

RECENTLY PATENTED INVENTIONS.

Railway Appliances.

MAIL BAG CATCHER AND DISCHARGER.

—George W. Dailey, Charlottesville, Ind. This improvement comprises an open-sided cage having a yielding top, a spring-pressed carriage sliding in the cage, a trigger extending forward from it having a striker arm, and mechanism operated by the trigger shaft to release the carriage. The apparatus is designed to simultaneously discharge mail bags from the station and from the moving car, also at the same time receiving bags discharged, the stationary apparatus discharging a mail bag into the apparatus on the car and receiving one in exchange, and vice versa. The apparatus is very positive and purely automatic in its operation.

MAIL BAG HANGER.—Milton Trundle, Kansas City, Mo. This is a device for supporting mail bags in proper position to be caught by a grab hook on a passing car. The invention includes devices detachably connected with the mail bag, for holding it properly suspended, and also a slidable frame to which the devices are loosely connected, the frame sliding in a slotted post at the side of the track. The hanger is readily adjustable as to tension of the grip and also as to proximity to the track.

Mechanical.

FILE CUTTING MACHINE.—Frederick W. Lowe, Philadelphia, Pa. A horizontally adjustable swivel block with concave upper face carries a swinging frame having a convex projection on its lower face fitting the concavity, the axis of the frame being the center of the arc described by the convex and concave faces, while a carriage has an intermittent sliding motion in the frame, and a reciprocating hammer carrying a chisel operates over the carriage to produce cuts on a file blank. The machine is designed to produce perfectly cut files, greatly resembling those made by hand, is perfectly under the control of the operator, and turns out the files very rapidly. It is of simple and durable construction.

PIPE WRENCH AND CUTTER.—George Plante, Lowell, Mass. A handle carrying a fixed toothed jaw and an angular jaw has also a pivoted arm carrying a cutter adapted to operate in conjunction with the angular jaw, the cutter arm also carrying a movable jaw to operate in conjunction with the fixed toothed jaw. The improvement forms a strong and simple tool for conveniently turning a pipe or rapidly cutting it in two parts.

BELT FASTENER.—John Stocker, New Lewisville, Ark. This is a hinged wire fastener for securing the meeting ends of belts, and consists of two U-shaped links interlocked at their bends, with their legs terminating in flattened prongs, which are secured by clinching in the leather or other material of the belt. The fastening permits of the free curvature and movement of the belt in all directions.

CAN LABELING MACHINE.—Adrian S. Boiteuillet, Brunswick, Ga. In the floor of an inclined chute is a revoluble and vertically movable tripping roller, a series of pasting rollers being arranged above the chute, and an open topped label box at its lower end, while a feed mechanism raises the floor of the box to keep the top label flush with the box top. It is a comparatively simple machine to automatically paste and apply labels to cans and bottles of various kinds.

TOBACCO CUTTER AND SIFTER.—Louis C. Josselin, City of Mexico, Mex. Beneath a hopper supported by a suitable frame is a revoluble exterior cutter, having cross knives with their edges turned inwardly, in connection with a revoluble interior cutter having diagonally arranged knives with their edges on their outer portions, there being a sieve for the cutters and hackles secured to the outer knives to contact with the sieve. The machine is adapted to rapidly cut tobacco to any degree of fineness, and thoroughly sift it.

WIND WHEEL.—James C. Walker, Waco, Texas. The arms or frames are arranged to rotate about a vertical axis upon a horizontal plane, and are so constructed that no guiding vane or tail is required. The space between the outer edge of the frames is occupied by wings or blades which open or close automatically. The force of the wind will close the blades on one of the revolving arms, and will open them and blow through the oppositely revolving arm.

EAVES TROUGH HANGER.—William H. Mundwiler, Attica, Ohio. By the use of this hanger, eaves troughs may be attached to roofs without the use of nails, which injure the roof, and are impracticable where slate has been used. A hanger is attached to the roof by means of a spring clamp. The trough is hung upon the hanger and locked in position by means of a wedge, which serves as a key and holds it firmly in place.

Miscellaneous.

AIR DISTRIBUTING FAN.—Ardon M. Mitchell, Brooklyn, N. Y. This is a ventilating fan to be rotated by pneumatic pressure and air escape from within the device, the ordinary driving mechanism for such apparatus being dispensed with. It has hollow perforated fan blades radiating from a hollow shaft supported to rotate in a pendent chamber, and the air is delivered in graduated jets from one edge of each fan blade, there being a sliding gate to close the perforations, regulating the escape of the air currents and controlling the speed of rotation.

DYNAMICAL ARRANGED CELESTIAL SPHERE.—Mungo Turnbull, Toronto, Canada. The design of this improvement is mainly founded upon the modern astronomical equatorial mounted telescope, a celestial sphere of simple and durable construction being provided and arranged to permit of conveniently reading the position of any object in the heavens, from pole to pole, on any parallel of latitude or right ascension, at any time during day or night throughout the year. The sphere is to be not smaller than eighteen inches in diameter, and is provided with a representation of stars visible to the sixth magnitude on both

hemispheres, with means for indicating the positions of the observer on the earth, relative to the sphere and time of observation, to obtain a true vision of the stars on the sphere from the point of observation.

RACK FOR FIREARMS.—Jesse A. Meadows, Sackett's Harbor, N. Y. This is a rotatable rack, having a central post and a lower platform holding the butts of guns or rifles, an upper platform receiving the muzzle ends of the guns and also having pistol pockets. The rack holds a large number of firearms, and when closed and locked all will be secured at once, but when the lock is removed the pistols and guns are securely held against falling out.

FILTER FAUCET.—Edward O. Wilson, Jersey City, N. J. This faucet has a casing in which are transverse perforated partitions forming filtering compartments, the first compartment next the supply pipe being preferably a settling chamber, the next one being filled with charcoal, and the third with gravel, and the water being cleansed as it is passed through these chambers to the discharge outlet.

EDUCATIONAL APPLIANCE.—Alexander Macfarlane, Austin, Texas. This is a device formed of rods secured together to form a spherical triangle, and with other rods arranged as extensions to demonstrate the cosine and sine of the sum of two angles having different axes. The improvement is designed to facilitate the teaching of mathematical mechanics and physics in such manner as to demonstrate and exhibit the principles involving directed quantities in space.

PENCIL SHARPENER.—Edward H. Boehme, Chicago, Ill. In this sharpener the lead is supported while being sharpened, thus avoiding the breaking of the point, and the wood is cut in the direction of the grain, in the same manner as when the pencil is sharpened with a penknife. The device consists of a guide in which a pencil holder is placed, while a slide moving in the guide is provided with a cutter for cutting away the wood and lead of the pencil, the latter being held at angle in the path of the slide and its cutter.

FENCE POST.—Joseph D. Paldi, Brockway, Mich. This post has a burnt clay body to which outer metallic clamp portions are bolted and provided with fence wire fastenings. The body has internal reinforcing wire portions, and the post may be very inexpensively made, and will not rot or burn.

TRIMMING.—George H. Newton, Monson, Mass. The invention relates to artificial flowers for ladies' hat and dress trimming; the object being to heighten the effect by means of movable parts connected by a crank shaft so that they will be actuated by the wind or by the motions made in walking. For example, a flower may be constructed with rotating leaves connected together, which in turning give motion to the center of the flower by the medium of a crank shaft.

UMBRELLA COVER.—Anthony Nicholas and Ludwig Tachau, of Newark, N. J. The object of this invention is to provide a means for readily changing the covering of umbrellas and parasols so that many different colored coverings may be placed upon the same frame. The covering is provided with fastening devices, which are adapted for removable engagement with the ribs, and the stick is provided with a locking device which secures the top of the covering where the stick passes through.

GAME BOARD.—Whitfield G. Howell, Highland, N. Y. This game consists of a board provided with a series of holes of a size adapted to allow marbles propelled by a mechanism, forming a portion of the board, to pass through and fall into a drawer provided with pockets numbered to correspond with the openings above. Deflecting blocks add to the interest of the game, which is intended for table use, as they make the shots from the freely pivoted and movable propelling mechanism more difficult.

FACE PROTECTOR.—Carl Gumeson, National Mine, Mich. This device is intended to protect the face from extreme cold. The protector is made of any suitable material fastened to a mask frame, and is provided with eye, nose, and mouth protectors, which are so arranged that speaking, breathing, or the eyesight is not interfered with, and at the same time the face is protected from extreme cold.

CIGAR ATTACHMENT.—Thomas Guilfoyle, Collingwood, Ontario, Canada. The cigar is passed through the lower portion of a funnel or hood, which is channeled out to receive it, forming a kind of pocket. The heat and smoke are deflected by the funnel so that they are kept away from the eyes and nose of the smoker, so that respiration may be freely accomplished without removing the cigar from the lips. The construction allows a free circulation of air to the lighted end, and at the same time prevents the cigar from "going out" as easily as when no such device is used.

TOY SOLDIER.—Charles Midforth, Beaumont, of Hull, England. The object of this invention is to provide an amusing toy for children, and is intended to enable missiles to be discharged at a relatively long range, thus representing a mimic combat. The barrel of the gun consists of a tube through which a slender rod or dart is discharged by a filip of the finger applied to the end of the rod, which projects at the rear of the gun to a considerable distance. The gun is held in the usual position of firing, with the butt to the shoulder.

HAT.—Raphael Buck, of New York City. The object of this invention is to provide a hat which, by the operation of a simple device, can be arranged so as to permit of a free circulation of air over the head of the wearer. The crown is made separate from the body, and is adapted to engage therewith. Connected with the body of the hat are arms which at their point of junction support a nut through which passes a screw terminating in the crown. By the aid of this screw the crown may be raised and held at a sufficient distance to allow of good ventilation, and still protect the head from the sun.

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.

PATENT OFFICE MANUAL; INCLUDING THE LAW AND PRACTICE OF CASES IN THE UNITED STATES PATENT OFFICE AND THE COURTS HOLDING A REVISORY RELATION THERETO. By George H. Knight. Boston: Little, Brown & Co. 1893. Pp. 655.

To any lawyer taking up patent practice as a specialty, this book must prove invaluable, while there are few lawyers who have been thus engaged for years who will not find it a great convenience and a valuable aid. Inventors, likewise, who go enough beyond the technical details of their improvements to care to master the somewhat complex state of the law as it at present exists, owing to the fine distinctions upon which numbers of decisions have been made by the courts, will find here the most ready means anywhere offered to attain such end. The author has had many years' experience as a Patent Office examiner, and thus came to the preparation of this book from the practical working side of Patent Office practice, and although the work consists almost entirely of brief summaries or quotations from court decisions, or rulings of the office, every such decision and ruling answers a question which has come up in the practice of the office. The book is thus well adapted, according to the author's design, to facilitate the labors of inventors and attorneys in the presentation and prosecution of cases before the office. It is also brought down to date, covering many recent and important cases, and has as an appendix a chapter on copyrights. The author is a member of the Patent Office Bar Association, a resident member of the New York Academy of Sciences, and the author of "Relation of Invention to the Conditions of Life."

THE SCIENCE OF MECHANICS: A CRITICAL AND HISTORICAL EXPOSITION OF ITS PRINCIPLES. By Dr. Ernst Mach. Translated from the second German edition by Thomas J. McCormack. Chicago: The Open Court Publishing Company. 1893. Pp. x, 534. Price \$2.50.

We have had occasion to note the publication of various works relating to the history of science, in many cases the virtual reproductions of memoirs by the discoverers in early days, but in Professor Mach's works we have what to some extent is an innovation. It is a treatise on modern mechanics in the full scientific aspect of the subject, but devoted very largely to the history thereof, and giving the little-known story of the deduction of what seem to us now axioms of science. Without perpetrating an absolute inconsistency, it may be said that the proof of an axiom or the basis of its establishment is always deeply interesting, and it is precisely to such topics as these that Professor Mach's work goes. As an example we may cite his treatment of the principles of the lever, showing the deductions of Archimedes, Stevinus, Galileo, Lagrange and others. Again, the inclined plane gives a characteristic example of the author's treatment. The mixture of history with the last principles of science and absolute mathematical deductions makes the work exceedingly attractive, but this very feature entitles it to and exacts the most deliberate reading. It really seems to fill a long-felt want. It is one of those books which has the rare happiness of suggesting a want in literature.

A SELECT BIBLIOGRAPHY OF CHEMISTRY, 1492-1892. By Henry Carrington Bolton. Washington: Published by the Smithsonian Institution. 1893. Pp. ix, 1212. Price \$3.50.

Professor Bolton, who by years of labor has acquired special standing as an investigator into the history and literature of chemistry, presents us in the valuable work before us with an index of four hundred years' publications in chemistry. In saying the above, we feel that we have said almost enough, on account of the compiler's high reputation. It, however, should be stated what division is adopted by the author. The seven sections are divided into bibliography, dictionaries and tables, history of chemistry, biography, chemistry pure and applied, alchemy, periodicals. The arrangement of each section is alphabetical and cross references are used, at once directing the reader to the desired place. Various features deserve special commendation. Thus Dr. Bolton gives an extension of a list of abbreviations of titles of chemical periodicals on the lines of the one instituted by the American Association for the Advancement of Science, embracing 436 separate periodicals. Twenty-eight pages of addenda follow the main text, chiefly of works published while the foregoing pages were in press. While the book, as stated, is a gigantic index, Dr. Bolton has not hesitated to introduce an additional index, thirty pages in length, of subjects. The labor involved in the production of the volume is certainly very great, a total of over twelve thousand titles in twenty-five different languages being included. The book is "select," and makes no pretense to completeness. Thus we find among biographies those of Booth, Prescott, and Hunt, referred to our columns, the two last to the author as well, while similar biographies of Barker, Chandler and Cooke published in the SCIENTIFIC AMERICAN are not indexed. This is merely cited as an example of the want of system almost unavoidable in such work.

LAMP PRIMER; OR, LAMP LIGHT AND LAMPS, AND HOW TO CARE FOR THEM. By John Jonesbury. Columbus, Ohio: Harrop & Company. 1893. Pp. 88. Price 50 cents.

THE LUMBERMAN'S ACTUARY. By J. W. Barry. Fairbury, Neb. 1893. Narrow 12mo. Pp. 229, cloth. Price \$2.50.

This is the most practical book of lumberman's calculations that we ever remember to have seen. The form is very convenient for the pocket and the contents are so arranged by a system of indexing that the price of any lumber can be found in an instant. The type is large and clear, very different from many of the cheap lumberman's price books. The author states that every one of the 130,000 separate calculations was figured through eleven times. The author offers a copy of the book or its price

in cash to the person first reporting each material error. In short the ambition of the author seems to have been to produce the best possible book, to anticipate the perfection of the dawning morning of the twentieth century.

WORLD'S FAIR: JAMAICA AT CHICAGO. An account descriptive of the Colony of Jamaica, with historical and other appendices. Compiled under the direction of Lt.-Col. the Hon. C. J. Ward, C.M.G., Honorary Commissioner of Jamaica. New York: William J. Pell. 1893. Pp. 95.

This very attractive book, quite profusely illustrated, describes the Island of Jamaica, its different harbors and pleasure and health resorts. The effect of reading it is to make one feel like going at once to the tropics and enjoying the beautiful scenery so graphically described and illustrated in this monograph.

DRUM ARMATURES AND COMMUTATORS: THEORY AND PRACTICE. By F. Marten Weymouth. Enlarged and revised from a series of articles in the *Electrician*. London: The Electrician Printing and Publishing Company, Limited. 1893. Pp. xiii, 294. Price \$3.

A series of articles in the London *Electrician* enlarged and revised constitute this work. It is thoroughly practical and describes different systems of winding and connecting drum armatures. The troubles with armatures, such as the sparking at the commutators, receive due treatment. The work is also signalized by two indexes, one to the text and another to the diagrams. The practical nature of the book will make it much appreciated.

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.

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3. A dwelling erected at Holyoke, Mass. Perspective view and floor plans. A model design. Cost \$6,900 complete. Mr. B. P. Alderman, architect, Holyoke, Mass.
4. A suburban cottage erected at New Haven, Conn., at a cost of \$2,854 complete. Floor plans, perspective view, etc. Messrs. Wilson & Brown, architects, New Haven, Conn. An excellent design.
5. Engraving and floor plans of an elegant residence erected for W. R. Mygatt, Esq., at Denver, Col., at a cost of \$28,000. Messrs. Lang & Pugh, architects, Denver, Col.
6. The beautiful residence of Mr. Walter Dunning, at Denver, Col., erected at a cost of \$26,000. Floor plans and perspective elevation. Messrs. Lang & Pugh, architects, Denver, Col.
7. A cottage at Hartford, Conn. Floor plans and perspective elevation. A unique and convenient design.
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