

INDEX OF INVENTIONS

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

January 13, 1903,

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 'Adding machine', 'Adjustable chair', 'Air brake cylinders', etc.

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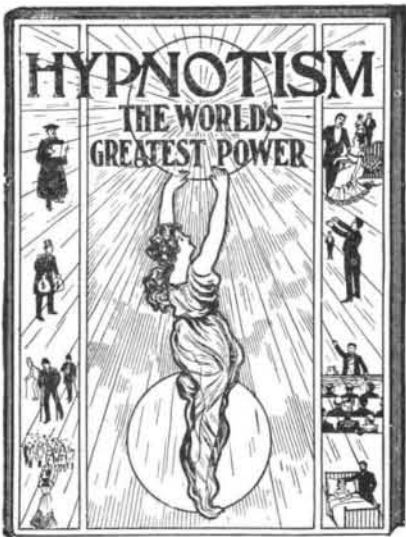
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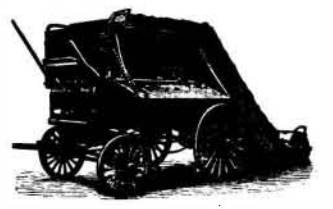
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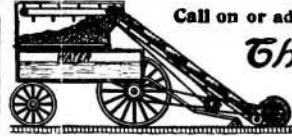
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NEW BOOKS, ETC.

SCREW PROPELLER COMPUTER. By George R. McDermott. Ithaca, N. Y.: Taylor & Carpenter. Price \$5.

From Messrs. Taylor & Carpenter, of Ithaca, N. Y., we have received a most useful work by George R. McDermott, Professor of Naval Architecture at Cornell University, describing his screw propeller computer. In addition to the descriptive treatise on the computer, Messrs. Taylor & Carpenter have sent us an actual computer. The computer is composed of one stationary and two movable disks, carrying suitable scales, and constitutes an instrument designed for the purpose of furnishing means whereby the dimensions and proportions of screw propellers—diameter, pitch, surface revolutions, slip and efficiency—can be quickly and accurately determined for any given case or set of conditions. The formulae which form the basis of its design and construction were deduced by the author from a rigid analysis of the results furnished by the experiments of Mr. R. E. Froude for the British Admiralty. The computer is substituted for the cumbersome and tedious methods of application of Mr. Froude's results. The use of the computer will enable the designer to arrive at a solution of propeller problems in a small fraction of the time previously taken, the results being practically identical with those obtained with the use of Froude's formulae.

GEOMETRICAL SOLUTION OF ALGEBRAICAL PROBLEMS APPLIED TO ARITHMETIC. By A. W. Fernando, Inventor of the Sliding Decimal Scale. Part I. Colombo. 1902. Pp. 23. 16mo.

THE MODERN CORPORATION. By Thomas Conyngham. New York: The Ronald Press. 1902. Pp. 88. Price 50 cents.

Coming as it does from a lawyer, this little book deals with the corporation largely from the legal standpoint. There is probably no other book which presents so concisely the elementary facts upon which corporate law and procedure are based. The author has endeavored to present the objects, method, defects and advantages of the corporate form tersely and yet accurately.

THE PRACTICAL ENGINEER. Electrical Pocket-Book and Diary 1903. Manchester, England: Technical Publishing Company, Limited. Pp. 339.

THE PRACTICAL ENGINEER POCKET-BOOK. 1903. Manchester: Technical Publishing Company, Limited. 1903. Pp. 568.

These two handbooks for engineers and electricians contain the usual information to be found in pocket-books. Although the list of engineering pocket-books is already large, there is no doubt room for two more, particularly for two which present their information concisely and authoritatively.

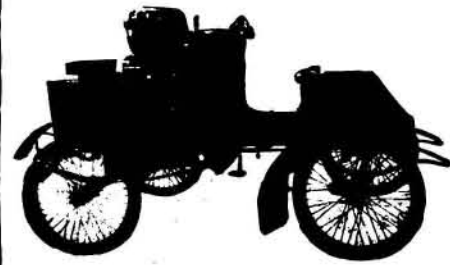
ISOLIERMATERIALIEN UND WÄRME (KÄLTE-) SCHUTZMASSEN. Von Eduard Felton. Leipzig, Vienna and Budapest: A. Hartleben. 1902. Pp. 330.

Heat insulation has developed to such an extent in the past twenty-five years that the industry of providing insulating materials has grown to be of no little importance. For that reason Mr. Felton's book should prove of exceptional value. The few data which are to be found scattered in the literature of heat have been collected by him, completed and expanded. Many errors are corrected. Brief descriptions of raw materials, such as asbestos, rubber, gutta percha and the like, present much information that is new. Not the least instructive portion of the book is the section devoted to electrical insulators.

THE MODERN WOOD FINISHER. By F. Maire. Chicago: Press of the Western Painter. 1901. 12mo. Pp. 176. Price 50 cents.

While it is not claimed that the practical, first-class wood finisher will receive much addition to his store of knowledge by reading this volume, yet the great majority of painters and contractors who have not made that branch of the trade a specialty, will welcome it and will find it of interest.

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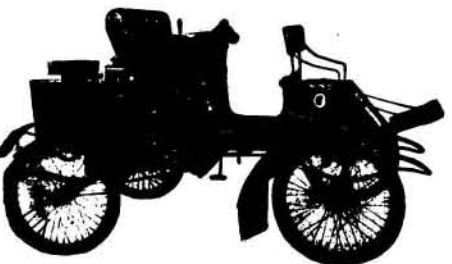


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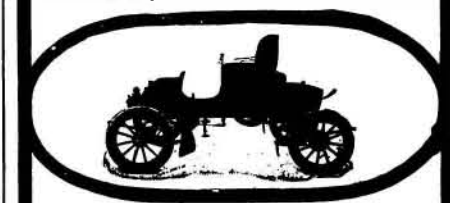
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Notes and Queries.

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.

(8798) C. H. H. says: I wish to use my gasoline car during cold weather. Kindly tell me whether chloride of lime, added to the water used to absorb heat from the cylinders, will prevent the water from freezing when the machine is not in use, and the water is cold. What proportion of chloride of calcium should I use? What weight per gallon of water? A. Chloride of calcium (not chloride of lime) can be used to lower the freezing point of water. All dissolved salts tend to corrode metal more quickly than pure water, hence care should be taken to clean up occasionally so as to prevent corrosion.

(8799) W. H. A. asks: 1. Does the process of steaming wood in any manner destroy the life of wood, and are there any limits to this destruction? A. The steaming of wood for bending purposes seems to do no injury, as the lasting quality of wood so treated is very evident in our old ships and bent wood in agricultural implements. 2. In small-boat construction is there any special process for steaming wood (pine or oak)? A. The universal practice is simply a wooden steam box connected to a closed kettle of water over a fire. 3. If there is a destruction of the vitality of woods, would there be a way of lessening this effect? A. Even the steam boxes in use for many years retain vitality and strength in the wood to a surprising extent. We know of no needed improvement.

(8800) H. E. H. wishes the exact number of pounds (16 ounces) a cubic foot of hydrogen gas will raise. A. One thousand cubic feet of hydrogen weighs 75 pounds less than 1,000 cubic feet of air at normal pressure and at the freezing point of water. It is customary to allow 70 pounds as the lifting power of 1,000 feet of hydrogen in a balloon, the difference being to provide for some advantage on the part of the hydrogen. It would balance 75 pounds, but lift 70 pounds with ease.

(8801) A. L. writes: In query 8701, regarding the farmer plowing a field, you state that the problem is not an arithmetical problem, but requires a solution in algebra. Please explain why it is not an arithmetical problem, and why the following arithmetical solution is not correct. In the problem there are given two parts to find the whole, namely, the dimension of one part and the ratio of the other part to the whole. The ratio of the unplowed square to the field is given as 3/4 of the field. The question to solve there is: What is the ratio of the unplowed side to the whole side? A ratio is simply a multiplier. An arithmetical rule is: Multiplying or dividing the side of a square, or the diameter of a circle, multiplies or divides the area by the square of that multiplier or divisor. 3/4 in the problem before us is a multiplier of an area, viz., the area of the field. By the above rule 3/4 must equal the square of the multiplier of the side. The square root of 3/4 is 0.866, which equals the ratio of the unplowed side to the whole side. 0.866 + the 20-rod strip = the whole side. Therefore the side being unit or 1, 1 - 0.866 = 0.134, or 20 rods. If 20 rods are 0.134 of the side, the side will equal 20 rods ÷ 0.134 = 149.2 rods, and the unplowed side will be 0.866 times 149.2 = 129.2 rods. As 160 square rods make one acre, by the simple process of multiplication and division the number of acres can be readily found. A. The solution given above is an ingenious arithmetical solution for the problem referred to, which did not occur to us when we solved it. But we still submit that such problems may be more easily and elegantly solved by algebraic methods, and by such methods are usually solved. The arithmetical method is to work from the conditions of the problem to determine the answer. The algebraic method is to assume a letter to represent the answer, and to work with the answer thus assumed according to the data till an expression is found for the answer in terms of the numbers or letters given as data in the problem. The two methods are thus seen to be diametrically the opposite of each other. We think most mathematicians more frequently employ the algebraic method, though we are sure that those who habitually use the arithmetical method consider it preferable to the algebraic.

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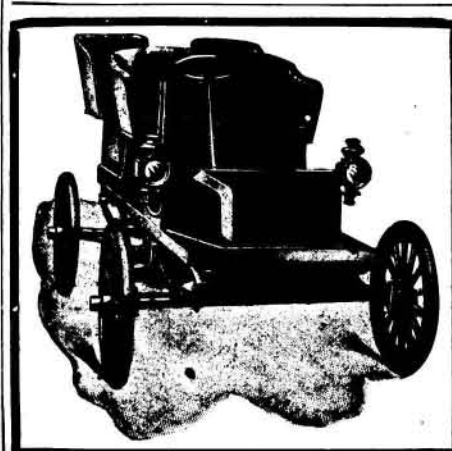
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