ENGINEERING INVENTIONS.

A car coupling has been patented by Mr. Jackson J. Kennedy, of Cleveland, Tenn. This invention relates to former patented improvements of the same inventor, and consists mainly in improved construction of the drawhead, its locking key and its bearings, the drawhead being also more readily adjustable to couple with cars of different heights.

A steering apparatus for traction engines has been patented by Mr. James F. Smith, of Andrew County, Mo. The invention consists of a toothed arm connected with the front axle, with a device for imparting a turning motion to the arm in either direction by suitable means operated from an engine attached to the traction engine, with various novel parts and details.

A motor attachment for centrifugal pumps has been patented by Mr. Barton W. Scott, of Logansport, Ind. This invention covers a novel construction and arrangement of parts whereby it is intended to utilize the power of the water issuing from the periphery of the centrifugal pump wheel for assisting in the propulsion of the pump, considerable force being ordinarily wasted from the velocity with which the water is discharged.

A feed water regulator has been patented by Mr. Derwin E. Butler, of Chesterfield, Fulton County, Ohio (said Butler deceased; Aurelia O. Butler, executrix). A water tank is so connected with the steam space of the boiler that, when the water level of the latter falls below a certain point, the steam will exert its pressure upon the water in the tank to cause water to flow into the boiler, the construction being simple and the operation automatic.

A car coupling has been patented by Mr. George J. Ferguson, of Greenville, Texas. Its construction is such that the coupling may be manipulated from either side of or the top of the car, and by hand, and the devices may be locked in or out of couple, so that a through train may be locked coupled, when no accidental uncoupling can occur in transit, while the coupling does not require any greater length of drawhead than that commonly used, with various other novel features.

A car door forms the subject of two patents issued to Mr. George J. Ferguson, of Greenville, Texas. The object in one invention is to provide a simple construction by which the door, in open and closed positions, may be pressed firmly in against the side of the car, and will perfectly protect the contents of the car from the weather, the joint it makes not being affected by any jarring. By the other invention a construction is provided, intended mainly for grain cars, in which the door may be firmly pressed against the bottom of the car and fastened, so it will not shake loose in making a trip, may be easily started in opening, and will be efficient and durable.

MECHANICAL INVENTIONS.

A hammer attachment has been patented by Mr. William K. Howes, of Strong, Me. It is secured to the handle by means of pivot screws, and is for aiding in driving a nail in a position ordinarily out of reach of the operator, providing means for holding the nail and striking it a first sharp blow, leaving it in a position to be conveniently driven by blows as ordinarily given.

A shuttle box operating mechanism for looms has been patented by Mr. John Zimermann, of Philadelphia, Pa. It is for hand looms for weaving carpets and other fabrics, and is a combination of drop boxes, their suspending cords or ropes, a link connecting the cords and the jacquard and its lever, with a plate provided with levers and pins, with various other novel features, whereby the drop boxes are shifted automatically with very little effort on the part of the operator.

A carding machine forms the subject of two patents issued to Mr. George Bebb, of Indianapolis, Ind. The first invention relates to machines for carding woolen and cotton fiber, and has for its object to keep the doffer free from dirt and short fibers, which are liable to accumulate in the wire card clothing, the device being designed to work automatically, without interfering with the regular operation of the machine. The second invention provides further for discharging the dirt and very short stock into a trough or other receptacle, while the longer fibers will be returned to the doffer to be incorporated with the lap.

AGRICULTURAL INVENTIONS.

A hay loader and stacker has been patented by Messrs. Martin C. and John M. Isom, of Hoosier Prairie, Ill. The invention consists of a novel construction and combination of parts, in which are runners, a crane post with swinging crane, an inclined hay ladder with horizontal platform at its upper end, a hoisting rope and hay fork, with other novel features.

A fertilizer distributer and seed planter has been patented by Mr. Decatur Morgan, of Camden Court House, N. C. The seed is covered by a harrow, and the construction is such that the harrow will not be operated when no fertilizer is being distributed, while the machine can be readily turned around and drawn from place to place without wasting the fertilizer or being inconvenienced by the harrow.

MISCELLANEOUS INVENTIONS.

A windmill attachment has been patented by Messrs. Joseph Greenwood and William Hill, Jr., of Limestone, N. Y. This invention relates to attachments for increasing the length of the stroke, particularly in connection with pumps, and also to so balance the rods used to impart and receive power that their weight will not retard the movement or interfere with the operation of the windmill.

A coffin platform has been patented by Mr. Seth Baker, of Colorado Springs, Col. Combined with side bars formed in sections and united by hinges are cross bars hinged at each end to the side bars, there being a folding frame with trucks or ways, a truck to be mounted on the ways, with other novel features, to facilitate placing and lowering the casket into the grave, the invention being an improvement on a former patented invention of the same inventor.

A sliding gate has been patented by Messrs. Daniel E. James and Edward Lazenby, of Compton, Cal. This invention covers a style of gate which can be opened and shut without getting out of one's carriage or wagon, being opened by an operating cord on one side, and closed by means of a similar cord on the other side after passing through, while the pulleys, operating cords, etc., are thoroughly protected from snow and rain.

An attachment for cooking stoves has been patented by Mr. Eugene Nifenecker, of West New Brighton, N. Y. It consists of a hood or cover with a hinged door and an inner flue, with a grate bottom attached to the cover and a frying pan held in place on the grate bottom in the cover, and removable from the grate bar, the device being designed to carry off all vapors, odors, and smoke arising from boiling and frying.

Business and Personal.

The charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

Metallic Pattern Letters and Figures to put on patterns of castings. Knight & Son, Seneca Falls, N. Y.

The new "Trautwine's Curves" is an exceptionally handsome book. *Engineering News*, July 3, 1886, says it "is probably the most complete and perfect treatise on the single subject of railroad curves that is published in the English language."

The illustrated circular of J. F. Mancha, Claremont, Va., offers tempting inducements to settlers in his flourishing Claremont Colony, on James River.

For Sale—Foundry, machine, blacksmith, and woodworking establishment. Brick building, 103 x 200; iron roof. Switch to shop; boats land at door. Splendid place for manufacturing. All kinds of iron and woodworking machinery running on job work now. $7,500; $1,500 cash; balance, long time. Write for particulars. "W.," box 26, Jefferson City, Mo.

Manufacturers' Advertising Bureau. Benj. R. Western, Treas., 8 Broad St., N. Y. Managers of advertising for firms. 20 years' experience.

The Holly Manufacturing Co., of Lockport, N. Y., will send their pamphlet, describing water works machinery, and containing reports of tests, on application.

Link Belting and Wheels. Link Belt M. Co., Chicago.

Patent for sale. G. A. Wright, Concordia, Kas.

Perpetual motion discovered. E. Hall, Middleville, N. Y.

Telescope Lenses. Lowest prices. Gardam, 36 Maiden Lane, N. Y.

For Sale—32 in. by 60 in. vertical or beam engine; Woodruff & Beach make; 7½ ft. by 8 in. shaft; pulley in sections, 18 ft. dia. In very good order. Estimated weight, 28 tons. Price, F. O. B., near Albany, N. Y., $1,000. S. C. Forsaith Machine Company, Manchester, N. H.

Wanted—To manufacture on royalty patented articles capable of being made in tin or other light metals. Reardon & Ennis, 311 River Street, Troy, N. Y.

The *Railroad Gazette*, handsomely illustrated, published weekly, at 73 Broadway, New York. Specimen copies free. Send for catalogue of railroad books.

Protection for Watches.

Anti-magnetic shields—an absolute protection from all electric and magnetic influences. Can be applied to any watch. Experimental exhibition and explanation at "Anti-Magnetic Shield & Watch Case Co.," 18 John St., New York. F. S. Giles, Agt., or Giles Bro. & Co., Chicago, where full assortment of Anti-Magnetic Watches can be had. Send for full descriptive circular.

Woodworking Machinery of all kinds. The Bentel & Margedant Co., 116 Fourth St., Hamilton, O.

Guild & Garrison's Steam Pump Works, Brooklyn, N. Y. Pumps for liquids, air, and gases. New catalogue now ready.

Concrete patents for sale. E. L. Ransome, S. F., Cal.

The Knowles Steam Pump Works, 44 Washington St., Boston, and 93 Liberty St., New York, have just issued a new catalogue, in which are many new and improved forms of Pumping Machinery of the single and duplex, steam and power type. This catalogue will be mailed free of charge on application.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, polishing compositions, etc. $100 "*Little Wonder.*" A perfect Electro Plating Machine. Sole manufacturers of the new Dip Lacquer Kristaline. Complete outfit for plating, etc. Hanson, Van Winkle & Co., Newark, N. J., and 92 and 94 Liberty St., New York.

Iron Planer, Lathe, Drill, and other machine tools of modern design. New Haven Mfg. Co., New Haven, Conn.

Send for catalogue of Scientific Books for sale by Munn & Co., 361 Broadway, N. Y. Free on application.

Curtis Pressure Regulator and Steam Trap. See p. 45.

If an invention has not been patented in the United States for more than one year, it may still be patented in Canada. Cost for Canadian patent, $40. Various other foreign patents may also be obtained. For instructions address Munn & Co., SCIENTIFIC AMERICAN patent agency, 361 Broadway, New York.

Supplement Catalogue.—Persons in pursuit of information of any special engineering, mechanical, or scientific subject, can have catalogue of contents of the SCIENTIFIC AMERICAN SUPPLEMENT sent to them free. The SUPPLEMENT contains lengthy articles embracing the whole range of engineering, mechanics, and physical science. Address Munn & Co., Publishers, New York.

Inventors wishing to sell their inventions, address, with particulars, Chas. Babson, Jr., 24 Congress St., Boston, Mass.

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.

Pat. Geared Scroll Chucks, with 3 pinions, sold at same prices as common chucks by Cushman Chuck Co., Hartford, Conn.

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

60,000 *Emerson's* 1886 ☞ Book of superior saws, with Supplement, sent free to all Sawyers and Lumbermen. Address Emerson, Smith & Co., Limited, Beaver Falls, Pa., U. S. A.

Safety Elevators, steam and belt power; quick and smooth. D. Frisbie & Co., 112 Liberty St., New York.

Mr. O. Frink, 234 Broadway, New York, publishes a neat little pamphlet describing the common forms of hernia or rupture, and explaining how all cases can be quickly cured by FRINK'S RUPTURE REMEDY. A copy will be mailed, in a plain, sealed envelope, to any address upon request.

"How to Keep Boilers Clean." Send your address for free 88 page book. Jas. C. Hotchkiss, 93 John St., N. Y.

Magic Lanterns and Stereopticons of all kinds and prices. Views illustrating every subject for public exhibitions, Sunday schools, colleges, and home entertainment. 136 page illustrated catalogue free. McAllister, Manufacturing Optician, 49 Nassau St., New York.

The Ingersoll Drill, see page 83, was patented in the U. S., Can., Eng., Fr., and Ger. by W. R. Stevens. Patent Attorney, 705 G St., N. W. Washington, D. C., agent for sale of the machines and patents. Send for catalogue.

Astronomical Telescopes, from 6" to largest size. Observatory Domes, all sizes. Warner & Swasey, Cleveland, O.

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

Notes & Queries

HINTS TO CORRESPONDENTS.

Names 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 Written Information on matters of personal rather than general interest cannot be expected without remuneration.
Scientific American Supplements referred to may be had at the office. Price 10 cents each.
Books referred to promptly supplied on receipt of price.
Minerals sent for examination should be distinctly marked or labeled.

(1) M. R. asks what tutia alexandrina is. A. It is commercial zinc oxide, and can be procured at any paint store.

(2) W. B.—Sulphur soap in baths is considered beneficial for skin diseases. Turkish baths may be taken in winter and for the catarrh. See the cure given in SCIENTIFIC AMERICAN SUPPLEMENT, No. 216.

(3) D. A. C. asks how to make "marsh mallows" (a candy). A. Dissolve one-half pound of gum arabic in one pint of water, strain, and add one-half pound of fine sugar, and place over the fire, stirring constantly until the sirup is dissolved and all of the consistency of honey. Add gradually the whites of four eggs well beaten. Stir the mixture until it becomes somewhat thin and does not adhere to the finger. Flavor to taste, and pour into a tin slightly dusted with powdered starch, and when cool divide into small squares.

(4) H. F. J. writes: Some time ago I read of a drug to use on cotton to put in the ears to prevent hearing. It was said to be used by a man who had to sleep in the daytime where there was considerable noise, and not to be injurious. Is there any such drug, and if so, what is it? A. Cotton alone should be sufficient for any rightful use. It is exceedingly ill advised under such circumstances to use drugs to produce sleep.

(5) W. S. C. asks some way to remove the soot from a smoke stack 50 ft. tall, that is constantly annoying us by catching fire. Why is it that the soot forms and sticks to the walls of the stack more in the winter than summer? A. You probably burn wood which generates pyroligneous acid vapors, that condense upon the walls of the chimney and cement the unburnt carbon in the smoke. More condensation occurs in winter than in summer, from the greater cold, and hence greater accumulation of soot. There is no remedy but to burn anthracite coal, or sweep the chimney often.

(6) H. B. B.—There is no general proportion of height to length and number of panels applicable in bridge building. The weight to be carried, its kind, whether railroad is single or double track, whether there be also a common road, single or double, or with passenger walks, probable wind force, etc., are prime factors in establishing the height and length of panels. While the length of bridge is always a fixed measure, the quality and strength of material is a modifying and variable factor. In working out the details of strains to meet the requirement of assumed service, engineers may vary the details of construction and proportions to suit their individual judgment.

(7) W. C. T. desires a process by which he can bleach tallow (make it white) without interfering with its use for culinary purposes. A. We recommend simple boiling with its own volume of water, as there is a strong and well-founded prejudice against the use of chemicals.

(8) J. A. H.—For an acoustic telephone you may use a fine copper or galvanized iron wire, stretched between the required points, with each end attached to the center of thin disks of tin, about 1 in. in diameter. This may be done by soldering a small eye to the tin and twisting the wire in the eye. The disks are supported by drumheads of tightly stretched parchment somewhat funnel shaped, the disk lying against one side of the parchment and the wire extending from the other, and the parchment receiving the strain of the line wire. Avoid turning sharp corners. If necessary to make a turn, use radial slings of marline placed on outside of curve, attached to a solid post or a house.

(9) R. M. A. desires a cement that will hold tortoise shell together, also hold it to steel or brass. A. Take of mastic 30 parts, shellac 90 parts, turpentine 6 parts, spirits of wine, 90 per cent strong, 350 parts.

(10) B. F. R. asks (1) a recipe for a good "stomach bitters." A. Grind to a coarse powder ½ pound cardamom seeds, ½ pound nutmegs, ½ pound grains of paradise, ½ pound cinnamon, ¼ pound cloves, ¼ pound ginger, ¼ pound galanga, ¼ pound orange peel, ½ pound lemon peel; then macerate with 4¾ gallons 95 per cent alcohol, and add a sirup made of 4½ gallons water and 12 pounds sugar, then filter. 2. What is the most wholesome food for man? A. See "Cost and Nutritive Value of Foods," in SCIENTIFIC AMERICAN SUPPLEMENT, No. 124.

(11) A. L. S. asks how to make retouching pencils in small quantities, such as used by photographers in touching negatives. A. The pencils consist principally of metallic lead to which a small quantity of antimony has been added to bring about the requisite softness. You will find it much cheaper to purchase them ready made than to attempt their manufacture yourself.

(12) J. J. D. asks: 1. What composition is used by hardware manufacturers to make paper labels adhere to iron, and what is it composed of? A. Use a dilute solution of white gelatine or isinglass, in the proportion of about one to twenty. For receipts of cements see the collection given in SCIENTIFIC AMERICAN SUPPLEMENT, No. 158.

(13) T. H. asks: 1. What is fusel oil? A. It is the offensive, strong smelling oil produced along with the alcohol during the fermentation of grain, potatoes, etc., when conducted on a large scale. 2. How can it be detected when mixed with whisky? A. Only satisfactorily by chemical analysis. 3. What effect does it produce on those who take it, when mixed with whisky? A. The injurious effect of whisky is due largely to an excess of this ingredient, and such whisky is much more poisonous than that which is comparatively free from it.

(14) J. H. asks: Is there any gun whose range is said to be 15 miles, in the United States, Europe, or elsewhere? If not, state longest range that is now claimed. A. We believe there is no existing gun having a range of 15 miles. The longest range are the Bange guns, which are capable of throwing their projectiles 10 miles.

(15) H. B. asks: 1. What is the proportion of sulphuric acid to bichromate of potash in the solution for single fluid battery? A. For electropoion fluid for single cell battery, the following is recommended: One gallon sulphuric acid to three gallons of water. After it is perfectly cold, add to it a solution of six pounds bichromate of potash in two gallons boiling water. Use when cold. 2. What must be the proportion in case chromic acid takes the place of bichromate of potash? A. For chromic acid use about the same proportions. This will dissolve in cold water, or directly in the acid after full dilution. If the chromic acid is of theoretical strength, you could use one-third less than of the bichromate. 3. What are the formulæ in which the chemical action of the second case is expressed? A. 1st. $Zn+H_2SO_4=ZnSO_4+2H$. 2nd. $6H+2H_2CrO_4+3H_2SO_4=Cr_2(SO_4)_3+8H_2O$.

MINERALS, ETC.—Specimens have been received from the following correspondents, and have been examined, with the results stated.

P. P. B.—The specimen is limestone containing pyrite.

TO INVENTORS.

An experience of forty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequaled facilities for procuring patents everywhere. A synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices, which are low, in accordance with the times and our extensive facilities for conducting the business. Address MUNN & CO., office SCIENTIFIC AMERICAN, 361 Broadway, New York.

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