NEW BOOKS, ETC.

Subject List of Works on Photog-RAPHY AND THE ALLIED ARTS AND SCIENCES IN THE LIBRARY OF THE PATENT OFFICE. London: Patent Office Library Series, No. 2. Bibliographical Series, No. 1. 1900. 18mo. Pp. 62. Price 20 cents.

A most valuable little book worthy of a considerable sale, the arrangement is admirable.

THE AMATEUR'S PRACTICAL GARDEN BOOK. By C. E. Hunn and L. H, Bailey. New York: The Macmillan Company. London: Macmillan & Company, Limited. 1900. Pp. 250. Price \$1.

A volume of the "Garden Craft Series." It is a capi tal book filled with exactly the information one is always wanting to know, and it will give valuable points even on such subjects as watering plants. Both fruit and flower

MODERN HOUSE PLANS FOR EVERY-BODY. For Village and Country Resi-dences, costing from \$250 to \$8,000, including full descriptions and esti-mates in detail of materials, labor, cost. and many practical suggestions. By S. B. Reed, architect. New York: Orange Judd Company. 1900. Illustrated, 12mo. Pp. 243. Price \$1.

To builders this work will be valuable as a handbook of reference, and to those who intend to build a home it will prove useful.

THE GAS ENGINE HANDBOOK. A Manual of Useful Information for the Designer and Engineer. By E. W. Roberts, M. E. Cincinnati, Ohio: The Gas Engine Publishing Company. 1900. 18mo. Pp. 220.

The book deals with American practice and is filled with valuable formulas and methods of determining mechanisms and propositions. It will prove of value to those who may have other books on the subject.

FIELD TESTING FOR GOLD AND SILVER, A Practical Manual for Prospectors and Miners. By W. Hamilton Mer-ritt, F.G.S. London: Crosby Lockwood & Son. New York: D. Van Nostrand Company. 1900, 18mo. Pp. 144. Price \$1.50.

The more intelligent is the prospector in his line of work the greater chance of success he will have. There is no business where exact science is of more value: tories of electricity. 2. What per cent of the power of a Much of the literature upon the subject is worthless, but steam engine would a hot air engine develop, both using the present handy volume is one we can commend.

MODERN COMPOUNDING AND RECTIFY ING. By Charles Norton. Chicago: Foote & Solomon. Pp. 89. Price \$2.50 **190**0.

There are many secrets in the distiller's business and many of them are given away in this book, which contains many practical formulas for producing all kinds cordials, etc. It also deals with the blending and imitating of various liquors.

ONDARY SCHOOLS. By Charles Burton Thwing, Ph.D., (Bonn). Boston: Benjamin H. Sanborn & Company. 1900. Pp. 371. ELEMENTARY PHYSICS FOR SEC-

Prof. Thwing has prepared a text-book which occupies a unique position. It is not too elementary, nor is it too advanced for the usual secondary school. The author tells us in his preface that he has endeavored to do away with those "limitations under which teachers work, both as to specific preparation for the work of teaching physics and still more as to material equip-How well he has succeeded can be determined only by those who bave practically used his work in the class-room. From the scientific standpoint, at least, the book certainly leaves nothing to be desired.

DYNAMOMETERS AND THE MEASURE-MENT OF POWER. By John J. Fla-ther, Ph. B., M. M. E. Second Edition. Revised and Enlarged. New York: John Wiley & Sons. London: Chap-man & Hall, Limited. 1900. Pp. 394. 12mo. Price \$3.

The author has presented in convenient form for the use of technical students and engineers a description of the construction and principles of action of the various types of d namometer employed in the measurement of

THE WHY OF GRAVITY. By J. A. Allen. Alwington, Kingston, Canada. 1900. Pp. 34.

Mr. Allen's little treatise, running, as he himself adprobably not meet with the approval of scientists. But nevertheless it deserves attention for its straightforwardness and its radical independence of thought.

RESULTS OF RAIN, RIVER, AND EVAP-ORATION OBSERVATIONS MADE IN NEW SOUTH WALES DURING 1898. With Maps and Diagrams. By H. C. Russell, Government Astronomer. 1900. Published by authority of Her Majesty's Government in New South Wales. Octavo. Pp. 235.

berghei Graz (Oesterreich). Author's Edition.

Business and Personal.

Marine Iron Works. Chicago. Catalogue free. For hoisting engines. J. S. Mundy, Newark, N. J. "U. S." Metal Polish. Indianapolis. Samples free. Yankee Notions. Waterbury Button Co., Waterb'y, Ct. Write Baker Mfg. Co., Racine, Wis., about pushing any new article. Facilities excellent.

ood seller and retail \$1. "X," Box 773, New York. Most durable, convenient Metal Workers' Crayon is Special and Automatic Machines built to drawings on of flame, if the magnet is weaker. contract. The Garvin Machine Co., 141 Varick St., N. Y.

The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th Street, New York. The best book for electricians and beginners in elec-

tricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4. Munn & Co., publishers, 361 Broadway, N. Y. Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.



HINTS TO CORRESPONDENTS.

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References to former articles or answers should give date of paper and page or number of question.

Inquiries not answered in reasonable timeshould be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.

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Scientific American Supplements referred

Scientific American Supplements referred to may be had at the office. Price 10 cents each.

Minerals sent for examination should be distinctly marked or labeled.

(7951) DeF. H. asks: 1. Can a jar filled with water and covered on the outside with tin foil and having a large wire nail passed through the cork, be used in place of a Leyden jar? A. Yes, but not an efficient one. The leakage is too great, due to the moisture on the glass. This was the first form of Leyden jar ever used. It is described in many text-books and histhe same amount of heat? A. With the same amount of fuel hot air engines develop from two to three times the power of steam engines for very small sizes. Large hot air engines have been found impracticable 3. What are the principal parts of the simplest toy hot air engine? A. The small toy hot air engine was illustrated and described in Scientific American, No. 20, vol. 76, 10 cents by mail. 4. What would be the voltage and internal resistance of a cell containing a solution of bichromate of potash and bisulphate of mercury? Two plates are suspended in this solution, one-half of an inch apart, one is zinc and one carbon; both are 6 inches long, 11/4 inches wide and 1/4 inch thick. They are let into the solution to a depth of 5 inches. A. A bichromate cell has 118 volts. Its internal resistance is at the most a fraction of an ohm. This varies with the strength of solution and changes as the solution becomes exhausted. The bisulphate of mercury is used to amalgamate the zincs and

mits, "counter to all ordinary habits of thought," will turn. Then wind the twine for separating the wires of

sists of 14 turns of 4 does it mean that there are four cells side by side with 14 turns each? Is it connected as shown in the drawing submitted? A. It will work it would as you show in your diagram. But we should take the four wires and wind them eide by side, turn for turn. Then wind the twine for separating the wires of different potential between the turns.

(7954) J. G. W. H. asks: Please state the theory and principles by which the electrical receiver of a radiophone is governed? Also please tell me whether ultra violet rays when thrown on two metalling joints or break in a circuit will close the circuit. A The radiophone, called formerly the photophone, dependsfor its action upon the change in resistance of a cell of selenium under the action of a candle fame upon selenium causes that t UNIVERSALGELD. Auf Grundlage des former value. We do not know what relation ultra violet metrischen Gewichtes und des Mo-rays bave to this effect. Lord Rayleigh has held that nometallismus, vorzüglich der Silber there is no reason to reject the theory that the effect is wahrung. Eine zwanglose Plauderie due to unequal heating of the selenium strips. The first von Karl Pamperl. 1900. Ruckerl photophone was invented by Prof. Graham Bell. Illus-

\$6, treats this subject quite fully.

(7955) C. A. P. asks: What I want to know is this: What effect has the electro-magnet on the electric arc to cause it to be extinguished in the controller and to be deflected in the arc welding s stem? A. The action in these instances is the same as if the electric current were flowing through a wire and the wire was free to turn around the electro-magnet. It would move, Wanted-To buy article everybody uses. Must be heing attracted or repelled according to the direction of the current. In this case the current flowing through the arc is repelled till it breaks and ceases to flow, if the made by D. M. Steward Mfg. Co., Chattanooga, Tenn. | magnet is strong; or blows the arc out into a long tongue

> (7956) H. H. asks: Would you be so kind as to let me know what is the trouble with a dynamo I made like one described in Supplement, No. 844. I made armature according to directions only I put 24 seq. in commutator and used slightly higher fields with 13 layers No. 24. It will only redden one 16 candle 52 volt lamp, at 2,500 revolutions. I have tested for short circuits, etc., but find it O. K. Please give me some information. A. Both of the changes you have made in the design of the dynamo cut down the output of the machine. We presume you have all the current it will give. The only information we can give is what you have already found out, that it is better to take a design well wrought out. and follow it without alteration than to alter that design, and find an inferior result. Our advice to all inquirers is not to attempt to design a dynamo unless after a thorough course of instruction in that line of work.

(7957) C. W. N. writes: I noticed in your ssue of July 28, under Notes and Queries (7924), E. R. asks: Is the gage of iron and steel wire the same as copper? Your answer is, yes. Kindly permit me to correct you as to this impression. Iron and steel wire are gaged by the Washburn & Moen gage. Copper wire, as used for electrical purposes, is gaged by the Brown & Sharpe gage. A very small proportion of copper wire, known as copper market wire, is gaged by the Stubbs gage. A. When we answered the inquiry as to wire gages, we were aware that there are numerous gages in use by manufacturers for their products. We are not aware that these gages are limited to special metals. There are many more of these than you mention. It is Books referred to promptly supplied on receipt of an unfortunate state of affairs that it should be so. There ought to be but one gage for all purposes, and not a Washburn & Moen gage, a Trenton gage, an Edison age, a Brown & Sharpe gage, a music wire gage, a twist drill gage, etc. If a congress could be assembled to unify practice in this direction, it would be worth all it would cost.

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INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending

AUGUST 28, 1900,

AND EACH BEARING THAT DATE. [See note at end of list about copies of these patents.

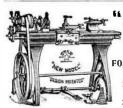
changes as the solution becomes exhausted. The bisulphate of mercury is used to amalgamate the zincs and does not affect the action of the cell directly.

(7952) W. T. C. writes: 1. I have a 75-watts dynamo and wish to run it with storage batteries, how many will it take? A. To run your dynamo as a motor with a storage battery, you will require half as many cells as the voltage of the current. 2. Which is the best adapted for the purpose? A. For so small a machine you can use any storage battery. Several good ones have been advertised in our columns. 3. Can I charge the same with the dynamo when belted to a power, and how long would it take? The dynamo is series wound. A. The little machine will charge the cells by allowing 2½ volts to a cell in charging. We do not know how long it will take.

(7953) W. G. asks: 1. Can the static mobers described in the Scientific American of February 25, 1899, and August 11, 1900, be used with an induction coil? A. We think they may be. Try it and see. That is quicker than writing about it. 2. Is the voltmeter and ammeter doscribed in Supplement, No. 1087, where it says the primary consists of 14 turns of 4 does it mean that there are four cells by side with 14 turns each? Is it connected as shown in the drawing submitted? A. It will work if

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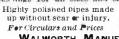
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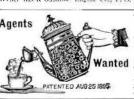
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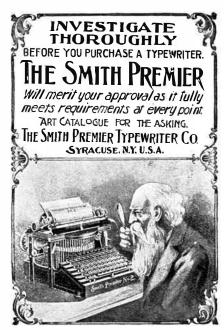
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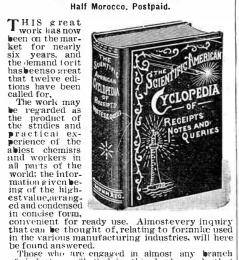
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ı	venicle frame mechanical joint, J. S. Cope-	
	land	656,765 6 56,962
Ų	Vehicle seat, C. B. Moore	656,962 656,775
	Vise, bench. E. H. Sheldon	656,656 656,795
-	Venier trimner A. Nelson Vise. bench. E. H. Sheldon Voting booth. J. H. Rafter Voting machine, F. M. Boring Wafon attachment for carrying axes, G. W.	657.029 656,713
	Wagon attachment for carrying axes, G. W.	
		656,803
	Wagon running gear, A. Boeker. Wagon, tipping, C. W. Lyon Washing machine, W. J. George.	656.773
	Washing machine, W. J. George	657.063 656.657
	Water bag, India rubber, J. Parette Water heater, instantaneous, M. 1. Coben Water with an apparatus for improporting P	656.813
	Water with gas, apparatus for impregnating, E. C. Worns.	656.919
•	Watering tank, poultry, J. Ray	656,727 656,645
1	Wave power, T. C. Clarke	656.943
l	Wheel. See Windmill wheel.	100,004
	Windmill C. F. Alger	656.922
	Window chair, P. C. Campbell	656,626
,	C. Worns. C. Worns. Watering tank, poultry, J. Ray Wave motor, G. W. Hoff. Wave power, T. C. Clarke. Weather strip, J. H. Foote. Wheel. See Windmill wheel. Windmill, C. F. Alger. Window chair, P. C. Campbell. Window frame and sash, metallic, C. D. Pruden. 656,650.	656 660
£	Window screen, G. A. Youlden	666.831
1	Wire grip, H. A. Mossman	656,993
	Window screen, G. A. Voulden. Wire grib, H. A. Mossman. Wool deFreasing apparatus, M. A. Jacques. Work gate, E. F. Mower. Wrapping machine, F. M. Peters.	656,725
	Wrapping machine, F. M. Peters	656,643
1		
•		

	DESIGNS.
1	Air brake coupling member. M. S. Levering
1	Atomizer casing, I. Q. Gurnee
1	Battery cell, D. H. Darling, Jr. 33.131
1	Bell, F. A. Scranton
1	Bell, F. A. Scranton. 33.142 Belt, skirt supporting. M. L. Shepard. 33.119
И	Bicycle frame, C. W. H. Smithers
١	Bicycle frame, F. A. Wilmot
i	Bicycle pedal rubber, F. A. Wilcox
	Brushes, etc., back for. H. A. Weihman :83.121 Chopper frame, food. H. K. Wood
	Clothes line section, H. M. Vinson
-	Cow tail holder member, E. S. Geer 33.136
ľ	Curb and gutter block. S. B. Morss
ı	Frame, ornamental, D. Piersol
ŀ	Hatchet head, J. F. Duffy
ı	Inhaler, H. L. True
Г	Last. cobbler's, R. S. Sonley
ŀ	Liquid container or vessel, J. H. Louch 33.130
ı	Mantel, T. R. Price. 33.1% Picture frame, W. H. Holtz. 33.1%
ı	Pin, safety, W. H. Bittner
ľ	Plate lifter body member, C. Council
ı	Puzzle board, A. Kinnicutt
ı	Road roller wheel. G. F. Conner
L	Sboe, J. H. Sparks
	Spoons, etc., handle for. H. A. Weihman
	Stove lid lifter, W. J. Kennedy
	Stove water front. J. S. Van Buren
	Vault light, R. M. Cox
Į,	Wrapper, H. E. Shedd 33,117
)	Wrapper, multiple, H. E. Shedd
	LABELS.

LABELS.	
"Anti Gon," for a medicine, Winn & Hubbard "Apollotonic," for a hair tonic, Century Chemical	7.763
Company	7,760
man	7,753
Medical Company	7,764
"Duroy Brand," for fruit sirups and juices. Duroy & Haines Company. "Gold Seal," for cigarettes, Knubel Tobacco Com-	7,756
"House's Baby Mixture," for a medicine, R. T.	7,758
"Huyler's American Drops," for caudy, Huy-	7.765
ler's	7,752
"Jewelers' Luster." for a preparation for polishing metals, glass, etc. A. S. Marsilliot	7.759
"Madam Sherman's Vegetable Compound," for a medicine. Worlds Electro-Medical Institute	7,762
"Red Top Rye," for whisky, F. Westheimer & Sons. "Viver Mills." for rye whisky, L. A. Rosenheim	7,755
"Viver Mills." for rye whisky, I. A. Rosenheim "Stay There," for buckles. I. W. Levi	7.754 7.750
"The Equality," for shoes. Direct Shoe Com-	
pany "The Hallwood." for cigars. Hallwood Cash Regis-	7.751
ter Company "Vaxo," for a medical compound, D. A. Strock	7.757

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