

RECENTLY PATENTED INVENTIONS.

Electrical.

ELECTRO-PNEUMATIC PIANO PLAYER.

—Fred R. Goolman, Los Angeles, Cal. This automatic piano player is provided with an air duct bridge comprising a block channelled with parallel air ducts and having lateral openings on each side which terminate in enlarged recesses covered by flexible diaphragms. Electrical contact points are so arranged outside the diaphragms on each side as to be closed by them. An equalizing pipe is provided for connecting the chambers on opposite sides of the block. The music may be reversed at any point before the completion of the piece by a specially devised reversing mechanism, which is actuated by a thrust bar attached to a tilting board, the latter being hinged at its lower end and carrying at the upper end a tripping hook adapted to engage with the perforated music sheet. New pumping devices and improvements in the construction of valve boards and vacuum chambers form a feature of this invention.

Engineering.

GAS ENGINE.—John W. Carnes and Charles W. McKibben, Lima, O. This simple, effective and durable engine comprises a cylinder in which a piston operates, a working chamber at one end of the cylinder and a compressing chamber at the other end connected with the supply and with its working chamber by a port, so that when the piston moves in one direction the explosive mixture in the compression chamber is compressed, and when the piston nears the end of its stroke, the two chambers are connected with each other through the port to supply the working chamber with explosive mixture from the compressing chamber. An equalizing valve is placed between the two chambers.

Mechanical.

ROAD MAKING MACHINE.—Charles E. Hacker, Brunswick, Me. In this road-making machine the essential features are a vehicle body having runners connected with each other, cutters carried by these runners and a triangular scraper supported by the body between the rear ends of the runners, the lower ends of the scraper as well as the cutters extending below the body and runner edges. With this machine bushes and weeds may be economically removed, at the same time leveling the ground for bicycle roads and paths.

TABLET MACHINE.—James Cornelius, Ridgewood, N. J. This machine makes a tablet of uniform weight and thickness and, according to its inventor, is capable of changing the size in thirty seconds. The depth of the recess in which the tablet is compressed is regulated by means of a cam. After weighing out the powder of one tablet and adjusting the cam so that the mould will contain just the amount of powder required, the tablets will be made of uniform weight and thickness by merely filling the mould at the top. Each machine is supplied with two sets of moulds and plungers, making the tablets respectively $\frac{1}{8}$ and $\frac{3}{8}$ inch in diameter and of the required thickness. The tablets are delivered automatically below the table free from all powder.

MAGAZINE FIREARM.—Willis H. Oslander, Boston, Mass. This repeating breech-loading gun is an improvement upon a weapon for which previous patents were granted to the same inventor. In the present arm the improvements made consist of locking or bolt devices and parts designed to operate the extracting mechanism and means whereby the bolting device will also act as a safety device, preventing the triggers being operated when the barrels are opened. Another purpose of the invention is to provide a means whereby the latch plates of the extracting devices will be operated from the hammer and to provide for operating the lock in the safety device by the sears in such manner that the sear of the hammer not in operation will be automatically locked, making it impossible to press both triggers at once. The frame is furthermore provided with offsets which take up the force of the main spring to a predetermined extent, so that the firing pins will not sustain the full force of the spring, as in ordinary guns. Means are also provided whereby, upon the return movement of the barrels, the extractors will be positively placed in a position to act for any one barrel fired or for both barrels if they are fired one directly after the other.

PAPER MAKING MACHINE.—Sebastian N. Miller, Piedmont, West Va. The improvement in paper making machines for which this patent was granted is provided with the usual top couch roll, the beam extending longitudinally above the roll, the casing having in its under side a recess opening toward the roll and open at the end. By this means the guard board strip may be inserted in and removed endwise from the casing. The guard board strip is engaged by pressure screws, and fastenings are secured to the casing at close intervals to the beam, preventing any springing of the casing toward or from the roll and securing the casing in such a manner that its open end is left unobstructed for the endwise insertion and removal of the guard board strip.

Miscellaneous.

CLOCK-CONTROLLED SWITCH.—Franklin L. Mackey, New Castle, Pa. This invention is an improvement in devices for use in connection with electric circuits, and has for its object to make or break the circuit automatically or to switch from one circuit to another, being operated by connection with a clock mechanism, enabling it to make or break the circuit at any predetermined time. The device is intended for use in circuits where it is desired to turn the current upon the circuits and switch it off at certain times.

FARE REGISTER.—Edward Fuchs, New York Stencil Works, New York City. In this invention, which is effectively designed to prevent fraudulent manipulation, a series of concentric rings, having racks thereon, register the number of trip fares and a second series register the total fares. A lever and dogs operate the rings, and in connection with these, means are provided that wholly disengage the dogs on the return movement of the lever. Novel resetting devices are also provided.

RAISIN SEEDER.—Cary S. Cox, Fresno, Cal. In this machine the pin cylinder co-acts with a novel composite cylinder made up of yielding and non-yielding portions arranged to provide spaces into which the pins enter and which receive the seed, the machine having the necessary complement of feeding rollers and other co-acting members.

BUTTON AND TIE FOR BRAIDED HAIR.—C. C. Davis, Napanoch, Ulster County, N.Y. An ornamental button is provided which is held between the braids of the hair and carries a string or ribbon which is wound around the braid to form a tie, the free ends of the string being then fastened to the button.

TILING.—C. C. Alexander, Bayonne, N. J. The tiling covered by this patent is made up of round tiles, with cement filling between them. The round tiles may be laid with great facility, and are securely held by the cement which fills the intervening spaces. The invention makes possible an unlimited variety of beautiful designs.

ROLLER SKATE.—Samuel L. Kinsbruner, Berlin, Germany. This inventor has made a departure in roller skates by embodying a crank shaft which is operated by the up and down movement of a hinged plate attached to the foot of the shaft, having a driving connection with the rear wheel of the skate.

ROPE CLAMPING HOOK.—Ansel R. Braeden, Seattle, Wash. This rope-holding device consists essentially of a link having two parallel side bars connected by a lateral section and a block fitted to slide between the side bars and having a hook projecting therefrom, which hook is bent toward the rear of the link and lies within the margin thereof. The invention is designed for the purpose of firmly holding ropes of all descriptions, particularly clothes lines and hammock ropes.

KNIT FABRIC FOR UNDERWEAR, ETC.—David F. Halstead, Brooklyn, N. Y. A very novel fabric is provided by this inventor. It consists of a cotton body with a lining of fleece or natural silk yarn. The silk being innermost, the fabric gives the advantages of the expensive all-silk garments, and the goods may be washed in the usual manner without shrinking or hardening. It is claimed the fabric will not cause chafing and has a strength and wearing qualities that make it specially serviceable for cavalrymen, bicycle riders and the like.

MULTIPLE-TUBE WATER HEATER.—Albert P. Broomell, York, Pa. The primary object of this improved multiple-tube water heater is the economizing of fuel. The improvements consist in a peculiar construction and arrangement of valve by which the water may be made to travel quickly and in a comparatively straight course through the heater from the inlet to the outlet, or be made to follow a long winding passage therethrough as may be desired. The couplings of the pipe sections are so constructed and arranged that they may be joined together in a simple manner, enabling the necessary cleaning to be easily executed.

TOOTH FILLINGS.—William F. Davison, Richmond, Va. In filling a tooth after the inventor's simple and effective method, the cavity is first prepared in the usual manner and then nearly filled with cement. While the cement is still plastic, gold is inserted therein and the cement is allowed to harden. The exposed surface of this firmly-seated gold will thus constitute an anchor to which the outer filling of gold is applied in the usual manner. Novel forms of anchors have been provided, answering all requirements that may be necessary in practically applying the invention.

CHECK HOOK.—F. J. Frost, Theodore Souers and Charles W. Cooleage, assignors to George S. Johnson and C. W. Cooleage, Grundy Centre, Iowa. This check hook consists of two sections connected with a terret, the sections being adapted for connection at right angles with each other. Each section has an eye, one eye having an outward leading opening permitting the entrance and removal of the other section. At the opening in one section and at the coating point of the other section, a mating rib and groove is ranged in an outward direction from the eye, the rib and groove ranging respectively parallel with the eye of the opposite member and at right angles to the eye in conjunction with which it is formed, the grooved and ribbed formations thus offering obstructions to each other until the members are moved twice at right angles.

WAIST BELT ATTACHMENT.—Clement L. Stephenson, New York City. This invention is an improvement in waist belts, having means by which the skirt may be held in position. The invention consists essentially of a sheet metal belt having a wire fastened thereto, the ends of which are bent to form hooks for engagement with the dress.

MARKING CORD.—Georg Karl, Spitzbergen, Tharandt, Germany. The essential parts of this marking apparatus are two stakes, a tension device connected with one stake and a reel movable on and surrounding the other stake. A spring is attached to the reel and engages the stake. The tension device and reel are provided with a cord. The object of this invention is to overcome the many inconveniences which attend the manipulation of the ordinary marking devices.

ELASTIC WHEEL FOR CARRIAGES.—Nicholas Rosenblatt and Sergius Ahscharumoff, St. Petersburg, Russia. In the elastic tire of this wheel, a metallic rim embraces the sides of the tire, the tire being provided with a series of radial perforations each terminating on the peripheral surface of the tire in a shallow cavity and on the inner surface adjacent to the rim in an enlarged recess. A series of metal pins are provided having approximately rectangular heads, the inner surface of which corresponds to the shallow cavities in the surface of the tire, the outer surface of the heads being convex and projecting beyond the periphery of the tire but terminating short of the sides thereof, the shank portions of the pins extending through the tire perforations and the inner end of each shank portion being secured in the enlarged recess. The tire, it is claimed, will not throw mud or moisture sidewise when driving.

HOOK FOR CHATELAINE OR OTHER BAGS.—John Kleinstuber, New York City. This hook

is composed of sheet metal having a body portion provided with two recesses stamped therein near one end, with one end wall of each recess removed, forming holes adapted to receive suspending straps, a narrow arm projecting from the opposite end and bent to form a hook, the outer edges of which being rolled over and a fabric secured beneath the rolled edges.

DEVICE FOR DECORATING TILES OR PLANE SURFACES.—G. H. Grundy, Derby, England, and George A. Lingard, Old Normanton, England. A photocolotype printing film for direct printing on tiles and plane hard surfaces, is backed up by an elastic support composed of two layers of vulcanized India rubber cemented together, one of which is a thin upper layer of dense non-elastic rubber upon which the photocolotype film is spread and the other a thicker substratum of elastic rubber. The elastic support is in turn backed up by a smooth-surfaced rigid backing plate. With this device the printing is done in a direct manner by photocolography without the use of transfers.

SEPARATOR FOR METALS.—William J. Dwyer, Hillyard, Wash. This separator consists of a series of tables, a carrier trough common to all of them, a grading hopper at the feed end of the carrier trough, a water pipe extending into the bottom of the hopper and having outlet perforations, another pipe surrounding the first-named pipe and a boxing surrounding the last-named pipe and provided with an outlet. The object of the invention is to save from the pulp or tailings the greater portion, if not all of the metal.

HACK SAW.—George N. Clemson, Midletown, N. Y. In the spaces between the straight teeth of this saw, set teeth are located, the straight teeth being connected directly at like ends partly to set teeth merging tangentially into the straight teeth and projecting to one side of the saw, and partly to set teeth also merging tangentially into the straight teeth but projecting to the other side of the saw, the outer ends of the set teeth so connected all facing in a like direction or toward the same end of the saw. When the saw is used, a clean, straight cut is produced and the teeth now left at the bottom of the cut when using the saw as hitherto constructed, are completely removed.

POULTRY HOUSE.—Samuel C. Ashmore, Caladonia, Miss. This inexpensive and convenient poultry house consists of an inclosed frame supported on upright posts and covered by a roof, means being provided for the entrance of fowls to the inclosed structure. Sets of pendent doors are located within the structure, which doors are inclined to each other in pairs and secured together at their lower edges. Roosts are placed between the sets of doors and above the upper set of doors. The house affords a safe and commodious place for hens and chickens, and by special devices the fowls are protected from the depredations of reptiles, animals or thieves.

Designs.

WIRE FENCE.—Jesse H. Srote, Kokomo, Ind. The essential features of this fence are the horizontal strands and the pickets having overlapping curved tops. The pickets and strands present the appearance of twisted wire and have a fabric-like appearance. The pickets, by their various crossings and turnings, form a series of diamonds and half diamonds.

SUSPENDER BUCKLE PIECE.—William Bloomberg, New York City. The principal features of this design for a suspender buckle piece are a strap-like marginally curved inner member and a similar outer member. These two members are brought together at their end portions and the outer member at its center is bulged outwardly or from the inner member.

TEAPOT OR LIKE ARTICLE.—Austin F. Jackson, Taunton, Mass. The general shape of the body of this vessel is elliptical and its side walls curve inwardly to a smaller diameter at the top with a concave taper. The bottom portion of the body is octagonal and longer horizontally than vertically. The general contour of the cover is conical, the sides being drawn on the lines of a reversed curve and changing gradually from an elliptical base to an octagonal apex, which is surmounted by a knob. The spout is hexagonal in cross section and merges into a pear-shaped nose. The handle is likewise hexagonal and is ornamented by bulbous roots and scrolls.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co. for 10 cents each. Please send name of the patentee, title of invention, and date of this paper.

NEW BOOKS, ETC.

PASTEUR. By Percy Frankland and Mrs. Percy Frankland. (The Century Science Series.) New York: The Macmillan Company. Pp. 224. Price \$1.25.

This modest volume affords a comprehensive and yet concise and appreciative sketch of the life and work of a great chemist, but one whose valuable researches in a purely chemical line were overshadowed by his studies more especially bearing on infectious diseases and their prevention, the subject of micro-organisms in the economy of nature, the cause and prevention of rabies, etc. Pasteur was born in 1822, the son of a working tanner, in a small French town, and he died in 1895, his funeral being one of great pomp and ceremony in the Cathedral of Notre Dame, Paris. His life was a very active and busy one, but was marked by a long series of well-earned successes, prominent among which were his discoveries in relation to fermentation, anaerobic life, spontaneous generation, the vinegar organism, silkworm diseases, the brewing of beer, etc., all of which led up to his study of infectious diseases, researches on anthrax and discovery of anthrax vaccine and the rabies virus. A most worthy memorial of the great chemist and humanitarian has been made in the foundation on a permanent basis in Paris of the "Institut Pasteur," for the treatment of rabies and the "scientific study of means practically to compass diseases which decimate the human race—diphtheria, typhoid fever, phthisis, etc." Perhaps, however, it is an even more striking testimonial of Pasteur's place in the scientific investigation and

treatment of disease that Pasteur institutes on similar lines have been founded in numerous cities and towns throughout the world.

THE GAS ENGINEER'S POCKET BOOK. By Henry O'Connor. New York: D. Van Nostrand Company. Pp. 438. Price \$3.50.

This book not only contains tables, notes and memoranda relating to the manufacture, distribution and use of coal gas and the construction of gas works, but it also has a large amount of data serviceable to engineers in general. Its general mathematical tables, its information about the strength of materials, etc., have been most judiciously arranged, and the book is admirably printed in large, clear type.

A COURSE IN MECHANICAL DRAWING. By John S. Reid. New York: John Wiley & Sons. Pp. 127. Price \$2.

The author, an instructor in mechanical drawing and designing at Sibley College, Cornell University, presents in this book the elements of a course of instruction adapted to students in marine, electrical, railway and mechanical engineering. The course has been developed through his own experience as an instructor, and is designed to prepare a young man of ordinary intelligence for the more advanced problems met with in machine construction and design.

THE "HOMER." A Book for the Lover of the Wonderful Homing Pigeon. By F. E. Morganthaler. Cleveland, O.: O. S. Hubbell Printing Company. Pp. 123. Price 60 cents.

This little book is written by one who has for years enthusiastically followed the breeding and training of the homing pigeon, and gives a large amount of practical information relating to the selecting of breeds, care and successful raising of pigeons.

GAS, GASOLINE AND OIL VAPOR ENGINES. A work descriptive of their theory and power, illustrating their design, construction and operation for stationary, marine and vehicle motive power. By Gardner D. Hiscox, M.E. Second edition, revised and enlarged. New York: Munn & Company, 1898. Pp. 365. 270 illustrations. Price \$2.50.

The second edition of this book, just issued, places the theory and constructive design of the explosive engine within the comprehension of every one interested in this comparatively new and efficient prime moving power. While several chapters are devoted to a simple and plainly described theory of the internal combustion motor, its operation and management, the larger portion is given to the description and illustration of the stationary, marine and vehicle motors, with examples of boats, yachts and horseless vehicles as constructed in the United States. A valuable feature is a complete list of United States patents on explosive motors and their adjuncts from 1875 to 1898, and a list of addresses of builders of motors in the United States as far as could be learned. The work commends itself to everyone desiring information as to the theory and practical working of a cheap and safe power.

THE TUTORIAL CHEMISTRY. Part II. Metals. By G. H. Bailey, D.Sc. London, Ph.D. Heidelberg. New York: Hinds & Noble. London: W. B. Clive. Pp. 300. Price \$1.

This is one of a series of volumes published at the University Correspondence College Press, London, to provide candidates for examinations and learners generally with text books designed to convey in the simplest form sound instruction, in accordance with the latest results of scholarship and scientific research. Care is taken to avoid complex details where possible, and to give every help that can be afforded a student short of oral instruction and demonstration.

SANITARY ENGINEERING. William Paul Gerhard, author and publisher, 36 Union Square, East, New York City. Pp. 132. Price \$1.25.

The author has for some years enjoyed an extended reputation as consulting engineer for sanitary works, and in this monogram treats comprehensively of the leading considerations to be borne in mind to obtain the most effective work. The principal topics discussed are the water supply of cities and of dwellings, sewerage and sewage disposal, prevention of pollution of watercourses, street pavements and street cleaning, garbage disposal, the laying out of cities and towns and their sanitation, sanitary engineering in the case of epidemics and in time of war, etc.

ANNUAL REPORT OF THE MINISTER OF MINES. For the year ending 31st December, 1897. Being an account of mining operations for gold, coal, etc., in the Province of British Columbia. Pp. 451-640.

THE MOTOR ENGINEER'S AND ELECTRICAL WORKER'S HAND BOOK. West Park, O.: William Lintern. Pp. 147. Price \$1.

This little book is compiled with a view of furnishing a book of reference in a simple and convenient form for the use of motor engineers and street railway men. The diagrams of the controller connections and combinations will be found of great value in practical work. The diagrams are specially clear, and it is a pity they could not be reproduced on a slightly larger scale.

The American Electrical Directory and Buyer's Manual is a quarterly publication issued by E. L. Powers, Monadnock Block, Chicago, Ill. The subscription price is \$4 per year. The present number contains valuable statistics regarding central station lighting, including those owned and operated by private corporations as well as those owned and operated by municipalities. It contains buyer's list, in which the manufacturers are carefully classified. It also contains a full list of electrical stations as to capital, name of manufacturer, plant, etc. It will prove of great value to all who are in any way interested in electrical industries.