Choice Holiday Books

A Complete Electrical Library. By PROF. T. O'CONOR SLOANE.

Electric Toy Making, 140 pages, . . . \$1.00

How to Become a Successful Electrician, 189 pages, \$1.00 pages, \$1.00 Standard Electrical Dic-tionary, 682 pages, \$3.00 Electricity Simplified, 158

pages, \$1.00

and over 450 illustrations.



pages, \$1.00 and over 450 unustrations A valuable and indispensable addition to every library. Our Great Special Offer,—We will send prepaid the above five volumes, handsomely bound in bluecloth, with silver lettering, and inclosed in a neat folding box, as shown in the illustration, at the Special Reduced Price of \$5.00 for the complete set. The regular price of the five volumes is \$7.00.

Liquid Air and the Liquefaction of Gases.

This book contains the full theory of the subject. It gives the entire history of the Liquefaction of Gases from the earliest time to the present, and contains an illustrated description of all the experiments that have excited the wonder of audiences all over the country It is a logical explanation and application of the principles of liquefaction, a history of the theory, discovery and manufacture of liquid air. A book that renders simple one of the most perplexing chemical problems of the century. Startling developments illustrated by actual experiments. It is not only a work of scientific interest and authority, but is intended for the general reader, being written in a popular style-easily understood by everyone.

By Prof. T. O'CONOR SLOANE. 365 Pages. With many Illustrations, Price \$2.50.

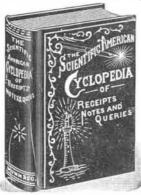
EXPERIMENTAL SCIENCE.



THE SCIENTIFIC AMERICAN Cyclopedia of Receipts, Notes and Queries

Edited by ALBERT A. HOPKINS.
12,500 Receipts. 708 Pages

This splendi work contains careful compila-tion of the most useful Receipt



useful Receipt
and Replies give
in the Notes an
Queries of corre
spondenst as put
lished in the Sci
ENTIFIC AMEAI
CAN during th
past fifty years
together wit
many valuabl
and important ad
ditions. Ove
12:000 selecte
Receipts are her
collected; nearl
every branch of
the useful arts being represente.

Price \$5 in cloth; \$6 in sheep; \$6.50 in half merocco; postpaid.

Gas, Gasoline, and Oil Vapor Engines.

The Only American Book on the Subject.

A book designed for the general information of evgeneral information of everyone interested in this new and popular motive power and its adaptation to the increasing demand for a cheap and easily managed motor requiring no licensed ensineer. The book treats of the theory and practice of Gas. Gasoline, and Oil Englines, as designed and manufact ured in the United States. It also contains chapters on Horseless Vehicles, Electric Lighting, Marine Propulsion, etc. Marine Propulsion, etc.



By GARDNER D. HISCOX, M.E. 270 Handsome Engravings. Large Octavo, 365 Pages. Price \$2.50. Full descriptive circulars of above books will be mailed free upon application.

MUNN & CO., Publishers, 361 BROADWAY, NEW YORK.

Collyer. 638,864
Waterpreef, composition for rend ering garments, 659,087
Waterpreof, sidewalk, floor, or roof construction, P. H. Jackson. 688,970

Baker of infaling inactinity of the Baker of Salasa Windom Vindow brace and fastener, Jenks & Himes. 638,845 Wire bars, preducing, E. Emerson. 538,945 Weod carving machine, J. E. Brielmaier. 638,794 Wrench. See Pipe wrench. Wrench, J. H. Coes. 638,956 to 638,958 Yeast agitating apparatus, A. Lorenz. 639,067

DEGRAMO

many mustrations, Price \$2.50.	DESIGNS.
•	Axle wheel, H. P. Wells
EVDEDIMENTAL CCIENCE	Bootee, J. A. Manss
EXPERIMENTAL SCIENCE.	Cabinet, kitchen, J. E. Tate
By GEORGE M. HOPKINS.	Clothes spring. J. N. Carter
by GEORGE M. HOFKINS.	Corn holder, E. A. Straub
THIS is a book full of	Curling iron member, S. M. Levy
interest and value for	Dauber, H. L. Miller 31,973 Gear wheel bousing, J. Schmitt 31,977
Teachers, Students,	Heel plate, J. R. Perry
and others who desire	Holdback, W. W. Knipple 31,979
to impart or obtain a	Hook, harness trace, J. R. Allen 31,978
practical knowledge of	Insulating plate for electric lamps, W. B. McDon-
Physics. This splendid	ald 31,970 Knife, W. D. Arnett 31,965
work gives young and	
old something worthy of thought. It has in-	Lamp globe, T. W. Synnett 31,968 Latch lever, W. R. White 31,974 Medal or similar article, W. Vetter 31,984
fluenced thousands of	Medal or similar article W. Vottor 31.964
men in the choice of a	Necktie helder, C. L. Hhry 31,986
career. It will give any-	Necktie holder, C. L. Ubry 31,985 Paper border, wall, H. Wearne. 31,990 Paper, wall, H. Wearne. 31,990 to 31,992 Quilting frame banger, S. A. Hogue. 31,975
one, young or old, in-	Paper, wall, H. Wearne
formation that will en-	Quilting frame banger, S. A. Hogue
able him to compre-	Tea cup, W. H. Lepp
hend the great im-	Vehicle running frame, H. M. Pope
provements of the day.	Water bag, F. W. Stephenson
It furnishes sugges-	Wedge, J. Hunsinger, Jr
tions for hours of in-	
structive recreation.	TRADE MARKS.
20th edition. Revised and enlarged. 914 pages. 820	Boiler tubes, C. A. Thompson
illus. Elegantly bound in cloth. Price, by mail, post-	Bread, baked, J. G. Meinberg 33,886
paid, \$4.00; Half Morocco, \$5.00.	Butter, J. G. Turnbull
*	Cement for certain named purposes, Eclipse Cement and Blacking Company 33.877

t-	Bread, baked, J. G. Meinberg	33,886	
- 1	Butter. J. G. Turnbull	33,885	
- 1	Cement for certain named purposes, Eclipse Ce-	00.000	ı
- 1	ment and Blacking Company	33,811	
- 1	ment and Blacking Company	22 207	ı
- 1	Drugs and chemicals, certain named, I. Pomerov	00,001	ı
- 1	Company	33,892	ı
- 1	Farm machinery and agricultural implements, M.		l
i. I	Smith Company	33,898	J
1	Flame proof products, certain named, Flame Proof	33.878	ı
- 1	CompanyFlour, Cumberland Cereal Company	33 887	l
- 1	Food, poultry, Empire Egg Maker Company	33 888	ł
a	Games, indoor, A. Hodge	33.871	l
a	Games, indoor, A. Hodge	0-1	ł
a-	pany	33,894	ı
st	Knitted fabrics and garments made therefrom.	00 004	۱
ts	W. Benger Soebne33,865,	33,866	١
en nd	Match cases, B. l. Gilman	33,872	l
e-	Klein & French Company	33,891	١
Ď-	Musical instruments and strings for same, certain	00,000	١
I-	named stringed, Lyon & He ily	33,SES	١
I-	Olives, Seville Packing Company	33,883	ı
he	Papers, carbon, Mittag & Volger	33,869	١
s; th	Pharmaceutical compound, certain named, Far- benfabriken of Elberfeld Company	33,893	١
l e	Powder noultry A A Wells	33,889	I
d	Powder, poultry, A. A. Wells	30,000	i
r	▶anv	33,870	l
ed	Relishes, fruits, and vegetables, certain named,		1
re	E. C. Flaccus Company	33.884	ł
of	Remedy, teething, J. B. de Beer Seed, clover, E. W. Conklin & Son	33,890	ļ
0e-	Seed, clover, E. W. Conklin & Soll	22 975	ì
ed.	Seed corn, E. W. Conklin & Son	93.874	١
be	Shoes, Pingree & Smith	33,864	١
n-	Shoes, certain named, Joseph Bannigan Rubber		I
he	Company	33.863	ı
ed	Skin cream, J. H. Austin	33.896	١
ic.	Soap and soap making materials, M. Myers Stogies, Segal & Menzer	33 660	١
10-	Tea. Nippon Seicha Gaisha, (Japan Tea Firing	00,000	1
	Company)	33,882	١
	Watches, Elgin National Watch Company	33.867	Į
	Water, spring, Quabaug Spring Water Company	33,881	1

LABELS. Espinosa Coffee,",for coffee, Williams Coffee Company.
"Lithuanian Stomach Bitters," for stomach bit-ters, Firm of J. Lowenthal.
"Magaw's Favorite," for cheese, Leon C. Magaw

A printed copy of the specification and drawing of any patent in the foregoing list, or any patent in print issued since 1853, will be furnished from this office for 10 cents. In ordering please state the name and number of the patent desired, and remit to Munn & Co., 361 Broadway, New York. Special rates will be given where a large number of copies are desired at one time.

Can adjan parents may now be obtained by the inventors for any of the inventions named in the foregoing list, provided they are simple, at a cost of \$40 each. If complicated the cost will be a little more. For full instructions address Munn & Co., 361 Broadway, New York. Other foreign patents may also be obtained.



HIGH GRADE **Buffing and Polishing Wheels**

for manufacturers of Hardware, Bicycles, Brass, Stoves, Silverware, Jewelers and Plating Trades and others, DIVINE BROS. CO., 92 Oneida St., Utica, N.Y.



Does Much Work With Little Work **Typewriter**

WYCKOFF, SEAMANS & BENEDICT. 327 Broadway, New York.

For Unadulterated Cigars

in any style, \$3.50 to \$20.00 per hundred, packed in boxes suitable for holiday presents, call or write to

BROCK & CO., Cigar Mfrs., 22 Park Place, New York



A SWELL AFFAIR

This is the best Electric Scarf Pin manufactured. Will last six months. Throws bright light 25 feet. Includes dry pocket battery, weighing six ounces. Can be lighted without any one knowlub how it's done. Price, complete, by mail, \$1.50. Buy one and have lots of fun.

VITALIS HIVMER, Jr., Manufacturer of Electric Noverties, 166-168 Greenwich St., N. Y.

"CHRISTMAS GIFTS DIAMONDS, WATCHES and JEWELRY.

Special! The new Waltham 12 size \$25.00 SWEET & ELLSWORTH,
89 Maiden Lane, New York. | Wholesale and
Retail Jewelers



Anyone seuding a sketch and description may quickly ascertain our opinion free whether an invention is probably patentable. Communications strictly confidential. Handbook on Patents sent free. Oldestagency for securing patents. Patents taken through Munn & Co. receive special notice, without charge, in the

Scientific American.

A handsomely illustrated weekly. Largest circulation of any scientific journal. Terms, \$3 a year; four months, \$1. Sold by all newsdealers.

MUNN & CO. 361 Broadway, New York Office. 625 F St.. Washington, D.







For Sale Steam Engine built by the Watts Campbell Company, of Newark, N. J. Engine consists of two horizontal condensing Corliss engines crank pin. The cylinders are 28 in. hore, 60 in. stroke. Belt wheel is 28 ft. dia. by 114 in. face. Gross weight is about 225,000 lbs. Can be seen in operation now; probably ready for delivery in February, 1900. Apply to The Clark Thread Co.. P. O. Box 154, Newark, N. J.

FOR SALE.—One half interest in patent on Rotary Engine, No 634,755, dated October 10, 1839, and on Life Boat, No. 566,765. These are practical and valuable in-ventions. See illustrated article on page 411 of this issue. For terms and further particulars address: W. Frank James, Box 1,075, Phoenix, Arizona.

FOR SALE—One 20 horse power horizontal, tubular boller with pumps, inspirator, heaters, etc., and one Armington & Simms 50 horse power engine. all in first class condition. Addr., H. L. M. C., Box 773, New York

Draughtsmen wanted on Mill Machinery and Machine Tools. Apply Bethlehem Steel Co., South Bethlehem, Pa

WANTED Box Nailer to drive at least eight No. 14 large head wire nails, 56 in or longer. Address Palmetto Fibre Co., Frederick, Md.

TURBINES JAS. LEFFEL & CO. Springfield, Obio, U. S.A.

MODELS | UNION MODEL WORKS

CE MACHINES, Corliss Engines, Brewers' and Bottlers' Machinery. The YILTER MFG.. CO., 899 Clinton Street, Milwaukee, Wis.

Mechanical Engineer. Totake charge of machine shop for building all kinds of machines. Must be draughtsman. State past experience. Address, S.M.G., Box 773, N.Y.

D'AMOUR & LITTLEDALE MACHINE CO. 130 WORTH ST. NEW YORK.. Machinery, Tools, Patterns, Models.

MODELS & EXPERIMENTAL WORK.
Inventions developed. Special Machinery.
E. V. Baillard, 106 Liberty St., New York.

Experimental & Model Work

NOVELTIES & PATENTED ARTICLES Manufactured by Contract. Punching Dies, Special Machinery. E. Konigslow & Bro., 181Seneca St., Cleveland, O.

FOR STEREOPTICONS AND SLIDES Moving Picture Machines and Films, write Williams, Brown & Earle, 920 Chestnut St., Philadelphia, Pa.

QRINDING MILLS FOR ALL PURPOSES. Bogardus Patent Universal Eccentric Mill. Address J. S. & G. F. SIMPSON, 28 Rodney Street, Brooklyn, N. Y.

UNITED STATES PATENT of license of a safe-ty appliance for high speed steam engines. Established ty appnance for high speed steam engines. Established in England and on the Continent. Essily applied to existing engines. W. H. C., Box 773, New York.

D. L. HOLDEN 1336 BEACH St. PHILADELPHIA PA REGEALED ICE MACHINES

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



PALMER Stationary and Marine Gasoline En-gines and Launches, Motor Wagon Engines, Pump-

MERITORIOUS INVENTIONS

financed or patents sold outright. Capital furnished for good energrises at 5 per cent. Stock companies formed and influential directors procured. Stocks and bonds sold. We transact all business on commission strictly. No advance fees. PETER WHITNEY, 100 Broadway, New York.

GAS AND GASOLINE ENGINES

S a Day Sure and we will show you the locality where you live. Send us your address the locality where you live. Send us your address and we will explain the business fully; remember we guarantee a clear property and the part of the p



Calcium **C**arbide

FOR EXPORT.

E. A. NERESHEIMER, 35 Nassau St., New York City.

YOU CAN MAKE \$100.A WEEK!
OWN YOUR OWN SHOW, COMPLETE OUTFIT-\$1 S. LUBIN. LARGEST MER. PHILADELPHIA P. A.

WANTED—An office man to purchase the interest of partner desiring to retire, in a concern which manufactures the simplest, heaviest, most economical and most fully developed Gas Engine on the market. Engine operates also with either gasoline or kerosene. Would consider consolidation with a live concern manufacturing first-class Steam Engines and Dynamos. Only principals need apply for particulars to "W. S." Box 773, New York.



🔈 Acetylene Burners. Samples, ¼ to 1 foot, 25c. each.

A new burner for STEREOPTICONS.

Highest C. P. possible.

State Line Talc Co., Chattanooga, Tenn.

At "HARBACH'S" All

LANTERNS
and SLIDES III

For Home or Exhibition
Magic Lanterns and Sildes WANTED.
HARBACH & CO'S Magic Lantern Emporium
809 Fillbert St., Philadelphia, Pa.

