

A flange of the body extends beyond the frame and a cap-member connected with the body within the periphery of the flange is given an interior configuration corresponding to the outer surface configuration of the panel and frame.

TEAPOT OR LIKE ARTICLE.—Austin F. Jackson, Taunton, Mass. The body of this teapot is oblong in horizontal section. The large lower portion is of convex outline and the smaller upper portion of concave outline. The base is of a shape corresponding generally to the body portion, spreads out beneath the lower portion of the body and has on each side a symmetrical ornament of a double scroll pattern. A similar ornament is arranged at the margin of the upper portion on each side. The spout is of reversely curved outline and has on its lower end or root portion a series of scallops joining onto the body portion. Scrolls are arranged at the top and bottom of the spout. The top is conical, with reversely curved sides concave at the bottom and convex at the top, with a series of upwardly converging corrugations. The handle is scalloped in cross-section and has a spreading root portion where it joins onto the upper portion of the body and a scalloped scroll on either side. The handle is otherwise ornamented with many beautiful decorations.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co. for 10 cents each. Please send the name of the patentee, title of invention, and date of this paper.

NEW BOOKS, ETC.

DIZIONARIO TECNICO IN QUATTRO LINGUE. III. Milan: U. Hoepli. 1898. Pp. 509.

This little technical dictionary is in English, Italian, German and French. It is a work which has long been needed. It is a most useful dictionary and should be on the desks of all those who read foreign technical books and periodicals.

SALVA-WEBSTER SPANISH-ENGLISH AND ENGLISH-SPANISH DICTIONARY. Chicago: Laird & Lee. Pp. 400. Price, limp cloth, 30 cents; stiff cloth, 60 cents.

This compact little work cannot fail to be a great convenience, at the present time, to all who desire to keep in touch with the news of the day, when so much of intense interest is happening in our relations with Spain and the Spaniards in Cuba. It also contains a geographical and biographical cyclopaedia of Spanish-speaking countries, with maps, etc.

A TEXT BOOK OF BOTANY. By Dr. E. Strasburger, Dr. Fritz Noll, Dr. H. Schenck, Dr. A. F. W. Schimper. Translated from the German by H. C. Porter. With 594 illustrations, in part colored. London and New York: Macmillan & Company. 1898. Pp. 632. Price \$4.50.

No words of commendation are needed for this translation of Strasburger's botany. The names of its authors and the distinguished position they occupy in the world of botanical science testify to the high character of the book. Embodying the well considered conclusions of a lifetime devoted to botanical work on the part of its chief editor, Dr. Strasburger, and the investigations of his able collaborators, it will be found to include all the latest results of botanical study and research. The great thoroughness which is admirably exemplified in the present book. It is very difficult to find satisfactory equivalents for German terms, and the translator appears to have accomplished this task with great felicity. The work is divided into two parts—I, general botany, including morphology and physiology, and part II, special botany. The book contains 594 illustrations, part of them being colored. It is beautifully printed on fine paper and is a splendid example of a modern science text book.

FOSSIL PLANTS FOR STUDENTS OF BOTANY AND GEOLOGY. By A. C. Seward. With illustrations. Vol. I. Cambridge: University Press. New York: Macmillan Company. 1898. Pp. xviii, 452. Price \$3.

The present work is the first volume of an important contribution to paleobotany. This subject does not readily lend itself to adequate treatment in a work intended for both geological and botanical students. The botanist and geologist are not always acquainted with each others' subjects in a sufficient degree to appreciate the significance of paleobotany in its several points of contact with geology and recent botany. The author has endeavored to bear in mind the possibility that the pages of his book will be read by both non-geological and non-botanical students. His plan has been to deal in some detail with certain selected types, and to refer briefly to such others as should be studied by any one desirous of pursuing the subject more thoroughly, than to cover a wide range or to attempt to make the list of types complete. A second volume is promised which will contain such interesting features as geological flora, plants as rock builders, fossil plants and evolution. The present volume is well illustrated and shows a wonderful amount of research.

AMERICAN RAILWAY BRIDGES AND BUILDINGS. Official Reports, Association Railway Superintendents Bridges and Buildings. Compiled and edited by Walter G. Berg. Chicago: The Roadmaster and Foreman. 1898. Pp. 706. Price \$2.50.

In this progressive age the best results are obtained by applying past experiences to the problems of today. The department of bridges and buildings of American railroads is a very important division of railway administration, and the only authentic published records of the various kinds of work coming under this head are the annual reports of the Association of Railway Superintendents of Bridges and Buildings. They were issued only in limited numbers and the form was not the most desirable. In order to extend the usefulness of these reports and to make them available for every one, the reports and information collected by the asso-

ciation during the last seven years have been compiled and edited by W. G. Berg, principal assistant engineer of the Lehigh Valley Railroad and president of the association, and are published in a form suitable for a handy reference book. It is profusely illustrated.

GOLD DUST. How to find it and how to mine it. By Philip Minor. Seattle, Washington. 1898. Pp. 39. Price 25 cents.

The little pamphlet is brimful of exactly the kind of information which those who are interested in mining or prospecting always want to know. It gives a great deal of important information in a handy and inexpensive form. The only part of the book which we are disposed to criticize is the medical advice, but it is not probable that the purchasers of the work will go to a book of this kind for medical advice.

THE MANUFACTURE OF GLUE AND GELATINE. The application and uses of machinery, etc. Complete list of manufacturers and dealers in the United States and Canada. New York: The National Provisioner Publishing Company. 1898. Pp. 223. Price \$10.

The manufacturers of glue have made special effort to keep their methods and processes as secret as possible; so that the literature upon the subject is very limited. Nearly every manufacturer has some little arrangement, machine or device which enables him to economize in some way or other, so that the National Provisioner has done wisely in collecting the writings of men who are entirely familiar with the various processes of making glue and gelatine. The result is a very helpful book, which may be regarded as one of the most important contributions ever made to the subject. The book is handsomely printed and bound and is well illustrated. It also includes a complete list of manufacturers and dealers in glue and gelatine in the United States and Canada.

WOOD WORKERS' TOOLS. Being a catalogue of tools, supplies, machinery and similar goods. Detroit, Mich.: Charles A. Strelinger & Company. Pp. 400. Price 25 cents.

That a catalogue of tools is not always dry and uninteresting is proved by the catalogue of the firm referred to above. It treats of tools, machinery and supplies. For many years catalogues have been growing larger and larger, until things were getting to such a pass that it almost became a grave question as to whether manufacturers would not have to put up special library buildings for trade catalogues. That a catalogue need not, however, be an enormous folio is evidenced by the catalogue which we are noticing. A small engraving tends, in a majority of cases, to be as useful for the purpose as a large one. An account of its small size this book can be kept on the desk and constantly referred to or it can be carried in the pocket. Besides being a catalogue of tools in the ordinary sense of the word, the catalogue contains a large amount of information on the use of tools which will prove available to every amateur and even to those who use tools as a means of livelihood. The catalogue is admirably got up and is in reality a valuable reference book. There are 2,253 illustrations, besides plates which illustrate the "Elements of Descriptive Geometry as Applied to the Trades."

PATENTED TELEPHONY. A Review of the Patents Pertaining to Telephones and Telephonic Apparatus. By the American Electrical Engineering Association. Chicago, Ill. 1897. Pp. 102. Price \$1.50.

A review of the principal patents pertaining to telephones and telephone apparatus, in a simple form, is a novel idea. This treatise is designed as a reference book for the inventor, engineer and patent lawyer. The United States patents now in force which cover devices and systems used in telephones, number thousands. The present work gives the salient features, the high lights in the art, as it were, which are revealed by the study of both expired and unexpired patents. It is well illustrated by the reproductions of patent drawings.

RESEARCHES UPON THE ANTIQUITY OF MAN. At an Indian Stone Blade Quarry in the Delaware Valley, at a Mortuary Deposit of Indian Skeletons in Maryland, in Certain Shell Heaps on the Coast of Maine and at the Durham Cave and Indian House Rockshelter in Pennsylvania. By Henry C. Mercer. Boston: Ginn & Company. 1897. Pp. 178.

A valuable archaeological study fully illustrated with maps, plans and well executed engravings.

"Monumental Records" is the name of a new journal devoted to archaeology. It is edited by Rev. H. Mason Baum, and the subscription price is \$1.50 per annum. It is published in New York City, P. O. Box 1839. It is a mistake to believe that archaeology is a dull and uninteresting science. The reverse is quite the case, and it is refreshing to see a journal devoted to archaeology which is adequately illustrated by modern processes. It is to be hoped that all those who are interested in this charming science will become subscribers to this journal, whose field is the world, and it appeals to the intelligent and cultivated public which is interested in discoveries that are being made in ancient centers of civilization. Too often discoveries are made known only by the reports of societies and expensive monographs. Up to this time there has been no periodical exclusively devoted to exploration from which the public could get a reliable and popular account.

TO INVENTORS.

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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.

(7446) W. J. K. asks: 1. What is it in an electric current that produces the shock—the amperes or volts? A. There are two quite different modes in which electricity affects the body. These are by shock and by electrolysis. Your questions relate to the effect of shock. In this a very high voltage is essential. In either case, there must be voltage sufficient to overcome the resistance of the body, which may be from 300 to 10,000 ohms, according to the dryness of the skin. 2. I have read that if there be an exceedingly high potential, there will be no shock. Is this true? A. Certain experiments performed by Tesla are relied upon as proof of this statement. It should, however, be said that it is not universally believed that there is no shock with the highest voltages. 3. Why is it that a broken or alternate current will give more of a shock than a direct one of the same voltage and amperes? A. Because with an alternating current the shocks are given in opposite directions so rapidly and with such violence.

(7447) C. A. asks: 1. Will you kindly let me know how many cells are required for a current of 20 amperes at 10 volts? A. To obtain 20 amperes at 10 volts, with a primary battery, is not easy. If you use the plunge type, its E. M. F. is about 1.8 volts per cell. You will need 6 cells in a series for the voltage. The maximum current of this cell is 4 amperes. You should have 6 such series to be sure of 20 amperes, making 36 cells in your battery. 2. Is it advisable to use plunge batteries with large plates? A. For occasional use and for a short time the plunge battery is as good as any, except the storage. 3. How shall I wind my motor? A. You can find a small motor described in Parkhurst's "Motor Building for Amateurs." Price \$1 by mail. Or in Watson's "Quarter Horse Power Motor." Price 50 cents by mail.

(7448) O. H. D. says: Can you tell me how to make blank wax cylinders for use in connection with graphophone or phonograph? A. We do not know what the wax cylinders are composed of or how they are made. This is a trade secret.

(7449) J. E. R. asks: What is the cost of firing 6, 8, 10, 12 and 13-inch guns? A. The cost of firing large guns is said to be as follows: 6-inch, \$100; 8-inch, \$250; 10 inch, \$400; 12-inch, \$600; 13-inch, \$800.

(7450) R. I. B. asks: Does a 13-inch gun refer to the caliber of the projectile or to the distance which it will carry? A. As its name implies, a 13-inch gun is a gun with a caliber of 13 inches.

(7451) C. H. S. asks: 1. Is there any difference in the resistance of iron and steel wire? A. Steel wire has a higher resistance than iron wire of same size. If various grades of iron have resistances represented by the numbers 9 to 15, various grades of steel will have resistances represented by the numbers 15 to 43. [Kohlrausch.] 2. Is galvanized steel wire suitable for telegraph and telephone lines? If not, why? A. Yes. 3. How many carbon rods one-half inch diameter should be used in a bichromate battery in place of two strips 2x1/4x6 inches? A. The surface of the carbon rods must be equal to that of the plates. In this case five rods 6 inches long are required. 4. What is the output in amperes of a pint bichromate cell? A. The rate of output depends on the size of the plates. A pint cell will probably deliver 2 amperes. Its ampere hours depend on the amount of solution to be decomposed. This may be 20 to 30, or perhaps somewhat more.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

MAY 31, 1898,

AND EACH BEARING THAT DATE.

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

Table listing inventions with patent numbers and names of inventors. Includes items like Air compressing apparatus, Bicycle frame, and various mechanical devices.

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