

RECENTLY PATENTED INVENTIONS.

Agricultural Implements.

TOOTH-HOLDING DEVICE FOR HARROWS.—WILKE J. RENKEN, Coatsburg, Ill. It is the prime object of this invention to provide a device for clamping the teeth to the harrow-beam, so that they may be conveniently set at any elevation and at any place on the beam. With this end in view the invention provides a clamp or holder formed with bifurcated arms, each having an opening therethrough to receive the harrow-tooth. A setscrew works in the holder in the rear of the arms, and binds the holder at any place on the harrow-beam.

PLANTER.—THEODORE CROW, Cameron, W. Va. The novel features of this planter are found in the means for operating shoes and in the means for regulating the seed-drop. The means for operating the shoes consist essentially of arms attached to the shoes and of levers secured to the arms. The shoes may be raised or lowered independently as required; and, after having been fixed with relation to the ground over which they are to travel, they may be simultaneously raised or lowered. The seed-drop regulating means comprise a drop-plate provided with removable pins and operated by the movement of the machine. By changing the number and distance of the pins, the seed can be dropped any desired distance apart.

Engineering-Improvements.

DEEP-MINE OR RELAY PUMP.—GEORGE S. HERBOLSHIMER, Denver, Colo. This inventor has devised a new and improved deep-mine or relay-pump, arranged to pump water out of a mine shaft at one or more levels at the same time, and to permit the connection or disconnection of the individual pumps. The pumps are arranged in pairs and are connected with a common water main. Each pair of pumps comprises two cylinders having suction and discharge connection with the water-main. The pistons of the cylinders have rods extending through stuffing boxes in the upper ends of the cylinders. Two reciprocating power-transmitting rods extend alongside of the corresponding cylinder of each set and connect with the piston-rods to operate the pumps.

Electrical Apparatus.

ELECTRIC RAILWAY SYSTEM.—GEORGE L. CAMPBELL, Dushore, Penn. The system employs a closed conduit having a continuous main conductor and a sectional service conductor, a trolley being caused to travel with the car by the influence of an electromagnet. The trolley comprises a wheeled frame, below which wheels are pivotally secured. Brushes are carried by the frame. When the pivoted wheels are held in contact with the rail or other conductor, a short, perfect path for the current from the rail to the sectional conductor will be formed.

AUTOMATIC TELEPHONE-SWITCH.—CHARLES S. KAROLY, Aurora, Ill. This invention seeks to provide a simple and trustworthy switch-mechanism in which there is a complete metallic talking-circuit, using only one half the copper line usually required, and with which a call and return or answer call can be quickly made without the intervention of the central office. The switch includes a movable plate, forming part of a circuit. A push-finger having connection with the telephone-wire is adapted for engagement with the plate to close a circuit. In the circuit a receiver-supporting lever is mounted, to which a shoe is pivotally connected to engage and move the plate out of engagement with the push-finger.

Mechanical Devices.

MATTRESS-STITCHING MACHINE.—ELIJAH T. GASKILL, New Berne, N. C. The apparatus for stitching mattresses consists of a frame and of a carriage supporting the sewing-machine, provided with a shaft having an eccentric upon which a pawl fits. A spring presses the pawl into engagement with a feed-bar on the framing, and a lever and connecting-rod lift the pawl clear of the feed-bar.

PRINTING-PRESS.—WILLIAM G. JOHNSTON, Woodbury, N. J. To provide a simple means for stopping or limiting the movement of the type-bed, should the paper be broken while running through the press, and to provide a novel and improved means for operating the type-bed and for inking the type, are the purposes of this invention. The type-bed is vertically-movable and is connected by links with an eccentric on a rock-shaft. A spring-pressed lever has connection with a crank-arm on the rock-shaft, and is held in its normal position by another rock-shaft. A tripping-roller normally engages the paper passing through the press and is adapted to rock the rock-shaft to disengage it from the lever, should the paper break.

LINE-CASTING MACHINE.—HENRY J. DERBYSHIRE, Columbus, Ohio. In casting-machines as at present constructed it is necessary to make the line or slug tapering in order that it may be readily ejected from the mold. Moreover, smaller projections are cast on the side of the line, which projections are trimmed off by a knife, so as to make the line of equal thickness throughout. By reason of this operation the type buckles in the form and constantly topples over. The linotype-casting machine devised by the inventor is provided with a revolving and reciprocating casting-wheel carrying a mold having a movable wedge-shaped member for releasing a cast slug or line. A fixed pusher is adapted to engage the movable member to dislodge it and release the cast slug or line.

FLOUR PACKER.—JAMES M. MATTINGLY, Hartford, Ky. It is the purpose of this invention to construct a machine in which the grinding action upon the flour common to such machines will be reduced to a minimum, and in which the flour is delivered white and granular. In order to overcome the grinding action common to most flour-packers, the inventor employs a reciprocating plunger consisting of cup-shaped packing plates, which, when forced down, compress the flour without grinding.

VENDING-MACHINE.—WILLIAM H. MURPHY, Fox Lake, Wis. The machine is particularly designed to distribute pencils or articles of like character. The pencils are arranged one above another in a receptacle, the lowermost pencil being located in front of a plunger,

the inward movement of which is normally prevented by a barrier. By dropping a coin within the apparatus, a mechanism is operated which releases the barrier and enables the plunger to be pushed in, thus causing a pencil to be forced into the delivery-chute.

DRILL-CHUCK.—SAMUEL THOMPSON, Schaghticoke, N. Y. The idea of this inventor has been to construct a simple drill-chuck which is capable of receiving drills, the shanks of which are of different size and cross-section. He has worked out this idea by providing a pivoted cylinder having vertical peripheral grooves of various size and shape, and by clamping the drill-shank between this cylinder and a rectangular centering-block. The centering-block has grooves of different cross-section in its four faces, and is backed by a locking-plate which is pressed against it by a screw. The locking-plate is in the shape of an inverted L. It projects over the top of the centering-block, and by withdrawing it the block is also removed.

Railway-Appiances.

ENGINEER'S BRAKE-VALVE.—JOHN V. WELLS, Wilmering, Pa. This invention is an improvement upon a similar device patented by the same inventor. The valve is provided with a number of feed-valves set to different pressures, and connected with one another and interposed between the valve-plug and the train-pipe connection, to supply the train-pipe with pressure from the main reservoir, according to the pressure to which one of the feed-valves is set, and to maintain an increase of pressure in the train-pipe according to the pressure to which the other valve is set.

Miscellaneous Inventions.

TOY.—GEORGE B. HUGHES, Washington, D. C. The toy represents, by means of models, the destruction of the "Maine," and the victory of the United States over Spain. The figures of the "Maine," of a Spaniard, and of a pig are mounted on an inclined plane and held in place by pins. Upon operating a rod, a percussion cap is discharged; the "Maine" falls in two; and the pig rolls down the inclined plane, collides with and overturns the Spaniard before him.

GAME-APPARATUS.—GEORGE HALDER, Milwaukee, Wis. This invention provides a game-apparatus in which a fortress is represented capable of being demolished. In connection with the fortress targets are employed which, when struck by bullets, will overthrow the figures of soldiers attached thereto, or will destroy a portion or all of the fortification. The fortress is provided with a tower over which there floats a Spanish flag. When this flag is struck, it falls over and in its stead an American flag rises, thus symbolically representing the capture of this Spanish fortress by American troops.

BELT-SHIFTER.—WILLIAM D. GRAVES, St. Ansgar, Iowa. The invention belongs to that class in which means are provided for throwing the belt on and off the driving-pulley, and is characterized by a loose pulley or holder on which the belt is supported when thrown off the driving-pulley, and is provided with devices by which the belt is moved sidewise to be placed or displaced.

MAIL-STAMP.—THOMAS H. STOKES, Lincoln, Ill. This mail-stamp is designed to be used for canceling stamps on letters, and comprises a base and a stamp-holding block, the two being joined by an eccentrically-located pivot, the axis of which intersects the contact plane of the base and block at right angles. The construction enables the operator readily to remove and replace the stamp in the block.

FIREARM.—ALFREDO ROSA Y PASCUAL, Manhattan, New York city. This firearm is so constructed that a barrel of larger caliber than ordinary, or a barrel of any predetermined caliber, may be connected in a detachable manner to the stock and firing mechanism of the gun, the application being especially adapted to rifles fired from the shoulder. The inventor also provides a rest for the firearm capable of being readily and quickly inserted in the ground, together with a device whereby the barrel may not only be given any desired inclination, but may be turned as upon a pivot and secured in adjusted position.

DEVICE FOR INJECTING FUMES.—ABRAM R. MILLER, Harvey, N. D. It is the object of this invention to provide a device so constructed that poisonous fumes can be generated and forced into holes, burrows, or nests infested by animals or insects. The device consists of a receptacle in which fumes are generated. An injector is connected with the receptacle, and is provided with a nozzle at one end and with a piston at the opposite end. The nozzle and piston ends are separated by valve-controlled partitions through which a conducting-tube is passed from the nozzle to the piston end.

SUPPORT FOR FOLDING CARRIAGE-TOPS.—JOHN S. MCCONNELL, Argo, Iowa. This support for carriage-tops comprises a telescopic rod, one member being pivoted to the seat and the other to the upper end of a bow. A fixed rest is adapted to engage the rod when the top is down in order to support the top. The use of the device, it is claimed, will result in protecting the side curtains and also in reducing the liability of the bows' breaking.

HARNESS-BUCKLE.—JACOB POLKA, Smith Centre, Kan. The buckle is formed with parallel side-bars, the front and rear edges of which are connected by cross-bars. The strap is received by an attaching cross-bar. At its middle on a pivot cross-bar a lever is fulcrumed provided at its inner end with a pin for engagement with one of the apertures in the strap, the opposite end being formed with a cross-bar operating in conjunction with the rear cross-bar at the front of the buckle to form a passage for the strap. A buckle thus made is of especial value when used on traces, hip-straps, and crupper straps, there being no possibility of a strap's becoming dislocated.

GAME-BOX.—HARRY F. WILLIAMS, Hartford, Conn. This game-box is designed to be used with a series of cards having questions printed thereon, and is further designed to give answers to these questions by means of raps produced within the box. The cards are dropped into a chute and are passed through the box by the turning of a crank, simultaneously with which passage the raps will be heard. By means of a circular which

accompanies the apparatus, the raps can be translated into answers to the questions upon the cards. A number of answers to the same question can be obtained.

ACETYLENE GAS GENERATOR.—ROBERT D. PARKS, Pleasant Mounds, Minn. This apparatus consists of a water-sealed gasometer and a generator containing a carbide-receptacle. The acetylene gas is generated by allowing water to drip upon the carbide. Should the pressure or quantity of gas become excessive, generation is automatically stopped, and the surplus gas is allowed to escape through a vent-pipe to the outer atmosphere. Gas is generated only as required for consumption.

TEMPORARY BINDER.—CHARLES T. ROSENTHAL, Batesville, Ark. This binder is constructed of metal angle plates so placed together as to form several sections in which memoranda relating to different subjects can be filed. The construction is such that one or more leaves from any section, or a whole section even, can be removed expeditiously and conveniently without interfering in the slightest degree with the other leaves or sections.

BRIDLE.—SAMUEL VAN BUSEKIRK, London, England. This invention consists of two bits which cross in the horse's mouth, each having one end fastened to a rein and the other end to a headstall strap passing over the animal's head. When one rein is pulled, the bit to which it is fastened presses against the jaw, not only on the side of the rein, but also on the opposite side of the mouth and head; while, when both reins are pulled, the two bits assume such a crosswise position relatively to each other, that the horse is prevented from taking the bit between his teeth and thus rendering it useless.

GARMENT-SUPPORTER.—EMMA BENTON, Butte, Montana. This supporter consists of a flat piece of metal, with a slot at the upper end, through which a ribbon may be strung and having the other end curved around in a small roll, out of the center part of the top of which is cut a rectangular piece. An outwardly curving flat spring is pivoted to this body plate near the upper end and presses against the curved portion where the rectangular piece has been removed, thus clamping the stocking or other garment firmly. By pressing the spring, it may be slipped to one side when placing or removing the garment.

ACETYLENE GAS GENERATOR.—JEAN REIBEL, Angoulême, France. The distinctive feature of this apparatus is a movable belt which forms the bottom of the carbide-chute. This belt is rigged on rollers which are so connected that when the gasometer-bell falls, the belt moves forward and dumps more carbide into a chute. This chute has two elbows and an opening near one of the elbows so placed that any bubbles of gas generated in the chute will pass out into the gasogene. The water in the chute is covered with petroleum to keep all moisture away from the carbide. There is an overflow-pipe which carries off surplus water and allows of a continuous stream being run through the gasogene, thus doing away, to a great extent, with residue.

NOTE.—Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please send the name of the patentee, title of the invention, and date of this paper.

NEW BOOKS, ETC.

AMERICAN NEWSPAPER ANNUAL FOR 1899. Containing a Catalogue of American Newspapers. Philadelphia: N. W. Ayer & Son. 1899. 8vo. Pp. 1517. Price \$5.

The annual of Messrs. Ayer is a most valuable publication, and is useful not only to advertising agents, but to many other lines of business as well. It contains a complete list of every paper published in the United States which inserts advertisements, including not only the United States, but the Dominion of Canada as well. It gives particulars regarding circulation, issue, price, date of establishment, political creed, names of editors and publishers, and street addresses, together with the population of the countries and the places in which the papers are published, and the present volume contains a list of newspapers and periodicals published in Havana, Porto Rico, San Domingo, and the West India Islands. In addition to this, there are separate lists of religious and agricultural periodicals and class publications of all kinds, which are particularly valuable features of the book. Maps are provided which were made specially for the annual. The amount of work necessary in compiling a book of this kind and keeping it up to date must be incalculable. The book is clearly printed, on good paper, and it is attractively bound. The present volume is even superior to its predecessors.

ANNUAL REPORT OF THE BOARD OF REGENTS OF THE SMITHSONIAN INSTITUTION. For the year ending June 30, 1896. Including Report of the United States National Museum. Washington, 1898. 8vo. Pp. 1107. Profusely illustrated.

The report of the Smithsonian Institution occupies less than 300 pages of the volume, and the remainder is taken up with one of the most interesting and important series of monographs which we ever remember seeing. "Prehistoric Art; or, the Origin of Art as Manifested in the Work of Prehistoric Man," by Thomas Wilson, is a delightful monograph, illustrated by no less than 325 engravings and 74 plates. The whole subject of the art of the paleolithic and neolithic periods are described. It includes flint chipping, engraving, sculpture, painting (such as it is), ceremonial objects, lapidary work, etc. Next in order we come to Stewart Culin's "Chess and Playing Cards." This is a catalogue of games and implements for divination exhibited by the United States National Museum in connection with the Department of Archaeology and Paleontology of the University of Pennsylvania at the Cotton States and International Exposition at Atlanta. It is accompanied by 226 illustrations and 50 plates. This monograph is almost as interesting as the preceding one, and the Smithsonian Institution merits our warmest thanks for producing works of this kind. "Biblical Antiquities," exhibited also at the same exposition by Cyrus Adler and I. M. Casanowicz, is the third interesting monograph, and it is accompanied by 45 plates. "The Lamp of the Equimaux," by Walter Hough, is the fourth and last mono-

graph, and appeals to the archaeologist rather more than to the general reader. This delightful and portly volume is one of the finest publications which has ever been produced by the Smithsonian Institution, and the changing of the black cloth binding to a handsome green should be specially noted.

HISTORY OF PHYSICS IN ITS ELEMENTARY BRANCHES. Including the Evolution of Physical Laboratories. By Florian Cajori, Ph.D. New York: Macmillan Company. 1899. 12mo. Pp. 322. Price \$1.60.

This history is intended mainly for the use of the students and teachers of physics. The writer is convinced that some attention to the history of science helps to make it attractive, and that the general view of the development of the human intellect obtained by reading the history of science is in itself stimulating and liberalizing. Strange to say, there is little literature in English upon the history of physics, although there is abundant biographical material of such men as Faraday. The volume before us is a most valuable contribution to the subject and is a serious work, the pages simply bristling with foot notes of authorities. This is, however, a very good fault.

ROUSE'S DICTIONARY OF SYNONYMS FOR THE USE OF CHEMISTS, THEIR ASSISTANTS AND APPRENTICES. London: Rouse Brothers, 61 Charlotte Street, Tottenham Court Row. 1898. Price 40 cents.

This collection of synonymous terms contains between four and five thousand references. It covers a large area and is more complete than any heretofore published. The chemists' trade, or, as we say in this country, the druggists' trade, is peculiar from the fact that most of the articles in demand rejoice in several names, and, to a certain extent, the greater the demand for a drug, the greater the number of names under which it strives to hide its identity. Even such modern synthetic chemicals as "autipyrine" boasts of four names. From what has been said, it will be seen that there is an ample field for a little book of this kind. It is an excellent volume, and we only wish we had such a book specially adapted to American needs.

MANUAL OF RECEIPTS. Being a Collection of Formulæ and Processes. Compiled from the Files of American Artisan and Various Other Sources. By Sidney P. Johnson. Chicago: American Artisan. 1899. 12mo. Pp. 241. Price \$3.50.

The volume will doubtless prove of particular value to sheet metal workers. It is accompanied by an excellent index.

GENERAL VIEW OF COMMERCE AND INDUSTRY IN THE EMPIRE OF JAPAN. Published by the Bureau of Commerce and Departments of Agriculture and Commerce of Japan. Tokyo. 1897.

This little volume gives in brief outline the commercial and industrial state of Japan, and is intended mainly for the use of foreign visitors. It is accompanied by excellent maps of the country and of the principal cities, and will doubtless prove of value to those who are in any way interested in that country by reason of commercial relations with Japan.

ELECTRO-HORTICULTURE. George S. Hull, M.D., Pasadena, Cal. 12mo. Pp. 45.

The interest of the author was first directed to the subject by an article published in the SCIENTIFIC AMERICAN some five or six years ago. After some experimentation he carried the subject into the lecture field, and the interest manifested by farmers and students finally led him to put the matter which he was able to gather into shape, and the result is the volume before us. The subject of electro-horticulture is a most attractive one, and Dr. Hull's contribution to its literature will doubtless be warmly welcomed by advanced horticulturists.

TEXT-BOOK OF THEORETICAL NAVAL ARCHITECTURE. By E. L. Attwood. London and New York: Longmans, Green & Company. 1899. 12mo. Pp. 292. 114 diagrams. Price \$3.

A new work on theoretical naval architecture has been needed for a long time, and the present volume is admirably adapted to the use of all who are in any way engaged in building or repairing vessels. The literature upon this subject in English is altogether too meager, and we are sure that naval architects all over the world will warmly welcome this volume, which gives admirable rules in concise form. The author is an Assistant Constructor in the Royal Navy and is a member of the Institution of Naval Architects.

NOTES ON WATER SUPPLY. J. T. Rodda, Eastbourne, England. 1898. 4to. Pp. 140. Price \$2.

This book has no pretensions to being a treatise, but its value consists rather in pointing out a specialist from whom valuable information may be obtained, and to indicate the best water works appliances now on the market and their usefulness in the modern distribution of water supply. The book will doubtless prove of value to English readers.

Monumental Records made its first appearance a year ago in large quarto form, but, owing to the fact that the size made it rather inconvenient to bind for preservation in libraries, the editor has decided to adopt a large octavo form, which seems to meet all the requirements of such a publication. The text and photographic reproductions being printed separately will enable the use of the color prints when necessary and also to reach a higher standard in art printing. The former numbers appeared only at irregular intervals, but now the magazine will be issued regularly and the subscription price will be \$2 per annum. A popular illustrated journal on archaeology has long been needed, and the Rev. Henry Mason Baum, D.C.L., may be congratulated upon the successful achievement. It is published at 64 Fifth Avenue, New York, N. Y.