

RECENTLY PATENTED INVENTIONS.

Engineering.

ENGINE AND SUPERHEATER.—James C. Walker, Waco, Texas. This invention comprises a superheater apparatus and engine driven by it, which in turn is utilized to automatically shift the steam-heating and cutoff devices, the mechanism requiring but a minimum of power to move the piston, there being also provided a primary heating or steam-producing means arranged to sift the steam of all solid particles of water. It is preferred to combine the use of this improvement with a rotary engine, such as formerly patented by the same inventor, and means are provided to retain the heat within the several steam-holding compartments or reservoirs, to utilize as far as possible its superheated energy.

VALVE.—Thomas P. Ford, Brooklyn, N. Y. This is a combined regulating device and mechanism for controlling it primarily designed for controlling the draught under a boiler, to regulate the steam pressure, being also applicable to various other uses. The invention relates to valves forming the subject of two former patents issued to the same inventor, the present improvements being designed to promote a very sensitive action of the valve on the slightest variation of the fluid pressure.

Railway Appliances.

SWITCH.—John W. Umscheid and Charles H. Klute, Union Hill, N. J. These inventors have devised a switch and switch-working mechanism which may be conveniently operated from a passing train. Combined with the switch points are pivoted levers, there being connections between the levers and the points and swinging arms for engaging the levers. The working mechanism may be operatively connected to turn a number of switch points, turning either switch point at the discrimination of the operator on the train, the mechanism not being liable to become inoperative or be clogged.

REFRIGERATOR CAR.—Charles S. Hardy, San Diego, Cal. According to this invention an apparatus is provided for refrigeration and storage, comprising a folding ice box to which is hinged a drain flue section with drip guards, the ice box sections being adapted to open outward to position for use, and having locking devices to prevent the collapsing or folding of the box by external pressure. The invention affords simple means to prevent shifting cargoes from closing in the folding sections of the ice box, and also operates to support the folding side section while the floor section is being raised, the drain passage also being of novel construction.

CAR COUPLING.—Levi L. Freeman, Broadlands, Ill. This is a coupling of the automatic latching type, in which an arrow-headed link bar is employed to connect two drawheads, by which the cars will be automatically coupled and may be quickly uncoupled from either side of the car. In a forwardly recessed, oppositely slotted drawhead, are pivoted spring-pressed latch plates vibratile in the slots, side rods being adapted to swing the latch plates outwardly.

CAR COUPLING.—James W. Elliott, Galveston, Texas. In the middle line of the drawbar of this coupling is a vertical slot in which is pivoted a coupling latch, the hook of which reaches to just within the flaring mouth of the drawhead. At the rear end of the latch there is an eccentric upon a horizontal shaft, there being crank arms adjustably connected with the ends of the shaft, by which the latch may be adjusted to engage entering links from cars of different heights. With this improvement a whole train of cars may be coupled by one backing movement of the engine, the brakeman having previously passed down the line and set all the cranks.

ILLUMINATED STREET CAR SIGNS.—William H. Carroll, Jersey City, N. J. This inventor has designed an improvement whereby one may readily distinguish a car of a certain line at night, preventing passengers boarding the wrong car at night. The invention consists of an illuminated sign, in connection with a small lamp and reflector, to be arranged on the car roof, the sign bearing the distinctive title of the route the car passes over, the whole arrangement being quite simple and inexpensive.

Mining, Etc.

AMALGAMATOR.—Lewis D. Coe, Leadville, Col. The mercury well of this apparatus has an outlet channel, and there is a chute above the well with a valved opening in its bottom, a supply pipe leading from the opening in the bottom of the chute to the mercury well near its bottom, the inner end of the supply pipe projecting a short distance into the well and being covered by a screen. The apparatus is designed to save all the precious metals and to permit of conducting the operation without interruption.

COAL WASHER AND SEPARATOR.—Thomas M. Richter, Mount Carmel, Pa. This is a machine for washing coal and separating it from the slate, dirt and other refuse. The entire operation of washing and separating is carried on under water, there being provided convenient means of discharging the refuse and coal at different points, and the work being done very rapidly and cheaply.

Mechanical.

SECTIONAL WHEEL.—Perry H. Williams, Memphis, Tenn. This is a simply and strongly made wheel which may be attached to a shaft without removing the latter from its bearings. It is made in two half sections, each having a broken rim and sectional hub, the sections being united on the shaft by slotted lugs, flanges and bolts.

BEAM FLANGE PUNCH.—Robert H. Ireland, New York City. Two tables, at spaced distances apart, receive the web of the beam, according to this invention, die plates being mounted on the tables adjustably by a screw-threaded shaft to accommodate different thicknesses of the web, the punching mechanisms

being arranged over each die plate, and being adjusted simultaneously with the die blocks in a convenient and expeditious manner.

MOTOR CHARGING DEVICE.—James T. F. Conti, Paris, France. This invention provides means for automatically charging the reservoirs of cars propelled by compound air or other fluid, at certain points of their travel. The motive fluid is supplied through a main pipe, with branch pipes leading to the points at which connection is made with the reservoir on the vehicle, the delivery nozzle rising as the vehicle passes, the charging nozzles having a vertical and a lateral rocking movement, a piston valve controlling the admission of the fluid to the nozzle, a cock controlling the admission of the fluid to the chamber of the piston valve, while a trip actuated by the vehicle operates the cock.

WIRE GLASS MACHINE.—Francis M. Ryon, Streator, Ill. This is a machine to embed wire netting in rolled plate glass, and is intended for use in connection with tables for rolling rough or ribbed plate glass. With this machine it is not necessary to provide heat for the tables or rollers, other than that imparted by the molten glass while the sheets are being rolled, it being necessary on the other hand to apply cold water to the table plate and roller at more or less frequent intervals. Less power is also required and a smoother finish given.

Agricultural.

CULTIVATOR.—Benjamin M. Rolph, Dixon, Ill. This invention relates especially to disk cultivators, providing adjustable connections whereby disks may be set to run readily in ground that may be very hard, and for overcoming the difficulty heretofore experienced of shifting them in the cultivation of crooked rows. Two disks are, in this cultivator, owing to their adjustment, made to do the service of two gangs, lessening the weight required for their operation, and the arrangement is such that the disks will not clog up in wet ground, while the machine may be readily converted into a shovel plow.

BALING PRESS.—Hezekiah Bailey, Willamina, Oregon. This press is especially designed to form a valuable adjunct to a thrashing machine, baling the straw as fast as delivered from the thrasher, and thus receiving a continuous volume of material in the feed chamber. Its construction is such that a bale is formed at opposite ends of the press by the alternate strokes of the follower, there being opposite press chambers and an intermediate receiving chamber fed by the feed belts.

Miscellaneous.

RAISING SUNKEN VESSELS.—William A. and Fred E. Turner, Malden, Mass. According to this invention a series of air receptacles is to be connected with the deck or outside of the vessel, the receptacles being inclosed by an exterior netting, and attached to a chain to be passed around the vessel. In each receptacle is an air inlet, the several inlets to be connected with an air pipe leading to a tug, air being thence pumped to fill the several receptacles, after they have been placed in position by divers or otherwise, until sufficient air pressure is obtained to raise the vessel.

CAN SOLDERING AND TESTING.—Noah L. Bishop, Wassaic, N. Y. In a plant devised by this inventor a series of machines is so connected that a can, partially formed, and entered at one end, is automatically carried through the various machines and delivered from the final one completely finished and labeled if desired. The invention also provides an initial feed device, supplying the cans to the final soldering machine, and not liable to clog, though having many branches, there being novel connections between the several machines, and the soldered cans being thoroughly and efficiently cleaned while passing from one machine to another.

WHEELED SCRAPER.—Cary S. Heath, Montrose, Col. For excavating and leveling, this machine is arranged to permit the operator readily to adjust the scraper blade according to the material to be treated or the depth of cut to be made. The driver's weight presses the scraper into the ground, in operation, and when the blade is sufficiently loaded with scraped-up earth, it is lifted out of the ground and the load dumped by the rising of the driver from his seat. The operator stands on the platform when moving the machine from place to place to hold the scraper blade off the road. A special attachment, with spring cultivator teeth, is provided for orchard work.

CYCLE WHEEL.—Samuel A. Donnelly, Chicago, Ill. This inventor has devised a simply and strongly made wheel hub, of tubular body section, there being riveted to each outer end of the tube a flange whose perpendicular part connects with the spokes, while its horizontal part embraces and closely fits and reinforces the end of the tube, where it receives the internal ball-bearing cases, the inner ends of the rivets fastening the flange to the tube forming stops for the ball-bearing cases. The sprocket wheel is secured by bolts to one of the flanges connecting with the spokes.

BOOKKEEPING APPARATUS.—Georg Gercke, Jr., Hamburg, Germany. In accordance with this invention two boards or plates are employed, with metal bands, hinged clips, and a cutting apparatus, whereby loose leaves or sheets may be used in making daybook entries, in registered order, for convenient addition, checking and copying, before the accounts are transcribed to the ledger, the sheets afterward affording coupons to be kept and classified after any necessary ultimate reference.

LAWS OF GRAVITY AND MECHANICS.—Justin S. Hemenway, River Falls, Wis. This inventor has devised a simple apparatus for demonstrating the laws of falling bodies and some of the laws of mechanics, the apparatus comprising a suitable frame with graduated upright, there being journaled in the frame a horizontal shaft with which is connected a cord to which a weight is attached, there being a toothed wheel on the shaft and a detent for arresting the rotation of the wheel. A pendulum is also suspended from the frame, with its axis of motion axially in line with the shaft, there being independent detents to act on the toothed wheel and in operative relation with the pendulum.

LEVELING INSTRUMENT.—Erasmus F. Hargrett, Boston, Ga. According to this invention a level bar is hinged to one end and a graduated arm pivoted to the other end of a base bar, there being an index on the level bar, and the bail or handle secured to the base bar having a curved arm provided with a guideway concentric with the hinge. A fastening device secured to the level bar is made to engage the guideway of the handle. The instrument is designed to facilitate indicating the proper side slope of roads, ditches, etc., for plumbing or setting posts at any inclination, or cutting posts or bevels on bridges.

FAN.—George H. Newton, Monson, Mass. To permit the occupant of a chair to conveniently fan himself by a slight continuous tilting motion of an ordinary arm chair, or by rocking gently in a rocker, this simple and inexpensive device has been devised. A standard carrying at its top fan wings is screw-threaded at about the height of the chair arm, and this screw-threaded portion of the standard is engaged by a loosely sliding nut forming a portion of the outer end of an articulated arm which is attached at its other end to the chair arm.

GATE LATCH.—William F. Wilson, Cookstown, Pa. According to this improvement the locking latch can be readily adjusted at all times in relation to the keeper in case the gate sags, and without removing the entire latch frame. The latch turns on a bolt fitted for up and down movement and adjustment in the frame plate, the bolt being fastened in desired position by a wing nut.

FIRE ESCAPE.—Henry Vieregg, Grand Island, Neb. This is an improvement upon a formerly patented invention of the same inventor, the improvement especially consisting of a brake automatically controlled through a governor, whereby the rapidity of descent will always be kept within a safe limit, an auxiliary brake being also provided in connection with the automatic brake.

FIRE EXTINGUISHER VALVE.—Henry P. Amos, Chicago, Ill. This is a valve which is automatic in operation, and is designed not to be affected by increase in the water pressure. It has a stem comprising two parts which normally align to hold the valve to its seat, a pressure device forcing the joint in one direction to bring the stem sections in alignment, while a spring acts in the opposite direction to assist in bringing the stem sections out of alignment.

SASH FASTENER.—John B. Lashbrook, Oxford, Neb. This is a simple, inexpensive and reliable device, adapted for use on buildings or passenger cars, making a dust proof lock of the sash joints. The improvement comprises a serrated keeper strip along one side edge of the sash and fast on the casement, a serrated locking strip engaging the teeth of the keeper strip with its reversed sloped teeth, and adapted to bind one sash when slid on the keeper strip, while there is a device to slide the locking strip.

GUTTER ATTACHMENT.—George Andrews, Bellows Falls, Vt. To prevent damage from ice and snow to the gutters and spouts on buildings, this inventor has devised a simple attachment by means of which the gutter may be tipped up beneath the eaves, and the spout also turned beneath the eaves of a building, so that neither will collect snow, ice, or other matter, while in case of rain the spout and gutter are both turned back to position.

SUPPORT FOR MOPS, BROOMS, ETC.—Henry H. Holmes, Council Bluffs, Iowa. This holder, which may be conveniently secured to a wall or elsewhere, for holding a broom, mop, etc., ready for use, consists of a bell-shaped case, with a passage for the handle. Adjacent to the passage is a rubber abutment, against which the handle is pressed by a flexible tip on the inner end of a spring lever oppositely fulcrumed, the broom being released by pressing on the outer end of the lever.

DESIGN FOR SASH FASTENER FRAME.—William D. Wilkinson, Toronto, Canada. From a flat base there rise plane parallel sides presenting separate spaced figures at the front and top, the sides being cut away obliquely on their rear edge from near the base to the top.

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.

A FROGLAND WEDDING. Words and illustrations by Roy Conger. Music by Helen Hitchcock. Chicago: Laird & Lee. Price boards 50 cents, holiday binding \$1.

THE CENTURY CYCLOPEDIA OF NAMES. A pronouncing and etymological dictionary of names in geography, biography, mythology, history, ethnology, art, archæology, fiction, etc. Edited by Benjamin E. Smith. New York: The Century Company. Pp. vii, 1085. Price, cloth, \$10; full sheep, \$15.

This superb work is a supplement to the Century Dictionary and must be considered as such in all criticisms. It contains biographical notices, historical facts, literary titles, descriptions of books, and a vast amount of other encyclopedic information which properly was not put into the Century Dictionary. In this sense it is a supplement of the dictionary, because in many cases what seem to be omissions in it will be found treated in the five volumes that preceded it. For instance, under "pons" the cyclopedic does not give the familiar "pons asinorum," which might seem to be an omission, but on turning to the Century Dictionary we there find the subject treated fully. The general make-up resembles that of the Century Dictionary, the page matter being contained in three columns. It would be easy enough to find omissions, and we have, naturally enough, found several, but it hardly seems necessary for us to give them, as the book is one of genuine merit and deserves the warm

praise of all. Its biographies are pre-eminently satisfactory, for although we have termed them biographical notices, they are so condensed as really to give a full account of the leading points in the lives of their subjects.

RADIANT SUNS. A sequel to "Sun, Moon and Stars." By Agnes Giberne. With a preface by Mrs. Huggins and many illustrations. New York: Macmillan & Company. 1894. Pp. xi, 328. Price \$1.75.

This beautifully illustrated book by Miss Giberne, with a preface by Mrs. Huggins, is a testimony of what women can do in the higher fields of learning. There seems to be something in astronomy and in the higher mathematics especially congenial to the female mind. This elegant work forms most interesting reading. We would, however, have recommended the authoress, before writing the story of Galileo, to have read the admirable monograph on this great investigator published in the ninth edition of the Encyclopædia Britannica, in which are brought out the very curious errors perpetrated by him in astronomy, and the curious and false bases he selected in his upholding of the Copernican system, something far too little appreciated, the tendency of the day being to uphold Galileo as one of the early provers of the true theory of the earth's motion, whereas he rather figured as the reverse in attempting to uphold it on false proofs. One of the very interesting illustrations is a reproduction of a photograph of Dr. Huggins, which was taken by his wife. Dr. Huggins' new spectroscope forms the background for this picture.

THE INTERNATIONAL ANNUAL OF ANTHONY'S PHOTOGRAPHIC BULLETIN. Edited by Frederick J. Harrison. New York: E. & H. T. Anthony Company. Vol. VII. 1895. Pp. 352. Price \$1.25 cloth.

A beautifully printed annual on photography, containing 21 full page illustrations, and a great variety of articles on all sorts of subjects relating to photography, besides numerous formulae. We note an interesting illustrated scientific article on the timing of shutters, by James E. Boyd and Thomas E. French, of Ohio State University, a subject more apropos to hand cameras, where the speed of the shutter should be known. Charles Richard Dodge describes how to photograph by gas light. Harry W. Smith explains a novel method of making flash light silhouettes. There are also useful hints on the new printing process, a method of making collotype or photogravure prints at home, considerable information on lantern slide making, and descriptions of the best methods of development, especially with the new agent metol. The comparative illustrations of telephoto work by Professor D. L. Elmendorf demonstrate the great value of this new form of lens. Dr. Hugo Schroeder gives a few historical notes and a brief account of the recent improvements in photo lenses. It will be found to be a very readable book; the articles are short and interesting. It should be on the table or shelf of every photographer.

POPULAR ENGINEERING. Being interesting and instructive examples in civil, mechanical, electrical, chemical, mining, military, and naval engineering graphically and plainly described and specially written for those about to enter the engineering profession and the scientific amateur, with chapters on perpetual motion and engineering schools and colleges. By F. Dye. London: E. & F. N. Spon. New York: Spon & Chamberlain. 1895. Pp. viii, 496. Price \$3.

The title of this book describes precisely its contents. It is a thoroughly practical work, treating of all sorts of practical scientific work, from chemistry, civil and mechanical engineering to shipbuilding. The illustrations are very numerous, not always of the finest quality, but graphic and attractive, and we believe that the work will be found a decidedly popular and useful one. We notice reproduced in it matter familiar to our readers. We may pass without notice its minor inaccuracies. Some details of the ancient history of engineering—for the work of seventy years ago is ancient history—are especially interesting. The section of perpetual motion might be commended to dreamers of the present day.

THE AERONAUTICAL ANNUAL. 1895. Edited by James Means. Boston, Mass.: W. B. Clarke & Co. No. 1. Pp. 171. Price \$1.

Mr. Means is himself an investigator of aeroplane soaring, and this annual is devoted largely to old-time records of attempts to fly. Curiously enough, comparatively little is said about Lilienthal, Maxim, and Langley, for a very large portion of the book is devoted to antiquities and the publications of the early part of the century. The utmost, then, that we can assume this annual to be, is an introductory number of a series which may eventually reach a point where the annual issues will represent the work of the present day. If the publication is continued, we see no reason why it should not do so next year.

THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1895. Edited by J. Traill Taylor. London: Henry Greenwood & Co., 2 York Street, Covent Garden. 1894. 16mo. Pp. 134. Cloth and paper. Price 50 and 75 cents.

The British Journal Almanac is always a welcome visitor, both on account of the excellence of the articles which have been contributed and the valuable formulas which have for many years formed one of the features of the book. The large size of the volume is owing to the number of advertisements, which occupy 850 of the 1344 pages. It would be a mistake to suppose that these advertisements are without interest. All of the latest apparatus and materials for all branches of photography and photo-mechanical printing processes are described. It is unfortunate the publishers should have adopted a continuous pagination for reading matter and advertisements. The samples of work given do not com-