

An Encyclopedia of Useful Technical Knowledge.

A great Labor, Time, and Money Saver for Practical Men.

JUST READY. Price \$2.00.

Free of Postage to any Address in the World.

THE English and American Mechanic

AN EVERY-DAY HAND-BOOK FOR THE WORKSHOP AND THE FACTORY.

Containing several thousand Receipts, Rules and Tables indispensable to the Mechanic, the Artisan and the Manufacturer.

Price \$2.00, free of postage to any address in the world.

HENRY CAREY BAIRD & CO., INDUSTRIAL PUBLISHERS, BOOKSELLERS & IMPORTERS

A New and Splendid Companion to all the Metal Industries.

Fully abreast of the latest inventions and discoveries, as well in the largest and coarsest as in the smallest and finest of metal work.

JUST READY. Price, \$2.50.

Free of Postage to any address in the World.

Metal Worker's Handy-Book

RECEIPTS AND PROCESSES.

Being a collection of Chemical Formulas and Practical Manipulations for the working of all the Metals and Alloys.

Price \$2.50, free of postage to any address in the world.

HENRY CAREY BAIRD & CO., INDUSTRIAL PUBLISHERS, BOOKSELLERS & IMPORTERS

THE AMERICAN RAILWAY

CHARLES SCRIBNER'S SONS, 743-745 Broadway, New York.

Hoskins' Patent Hydro-Carbon BLOW-PIPE AND ASSAY FURNACES.

LITTLE WONDERS

TOOLS FOR EMERY WHEELS

and shaped Diamond Carbon Points, indispensable for Truing Porcelain, Hardened Steel, Chilled Iron, and Paper Calendar and Copper Rolls, also for Truing Inside of Cylinders.

J. DICKINSON, 64 Nassau St., N. Y.

O DELL Double Case TYPE WRITER

Cheap Printing

NEW YORK BELTING AND PACKING CO.

JOHN H. CHEEVER, Treas. 15 PARK ROW, New York.

OLDEST and LARGEST Manufacturers in the United States of

VULCANIZED RUBBER FABRICS

For Mechanical Purposes.

RUBBER BELTING,

Packing, and Hose.

Rubber Mats, Matting, and Stair Treads.

Rubber Pump Valves, Bicycle Tires, Tubing, Tennis Soles.

Rubber Cement, Cord, Blankets, Bladders, Rubber Rings, Rubber Sheets, Strips, Saw Bands, Stopples.

VULCANITE EMERY WHEELS.

SALESROOMS—Philadelphia, 308 Chestnut St.; Boston, 52 Summer St.; Chicago, 151 Lake St.; Minneapolis, 28

South 2d St.; Cleveland, 178 Superior St.; San Francisco, 17 Main St.; Detroit, 15-24 Woodward Ave.; St. Louis, 616 Locust St.

European Branch, Pickhuben 5 Hamburg (Freihafengebiet) Germany.

THE FRED'K CRANE CHEMICAL CO. SHORT HILLS, N. J.—BOX 91A—

KEEP COOL! CLARK'S Light-Running Ventilating FANS.

THE PENNA. DIAMOND DRILL & MFG. CO. BIRDSBORO, PA., Builders of High Class Steam Engines.

MARCO A. FOUSECA & CO. General Commission Agents Bogota, Republic of Colombia.

NEW VICTOR, No. 0 Electroplating Dynamo

DESIRABLE OFFICES to rent, singly or in suites, in the BIBLE HOUSE, Astor Place, with steam heat, electric lights, elevators, and all modern conveniences.

PIVOT LIFT New gate. Information and photo. 30c. Brandis, Box 132, Milwaukee, Wis

MOSS ENGRAVING COMPANY OUR PROCESSES PHOTO ENGRAVING ZINC ETCHING WE DO FULL PRESS WORK

A POINT! Our aim is to sell direct to consumers. We want to deal direct with you, taking our chances that once you have had a Maher & Grosh Hand-Forged Razor Steel Blade, you will be our customer as long as you live.

MAHER & GROSH RAZOR STEEL

FAMILY ICE MACHINE Making 1 to 18 lbs. by operation, Price \$10 to \$185. L. Dermigny, 126 West 25th St., New York.

2nd MACHINERY N. Y. Mach'y Depot, Bridge Store 16, Frankfort St., N. Y.

GRAYS HARBOR Washington. The Duluth of the Pacific Coast.

THE BEST HARBOR 18 square miles of anchorage, only 10 miles of towage; 350 miles nearer San Francisco and the world's markets than Tacoma.

ATTRACTIVE MANUFACTURING SITES IN SOUTHERN ILLINOIS.

CELEBRATED SUTTON RING PACKING

PULLEYS HANGERS, FRICTION CLUTCHES.

PROGRESS MACHINE WORKS, A & F. BROWN, 44 Park Place, N. Y.

BOOKS

FOR—

Engineers and Firemen

THE BEST BECAUSE

they are written in plain, practical language, devoid of theories or mathematical formulae.

Hand-Book of the Locomotive. Price.....\$2.50

Engineers' Handy-Book. Price.....\$3.50

Instructions and Suggestions for Engineers and Firemen. Price.....\$2.00

Use and Abuse of the Steam Boiler. Price. \$2.00

Catechism of High Pressure Steam Engines. Price.....\$2.00

Hand-Book of Modern Steam Fire Engines. Price.....\$3.50

Hand-Book of Land and Marine Engines. Price.....\$3.50

Questions and Answers for Engineers. Price.....\$3.00

Care and Management of the Steam Boiler. Price.....\$2.00

Young Engineer's Own Book. Price.....\$3.00

FOR SALE BY ALL BOOKSELLERS.

EDWARD MEEKS, Publisher, 1012 Walnut Street, Philadelphia, Pa.

NOW READY.

Experimental Science,



BY GEO. M. HOPKINS.

740 Pages. 680 Illustrations.

PRICE, by mail, postpaid, \$4.00

MUNN & CO., Publishers, Office of The Scientific American, 361 Broadway, New York.

PROPOSALS.

Proposals for Stone, Mattress, and Pile Work in Savannah Harbor and River, Ga.—UNITED STATES ENGINEER OFFICE, Savannah, Ga., September 22, 1890.

Proposals for Dredging in Savannah River, Ga.—UNITED STATES ENGINEER OFFICE, Savannah, Ga., September 22, 1890.

Proposals for Dredging in Savannah River, Ga.—UNITED STATES ENGINEER OFFICE, Savannah, Ga., September 22, 1890.

WANTED—DESIGNS OF Cabinets in Metal, Wood, or any suitable material for our Cash Register.

WANTED.—Two copper plate engravers; one expert in lettering and stipple or sand tinting as shown on Coast and Geodetic Survey charts; salary, \$1,800 per annum.

WANTED.—Circulars and price list of plant for distilling turpentine by steam.

THE BACKUS WATER MOTOR. THE BACKUS EXHAUST FAN.

With or without Governor. Supplies from hydrant pressure the cheapest power known. Invaluable for blowing church organs, running printing presses, sewing machines, lathes, saws, coffee mills, fans, sausage cutters, elevators, and all machinery requiring light power.