ENGINEERING INVENTIONS.

A steam actuated valve has been patented by Mr. Walter S. Phelps, of Wortendyke, N. J. This invention consists in the combination, with the steam cylinder and pistons, of a steam chest containing a series of pistons operated by the live steam in the cylinder at the end of each stroke, which live steam, after being admitted into the chest, works under expansion and shifts the pistons.

A railroad rail joint has been patented by Mr. John A. Foley, of New York city. According to this invention, the joints are made by the adjacent ends of rails having the ends of their bases square, and the ends of their webs and heads beveled and projecting beyond the square ends of the bases, and connected by fish plates and bolts and nuts, to form a smooth joint and prevent hammering of the ends of rail heads by the car wheels.

AGRICULTURAL INVENTIONS.

A potato-digger has been patented by Mr. Samuel Huber, of Danville, Pa. The standard has side plates braced to a central shoe, and there are shares secured to the side plates, with lugs upon their lower sides and upwardly curved rear corners, making a digger which runs very steady in the ground, is easy to hold, and is very cheap and durable.

A weeding and thinning device for growing plants has been patented by Mr. James N. Stevenson, of Salvisa, Ky. This invention consists in a hand implement of tongs-like construction, with two cross limbs pivoted, the forward portions of which have lips arranged to face each other, preferably faced with rubber or flexible material, and the extreme end of one limb having a cutting blade.

MISCELLANEOUS INVENTIONS.

A faucet has been patented by Mr. Nicholas Styne, of Brooklyn, N. Y. This invention covers a special construction and arrangement of parts to promote convenience and reliability in the use of faucets, and to facilitate taking them apart for repacking and other repairs.

A can opener has been patented by Mr. Caleb S. Lobdell, of Stormville, Miss. This invention consists in various parts and details forming a new and improved apparatus to be used for cutting out the tops of cans, the blade making a clean circular cut along the edge of the top of the can, or cutting out a smaller opening if desired.

A stump puller has been patented by Mr. Peter Hansen, of Waupaca, Wis. This invention covers a peculiar construction and arrangement of parts in a lever device for the pulling of stumps and small trees, and to promote simplicity in the construction, convenience in the use, and efficiency in the operation of stump pullers.

A rubber heel has been patented by Mr. Henry V. Deemar, of St. Charles, Mo. It has in its sides a groove, forming a tongue at the top edge, the heel being passed through an aperture in the heel part of the sole, and the tongue of the heel held therein, thus making a heel which is very elastic and springy, strong, and durable.

A water elevating bucket has been patented by Mr. Christopher C. Coffee, of Memphis, Tenn. It is formed of a body blank and two side blanks, the side blanks having wings which form the front of the bucket, the blanks being made of small pieces or scraps of sheet metal, but united in series to form a bucket chain for elevating water.

A shoe lace fastener has been patented by Mr. Charles J. Johnson, of Lone Pine, Cal. The invention consists in the combination, with a plate, of a lever pivoted thereon, and having an aperture, and with a hook on its free end, with a link pivoted on the plate, for the purpose of holding the free end of the lever to the plate, to hold securely the ends of a shoe lace.

A thermo-electric battery has been patented by Mr. Daniel Lautensack, of Vienna, Austria-Hungary. The object is to make a more durable battery than at present made with the antimonial alloys for the positive electrodes, so these electrodes are cast on a core of tenacious metal covered with an insulating coating, the core also serving as the negative electrode.

A gate has been patented by Mr. George C. Milgate, of Folsom, Cal. This invention covers a peculiar construction and arrangements for the making of a gate by the use of certain levers pivoted in the posts, so that by pulling one cord the gate may be entirely folded up, or by pulling another cord it will be unfolded in its proper position.

A sealskin sack, dolman, and ulster block has been patented by Messrs. Phillip Weinberg, Louis Clark, Jr., and Egbert Winkler, of New York city. It is made of two boards secured to each other at an angle at their forward edges and recessed at their angle and at the rear edge of the front board, so that by its use the labor of making the garment will be lessened and a better shaped garment will be produced.

A hydrant has been patented by Mr. George A. Warner, of Des Moines, Iowa. This invention covers a special construction and arrangement of parts for making a new and improved hydrant, the valve for opening and closing the passage from the service pipe consisting of a stuffing box with packing rings of suitable material, and the device including many novel features.

A composite tiling, paving, and flooring slab, or building block, has been patented by Mr. Robert Marsh, of Brooklyn, N. Y. It is composed of Portland cement, asphaltum concrete, or other suitable artificial stone or cement material moulded in conjunction with pieces of tiling, glass, or other suitable material embedded in its face, for ornamenting the slab or block or forming a par of the main body thereof.

A ladder has been patented by Mr. James M. Trimble, of Sedan, Kan. It is of that class which are adapted to be extended or retracted at will, and made portable, more particularly for the use of firemen, and the ladder may be wound upon a reel or extended therefrom, and its joints be automatically secured in the act of extension or released in the act of retraction.

A spring motor has been patented by Mr. Matthias H. Howell, of Jersey City, N. Y. It has a tubular spring wound on a drum, with one end secured to the drum and the other end to a disk or wheel for winding it, the disk being rigidly mounted on a shaft, and having clutch dogs or pawls for locking it in place, the motor being designed for sewing machines, gig saws, fans, etc.

A power hoist has been patented by Mr. Charles W. Baldwin, of Denver, Col. Combined with a hoisting drum is a shaft, to be operated by hand or steam power, with means for revolving the drum from the shaft, there being also a brake pulley and clutching devices for automatically engaging it with the drum, with other novel features for raising buckets, elevator cages, etc., out of wells and shafts.

A fire place and chimney have been patented by Mr. Theodore C. Nativel, of Oakland, Cal. The fireplace is made of horizontal sections of burnt clay made in semicircular form, with tongue and grooved joints, and is combined with a chimney and ventilating flue made up of circular sections of burnt clay, with tongued and grooved joints, and having peculiarly constructed ventilating hot air chambers.

A folding book and paper rack has been patented by Mr. Marion E. McMaster, of Shelbyville, Mo. The invention consists in a special construction of the supporting end brackets of the shelves, so they can be folded compactly with the shelves when not in use, the paper rack being below the book, and its brackets being constructed for support from the book shelf pivots.

A rudder attachment has been patented by Mr. William Johnson, of East Moulsey, Surrey, England. This invention provides a rudder attachment for small boats, which, while securely holding the rudder in position, will allow it to rise without becoming absolutely unshipped in case it comes in contact with the ground, while the rudder can also be shipped and unshipped with facility in any position.

A finger ring has been patented by Mr. Robert A. Kullmann, of Jersey City, N. J. This invention consists principally in forming the ring with a screw threaded socket or stud, and in providing a face screw adapted to pass through the initial or ornament and screw into the screw threaded socket or stud from the front of the ring, so that initials or ornaments may be easily attached to rings to suit customers.

A knife for miners has been patented by Mr. George Freund, of Durango, Col. This invention covers an improvement on a former patented invention of the same inventor, and combines with a knife casing, a can opener, a cork screw held in the blade for splitting or cutting the fuse, and various details and parts of construction for an improved miner's knife.

A water closet has been patented by Mr. August F. Blesch, of Columbus, Ohio. This invention covers improvements on former patented inventions of the same inventor, and consists in improved means for lifting the main discharge valve of the closet by a piston working in a cylinder, and controlled by a valve opened by a rise of the seat spindle, with other novel combinations and special features of construction.

A lady's tricycle has been patented by Mr. Louis P. Valiquet, of Mount Kisco, N. Y. This invention consists of a frame in the side arms of which the axle carrying the clutches is journaled, and of the three armed foot levers connected to arms of the frame and to the clutches, the advance of the tricycle being checked by pressure applied to the clutch casings, with other novel features, so these vehicles can be conveniently ridden and operated by ladies.

A fascine binder has been patented by Mr. Abraham M. Kanters, of Buffalo, N. Y. This invention covers a binder with a series of horses or supports, with cross bars to support the brush wood, with pivoted clamping levers, and other novel features, by which such bundles as used in the construction of jetties, dams, breakwaters, or other engineering works may be compressed and bound with economy of time and labor.

A banjo has been patented by Mr. William B. Lomas, of Brooklyn, N. Y. In combination with a banjo is a flat ring held in the top of its circular frame, the ring having a circular raised part on its upper surface; in combination with the ring, also, is a circular wire placed in a circular groove in the top of the ring, whereby the sounding or vibrating surface of the head of a large banjo is reduced, thus giving it a milder and sweeter tone.

A water cup for stove pipes has been patented by Mr. Samuel T. Atkin, of Georgetown, Tex. This invention relates to water holders on the outside of stove pipes, where the heat of the pipe is made to evaporate the water to impart moisture to the air, and consists in a receptacle made to partly encircle the pipe, and with hooks or ears on its sides, whereby it may be readily hung on the protruding ends of the damper spindle, or on studs or pin projections, etc.

A sanitary ice chest pail has been patented by Mr. William W. Woolsey, of Aiken, S. C. This invention consists in a pail provided at its top with a cup on the inner surface, so a trough is formed to receive water and form a seal for the cover, to protect the contents of the pail from contamination, the pail being so made as to take up but little space in the refrigerator, while permitting the cooling of the contents.

An ink grinder has been patented by Mr. William Y. Schmucker, of Reading, Pa. It has a saucer clamp and a chuck adapted to hold the solid ink cakes or sticks and to be revolved above the saucer, and has means to feed the ink cake downward as it wears away by friction on the saucer, the device being adapted to hold ink cakes of various shapes and sizes, and making a simple and inexpensive machine for "rubbing up" India ink to proper liquid consistency, for the use of engineers, architects, draughtsmen, etc.

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(1) E. D. asks (1) what are the adulterations of linseed oil? A. The principal adulterants of linseed oil are cottonseed and fish oil. 2. Also how to detect them? A. The best means of detecting the presence of these substances is experience in handling them. There are no easy chemical tests that can be applied. Determinations of specific gravity and behavior with certain reagents afford clews, but they must be performed by those acquainted with the properties of their various adulterating oils. 3. How white lead is made by the old or slow process. A. The Dutch process is as follows: Conical glazed earthenware pots 8 inches wide are filled to one-fourth of their depth with malt vinegar. At one-third of the height of the pot from the bottom are three projecting points on which a cross piece of wood is laid, and on this are placed vertically a number of leaden plates rolled up into a spiral, and the whole covered with a leaden plate. The pots are then placed under a shed in rows upon horse dung or spent tannery bark covered with boards, another layer of dung or decomposing bark laid upon the boards, and on this another row of pots, many rows of pots being thus placed above one another, and the whole covered by the tan or dung. By the slow decomposition of the dung heat is evolved, which assists the evaporation of the vinegar and causes basic lead acetate to be formed, and this in contact with the carbon dioxide evolved from the putrefaction of the organic matter is converted into white lead. In the course of from 4 to 5 weeks the greater portion of the lead is converted into white lead, the change taking place from without inward. The white lead is then detached, ground into a fine paste while moist, washed well to free it from adhering acetate, and dried in small round pots.

(2) J. M. F.—If you mean to ask which will freeze first, water that has been recently boiled and cooled down to the same temperature as water that has not been boiled, and then both kinds exposed at the same time and under same conditions, the boiled water will freeze faster than the unboiled. The boiled water being deprived of its air seems to give up its heat faster than the aerated water. The evaporation we think has very little to with it, as a corked bottle of boiled water will freeze quicker than a bottle of unboiled water, both alike in condition.

(3) F. J. J.—Old coins cannot be given the same tone and brilliancy as new ones. Silver coins may be boiled in soda water and scoured with brush and whiting. Copper coins may be treated in the same way, and then brushed with plumbago, which gives the surface a bronze effect. This can be heightened by mixing a little rouge with the plumbago.

(4) C. J. R.—There are many receipts for waterproofing boots and shoes. The best is simply an extra dressing of oil or currier's stuffing.

(5) C. W. V. desires a good receipt for making soap powder. or washing powder. A. The soap powders, which for the most part are sold under fancy names, consist of partly effloresced sal soda mixed with its weight of soda ash. Some makers add a little yellow soap coarsely ground, to disguise the appearance of the stuff. and others a little ammonium carbonate or borax. The following liquid is also pro uctive of good results: Pour two pails boiling water on one pound of unslaked lime and three pounds of sal soda. Bottle when clear.