

NEW BOOKS, ETC.

NOTES ON LAYING, REPAIRING, OPERATING, AND TESTING SUBMARINE CABLES. U. S. Signal Corps. Prepared under the Direction of Brigadier-General A. W. Greely by Captain Edgar Russel. With Supplementary Chapter on Factory Testing by Lieutenant-Colonel Samuel Reber. Washington: Government Printing Office. 1902. Pp. 70.

LOCOMOTIVES: SIMPLE, COMPOUND, AND ELECTRIC. By H. C. Reagan. 12mo. Pp. xiii, 604. Price \$2.50.

This edition describes and illustrates by means of photographs and detailed drawings the latest improvements in locomotive practice. This includes the latest types of compound and single-expansion locomotives, and treats of many improvements in fire-boxes and boiler construction.

The subjects of liquid fuel and oil-burning engines are carefully considered, as well as piston-valve engines and track-sanding apparatus.

The author also discusses the different methods of operating valve motion for compound locomotive engines, and takes up the questions of metallic-packing and of air-pumps.

The new matter is intended to put the reader in touch with the very latest and highest type of locomotive and its details.

THE ANALYSIS OF STEEL-WORK MATERIALS. By Harry Brearley and Fred. Ibbotson. London, New York, and Bombay: Longmans, Green & Co. 1902. 8vo. Pp. xv, 501.

No author could possibly choose the best from the continually increasing number of ways of analyzing steel works materials and prove his chosen methods at every point. Although this has been the ideal of the authors they frankly admit that they have not accomplished it. Nevertheless they have described no method that has not been personally verified and practised for a considerable time, except in one or two minor cases, dealing with estimations. Furthermore, in writing up the description the authors simultaneously worked through the operation so that no feature might be overlooked which was needful to a complete appreciation of the process. Most of the typical analyses given were obtained in this way. It follows, therefore, that the book is eminently practical.

ASTRONOMY WITHOUT A TELESCOPE. By E. Walter Maunder, F. R. A. S. London: "Knowledge" Office. Pp. xx, 280. Price \$2.50.

In 1900 the author commenced a series of short papers in "Knowledge" upon the zodiacal light and other objects, which, like it, need no optical assistance for their examination. Out of that series of papers the present volume has grown. After an introduction and a section on constellation studies, the author passes to astronomical exercises without a telescope, in which he discusses the sun and the seasons, the morning and evening stars, the march of the planets, and sunspots and moonspots. In his third section the author discusses astronomical observations without a telescope, and treats of meteors, zodiacal light, aurora, the milky way, new stars, the structure of comets, a total solar eclipse, etc.

JENA GLASS AND ITS SCIENTIFIC AND INDUSTRIAL APPLICATIONS. By Dr. H. Hovestadt. Translated and edited by J. D. Everett, M.A., F.R.S., and Alice Everett, M.A. London: Macmillan & Co., Ltd. New York: The Macmillan Company. 1902. 8vo. Pp. xv, 419. Price \$5.

This book is mainly devoted to an account of the physical and chemical properties of the various types of glass which have, up to the present, been produced at the Jena glass-making laboratory and to the indication of their scientific and industrial applications. The experimental and theoretical investigations relating to these glasses are scattered through various journals, or have been published as separate monographs. That they have here been collected, edited and presented in book form, is a task for which Dr. Hovestadt deserves thanks. The work of the translators cannot be too highly commended.

One of the functions of the Smithsonian Institution, at Washington, is the diffusion of knowledge in popular language.

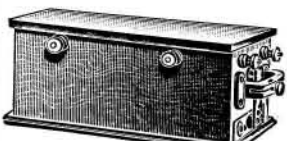
The popular volume before us contains fifty articles, many of them illustrated, nearly all prepared by masters of the respective subjects, telling in clear and interesting language of the latest progress in all the principal branches of knowledge.

"Bodies Smaller than Atoms" is the title of an interesting paper, and as we read "The Laws of Nature," "The Greatest Flying Creature," and "The Fire Walk Ceremony at Tahiti," we are reminded of the wide range of subjects included in the Report. Wireless telegraphy, transatlantic telephoning, and the telephonograph are discussed by experts in electrical progress. Attention ought also to be called to papers on utilization of the sun's energy, the Bogosloff volcanoes of Alaska, forest destruction, irrigation, the Children's Room at the Smithsonian, the submarine boat, a new African animal, pictures by prehistoric cave-dwellers in France, automobile races, the terrible lizards that once lived in America, and Mr. Thompson Seton's paper on the National Zoological Park at Washington.

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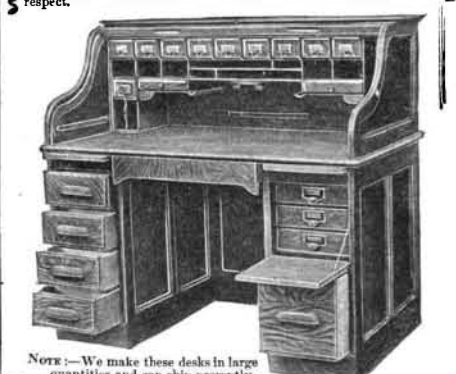


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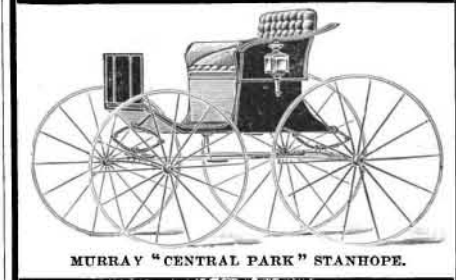
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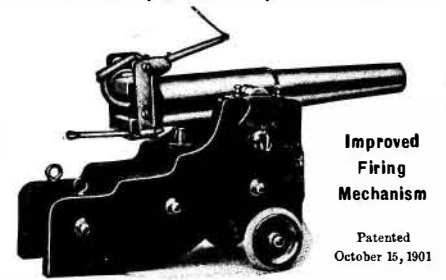


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RECENTLY PATENTED INVENTIONS.

Agricultural Implements. ELEVATOR FOR CORN OR GRAIN DUMPS.—J. MABUS and F. L. HAY, Lilly, Ill. This elevator and conveyor for grain dumps has a multiple of shafts connected with the driving mechanism enabling power to be applied, no matter what position the machinery may occupy. The conveyor and elevator may be adjustably connected so that their belts will have guided movement, and means are provided for safely receiving, holding and conducting quantities of material.

Engineering Improvements. HYDRAULIC DREDGE.—J. ANDERSON, Gulfport, Miss. This improvement belongs to that class of dredges which are adapted to float. The inventor in this improvement makes the dredging mechanism proper in the form of attachments to a boat or scow provided interiorly with chambers or tanks for receiving the mud, sand, silt, and water taken up by a suction-pipe.

Tools. FLUE-CUTTER.—E. E. RESOR, Vanwert, Ohio. This inventor has made an improvement in devices for cutting boiler flues or tubes at the inner side of the flue sheets, and in providing a device of this character he makes it possible to quickly cut a flue with very little exertion on the part of the operator, and also prevents the shock incident to hammer-actuated cutters.

HOG-NOSE CUTTER.—C. F. ROUX, Stryker, Ohio. Comprised in this improvement are means for cutting off the nose of a hog or that part with which the hog roots. The invention provides a simple device with the cutting-blade so curved and extended as to cut away all the rooting portion of the nose of the animal. The implement is also intended for use as an ear-marker.

Mechanical Devices. BASKET-MAKING MACHINE.—C. ENGBERG, St. Joseph, Mich. In its general form this machine embodies two work-holding devices, including means for feeding the hoops with a step-by-step motion and a single stapling mechanism, which is mounted to work alternately over the work-holding device, so that one basket may be operated on while another is being adjusted on the other holder. It is especially intended for putting into place the bottom hoops of bushel-baskets.

DRIVING APPARATUS.—J. H. INGOLDSBY, Council Bluffs, Iowa. For the purposes of this invention the apparatus is provided with means for driving posts, piles, well-tubing and the like. It is mounted on a wheeled body, so that it may be readily removed from place to place, and is mainly adapted for farm and ranch use for driving fence-posts, etc., and for railway companies in fencing in their lines.

COTTON-CLEANER ATTACHMENT FOR GINS.—M. RUTH, New Edinburg, Ark. In ginning cotton the material is subjected to sharp, quick strokes of the saw-teeth, which strike it in rapid succession, and the dust, dirt, and other foreign substances contained in the cotton are thereby loosened and freed from it. The inventor here employs improved means over those used in the air blast method of cleaning and removal. The draft-passage is adapted to any common type of saw-gin.

CAN-HEADER.—L. C. SHARP, Omaha, Neb. By means of this invention round and square cans may be headed, the machine being built so that it may be readily changed to work on different sizes and forms; also its operation is such that ends or heads are simultaneously placed in the can and crimped. By means of novel mechanism the machine is rendered wholly automatic, the can bodies and heads or ends being placed in chutes and fed from the machine.

COPYING-LATHE.—C. SEYMOUR, Defiance, Ohio. Woodworking machinery receives an improvement in this provision of a new copying-lathe for turning gun-stocks, shoe-lasts, and other articles of regular or irregular form. It is arranged to permit convenient adjustment for turning the articles of the same or of a proportionate larger or smaller size than the pattern.

ADDRESSING-MACHINE.—H. L. GAY, Monticello, Ia. Mr. Gay in this invention has brought about the development of a machine that relates particularly to apparatus for severing printed names and addresses from strips of mailing-papers or the like. In the operation the strip of paper is drawn over the adhesive brush and fed through the front of the machine in an intermittent manner. The projected portion bearing a name will be severed by the cutter, and the blade projection will press such severed portion upon a wrapper. The machine may be provided with legs, or securely fastened to a table.

CLUTCH.—E. DYSTERUD, Monterey, Nuevo Leon, Mexico. This clutch is especially designed to be used with alternating current electrical motors, the object being to keep the clutch inactive till the full speed of the motor is attained and then instantly to connect the motor with its load. The inventor attains this end by providing a centrifugally operating clutch and fitting it with centrifugally controlled means for restoring the action of the clutch until a certain speed of rotation is reached.

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