



Rubber Hands and Feet WHICH ARE THE MOST WONDERFUL THINGS ABOUT MARKS' PATENT ARTIFICIAL LIMBS,

enable men, women, and children to pursue their daily duties without inconvenience. Durable, comfortable, natural in appearance and motions. Over 18,000 in use throughout the world.

A. A. MARKS, 701 Broadway, New York City.



ELECTRIC HOSE IF YOU ARE WILLING TO PAY A FAIR PRICE FOR HOSE THAT IS WORTH A DOLLAR PER FOOT WHEN COMPARED WITH ANY OTHER, SEND FOR SAMPLE.

CAUSE OF LUMINOUSITY IN THE Flames of the Hydrocarbon Gases.—By Prof. Vivian B. Lewes. An important paper in which the author endeavors to show that the luminosity of hydrocarbon flames is due to the localization of the heat of formation of acetylene in the carbon and hydrogen produced by its decomposition, and the cause of such localization.

THE CHARM OF COOKING

is enhanced when you use the New Patent Combination Steam Cooker and Cullender, in which all foods can be cooked, steamed or strained. No burning or wasting food, or scalding of hands. Made of the best steel and enamel procurable, and warranted in every respect.

A. W. OBERMANN, 24 Bond St., New York.

\$1-STORAGE BATTERY-\$1 SEND \$1 FOR SAMPLE CELL.

THE WILLARD ELECTRIC & BATTERY CO. CLEVELAND, OHIO.

Durable—Easily Applied. This roofing is manufactured from natural Trinidad asphalt materials, and will not dry up and become brittle under exposure to the weather as coal-tar roofings do.

VOLNEY W. MASON & CO., Friction Pulleys, Clutches & Elevators PROVIDENCE R. I.

ELECTRO-CHEMISTRY, RECENT ADVANCES in.—By J. W. Richards, A.C., Ph.D. A very exhaustive and interesting paper on the progress that has recently been made in the apparatus for and methods of prosecuting work in the domain of electro-chemistry.

The Berkefeld House Filter. The only Filter Removing Typhoid and Cholera Bacilli. Tested and endorsed by many leading authorities in Europe and America.

Revolution in Engraving. Hand engravers are backward as MS. writers were before Caxton's time. They redesign each letter every time they cut it. We saw this ten years ago and followed it up.

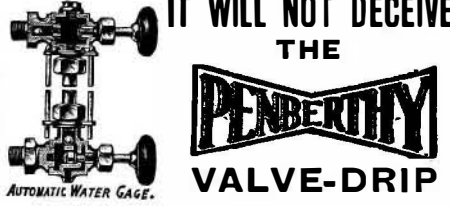
Engraving Machine cuts lettering and designs, raised or sunk, on any material that can be cut. Better work and quicker at a tenth the cost of hand work.

DRAPER'S Recording Thermometer Gives a correct and continuous record in ink on a weekly chart. It is of especial value in Observatories, Dwellings, Hospitals, Clubs, Schools, Greenhouses, and in manufacturing industries where temperature is an important factor.

Three Complete Machines in One A combination Vise, Anvil, and Drill. Simple in construction, easily operated without one tool conflicting with the working of another, durable, strong, and effective in every particular.

ESTABLISHED 1850. THE DEFIANCE MACHINE WORKS 401 PERRY ST., DEFIANCE, OHIO, U.S.A. MANUFACTURERS OF SPECIAL WOOD WORKING MACHINERY FOR HUB, SPOKE, WHEEL, BEND, WAGON, CARRIAGE, SHAFT, DRUM, ECK, WHEEL, SINGLETREE, HANDLE & BARREL-HOOP FACTORIES. LARGEST LINE IN THE WORLD. SATISFACTION GUARANTEED.

Family Ice Machine Ices, etc., in a few minutes, \$10 and up. Filters, \$1.25 and up. Cookers, \$1. Seltzeters to prepare one's self soda water, \$4.50 and up.



IT WILL NOT DECEIVE THE PENBERTHY VALVE-DRIP Automatic Water Gage

Penberthy Injector Co. 116 Seventh St., DETROIT, MICH. Largest Injector Manufacturers in the World.

HOUSE AFIRE! Put it out yourself, quickly, effectively by using the Stempel FIRE Extinguisher. Simple, certain, quick, powerful, economical. Best and most durable on the market.

ACETYLENE APPARATUS.—ACETYLENE number of the SCIENTIFIC AMERICAN SUPPLEMENT, describing, with full illustrations, the most recent, simple, or home made and commercial apparatus for generating acetylene on the large and small scale.

WATER MOTORS

GAS ENGINES & VENTILATING FANS The best Motor in the world for driving all kinds of light machinery, noiseless, neat, compact, invaluable for blowing church organs, running printing presses, coffee mills, ventilating fans, ice cream freezers, meat choppers, etc.

PATENTS 50 YEARS' EXPERIENCE. TRADE MARKS, DESIGNS, COPYRIGHTS &c.

Anyone sending a sketch and description may quickly ascertain, free, whether an invention is probably patentable. Communications strictly confidential. Oldest agency for securing patents in America.

DIGESTION IN PLANTS.—BY J. PENTLAND SMITH, M.A., B.Sc. An interesting paper discussing the processes by which food material is rendered available for the nourishment of the plant organism.

ICE MACHINES

FOR SALE—Complete ice plant containing 2 York and St. Clair Ice Machines, with capacity of 30 tons each per day. Nearly new and will be sold at a bargain.

DO YOU USE GRINDSTONES? If so, we can supply you. All sizes mounted and unmounted, always kept in stock.

Perfect Newspaper File.

Subscribers to the SCIENTIFIC AMERICAN and SCIENTIFIC AMERICAN SUPPLEMENT, who wish to preserve their papers for binding, may obtain the Koch Patent File at the office of this paper.

Table listing various items and their prices, including telegraph keys, telephone systems, and mechanical devices.

DESIGNS.

Table listing designs and their prices, including bath tubs, bicycle parts, and various mechanical components.

TRADE MARKS.

Table listing trade marks and their prices, including ale, beer, and various food and household items.

A Good Appearance, Combined with fullness of technical detail and general information of interest to the craft, is aimed at in The Inland Printer.

THE WATERLOO AND CITY ELECTRICAL Underground Railway. Details of construction of a tunnel and railway to afford a means of rapid communication between Waterloo station and the City of London.

HELP WANTED UNCLE SAM wants bright men to fill positions under the Government. More than 2000 appointments will be made in the Postal Service alone.

Worcester Polytechnic Institute WORCESTER, MASS. Courses of Study in Mechanical, Civil and Electrical Engineering and Chemistry.

Shorthand by Mail Thoroughly taught by lesson free. Potts Shorthand College, Williamsport, Pa.

WE MAKE Metal Specialties on order. Correspondence solicited. Estimates furnished on contract work.

ICE MACHINES, Corliss Engines, Breweries, and various other mechanical equipment.

NOVELTY SIGNS Agents wanted to sell ready made NOVELTY SIGNS.

TURBINE WATER WHEELS. SEND FOR PAMPHLET. JAMES LEFFEL & CO., Springfield, Ohio, U.S.A.

\$5000 We offer cash for simple ideas, patented or not. Send 10 cents to cover postage and expense, and we will send plan and particulars.

WILLSON CARBIDE WORKS Calcium carbide. Samples of 200 lbs. \$15 f.o.b. New York.

BAND FASTENERS THE BEST A. P. DICKEY MFG. CO., RACINE, WIS.

STEEL STAMPS FOR MARKING TOOLS AND FIGURE & ALPHABET SETS AT LOWEST PRICES.

THE COPYING PAD.—HOW TO MAKE and how to use; with an engraving. Practical directions how to prepare the relative pad, and also the anti-ink letter by which the copies are made.

CARBORUNDUM HARDEST ABRASIVE KNOWN. EMERY AND HAMOND POWDER SUBSTITUTE. J. J. BURK PAPER-CRYSTAL, ABRAZIVE, BONE FORT, CARBORUNDUM CO., NIAGARA FALLS, N.Y., U.S.A.

STEAM ENGINE CASTINGS both Stationary and Marine. Dynamometer and motor parts and complete Machines.

Scientific Books Our catalogue is sent free for the asking. It lists books pertaining to all the sciences.

WOODEN TANKS. For Railroads, Mills and Manufactories. Builders of Steel Towers and Tanks.

EDGE TOOLS— are often nearly ruined by using a grindstone not adapted to the work.

Drying Machines For Grain, Sand, Clays, Fertilizers, Phosphates, Green Coats, Wet Feeds, Salt, Sugar, Chemicals, etc.

HYPNOTISM Sixty pages, \$5; my method, \$2; 100 page book, 10c. Oculist Forces, 30c. Prof. Anderson, S. A. 37, Masonic Temple, Chicago