

are treated in this work, and its origin goes to emphasize its authoritative standing.

CADET LIFE AT WEST POINT. By Lieut Hugh T. Reed, U. S. A. Illustrated. Chicago: Published by the author. Pp. 236, xx. Price \$1.50.

This very spirited and interesting book tells how the United States cadets live at the military academy. The author seems to have been very fond of his alma mater, and writes about the humorous and social features of it with considerable gusto.

THE PRACTICAL MANAGEMENT OF ENGINES AND BOILERS. Including boiler setting, pumps, injectors, feed water heaters, steam engine economy, condensers, indicators, slide valves, safety valves, governors, steam gages, incrustation and corrosion, etc.

THE GUN AND ITS DEVELOPMENT. W. W. Greener. Sixth edition. New York: Charles Scribner's Sons. 1897. Pp. xvi, 768. Price \$4.

This treatise on the gun, by Greener, up to its last developments, in over 700 pages, can only be designated as of the greatest importance. No sportsman, really loving his gun, can afford to dispense with this work, as it covers every conceivable branch of this subject.

THE ELEMENTS OF PHYSICS. A College Text Book. By E. L. Nichols and William S. Franklin. In three volumes. Vol. III. Light and Sound. New York: The Macmillan Company. London: Macmillan & Company, Limited. 1897. Pp. vii, 201. Price \$1.50.

We here at last have a third portion of this classical treatise. It is in the line of its predecessors, carrying out the same principles. There is little to be said about it in review, except that it has the aspect of thorough modernness and puts the subject at last upon its present modern basis.

TABLES FOR EARTHWORK COMPUTATION. By C. F. Allen. Boston: Published by the author. 1893. Pp. 38. Price \$1.50.

The book is devoted simply to calculations for earthwork, and will naturally be found of great use by surveyors, engineers, and others who have to calculate masses of material which are often very awkwardly shaped.

THE DESIGNING AND CONSTRUCTION OF STORAGE RESERVOIRS. By Arthur Jacob. New York: Van Nostrand Company. 1897. Pp. 138. Price 50c.

This is a valuable addition to the green covered Van Nostrand series, many numbers of which have come to our notice. The city of New York has had ample experience in storage reservoirs, whereby the cumulative effect of a large watershed is developed and the spring freshets are in a greater or less measure made available for summer supply.

The Shoe and Leather Reporter Annual for 1897 has a valuable compilation of interesting facts and figures relative to the shoe and leather trades, of which also it affords a complete business directory for the United States and Canada, and lists of the leading houses throughout the world.

The Locomotive, in its bound volume for 1896, of 190 pages, forms a valuable record of facts especially interesting to all steam users. Published by the Hartford Steam Boiler Inspection and Insurance Company.

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 the following week's issue.

Marine Iron Works. Chicago. Catalogue free. "U. S." Metal Polish. Indianapolis. Samples free. Yankee Notions. Waterbury Button Co., Waterbury, Ct. Folding Umbrellas. Write Grove & Stover, Luray, Va. Improved Bicycle Machinery of every description. The Garvin Machine Co., Spring and Varick Sts., N. Y. Concrete Houses - cheaper than brick, superior to stone. "Ransome," 757 Monadnock Block, Chicago.

Anderson's Typewriter makes longhand faster than shorthand - one stroke prints a word! 97 Nassau St., N. Y. (See illustrated notice Sci. Am. May 22, p. 325.)

The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 128th Street, New York.

The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4. Munn & Co., publishers, 361 Broadway, N. Y.

See illustration, front page of SCIENTIFIC AMERICAN, April 24. It is manufactured by the Lidgerwood Mfg. Co., 96 Liberty Street, New York. Write for particulars.

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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.

(7165) R. J. L. asks how to repair books in an economical manner. The first thing is to secure the loose leaves. Old leaves can be fixed in with paste or thin glue.

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INDEX OF INVENTIONS For which Letters Patent of the United States were Granted JUNE 1, 1897, AND EACH BEARING THAT DATE.

Table listing inventions and their patent numbers, including items like 'Acids, apparatus for manufacturing', 'Animal cover', 'Animal trap', 'Armor plate for vessels', 'Axle spindle and box for vehicles', 'Bale tie opener', 'Baling press', 'Basket and ironing table', 'Basket, traveling', 'Battery', 'Bearing, ball', 'Bedstead rail joint', 'Bicycle', 'Bicycle handle', 'Bicycle handle bar clip', 'Bicycle lock', 'Bicycle lock, M. Thomsen', 'Bicycle or velocipede saddle'.

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AMERICAN PATENTS. - AN INTERESTING and valuable table showing the number of patents granted for the various subjects upon which petitions have been filed from the beginning down to December 31, 1894.

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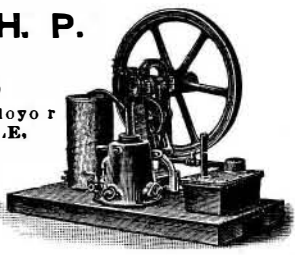
THE STARRETT CO. Athol, U.S.A. USE OF HOT AIR IN DRYING. - BY E. M. Cook. A paper in which the author demonstrates the great economy of the use of hot air over that of steam for drying many materials.

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Table listing various mechanical and electrical items with their prices, including 'Bicycle prop and pump', 'Bicycle sprocket', 'Bicycle speeder gear', 'Bicycle steam', 'Bicycle support', 'Bicycle supporting attachment', 'Bin', 'Blank threading machine', 'Boiler', 'Boilers, water sprifying device for locomotive', 'Book support', 'Boot and shoe, combination', 'Boring machine', 'Bottle closure', 'Bottle holding rack', 'Bottle nest', 'Bottle, non-refillable', 'Bottle, non-refillable, Knuedler & Belcher', 'Box', 'Box for holding travelers, etc.', 'Brake', 'Bridge floor, portable', 'Brush', 'Brush holder', 'Brush, shaving', 'Buffing or polishing wheel', 'Bullet holding and extracting tool', 'Buoy for locating sunken vessels', 'Burglar alarm', 'Burglar and fire alarm, electric', 'Burial rough box', 'Burner', 'Button', 'Calcium carbide, manufacture of', 'Cam, expansion', 'Camera, photographic', 'Can', 'Car, convertible', 'Car coupling', 'Car coupling, J. Rawles', 'Car coupling, W. F. Richards', 'Car coupling, J. B. Thomas', 'Car coupling, J. F. Wright', 'Car dumping', 'Car fender', 'Car fender, cable', 'Car fender, street', 'Car, street tram', 'Car, ventilator and refrigerator', 'Car window', 'Carburetor', 'Carpet beater', 'Carriage, collapsible baby', 'Case', 'Caster', 'Chain, drive', 'Chain wheel, expandible', 'Chains, machine for making sheet metal', 'Chair', 'Check book', 'Chimney crow', 'Christmas tree holder', 'Churn, Gordon & Cox', 'Churn and butter worker', 'Cigar holder', 'Clamp', 'Cleaner', 'Clevis for iron structures', 'Cloth protector', 'Clothes drier', 'Clothes line support', 'Clutch operating mechanism', 'Cock, gage', 'Coffee pot', 'Coin holder', 'Coin mat', 'Collar and collar', 'Conduit', 'Conduit coupling', 'Confectioners' tables', 'Confectionery handling machine', 'Convertible chair', 'Copying press', 'Core bar, contractible', 'Corkscrew', 'Corkscrew, W. A. Williamson', 'Corn holder', 'Corn husking implement', 'Corn sheller', 'Corn sheller, G. W. Nelson', 'Corn sheller, cob stacker', 'Cornice and eaves trough', 'Coupling', 'Crate, shipping', 'Crematory, refuse', 'Crusher', 'Cuff, link', 'Cypoid', 'Cycle, motor', 'Cyclometer', 'Dental bridgework', 'Dental disk mandrel', 'Dental handpiece', 'Dental impression cup', 'Dental polishing disk', 'Deodorizing process of and apparatus', 'Whitening & Lawrence', 'Detergent and producing same', 'Dish cleaner', 'Disk meter', 'Door mat', 'Door operating mechanism', 'Drafting lug', 'Draughting garment patterns', 'Drier', 'Drill', 'Drill bits', 'Drinking fountain for fowls', 'Dye, black trisazo', 'Dye, blue trisazo', 'Egg beater', 'Electric arc furnace', 'Electric brake', 'Electric connector', 'Electric switch', 'Electrical distribution system', 'Electrolysis of watery salt solutions', 'Elevator', 'Elevator, A. N. Woodard', 'Elevator safety device', 'Embroidery frame', 'End gate, wagon', 'Engine', 'Engines, electric igniter for gas', 'Engines, means for controlling and regulating operation of gas', 'Engines, means for obviating smell of internal combustion', 'Extractor', 'Eye protector', 'Fabric', 'Fare register', 'Fare register, J. R. Murray et al.', 'Fastener or shoe laces', 'Faucet', 'Feed water purifier', 'Feed water regulator', 'Fence, W. S. Carter', 'Fence building machine', 'Fence making machine', 'Fence, wire', 'Fender', 'Filing, H. Nass', 'Filter, electric', 'Filtering medium', 'Firearms, automatic loading mechanism for', 'Fire door, automatic', 'Fire escape, Z. Szpor', 'Fire extinguisher', 'Fireproof door', 'Floor, roof, or sidewalk construction', 'Flour bin, hygienic', 'Fluid pressure motor', 'Fluid pressure reservoir, multiple clamp connection for', 'Food compound, cattle', 'Fountain', 'Frame, See Embroidery frame', 'Fruit picker', 'Furnace, T. H. Page', 'Furnace, See Electric furnace', 'Furnace, J. L. Sheppard', 'Furnace feeding mechanism', 'Game board', 'Game counter', 'Game counter, A. R. Knapp', 'Game counter, H. Winder'.

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