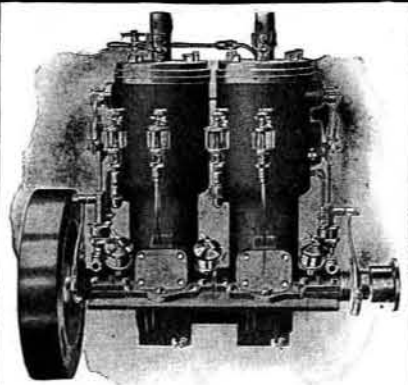


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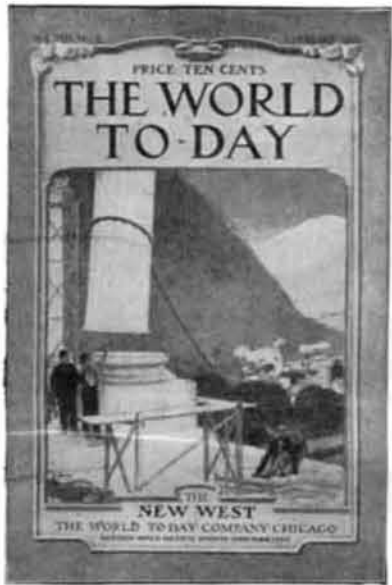


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leakage to the earth, but this stray current ultimately finds its way to the dynamo with the rest. When an underground trolley is used, there is no return by the rails. Two conductors are placed in the conduits, and a double trolley is used. B's view is the accepted one. The suggestion has recently been made that the current is dissipated to the earth, and does not go back to the dynamo, the earth serving as a return in the same manner as in the telegraph, but this has received little attention. The electrolysis of pipes between the rails and the dynamo is against this view.

(9527) E. H. L. asks: 1. Who was the first man to run an electric motor from a dynamo? A. The discovery of the fact that a dynamo would by its current drive another similar machine as a motor is ascribed to Gramme, the inventor of the Gramme ring armature. It is said to have been an accidental discovery. Mr. Tesla invented the rotary magnetic field, by means of which the rotation of the polarity of the magnet poles drags after them the armature in the alternating current system. It was a most valuable discovery. 2. Having a line of shafting on a ground floor used to run agitators, which is the most economical—to run direct with belt from an engine, or to use motors and a dynamo? A. The most recent practice is to run each machine by its own motor, instead of driving from a line of shafting, belting to the separate machines. Its economy is due to the saving of the power required to drive a line of shafting, and the stopping of the power by shutting off the current from the motor the instant the work is done. There is little or no waste of power by this method of driving.

NEW BOOKS, ETC.

STEAM BOILERS. Their Theory and Design. By H. De B. Parsons, B.S., M.E. New York: Longmans, Green & Co., 1903. 8vo.; pp. 375; illustrated. Price, \$4.

Students in this branch of practical science will here find, brought together in one volume, much information indispensable to the designing of steam boilers. The author makes no claim of originality, save in the effort to cover those perplexing points constantly confronting the student in practical work. Mr. Parsons's position in the engineering world should be sufficient guarantee of the value of the book.

MODEL STEAM TURBINES. How to Design and Build Them. By H. H. Harrison. London: Percival Marshall & Co., N. D.; 16mo.; pp. 85. Price, 20 cents.

A small experimental turbine is a departure for the model maker, and offers him an admirable scope for his powers. The present volume is thoroughly practical, and will prove of very timely interest.

TYPES AND DETAILS OF BRIDGE CONSTRUCTION. By Frank W. Skinner. New York: McGraw Publishing Company, 1904. 8vo.; pp. 289. Price, \$3.

This book forms an epitome of modern American bridge construction. All types of arched bridges are thoroughly illustrated and described, the essential features of construction being clearly brought out in every case. Not only American, but also the best characteristic types of foreign bridges are described. Besides plans and specifications of the bridges as a whole and their details of construction, the book contains numerous half-tone illustrations, showing the completed bridges and the methods used in their construction.

THE ANATOMY OF THE AUTOMOBILE. By A. L. Dyke. St. Louis: A. L. Dyke Automobile Supply Company, 1904. 8vo.; pp. 727; numerous illustrations. Price, \$2.50.

This book gives instructions for the care and maintenance of most of the leading American automobiles and a number of foreign cars as well. In most instances detailed descriptions of the automobiles, illustrated by lettered and numbered diagrams, give the reader a good insight into their construction; while this knowledge is supplemented by useful hints concerning the care and operation of the machine. In the case of the foreign cars, the descriptions published have been taken largely from the Automobile Review and the SCIENTIFIC AMERICAN SUPPLEMENT. Besides the description of automobiles, several articles on storage batteries, automobile construction, and the like, add to the value of the book. Its up-to-date character will be realized from the fact that a considerable number of the airships and kites which competed at the St. Louis Exposition are illustrated in the last chapter of the book. On the whole, this book is one of the most complete instruction books that have thus far been published.

BIRDS ON LAND AND SEA. A Record of a Year's Work with Field Glass and Camera. By John Maclair Boraston. Illustrated by photographs taken direct from nature by the author. New York: John Lane, the Bodley Head. 1905. 12mo.; pp. 282. Price, \$2.

Mr. Boraston's book, besides giving evidence of careful observation on his part, has the

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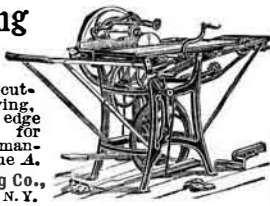
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merit of being written in a delightfully personal vein that lends not a little interest to a subject that could have been only too easily treated with dryness. He has confined his work to a district of comparatively small radius—to Stretford on the River Mersey. For miles around, this low country, with its grazing fields and land under cultivation, offers rare opportunities for studying bird life. Mr. Boraston has made admirable use of these opportunities. He has succeeded in correcting many a popular error, such as the idea that some birds hibernate, and the curious notion, which Dr. Johnson himself accepts, that "swallows conglobulate together by flying around and around and then all in a heap, throw themselves under the water and lie in the bed of the river," there to remain all winter. Mr. Boraston has written his book, not chapter by chapter, but month by month. Most attractive features of the book are a series of excellent photographs of birds in characteristic poses.

We have received from the Derry-Collard Company, 256 Broadway, New York, a splendid engraving showing in detail, both inside and out, a modern battleship, with all the parts named, numbered, and indexed. Although the idea in itself is not new, we must confess that the thoroughness and clearness with which the artist has illustrated the wonderful complexity of a modern fighting ship, has never before been equaled in a picture of this kind. The full engraving shows about 500 parts. The sheet upon which the picture and descriptive matter appears is 44 inches long by 28 inches high, and costs 50 cents.

INDEX OF INVENTIONS For which Letters Patent of the United States were Issued for the Week Ending January 17, 1905 AND EACH BEARING THAT DATE

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

Table listing inventions and their patent numbers, including items like 'Acid, making dialkyl barbituric', 'Adding machine signal', 'Advertising device', etc.

The Improved Method of FINISHING FLOORS. Filling cracks with GRIPPIN'S Filler and Patent Appiler. GRIPPIN MFG. CO. Newark New York

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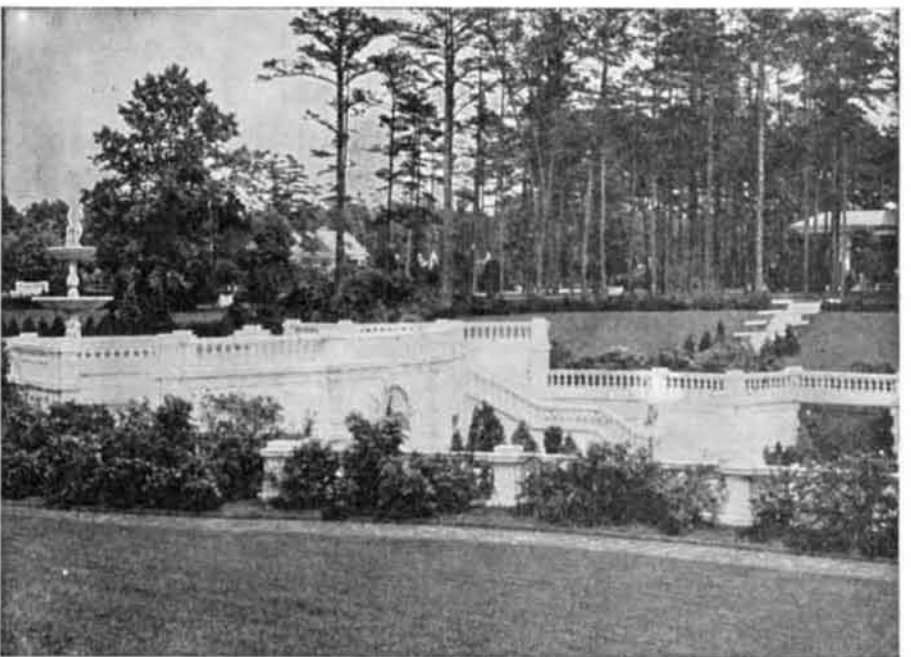
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