

ENGINEERING INVENTIONS.

A cable grip has been patented by Mr. Lewis B. White, of New York city. It is operated by compressed air, a piston from the cylinder containing which operates a rod having lateral projections, and connected with cable gripping jaws, constructed after a novel plan, that is calculated to grip and release the cable rapidly, and hold it firmly and securely.

A steam engine has been patented by Mr. Herman Knebel, of Birmingham, Ala. It is a rotary engine, with a shaft provided with a piston having a head, with steam channels opening at their inner ends, on opposite sides of the head, and extended thence outward in opposite directions, making an engine which may be revolved in either direction, and which avoids dead centers by causing the crank pin or eccentric portion to serve as a piston head.

AGRICULTURAL INVENTION.

A plow has been patented by Mr. Jonathan M. Woodley, of Clio, S. C. The invention consists in an adjustable and reversible wedge-shaped block for use with an adjustable breast part which carries the sweep or shovel, the whole forming a plow gauge adapted to suit plows of different lengths, and serving to regulate the angle or pitch and depth of entry of the sweep or shovel into the ground.

MISCELLANEOUS INVENTIONS.

An ore separator has been patented by Mr. Henry C. Krause, of Lake Linden, Mich. Its construction is such as to allow a graduated supply of water to the pan, and in such way that the valuable mineral will be separated or graded into different sizes, the machine being economical in the use of water, and being simple and not expensive.

A clothes line pulley has been patented by Messrs. John S. Collins and Edmund J. Lyons, of Brooklyn, N. Y. A forked bracket attached to a base plate carries a larger and smaller pulley, the line passing around the former and over the latter, which are so controlled by a crank that the line will be held securely and can be readily put up and taken down.

A coffin platform for graves has been patented by Mr. Seth Baker, of Colorado Springs, Col. It consists of a frame with sockets, and standards with transverse sockets, etc., whereby coffins can be readily placed over and conveniently lowered into the graves, while at the same time hiding the open mouths of the graves.

A spool holder for sewing machines has been patented by Mr. Friedrich Neuhaus, of Belleville, Ill. It is a friction device intended to prevent the spool from revolving more rapidly than is required, thus preventing the undue unwinding of the thread, it being adapted to be placed upon the spool spindle with the spool resting upon the fabric layer.

An alarm for poison receptacles has been patented by Mr. Oscar F. Frost, of Monmouth, Me. It has a clamping plate and loop supporting a bell, which is hung in such way that when the bottle or package to which it is attached is taken in hand an alarm will be rung that will give notice of the dangerous nature of the contents.

A coffee pot has been patented by Mr. Joseph M. Lawrence, of Houston, Texas. It has a false bottom and tubes extending upward therefrom and communicating with the upper parts of two chambers, with other novel features, whereby the water heated will be forced up through the tubes and discharged continuously into the receptacle containing the coffee.

A wagon bed hoist has been patented by Mr. James S. Jones, of Crutchfield, Ky. It consists of a windlass provided with a clamp, by which it may be temporarily secured to the wagon bed or bottom of the wagon box, with sheaves secured to the ceiling or upper floor joists of the carriage house, for receiving rope in hoisting the wagon bed.

A hog pen has been patented by Mr. Lewis F. Chenoweth, of Millerton, Kan. The invention covers an improved construction in various parts and details, whereby water or fluid feed may be placed in the trough from the outside, and whereby the animals in different compartments can feed from the feed box and trough without disturbing each other.

A process of and apparatus for coating fabrics has been patented by Mr. Edward G. Sparks, of Brooklyn, N. Y. The invention provides for coating the material by projecting upon one or both sides a fine spray of the coating material, as wax, paraffine, etc., and maintaining the apparatus and material in a heated condition to insure uniform spraying over the entire surface.

A fruit evaporator has been patented by Mr. Arthur C. Penniman, of San Jose, Cal. The construction is such that the fruit trays are subjected to more intense heat at the bottom of the oven, and are then carried by wheels to a cooler upper part, to give the desired degree of evaporation, then removed through a door at the end of the revolution, where fresh trays are inserted.

A nut lock has been patented by Mr. Aaron C. Vaughan, of Shane's Crossing, O. The body portion of a nut is cut entirely through with a slit parallel to the axis of the bolt, and a portion of the part thus cut is depressed so as to act as a stout spring to bear against the other nut when screwed up, causing a strain to exist between the two nuts that prevents their turning off together.

An electric motor and generator has been patented by Mr. William Hansell, of Nevada, Iowa. They are mounted on a base common to both, and have their armatures both carried by the same shaft, with fixed pole pieces and removable electro or permanent magnets, arranged so they may be changed for others, the apparatus being intended for demonstration in schools, for medical use, and a variety of purposes.

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.

Second-hand Tools For Sale by Poole & Hunt, Baltimore, Md.—One planing machine, will plane 35' wide, 27" high, and 16' 6" long; one planing machine, will plane 30' wide, 26" high, and 5' 6" long; one planing machine, will plane 24' wide, 22" high, and 5 feet long; one double geared chasing lathe, will swing 24" dia., 8' 6" long; one drill grinding machine; one small punching and shearing machine, with flywheel and clutch starting arrangement.

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.

Equatorial Mountings, Reflecting Telescopes, etc. Reasonable prices. Gardam & Sons, 96 John St., N. Y.

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How many wives who to-day are almost distracted because of their many ailments, all tending to make home unhappy, would become the best of all earthly goods if they got rid of their troubles by using Dr. Pierce's "Favorite Prescription," which is an unfailing remedy for those diseases and weaknesses which afflict the female sex! Send ten cents in stamps for Dr. Pierce's complete treatise on these diseases, illustrated by numerous wood cuts and colored plates. Address World's Dispensary Medical Association, Buffalo, N. Y.

Agents wanted all over the United States to sell patent spool holder for sewing machines. Sample and circular sent to any address on receipt of 20 cents. Address F. Neuhaus, Belleville, Ill. P. O. box 934.

A Mussulman gentleman, resident of Lucknow, India, wants employment in America. He is a matriculated scholar of English, a professor of Persian and Arabic philosophy and religion. A poet of his own language (Urdu). For full particulars and testimonials apply to Mirza Mohamed Hadi Katra Azam Beg-Nakhas, P. O. Mansurnagar, Lucknow.

For Sale.

The powerful hydraulic dredge boat G. W. R. Bayley, now lying at Port Eads, La. Capacity, 2,000 cubic yards of sand or 4,000 of mud in 10 hours. Also two powerful tug boats, all in perfect order. Inquire at Room 709 Mutual Life Building, No. 34 Nassau St., New York.

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

Foreman for machine tool department of a large stationary and portable engine works. Must be a draughtsman and familiar with valve movements and high speed automatic engine work; must understand handling men. To the right person there is an opportunity to secure the position of superintendent of the establishment. Address, stating age, T. E. J., P. O. box 773, New York.

Eureka scroll sawing machine for sale; been run for 15 days; taken for debt; good as new. Price, \$62, spot cash. Address "Eureka," Worcester, Mass.

Blake's Improved Belt Studs are the strongest and best fastening for Leather and Rubber Belts. Greene, Tweed & Co., 83 Chambers St., New York.

Engines and boilers, 1/2 to 4 H. P. Washburn Engine Co., Medina, O.

For Sale—The machinery, tools, plating apparatus, and raw material of a manufacturing establishment, now working on orders in brass and other metals. Very low rent, including steam power. Address Manufacturer, P. O. box 255, New Brunswick, N. J.

A Catechism on the Locomotive. By M. N. Forney. With 19 plates, 227 engravings, and 600 pages. \$2.50. Sent on receipt of the price by Munn & Co., 361 Broadway, New York.

Concrete Apparatus, etc. Ernest 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. Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., N. Y.

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 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.

Curtis Pressure Regulator and Steam Trap. See p. 142. Send for catalogue of Scientific Books for sale by Munn & Co., 361 Broadway, N. Y. Free on application.

Timber Gaining Machine. All kinds Wood Working Machinery. C. B. Rogers & Co., Norwich, Conn.

Iron and Steel Wire, Wire Rope, Wire Rope Tramways. Trenton Iron Company, Trenton, N. J.

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.

Iron, Steel, and Copper Drop Forgings of every description. Billings & Spencer Co., Hartford, Conn.

Rubber Belting, all sizes, 77 1/2 per cent regular list. All kinds of Rubber Goods at low prices. John W. Buckley, 156 South Street, New York.

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.

Universal & Independent 2 Jaw Chucks for brass work, both box & round body. Cushman Chuck Co., Hartford, Ct.

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

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

Emery, Walrus Leather, English Bull Neck and Polishers' Supplies. Greene, Tweed & Co., 83 Chambers St., New York.

"How to Keep Boilers Clean." Send your address for free 88 page book. Jas. C. Hotchkiss, 93 John St., N. Y. Stewart's Anti-Incrustation Solution. See next issue.

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. Yocum & Son's Shafting Works, Drinker St., Philadelphia, Pa.

NEW BOOKS AND PUBLICATIONS.

THE AGE OF ELECTRICITY. By Park Benjamin, Ph.D. New York, 1886. Chas. Scribner's Sons. Pp. 381. Illustrated.

The general supposition with regard to a book on this subject at the present day, when so many electrical works are on the market, would be that it is not needed. Yet on perusal it at once is evident that a useful and attractive work is presented. The first chapters are devoted to the history of the subject, the honors being distributed with a very impartial hand. The day has gone by for all progress in the science to be attributed to one or two investigators. The theory of the chemical and mechanical generation of electricity is next taken up, along with the relation between electricity and magnetism. This comprises about one-fourth of the book. The economical applications are next considered, such as the electric light, motors, electrolysis, telegraphy, and telephony. A chapter on the induction coil, and another on applications of electricity to war, medicine, railways etc., concludes the text. The work ends with a short index. Designed for popular use, the matter summarized above is treated in a lighter style than usual. By varied allusions to history, mythology, and literature, the book is made much more interesting than is usual in its class. The most recent curiosities and novelties are described, and hold the attention. The cuts and illustrations are numerous. Some are new, and some we recognize as very old acquaintances. The treatment of the subjects of potential and of different arrangements of battery cells, the illustrations being derived from vessels of water, and his allusion, also illustrated by cuts, to Gilbert's (of Pinare fame) "Silver churn and the magnet," are worthy of full commendation. Some minor points are not so well disposed of. The description of Volta's pile seems far from clear. The great magnet of Professor Henry is said to have had a core 728 feet long—evidently meaning coil. We should have been pleased also to have seen the parody on Tennyson's Bugle Song attributed directly to its author, most amiable as well as most profound of philosophers, J. Clerk-Maxwell. The author's allusion to Daniel Drawbaugh, and indeed his whole treatment of the Bell telephone controversy, is characterized by a due degree of moderation, when his own part in the telephone suits is borne in mind.



HINTS TO CORRESPONDENTS. Names and Address must accompany all letters, 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) L. J. M. writes: I am using a varnish on small pocket memorandum books which require from twelve to fifteen hours to dry; when dry and packed together, they adhere, which is very objectionable. Is there anything that I can put in the varnish to make them dry quickly? A. Use 6 oz. mastic, in drops; 3 oz. coarsely powdered glass, separated from the dust by a sieve; 22 oz. spirits of wine of 40°. Place the ingredients in a sand bath over a fire, and let them boil, stirring well. When thoroughly mixed, introduce 3 oz. spirits of turpentine, boil for half an hour, remove from the fire, cool, and strain through cotton cloth. Great care in manipulation is requisite to avoid a conflagration. Use a closed fire and watch incessantly.
- (2) H. B. asks: Are the sections of a Gramme electric machine's armature wound on back and forth the same as in winding wire on electro magnets? A. All sections are wound in the same direction.
- 2. Please give me the approximate surface speed of dynamo armatures, and does it differ in large and small machines? A. It varies from 100 feet up to several thousand feet per minute. It is greater in large machines.
- 3. What is the best mode to adopt in charging a Leyden jar with an induction coil? A. Attach the ball to one terminal and the outer coating to the other, and carry a wire from the outer coating to within a few inches of the ball. This distance will determine the striking distance.
- (3) A. B. C. asks: Will a magnet be proportionately stronger with a given battery power if the layers of magnet wire are largely increased in number? Is a voluminous or intense current required? Is sulphide of calcium all that is necessary to make a luminous paint? A. The number of convolutions should be in proportion to the battery. Too long and

fine a wire will oppose such resistance as to reduce the current. Also the outer layers will have less effect than the inner, owing to their remoteness from the core. The current should be strong, which is a function of intensity and resistance. Sulphide of calcium properly prepared is the basis of luminous paint.

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, September 28, 1886, AND EACH BEARING THAT DATE. [See note at end of list about copies of these patents.]

Table listing various inventions with their patent numbers, including items like Advertising medium, Alarm, Amalgamator, Arm rest, Automatic sprinkler, Axle box, Axle lubricator, Bag, Baking furnace, Baling press, Ball, Bandage, Barrel, Bed bottom, Bench dog, Blast furnaces, Boiler, Brake, Brakelever, Brick kiln, Broom, Brush, Burner, Button, Car brake, Car coupling, Car wheel, Castor, Caster, Caster, Clock, Coat, Cloth, Coffee, Collar, Compasses, Corn, etc.