

RECENTLY PATENTED INVENTIONS.

Engineering Improvements.

DIFFERENTIAL PRESSURE GAGE.—CHARLES B. HEINTZ, Cleveland, Ohio. The purpose of this invention is to provide a pressure-indicator for engines, cylinders, pumps, by means of which it is possible accurately to determine the pressure at both ends of the cylinder or in the two pump-chambers, so that in case of variation of pressure existing errors can be rectified by making necessary adjustments in the valves. The indicator comprises a tube adapted to be connected at its ends with different pressure supplies. Pistons are fitted to slide in the tube and are spring-pressed toward the ends of the tube. A pointer indicates the variation of pressure against each piston.

FURNACE.—JOHN L. BROWN and JULIUS R. TANNER, Allegheny, Penn. The furnace is of that class in which the grate comprises an endless conveyor mounted to travel in the fire-box so as to carry the fuel uniformly to the point of combustion. The invention is primarily concerned with the provision of a chain conveyor. A pair of rods oblong, in cross-section, are loosely mounted in the chain. The horizontal forks of the grate-bars are mounted on the rods, the bars being arranged back to back to prevent their displacement when in position. A coupling-link connects the rods to hold them from independent movement.

Mechanical Devices.

TYPE-WRITING MACHINE.—MANUEL S. CARMONA, Mexico, Mexico. Two patents have been granted to this inventor for a novel type-writer. In both machines the same result is attained with somewhat different means. With only five keys, he obtains all the characters usually employed in writing, so that the machine can be readily operated with one hand. The number of combinations obtainable with these five keys is thirty-one. Two auxiliary keys are employed, by means of which thirty-one additional characters can be obtained twice over, so that the total number of possible characters is ninety-three. The spacing of the type is automatically measured, so as to correspond with each letter to be printed, enabling the form and size of the type to be varied at will. With the same machine large and small letters of English script, printing-letters, German, Greek, and Russian characters can be used. The writing is always completely visible.

Railway-Contrivances.

SEAL-LOCK.—WEBSTER F. TRAVES, Nelson, Canada. This seal-lock for railway-car doors comprises a carrier moving in a casing and having a longitudinal slot, and held stationary by a part carried by one of the members to be secured. A pin is held on the carrier adjacent to the slot; and a pin in the casing enters the slot of the carrier when the carrier is held by the parts of one of the members to be secured. The two pins hold a frangible seal which is broken when the carrier is released.

Miscellaneous Inventions.

DISPLAY CABINET FOR WINDOW SHADES.—HENRY MCGINNIS, La Salle, Ill. In selling window-shades at retail, the salesman has much trouble in properly exhibiting his wares. The shades, moreover, by reason of much handling, are considerably worn. The device comprises a supported shelf having a series of longitudinally extending slots in one end. Roller-brackets slide in the slots; and complementary roller-supports are mounted at the other end of the shelf. In displaying the shades, the shelf will be swung open and the shades pulled down in succession for exhibition. The body of the stock will be kept in pockets provided for it and will be taken out only to fill an order. The different styles may each be provided with a separate pocket, so that it is possible to tell at a glance how many shades of any style are on hand. The stock will also be kept clean, even the sample shades being kept in condition.

DISPLAY DEVICE.—ADDISON P. S. DEEM and HARRY L. MINSKER, Charleston, W. Va. The invention provides a device which will serve as a frame for pictorial or advertising matter and a receptacle for matches, cigars, cigarettes, and pipes, or soap and combs, or pens and ink. The display-device is so constructed that the advertising matter may be changed. The device may be hung up or made to stand alone on a support.

NON-REFILLABLE BOTTLE.—JOSEPH COLBAS SANTI, Brooklyn, New York city. The bottle has a fragile bottom over which a plug is located. The keeper-rod of a sealing device is passed through the bottom stopper to an engagement with the fragile bottom. A latch-rod carrying a stopper is arranged for locking engagement with the keeper-rod, the end of the latch-rod projecting from the bottle neck. When it is desired to empty the bottle, the end of the latch-rod is sharply driven down, whereupon the pointed end of the keeper-rod will be forced through the fragile bottom, the opening thus made being stopped by the plug mentioned. At the same time the neck stopper is carried down, thus unsealing the neck.

BRICK-MOLD SANDER.—ELSON T. BENNETT, Towanda, Pa. In the ordinary brick-mold sander it is necessary to feed the molds into the machine singly, and at the proper time so that there will be no interruption in the feeding. It is also necessary to rap the boxes by hand in order to remove the surplus sand, and to feed the molds by hand. The present invention renders this work automatic, so that the feeding of the molds to the machine, rapping, and sanding are mechanically performed. The molds are supplied as may be convenient. The automaticity of the operation of this machine distinguishes it from all other brick-mold sanders.

PROJECTILE OR DART FOR BLOW-GUNS.—JOSEPH G. WHITTIER, Attica, Ind. The projectile is so constructed that it will not only pass through the gun-barrel with great velocity, but travel true to its course after leaving the barrel. Upon striking the target, the projectile will indent it or cling to it, so that a mark will be left at the point of impact.

TAP.—CHARLES N. DUNCAN, Kewanee, Ill. The tap consists of a right-angularly slotted plug, one slot being closed at both ends and the other being open at one end.

A cutter-plate is inserted laterally in the plug through the closed slot, and a second cutter-plate is inserted endwise through the open slot. Both plates fit together and reciprocally lock each other and themselves in the plug. The improvement enables the tap to be inexpensively constructed. Various sizes and forms of threads can be cut with the same tap. The dies can be superseded by others or taken out and sharpened when worn.

TOOL-HOLDER.—WILLIAM H. C. HARRISON, Woodville, South Australia. The invention provides a means for carrying a set of independent bits in a socket, so that they cannot be mislaid. When required for use, any one of the bits can be quickly secured in the socket. The bits are hinged or attached at their tang end to a rotatable sleeve, so that when required each bit may be turned on its hinge and quickly affixed in the socket. The bit may be returned to its initial position without being detached from the sleeve. The number of bits which can be carried is limited only by the capacity of the sleeve.

FLOWER-POT STAND.—WILLIAM C. KRICK, Brooklyn, New York city. The stand comprises an upright, with the lower end of which legs have swinging connection. Above their pivotal points the legs have extensions, for engaging with the upright. Adjustable arms for receiving the flower-pot tray are pivoted to the upper end of the upright. The stand besides being firm and substantial, can be compactly folded for transportation.

FOUNTAIN-PEN.—BYRON F. MARSH, Eustis, Fla. The inventor has devised a fountain-pen in which the feed of ink is regulated by the air-pressure within the reservoir or barrel of the pen. The pen-seat is formed with a longitudinal cavity in which an air-tube fits projecting beyond each end of the pen-seat. The air-tube fills the inner portion of the cavity in the pen-seat and is firmly engaged with the inner walls of the pen-seat plug. The outer portion of the cavity is enlarged at its outer portion to form an ink-reservoir. The air-tube is formed with a longitudinally-extending external groove providing an ink-duct, the outer portion of the air-tube serving to hold the pen-point against the inner wall of the outer portion of the seat.

WIRE FENCE.—HERMAN MARTIN, Vermilion, Ohio. The purpose of the invention is to provide a wire-fence in which the running-wires will be effectually stayed against one another, thus preventing them from spreading. This end is attained by means of a stay constructed first in the form of an angular volute with a crimp at each angle. The stay is applied to the running-wires by bending the crimps around the respective wire and securing the ends to the top and bottom stays.

BORING-TOOL.—LORON MITCHELL, Augusta, Ga. The tool is designed to bore apertures and form recesses in the walls of the apertures, and is composed of a shank carrying a bit, in which shank a twisted shaft is mounted to turn. An auxiliary cutter is carried by the shaft. A twisted rod is fitted to move up and down in the shank-bore and engages the shaft whereby the longitudinal movement of the rod will rotate the shaft. The tool is very simple and by its means the operator can simultaneously bore the aperture and the annular groove in the aperture.

COMBINATION-TOOL.—ROBERT NEWALL, Quincy, Mass. The tool comprises a stock with an offset. Adjacent to the beveled side of the stock is a protractor. Two lugs project from the stock near one edge, equidistant from the center of the protractor. A blade and a clamping-screw engage slots in the stock and blade to permit the adjusting of the blade and stock relatively to each other and to clamp them together. The tool is readily transformed into an inside square, T-square, depth-gage, set-square, external miter-square, internal miter-square, height-square, inside and outside bevel-square, and external and internal center-square, and protractor.

PAPER-BOX.—GRACE BARTLETT, Jamestown, N. Y. This paper box is especially adapted to the transportation of flowers and is so constructed that the blossoms will not need a packing of tissue paper, moss, or other material, the arrangement of the body being such that the flowers will be prevented from moving.

TOBACCO-PIPE.—BERNARD J. TEBBENS, Manhattan, New York city. The pipe is provided with a stem which may be readily blown out without disturbing the tobacco in the bowl. By reason of this arrangement the stem is always free from nicotine. The stem is formed with a seat for a valve-plug, which is part of the bowl and serves to mount the bowl revolvably on the stem. The valve has three parts, by the adjustment of which the stem is opened at its heel or placed in communication with the interior of the bowl.

BINDER.—HENRY T. WISE, Philadelphia, Pa. The device is especially designed for binding papers in files, wrappers, envelopes, and like articles. The binder is easily manipulated to fasten the papers or documents in place in the file or wrapper, or to permit the closing and opening of the file or wrapper. The papers are arranged on a string inside of the wrapper and securely bound in place by a plate. The wrapper is held closed by passing the string around it and securing the end to a tongue.

FATTENING-COOP FOR POULTRY.—WALTER S. FURNAS, Lisbon, Iowa. The coop has a front wall hinged at its upper edge and swinging downward to close the coop and binding against the bottom thereof when closed. A trough extends in front of the wall, moves in and out of its path and holds the wall closed when the trough is closed.

CHIMNEY-TOP.—CHARLES E. BURRESS, 1302 N. Market Street, Wichita, Kan. The chimney-top has a top-rim portion and a main portion below, adjustable laterally, and independently of the top-rim portion and composed of sections overlapping at their adjacent edges. The base of the chimney-top may be adjusted to fit different sizes of chimneys, and the top is adapted to receive a smokestack or pipe extending upwardly so as to obtain a better draft for a low chimney.

WHEELBARROW.—WILLIAM J. FREED, Eureka, Utah. The barrow comprises a pipe bent at its middle to pass about the wheel and forming side bars and handles. Cross-bars connect the side-bars. The wheel-axle is received in blocks about which clamping bars pass. The frame-bar has an opening at one side to receive the end of the axle. The principal feature of this wheelbarrow is that it rests on the ground and that it

is larger, narrower, and deeper than the ordinary wheelbarrow. It is especially a mine-wheelbarrow. Since there are no legs, the construction is stronger and more stable than that usually found.

SELF-LUBRICATING SHEAVE.—SAMUEL MATTSON, Brooklyn, New York city. The sheave is provided with a chamber containing oil and with a tube whereby the pivot or spindle is constantly lubricated while the sheave is in action. Since the feed is stopped when the sheave is idle, there can be no loss of lubricant.

ACETYLENE-GAS GENERATOR.—WILLIAM E. ROLES, Goldfield, Colo. The novel features of this invention are found in a water-tank arranged at one side of the gasometer and containing a generator. A water-weighted displacement plunger is supported on one side of the counterpoised gasometer-bell and is movable in the tank. The plunger rises and falls with the bell. As it sinks it forces the water in the tank up into contact with the carbide; as the bell fills, the plunger rises, causing the water to fall away from the carbide.

TROUSERS SUPPORT OR STRETCHER.—ARCHIE L. ROSS, Port Chester, N. Y. This device consists of a supporting structure in which are spaced parallel bars formed each of a single piece of wire having upwardly-extending loops for receiving a pair of buttons on the trousers. The bars also have downwardly-extending loops alternating with and projecting below the upwardly-extending loops. The trousers are properly supported and stretched so that their shape is fully preserved.

UMBRELLA-RUNNER.—SAMUEL E. SMITH, Olean, N. Y. By means of this device the necessity of pressing the latch-spring with the thumb is obviated. The runner comprises an inner sleeve slotted for the passage of the locking-latch and surrounded by a concentric outer sleeve. To the outer sleeve a spring is secured, carrying a finger-piece moving transversely of the runner through the outer sleeve and adapted to force the spring against the latch.

PROTECTOR FOR KEYBOARD-RAILS.—LEOPOLD BERNARD, Manhattan, New York city. To prevent the scratching of the keyboard-rail by rings on the fingers of the performers, the inventor employs a sheet of flexible fabric provided with hooks or arms extending over the upper edge of the rail and having their ends inserted between the rail and the end of the keys.

INCANDESCENT-MANTLE SUPPORT.—FRANK W. POLAND, East Liverpool, Ohio. The purpose of this invention is to provide means for preventing the displacement of incandescent mantles by the warping and sagging of the support under the intense heat. This end is attained by constructing the burner-supporting rod with a transverse extension at its upper end. This extension projects into immediate proximity to or light contact with a stable part of the burner, so that should the rod sag or buckle, this extension will bear positively against the stable part of the burner and prevent its displacement.

Designs.

STANDARD FOR COPY-HOLDERS.—LOUIS HUDGIN, Lochiel, Arizona Territory. The standard is shaped like an inverted U and is provided with perpendicularly-extending base-arms connected by a rod.

CAN-OPENER.—JOHN A. PLINT, Butte, Mont. The leading feature of the design consists of a handle having a depending shank and a forwardly and downwardly curved blade extending from the shank. As the operator bears down on the handle, the V-shaped back of the shank serves as a fulcrum to facilitate the operation. As the blade is properly curved the cut extends close to the edge of the can body.

MONUMENT.—EDWIN O. TOWNSEND, Zanesville, Ohio. The essential features of the design consist in a polygonal shaft with a dome cap and wings on opposite sides of the shaft.

STOVEPIPE-DRUM.—LOUIS S. IRGENS, Valley City, N. D. The design consists of a shell having spirally-arranged tubes which retard the upward movement of the heat and warm the air passing through the tubes.

WINDOW-SHADE BRACKET.—JOHN B. GILL, Roswell, New Mex. The leading feature of the design is found in two members at angles to each other, having a bottom plate at their junction. The bottom plate constitutes a stop which prevents the cutting of the lower sash.

GAME-BOARD.—MATTHEW LECLoux, Bayonne, N. J. The board has a central opening and concentric fields with defined spaces in the fields, one of the spaces in the outer field being of a different color than the other spaces. The game is played with a suitable object and is capable of affording considerable amusement to the players.

CLAMP-BAND.—THOMAS W. G. COOK, Manhattan, New York city. The design consists of a flanged neck-band for lamp and gas-globe fixtures and provides a simple means for removably, yet firmly holding the globe in its socket.

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

NEW BOOKS ETC

F. BERGER'S FRENCH METHOD. By François Berger. New York. 1899. 16mo. Pp. 171.

The author is the well known teacher of the French language, and he has been particularly successful in his chosen field, so that any system which he inaugurates is sure to be interesting.

MANNHEIM AND ITS HARBOR. Mannheim. 1899. 8vo. Pamphlet.

This is an interesting pamphlet prepared by the statistical office of the city and is accompanied by an excellent map. The intended erection of large factories in the neighborhood of Mannheim naturally attracted the attention of foreign countries to the extraordinary economic advantages of Mannheim, and this pamphlet is intended to give the English reader an excellent idea of what has been done.

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 the following week's issue.

Marine Iron Works. Chicago. Catalogue free.
For logging engines. J. S. Mundy, Newark, N. J.
"U. S." Metal Polish. Indianapolis. Samples free.
Yankee Notions. Waterbury Button Co., Waterbury, Ct.
Pocket Folding Umbrellas. Grove & Stover, Luray, Va.
Handle & Spoke Mch. Ober Mfg. Co., Chagrin Falls, O.
Ferracute Machine Co., Bridgeton, N. J., U. S. A. Full line of Presses, Dies, and other Sheet Metal Machinery
Inventions developed and perfected. Designing and machine work. Garvin Machine Co., 141 Varick St., N. Y.
Machinery for R.R. contractors, mines, and quarries, for hoisting, pumping, crushing, excavating, etc., new or 2d-hand. Write for list. Willis Shaw, Chicago.

The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th Street, New York.

The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4. Munn & Co., publishers, 361 Broadway, N. Y.

FREE FACTORY SITES.

To be Donated for Manufacturing Purposes at Erie, Pa.
One hundred acres, very desirable location, all railroads, free to factory employing one thousand men. Also ten other smaller locations, all central with good railroad facilities. Correspondence and inspection solicited. Address

Douglas Benson,
Sec'y Board of Trade, Erie, Pa.

Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.



HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters or no attention will be paid thereto. This is for our information and not for publication.

References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.

Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same.

Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.

Scientific American Supplements referred to may be had at the office. Price 10 cents each.

Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(7771) G. R. F. asks: Can you tell me what tauric acid is, or where it can be procured? A. We do not know any such acid as tauric acid. There is a chemical called taurine, which was made first from the bile of an ox. It is an acid. This may be the substance for which you inquire. Taurine can be bought at any wholesale druggist's.

(7772) W. C. P. and others.—Inquiry has been made for further particulars regarding the use of persulphate of ammonium as a reducer for photographic plates. Make a bath of ammonium persulphate one part and water twenty or more parts. After fixing and thoroughly washing the negative to be reduced, place it in this bath and gently rock the pan till the reduction has proceeded nearly far enough. Next place the negative for a few minutes in a ten per cent solution of sodium sulphite. After this wash it well and dry. This reducing agent acts more strongly upon the silver in the deeper layers of the film, and hence reduces the thicker portion of the plate more than it does the thinner parts of the plate. This is the especial advantage claimed for it. The original article appeared in the Bulletin of the Photo. Club, Paris, 1898, 8, 232.

Answer to query 7744: If we take a clock spring of a given weight in its un wound or natural position and immerse it in a given amount of a given acid we find a definite amount of heat energy is evolved during the chemical reaction. Now, we know that after winding up a clock spring each atom of matter in the spring has had a definite amount of external energy applied to it during the process of winding and each atom of matter in the spring has been distorted from its natural position. We also know that when undergoing a chemical change, such as takes place between the metal and the acid, each atom tends to assume or return to its natural position. While undergoing this chemical change the atoms, separating from each other, are gradually coming back to their natural position, and in doing this they evolve a definite amount of heat energy. The heat evolved in this manner is proportional to the energy applied to the spring during the process of winding. Therefore, if we apply a given amount of energy to a clock spring to wind it up, and immerse it in a given strength of acid, the heat energy evolved will be that evolved by the chemical change which the spring and acid have undergone plus the heat energy evolved by the atoms when returning to their natural position. From this it will be readily seen the energy applied to wind the spring is used to straighten out each atom of matter in the metal after the acid has released the atoms from their union in the state of a metal.—A. E. D. [The answer given above is the one which has been given over and over again to this question. It is simply a speculation, based upon the doctrine of the conservation of energy. We have never seen any report of measurements which proved that a coiled spring would produce any more heat when dissolved in acid than the same spring would produce if dissolved when uncoiled. Till this is done the answer is a theoretical one merely, and does not settle the question practically. This is what we meant by our former note under No. 7744.—Eds.]