RECENTLY PATENTED INVENTIONS.

Engineering.

FEED WATER HEATER AND PURIFIER.—Daniel M. Robinson, Bay City, Mich. This is an apparatus to be incased in the flue or masonry of an ordinary boiler to utilize the waste heat for heating the feed water. It has provision for holding the water in it under boiler pressure and at the same level as the water in the boiler, is adapted to precipitate any matter in the water in the form of sediments, loose carbonates, etc., and the construction is such that it may be conveniently put together and taken apart. The improvement includes a suitably connected outer shell in which is a settling cylinder made up of a series of superimposed sections, a pipe leading from the cylinder to the upper part of the shell and discharging into a series of pans arranged one above the other.

Railway Appliances.

CAR AXLE BOX LUBRICATOR.—James S. Patten, Baltimore, Md. This is an improvement in formerly patented inventions of the same inventor which have been subjected to practical use on cars in ordinary service, rendering the lubricator more serviceable, reducing its cost and weight, and increasing its durability. It is adapted to be inserted into and contained in the usual form of axle box, on the mere removal of the ordinary packing, and the lubricant holder is preferably of galvanized sheet iron, formed from a blank, and in it are suitably supported rollers adapted to slide laterally on the axles, and breaking up and lifting the lubricant.

CAR DOOR.—William E. Hoyt, Ravenswood, West Va. This inventor has devised improved means for supporting and manipulating the flush side doors of ordinary freight cars. The car has a vertically undercut seat in a plate fixed to the front wall of the doorway, the seat being engaged by one of the arms of a vertically swinging operating lever, permitting the trainman to press down with his weight in opening the door, and to lift directly under the door in closing it. The lever lies practically in the plane of the door when the latter is closed, where it cannot be well tampered with, there being also on the lever a hasp attachment.

Electrical.

DOOR OPENER.—John Schneider, Long Island City, N. Y. This is an improvement on a former patented invention of the same inventor for a simple and durable electric door opener, not liable to get out of order, and arranged for unlocking a door from a distance. The armature lever is normally held away from the magnet by a spring, the magnet being in a circuit having a button to be pressed when the door is to be unlocked, the drawing of the armature lever causing a catch to engage a bolt in a lock on the door. To insure the opening of the door when unlocked, a spring hinge of any improved construction is employed.

ELECTRIC LAMP HANGER.—David Aitchison, Easton, Pa. This improvement is more especially designed for use with incandescent lamps, permitting of conveniently raising or lowering the lamp or moving it sidewise as desired. A spring-actuated drum fitted to slide on a pivoted horizontal arm carries a cord to support the lamp, a guide moving with the drum guiding the lamp-supporting cord. A shaft journaled in the free end of the pivoted arm carries a crank and a segmental arm adapted to engage the drum.

Mechanical.

SAW.—Henry J. Frederick, Brainerd, Minn. This is an improvement in buck saws, fret saws, and other saws having frames, by which the operator may quickly give at any time the desired tension to the sawblade, or the blade may be entirely removed from the frame without disconnecting the members of the latter. The spacer bar is rigidly secured to the rear or handle member and movably connected with the upper end of the front bar, a brace pivoted to the middle of the front bar extending to the spacer bar, while a longitudinal screw rod on the top of the latter extends through the upper end of the front bar, where it has a nut, the other end of the rod having an eccentric strap, an eccentric being pivoted to the bar. On the top of the eccentric is a handle, by the simple movement of which the tension of the blade may be increased or diminished.

SIDING CUTTER AND GAGE.—Thomas W. Purdy, Link, Ohio. Among devices employed in laying siding boards on buildings, this invention presents a strong and easily operated device, to be conveniently clamped to the window casing or corner board for squarely cutting off the end of a siding board, and also serve as a gage for the overlap. It comprises a U-shaped supporting frame, with fastening devices, a die one side of the opening and a knife to travel across the opening opposite the die, in connection with a lever to work the die, a gage being adjustable on the extension end of the frame. The clamps are spring-actuated and the knife is quickly worked.

Agricultural.

COTTON PLANTER.—Morse P. Scott, Woodville, Miss. According to this improvement the seed box and furrow opener may, by means of a simple hand lever, be conveniently elevated or depressed to provide for shallow or deep planting. They may also be carried together to the right or left sufficiently to avoid an obstruction, through the medium of a foot plate. The machine is of simple and economic construction.

COTTON CHOPPER.—This is an additional improvement of the same inventor, providing means whereby superfluous plants may be chopped from the rows and the rows simultaneously cultivated. The driver may also easily and quickly move the choppers either to the right or left, thus accommodating the machine to the unevenness of the rows, and both the cultivators and choppers may be raised to entirely clear the ground.

Miscellaneous.

VAULT CASH INDICATOR.—Samuel R. Hamilton, Farmersville, Texas. This is a device for indicating the amount of money, commercial articles, etc., in a safe or vault. It has a casing which may be conveniently placed upon a desk, safe, etc., is L-shaped in form, and comprises a series of casings, in the vertical portions of which are arranged slide blocks bearing on their faces numerals, one above the other, which are made to appear in openings in the front of the casing as the block is moved up or down. The block is on a screw rod connected with a beveled gear at the base, whereby each block may be moved up or down, to bring the figure desired in front of the aperture, by means of a key inserted in the face of the horizontal portion of the casing, the figures thus displayed in the row of apertures indicating the amount. In the front of the casing is a horizontal guideway for a slide bearing the title of the article the device is employed in indicating.

HOSE COUPLING.—Joseph S. Blackburn, Salem, Ohio. This is an improvement on a formerly patented invention of the same inventor, to adapt the coupling to hose of large sizes and dispense with some features, reducing the cost. The male section has a waterproof sleeve, adapted to be forced outward against the interior surface of the female section by water pressure against the inside surface, thus making a water-tight joint without depending upon abutting the sleeve against a shoulder in the coupling, and insuring a sure and tight waterway when the sections are brought together.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date of this paper.

NEW BOOKS AND PUBLICATIONS.

CELLULOSE. An outline of the chemistry of the structural elements of plants with reference to their natural history and industrial uses. By Cross and Bevan. London and New York: Longmans, Green & Company. 1895. Pp. vi., 320. Price $4.

In the present day of wood pulp factories and vulcanized fiber goods, a work on cellulose, the basis of all manufactures of this type, seems peculiarly timely. The book under review is a treatise on the chemistry and microscopy of the subject. It possesses two indexes, one of authors and one of subjects, the first one showing how thoroughly the bibliography of the subject has been consulted in its preparation. To the educated manufacturer and technologist, the book will be a sine qua non.

THE VENTILATION OF MINES. By J. T. Beard. First edition. New York: John Wiley & Sons. 1894. Pp. xiii, 170. Price $2.50. No index.

It is refreshing to find so clear and good a treatise written by an American author, and forming a work adapted for those operating American mines. Heretofore, by some fatality, many of the mining engineering books of the day have been published in England, and have been written from the insular standpoint that an Englishman excels in accentuating. The book is dedicated to the miners of Iowa, among whom the author states that he has passed thirteen years. While we note the fact that the book is without an index, we must also state that the very full table of contents makes an index almost unnecessary.

ON INDIA'S FRONTIER; OR, NEPAL, THE GURKHAS' MYSTERIOUS LAND. By Henry Ballantine. New York: J. Selwin Tait & Sons. Pp. 192. Price $2.50.

This attractive work, with its numerous illustrations, describes travels in India in a very graphic way. Readers of Rudyard Kipling will remember his admiration for the Gurkha soldiers. In this we hear something of their land, with numerous illustrations of buildings and people of the country, and have, besides, a most interesting and readable book. The author's criticisms on the method of governing are very cleverly put.

TRANSACTIONS OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS. Volume XV. 1894. New York City: Published by the Society. Pp. 1359.

The size of this volume, its absolutely model index and the general make-up of the volume, are three things that alone are highly creditable to the society publishing it. The matter contained in the papers is of great value to the profession, and the volume itself must be read to obtain an idea of the wealth of material to be found between its covers. The existence of a professional society admits of no better vindication than that afforded by its publications. Their merit settles the permanent status of the Mechanical Engineers' Association.

DER BRUCKENBAU IN DEN VEREINIGTEN STAATEN AMERIKAS. Von Professor W. Ritter. Zurich: Albert Raustein. 1895. Pp. 66. 12 plates and 60 figures. Price $1.50.

The report of the Swiss delegate to the Columbian Exhibition of 1893 is based on a three months' journey in the United States, as the most valuable information regarding our bridges could not be found at the Exhibition itself, but had to be collected at the bridges. The author principally points out what is new relative to the bridges built in Europe. The plates are well executed and give dimensions of the parts.

RATIONAL BUILDING. Being a translation of the article "Construction," in the Dictionnaire Raisonné de l'Architecture Francaise of M. Eugene-Emmanuel Viollet-le-Duc. By George Martin Huss, architect. New York and London: Macmillan & Company. 1895. Pp. xii, 367. Price $3.

M. Viollet-le-Duc's works have attained a wide popularity. We find in this treatise on architecture a most elegant example of book making, containing very numerous illustrations introduced in the text. The eminently philosophical treatment of the subject is perceptible throughout, it is evident even from the type of illustrations used, which, by the use of perspective or isometric projection, are made to give a better representation than usual of the exact appearance and construction of the more complicated forms, such as groined arches, clustered arches and general construction. As an example of such illustrations Fig. 120, page 282, may be alluded to. No one can go through our cities without feeling regret at the perpetuation of certain architectural enormities in the more permanent type of building. This much may be wished, that the profession at large would give more attention to the appearance of beauty and architecture as determined and regulated by structural laws.

THE SNOW-CHURCH COMPANY'S LEGAL AND BANKING YEAR BOOK FOR BANKERS, LAWYERS, AND THE BUSINESS PUBLIC. 1895. Collection laws revised to January 1, 1895. New York: The Snow-Church Surety Company. Pp. 1261.

This extensive work, covering, in a general way, the laws affecting banking and collecting business, is a thorough production, and one which can be warmly recommended to the profession. When it is realized that it contains far over 1,000 pages of fine type touching on the laws of all North America, it will be seen that it is not possible to give it an adequate review. For information in regard to the commercial laws and collections, it would seem to be almost indispensable to the active practitioner.

CORTINA METHOD. Intended for use in schools, etc., and for self-study. French in twenty lessons, with a system of articulation, based on English equivalents, for acquiring a correct pronunciation. By R. D. De la Cortina, M.A. Revised by Professor J. Leroux, Professor of Modern Languages at the United States Naval Academy. Book First. New York: R. D. Cortina. 1895. Pp. x, 108. Price 50 cents.

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 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.

(6506) **W. T.** says: Would you please advise me how to treat cow's horns to soften them so they can be pressed in different shapes and then become hard again? A. The bony core of the horn is first removed; the next process is to cut off with a saw the tip of the horn, that is, the whole of its solid part, which is used by the cutlers for knife handles and sundry other purposes. The remainder of the horn is left entire, or is sawn across into lengths, according to the use to which it is destined. Next it is immersed in boiling water for half an hour, by which it is softened, and while hot is held in the flame of a coal or wood fire; taking care to bring the inside as well as the outside of the horn, if from an old animal, in contact with the blaze. It is kept there till it acquires the temperature of molten lead or thereabout, and in consequence becomes very soft. In this state it is slit lengthwise by a strong pointed knife like a pruning knife, and by means of two pairs of pincers, applied one to each edge of the slit, the cylinder is opened nearly flat. The degree of compression is regulated by the use to which the horn is afterward to be put. When it is intended for leaves of lanterns, the pressure is to be sufficiently strong (in the language of the workmen) to break the grain, by which is meant separating in a slight degree the laminæ of which it is composed, so as to allow the round-pointed knife to be introduced between them, in order to effect a complete separation. For combs the plates of horn should be pressed as little as possible, so that the teeth may not split at the points. They are shaped chiefly by means of rasps and scrapers of various forms, after having been roughed out by a hatchet or saw; the teeth are cut by a double saw fixed in a back, the two plates being set to different depths, so that the first cuts the teeth only half way down, and is followed by the other, which cuts the whole length; the teeth are then finished and pointed by triangular rasps. Horn for knife handles is sawn into blanks, slit, pared, and partially shaped; then heated in water and pressed between dies. It is afterward scraped, buffed, and polished.

(6507) **J. R. J.** says: What is known as the best or surest remedy to remove freckles from the face?

A. Hydrarg. bichlor. ..... gr. xii.
Acid hydrochlor., pure ..... drm. iii.
Fruct. amygd. amar ..... oz. iss.
Glycerini, Price's ..... oz. i.
Tinct. benzoin ..... drm. ii.
Aqua flor. aurant ..... q. s.

Dissolve the corrosive sublimate in 3 ounces of the orange flower water, add the hydrochloric acid, and set aside. Blanch the bitter almonds, and bruise them in a Wedgwood mortar, adding thereto the glycerme and using the pestle vigorously; a smooth paste is thus obtained. Then add gradually about 9 ounces of the orange flower water, stirring constantly, continuing this operation until a fine, creamy emulsion is the result. Subject this to violent agitation—preferably with the aid of a mechanical egg whisk—and allow the tincture of benzoin to fall into it the while drop by drop. Then add the mercurial solution, filter, and make up the whole to the measure of 1 imperial pint with more orange flower water. This preparation is recommended by an eminent dermatologist as being invariably efficacious in the treat