

having a knuckle connection. The lower member of each hinge is secured to the upper portion of the door, the upper member of each hinge being attached to the carriage. A rod connects a lift-lever fulcrumed upon the door with the carriage. A bolt held to slide and rock upon the door is provided with a lateral cam projection adapted to engage the door when the bolt is rotated. A keeper is provided for the bolt independently of the door and also a locking device for the bolt. The device is applicable to freight cars, barns, refrigerators, etc.

#### Designs.

**ANTI-RATTLER PLATE.**—Charles T. Redfield, Glen Haven, N. Y. The leading feature of this design consists in arranging an upright wing at an angle slightly less than a right angle to the lower or base wing, which is tapered toward its free end. At its upper end the upright wing is provided with a lateral forked extension.

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

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(7461) **M. R. B.** asks how to prepare a drill for making holes in glass. A. A flat drill, made of new steel and heated to a dark red and plunged in the ordinary zinc chloride soldering solution, will drill glass readily. The drill must be sharpened before it is hardened.

(7462) **R. A. C.** says: 1. How can a fine telescope lens be cleaned without injuring it? A. A very soft old linen handkerchief is best; if greasy, wipe with a little tissue paper wet with weak alkali. Lenses should be cleaned as rarely as possible; use old linen, not silk. 2. How can ranges of vision at sea, from different elevations, be estimated? A. You will find a full description of range finders in our COAST DEFENCE SUPPLEMENT. Mailed for 25 cents.

#### NEW BOOKS, ETC.

**THE STORAGE BATTERY.** A Practical Treatise on the Construction, Theory and Use of Secondary Batteries. By Augustus Treadwell. New York: The Macmillan Company. 1898. Pp. xix, 257. Price \$1.75.

In pursuing his work with storage batteries the author found himself greatly hampered by the lack of any compact data concerning the construction of many cells which have been and which are on the market and by the paucity of reliable discharge curves. Believing that a book containing such data and curves would prove valuable, not only to the student and manufacturer, but also to all who are interested in storage batteries, he began the compilation of the book and has succeeded admirably. American and foreign patents are cited at the bottom of the pages.

**A TREATISE ON MAGNETISM AND ELECTRICITY.** By Andrew Gray. In two volumes. Vol. I. London and New York: Macmillan & Company. 1898. Pp. xvi, 472. Price \$4.50.

The author of the present work deals with the subject largely from a mathematical standpoint. The work is

not a treatise on the mathematical theory of electricity only, but successfully brings theory and practice together. Some elementary acquaintance on the part of the reader with electrical phenomena and their laws is presupposed, and a considerable knowledge of mathematics is also needed. By those who can understand a work of this kind it will be warmly welcomed.

**COAL CATECHISM.** By William Jasper Nicolls. Philadelphia and London: J. B. Lippincott Company. 1898. Pp. 218. Price \$1.50.

The "Coal Catechism" is intended for a great number of intelligent readers who have no technical training and yet who prefer to seek knowledge by reading special subjects rather than fiction. A large proportion of them have neither time nor inclination to peruse the great geological and statistical reports of the coal industry of the United States or to study the subject in technical works. Information is conveyed in the popular question and answer form. It is rather a good idea to have a series of books on similar subjects, and it is to be hoped that this volume may be the precursor of many others dealing with similar subjects. The book is attractively printed and bound and is provided with a comprehensive index.

**THE TRACTION ENGINE: ITS USE AND ABUSE.** By James H. Maggard. Revised and enlarged by an expert engineer. Philadelphia: David McKay. 1898. Pp. 128. Price \$1.

A book of instruction for operators of farm engines has been needed for some time, and the present work appears to deal with the subject in a practical manner. First a general description of trucking engines is given, followed by general directions for the proper use of engines and boilers, telling what to do in case of an emergency.

**TALES FROM MCCLURE'S: WAR.** Being true stories of camp and battlefield. New York: Doubleday & McClure Company. 1898. Pp. 193. Price 25 cents.

A charming series of little books is now being issued by the publishers of McClure's Magazine. The present volume, of almost vest pocket size, contains a number of thrilling stories by Major-General Nelson A. Miles and others.

**AMERICAN CEMENTS.** By Uriah Cummings. Boston: Rogers & Manson. 1898. 8vo. Pp. 299. Price \$3.

Since the publication of Gen. Gillmore's classic work, many years ago, no book has been produced which deals with the subject of American rock cements. The period since the publication of Gen. Gillmore's treatise has been far the most important in the history of the industry. The changes which have taken place during this time, the marked advances which have been made and the new processes which are being employed and the marvelous growth of the trade resulting from a widening of the markets for the production, clearly present a profitable field for investigation, and furnish many facts worthy of record. In the present book adequate consideration has been paid to the claims and merits of American rock cements. The arrangement of the book is excellent, and it is a fine piece of technical book-making. The subject of cements is treated in all its bearings and special attention is paid to tests of all kinds. Another section of the book is devoted to various cement works, including artistic views of them. There is quite a full list of structures made in American rock cement, giving the location of the various cement works from which the cement was obtained.

**OUTLINES OF PRACTICAL HYGIENE.** By C. Gilman Currier, M. D. Third edition, revised and enlarged. E. B. Treat & Co. 1898. Pp. 461. Price \$2.

Practical hygiene is one of the most important subjects which the architect or physician has to encounter. The present work appears to be an eminently thorough and practical treatise upon the subject, dealing with soil and climate, clothing, bathing, exercise, occupation, lighting, heating, ventilating, building and streets, foods, diet, water, the disposal of wastes, the disposal of the dead, bacteria, disease and disinfection, longevity, etc. The book does not discuss therapeutical measures, except in so far as they belong legitimately within the domain of hygiene.

**A MANUAL OF HYGIENE AND SANITATION.** By Seneca Egbert. Philadelphia and New York: Lea Brothers & Company. 1898. Pp. 368, vii. Price \$2.25.

The present work contains a plain statement of the fundamental principles and facts of hygiene and sanitation together with such explanations and details based on American practice as serve to make the work clear and readable. Of all the medical sciences, clearly the most important is that which prevents disease instead of curing it, and which deals with entire communities as well as with individuals. We cannot have too many good books on this subject. The present book appears to be an excellent one and fully up to the times.

**HAND-BOOK OF NATURE STUDY.** For teachers and pupils in elementary schools. By D. Lange. New York and London: The Macmillan Company. 1898. Cloth, 12mo. Pp. 329. Price \$1.

This work is a valuable primer to natural history and science, and is calculated to afford teachers the means of inculcating their pupils with desirable and essential knowledge regarding the more common plants, trees, birds, insects and quadrupeds, without entailing upon themselves special courses of study. The book is thoroughly practical, and as valuable to the instructed as to the instructor.

**THE GENERAL MANAGER'S STORY.** Herbert Elliott Hamblen. New York: Macmillan Company. 1898. Pp. 311. Price \$1.50.

We cannot have too many good stories about American railway life, which differs in many respects from that in other countries. The book is very interesting and, at the

same time, gives a great deal of information about rail-roading which the ordinary individual is desirous of acquiring, when he can obtain it with little mental effort. After reading this book, one can discuss learnedly about "broke in two," "flagging" and other mysteries of the rail.

**ELECTRIC CATALOGUE OF ELECTRICAL PLANTS AND MACHINERY FOR ELECTRIC LIGHTING, TRANSMISSION OF POWER, ELECTRO-PLATING, DEPOSITING, WELDING, ETC.** By Ernest Scott & Mountain, Limited. New-castle-on-Tyne.

The volume before us is a bound collection of catalogues, and is interesting as showing the use of electric power for many purposes. It is handsomely got up and is freely illustrated by wood engravings, half tones and line drawings. It probably illustrates some of the best examples of British engineering practice.

**THE DIFFERENTIAL.** Published by the Junior Class of Case School of Applied Science. Cleveland, Ohio. Pp. 147, xxxiii.

**THE MDCCCXCIX CORNELLIAN.** The book of the Junior Class of Cornell University. Vol. xxx. 1898. Pp. 284, 49.

#### TO INVENTORS.

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