

## RECENTLY PATENTED INVENTIONS.

## Engineering.

**SMELTING FURNACE.**—Hermann Huber, Kansas City, Mo. This improvement provides a charging device comprising a hood with self-closing doors over the mouth of the stack, a track extending through the hood and over the charging floor, the wheeled vehicles traveling on the track having sectional floors and trunnions being carried by each section, which may be opened when desired to discharge the load into the stack. The improvement enables the operator to properly prepare the charge previous to its introduction into the stack, and make an even and uniform distribution of the charge in the stack.

## Railway Appliances.

**CAR FENDER.**—Henry Kramer, Jr., New York City. This device comprises a body section for attachment to the car, with which is pivotally connected a jointed receiving section, the jointed members of which have an automatically operating lock latch. The receiving section is normally held near the track, and has at its front end a cushioned cross bar, but when an object met by the moving car falls on the web or net of this section, the forward end of the frame becomes upwardly inclined, forming a pocket in which the object will be retained. The device is simple and inexpensive, may be readily transferred from one end of the car to the other, and when not in use may be folded up against the dashboard.

**CAR COUPLING.**—Alonzo Kelly, Harrisburg, Pa. This improvement relates to the Janney type of car coupler, arranged to readily and safely couple with the knuckles in either open or closed position, or one open and the other closed. The knuckle has an elongated pivot opening through which passes the pivot, the elongation of the opening being in line with the coupling arm of the knuckle, and there is also a bottom extension on the drawhead, with a forward flange adapted to support the lower ends of the horns of the opposite drawhead.

**DUMPING CAR.**—Mexico Van Pelt, Mountsville, West Va. This is an improvement on a formerly patented invention of the same inventor, providing for a carriage or dumping platform on the flat body of the car, and shiftable laterally for tilting to discharge its load. The invention includes several novel features, with improved means of securing and locking the carriage or movable dumping platform on the body of the car while traveling, and for shifting the dumping platform laterally to discharge the load.

## Agricultural.

**CANE PLANTER.**—Antonio M. R. y Aguilar, Havana, Cuba. This is a machine adapted to make a furrow of different depths, as required, or to make two furrows side by side in the shape of a letter W, planting two pieces of cane simultaneously therein without touching each other. The machine carries sufficient cane to plant a considerable area, and cuts the cane in equal lengths for planting, the lengths being varied as desired without dismounting or changing the parts of the apparatus, and the pieces of cane being dropped horizontally into the furrows at regular distances. A cover closes the furrows, the plow and cover being raised independently or together, and the machine has a marking device.

**POISON AND FERTILIZER DISTRIBUTER.**—John W. Randall and Alonzo R. Klobe, New Richmond, Wis. Paris green or other poison, and plaster of Paris or other fertilizer, either singly or in combination, may be readily applied by this distributor to potatoes, cotton, or other growing vines, the machine being readily adjustable to regulate the quantity and direction of the discharge, and insuring a regular and constant feed of the material used. The powders in the hopper are fed by stirrers and a feed disk in regulated quantities to a fan, whence they are sent by the blast through hose sections and spreaders to the rows of plants with a continuous, certain, and uniform distribution.

**INSECT POWDER DISTRIBUTER.**—John R. Brown, Eau Claire, Wis. A bellows constitutes the base of this machine, and on the bellows is a poison receptacle with valved delivery pipe, the operation of the bellows revolving a wheel to break up any lumps in the powder, which is fed in finely pulverized condition to the delivery pipe. A slide valve, adjusted by a set screw, regulates the quantity of poison delivered, the feed being proportioned to the speed with which the bellows is operated, and the delivery of the poison being entirely under the control of the operator, so that none need be spilled between plants, the machine being operated as desired on each plant.

**BEE HARVESTER.**—Albert Philipp, Stanton, Neb. This is a machine designed to first cut off the tops of the beets and then remove their bodies from the ground. The frame of the machine is of strong and simple construction, and supports at its front a cutter, in advance of broad tread wheels or rollers, a second cutter with upwardly curved apron following the rollers, while following the second knife and its apron are diggers to which are attached a sifter or riddle. The apron discharges the beet tops laterally, and the diggers and sifter pull out and screen the beets from the earth, so that they lie exposed on its surface.

## Miscellaneous.

**HEATER.**—Frank McCarty, Martin's Ferry, Ohio. This heater is designed to burn coal, gas, coke, or other fuel, without danger of accidental spilling or discharging the burning fuel, and is adapted for use in cars and buildings. The fire pot is contained in an inner casing, which is surrounded by an outer hot air casing having inlets in one side wall and the rear wall, a damper being pivoted between the two inlets to close either one. In case of an accident to the fire pot the gases or burning fuel cannot pass into the air chambers and ducts,

## MERIDIAN DETERMINING DEVICE.—

Martin C. Rice, Lawrence, Kansas. This is an attachment for an eight-inch transit, surveyor's compass, plane table or level, consisting of a sectional tube with two parts rotatable in relation to each other about a common longitudinal axis, one of the parts being mounted on an axis at right angles to the longitudinal axis and having twelve hour subdivisions, and the other part having diametrically opposite pin holes and a vernier scale. The attachment facilitates determining the variations of the needle and fixing the true meridian, and by special application of a sun dial may be used to determine the correct time of day. For the latter service the device will be made in attractive form and also in shape for a pocket piece. In its use on a transit, as a latitude and longitude instrument, the declination and refraction are computed in connection with the Nautical Almanac.

## AUTOMATIC CISTERN FILTER.—

William H. Cox, Cynthiana, Ky. In this filter the water is first strained, then aerated and afterward filtered three different times before entering the cistern, the filter being thoroughly drained immediately after each rain, so that it cannot freeze in winter, and the sediment being washed out through the back of the casing. The filtering material is held in the lower end of a casing in which is an inlet tube, an outlet tube, an intermediate conductor and lateral tubular connections between them, there being a float and valve attachment for regulating the course and discharge of water through and from the filter.

## FOLDING UMBRELLA.—

Frank G. Grove, Luray, Va. The ribs of this umbrella are made in sections adapted to slide on each other, the lower slidable sections having lugs on their inner ends which, when the umbrella is collapsed, are accommodated in a space between the staff and a collar fixed in the tubular shank. The umbrella, when collapsed, may be tied together in a small package or placed in a suitable bag.

**AUTOMATIC FIRE EXTINGUISHING MECHANISM.**—George W. Cofran and William J. Murray, Baltimore, Md. This invention provides a chemical mechanism in combination with fusible holding wires and gas generating and distributing devices, a hand-operated valve connecting a water supply and severing the fusible connections, whereby the gas is generated and flows into the sprinkling nozzles. The nozzles have fusible coverings, and alarm devices are connected with the fusible devices by trip mechanism, the severing of the fusible connections setting in operation the alarm devices.

**TRUNK.**—Florence I. Leonard, Arlington, Ga. This is a trunk adapted for summer or outing trips or for ordinary travel, and has a lower series of drawers extending from end to end, with shorter upper drawers and a commodious hat box, with trays which are so arranged that access may be obtained to any one of them without disturbing the others.

**CONVEYER.**—Scott Webber, Pigeon Cove, Mass. An endless traveling slotted platform, according to this invention, is mounted on two sets of rolls, a stationary frame carrying one set and a swinging frame the other set, there being means for rotating some of the rolls in the stationary frame, and projections on the rolls engaging recesses in the slots of the platform, while the swinging frame may be raised and lowered. The construction is very simple and may be readily manipulated and arranged to load into vessels irrespective of the rise and fall of the tide.

**SECURING WHEELS TO AXLES.**—William F. McQuivey, Seattle, Washington. According to this improvement, locking plates pivoted on the wheel hub are adapted to close over a screw in the axle end, while a fastening cap secured to the hub engages the outer faces of the locking plates to hold them closed. It is a simple device for attaching or removing the wheel, and can be operated without the use of tools and without soiling the hands, adding neatness to the appearance and finish of the wheel, and locking the wheel so securely to its axle that it cannot be removed.

**VEHICLE DASHBOARD.**—Charles R. Steele, Opelousas, La. This dashboard has double walls, forming a chamber to receive two rollers, one above the other, a lap robe on the lower roller extending through an opening to be conveniently unwound as required, while an apron or boot is secured to the upper roller and also extends through an opening in the dashboard to cover and protect the lap robe from rain, etc. The construction is simple and inexpensive, and the lap robe and boot may thus be conveniently stored when not in use.

**SAW SUPPORT.**—Alva J. Deetz, Sisson, Cal. This invention provides a device for conveniently holding a saw in proper position to permit a single operator to saw down a tree, the invention consisting of a saw table held on a bracket mounted to turn on a shaft journaled on spikes driven in the tree. On the top of the table are recesses in which fit guide wheels engaged by the back of the saw blade.

**PAD OR TABLET FOR HOLDING METAL LEAF.**—Alexander M. Fraser, Red Bank, N. J. This pad has detachable tissue fly leaves held between its sheets and readily removable, the fly leaves carrying the gold or metal leaf and having at opposite sides plain portions forming stubs, and uncovered by the metal leaf to permit them to be conveniently handled while being removed from the pad or tablet and while the gold or other metal leaf is being applied in use. The device is designed to greatly facilitate the handling of the leaf and prevent waste.

**SLATE CUTTER.**—Samuel P. Glunt, Union City, Ind. This is a tool for the use of slaters, enabling them to readily and quickly trim the slate as required, and make nail holes previous to placing the slate on the roof. The invention provides a knife mounted in a suitable frame to be readily operated by a lever, the knife having two separated parallel cutting edges, causing the cut particles of slate to give way readily in cutting a straight edge, there being also a punch on the handled end of the lever.

**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.

**THE PROCEEDINGS OF THE CALIFORNIA ACADEMY OF SCIENCES.** Second series. Vol. V, Part I. San Francisco. 1895. Pp. 784. 8vo. 74 plates and maps. No index, no title page.

This portly volume contains a number of papers which would prove of great interest to all who are interested in natural history, botany or geology. The work is excellently printed and the plates are well executed. On the whole, it is a remarkable example of what can be done for science by the aid of private enterprise. The work lacks an index and a title page.

**TWELFTH ANNUAL REPORT OF THE BUREAU OF STATISTICS OF LABOR OF THE STATE OF NEW YORK FOR THE YEAR 1894.** Albany. 1895. 8vo. Pp. 675.

**ANNUAL REPORT OF THE CHIEF OF ENGINEERS UNITED STATES ARMY, 1895.** Washington. 1895. 8vo. Pp. 536.

**ANNUAL REPORT OF THE STATE GEOLOGIST FOR THE YEAR 1894.** Trenton, N. J. 1895. Geological Survey of New Jersey. 8vo. Pp. 303. 11 plates.

**FIRST STAGE MECHANICS.** By F. Rosenberg, M.A. London: The University Correspondence College Press. 1895. Pp. 296. 16mo. 189 illustrations. Price 80 cents.

This work is designed to cover the requirements of the elementary stage of the Science and Art Department in the theoretical mechanics of solids. We have expressed before our opinion of this system of education; so it is not necessary to do so again. In this book a step has been made in the right direction in presenting the subject in such a way that its value as a scientific training of the mind is unimpaired. This book is, therefore, a mean between those text books which attract the interest of their readers but are too superficial and those which, through the desire to be accurate in every detail, are lacking in simplicity.

**THE HILL CAVES OF YUCATAN.** A search for evidence of man's antiquity in the caverns of Central America. By Henry C. Mercer. Philadelphia: J. B. Lippincott Company. 1896. Pp. 183. Price \$2.

This work is an account of the Corinth Expedition of the Department of Archaeology and Paleontology of the University of Pennsylvania, and deals with the interesting subject of Prehistoric Archaeology in Yucatan. While the expedition failed to result in the discovery of human relics dating beyond the culture layer, the book is yet an interesting account of many important discoveries and relics of past humanity.

**BURTON'S MANUAL OF PHOTOGRAPHY.** By W. K. Burton, C.E. Bradford, England: Percy Lund & Company, Ltd. 1895. Pp. 184. 16mo. 14 illustrations. Price 40 cents.

**THE CAMERA AND ITS APPURTENANCES.** By H. J. L. J. Massé, Bradford, England: Percy Lund & Company, Ltd. 1895. Pp. 64. 16mo. Price 20 cents.

**SNAP SHOT PHOTOGRAPHY; OR, THE PLEASURES AND ADVANTAGES OF HAND CAMERA WORK.** By Martin J. Harding. Bradford, England: Percy Lund & Company, Ltd. 1895. Pp. 56. 16mo. Illustrated. Price 10 cents.

**THE DARK ROOM AND ITS EQUIPMENT.** By H. J. L. J. Massé, Bradford, England: Percy Lund & Company, Ltd. 1895. Pp. 64. 16mo. Illustrated. Price 10 cents.

**DEVELOPERS; THEIR USE AND ABUSE.** By Richard Penlake. Bradford, England: Percy Lund & Company, Ltd. 1895. Pp. 68. 16mo. Illustrated. Price 20 cents.

**LANTERN SLIDES; THEIR PRODUCTION AND USE.** By J. Pike. Bradford, England: Percy Lund & Company, Ltd. 1895. Pp. 68. 16mo. Illustrated. Price 20 cents.

**THE ABC OF RETOUCHING.** By Andrew Young. Bradford, England: Percy Lund & Company, Ltd. 1895. Pp. 56. 16mo. Illustrated. Price 20 cents.

With the exception of the first work, these little handbooks all belong to "The Junior Photographer Series," and furnish an admirable collection of low-priced handbooks, by well known photographers. They are freely illustrated and contain many valuable formulas.

**ANNUAL REPORT OF THE CHIEF OF THE BUREAU OF CONSTRUCTION AND REPAIR TO THE SECRETARY OF THE NAVY FOR THE FISCAL YEAR ENDED JUNE 30, 1895.** Washington. 1895. Pp. 94. 8vo. Folding plates.

**A TEXT BOOK ON PLAIN LETTERING.** By Henry S. Jacoby. New York: Engineering News Publishing Company. 1895. Pp. 82. oblong 16mo. 32 illustrations and 48 plates. Price \$3.

Books on alphabets and lettering number scores, but the majority of them are almost worthless for the use of the practical engineer and draughtsman. The present work is a radical departure from these books, and attempts to give a detailed treatment of the Roman, Gothic and some other styles of plain letters which are suitable for engineering and architectural drawing. All ornamental letters are excluded, as they are seldom required by engineers

and architects and constitute the deadwood of most of the previous books on the subject. The examples of lettering are chosen with rare judgment, and the work cannot but prove of the utmost value in all drawing offices of any size. Not only are the forms of individual letters given, but great attention is paid to the relation of the various letters to each other, their spacing, etc. The author is associate professor of civil engineering in Cornell University.

**A LIBRARY ON STEAM ENGINEERING.** By John Fehrenbach, M.E. Cincinnati 1895: The Ohio Valley Company. Pp. 803. 8vo. 525 illustrations. Price \$5.

This is a handsome piece of book making and is filled with illustrations, formulae and tables. In the production of this work the aim of the author has been to produce a book which would embrace the entire field of the science of steam engineering and to present the subject in all its various branches in the simplest possible form, so as to bring it within the understanding of engineers of ordinary education. It has also been the aim of the author to include all the information necessary to enable engineers to pass a most successful and rigid examination by inspection officers. There have been many books published which were devoted to conveying the same information, but it is doubtful if any have the rules and examples so fully worked out as the present work, which includes even the details of construction of the engines of the United States battleships. The work is profusely illustrated with excellent diagrams and engravings. On the whole, the work is one of the best non-mathematical treatises on the subject which has come to our notice.

**L'OR—GITES AURIFERES—EXTRACTION DE L'OR. Traitement du minerai, emploi et analyse de l'or, vocabulaire des termes auriferes.** By H. de la Coux. Paris: Bernard Tignol. 1895. Pp. 328. 12mo. 29 illustrations. Price \$1.

Architects', Engineers', and Draughtsmen's Supplies form the subject of a most interesting illustrated price list and catalogue of 250 pages, issued by F. Weber & Company, manufacturers and importers, of No. 1125 Chestnut Street, Philadelphia. It contains a most excellent description of a large variety of articles used in these branches of business, including many new specialties, and particular attention is invited to the special lines of instruments for school, manual training and college use.

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JANUARY, 1896.—(No. 123.)

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