

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. Gasoline Brazing Forge. Turner Brass Works, Chicago. Yankee Notions. Waterbury Button Co., Waterbury, Ct. Ferracore Machine Co., Bridgeton, N. J., U. S. A. Full line of Presses, Dies, and other Sheet Metal Machinery. Inventions developed and perfected. Designing and machine work. Garvin Machine Co., 141 Varick St., N. Y. Machinery for R.R. contractors, mines, and quarries, for hoisting, pumping, crushing, excavating, etc., new or 2d-hand. Write for list. Willis Shaw, Chicago. The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th 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. Ten Weeks for 10 Cents. That big family paper, The Illustrated Weekly, of Denver, Colo. (founded 1890), will be sent ten weeks on trial for 10c; clubs of six, 50c.; twelve for \$1. Special offer solely to introduce it. Latest mining news and illustrations of scenery, true stories of love and adventure. Address as above and mention SCI. AM. Stamps taken. Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.

Names and Address must accompany all letters; 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 This is for our information and not for publication.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. Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same. 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.



HINTS TO CORRESPONDENTS.

(7754) W. H. K. asks: What solid fuel would you recommend as being applicable to the running of a light steam automobile? And how would it compare in time required to get up steam and in bulk to be carried with kerosene or naphtha? A. Of solid fuels we recommend anthracite nut coal for vehicle boilers. It does not ignite quite as easily as pulverized coke, but will last longer in the furnace and needs less care. The hard anthracite makes the best and most reliable fuel for a magazine furnace. Coke is much used in Europe, where soft coal is the principal fuel. Coal from a magazine is preferable to kerosene or gasoline burners in many ways, especially in regard to odor. On the other hand, the kerosene may be the easiest to control and to obtain from any grocery or country store. From the moment of firing steam can be raised much quicker with kerosene or gasoline burners than with coal or coke.

(7755) E. A. W. asks how to take care of a marine boiler during winter while it is stored away. My boiler is a 10 horse power Scotch marine. A. Charge the boiler with three gallons of kerosene oil, either through the pump with steam sufficient to run the pump, and then pump the boiler nearly full of water with as tow steam as will run the pump. Then, after drawing the fire, blow off the boiler and clear the pump, pipes and the legs of the boiler of water and excess of oil by opening the lowest hand hole. Then close the boiler air tight. This will leave an oiled surface over the entire interior of the boiler, and the exclusion of air will prevent rust.

(7756) A. W. H. asks: 1. Where was the "Shamrock" built? A. "Shamrock" was built on the Thames by Thornycroft. 2. Is the "Navahoe" a keel or centerboard boat? A. "Navahoe" is a centerboard boat. 3. Did the Queen of England give the yacht club the "America" cup race for in 1851? Is it rightly called the queen's cup? What I mean is did the queen give to the Royal Yacht Squadron the cup which they offered in 1851, to be raced for by the yachts of the world? A. The queen did not give the cup. She did give a cup, but the "America" did not enter the race for this cup as time allowance would have had to be given. The cup she did sail for and capture was given by the R. Y. S. and was sailed for without the customary time allowance.

(7757) M. W. asks for a receipt for burnishing ink used for blacking the edges of heels and soles of shoes. A. Receipts for burnishing ink for heel and sole edge polishing: a. Extract of logwood..... 1 to 2 oz. Tincture of iron..... 1 to 2 oz. Sweet oil..... 1 to 2 arm. Diluted alcohol..... 1 pint. b. Extract of logwood..... 4 oz. Bichromate of potassium..... 12 gm. Ferrocyanide of potassium..... 12 gm. Rain water..... 1 gal. The ink in either case is applied with a brush and immediately burnished with a hot iron.

NEW BOOKS, ETC.

THE FIREPROOFING OF STEEL BUILDINGS. By J. K. Freitag, C.E. New York: 1899. 8vo. Pp. 319. Price \$2.50.

The want of any systemized and collected form of information on the subject of the development of fireproofing of steel buildings and its present most approved and efficient methods of treatment as recommended and used in the best practice of the day, has induced the author to offer this volume, which we have no hesitation in saying is a most valuable one, which no architect or architectural engineer can afford to be without. Steel buildings are comparatively a new departure, and the literature relating to them in book form is slight, though the articles on it in periodicals are voluminous. The present volume has many well executed illustrations detailing the latest and best methods of fireproofing steel structures. It is an important contribution to engineering literature.

DICTIONARY OF BIRDS. By Alfred Newton. Assisted by Hans Gadow. London: Adam & Charles Black. New York: Macmillan Company. 1893 to 1896. Pp. 1088. Price \$5.

A most admirable book filled with valuable information presented in the most readable form. It is well illustrated by wood engravings. Not only are the birds themselves listed and described but there are valuable sections devoted to such subjects as the "Muscular System," "Nervous System," "Nidification," "Quill," etc. There are four pages of "Notanda et Corrigenenda," and it is gratifying to see that the authors have not been ashamed to place their errata in a prominent position. No greater service can be rendered to a scientific book than this, and it is impossible in a scientific book of this size not to have many corrections.

COMPULSORY LICENSES UNDER THE PATENT ACTS. By J. W. Gordon. London: Stevens & Sons, Limited. 8vo. Pp. xxxv, 443.

This book is a compendium of the British law and practice relating to the grant of compulsory licenses for the manufacture and sale of patented articles. The intention of the legislators was to prevent owners of patents from withholding the benefits of their inventions from the public, and to compel them to supply the demand that might exist for the patented goods, and to provide a legal procedure to determine the conditions under which a patentee should grant a compulsory license. The Board of Trade, to which such matters are referred under the law, has rendered several important decisions defining the right of the public in patented inventions. Mr. Gordon's book is a clear and exhaustive statement of the law and practice of compulsory licenses.

THE RISE AND DEVELOPMENT OF THE LIQUEFACTION OF GASES. By Willett L. Hardin, Ph.D. New York: The Macmillan Company. London: Macmillan & Company, Limited. 1899. Pp. 250. Price \$1.50.

Recent developments in the liquefaction of air and the recent liquefaction of hydrogen have added considerable interest to the whole subject of the liquefaction of gases. The literature of the subject is limited and is scattered for the most part in foreign journals. It has been the author's pleasant task to collect these papers and write a complete history of the developments of the methods employed in the liquefaction of gases. The book is written in a popular science style, but at the same time scientific accuracy has not been departed from in any degree. It will prove useful to those who already have Sloane's "Liquid Air."

PROBLEMS IN MACHINE DESIGN. By Charles H. Innes, M.A. Second Edition. Manchester: The Technical Publishing Company, Limited. 1899. Pp. 258. Price \$1.60.

There never can be too many good books upon this subject; the mechanical engineer is always needing precisely the kind of information which is given in this work. We regret to note that the object of the author in writing this book is to supply engineering students with a text book which will enable them to pass the honor stages of the science and art examinations. We sincerely trust that it will appeal to a much larger public.

A COURSE IN QUANTITATIVE CHEMICAL ANALYSIS. Gravimetric and Volumetric. By Nicholas Knight. New York: A. S. Barnes & Company. 1899. Pp. 110. Price 80 cents.

Complete analyses are outlined in this book, and substances have been selected for analysis which it is believed will illustrate the more common methods of separating and determining the parts of a compound or mixture of compounds. This treatise will contribute to a knowledge and love of this beautifully exact, fascinating and useful branch of chemical science.

NOTES ON THE CONSTRUCTION OF CRANES AND LIFTING MACHINERY. By Edward C. R. Marks. New and Enlarged Edition. Manchester: The Technical Publishing Company, Limited. 1899. Pp. 183. Price \$1.40.

A modern and practical book on cranes and other lifting machinery has been needed. It is a much neglected part of mechanical engineering and the present book will certainly prove most valuable to those who have to design such machinery.

A KEY TO ENGINES AND ENGINE RUNNING. By Joshua Rose, M.E. New York: D. Van Nostrand Company. 1899. 12mo. Pp. 410. Price \$2.50.

This is a practical treatise on the management of steam engines and boilers for the use of those who desire to pass an examination to take charge of engines or boilers. It also includes instructions upon engines, calculations, indicator diagrams, engine adjustments, and contains other valuable information necessary for engines and firemen. The author was an old-time contributor to the SCIENTIFIC AMERICAN and he had an excellent reputation as a practical mechanical engineer. The book will prove of value to the class to whom it is addressed.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending

OCTOBER 31, 1899, AND EACH BEARING THAT DATE.

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

Table listing inventions with names and patent numbers. Includes: Aerated water fountain, E. O. Halvorsen; Air brake, automatic, W. H. Clarke; Air compressor, G. W. Telle; Air heater, Waterman & Morison; Alarm, See Burglar alarm; Alarm, device for preventing false, T. W. Yale; Animal shears, W. Hume; Antiseptic compound, G. L. Schaefer; Armature for dynamo-electric machines, S. Bergmann; Atomizer, C. H. Speck; Axle box, J. Cahill; Baby walker, H. H. Mount; Back pedaling brake, J. D. Jackson; Baling press, M. R. Mitchell; Banjo, W. J. Riley; Battery, See Secondary battery; Storage battery; Bearing roller, Cooper & Woodcock; Bed motion for traveling beds, G. F. Read; Beer or other pipe cleaner, J. Hasson; Bell, E. D. Reckwell; Bell, electric, D. Rousseau; Bicycle, A. Cattalini; Bicycle, J. A. Greig; Bicycle, J. Horn; Bicycle brake, V. L. Glaze; Bicycle coupling device, P. N. Mackay; Bicycle frame case, H. C. Moran; Bicycle harness, F. E. Blackman; Bicycle lock, H. C. Ford; Bicycle pump, Deknath & Spruce; Bicycle support, E. B. Shearer; Bicycle theft guard, E. D. Goodson; Bicycles, changeable speed gearing for, E. V. Adams; Bicycle chain, C. W. T. Davies; Binder, temporary, G. C. Gennert; Bit, See Bridge bit; Curb bit; Bit brace, L. T. Snow; Blacking device, shoe, E. Lister; Blasting apparatus, telegraphic, W. C. Taber; Blowpipe, L. Austin; Boiler, See Steam boiler; Boiler furnace, A. Beard; Boiler tube cleaner, Forsyth & Bell; Book, manufacturing sales, M. C. ...

Table listing inventions with names and patent numbers. Includes: Electric motor for fans, G. A. Tower; Electric motors, system of control for, J. R. Cravath; Electric resistance, H. Holberger; Electric sign, H. T. Gibbs; Electrical instrument, W. S. Bout; Electrodeposition cell, M. Perreux-Lloyd; Electromedical apparatus, M. L. Whitfield; Elevator, C. I. Hall; Elevators, automatic regulating device for hydraulic, E. E. Herdman; Enameling on silver leaf, C. C. Shirm; Engine, See Gasoline or gas engine; Rotary engine; Engine lubricating apparatus, B. C. Vanuzen; Engines, indicator apparatus for fluid pressure, A. K. Mansfield; Engraving machine attachment, A. A. MacCallum; Escapement mechanism, Fairfield & Dodge; Evaporating pan, G. H. Soule; Explosives, apparatus for thawing, W. J. Smith; Extractor, See Nail extractor; Eyeglass case, W. M. Purdy; Eyeletting machine, P. R. Glass; Eyeletting machine, D. N. Prime; Eyeletting machine, gang, G. Knight (reissue); Fastener, P. S. Elliott; Fastening device, P. F. King; Faucet, E. E. Liese; Fence ratchet, W. H. Masen; Fence staple, wire, A. W. West; Fertilizer distributor, I. L. Stell; Fiber cleaning machine, vegetable, M. A. Torre; File, newspaper, P. C. Newbaker; Filter, H. W. H. Claassen; Filter, G. F. Key; Filter, Kohlmeier & Stewart; Filter, self cleaning, R. H. Post; Filtering device, P. E. Malmstrom; Filtering machine for preparing, W. J. Gindale; Fire alarm signal circuit, W. R. Hewitt; Firearm, single trigger, A. E. Lard; Fire escape truck, Eades & Parsons; Fire extinguishers, automatic sprinkler head for, Cox & Gray; Fire, portable attachable curtain for, Burger & Williams; Flood gate, F. Kessler; Flower stand, adjustable and portable, W. H. Minnix; Flue, smoke consuming, F. E. Humphreys; Fluid compressor, F. M. Ritter; Fluid heating apparatus, Waterman & Morison; Fluid mixtures, machine for producing and maintaining, A. J. Kautz; Fly trap, F. Schulmeister; Forging machine, rotary steel ball, C. C. Hill; Forks, spoons, etc., cleaning and polishing apparatus, A. C. Phillips; Fountain, See Aerated water fountain; Fruit picker, J. C. Wood; Furnace, See Boiler furnace; Furnace, W. P. Grath; Game, J. P. Peck; Garment fastener, A. H. Louns; Gas burner, C. S. Steward; Gas burner, central station controlled automatically lighted and extinguished, Hoare & Kennedy; Gas burner, electric lighting, R. C. Nesbitt; Gas burner tip, D. M. Steward; Gas generator, acetylene, H. Griffith; Gas generator, acetylene, T. Seever; Gas, improving quality and increasing quantity of, by eliminating carbon, F. Bredel; Gas producing apparatus, M. Taylor; Gas regulator, W. S. Adams; Gases, vessel for containing compressed or liquefied, Sweetser & Pringle; Gasoline or gas engine, E. H. Kersmeyer; Gate, See Flood gate; Railway crossing gate; Gate, J. J. Anderson; Gate, J. A. Welch; Gear, ball toothed driving, O. Sehwald; Gear variable speed driving, A. E. Creese; Gearing, bevel, W. C. Smith; Generator, See Gas generator; Glass coloring or annealing, von F. Sperer; Glue applying machine, U. G. Charles; Grain binder butter, J. E. Mustard; Grain drill shoe, Denyes & Schutt; Grain sifter and conveyor, J. B. Cornwall; Grate, J. Reagan; Grate bar, E. Heglund; Grate bar, W. W. Wiley; Grinder, drill, A. C. Gruber; Grinding machine, H. W. Bolens; Grinding machine, G. Diaz; Grinding mill, E. R. Traver; Gun, automatic, A. Burgess; Ham wrapper, J. Bimm; Hame hook, W. W. Atkins; Hanger, See Pipe hanger; Harrow, W. F. Cochran; Harvester, C. H. Horner & Hedrick; Harvester, C. H. Temple; Harvester weight equalizer, J. Macphail; Hay rake, S. K. Dennis; Hay rake and loader, G. W. Fishback; Heater, See Air heater; Heater, G. A. B. ...

(Continued on page 318.)

Advertisements.

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Inside Page, each insertion. - 75 cents a line
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The above are charges per agate line—about eight words per line. This notice shows the width of the line, and is set in agate type. Engravings may be advertised at the same rate per agate line, by measurement, as the letter press. Advertisements must be received at Publication Office as early as Thursday morning to appear in the following week's issue.

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Table listing various machinery items and their prices, including mowing machines, nail extractors, necktie fasteners, packing machines, paper cutters, and more.

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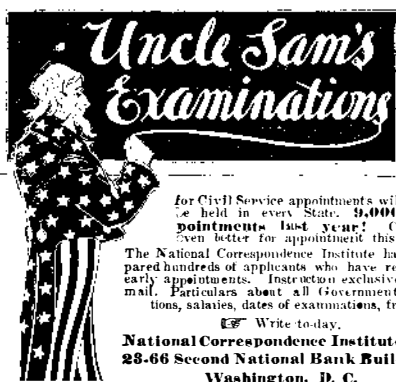
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Table listing various mechanical items and their prices, such as Typewriting machine, C. H. Shepard, 635.981.

DESIGNS.

Table listing designs and their prices, such as Badge or similar article, J. W. Mealy, 31.730.

TRADE MARKS.

Table listing trade marks and their prices, such as Axl grease, H. A. Moyer, 33.672.

LABELS.

Table listing labels and their prices, such as 'Albuma,' for a preparation for making beverages.

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