

Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issue.

Marine Iron Works. Chicago. Catalogue free.  
"U. S." Metal Polish. Indianapolis. Samples free.  
Yankee Notions. Waterbury Button Co., Waterbury, Ct.  
Handle & Spoke Mch. Ober Lathe Co., Chagrin Falls, O.  
Selling agency wanted. G. Earlie, 150 Nassau St., N. Y.  
3 in. induction coil cheap. R. Warman, Portland, Ind.  
We make things for people—on royalty or otherwise.  
Place & Terry, 247 Centre St., New York.  
Improved Bicycle Machinery of every description.  
The Garvin Machine Co., Spring and Varick Sts., N. Y.  
Concrete Houses—cheaper than brick, superior to stone. "Ransome," 757 Monadnock Block, Chicago.  
For static machines for all purposes, and X ray apparatus, write Reedsburg Electric Mfg. Co., Reedsburg, Wis., U. S. A.  
The Norwich Line—New York to Worcester, Lowell, Gardner, Winchendon and Keene, N. H. From Pier 40, North River, 5:30 P. M., week days only.  
The celebrated "Hornsbly-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 electricity 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.

Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters or no attention will be paid thereto. This is for our information and not for publication.  
References to former articles or answers should give date of paper and page or number of question.  
Inquiries not answered in reasonable time should 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.  
Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same.  
Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.  
Scientific American Supplements referred to may be had at the office. Price 10 cents each.  
Books referred to promptly supplied on receipt of price.  
Minerals sent for examination should be distinctly marked or labeled.

(7215) E. R. asks: 1. Could you inform me if the eight light dynamo described in SUPPLEMENT No. 600 can be used as motor? A. Yes. 2. How many volts shall I use? A. 50. 3. Have you published any paper in which you describe any motor of say 1 or 2 horse power? All your description I have followed, and I have a fine Holtz machine, a dynamo, an induction coil and a small motor. A. The Edison dynamo described in SUPPLEMENT No. 844 could be enlarged to meet your wants, and the SCIENTIFIC AMERICAN dynamo described in SUPPLEMENT No. 865 could be reduced.

(7216) E. A. B. writes: 1. I am about to build the dynamo described in SUPPLEMENT No. 600 with half dimensions. What number wire should be used on the armature, and how much for drum winding? A. No. 24. Use 16 coils, 24 turns in each coil, in 2 layers of 12 turns each. 2. How many wires should be placed in multiple on the fields, and what number should they be? What would be the amount of wire on the fields? A. Put 2 coils on each leg of field magnets, each coil having 250 turns of No. 22. 3. What would be the voltage and current of this dynamo? A. 50 volts and 1/2 ampere at 2,500 revolutions per minute.

NEW BOOKS, ETC.

THE PSYCHOLOGY OF THE EMOTIONS. By Th. Ribot, professor at the College of France, editor of the "Revue Philosophique." London: Walter Scott, Limited, Paternoster Square, New York: Charles Scribner's Sons, 153-157 Fifth Avenue. 1897. Pp. 455. Price \$1.25.

This work sets forth the present situation of the psychology of feeling and emotion. It has been the aim of the author to keep the work within reasonable limits, and to this end he has refrained from digression and all historical exposition. The first part of the book is occupied with studies of the more general manifestations of feeling; pleasure and pain, and then the nature of emotion. The second part is devoted to the special emotions. The doctrine which the author adopts without restriction connects all states of feeling with biological conditions, and considers them as the direct and immediate expression of the vegetative life. Feelings and emotions are not a superficial manifestation; they have their root in the needs and instincts. The index (invaluable in a comprehensive work of this kind) is fairly voluminous.

THE NEW PSYCHOLOGY. By E. W. Scripture, Ph.D. (Leipzig), director of the Yale Psychological Laboratory. With 174 illustrations. London: Walter Scott, Limited, Paternoster Square, New York: Charles Scribner's Sons, 153-157 Fifth Avenue. Pp. 500. Price \$1.25.

One of the great charms of the works of the late Professor Huxley was the simplicity and clearness of his style—his happy faculty of putting a scientific fact before

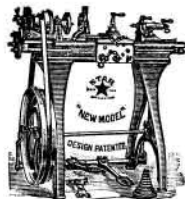
Advertisements.

ORDINARY RATES.

Inside Page, each insertion, - 75 cents a line  
Back Page, each insertion, - - \$1.00 a line

For some classes of Advertisements, Special and Higher rates are required.

The above are charges per agate line—about eight words per line. This notice shows the width of the line, and is set in agate type. Engravings may be advertised at the same rate per agate line, by measurement, as the letter press. Advertisements must be received at Publication Office as early as Thursday morning to appear in the following week's issue.



Star ★ Screw...  
Lathes Automatic  
Cross feed  
9 and 11-inch Swing.  
New and Original Features  
Send for Catalogue B.  
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SCIENTIFIC AMERICAN SUPPLEMENT.—Any desired back number of the SCIENTIFIC AMERICAN SUPPLEMENT can be had at this office for 10 cents. Also to be had of newsdealers in all parts of the country.

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SAVE 1/2 YOUR FUEL  
By using our (stove pipe) RADIATOR.  
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ONE stove or furnace does the work of TWO. Drop postal for proofs from prominent men.  
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Has no pumps, no valves. No piping required to supply it with water. Always ready for use. Simplest in construction, most efficient in operation.  
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DEFIANCE MACHINE WORKS  
DEFIANCE, OHIO, U.S.A.  
BUILDERS OF  
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SEND FOR CATALOGUE

ELECTRO MOTOR, SIMPLE, HOW TO make.—By G. M. Hopkins. Description of a small electro motor devised and constructed with a view to assisting amateurs to make a motor which might be driven with advantage by a current derived from a battery, and which would have sufficient power to operate a foot lathe or any machine requiring not over one man power. With 11 figures. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 641. Price 10 cents. To be had at this office and from all newsdealers.

"It Tells About Tools"  
Every Mechanic, Metal Worker, or person interested in Machinery should have our new 1897 Tool Catalogue. It contains 710 pages, size 10 1/2 x 7 1/2, and is an exhaustive and instructive list of all tools that may be required. Handsomely bound in cloth, express paid on receipt of \$1. Money paid for book will be refunded with first order amounting to \$10 or over. Send stamps or money order.  
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his readers in simple terms that brought it readily within the comprehension of the reader. In the work before us the author manifests the same directness and simplicity of style and direction. The very term psychology is apt to carry with it ideas of abstruse metaphysical reasoning which deter any but the habitual student of the science from opening a new work on this subject. The present volume, however, will prove to be interesting and readily intelligible reading, even to those who have had little previous acquaintance with psychology. The new psychology consists in the application of physiological tests to psychological phenomena. Thus there is a measurable period of time between the moment that any object is presented to any of our senses and the moment of sensation. The new psychology, by means of delicate mechanical or chemical apparatus, enables us to measure this interval, which varies greatly in different individuals. So does the "time of reaction," or the conscious action in response to a signal. Part I of the volume deals with "methods," the next three are devoted to time, energy, and space, and Part V is a review of the past and present of the science. The work is freely illustrated with diagrams and half tone engravings of the various apparatus used by the author in the Yale laboratory, much of which is of his own design.

TO INVENTORS.

An experience of nearly fifty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequalled facilities for procuring patents everywhere. A synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices, which are low, in accordance with the times and our extensive facilities for conducting the business. Address MUNN & CO., office SCIENTIFIC AMERICAN, 361 Broadway, New York.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

SEPTEMBER 21, 1897.

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

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