## RECENTLY PATENTED INVENTIONS.

### Engineering.

ROTARY ENGINE.—Royal Z. Pooler, St. Joseph, Mo. In this engine the piston on the main driving shaft is made in the shape of a wheel, and provided with wings forming steam compartments on opposite sides of an annular transverse partition, no valves, gates, or abutments being used. The live steam acts on the wings as it passes into the compartments, and a rear wing cuts off the steam by passing over the ports, the compartment then connecting with the exhaust, and on the next quarter revolution again taking live steam, each compartment receiving live steam twice on each revolution of the piston.

WAVE MOTOR.—James C. Walker, Waco, Texas. The mechanism of this improvement comprises an air-holding tank, an air buoy or chamber having an open bottom at a point below the trough line of the wave and an upper portion extending above the crest line, a pipe connection within the buoy opening extended into the upper portion and to the air-holding tank, and provided with back pressure valves. By this means air is compressed for use in an engine on the land, the amount of power obtained being proportionate to the force of the rise and fall of the waves.

### Mechanical.

MORTISING MACHINE.—Daniel Hepp, Chicago, Ill. This is a simple and inexpensive machine for use in connection with an ordinary boring machine having a sliding arbor, to quickly and nicely mortise the stiles of window frames to produce the holes for the pulleys, the mortise for the pulley hanger flanges, etc. A central bit is mounted in a bearing box and provided with a gear wheel, and in the box are shafts with gear wheels meshing with the gear wheel of the central bit and carrying bits, while hollow chisels secured to the box inclose the side bits. The ends of the mortise may be made round or square as desired.

SPINNING SPINDLE SUPPORT.—Robert Atherton, Paterson, N. J. A bolster casing is, according to this invention, supported by its upper end on the spindle rail, the bolster fitted in the casing and projecting through its lower end, there being a cottar on the lower end of the casing, a spring between the collar and spindle rail, and a locking ring removably secured on the lower projecting end of the bolster. The device permits the spindle to yield somewhat laterally and compensate for variable strains, and facilitates the removal of the spindle and its bolster from the spindle rail of the machine.

### Agricultural.

WEED CUTTER.—John F. Dole, Colfax, Washington. In this machine the cutter is shaped practically as a wheel, held at the rear of the supporting wheels, and caused to revolve rapidly by a sprocket chain from the axle, the wheel carrying a series of curved blades so arranged that they enter the ground first at one end and gradually bury themselves their entire length. The machine is strong, simple, and inexpensive, and cuts the weeds at the roots, below the surface of the ground.

CORN PLANTER ATTACHMENT.—Andrew W. Trotter, near Petersville, Ind. This is an improvement on a former patent of the same inventor, providing a furrow-covering attachment adapted to supersede a covering share. The attachment consists of a twisted standard adjustably attached to the beam and carrying at its lower end a disk wheel traveling at an angle to the path followed by the plow, causing the earth to be fed in a steady stream over one side of the furrow and over the seed. The attachment is as easily applied or removed as the ordinary covering shares.

### Miscellaneous.

ORE CONCENTRATOR.—Carl G. Pingel, Butte, Montana. This concentrator comprises a bowl having wheels on its under side, and an annular gutter and spout leading therefrom, with means for imparting a rotary and a jigging motion to the bowl, an inclined sluice having a corrugated bottom into which the spout discharges, with means for imparting a jigging motion to the sluice. An annular flange retains the quicksilver in the bottom of the bowl, and the precious metal retained and amalgamated is drawn off at intervals through a capped outlet. The apparatus is of comparatively simple construction.

FLOOR WASHING MACHINE.—Joseph C. Garrott, Brooklyn, N. Y. This machine has a main frame with suitable driving wheels driving an endless belt provided with a series of flaps, a water tank delivering upon the belt, which is also engaged by wringing rollers, beneath which is supported a dirty water tank. The flaps absorb the water and bring a large rubbing surface to bear on the floor as they are carried beneath the roller, the belt and its flaps then passing between the wringing rollers and the machine being used by simply pushing it across the floor, after the clean water pipe has been opened.

STEAM COOKER.—John A. Kendall, Maysville, Mo. In a pan holding the water is a frame supporting vessels containing the food, a cylindrical cover fitting over the frame and entering into the water, while a supporting device holds the cover at different heights. This cooker will hold several vessels of different sizes in such a way that they may be readily inserted or removed, the cooking being effected by steam at a little higher pressure than that of boiling water.

TABLE.—John Heissenberger, Athol, Mass. A card or game table is provided by this invention, one arranged to enable the players to conveniently place money, match boxes, glasses. etc., and leave the whole table unobstructed. A money drawer slides horizontally under the table top, and is connected with a treadle to be actuated by the player's foot, and there are side compartments, each provided with a slide adapted to support glasses, etc., and similarly connected with a treadle mechanism.

COMBINATION FURNITURE.—Costello B. Geer, Union City, Pa. This is a cheap and simple construction which may be made to serve the purposes of a blackboard, a desk, a secretary, and a copy-holder, simultaneously or one at a time. A main board has a blackboard surface and a ledge at its lowered edge, a swinging desk board being adapted to lie vertically in front of the blackboard or project from the ledge at an inclination or hang down, while a copy-holding case secured to the blackboard has an open face and suitable lid, a spring-pressed plunger moving forward the copy, there being also secretaries hinged to the side of the main board.

COMBINED BOARD AND CUTTER.—Alonzo H. Seaver, Webster City, Iowa. This is an improvement in paper hangers' appliances, a swinging leaf carrying the cutter, and being adapted to lie on the paper to hold it in place and produce a straight edge, the leaf being adjustable in and out upon the table, or it may be dropped down out of the way. The cutter is adapted to readily and smoothly cut pasted paper, having cutting disks which operate by simply pushing the cutter upon the table.

ALARM BELL.—Charles S. Bradley, Portland, Oregon. This is a device of such construction that, when attached to a door, the driving mechanism is wound up by the closing of the door, but when the door is opened a striking mechanism is set in operation, the alarm not needing to be wound by hand at any time and being always ready for use. A train of gearing connects a master wheel and a hammer which strikes the bell, while a plunger operates a spring-pressed winding arm when moved in one direction and releases the arm when moved in the opposite direction.

BOOK.—Alfred C. Nisson, Chicago, Ill. This is an improvement in books having detachable covers, providing therefor a cover or binder which permits economy of paper, as the paper may be written upon close up to the back of the book. The device is very durable, being designed to outlast many fillers, and it is so made that the filler may be easily and quickly inserted and removed.

HAME HOOK.—William J. Dankworth, Temple, Texas. This is a latch hook comprising two plates, one curved at one end and slotted to receive the tongue of the other, so as to form an eye for the hame staple, one of the plates also having lugs engaging recesses in the other plate, and each of the plates having slots curved in opposite directions and having their inner ends in register with each other. The device is simple, and will securely lock the trace link in place to prevent accidental displacement.

FLUSHING APPARATUS.—William A. Eberhart, Asbury Park, N. J. This is an improvement in devices for emptying a tank at each discharge, as in flushing the bowls of water closets, the apparatus operating noiselessly, emptying the tank quickly, and not readily getting out of order. It is also adapted to deliver a small supplemental charge into the bowl after the water has ceased to flow through the main discharge pipe.

BOTTLE.—Ross B. Yerby, Brooklyn, N. Y. This bottle has a neek so made that the bottle may be easily emptied, but cannot be refilled, thus preventing a certain kind of cheating, as when valuable liquors are removed from a bottle surreptitiously, and the same quantity of an inferior grade added. Immovably fastened in the neck of the bottle is a bushing in which a valve is held to move between seats, there being side openings in the bushing and zigzag ports leading therefrom, while passages lead from the ports to the interior of the bushing.

HAIR CURLER.—Eugene Deucher, Cleveland, Ohio. This device consists of a spring fork having a reduced neck and a spring finger, extending alongside the fork, the finger being formed at one end into a spring coil that encircles the fork neck and is adapted to revolve thereon. It is a very cheap and simple device, easily applied to the hair and easily removed; it may be left in the hair any desired length of time without inconvenience, and is designed to make a very handsome curl.

CURLING IRON HEATER.—Samuel O. Fowler and Walter R. Taylor, Fort Worth, Texas. This is an attachment for gas burners or lamps to facilitate the heating of curling irons or other light articles. It consists of a cylindrical shell with a flat top and slots near its top, a lateral handle near the base, and a sight aperture with transparent cover; it also has a removable flanged bottom piece with perforations in its base, and an upright holder tube centrally in the bottom piece.

FINGER REST FOR PENHOLDERS.—Max Goetze, Sturgis, South Dakota. A flat spring adapted to lie against the inside of the finger is secured to an open finger loop, and yielding eyes in which the penholder is inserted are secured to the under side of the spring, by which the pen may be yieldingly held on the first finger in position for writing, insuring also a correct position of the pen in teaching children at school.

THERMOSTAT.—Earl Barney, Schenectady, N. Y. Upon an electrical conducting base is a post in which is mounted a laterally extending blade made of materials of differing expansibility, there being at opposite sides of the blade near its outer end insulated posts in which are held adjustable contact screws. The device is well adapted to use in small places where it is hard to reach and adjust the thermostat, is very sensitive to changes of temperature, and is especially adapted for use in incubators and similar apparatus.

SELF CLOSING HATCHWAY.—William R. Wemple, New York City. This is a simple and durably constructed apparatus, designed to automatically and positively close the hatchways in case of a fire in a building. A hand mechanism is also provided to close the doors during the night or at any other time when the elevator is not in use. The several working parts are located outside of the elevator shaft in the different stories of the building, and are easily accessible for inspection and repairs.

WAGON JACK.—Luke L. Kellogg, Leon, N. Y. One of the pivoted strut members of this jack has an enlarged portion to form a seat, and the lifting lever or arm pivoted between the strut members has a seat adapted to engage the axle, and when the lever is swung down to shift the axle onto the seat portion of the strut members. The jack adjusts itself to any height of wagon without changing any of its parts, and will keep the wagon from going back or ahead.

PUZZLE.—Henry Walton, Vicksburg, Miss. A flanged board forms a square inclosure in which are located seven blocks, the inclosure being capable of receiving eight blocks, each block being double its width, and two pairs of blocks having designations thereon. The puzzle consists in changing the positions of the marked blocks by certain moves without turning them around or taking them from the field.

### Designs.

SIDING BOARD.—George R. Boyd, Cairo, Ill. This board is beveled, and at its thicker edge has a rabbet-like recess on its under side, opposite which the top of the edge is cut away in ogee form.

CAPE.—Julius Adler, Jersey City, N. J. The body and the collar of this garment have each a plait-like configuration, such configurations being united by zigzag lines arranged opposite each other on the outside and inside of the cape.

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 LAW OF PSYCHIC PHENOMENA: A WORKING HYPOTHESIS FOR THE SYSTEMATIC STUDY OF HYPNOTISM, SPIRITISM, MENTAL THERAPEUTICS, ETC. By Thomson Jay Hudson. Chicago: A. C. McClurg & Company. 1893. Pp. xvii, 409. Price $1.50. No index.

The object of this volume, the author states, is to assist in bringing psychology within the domains of the exact sciences. Whether it will succeed in doing it or whether it ever will be done, is doubtless a very open question. All the well known topics, such as hypnotism and crime, hypnotism and medicine, and mental therapeutics, are included. With the author's conclusions we cannot well agree. The want of an index is made up to some extent by a very full contents.

THE POLITICAL ECONOMY OF NATURAL LAW. By Henry Wood. Boston: Lee & Shepard. 1894. Pp. 305. Price $1.25.

This work is a very practically arranged treatise on political economy, its general purpose, as stated by the author, being to outline a system which is natural and practical. Political economy is something about which two people never seem to agree, but none can question the fact that Mr. Wood in this volume has most excellently distributed and classified his matter and produced an exceedingly attractive book on what has been termed the "Dismal Science." It is divided into sections, 24 in number, and the presence of a full and adequate index is among its most commendable features.

CAMBRIDGE NATURAL SCIENCE MANUALS. Physical series. Heat: an elementary text book, theoretical and practical, for colleges and schools. By R. T. Glazebrook. Cambridge. 1894. Pp. x, 230. Price $1.

The modern system of teaching physics is here elucidated, and a series of excellent experiments on heat, adapted for performance by students in laboratories, with full deductions of the principles and laws of heat therefrom, make a most attractive work. It is excellently illustrated, and must be considered a very interesting and valuable contribution to modern text books. One relief it suggests is that it is not written for a sharply defined examination course, although designed specially for medical students in the Cavendish laboratory.

SEWAGE DISPOSAL IN THE UNITED STATES. By George W. Rafter and M. N. Baker. New York: D. Van Nostrand Company. London: Sampson Low. Marston & Co., Lim. 1894. Pp. xxvii, 598. Price $5.

How to dispose of sewage is becoming a question of increasing importance in this country. Here and abroad the most varied process s have been used for the work, with naturally the most varied results. In this exhaustive treatise we find the subject very fully treated from the American standpoint. It is in vain for us to attempt to give any idea of the work from a review. The best we can do is to state that to the sewage engineer it will be a *sine qua non*, a book he cannot dispense with. After the general treatment of the subject the author gives in succession examples of different sewerages in various named places in the United States. An excellent index is a commendable feature, and illustrations and tables are supplied with the regular text. as required.

THE ELEMENTS OF CO-ORDINATE GEOMETRY. Part I. The equations and properties of the right line and circle. By William Briggs and G. H. Bryan. London: W. B. Clive. Pp. xi, 220. Price $1.40.

This very attractively printed little work of the University Correspondence College Tutorial Series is written for the London examinations or, at least, to assist students in preparing for these examinations. The idea apparently is to help beginners out of their difficulties. The very clear cuts and general make-up of the work indicate a probable success in doing this, yet, to users in this country, it loses a certain amount of interest from the fact that it is written from the limited standpoint of the London University.

PRACTICAL BUSINESS BOOKKEEPING BY DOUBLE ENTRY. 1893. Boston, New York, Chicago, London: D. C. Heath & Co. Pp. viii, 238. Price $1.75.

This work derives standing interest from the fact that it is written by the instructor in bookkeeping in the English High School in Boston. It presents an excellent and adequate statement of bookkeeping by double entry, and it will be found of use, doubtless, by many of our commercial schools. A rather useful feature of it is its appendix containing abbreviations, characters and definitions, used in commerce.

ELECTRIC WAVES: BEING RESEARCHES ON THE PROPAGATION OF ELECTRIC ACTION WITH FINITE VELOCITY. By Dr. Heinrich Hertz. London and New York: Macmillan & Co. 1893. Pp. xv, 278. Price $2.50.

This book may justly be termed one of the monuments of physics of the end of the 19th century. It is a translation of a work by Dr. Hertz on his famous ether wave experiments. It is needless for us to tell our readers what these experiments are. They indicate the identity of electro-magnetic oscillations and of light waves, they go to confirm the Clerk-Maxwell theory of light, known as the electro-magnetic theory, and, at last, they make accessible to readers Dr. Hertz's own account of his remarkable researches. The statement must be noted also that the work possesses additional value from a short preface by Lord Kelvin, better known as Sir William Thomson, which preface, short as it is, is by no means the least valuable portion of the work.

"The Book of the Fair," edited by Hubert Howe Bancroft, and published by the Bancroft Company, Chicago, is a superb work, in every way worthy of the great World's Columbian Exposition which it commemorates and the most notable features of which it presents in strikingly realistic illustrations for permanent preservation. It is published in large quarto form in serial parts, ten numbers of which have already appeared, the parts being one dollar each. Owing to the perfection attained within a very recent period in making relief plates direct from photographs—plates which may be printed from directly in the type forms—it is possible now to make pictorial representations far surpassing in multiplicity of detail and vividness of effect anything which could have been done at former world's fairs, and in this work full advantage is taken of this fact to bring before the reader, in the pictures, a wealth of life-like views of the buildings, the exhibits and the exhibitors. There will be over 2,000 of these superb pictures, and the accompanying letter-press description is filled with a careful arrangement of the most important and interesting information relating to them. It may worthily claim, in the words of its publishers, to be a book "to entertain and instruct the people of all ages and places."