

RECENTLY PATENTED INVENTIONS.

Railway Appliances.

SWITCH.—John W. Tew, Rome, Ga., and John D. Riggs, Selma, Ala. This invention provides such means of locking a switch that the exercise of great power or weight will be required to effect its release, thus preventing the altering of the switch by unauthorized persons. The construction is such that when the locomotive stops with one of its wheels on a contact plate the switch will be unlocked and can be moved as desired, being closed and locked again after the passage of the train. The contact plates or tripping devices are of high tension, requiring the weight of a locomotive or car to operate them.

Electrical.

ARC LAMP.—Patrick J. Barrett, Boston, Mass. This lamp is designed to run on a low voltage current and give a very steady and brilliant light. Two or more carbons are fed downward through converging tubes, whose lower ends approach beneath the base plate of the suspending frame, the feed being very nicely controlled, and the spread of the arc being automatically regulated by a magnet through which passes the current entering the lamp, whereby the correct positions of the carbons is constantly maintained.

Mechanical.

COMBINATION TOOL.—Andrew Knudsen, Tucson, Arizona Ter. This tool comprises, in compact shape, shears, nippers, an adjustable wrench, tack hammer, screw driver, and tack puller. It is a strong, cheap, and convenient tool, having the general appearance of pliers.

MORTISING TOOL.—Simeon J. Hicks, Englewood, Ill. A hollow chisel has at its cutting end transverse cutters whose cutting edges are flush with the cutting edges of the chisel, while bits mounted to revolve in unison pass through the openings formed by the transverse cutters. The head of the tool has a reciprocating motion and slides in suitable guideways arranged on the usual mortising machine, and the tool is designed to quickly and conveniently form a complete square or rectangular mortise without danger of breaking the bits or chisel.

GYRATING BOLT.—William E. Getz, Quincy, Ill. This is a mill bolt which is easily adjustable according to the nature of the material under treatment. In an adjustable pivoted frame are journaled shafts at right angles carrying crank arms, there being ball and socket joints on the crank arms connected with a sieve which extends parallel to the frame. The arrangement is such that every point on the surface of the bolting cloth gyrates in the same plane, and the sieve itself gyrates in the inclined position given to it by the adjusted inclination of the frame.

Mining, Etc.

CAM FOR STAMP MILLS.—Albert Ambury, Keystone, South Dakota. This cam is composed of two sections, arranged for convenient application to the revoluble shaft, without disturbing the latter in its bearings or removing the other cams on the shaft. The heels of the sections form the hub of the cam, the arrangement being such that any desired depth of hub can be given to hold the cam to the shaft, the parts being also interlocked by means of flanges.

TREATING REFRACTORY ORES.—Charles F. Favel, London, England. This invention provides a method of breaking up and removing any adherent skin of iron oxide from particles of precious metals in freshly roasted rebellious ores. These ores are caused to fall as a stream of incandescent particles, the falling stream being subjected to the action of jets of water issuing at right angles, the particles falling into a running stream of water, and the particles of ore being kept out by contact with the air after they have been quenched by the water.

SKIMMER AND SWEATER.—William H. Howard, Pueblo, Col. This invention provides an apparatus for desilverizing lead bullion in the zinc pot, consisting of hinged perforated plates adapted to be passed into the zinc pot in a folded condition, and then opened and raised to carry off the zinc and silver alloy, the mechanically combined lead being sweated out when the plates are raised, and removed from the pot with the scam.

Agricultural.

ROTARY PLOW AND CULTIVATOR.—George F. Whitmore, West Union, Iowa. This is a rotatable plow or digger frame formed of a number of colter disks connected near their outer edges by radial blades or shovels to form a series of radially arranged buckets in which operate movable pans or followers forming the bottom of the buckets, and which are automatically reciprocated in the buckets to discharge the dirt after it has been elevated. A pulverizing platform is arranged to receive the dirt as it is forced out of the buckets in the colter frame which serves to crush the dirt, and drop it to the rear of the colter frame.

Miscellaneous.

AERIAL MACHINE.—Dr. S. B. Battey, No. 89 West Twenty-seventh Street, New York City. This machine has a propeller consisting of a pivoted mortar-shaped holder for explosives, adapted to swing laterally on the rear end of a cigar-shaped balloon, a feed pipe with an automatic delivery device delivering the explosive in the form of pellets to the holder at regulated intervals, the pellets being received in a yielding mounted receiver and ignited by an electric firing device, thus affording a powerful backward pressure upon the air to propel the machine, the discharge tube at the same time constituting a rudder. The machine is designed to be very light, having no machinery to carry, and it is claimed that a sufficient quantity of explosives to drive it several hundred miles will not add more than ten or twelve pounds to its weight. This machine was illustrated

and described in the SCIENTIFIC AMERICAN of October 22, 1892, and the inventor states that the construction of a machine will be commenced at once.

BALING PRESS.—Edmund M. Ivens, New Orleans, La. This press has a main frame rotating about a fixed spindle or strain rod, with two chambers which alternately form a cotton-receiving and a compressing compartment, the arrangement being such that while the cotton in one chamber is being baled the other chamber will be receiving a fresh supply of cotton, the frame being turned after the bale is removed so that the empty chamber is brought under the cotton-supplying device and the last filled chamber over the compressing device.

Another patent by the same inventor provides a rotatable press box having dual compartments in which are arranged counterbalanced followers adapted to be held in any of their intermediate adjusted positions by hydraulic power, there being simple means operated by the presser platen feed mechanism for swinging the press box. There is also a variable and accumulative presser platen feed mechanism, whereby the bale can be treated to a plurality of presser applications of different speed and accumulated power.

DUMPING SCOW.—Patrick Ryan, New York City. This boat has a flat-bottomed hull, with a downward slope on each side edge of the main deck, there being at the angle at which the slope commences lengthwise-extending rock shafts which sustain tilting tables adapted to receive the load. The tables are strongly braced by stay rods, and at each end of the scow, mainly below decks, is a ratchet and lever mechanism to tilt the tables for the discharge of the load, the tables being tilted simultaneously or successively as desired.

SEWER CLEANING APPARATUS.—Alfred Mundell, Brooklyn, N. Y. By means of a windlass a cable or rope is drawn through the sewer from one manhole to the other, and to the cable are attached buckets, one behind another, the lower side of each bucket being prolonged to act as a scraper. Means are also provided for raising the buckets at the manholes without injury to the sewer construction, and the entire apparatus is designed to facilitate the rapid removal of all sediment from a sewer at a minimum expense.

ANTI-RATTLER.—William H. Pardee, Antigo, Wis. Combined with a thill coupling having the usual clip and knuckle is a spring lever fulcrumed beneath the knuckle and held to press against it, a ball pivoted to the free end of the lever hooking over the back end of the clip plate, while there is a cam mechanism for moving the ball and spring lever. The device is simple, cheap and durable, and may be applied without the use of tools to an ordinary thill coupling, effectively taking up all lost motion and preventing any rattling.

SPRING BED.—Olin R. Gould, Dayton, Iowa. Upon the slats of the frame are held spiral springs of different sized wire, with strengthening cross spiral springs, the arrangement being such that the springs mutually support and brace each other, forming a cheap, strong and simple bed, which has an even and flat surface, and which offers an extremely easy surface for one to lie upon.

BED BRACE.—William H. Fitzgerald, Monroe, N. C. This is a stretching device for flexible strands attached to the side rails and corner posts, comprising an elongated bracket block, two grooved pulleys, a handle piece, with lug, and a right and left hand screw engaging threaded holes in the handle piece and in the bracket block. It may be quickly applied to any open bedstead, to stiffen it in all directions of strain, thus rendering a light bedstead comfortable and safe.

JUMPER AND APRON.—Thomas R. Chambers, Brooklyn, N. Y. This is a combination garment for workmen, having guides at each side of its rear opening, and tapes crossed and passed through the guides, whereby the garment may be quickly and easily secured upon the person, and will admit of the wearer assuming any posture that might be taken when an ordinary jacket was worn.

SUSPENDERS.—Jacob H. Bley, New York City. The suspender ends are, according to this improvement, formed of bent braid, while the shoulder straps are jointed at the rear and a rear suspender end is formed of a single bent braid having part of its adjacent edges fastened together to form a head, which is secured to the shoulder straps at their rear joint. Strong and secure ends are thus formed and the usual attaching plates for the rear ends are dispensed with.

BIRD CAGE FOOD HOLDER.—Louis F. Shanovski and Barnett Rubenstein, Chicago, Ill. This holder is composed of wire bent to form base and side rods, hangers and a spring clasp, a brace or medallion connecting the side rods. The improvement avoids bending the wires of the cage and keeps the food clean and in good condition, being adapted to securely hold lumps of sugar, crackers, fruit, cattle bone, etc.

DISH CLEANER.—Walter A. Adams, Hogan, Montana. This cleaner has an outer part similar to an ordinary dish pan and an inner dish-receiving receptacle made of wire or perforated sheet metal, there being on the bottom of the latter a ring-like plate carrying a series of rollers. The inner receptacle, when filled with dishes, is rapidly rotated by means of its handles, after having been placed in the outer receptacle, containing hot water and the cleansing compound, a similar rinsing with clean water following.

STOVEPIPE HANGER.—William H. Trepps, Chicago, Ill. An adjustable band encircles the stovepipe, and from one side of this band extends a rod held adjustably in a sleeve, a plate supporting the sleeve being adapted to be fastened to the ceiling or other support. The device is strong and simple, and readily applied and adjusted to hold the pipe in the desired position.

FIRE LIGHTER.—Peter Peschong, Alton, Iowa. This is a device comprising an outer metallic chamber and an inner sheet metal receiver within which is held another receiver adapted to contain a chemical by which a fuse may be ignited to light the fire, the ignition being made to take place by means of a clockwork mechanism at any predetermined time, the

combustibles having been previously arranged in the stove or grate. The device is designed to be entirely reliable and quite inexpensive.

POCKET BOOK.—Isaac Scheuer, New York City. A flat spring is secured to the stationary bar of the frame of a pocket book, satchel or similar article, and the free end of the spring has a head fitting into a transverse slot formed in the bar, the head having on its under side a keeper for engagement with the catches held on the hinged sides of the frame. The device permits of conveniently locking both sides of the article without presenting any projection on the frame.

TAG FASTENER.—Samuel E. Adams, Washington Court House, Ohio. This is an exceedingly simple device, especially adapted for securing price tags on bolts of goods, or attaching a tag to goods of any description. It consists of a plate having a loop for the reception of a tag, a needle point projecting from the upper surface of the plate near the front, and a second needle point extending from the lower surface of the plate near the rear, the second needle point being in the form of a hook.

DENTAL ARTICULATION CUP.—George K. Bagby, New Bern, N. C. This invention provides a cup having outer and inner arched walls, with connecting ribs, the outer wall having a hinge and the inner one a flexible sheet, both on the median line to adapt them to different widths of jaw. By means of the improvement the dentist can take an additional impression for the articulation or bite at the same sitting that he takes the impression for the plate.

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 LOCOMOTIVE CATECHISM. By Robert Grimshaw. New York: Norman W. Henley & Co. London: E. & F. N. Spon. Pp. 362. Price \$2.

Robert Grimshaw, widely known as an author on technical subjects, has acquired much of his success from works written in the forms of catechisms or of question and answer. In his treatment of subjects he has a peculiarly crisp and graphic style, which lends itself well to the question and answer treatment, which is adopted in this book. The exhaustive nature of it is evident from its large number of questions, nearly 1,300 in number, each of which is clearly and simply answered. The selection of questions is interesting, the author in his preface stating that novices and expert locomotive engine runners have selected many of them and examining engineers have selected many more. As regards the illustrations, there is nothing to be desired. They are not only most elegantly produced, but have a special value in being derived from the last examples of practice. The author possesses unusual facilities for procuring drawings of the most recent types, and of these facilities he has availed himself to the fullest extent. The proof that the work is up to the present date is shown by the fact that a cut of the famous engine "999," drawing the World's Fair special, is given. Numerous folding plates are contained, each in itself being virtually a working drawing. One of these plates is devoted to the same engine "999," so that the possessor has at once the pictorial and constructive drawings of this last example of modern locomotive building. The subject of accidents is treated to a considerable extent.

BRITISH FOREST TREES AND THEIR SYLVICULTURAL CHARACTERISTICS AND TREATMENT. By John Nisbet. London and New York: Macmillan & Co. 1893. Pp. xvi, 352. Price \$2.50.

America is so much a better field for arboriculture than England that it is to be supposed that this book will be of equal interest and value to the American reader as to the British reader for whom it is especially written. The woods of the two countries are very nearly the same, and so systematic and excellent a treatment of the subject of forestry will be warmly welcomed by all.

GRAVITATION THE DETERMINING FORCE. By Ethan Samuel Chapin, A.M. Cambridge: Printed at the Riverside Press. 1887. Pp. xiv, 169. No index.

The author of this book claims that more than twenty years ago he was logically driven to conclusions which have recently been reached by advanced scientists. The work does not lend itself easily to a review. To the students of cosmic science it will no doubt be quite interesting.

CONTRIBUTIONS FROM THE LICK OBSERVATORY. No. 3. Terrestrial Atmospheric Absorption of the Photographic Rays of Light. By J. M. Schaeberle. Sacramento: State office. A. J. Johnston, Supt. State Printing. 1893. Pp. 90.

In this, the third contribution from the Lick Observatory, a subject of much interest to the astronomer is very fully developed, and to such it will be found a manual of special interest and value.

THE YOSEMITE, ALASKA, AND THE YELLOWSTONE. By William H. Wiley and Sara King Wiley. London: Offices of *Engineering*. New York: John Wiley & Sons. Pp. xix, 230. Price \$4.

The admirable graphic style of the text of this description of Western travel, the numerous illustrations, independent of the personal associations of the author so widely known, make it an excellent contribution to the topographical story of our country. Although full of anecdote and graphic to the last degree it possesses a true scientific value from the numerous data included in it, the review of the progress of the great West and its history. Many illustrations are exceedingly striking, notably the interior view of the Mormon Tabernacle, with its elliptical vaulted roof. It is needless to say that the work is in the best character from the bookmaking

standpoint, and the entire aspect is such as to make one wish for more such work from the same hands. In the preface written by Mr. J. Dredge the superiority of any introduction to the American public of this book and its authors is rightly noticed. To the British public the book itself, Mr. Dredge states, will be the best introduction. Mr. Dredge's part in the matter appears in its having been originally published in London *Engineering*. An excellent portrait of Mr. Wiley forms the frontispiece. The author covered some 10,000 miles in his trip, penetrating as far as Alaska.

THE SLIDE RULE. Third Edition. By William Cox. New York: Published by Keuffel & Esser Co. Pp. 14. Price 50 cents.

This description of what can be done with the slide rule is exceedingly clever, and it is astonishing to find how much work can be done by this simple instrument. The work is very concise and gives information in excellent shape.

THE BOOK OF THE FAIR. An Historical and Descriptive Presentation of the World's Science, Art and Industry, as Viewed through the Columbian Exposition at Chicago in 1893. By Hubert Howe Bancroft. Chicago and San Francisco: The Bancroft Company. 1893. Pp. 40. Price \$1.

This is the first installment of what will eventually be a very superb monograph on the World's Fair. It is profusely illustrated and the entire work, when completed, bids fair to be one of the most important contributions to be made to Chicago's effort.

SANITARY ENGINEERING IN INDIA. For the use of municipalities and engineers. By John Wallace. Bombay: Printed at the Education Society's Steam Press. 1893. Pp. vii, 238, xi. Price \$3.25.

India would certainly seem to be an excellent field for the sanitarian. The author gives some very startling examples of the vile sanitary conditions of life among the natives, and the work should certainly find a place in the laboratory of the sanitary engineer. It is of some interest to know that it is printed in Bombay, as it affords an illustration of the printing industry as conducted in British India.

Any of the above books may be purchased through this office. Send for new book catalogue just published. MUNN & CO., 361 Broadway, New York.

SCIENTIFIC AMERICAN BUILDING EDITION.

AUGUST, 1893.—(No. 94.)

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2. Plate in colors showing the colonial residence of L. Allyn Wight, at Montclair, N. J., erected at a cost of \$15,400 complete. Perspective view and floorplans. Messrs. McKim, Mead & White, architects, New York. An attractive design.
3. A cottage erected at Portland, Me. Perspective view and floor plans. A model design. Cost \$3,400 complete. Mr. J. C. Stevens, architect, Portland, Me. \$.
4. A Queen Anne cottage, erected at Wayne, Pa., at a cost of \$6,000 complete. Floor plans, perspective view, etc. Messrs. F. L. & W. L. Price, architects, Philadelphia, Pa. An excellent design.
5. Engraving and floor plans of a dwelling recently erected for A. B. Root, Esq., at Springfield, Mass., at a cost of \$2,500 complete.
6. Engraving and ground plan of Grace Episcopal Church, at Plainfield, N. J., erected at a cost of \$40,000, complete. Mr. R. W. Gibson, New York City, architect.
7. A dwelling recently completed at Brookline Hills, Mass., at a cost of \$5,120, complete. Perspective elevation and floor plans.
8. A cottage at Elm Station, Pa., erected at a cost of \$2,900, complete. Floor plans and perspective.
9. Wood and stone dwelling at Narberth, Pa. A unique design. Perspective elevation and floor plans. Estimated cost \$5,000, complete.
10. Design for a village library.
11. The Fifth Avenue Theater, New York. View of the family circle and of the handsome drop curtain. Mr. Francis H. Kimball, architect, New York.
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13. Miscellaneous contents: Wiring of buildings for electric lights.—Montank club house, Brooklyn, N. Y.—A novel system of domestic water supply, illustrated.—Wood mantels and ornamental fireplaces, illustrated.—Fencing made of sheet metal, illustrated.—The Hartman sliding blind; view of factories.—An improved dimension saw, illustrated.—Plumbers' and steamfitters' supplies.—The Capitol hot water heater, illustrated.

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