Recent Valuable Books.

wennou.-Introduction to Experimental Physics.-Theoretical and Practical. Including directions
for constructing Physical Apparatus and making experiments. By Adolf F Weinhold. Professor Royal
Technical School, Chemnitz. Translated and edited
by Benj. Loewy, F.R.A.S. With a preface by G. C.
Foster, F.R.S., Prof. of Physics, Univ. Col., London,
Illustrated by 3 colored plates and 444 wood cuts. One
rovol., 8v6, 848 pages,

CONTENTS.-General properties of matter: Mechanics,
or the equilibrium of bodies (statics), and the motion of
bodies (dynamics). 1. General mechanics and mechanics
of solid bodies. 2. Hydrostatics and Hydrodynamics;
orthe equilibrium and motion of liquid bodies. 3. Aerostatics and Aerodynamics, or the equilibrium and motion of gaseous bodies, acoustics, optics, electricity, and
magnetism, (1) friction of electricity, (2) contact electricty, (3) electro-magnetism, magnetism, induction by currents, heat.

Crookes.—Select Methods of Chemical Analysis, chiefly inorganic. By Wm. Crookes, F.R.S. 22 illustrations, 12mo,

ville.—Artificial Manures; their chemical selection and scientific application to agriculture. By M. Georges Ville. Translated and edited by Wm. Crookes, F.R.S. Illustrated by 31 engravings. 8vo.

The above or any of our books sent by mail, free of postage, at publication prices.

To our large catalogue, revised and brought up to September 1, sent free to any one who will furnish his address.

dress.

HENRY CAREY BAIRD & CO.,

BOOKSELLERS, PUBLISHERS, AND IMPORTERS,
NO. 810 Walnut Street, PHILADELPHIA.



RELIABLE

Engines a complete success. Prices still 40 per cent. below those of other makers. Unequaled for efficiency, simplicity, and durability. Prices from \$256 for 10 H. P., to \$400 for 30 H. P. All complete, with Governor, Pump, and Heater.

TELEPHONE Works 1 mile. Price \$4. Pat'd. Circulars free. Helcomb & Co., Mallet Creek, Ohio.



The George Place Machinery Agency Machinery of Every Description.
121 Chambers and 103 Reade Streets, New York.

Phosphor-Bronze Wire, Sheets, Rods, Bolts.



The Phosphor-Bronze Smelting Co, Limited,

2038 Washington Ave., Phila., Pa. OWNERS OF THE U.S. PHOSPHOR-BRONZE PATENTS.

Sole Manufacturers of Phosphor-Brouze in the U.S.

KNOW THYSELF.



THE untold miseries that result from indiscretion in early life may be alleviated and cured. Those who doubt this assertion shoule purchase the new medical work published by the PEARODY MEDICAL INSTITUTE, ROSON, entited THE SCIENCE OF LIFE, or, SELI-PRESER, various and physical debility, or youth, or too close application to business, may be restored and manhood regained. Two hundredth edition, revised and enlarged, just published, it is a standard medical work, the best in the English language, written by a physician of great experience, to whom was awarded a gold and leweled medal by the National Medical Association. It contains beautiful and very expensive engravings. Three hundred pages more than 50 valuable prescriptions for all forms of prevailing disease, the result of many years of extensive and successful practice, either one of which is worth ten times the price of the book. Bound in French eloth; price only \$1, sent by mail postpatid. The London Lancet says: No person should be without this valuable book. The author is a noble benefactor."

An illustrated sample sent to all on receipt of 6 cents for postage.

The author refers, by permission, to Hon. P. A. BIS-

An illustrated sample sent to all officers of a conference of the postage.

The author refers, by permission, to Hon. P. A. BISSELL, M.D. prest. of the National Medical Association. Address Dr. W. H. PARKER, No. 4
Bu. finch Street, Boston, Mass. The HEAL
author may be consulted on all diseases requiring skill and experience. THYSELF.



GREAT IMPROVEMENTS

Recently made in CRUSHING AND GRINDING

GOLD and SILVER ORES, BONES, PHOS-PHATE ROCK, and CHEMICALS. We com-pel QUAKTZ to grind QUARTZ. Address, for new circular,

BAUGH & SONS, Philadelphia, Pa.



ALAND'S Silent Injector, Blower & Exhauster, Apply to S. ALAND, Rome, Oneida Con N. Y.



CENTENNIAL AND PARIS MEDALS.
Mason's Friction Clutches and Elevators. "New and Improved Patterns."
VOLNEY W. MASON & CO., Providence, R. L. U. S. A.

RUBBER BACK SQUARE PACKING. BEST IN THE WORLD. For Packing the Piston Role and Valve Steam Engines and Pumps.

creates but little friction.
This Facking is made in lengths of about 20 feet, and of all sizes from ¼ to 2 inches square.

JOHN H. CHEEVER, Treas. NEW YORK BELTING & PACKING CO., 37 & 38 Park Row, New York,

TII E

Platinum Smelting Works and Refinery of Kolbe & Lindfors, AT ST. PETERSBURG (RUSSIA),

PRODUCES:

Cast or Wrought Metal, chemically pure.
Cast or Wrought Platinum in Bars, for the usual technical purposes.
Plate and Wire of any strength desired.
Chemically pure Wrought Platinum Wire, for the manufacture of artificial teeth.
Platinum Crucibles and Dishes, and all kinds of Apparatus for chemical and technical purposes.

purposes.

Apparatus for the preparation of Sulphuric Acid, of the latest and most approved construction, and at the most reasonable prices.

The above firm desires Agents thoroughly experienced in the above named branches



ERICSSON'S NEW MOTOR. **ERICSSON'S**

New Caloric Pumping Engine,

DWELLINGS AND COUNTRY SEATS. Simplest, cheapest, and most economical pumping engine for domestic purposes. Any servant girl can operate Absolutely safe. Send for circulars and price lists.

DELAMATER IRON WORKS C. H. DELAMATER & CO., Proprietor No. 10 Cortlandt Street, New York, N. Y.



BALTIMORE FIRE-PLACE HEATERS
To warm upper and lower rooms.
The handsomest, most economical
Coal Stoyes in the world.

e handsomest, most economicoal Stoves in the world.

B. C. BIBB & SON B. C. BIBB & SUCOMM Foundry Office and Salesroom 39 and 41 Light Street, Baltimore, Md. MARBLEIZER SLATE MANTELS. (**) Send for Circulars.

14 STOP ORGANS SUB BASS and Oct. Coupler, 4
Pianos, \$125 and upwards, sent on trial. Catalogue
free. Address DANIEL F. BEATTY, Washington, N. J.

European Representatives of American Houses. With First-class Agents in the principal industrial and agricultural centers and cities in Europe. London, 7 Poultry, E.C. Paris, 8 Place Vendôme. Terms on application. J. R. W. & Co. purchase Paris goods on commission at shippers' discounts. JOHN R.WHITLEY & CO.

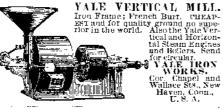


The attention of Architects, Engineers, and Builders is called to the great decline in prices of wrought

STRUCTURAL HRON.

It is believed that were owners fully aware of the small difference in cost which now exists between iron and wood, the former, in many cases, would be adopted, thereby saving insuwance and avoiding all risk of interpublic to business in consequence of fire. Book of detailed information furnished to Architects, Engineers, and Builders, on application.

NY ONE wishing to make a cheap and perfect Filter for our water, for use or for sale, should send a postal, for particulars, to
R. HARTE, 38 W. 4th st., Cincinnati, 0.



Steel Castings

and 10,000 Gear Wheels of this steel now running prove its superiority over all other Steel Castings. Send for circular and price list. CHESTER STEEL CASTINGS Co., 407 Library St., Phila, Pa.

JOBBING IN WOOD WORK Goods manufactured at low prices, with fine machinery, and the best of work. C. C. SHEPHERD, 204, 206, 214, and 216 West Houston St., New York.

WANTED, AGENTS

We want agents to sell the world renowned Wilson Os-cillating Shuttle Serving Machines in unoccupsed territory, to whom we are prepared to offer extraordinary inducements whereby from one to six thousand dollars a year can be made. There never was a better time to engage in the sale of sewing machines, as all themachines made in the past twenty years are wearing not and most made in the past twenty years are westing out, and mu be replaced. For terms and further partleulers, addre WILSON SEWING MACLINE CO., CHICAGO, ILL.



SNOW'S BEST Water Wheel Governor,

MANUFACTURED BY COHORS IRON FOUNDRY AND MACHINE CO. COHOES,

MACHINISTS' TOOLS.

NEW AND IMPROVED PATTERNS.
Send for new illustrated catalogue.

Lathes, Planers, Drills, &c.

NEW HAVEN MANUFACTURING CO.,
New Haven, Conn.

SPARE THE CROTON AND SAVE THE COST. Driven or Tube Wells

furnished to large consumers of Croton and Ridgewood Water. WM. D ANDREWS & BRO., 225 Broadway, N.Y. wbocontrol the patent for Green's American Driven Well



Trow City Directory for 1880--81,

PRICE S6,
WILSON'S BUSINESS DIRECTORY (second edition), price \$3, and WILSON'S CO-PARTNER-SHIP DIRECTORY, price \$3, are new ready.
ALL ORDERS addressed to the Trow City Directory Company, No. 11 University Place, New York, promptly attended to.

WHEAT Dealers make Money with W. T. SOULE & CO., 130 La Salle Street, Chicago, Ill. Write for particulars.



MAHOGANY,

osewood, Satinwood, French and American Walnut, home. The expense to apply for an English patent is sh. Red and Spanish Cedar Cherry, Oak, Poplar, Maple, olly, etc., in Logs, Planks, Boards, and Veneers.
Sole manufacturers perfectly smooth and thoroughly

Send for catalogue and price list.

GEO. W. READ & CO,

186 to 200 Lewis St., foot 5th & 6th Sts., New York.

WALLACE DIAMOND CARBONS FOR ELECTRIC LIGHTS MANT'D, FOR THE ELECTRICAL SUPPLY CO., 109 LIBERTY STREET, NEW YORK.

WORTHINGTON, HENRY 239 BROADWAY, NEW YORK. 85 WATER ST., BOSTON, 309 MARKET ST., ST. LOUIS.



Forster's Rock & Ore Breaker and Combined Crusher and Pulverizer The simplest machine over devised for the purpose.

Parties who have used it constantly for six years testify that it will do double the work of any other Crusher, with one-third the Piver, and one-half the expense for keeping in epair. The smaller sizes can be run with Horse Power. Address TOTTEN & CO., Pittsburgh Pa,

ROOTS! NEW IRON BLOWER.





POSITIVE BLAST. IRON REVOLVERS, PERFECTLY BALANCED IS SIMPLER, AND HAS

FEWER PARTS THAN ANY OTHER BLOWER. P. H. & F. M. ROOTS, Manuf'rs,

CONNERSVILLE, IND.

S. S. TOWNSEND, Gen. Agt., 6 Cortlandt St., 8 Dey Street, WM. COOKE, Selling Agt., 6 Cortlandt Street, JAS. BEGGS & CO., Selling Agts., 8 Dey Street, SEND FOR PRICED CATALOGUE.



BARNES' PATENT FOUT PARNES' PAIENT FUUT
POWER MACHINERY.
CIRCULAR SAWS, SCROLL
SAWS, LATHES FORMERS, MORTISERS, TENONERS, &c., for actual
workshop business.
COMPLETE OUTFITS for Mechanics

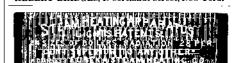
and Amateurs.

MACHINES ON TRIAL IF DE-Say where you read this, and send for Descriptive Catalogue and Price List. W. F. & John Barnes, hockford, Ill.

Wood-Working Machinery,

Such as Woodworth Planing, Tonguing, and Grooving Machines, Daniel's Planing, Richardson's Patent Improved Tenon Machines, Mortising, Moulding, and Re-Maw Machines, Eastman's Pat. Miter Machines, and Wood-Working Machinery generally. Mannfactured by WITHERBY, RUGG & RICHARDSON.
26 Salisbury Street, Worcester, Mass. (Shop formerly occupied by R. BALL & CO.)

Steam Fitters' & Plumbers' Supplies. STURTEVANTS' FAN BLOWERS. ALBERT BRIDGES, 46 Cortlandt Street, New York.



EXTRA BARGAINS.



CAVEATS, COPYRIGHTS, LABEL REGISTRATION, ETC. Messrs. Munn & Co., in connection with the publication of the Scientific American, continue to examine Improvements, and to act as Solicitors of Patents for

In this line of business they have had over thirty YEARS' EXPERIENCE, and now have unequaled facilities for the Preparation of Patent Drawings, Specifications, and the Prosecution of Applications for Patents in the United States, Canada, and Foreign Countries. Messrs. Munn & Co. also attend to the preparation of Caveats, Registration of Labels, Copyrights for Books, Labels, Reissues, Assignments, and Reports on Infringements of Patents. All business intrusted to them is done with special care and promptness, on very moderate

We send, free of charge, on application, a pamphlet containing further information about Patents, and how to procure them; directions concerning Labels, Copyrights, Designs, Patents, Appeals, Reissues, Infringements, Assignments, Rejected Cases, Hints on the Sale of Patents, etc.

Foreign Patents, - We also send, free of charge, a Synopsis of Foreign Patent Laws, showing the cost and method of securing patents in all the principal countries of the world. American inventors should bear in mind that, as a general rule, any invention that is valuable to the patentee, in this country is worth equally as much in England and some other foreign countries. Five patents-embracing Canadian. English, German, French, and Relgian-will secure to an inventor the exclusive monopoly to his discovery among about ONE HUNDRED AND FIFTY MILLIONS of the most intelligent people in the world. The facilities of business and steam communication are such that patents can be obtained abroad by our citizens almost as easily as at

Copies of Patents .- Persons desiring any patent CUT THIN LUMBER. issued from 1836 to November 20, 1866, can be supplied with official copies at reasonable cost, the price depending upon the extent of drawings and length of specifications.

Any patent issued since November 20, 1866, at which time the Patent Office commenced printing the drawings and specifications, may be had by remitting to

this office \$1. A copy of the claims of any patent issued since 1836, will be furnished for \$1.

When ordering copies, please to remit for the same as above, and state name of patentee, title of invention, and date of patent,

A pamphlet containing full directions for obtaining United States patents, sent free. A handsomely bound Reference Book, gilt edges, contains 140 pages and many engravings and tables important to every patentee and mechanic, and is a useful handbook of reference for everybody. Price 25 cents, mailed free. Address

MUNN & CO., Publishers SCIENTIFIC AMERICAN,

37 Park Row, New York.

BRANCH OFFICE—Corner of I' and 7th Streets, Washington, D. C.