

RECENTLY PATENTED INVENTIONS.

Engineering.

LOCOMOTIVE.—William J. Tripp, New York City. This invention provides an improvement on a former patented invention of the same inventor, whereby extra large driving wheels may be employed, and the boiler be located as low down as possible. The driving wheels have their axles extended exteriorly of the boiler, either above, in the front, or in the rear, the wheels having hubs, each journaled in the side frames, and each carrying a crank pin for connection with the engines or the front or rear driving wheels, by means of a pitman or connecting rod.

ROTARY ENGINE.—George I. and Gottlieb Jorda, New York City. A revolvable piston connected with the driving shaft is held to turn in a two-part case, in which are connected chambers registering with parallel chambers in the piston, a steam inlet connecting with one of the outer case chambers and an exhaust port connecting with one of the inner piston chambers. The construction is inexpensive and very simple, the steam acting continuously to turn the piston, and the engine being designed to utilize to its greatest extent the expansive force of the steam.

Railway Appliances.

RAILROAD CROSSING.—Michael J. Keenan, Galveston, Texas. This is a simple and durable crossing, readily set up and connected with the main and crossing track rails. It comprises a center piece and two side pieces, the crossing track rails forming an integral part thereof, and the two side pieces serving to clamp the main track rails on to the center piece.

CAR FENDER.—George E. Cates and Diederich Reuschenberg, Brooklyn, N. Y. This is a semicircular device pivotally connected to a fixed support beneath the car, springs connecting the fender with the car in advance of its pivotal connection. The device is so connected with the brake lever and the brake-applying mechanism that the fender will be lowered close to the ground whenever the brakes are applied, the fender automatically raising itself when the brakes are taken off.

CAR FENDER.—James W. McKinnon, New York City. This device is adapted for pivotal or hinged connection with the car, spring cushions being interposed between it and the car, while an adjusting device for raising and lowering the fender is adapted to be operated from the car. The lower forward portion of the fender has a brush surface, designed, when the fender is lowered, to sweep away any obstructions from the track.

CAR STAKE.—Peter Anderson, Prentice, Wis. Attached to a platform car, according to this invention, is a stake socket, in which is an adjustable stake provided with rack teeth, a pinion on a shaft having a hand wheel engaging the stake. The arrangement is such that a pair of stakes may be at any time lowered by the operating mechanism to the level of the car, or raised to the desired height and there locked.

Mechanical.

SAW FILING MACHINE.—Ben. Tholen, Texarkana, Ark. This machine is adapted to rapidly and accurately file and sharpen cotton gin or similar saws. A rocking bearing mounted on a suitable support carries a turning and sliding shaft having at its rear end a driving gear, and on its outer end a sharpener, the arrangement being such that the entire cylinder of a gin, having the whole series of saws attached, may be hung in the machine and the saws quickly ground, the grinders being adjusted so as to register with the teeth of the saws before the machine is set in motion, and the saws being then automatically advanced tooth by tooth.

CLOTH NAPPING MACHINE.—Ernst Gessner, Aue, Germany. This invention relates to machines in which teasing rollers are arranged around and rotated by a drum, the rollers constituting alternating series revolving at different speeds and having teeth working in different directions. The rollers required to be cleaned or stripped by brushes while the drum is rotated, and this invention provides a new device therefor, consisting of two cleaning brushes arranged outside the drum, and having two different motions in opposite directions, arranged so that each brush will strip the alternate series of teasing rollers.

Agricultural.

CORN HARVESTER.—Linus G. Stewart, Sawyer, Neb. This machine has a vertically reciprocating cutting sickle, at an angle to which is located a feed bar having a rotary reciprocating movement, to alternately approach and recede from the sickle in feeding the corn thereto. As the machine is drawn over a field the ears of corn are cut from the stalks and delivered to a carrying belt, by which they are taken to a conveyor or elevator, to be loaded in a vehicle following the harvester, or distributed in rows upon the ground. It is said that this machine will pick a load of good corn in twenty minutes, and an acre an hour.

POTATO DIGGER.—David J. Roush, Groveton, Pa. This is an improvement in diggers having rotary fingers arranged in series and actuated from the drive wheels to dig and elevate the potatoes, depositing them on a screen or in a receptacle. The invention provides a special form of finger, which is strong and adapted to dig and elevate the potatoes without injury.

SCRAPER PLOW.—Aaron J. Burr, Griffin, Ga. This plow is formed of a single piece having rearwardly and upwardly inclined wings at opposite sides of a straight middle portion, the outer face of the scraper being beveled from the middle line to the bottom edge. The implement is designed to facilitate the cultivation of cotton, corn, and other grain, the cutting edges of the scraper remaining sharp longer than with the ordinary construction, and the refuse being discharged from the plow better than is now possible.

KNIFE ATTACHMENT FOR PLOWS.—Edward Murphy, Yellow Bud, Ohio. According to this

improvement a knife is attached to the plow beam in advance of the shovels, the knife being raised and lowered at will, and adjusted to any position desired. With this object the knife is so placed and shaped that it will cut loose and in pieces pea vines, or other vines that may be twisted around the corn, any vines that may cling to the stalks being severed while the shovels are cultivating the roots.

Miscellaneous.

BLEACHING CANE JUICE.—Leon F. Gaudé, deceased (Emilie Gaudé, Thibodeaux, La., administratrix). This invention covers a simple and inexpensive apparatus for effectively bleaching sugar cane juice. It consists principally of a closed box connected at one end with a juice supply and having at its other end an outlet for the bleached juice, while a perforated pipe passed through the box and immersed in the cane juice is connected with a sulphur vapor supply and a steam pipe. The arrangement for supplying the sulphur vapor is very simple, and all portions of the flowing cane juice are subjected to this vapor, with thorough bleaching effect.

FENCE WIRE REEL.—William J. and John M. Opper, Kenesaw, Neb. Combined with a reel in a suitable frame is a sliding block having a guide eye for the wire, a pivoted lever moving freely with the block, while a link connects a rock shaft with the lever, means being provided for rocking the shaft. The device is adapted for attachment to and to be operated from a moving wagon, to pay out and stretch or take up and smoothly reel wire that has previously been stretched.

COAL CHUTE.—Gustavus L. Stuebner, Long Island City, and Philipp Nies, Brooklyn, N. Y. The construction of this chute is such that the coal may be delivered from it to a given point from any desired elevation without danger of the coal being broken during its passage. As each load of coal is dumped in the chute, one of a series of doors is automatically opened and the coal is discharged, the discharge being effected through the medium of the coal delivered to the chute at the receiving end. The discharge attachment may be readily connected with or disconnected from any one of the doors.

KEYHOLE GUARD.—Oscar J. Davidson, Kingsburg, Cal. This is a simple device to close the keyhole whenever the bolt is shot out, and comprises two plates fitted to slide in the lock and engaging opposite sides of the bolt, so as to be moved thereby, with means for disengaging one or both of the plates from the bolt. The improvement is designed to be especially useful on the doors of bedrooms in hotels, doing away with the brass bar now commonly found on such doors, while it may also be employed on any house doors.

BURGLAR ALARM.—Joseph F. Stirskey, Nelson, Canada. This is a simple, durable, and inexpensive device for ready application to a window or door, where it may be fixed in such position that the opening of the window or door, or the making of an attempt to open either, will cause an alarm to be sounded. The device may, if desired, be set to sound a continuous alarm.

NUT LOCK.—Robert Holmes, Canon City, Col. This device is more especially designed for locking the nuts on the spindles of wagon axles, serving to retain a washer in loose contact with the true end of the spindle box and permitting the free rotation of the wheel hub in the box. The spindle has a threaded end, behind which is the washer, a polygonal nut threaded oppositely to the thread on the spindle having teeth interlocking with teeth on the washer, while a locking nut fits within the polygonal nut and upon the threaded end of the spindle.

GATE.—Richard T. Mulcahy, Rosenberg, Texas. This is an improvement in farm gates centrally supported on a pivot post and adapted to be swung in either direction by levers and pull cords. A latch at each end of the gate engages a keeper on a keeper post, the latches being both disengaged and the gate opened by manipulating a lever, the gate being closed and latched, after a person or team has passed through, by manipulating the lever.

CHART BOARD.—James S. Shepherd, Cambridge, Md. This is a holder or frame for charts usually kept in a roll, whereby they may be spread or opened and kept so displayed as to be always ready for reference. The frame has on each side keepers to embrace and hold the roll, and the ends of the keepers are connected in pairs across the board by guides or wind strips.

GARBAGE AND ASH CAN.—Henry E. Wolcott, Syracuse, N. Y. The can proper, according to this improvement, has a base supporting it out of contact with the floor, and bars arranged horizontally beneath the can body project through the base flange to form journals for a wheel at one side, the can being moved by being tilted and then rolled about on one wheel.

NOTE AND ACCOUNT BOOK. ETC.—Alfred W. P. Livesey, London, England. This improvement consists in a peculiar cutting of the leaves of a book, to facilitate turning over the leaves rapidly and easily. The cut-out portions are of uniform shape and length and commence and terminate in a different position in each, beginning with the first leaf.

PANTALOONS HANGER.—Andres Bera-cuerto, Matanzas, Cuba. This is a device capable of carrying a great number of pantaloons, and consists of a central rod or bar from which project brackets in which are journaled bars or rollers so arranged as to form a polygon when viewed from above. Each of the bars carries a pair of pantaloons, which are hung on the bars at their middle portions, so that the depending parts counterbalance one another. A further patent of the same inventor provides a frame which may be suspended, and in which may be hung several pairs of trousers or pantaloons.

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.

PLUMBING, DRAINAGE, WATER SUPPLY AND HOT WATER FITTING. By John Smeaton. London: E. & F. N. Spon. New York: Spon & Chamberlain. 1893. Pp. 236. Price \$3.

The English practice in plumbing is always of interest to Americans, and in this work we have an excellent treatise upon it, which shows that our neighbors are not at all behindhand in their ideas of external and internal plumbing, and it is evident that we, by studying their methods, can obtain useful points. In examining the book it will be found, however, that the writer has not neglected American practice. It is profusely illustrated and should be a welcome contribution to our sanitarians' libraries.

HOW TO FRAME A HOUSE, OR BALLOON AND ROOF FRAMING. By Owen B. Maginnis. New York: Owen B. Maginnis. 1893. Pp. 31. Price \$1.

This pamphlet is devoted to the balloon frame, as regards the main structure of a house, while the roof framing forms the other of its topics. It is liberally illustrated, but is destitute of an index.

TABLES FOR THE COMPUTATION OF RAILWAY AND OTHER EARTHWORK. Computed by C. L. Crandall. Second edition. New York: John Wiley & Sons. 1893. Pp. 18. Price \$1.25.

This eminently practical work will, we are convinced, be warmly received as tending to save much labor in the calculations of irregular fillings and excavations. It naturally does not lend itself to a review, but noting that this is a second edition with sundry additions, we see that it has already been well received, and the second edition should naturally meet a still better reception.

AN EXAMINATION OF WEISMANNISM. By George John Romanes. Chicago: The Open Court Publishing Company. 1893. Pp. ix, 221. Price \$1.

This contribution to the theories of what may be termed the post-Darwinian period of science, involving an examination of heredity, which is perhaps the most effective antagonism that Darwinism has had to encounter in the scientific field, will be welcomed by all biologists. The book is characterized by an excellent glossary, as well as by a sufficient index. It is arranged more or less chronologically, and in one of its titles purports to bring Weismannism up to date, i. e., 1893. As frontispiece a portrait in photogravure is given, whether of Weismann or of Romanes is not elucidated, as far as we have seen in the book.

DAS EISENBAHN-GELEISE. By A. Haarmann. Leipzig: Wih. Engelmann. Two volumes. Pp. 852, 1837 wood engravings. Paper. Price \$13.35.

This publication on "The Railroad Track," by the well known general manager of the George-Mary mine in Osnabruck, Germany, is no doubt the most extensive work that has ever been published on the subject. The first volume treats of the general history of the railroad track. In the first chapter we find a short but exceedingly interesting history of the building of roads from the time of the Assyrian Queen Semiramis to the first wooden railroads for coal mines, built under Queen Elizabeth in the second half of the sixteenth century. The author brings us to the present era, and treats in the first volume of the different forms of rails, the ties, means for fastening the rails in place, the rail joints and the switches. The second volume is devoted to a special history of the track systems and the construction of the railroad beds. Under the track systems we find chapters on single tie systems, wooden longitudinal ties, the stone tie systems, the wooden cross ties, the various iron tie systems, and tie rails. The construction of the railroad bed embraces the gauge, the profile, the bed and the preservation thereof. The text is very well written, and the illustrations are very creditable. Much of our information in the article on railroad construction in all ages, in our issue of December 9, may be found at greater length in this book.

MAXIMS AND INSTRUCTIONS FOR THE BOILER ROOM, USEFUL TO ENGINEERS, FIREMEN AND MECHANICS, RELATING TO STEAM GENERATORS, PUMP APPLIANCES, STEAM HEATING, PRACTICAL PLUMBING, ETC. By N. Hawkins. New York: Theo. Audel & Co. Pp. x, 331. Price \$2.50.

This work, containing a great many practical points in connection with the evolution of steam, with numerous illustrations, will be found acceptable to many young engineers. One feature of the book is a chapter of "don'ts" which quite impressively presents maxims for the engineer's and fireman's consideration.

INIGO JONES AND WREN; OR, THE RISE AND DECLINE OF MODERN ARCHITECTURE IN ENGLAND. By W. J. Loftie. New York: Macmillan & Co. 1893. Pp. xiii, 284. Price \$4.50.

This really elegant work is devoted to a peculiarly interesting period in the art history of England, the time when a national school of architecture, whether we consider it handsome or ugly, was definitely formed. The impressions of Wren's work upon the world are visible to-day in some of the churches of New York City, and much is there which is criticized by the disciples of Ruskin. Yet these buildings have from their history and associations acquired a certain degree of respect. The present work is most elegantly illustrated and is a veritable edition de luxe.

POOR'S DIRECTORY OF RAILWAY OFFICIALS. 1893. Compiled from official information. Poor's Railroad Manual, New York. London: Effingham Wilson. Pp. 511. Price \$3.

Poor's Manuals have acquired a national standing. In the present one we find copious indexes, including directories of railroad officials in the United States and Canada. An index to railway and affiliated industries is given, and this matter is indexed in so many different forms as to

be easy of reference under very different captions. Thus the officials are arranged by States and cities in one index, and in others they are indexed under the names of railroads or under their titles. Street railways and traction systems, with interesting statistics, are included. The statistic pages of the street and traction railroads at the present day are of the utmost interest, and are so thoroughly subdivided as to make quick reference for specific data very easy.

UNIVERSITY CORRESPONDENCE COLLEGE TUTORIAL SERIES. The Tutorial Physics. Vol. II. A Text Book of Heat, with numerous Diagrams and Examples. By R. Wallace Stewart. London: W. B. Clive, University Correspondence College Press. Pp. vi, 286. No index. Price \$1.40.

This book, the second of the Tutorial Physics, very acceptably treats of its titular subject, giving numerous problems and examples of calculations. It bears throughout the aspect of thoroughness, something which the system of examinations in England has done much to impair in English literature. The value of the work would be greatly enhanced by an index.

ELEMENTARY PALEONTOLOGY FOR GEOLOGICAL STUDENTS. By Henry Woods. Cambridge: at the University Press. 1893. Pp. vi, 222. Price \$1.60.

This little work may be termed a manual of natural history of invertebrate fossils. It is an admirable supplement to a general geology. It makes no attempt to treat of the identification of strata, but treats the natural history of fossil remains only. A reasonably full bibliography of the science is given. The work may be recommended to geological students.

ROMANCE OF LOW LIFE AMONG PLANTS, FACTS AND PHENOMENA OF CRYPTOGAMIC VEGETATION. By M. C. Cooke. London: Society for Promoting Christian Knowledge. New York: E. & J. B. Young & Co. 1893. Pp. vii, 320. Price \$1.60.

Algae, fungi, and lichens, together with ferns and their allies, are the general subjects treated of in this work. It is most interestingly written and furnishes an example of how natural history, while scientifically and correctly treated, can be made to read as interestingly as fiction. The section on fungi especially treating of all the curiosities of mushroom life is most interesting.

THE LOCOMOTIVE. Published by the Hartford Steam Boiler Inspection and Insurance Co. New Series. Vol. XIII. Hartford, Conn. 1892. Pp. iii, 192.

This serial publication of the Hartford Steam Boiler Inspection and Insurance Company has been received by us as usual. We find it in considerable matter of interest. Some very interesting illustrations and notes of practical engineering incidents, with other material form the body of the text.

ELEMENTS OF HANDICRAFT AND DESIGN. By W. A. S. Benson. London and New York: Macmillan & Co. 1893. Pp. xv, 151. Price \$1.60.

This exceedingly attractive book is designed for the manual training of children, both boys and girls. As simplifying the methods by which articles can be produced and showing how to do really good work in mechanics it is to be warmly recommended. The very numerous illustrations and the highly characteristic nature of the designs lend great attraction to a work in any sense most meritorious. It should be considered and used both as a school and also a home manual.

LES EAUX-DE-VIE ET LA FABRICATION DU COGNAC. Paris: Librairie J. B. Bailliere et Fils. 1893. Pp. 278. Price 80 cents.

ROUND THE WORKS OF OUR GREAT RAILWAYS. By various authors. London: Edward Arnold. Pp. vii, 232. No index. Price \$1.40.

The American engineer interested in English practice can do no better than study such works as the present. Its numerous illustrations and very graphic text tell of present practice in English locomotive works and also treat of old time railways. The work we can warmly recommend to our readers who are interested in the construction of locomotive engines.

THE CHILD PHYSICALLY AND MENTALLY. Advice of a mother according to the teaching and experience of hygienic science. Guide for mothers and educators. By Bertha Meyer. Translated by Friederike Salomon. Revised by A. R. Aldrich. New York: M. L. Holbrook Co. London: L. N. Fowler & Co. All rights reserved. Pp. x, 155. No index. Price 50 cents.

This pamphlet, without index, but with a satisfactory contents, is devoted to the care of infants. It will, we believe, be useful in many homes, in which too much negligence of the proper care of children is found. It was written originally in German and is dedicated to Victoria, Empress of Germany.

THEORETICAL ELEMENTS OF ELECTRO-DYNAMIC MACHINERY. By A. E. Kennelly. Vol. I. New York: D. Van Nostrand Company. London: E. & F. N. Spon. 1893. Pp. 87. Price \$1.50.

Mr. Kennelly in this work presents a collection of a series of articles which have already appeared in the *Electrical Engineer*, of New York. His desire and intention, he states, has been to develop the applied or arithmetical theory of electro-magnetism for the use of students, so that they will find just the necessary amount of mathematics without going into the intricacies of