

Advertisements.

Inside Page, each insertion --- 75 cents a line. Back Page, each insertion --- \$1.00 a line.

National Filter.



Surface Washing Adopted by the following Cities: Chattanooga, Tenn. Lawrence, Kan. Kokomo, Ind. Exeter, N. H. Massillon, O. Champaign, Ill. Louisiana, Mo. Winnipeg, Manitoba Sioux Falls, Dak. Hackensack and Hoboken, N. J. (aeration) Besides the above, we are filtering over to our National system Hyatt 10 ft. diameter filters at Wichita, Kan. and Sioux Falls, Dak., thereby increasing their efficiency and economy 50 per cent.

ICE-HOUSE AND COLD ROOM.—BY R. G. Hatfield. With directions for construction. Four engravings. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 630. Price 10 cents. To be had at this office and of all newsdealers.



GOING INTO THE POULTRY BUSINESS.—A paper by P. H. Jacobs, reviewing the commercial aspects of poultry raising, and giving many useful hints upon the subject. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 595. Price 10 cents. To be had at this office and from all newsdealers.

Hyatt Pure Water Co.



NATURE'S PROCESSES Purifying 150,000,000 Gallons Daily. Adopted by TWENTY different Cities and Towns, and a THOUSAND or more MANUFACTURERS, etc., in the United States, Canada, West Indies and South America. HAS NEVER FAILED. Free from Legal Complications. Recommended by Engineer Corps, U. S. War Department, and the Highest Authorities on Sanitation and Hydraulic Engineering. Results Guaranteed. For Circulars and Estimates Address

HYATT PURE WATER COMPANY, 16, 18 & 20 Courtlandt Street, New York.

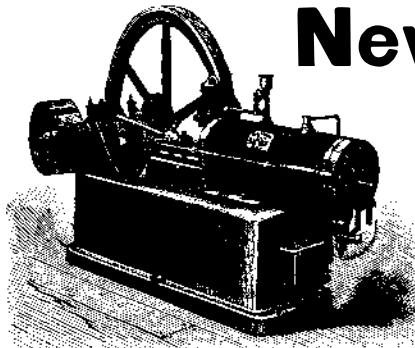
THE HALL Short Line Telephone

The Acme of Efficiency and Economy. No dangerous electricity. Especially applicable for Short Distance Lines between Offices and Factories, Warehouses, Stores, Mills, Hotels, etc., or wherever instant and reliable inter-communication between intermediate points is desired. Agents wanted in every city. THE HALL TELEPHONE CO. Broadway and Astor Place, New York City.

Advertisement for Van Duzen & Tift's Complete Steam Pump, priced at only seven dollars. Includes contact information for the Cincinnati-based company.

PATENTS.

Messrs. Munn & Co., in connection with the publication of the Scientific American, continue to examine improvements, and to act as Solicitors of Patents for Inventors. In this line of business they have had forty-one years' experience, and now have unequalled facilities for the preparation of Patent Drawings, Specifications, and the prosecution of Applications for Patents in the United States, Canada, and Foreign Countries.



New Gas Engine "The Baldwin"

Exhibited at the late American Institute Fair, New York. A four-horse-power engine in connection with storage battery, running 84 in. incandescent electric lights (and without battery, 32 lights), giving a perfect light, with all the steadiness that can be obtained from the high-speed steam engines in common use for electric lighting, and permitting any number of lights to be shut off or turned on without affecting the remaining lights in the slightest degree.

Otis Brothers & Co. Elevators and Hoisting Machinery, 38 PARK ROW, NEW YORK.

Advertisement for The Backus Water Motor, described as the cheapest power known for driving all kinds of light machinery.

Advertisement for The Backus Exhauster, a wonderful Air Mover invaluable for ventilating factories and public buildings.

HOME-MADE INCUBATOR.—PRACTICAL directions for the manufacture of an effective incubator that has been carefully tested and found to perform all that may be reasonably expected.

For Recreation, for Business, for Fun—RIDE WHEELS! The best is the cheapest, and we are prepared to show you that.



THE VICTORS ARE THE BEST Bicycles, Tricycles, AND Safety Bicycles. In the world. Illustrated catalogue free. Overman Wheel Co. Makers of Victor Cycles, BOSTON, MASS.

Advertisement for Steel Balls, for Anti-Friction Bearings of Heat Cast Steel, Hardened, Ground and Burnished.

THE PHONOGRAPH.—A DETAILED description of the new and improved form of the phonograph just brought out by Edison.

Advertisement for Wire Rope, manufactured by John A. Roebling's Sons.

Advertisement for The Bridgeport Wood Finishing Co., featuring Wheeler's Patent Wood Filler and Breinig's Lithogen Silicate Paint.

Advertisement for Gas Engines, featuring the Economic Gas Engine Company's products.

Advertisement for The Standard H.W. Johns Asbestos Boiler Coverings.

Advertisement for The American Bell Telephone Co., featuring their electric speaking telephones.

Advertisement for Steam! Steam! featuring automatic engines from 2 to 200 H.P.

Advertisement for Copper Tubes and Sheet Brass Brass Wire.

Advertisement for Patent Riveted Monarch Rubber Belting, best in the world, from The Gutta Percha and Rubber Mfg. Co.

Advertisement for Jenkins Standard Packing, featuring the original unvulcanized packing.

Advertisement for The Original Unvulcanized Packing, called the Standard.

Advertisement for Ice & Refrigerating Machines, featuring York Mfg. Co. products.

We are prepared to furnish the finest quality of THROUGH PUNCHES and DIES for METAL WORK, for the manufacture of which we have unequalled facilities.

Advertisement for Challenge Emery Grinding Dies.

Advertisement for Malleable Castings from Special Patterns.

Advertisement for Brass Work, Small Brass Work & Models.

Advertisement for Syracuse Malleable Iron Works.

Advertisement for Saws, Wanted 1000 Saws and Saws Lumbermen to read us their full address for a copy of Emerson's Book of Saws.

Advertisement for The Florida Steam Heater, which will never rust or explode.

THE Scientific American

ESTABLISHED 1846. The Most Popular Scientific Paper in the World. Only \$3.00 a Year, including Postage. Weekly. 52 Numbers a Year.

This widely circulated and splendidly illustrated paper is published weekly. Every number contains sixteen pages of useful information and a large number of original engravings of new inventions and discoveries.

Terms of Subscription.—One copy of the Scientific American will be sent for one year—52 numbers—postage prepaid, to any subscriber in the United States or Canada, on receipt of three dollars by the publishers; six months, \$1.50; three months, \$1.00.

Munn & Co., 361 Broadway, New York. THE Scientific American Supplement.

This is a separate and distinct publication from THE SCIENTIFIC AMERICAN, but is uniform therewith in size, every number containing sixteen large pages full of engravings, many of which are taken from foreign papers, and accompanied with translated descriptions.

Builders Edition.

THE SCIENTIFIC AMERICAN ARCHITECTS' AND BUILDERS' EDITION is issued monthly. \$2.50 a year. Single copies, 25 cents. Forty large quarto pages, equal to about two hundred ordinary book pages.

Advertisement for Printing Inks, featuring the Scientific American's ink.