

burner it is necessary ordinarily to furnish some means for heating the generator to volatilize the oil. The means usually employed consist of some form of torch for heating the generator when the lamp is first ignited. The object of the present invention is to provide a carbureter operated by the attendant, which will furnish a supply of carburated air or gas sufficient to heat the generator to its working temperature. The device may be applied to any lamp of the form using a generator heated by the flame of the lamp.

DESIGNS.

NECK-BAND FOR VESSEL-CARRYING DEVICES.—JOSEPH RITTENHOUSE, Philadelphia, Penn. The inventor twists a wire designed to fit a milk-bottle neck so that it will be provided with two eyes which receive the ends of a bail.

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

NEW BOOKS ETC.

ELEMENTARY CHEMISTRY FOR HIGH SCHOOLS AND ACADEMIES. By Albert L. Arey, C.F.E. New York: The Macmillan Company, 1899. 12mo. Pp. 300. Price 90 cents.

The author has produced an excellent text book which compares very favorably with those of the same grade which we have examined. "Sulfur" never looks as well as sulphur, but it is perhaps well to bow gracefully to the new spellings, which seem to have come into chemical literature to stay. The diagrams admirably elucidate the text.

HOME PORK MAKING. By A. W. Fulton. New York and Chicago: Orange Judd Company, 1900. 16mo. Pp. 124. Price 50 cents.

The present volume is a complete guide to the farmer, the country butcher, and the suburban dweller in all that pertains to hog slaughtering, curing, preserving and storing pork product from scalding vat to kitchen table and dining room. The formulas are most practical. It is a work we can commend.

WATER AND WATER SUPPLIES. By John C. Thresh. Second Revised Edition. Philadelphia: P. Blakiston's Son & Company, 1900. Pp. 438. Price \$2.

A thoroughly practical work of value to all sanitary engineers and to others who deal with water supplies. English practice is of course described; but attention has been given to the subject in England, owing to the density of the population, that it is all the more valuable on this account.

FORAGE CROPS OTHER THAN GRASSES. How to Cultivate, Harvest and Use Them. By Thomas Shaw. New York: Orange Judd Company, Illustrated. 1900. Pp. 281. Price \$1.

The work has practical ring about it that betrays confidence. It will prove of immense value to every farmer who will give it careful study. Forage plants can be made to supplement perennial pastures. They are destined to occupy an important place in the near future in systematic crop rotation on every stock and dairy farm.

FORMULAS AND TABLES FOR HEATING. Being German Formulas and Tables for Heating and Ventilating Work for Those Who Plan or Erect Heating Apparatus. By J. H. Kinealy. New York: David Williams Company, 1899. Pp. 53.

This work will prove of value to all who have occasion to arrange heating and ventilating plants. Good work has recently been done in Germany, and we ought to receive the benefit of it.

THE DIURNAL THEORY OF THE EARTH. Or, Nature's System of Constructing a Stratified Physical World. By William Andrews. New York: Myra Andrews and Ernest G. Stevens, 1899. Pp. 551.

THE ART OF THINKING. By T. Sharper Knowlson. London and New York: Frederick Warne & Company, 1899. Pp. 130. Price \$1.

A valuable little book which makes us see how defective we sometimes are in the art of thinking. It is an excellent book for every one to read, and all will be sure to be benefited by it.

ESSAYS ON THE FOUNDATION OF EDUCATION. By Rev. J. Godrycz, Ph.D. Lansing, Mich. 1900. 12mo. Pp. 168.

The author deals with "Intellectual Education," "Methods of Teaching History," "Religious Education," "International and Civil Law," "Moral Education," "Physical Education," etc.

CATALOGUE OF THE ANNUAL ARCHITECTURAL EXHIBITION, 1899-1900. Philadelphia: T Square Club, 1899. Small quarto. Pp. 210. Price 50 cents.

This handsome volume is filled with excellent architectural designs, both projected and actually executed. It shows what remarkable architectural work is being done in the United States.

SEEGER AND GUERNSEY'S CYCLOPEDIA OF THE MANUFACTURES AND PRODUCTS OF THE UNITED STATES. New York: The United States Industrial Publishing Company, 1899. 8vo. Pp. 1356. Price \$10.

That the earlier edition has been in constant use in our office for some years in answering manifold queries as to manufacturers of all kinds of goods is a sufficient guarantee of the great excellence of the work. Its value has been demonstrated almost daily particularly in the consideration of cases where manufactured goods are made in small quantities or are of odd, out of the way articles. The arrangement is admirable, and access is rendered easy by means of a fine analytical index.

Business and Personal.

- Marine Iron Works. Chicago. Catalogue free.
"U. S." Metal Polish. Indianapolis. Samples free.
Yankee Notions. Waterbury Button Co., Waterbury, Ct.
For bridge erecting engines. J. S. Mundy, Newark, N. J.
Handle & Spoke Mch. Ober Mfg. Co., 10 Bell St., Chagrin Falls, O.
Ferracuta Machine Co., Bridgeton, N. J., U. S. A. Full line of Presses, Dies, and other Sheet Metal Machinery.
Inventions developed and perfected. Designing and machine work. Garvin Machine Co., 141 Varick St., N. Y.
The celebrated "Hornby-Akroyd" Patent Safety Oil Engine is built by the De La Verne Refrigerating Machine Company. Fort 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 house 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.

(7828) F. A. writes: I have read of a machine so constructed as to show the motion of the earth. It consists of a pendulum supported on a framework. How heavy would the pendulum have to be, and how long the rod to pendulum to construct a small model that would work with satisfaction? Could one be made with a pendulum weighing say three or four pounds and the rod about two feet long? A. The experiment is called Foucault's experiment from its inventor. The pendulum should be as long as possible, though with one 16 to 20 feet long you would probably succeed. The ball should be as heavy as convenient, ten to twelve pounds. A strong steel wire should be used to support the weight. The support at the top should be as rigid as possible. The space within a stairway several stories high is well adapted to the experiment. One was hung in Bunker Hill Monument, 222 feet high. The ball is made to swing exactly north and south, at the start. In even five minutes its deviation may be noticed, the south end of the swing falling to the west of the meridian. In this latitude the deviation is about 9 degrees in an hour. A valuable article on this topic is found in the SCIENTIFIC AMERICAN SUPPLEMENT, No. 627, price 10 cents.

(7829) G. B. asks: What becomes of the latent and active heat contained in air or water when the oxygen therein combines with other substances, as in malting, fermenting, spontaneous combustion, putrefaction, fermentation, in all which a rise of temperature takes place? Is not the latent heat the source of supply? And also animal heat, is it supplied by the same cause, that is, the latent heat supplied in oxidizing the blood? I am led to this way of thinking by the effect produced on air by depriving it of its latent heat; it becomes "liquid air." A. The heat given off when the various changes described above take place is due to the chemical combinations which occur. There is no liquefaction of the oxygen in any of these cases, but there is chemical action. This is a source of heat. The latent heat of air or water is given off when they change their state to the liquid or solid form.

(7830) W. F. asks: What magnifying power (number diameters) a microscope should possess to reveal spermatozoa and the consumption germ? A. For observing such objects, an objective of at least one-fifth inch focal length is required, and an eighth should be had if possible. The eighth inch with a 2-inch eyepiece gives a magnifying power of 425 diameters; with an inch eyepiece, 780 diameters; and with a half-inch eyepiece, 1,300 diameters. This is enough for any purpose.

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