficiency and economizing in amount of belting needed.

An improved universal joint has been patented by Mr. Rollin E. Gleason, of Egan, Dakota Ter. The invention consists in providing one of two abutting ends of two shafts revolving in the same direction, but meeting at an angle with a socket, which has an inwardly projecting rib or flange upon its opposite interior sides, with other novel features.

A shield for brooms has been patented by Messrs. Neil W. Dew and Columbus F. Robertson, of Charleston, Ill. A safety shield of novel construction is made to cover that portion of the broom where the straws are joined to the handle, and thus largely dispense with the labor of winding and braiding, while giving a neat and durable finish.

An inkstand has been patented by Mr. Morris Herzberg, of West Point, Ga. It has a removable aperured tube, with a spring, and a vertically reciprocating dip cup resting on the spring within the tube, with other novel features, so there is no danger of covering the pen holder with ink, and if the ink stand is upset only the ink in the dip cup will be spilled.

A hoop fastener has been patented by Mr. William D. Richardson of Springfield, Ill. This invention consists of a flat metal key, with converging rows of projecting barbs on one side and a flange or lip on the other side at the end, the key to be driven between the hoop and the barrel staves, with its barbs in contact with and burying in the wood, and the end flange turned outwardly and forming a shoulder.

An apparatus for painting wire fences has been patented by Messrs. Alonzo L. Marsau and Henry C. Hill of Milton, Iowa. This invention relates to apparatus in which revolving brushes are supported in a paint reservoir moved along the wire, and provides for moving the apparatus continuously without stopping at the posts or removing the brushes off of contact in passing the posts.

A roll for forming link blanks has been patented by Mr. Jesse T. Wright, of New Albany, Ind. The curved ends of blanks to be subsequently punched are made on the last pass when rolling the bar to prepare for the blanks in deep, narrow grooves of the rolls, for passing the bar edgewise, with dies corresponding to the length of the blanks, and for shaping the ends separating the blanks for car coupling links.

A measure for grain, shot, and other like articles has been patented by Mr. Hiram W. White, of Yankton, Dakota Ter. This invention covers a special construction and arrangement of parts, bins with hopper shaped bottoms, having lozenge shaped apertures, a measure, with novel means for operating the slides to convey the material from the bins to the discharge chamber, and other peculiar features.

An improvement in the manufacture of bichromate of soda has been patented by Mr. William Simon, of Baltimore, Md. It consists in evaporating the solution of neutral chromate of soda to dryness before adding the sulphuric or hydrochloric acid, and adding to the dry salt common sulphuric acid, whereby anhydrous sodium sulphate crystallizes out, whence the concentrated solution of bichromate of soda is mechanically separated.

NEW BOOKS AND PUBLICATIONS.

TRAITÉ PRATIQUE D'ÉLECTRICITÉ INDUSTRIELLE. Par E. Cadiat et L. Dubost.

This work, as its title indicates, is a practical treatise on the subject of electricity and it has been the purpose of the authors to present the subject in a form as free from technicalities and abstruse mathematical calculations as possible, and to render it at once interesting and instructive and a ready work of reference to the artisan, the engineer, and mechanic. The first part of the treatise is devoted to definitions and fundamental laws as well as the most important subject of units and measures. Then follows an examination of the different kinds of batteries, dynamos, and electric generators, secondary batteries, etc. The third section contains a review of the various systems of electric lighting, also a comparison between the cost of lighting by electricity and gas and the application of the former to the illumination of ships, theaters, studios, shops, and residences. Electricity as a motive force as applied to railways and aerial navigation is treated of in part four. There are two other sections, which are devoted to galvanoplastic and electro metallurgy and telephony. This work of 500 pages contains numerous illustrations. Price 15 francs. Publisher, J. Baudry, 15 Rue des Saints Pères, Paris, France.

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Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co., Box 423, Pottsville, Pa. See p. 332.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 350.

We are sole manufacturers of the Fibrous Asbestos Removable Pipe and Boiler Coverings. We make pure asbestos goods of all kinds. The Chalmers-Spence Co., 419 East 8th Street, New York.

Clark's Rubber Wheels. See adv. next issue.

Curtis Pressure Regulator and Steam Trap. See p. 236.

Steam Hammers, Improved Hydraulic Jacks, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

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Woodwork'g Mach'y. Rollstone Mach. Co. Adv., p. 286.

Split Pulleys at low prices, and of same strength and appearance as Whole Pulleys. Yocum & Son's Shafting Works, Drinker St., Philadelphia, Pa.

Notes & Queries

HINTS TO CORRESPONDENTS.

Name and Address must accompany all letters, or no attention will be paid thereto. This is for our information, and not for publication. References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all, either by letter or in this department, each must take his turn. Special Information requests on matters of personal rather than general interest, and requests for Prompt Answers by Letter, should be accompanied with remittance of \$1 to \$5, according to the subject, as we cannot be expected to perform such service without remuneration. Scientific American Supplements referred to may be had at the office. Price 10 cents each. Minerals sent for examination should be distinctly marked or labeled.

(1) J. T. W. writes: In the issue of October 25th, W. G. F. asks how calcium sulphide is used to remove hair, etc. Now, will calcium sulphide effectually and permanently remove superfluous hair, and if so, which of the sulphides of calcium? A. The calcium and barium sulphides are considered effectual depilatories. The particular one that is used is the CaH_2S_2 or CaS_2H_2S , called by Watts the sulphhydrate of calcium.

(2) C. J. D. asks: Is celluloid used to coat metals, as is nickel? Can you give me a good solution to coat tin with to prevent acids from eating same? A. Celluloid is not used in the manner suggested. Celluloid is insoluble in chloroform, and by painting the surface with such a solution, as the chloroform evaporates a coating of celluloid will be deposited. A coat of good hard drying asphaltic varnish would, we think, be more suited to your wants.

(3) H. A. D. asks for the formula for making a fluid substitute for silver plating which will last for a few days. A. Prepare a solution of one part potassium cyanide in 6 parts water; add to it a concentrated aqueous solution of silver nitrate (free from acid) until the precipitate is redissolved. Mix this solution with fine chalk, and apply after previously clearing the objects.

(4) E. B. B. asks how to extract the oil from the skins of duck or other water fowl, to be used for trimmings. A. Dip the feathers for a few minutes in coal tar naphtha or benzine, and then dry by exposing to the sun.

(5) V. J. P. asks if there is any way to hold sulphur in solution in mineral oil (paraffine) to be used as a lubricator. A. Sulphur is frequent ya. constituent of crude petroleum; it is soluble generally in the fatty oils, in naphtha especially, when the liquids are hot.

(6) E. S. B. writes: In a late number you say 1 ounce of salicylic acid will prevent fermentation in cider. Is this acid injurious to health? Would it not be a good ingredient in the composition of brine for the preservation of meat, making it unnecessary to use so much salt to make it keep? A. It is used as suggested by you for the preservation of meat. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 226, for exact quantities to be employed. By some its use is condemned, while others assert that it is not at all injurious to the health.

(7) P. S. M. asks the average amount of square plate or pipe surface used in practice for heating 1,000 cubic feet of room space in buildings by hot water or low pressure steam, say 5 pounds, and the same for high pressure steam. A. 10 to 12 square feet per 1,000 cubic feet for hot water, 7 to 9 square feet per 1,000 cubic feet for low pressure according to exposure, and 6 to 7 square feet per 1,000 cubic feet for high pressure.

(8) G. C. G. asks a good receipt for preparing raw meerscham for smoking purposes. A. When freshly exhumed the mineral is covered with red, oily earth, and is so soft as to be easily cut by a knife. Its preparation is slow and troublesome. After removal of the earth, it is dried 5 or 6 days in the sun or 8 to 10 in a hot chamber, then it is cleaned again and polished with wax. Then the different kinds, of which there are ten, are sorted and carefully packed with wood in boxes. In Germany, where the bowls of the pipes are principally exported, they are prepared for sale by soaking them first in tallow, then in wax, and finally by polishing them with a share glass.

(9) J. C. A. writes: Can you give me a formula for an ink which after being printed on paper the print can be transferred to cloth by a warm flat iron, the ink not to crack when the paper (printed on) is folded or rolled up? A. The process you desire has been described as follows: Dust over the stencil white lead (or any suitable coloring material) with a little resin, fixing the pattern by covering with a piece of paper and ironing with a hot iron. When the cloth can be turned (as by placing between boards or book covers) without scattering the powder, it may be preferable to apply the heat directly to the back of the fabric. It is also possible to prepare an ink by dissolving the coloring material and adding a thin solution of mucilage of gum acacia. The mixture should have the consistency of thin paste.

(10) B. F. A. asks: 1. I have a casting 8 inches in diameter, how much sulphuric acid is required to make it 2 pounds lighter, and how strong should the pickle be? A. Castings are generally turned smaller by cutting away a certain amount on the lathe. From the data furnished no estimate could be given. 2. What is the composition of inclosed mineral, and what acid will take the rock off without injuring the diamond? It is found in hard coal mines. A. The specimen is iron pyrites, or sulphide of iron. Mechanical treatment will remove the coal; possibly a gentle heat might be used to burn away the coal. Acids would decompose the mineral, and would be without influence upon the matrix.