

## ENGINEERING INVENTIONS.

A steam boiler has been patented by Mr. Elias B. Birge, of St. Paul, Minn. This invention relates to upright steam boilers designed more especially for fire engines, and provides for a novel construction, combination, and arrangement of parts, to effect a rapid generation of steam while utilizing the fuel to the best advantage.

A plunger for oil well pumps has been patented by Mr. Edward P. Landas, of Titusville, Pa. A central tube has annular recesses, with a packing placed around the tube and held in place at the bottom by a screw cap, a sleeve being adapted to slide on the tube, and a spring pawl pivoted to the sleeve and engaging with the annular recesses in the central tube.

A steam engine has been patented by Mr. Charles Gibbs, of New York City. It has a chambered or hollow piston having valves in its ends, the valve in one end to remain closed and that in the other end to remain open during each stroke of the piston, in such way as to cushion the pistons as they approach the ends of their strokes, the construction being likewise suited for air and gas engines.

A car coupling has been patented by Mr. Bush F. Laird, of Ocean Springs, Miss. Combined with the drawhead and coupling pin is a support having a spring-actuated rest, the rest having its sides grooved, and pivot bolts for securing the support in the drawhead, with other novel features, it not being necessary, with this coupling, for train men to go between the cars to couple or uncouple.

A safety water gauge has been patented by M. William E. Roche, of Peabody, Mass. Combined with the casing and a valve spindle, a valve having two stems is fitted loosely in the casing, one stem seated in the casing and the other in the valve spindle, with other novel features, the parts being so arranged that, should the glass tube break, the valve will close and prevent the escape of steam or water.

A cut-off for steam engines has been patented by Emilio Querol y Delgado, of Brooklyn, N. Y. Combined with the slide valve rod and eccentric rod are a slotted valve-operating lever connected with the rods, a movable fulcrum for the valve lever, and a governor driven by the engine and arranged to move the fulcrum of the valve lever in accordance with the requirements of the engine, whereby the stroke of the slide valve will be regulated by the load carried.

## MECHANICAL INVENTIONS.

A manipulating rod for bolts, etc., has been patented by Mr. Joseph A. Coultans, of Brooklyn, N. Y. The rod is formed of pivotally connected sections, one of which has a shoulder or bearing portion arranged to be thrown against a stop, such as the casing of the bolt, to hold the rod and the device attached thereto in a retracted position.

A foot power has been patented by Mr. David D. Camp, of Stoughton, Wis. Combined with a crank arm attached to a shaft carrying the driving wheel, and a link having a series of apertures, with a swinging arm made of two parts which can be adjusted to each other by a thumb screw, is a treadle pivoted on the swinging arm, with various other novel features, whereby a dead center is avoided, and the device is applicable to a bench or stationary frame.

## MISCELLANEOUS INVENTIONS.

A shirt has been patented by Mr. William A. Lawrence, of Newburg, N. Y. This invention covers a novel method of making the garment, by improving the manner of uniting the bosom portions, whereby a neat, quick, and effective lacing or fastening is produced.

A tambourine has been patented by Mr. Henry Hosens, of Brooklyn, N. Y. Combined with the rim, head, jingles, and their pins, is a second rim and spacing tubular washers, whereby many more jingles can be used than is possible with the usual construction.

A harness loop has been patented by Mr. Thomas S. Alexander, of Meriden, Conn. It consists of a separate loop casting, in combination with a separate plate secured at one end directly to the body casting, the invention covering various details and parts designed to furnish an improved article of manufacture.

A casing for spittoons has been patented by Mr. Julius F. Langenberg, of New York City. It has a lid or cover hinged to the top of the casing, and connected by a rod with the hinged front of the casing, to keep the spittoon out of sight when not in use, preventing access thereto by flies, etc., and preventing all smell therefrom in the room in which it is situated.

A combined blackboard and desk has been patented by Mr. George W. Weiss, of Brooklyn, N. Y. The board can be automatically turned upon its axis to present either face, and below the board, within the frame, is a hinged leaf, which is supported and locked when desired for use as a desk or table in an inclined or horizontal position.

A pocket corkscrew has been patented by Mr. Le Roy B. Haff, of Englewood, N. J. This invention relates to a corkscrew wherein the screw is pivoted to a carrier sliding within the handle, so it can be folded and concealed within the handle, and the construction is such as to give compactness and portability when closed, and strength and efficiency when opened.

A metallic printing block for electrotype and stereotype plates has been patented by Mr. John Fahnestock, of Brooklyn, N. Y. The invention consists of clamps fixed on the block, with movable clamps simultaneously actuated by a key applied to a post mounted in the block, whereby the plates may be firmly locked and conveniently released.

A bottle has been patented by Mr. Faren England, of Aspen, Col. It has a bend or swell in its neck on one side, and upon the other an inward projection, with a bulged or enlarged chamber beneath

it, whereby the explosive force of gases in the bottle will act upon the cork in a direction in which it has little or no tendency to force the cork out.

A cartridge loader and crimper has been patented by Mr. Benjamin M. Badger, of Summerton, S. C. The machine has a charge guiding and cartridge loading cylinder, with a crimper arranged operatively in line, whereby a shell may be charged complete and crimped before removing it, the result being accomplished by simple devices, without any complications.

A combined coal elevator, screen, and loader has been patented by Mr. Lewis G. Scofield, of Philadelphia, Pa. This invention covers the construction and combination of various parts in a machine by which the coal can be shoveled from the bin or yard into the elevator, raised to the screen, screened, and discharged from the screen into a cart, only one shoveling being necessary.

A type-writing machine has been patented by Messrs. George W. Greene and Lewis P. Smith, of Smithfield, Ind. Combined with an impression cylinder is a rocking inking ribbon support and mechanism, for rocking the ribbon support from the cylinder, with other novel features, the design being to make a type writer with comparatively few parts, and not expensive to manufacture.

An anti-friction hand ironing machine has been patented by Mr. Frank Corbett, of New York City. Combined with the casing and rollers journaled therein are friction wheels pivoted to the sides of the casing and bearing upon the journals of the rollers, in order to lessen the friction and wear of hand ironing machines, that they may be more easily operated and more durable.

A dental plugger has been patented by Mr. Winfield H. Baldwin, of Norwalk, Conn. It is a dental mallet in which is a cylinder, a revolving spindle and a spirally ribbed striker within the cylinder, with a spring arranged to act upon the striker, and a studded thumb plate arranged to engage the spiral rib of the striker, by which the force of the blow can be regulated as desired.

A duplex music box has been patented by Mr. Alfred Junod, of Ste. Croix, Vaud, Switzerland. It has two independent cylinders and two independent combs or groups of combs, one comb or group of combs for each cylinder, so that a melody can be played by one cylinder on one comb, and the accompaniment by the other on the other comb, or each cylinder can play a melody alone.

A water filter has been patented by Mr. Robert L. Darragh, of New York City. This invention covers a novel construction and combination of parts in which a perforated spreader of convex form, with projecting nipples, discharges the water to be filtered near the under surface of the filtering material, there being upper filtering and lower sediment chambers divided by a perforated diaphragm.

A breast pump has been patented by Messrs. Henry Van Alena and Victor C. Vantwoud, of Brooklyn, N. Y. This invention has for its object to provide a convenient connection with the mouth piece and vacuum bulb of the exhaust bulb and its attached flexible tube, and also to provide external means of destroying the vacuum of the pump, thereby gently releasing it from the flesh.

A system of blind nailing has been patented by Mr. David M. Balsar, of Duluth, Minn. In carrying out this invention, the casing, base board, rail, or other woodwork is made in two or more sections, the first section applied being held by nails, screws, or other fastenings driven into portions concealed by parts afterward applied, and which are supported by the parts first secured in place.

An ironing board has been patented by Mr. John G. Breckenridge, of Springfield, Ohio. Combined with a board is a leg pivoted on one end, with a notch in its upper end, and a bar or key pivoted on the board for engagement with the leg to prevent the board from swinging down on the leg, making an ironing board that is strong and simple, and can be compactly folded.

A portable bath tub has been patented by Mr. Samuel D. Freeman, of Fort Thomas, Arizona Ter. It consists of two sacks or pouches made from a light flexible material, impervious to air and water, and connected to form a central water chamber and surrounding air chamber, wherein the sides are intended to be sustained by the action of the water upon the confined air.

A wire hoop has been patented by Mr. Jacob C. Durling, of Marine City, Mich. It is an inexpensive device for locking wire hoops used on barrels, packages, etc., the fastening plate having two or more alternate offset portions, with apertures in their sides, and the central offset and end portions of the fastening plate overlapping the hoop ends and each resting upon the vessel.

A grate has been patented by Mr. Benjamin F. Warren, of Boston, Mass. It has an outer stationary part with beveled seats on its front and rear bars, an inner part having front and rear inclined guiding surfaces, teeth, and cam-bearing arms adapted to be engaged by cams on a supporting shaft, to provide for the rapid discharge of ashes, and the larger clinker, with the least possible waste of fuel, in all kinds of stoves and ranges.

A retouching table for use in photography has been patented by Messrs. Charles L. Dunham, of Rahway, N. J., and George N. Hoffman, of New York City. It is so made that it can be conveniently placed and adjusted for best utilizing the light attainable, and so the operative parts can be folded horizontally out of sight, for use as a parlor table or a working table, while the table may be used in cabinet form as a receptacle for lenses, etc.

A window screen has been patented by Mr. Michael H. Walsh, of Troy, N. Y. It is made in two sections, adapted to enter and slide in parallel independent grooves, thus permitting access to the out-

side without leaving the space occupied by the screens entirely uncovered, and there are means provided whereby any intervening space between the top of the screen and the bottom of the lower sash, when raised, is protected from the entrance of insects.

A gate has been patented by Elsey B. Russell, of Bardstown, Ky. It is made with springs instead of long weighted levers to balance the gate, and so that, by a slight pull on the handle, the gate will unlatch, and coiled springs will then operate to raise it, ceasing to act when the gate is balanced, or reaches its dead point, the gate being closed by the traveler pulling upon the handle on the opposite side of the gate after passing through.

An adjustable plate holder for photographic cameras has been patented by Mr. Erastus B. Barker, of New York City. Combined with sliding plate-holding bars are endless bands passing around pulleys and connected with the plate-holding bars, to cause the bars to move equally in opposite directions, thus centering the plate in the plate holder, the object being to render a plate holder already patented more convenient and reliable.

An addition pencil has been patented by Mr. Chester R. Thompson, of Elberon, Iowa. The cylinder or case of the pencil is of the usual size, and, besides the usual telescopic lead holder, carries an indicator on which are consecutive numbers, the units and tens of which are made to appear at openings in the case, on pressing the point of the pencil on the paper, in adding and pointing off the figures of a sum, in such way as to represent the progress of the addition.

An apparatus for forming and dividing bombs or shells made of ice cream has been patented by Mr. Simeon Julien, of Nice, France. The invention consists of a receptacle or mould having in its interior a mechanism or device for cutting ice cream into small pieces by the use of an explosive charge, the charge producing a colored light before explosion, and the mould having feet and handles for convenience in setting it on the table and moving it from place to place.

## NEW BOOKS AND PUBLICATIONS.

A PRACTICAL HAND-BOOK OF PUMP CONSTRUCTION. By Philip R. Bjorling. E. & F. N. Spon: London and New York.

This modest manual is very comprehensive in its scope, while still quite elementary in its descriptions, which are accompanied by numerous well made illustrations. The remarks on designing pumps, on materials of which pumps should be made for different kinds of liquids, and on various classes of pump valves, show an extended practical experience by the author in this line of mechanics.

THE PUMP CATECHISM. By Robert Grimshaw. New York: Practical Publishing Company.

This book is uniform in style with the Steam Engine Catechism of the same author, and is written rather for runners, owners, and makers of pumps than for professional men. It sets out to show how to take down, set up, adjust, and run any of all the principal types and makes of pumps in use.

ELEMENTS OF GEODESY. By J. Howard Gore. New York: John Wiley & Sons.

In the historic sketch which forms the first chapter of this work, the author gives interesting details of many measurements, in different countries, through a period of over three hundred years, for the determination of the length of a degree. Reference is made to some of the best topographical work thus far done in Europe, with a portion of which the writer was himself actively connected, subsequently holding a position in the United States Geological Survey. Subsequent chapters treat of instruments and methods of observation, base measurements, field work of the triangulation, theory of least squares, calculation of the triangulation, and formulae for the computation of geodetic latitudes, longitudes, and azimuths.

THE NEW YORK AND NEW JERSEY DIRECTORY OF STEAM USERS AND USERS OF MACHINERY. New York: The J. N. Mills Publishing Co.

This book is a business directory covering the States of New York and New Jersey, the contents being arranged by city and town alphabetically, and giving names, business, location, and number of boilers used in each establishment. To any one seeking to furnish supplies or to introduce new inventions in shops of various kinds, it will afford a ready reference hand-book.

ENTERTAINMENTS IN CHEMISTRY. By Harry W. Tyler, S.B. Chicago and Boston: Interstate Publishing Co. Pp. 79.

This little work presents typographically a most attractive appearance. It treats in a very lucid way of simple experiments in chemistry, its style being more popular than is usual in this class of book. Its table of contents gives a good idea of the style of treatment adopted. "Some experiments with an invisible gas" (carbon dioxide) begin the book; the gases which form the air; the chemistry of the candle; combustion and explosion; a glass of water; the solution of metals; sulphur; hydrogen; ammonia; a visible gas (chlorine); soap; and the chemistry of yeast, are the remaining subjects, in their order of treatment. We can commend the book as a source of information to all beginners in chemistry, and welcome it as an addition to the literature of experiments in science.

## Received.

COCOA AND CHOCOLATE. A short history of their production and use. Walter Baker & Co., Dorchester, Mass.

CANADA: ITS HISTORY, PRODUCTIONS, AND NATURAL RESOURCES. By Hon. John Carling, Minister of Agriculture. Canada: Department of Agriculture of Canada, Ottawa.

AN ELEMENTARY COURSE IN PRACTICAL ZOOLOGY. By Buel P. Colton. Boston: D. C. Heath & Co.

USEFUL HINTS AND INFORMATION FOR STEAM USERS. New York: The J. N. Mills Publishing Company.

A MANUAL OF LITHOLOGY. By Edward H. Williams. New York: John Wiley & Sons.

THEORY OF MAGNETIC MEASUREMENTS. By Francis E. Nipher. New York: D. Van Nostrand.

THE FOREST WATERS THE FARM. By M. Antonin Rousset. Translated by Rev. S. W. Powell. New York: Forest and Stream Publishing Co.

## Business and Personal.

The charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

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