

## RECENTLY PATENTED INVENTIONS.

## Engineering.

**ROTARY ENGINE.**—Arthur Tickle, Brooklyn, N. Y. A piston is mounted to rotate within a cylinder, a gate being held to slide in the cylinder and forced against the piston by live steam, there being a steam chest on top of the cylinder, with a slide valve, with which exhaust valves simultaneously move, and other novel features, designed to utilize steam to the fullest advantage, and be readily reversed.

**SPEED INDICATOR.**—Eumet N. Barber, Kent, Ohio. This invention covers various novel details and combinations of parts, and is based on the principle of forcing a certain volume of liquid, as alcohol, oil, etc., through an aperture at a certain pressure in a certain time, the volume being increased or diminished without changing the pressure or the time, by increasing or decreasing the size of the aperture.

**SPEED INDICATOR.**—The same inventor has patented a further invention covering a compartment in which operates a piston actuated by the pressure of a continuous stream of a fluid forced into the compartment by a device actuated by the moving part the speed of which is to be indicated, the second compartment being filled with the same fluid and having a piston which compels the other piston to change its position slowly, in connection with a dial and pointer operated from the main shaft.

**FURNACE.**—Gottfried Pietzka, Witkowitz, Moravia, Austria-Hungary. This is a rotary double flame furnace, for use in puddling or welding pig iron, or for manufacturing Martin steel, the furnace being adapted to be turned so as to avoid loss of heat and time in clearing away the iron, and also to increase the quantity and improve the quality of the product, the invention covering various novel details and combinations of parts.

## Electrical.

**CURRENT REGULATOR.**—Joseph W. Balet, New York City. This invention combines a series of storage batteries with a series of switches under control of the main current and the motor, by which the current not used and any surplus will be sent into accumulators to be stored for future use, and to control the charging of the secondary batteries, so that the current shall cease in a particular battery when the maximum charge is reached.

**CURRENT REGULATOR.**—The same inventor has patented a further invention consisting in a translating device formed of a helix and a pair of soft iron bars supported movably in the helix, each bar being connected with a switch arm adapted to move between a pair of contacts connected with the circuit in which the helix is placed, the device being adapted for use in connection with any electrical circuit, but especially for use with storage batteries.

## Mechanical.

**WIRE DRAWING MACHINE.**—Frederic Smith, Halifax, York County, England. This machine is arranged to draw several wires simultaneously, each wire being reduced by drawing it through a series of dies by means of drawing-through pulleys driven at gradually increasing speeds, the objects of the improvement being to increase production and diminish the cost of such machines.

**SHUTTLE MOTION.**—William F. Hitchcock, Homer, N. Y. By this invention the shuttle is carried back and forth in a positive manner, and not thrown, the shuttle being adapted to hold a circular disk bobbin that carries the filling thread or wire, and actuated by hollow shuttle carriers, the automatic catching and releasing of the shuttle from the carriers forming an important feature of the invention.

**DRILLING MACHINE.**—Richard Hammond, Buffalo, N. Y. This is a central drilling tool, with two outer drilling tools held parallel therewith, and mounted in bearings to swing from the central tool, making a multiple drilling machine especially adapted for drilling apertures for the rivets in boilers when the plates are in place.

**RAIL DRILL.**—Meritt W. Smith, Waverly, N. Y. This is a machine which has a frame carrying a rotating and endwise movable spindle, with gearing for rotating the spindle, and other novel features, especially adapted for drilling fish plate bolt holes in railway rails, with economy of time and labor, the drilling tool being automatically fed.

**SCREW DRIVER.**—Carl A. Strasser, Baltimore, Md. This is a compound tool intended for use by piano makers and repairers, carpenters and others, and is designed for use in turning screws in corners or other obstructed positions, while it has a handle bar with notches or slots to receive pins or wires, to straighten them when bent.

**WRENCH.**—Joseph Tomlinson, Folsom, Cal. This invention covers a novel construction and arrangement of parts in that class of wrenches in which the jaws are pivoted within a frame or casing and are caused to clamp the nut by a sliding handle engaging the rear end of the jaws, and in which the lever jaws can be held locked in a closed position when desired.

**STAVE MAKING MACHINE.**—William J. Wright, Cooperstown, Pa. This is a machine wherein the billet passes through the various stages necessary to complete the stave, and as it progresses, automatically controls and sets the cutting devices so as to cut both the bevel and form the bilge of the stave in exact proportion in relation to the width of the billet.

## Agricultural.

**DRAG AND HARROW.**—John R. Goodman, Calumet, Mo. The drag and harrow are each composed of jointed sections, the two being hinged together so that they may be used interchangeably if desired, or the drag may be used to break the clods and level the ground, while the harrow following just behind will loosen up the soil and prepare it for seeding.

**STACKER.**—Thomas Berry, North Fork, Ky. Combined with a base frame is a vibratory and vertically rocking table mounted thereon, and a trunk mounted upon the table, wherein the straw or hay will be continuously conveyed from the thrashing machine and deposited at a distance in advance of the trunk in a semicircular rick.

**SHOCK BINDER.**—Christian Beu, Moline, Kansas. This invention relates to a light and readily portable device for compressing shocks of corn or grain, while also providing a means for expeditiously and conveniently tying the shocks when compressed, the invention covering various novel features of construction and combinations of parts.

**GRAIN SCOURER.**—Peter Provost, Menominee, Mich. This invention covers novel details and combinations of parts in a machine for scouring and cleaning grain, in which the process is facilitated by causing the kernels to rub against each other and against the several parts in the interior of the main cylinder of the machine.

## Miscellaneous.

**MEAT BROILER.**—Annie Callier, Albany, N. Y. This broiler consists of a folding skeleton frame so connected to guide rods on the base as to be readily moved to either end of the base and either member of the frame presented to the fire, to provide for the ready turning of the meat without removing it from the broiler and without removing the latter from the fire.

**STOVE OR RANGE.**—George G. Kniffin, Brooklyn, N. Y. This invention provides a counter-balance drop door specially adapted for use at the oven, the door being attached in a simple and durable manner, and means being provided whereby the doors will be easy of access in case repairs are needed.

**FRUIT DRIER.**—Henry A. Crandell, Harrison, Ark. The drying chamber of this apparatus has movable supports on which the trays rest, projecting into the chamber, and a rotary shaft with eccentric disks which engage and move back the supports and release and lower therefrom one tray at a time, the green fruit being introduced at the top of the chamber, and removed from the bottom when dried.

**STEAM RADIATOR.**—Daniel H. Streeper, Norristown, Pa. This invention covers an apparatus in which are combined telescopic tubes for regulating the discharge of water from steam radiators, for the purpose of varying the steam room of the radiator, according to the amount of heat required.

**NEEDLE.**—Samuel M. Neely, Smith's Turn Out, S. C. This is an eye point needle designed to be used by hand for sewing bags and other coarse work, and is adapted to carry its own ball of thread, while the needle may be of the longitudinally grooved description or otherwise.

**FOLDING STEP.**—Harrison T. Cork, Marshall, Ill. This step consists essentially of a casing with a spring plug and arranged for connection with a vehicle body, a standard moving vertically within the casing, and a step hinged to an arm carried by the standard, making a vehicle step adjustable as to height, and which can be folded out of the way when not in use.

**TRUNK FASTENER.**—Joseph R. Shoemaker, Durango, Col. This is a corner brace for trunks, valises, and similar articles, to facilitate roping and strapping the trunk or package after it has been locked, whereby the rope is kept in place and prevented from slackening and slipping off, and the binding rope is prevented from being cut by the angular portions of the trunk.

**DUMP CART.**—Hartwell A. Wilkins, New York City. The cart body is rigidly mounted upon a cranked axle to which the shafts or thills are connected by hinge joints, the body being held from accidental dumping by a tongue carried by a vertical crank shaft and engaging a keeper secured to the body.

**SHIPPING PACKAGE.**—Isaac L. Rock, Mooers, N. Y. This invention provides a simple and inexpensive fastener for the covers of butter tubs, pails, etc., a square loop being pivotally connected to one side of the pail and a loop to the opposite side, upon the free end of which turns a cam lever, the lever being turned downward over the cover to hold the latter in place.

**GATE.**—George Ford, New Harmony, Ind. This gate is made with inclines, means for lifting the gate, and bearings for the inclines of the gate, such bearings being movable, giving a compound movement of the gate, part by the movement of the bearings in their guides and part by the inclines of the gate moving down the bearings.

**DYNAMITE.**—John Waffin, Hancock, Mich. This invention covers a new composition of matter to be used as a high explosive, the composition not being affected by moisture, and not susceptible of change except when exposed to a temperature exceeding 110° F. It consists mainly of nitrate of soda, decayed wood, sulphur, carbonate of soda, and nitro-glycerine having collodion mixed with it.

**INSECTICIDE.**—James M. A. Miller, San Mateo, Fla. This invention covers a process of producing an insect-destroying compound especially designed for use on fruit trees, and consists in adding sulphur to lime while the latter is being slaked and afterward dissolving the ingredients in water.

**FULLING WOOLENS.**—Reuben C. Rutherford, New York City. This invention covers a method of restoring shrunken woolen fabrics to their original dimensions and texture, the method consisting in first steaming the fabric to soften the fibers, then stretching the steamed fabric while moist and heated, and finally drying the fabric.

**CAMERA SHUTTER.**—William Shakespear, Jr., and Garrett W. Low, Kalamazoo, Mich. This invention relates to camera shutters, in which a pair of swinging slides or wings arranged to approach

and recede from each other are used to cover or expose the opening in the camera which faces the lens through which light is admitted when making an exposure, the invention covering special means for operating the slides, and special construction for taking stereoscopic pictures, with various other novel features.

**HARMONIGRAPH.**—Joseph A. Decuir, New Orleans, La. This is an apparatus by which music, as played on a piano or other instrument, may be suitably indicated on a sheet of paper, the construction being such that paper is fed steadily forward and lines drawn thereon, the lines being broken by depressing the keys, the breaks in the lines indicating the notes, and the length of the breaks indicating the time due the notes.

**PAVEMENT.**—Murty Cunningham, Bellefonte, Pa. This is a composite pavement, the composition consisting of broken stone or its equivalents, coke screenings or screened coal ashes, coal tar, sulphur, a coloring material, and tallow, there being applied to the top layer a mixture of coal tar, sulphur, coloring material, and hot tallow, the composition being about five inches thick, in several layers, where the wear is heavy.

**STOVE PIPE VENTILATOR.**—George L. Jones and Eusebius M. Miles, Chippewa Falls, Wis. This is an attachment for the draught pipes of cook stoves, in which a hood is held over the stove to receive the smoke, gases, etc., the improvement providing for the ready adjustment of the hood to give convenient access to the stove, and affording means for moving parts of the hood without disturbing the remainder.

**SAFETY GUARD FOR RAZORS.**—Terence F. Curley and Albert S. Granger, Brooklyn, N. Y. Combined with a tubular razor back pivoted in a handle is a razor blade inserted in the back and a swinging reversible guard pivoted upon the razor back, and capable of swinging against either side of the blade, the reversible guard having oblique ribs or corrugations on opposite sides.

**SAFETY GUARD FOR RAZORS.**—The same inventors have patented a further invention in which, combined with a slotted tubular back, provided with a hollow shank and a razor blade held by the back, is a guard which may be swung back from the edge of the razor blade, to permit of shifting the blade and sharpening the razor, the object of the guard being to prevent the razor from cutting the flesh.

**PARALLEL RULER.**—Sherman M. Goss, Council Bluffs, Iowa. This ruler consists of a blade connected by links with a second blade extending parallel with the first one, both blades being provided with inclined flanges having graduations.

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(508) F. S. asks: 1. Can you tell me which will weigh the heaviest, salt (sea) or fresh water, and if any difference? What is the cause? A. Sea water is the heavier, because of the salt dissolved in it. 2. My parents were born in Germany, I was born in America. Am I American or German-American? A. You are American. 3. What causes earthquakes? A. The cause is unknown.

(509) J. A. C. writes: In our water works system at this place we are troubled with the flow of water stopping at the bibs with good pressure in mains (30 to 40 pounds) and good flow next door. There is no more sign of pressure than there would be with stop shut; the water will start again of its own accord, it may be in 10 minutes, and may be in 2 or 3 hours. Every one tells us it is an air trap. Now what we want to know is, what is an air trap, with the reason why the water will not flow through a pipe with one end open to the atmosphere and the other under pressure? A. Probably your main pipe is too small for the service. With small mains and many service pipes, where at certain times many are drawing water at the same time, at the lowest level the bibs will run and draw air in at open bibs on a higher level, the air becoming an obstruction by retarding the flow of water to