

ENGINEERING INVENTIONS.

A car door fastener has been patented by Mr. Henry C. Singiser, of Mechanicsburg, Pa. This invention covers a novel form of construction intended to do away with all loose swinging attachments heretofore carried by the car door, and serves to hold the door tightly closed irrespective of the jogging or jolting of the car.

A valve gear has been patented by Mr. Louis W. Bryan, of Quincy, Ill. It is an improvement especially designed for steam pumps, and the valves are so made as to be relieved from all pressure when they leave their seats, thereby balancing, so that only a slight spring is required to complete their stroke after being started.

A car coupling has been patented by Messrs. Thomas W. Talbot and J. Lucoo Farmer, of Florence, S. C. It has two connected drawheads at right angles to each other upon trunnions, whereby either drawhead may be presented as desired, one of them being constructed as a throat, with coupling hooks and locking devices, and the other as a projection adapted to fit into the mouth of the opposite drawbar.

MISCELLANEOUS INVENTIONS.

A semaphore signal has been patented by Mr. William Thornburgh, of Elyria, O. This invention covers improvements on a former patented invention of the same inventor, with the object of simplifying the mechanism for working the signal wings in such a manner that they occupy less space.

An ash sifter has been patented by Mr. William T. Adams, of Baltimore, Md. It consists of a sifting cylinder in combination with a specially devised casing holding an ash box and a coal box, with various novel features, to promote convenience in construction and facility in use.

A horse collar has been patented by Mr. Robert M. Sears, of San Francisco, Cal. It consists in a soft, flexible collar, stiffened in the throat portion by a rigid curved bar, and having clips or hooks for receiving the hames, the collar being such as will readily adapt itself to the form of a horse's neck and shoulders.

A composition for holding photographic paper on its support, etc., has been patented by Mr. Thos. C. Roche, of Brooklyn, N. Y. It is a tacky composition for holding sensitive paper during exposure in the camera, and consists of rubber, beeswax, pitch, and a solvent, prepared in a manner specified.

A revolving sign has been patented by Mr. Alfred T. Fagerburg, of Bloomington, Ill. It has a supporting rod, with a head frame adapted to revolve on the rod, tappets on the frame, and bells pivoted to the rod with their stems in the path of the tappets, with other novel features, making a simple and inexpensive device for advertising purposes.

A life preserving float has been patented by Mr. Frank Vaughan, of Elizabeth City, N. C. It consists of a case made usually cylindrical in cross section and bent into ring shape to encircle the body, being divided by partitions into independent air tight compartments, while there are recesses on oppositesides for the arms of the wearer.

A feed cutter has been patented by Mr. Adolph Hamacek, of Ahnapee, Wis. In front of the feed box are longitudinally ribbed feed rollers, and beyond these a presser roller or plate and cutters, with various novel features of construction and arrangement of parts, to facilitate the cutting of hay, straw, and similar material.

A saw table has been patented by Mr. Herbert J. Thompson, of Ogema, Wis. Combined with a carriage is a slide, an arm on the slide, and a block on the end of the arm, the block being on a line with a ledge on the end of the slide, the device being adapted for cutting off the sapwood and cutting out the knots of shingles, and making the edges straight.

A medical operating couch has been patented by Mr. Frederick W. Uhde, of Philadelphia, Pa. It has revolving screw rods, operated by a crank, so connected with its frame as to afford a mechanism by which the couch may be raised and lowered horizontally, or adjusted on an incline, or it may be adapted to serve as an ordinary lounge.

A combined truss and abdominal support has been patented by Mr. James A. Tigner, of Rome, Ga. This invention consists in the special construction of the support and truss, which is made to be held in position by a single belt passed around the body, thus avoiding the discomfort and liability to displacement incident to strapping the truss to the limbs.

A cartridge loader has been patented by Mr. James V. Thompson, of Fort Madison, Iowa. The instrument is set upon a base plate, and consists of a standard with slotted upper end to receive the end of a lever arm, a plunger being connected to the lever, and the machine having a number of these plungers, varying in size to fit within shells of different calibers.

A dress protector has been patented by Jenny M. Haskell, of Greenwich, N. Y. It consists of a light, comfortable harness, of elastic and non-elastic straps, which can be readily applied to shields of thin waterproof material, shaped to fit next the skin, and protect garments from perspiration, to hold the shields in place and without discomfort to the wearer.

A spool holder has been patented by Mr. Benjamin F. Baker, of Fairville, New Brunswick, Canada. It consists of a wedge-shaped casing, with holders formed of spring wire, adapted to hold any desired number of spools of different lengths, the holder being in form convenient to hang up to unwind the thread for use in sewing.

A vapor fuel apparatus has been patented by Mr. Augustin I. Ambler, of Washington, D. C. This invention consists in novel constructions and combinations of parts, whereby the vaporizing of the petroleum or oil and mixture of the steam with it or its vapors is very perfectly and economically secured, the apparatus is readily controlled, and other advantages are obtained.

A baling press has been patented by Mr. George Ertel, of Quincy, Ill. It is a machine occupying very little ground space, and is adapted for the continuous formation of bales from below and their discharge from the top of the press, the present invention being an improvement on a former patent of the same inventor, intended to better the mechanism insuring the positive operation of the follower.

A fruit conveyer has been patented by Mr. Marshall N. Gaines, of Dunedin, Fla. Combined with a flexible conducting tube having a flaring mouth and a suitable handle is a series of cushioned valves working therein, and returnable by means of elastic or other spring device to a horizontal position, the device being applicable to all sizes of fruit, to discharge it upon the ground or in a suitable receiver.

Business and Personal.

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Mothers,

do you not see the pallid face, once so bright, growing thinner? Do you not hear the hacking cough, and note the wasted, languid indifference, where once was mirth, brightness, and keen enjoyment for all the pleasures of life? Do not be mistaken or deceived. That child is dying of consumption—slowly, but surely. Yet thousands are living to-day who have been cured by the use of Dr. Pierce's "Golden Medical Discovery," which surpasses all other medicines for the cure of that disease. Send ten cents for pamphlet and testimonials. Address World's Dispensary Medical Association, Buffalo, N. Y.

Wanted.—An experienced salesman would like to sell sewer pipe. A. E. Lander, Rochester, N. Y.

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.

Curtis Pressure Regulator and Steam Trap. See p. 142.

Wanted.—A competent, sober, experienced engineer to take charge of the gas, water, and steam heating apparatus, and the machinery of a large hospital. Address, stating wages expected, "Engineer," P. O. Box 778, New York.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J. Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., N. Y.

A Catechism on the Locomotive. By M. N. Forney. With 19 plates, 271 engravings, and 600 pages. \$2.50. Sent on receipt of the price by Munn & Co., 361 Broadway, New York.

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

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 Laquer Kristaline. Complete outfit for plating, etc. Hanson, Van Winkle & Co., Newark, N. J., and 92 and 94 Liberty St., New York.

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Iron Planer, Lathe, Drill, and other machine tools of modern design. New Haven Mfg. Co., New Haven, Conn. Planning and Matching Machines. All Kinds Wood Working Machinery. C. B. Rogers & Co., Norwich, Conn.

Nystrom's Mechanics.—A pocket book of mechanics and engineering, containing a memorandum of facts and connection of practice and theory, by J. W. Nystrom, C. E. 18th edition, revised and greatly enlarged, plates, 12mo, roan tuck. Price, \$3.50. For sale by Munn & Co., 361 Broadway, New York city.

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Best Automatic Planer Knife Grinders. Pat. Face Plate Chuck Jaws. Am. Twist Drill Co., Meredith, N. H.

New Portable & Stationary Centering Chucks for rapid centering. Price list free. Cushman Chuck Co., Hartford, Conn.

The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. Dudgeon, 24 Columbia St., 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.

Hoisting Engines. D. Frisbie & Co., New York city. Veneer Machines, with latest improvements. Farrel Fdry. & Mach. Co., Ansonia, Conn. Send for circular.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv., p. 28. Hercules Lacing and Superior Leather Belting made by Page Belting Co., Concord, N. H. See adv. page 80.

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.

Brass and Iron Working Machinery, Die Sinks, and Screw Machines. Warner & Swasey, Cleveland, O.

Grimshaw's Steam Engine Catechism.—A series of thoroughly Practical Questions and Answers arranged so as to give to a Young Engineer just the information required to fit him for properly running an engine. By Robert Grimshaw. 18mo, cloth, \$1.00. For sale by Munn & Co., 361 Broadway, N. Y.

NEW BOOKS AND PUBLICATIONS.

THE FIELD PRACTICE OF LAYING OUT CIRCULAR CURVES FOR RAILROADS. By John C. Trautwine, C. E. Twelfth Edition. New York: John Wiley & Sons, 1886.

Prepared originally by Mr. Trautwine in 1851 for the use of the younger members of the profession, the popularity and usefulness of this complete treatise on railroad curves has been amply demonstrated by the large sale it has reached and the frequent revision which time has made necessary. Since the death of the author, it has fallen to the son to prepare this last edition. The methods of laying out curves, of finding their radii, and of calculating the elevation of the outer rail are all treated very carefully and in full detail. The study of curves of more than 180° has also been included, since their utility has been made evident of late years in the difficult engineering required by the Rocky Mountain topography. The description of the engineer's transit and its adjustments will be found useful by those not thoroughly acquainted with the instrument. The tables of the trigonometrical functions are as perfectly reliable, we believe, as any published. The volume is attractively bound in leather, and will make a convenient pocket-book of reference.



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) T. H. S. asks what lightning proof fencing is. It is spoken of in your issue of July 17, in an article on "A New Mountain Observatory." A wire or metallic fence, grounded at frequent intervals, and provided with numerous projecting points, is practically lightning proof, and within a distance depending on its height is lightning protective.

(2) E. L. writes: I desire to make a cheap pluviometer. I have a glass tube 7/8 of an inch in its short diameter, and do not know the proportionate scale to divide it, in order to mark the tenths, inches, etc., of rainfall; the tube is 30 inches long. A. To construct a rain gauge, simply close the lower end of your tube with a cork, covered as inserted with melted sealing wax. Then set it in an upright position away from houses, preferably on top of a post, and the direct reading will give you the rainfall. Or fit a tin funnel to its top, and divide it, making the divisions larger in the ratio of the squares of the diameters of the tube and funnel mouth. Thus, if the funnel is 3 inches, then magnify the divisions in the ratio of 3^2 to 7/8^2 or as 9 : 576 : 25 or 23 : 1 nearly.

(3) A. M. asks (1) if cylinder 3/8 inches long, 18 inches in diameter, 3/4 inch thick, can be magnetized, the cylinder to be under water. A. It can by a sufficiently powerful current. 2. Would steel be better than iron to make the cylinder with? A. If to be magnetized permanently, it must be of steel. 3. Is the dynamo described in SUPPLEMENT, No. 161, strong enough to magnetize it? If not, what is the best way to magnetize and keep it magnetized? A. A much larger dynamo or fifty to one hundred good cells would be about right for magnetizing it.

(4) R. H. B. writes: Please inform me how extra porous carbon tubes are made for Jablockoff's auto-accumulator, described in SCIENTIFIC AMERICAN SUPPLEMENT, No. 498. It says that they "are prepared from finely divided coke mixed with other material, which will be destroyed in the baking process, and leave the spaces occupied by it free to be penetrated by the atmosphere." What is the other material mixed with the coke, so as to leave the interstices? A. The materials used in cementing coke dust for battery carbons may be sugar sirup, coal tar, or other similar material. You will find strong sirup quite satisfactory, and cleaner to work with than tar.

(5) H. P. S. asks: 1. How can the scraps or shavings of the working of tortoise shell be utilized? A. We know of no means by which they can be used. 2. How are names put on tortoise shell with fine gold wire? A. Wire is heated and pressed in. 3. How are names printed placed in between the shell, and plainly legible from outside? A. The name is placed between thin plates of tortoise shell. 4. How can two pieces of shell be soldered together? I have seen new teeth put into a comb, and impermeable; how is this done? A. Use a pair of pincers or tongs, constructed so as to reach 4 inches beyond the rivet; then have the tortoise shell filed clean to a lap joint, carefully observing that there is no grease about it; wet the joint with water, apply the pincers hot, following them with water, and the shell will be joined as if it were one piece. The heat must not be so great as to burn the shell, therefore try it first on a piece of white paper. 5. How to polish tortoise shell? A. Having scraped the work perfectly smooth and level, rub it with very fine sandpaper or Dutch rushes; repeat the rubbing with a bit of felt dipped in very finely powdered charcoal with water, and, lastly, with rottenstone or putty powder, and finish with a piece of soft wash leather, damped with a little sweet oil; or still better, rub it with subnitrate of bismuth by the palm of the hand. 6. How can you soften tortoise shell, besides soaking in hot water? A. Use diluted sulphuric acid; also see Spoons' Workshop Receipts."

(6) W. S. N. asks: 1. Where could I get recipes for nutritious summer drinks? A. See "Effervescent Beverages," containing recipes for ginger beer, lemon beer, hop beer, and spruce beer. 2. The manner of preparing, and what part of the fish is used in making fish glue or isinglass? A. See "Glaue and Gelatine, Pastes, Mucilages," etc., by F. Davidowsky, which we can send you for \$2.50.

(7) W. . W. asks how to melt old rubber, such as old rubber car springs and scraps, so as to be able to run it into moulds for new work. A. Heat the India rubber with steam; the sulphur then discharges, the India rubber melts, runs into the hot water and collects at the bottom of the pot, while the vapor prevents it burning. The properties of the India rubber are thus sensibly modified; it becomes a blackish mass, liquid at the ordinary temperature, but drying in the air, and becoming then impervious to water. The material loses its elasticity, but is suitable for the preparation of gums or special varnishes for certain articles. It cannot, however, be run into moulds for new work as you suggest. See description of "India Rubber Manufacture," in SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 249, 251, 252.

(8) W. H. C. desires a receipt for making genuine root beer. A. Take 1 oz. each of sassafras, allspice, yellow dock, and wintergreen, 1/2 oz. each of wild cherry bark and coriander, 1/4 oz. hops, and 3 qts. molasses. Pour sufficient boiling water on the ingredients and let them stand 24 hours, filter the liquor, and add 1/2 pint yeast, and it is ready for use in 24 hours.

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 unequalled 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.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

July 27 1886,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Table listing inventions and their patent numbers, including items like Air and gas engine, Ammonia in engines, Animal stock, Bagasse feeder, Bed bottom, Bed pan, Bedstead, Belt fastener, Belt galvanic, Bin, Bird cage, Bit, Blind window, Book support, Book trimming machine, Boot or shoe, Boots and shoes, Bottle cabinet, Bottle, mullage, Bottle, machine for finishing the necks of, Box, See File box, Moulding box, Stuffing box, Bracket, Brake, Brake beams, Breakwater, Brick drying, Brick for window sills, Brick making, Brick tile, Dickson, Bridge, truss, T. K. Marks, Bridle, J. Bland, Bridle bit, J. Stanley, Brush, M. App, Burglar alarm, window, J. E. Hunt, Bustle, F. Fant, Button, R. J. Kyle, Button setting machine, J. H. Vinton, Cabinet for exhibiting wares, J. Levensuth, Calendars, adjustable indicator for, R. Shriver, Camera, See Photographic camera, Camera, G. McLaughlin, Canning apparatus, C. F. Mudge, Car brake, R. R. Hice, Car brake, automatic, Hopkins & Linham, Car coupling, W. W. Campbell, Car coupling, J. H. Hayes, Car coupling, S. G. Howe, Car coupling, G. H. Huttenlocher, Car coupling, F. P. Hynds, Car coupling, J. S. Peacock, Car coupling, Talbot & Farmer, Car door fastener, H. C. Singiser, Car mover, C. L. Barnhart, Car, stock, B. F. Holmes, Carbon black, manufacturing, J. J. McTigue, Carding machines, etc., self-feeder for, E. Tromblay, Cartridge loader, J. V. Thompson, Cartridge loading implement, S. E. Cheeseman, Cartridge resizing implement, G. W. Morse, Case, See Vial and sample case.