

## RECENTLY PATENTED INVENTIONS.

## Engineering.

**ROTARY ENGINE.**—Matthew H. Beyer, Orange, N. J. This engine has a series of cylinders connected with each other and turning around a central drum which is provided with inlet and outlet ports. The pistons of the cylinders have rods with rollers on their ends, and these rollers work against stationary cammed surfaces, so that the reaction between said surfaces and the piston rods causes the cylinders to be turned continuously around the drum. From a pulley on the cylinders motive power may be taken. The cylinders may be combined in any number, so as to make a double, triple or quadruple expansion engine, it being understood that the steam is led successively to the pistons, so that the principle of action is the same as in all compound engines.

## Railway Appliances.

**CAR FENDER.**—Ronald A. Stuart, New York City. When the fender of a street railway car is rigidly connected with the car body, the front end of the fender moves up and down with the rocking of the car, a difficulty which this invention is designed to obviate, as it provides for maintaining the fender at a practically uniform distance above the track. Mounted to swing on the lower side of the car platform is a yoke whose forwardly extending arms are pivoted to lugs, and to these arms are secured curved side arms to which are attached the side members of the fender frame, while pivotally connected to the yoke is a rearwardly extending lever fulcrumed to studs depending from the bottom of the car immediately forward of the axle. This arrangement causes the fender to yield with the rocking motion of the car, and the fender has an auxiliary front portion which swings up to form a pocket when a body is struck by and is received upon the fender.

**CAR AND LOCOMOTIVE BAIL BEARING.**—James Naismith, Kearney, Neb. The box of this bearing is adapted to slide vertically in the truck jaws, and is arranged for engagement by the equalizing bar of the truck, a sleeve secured to the axle extending loosely within the box, and balls being interposed between the box and sleeve in a race formed by an external recess in the sleeve and an internal recess in the box, the race being wider than the diameter of the balls. By this arrangement the axle has free play laterally and up and down, to permit it to assume an angular position relative to the box when the car passes around curves, without danger of binding or gripping the axle or the balls in the race. Caps on the top and bottom of the box prevent the entrance of dust.

## Bicycles, Etc.

**BICYCLE SADDLE.**—William H. Kelley, New York City. This saddle has a base with a front or pommel end connected by a hinge with the pommel end of a top plate extending rearwardly and upwardly, the top plate being mounted to swing toward and from the base. The cantle end of the top plate has at its under side sockets engaged by the upper rounded ends of pins extending through openings in the base, there being on each of the pins a coiled spring resting on the top of the base, the tension of the spring being readily regulated to press the under side of the top plate with more or less force, according to the weight of the rider, insuring easy riding without chafing the legs, while affording a large, firm seat at the cantle end of the saddle.

## Mechanical.

**BELT TIGHTENER.**—Solomon R. Forbess, Randolph, Tenn. A belt clamp that may be used on a narrow or a wide belt with equal facility, and upon one located close to a wall, is provided by this invention, the clamp not placing the belt under injurious strain, while it may be used to lace the belt while the latter is on its pulleys. The tightener consists of clamps arranged in pairs, each clamp comprising two hinge-connected members through which are passed tightening devices, while turnbuckles connect corresponding clamps of each pair, the body portion of the turnbuckles being in adjustable sections.

**TIRE HOLDER FOR FORGES.**—James B. Farrar, Wilmington, N. C. To hold tires while they are being heated in a forge fire this invention provides a machine having an expandible head or holder for the tire, adapted to be readily clamped in place, the holder being so supported that it may be turned to expose every portion of the tire to the heat, while the shaft carrying the holder may be adjusted vertically to set tires of different diameters in proper relation to the forge fire.

## Agricultural.

**CHECK ROW PLANTER.**—Edward S. Roseberry and William H. Fickel, Hurland, Mo. This planter has suspended wire-carrying pulleys arranged beneath it, while swiveled to the rear end of the planter frame is a guide bar or arm whose free end is supported by a caster wheel, there being pulleys arranged on its upper side, in connection with a shiftable brace and tension rod. The wire or cord may be readily and quickly attached or detached, and lies close to the ground, passing between the horses. By the arrangement of the wire beneath the machine and on the suspended guide pulleys the wire does not require to be dragged over, but is simply dropped off the machine and the swiveled guide bar, and is as easily put on again.

## Miscellaneous.

**BOTTLE CAP.**—Bernardo Fontan and Carlos Fontan, Buenos Ayres, Argentina. A cap which may be placed over the mouth of a bottle and brought in engagement therewith, by bearing against the usual shoulder on the bottle neck, is provided by this invention. It is stamped from sheet metal and has downwardly projecting arms at opposite sides, a band being carried by the lower end of each arm, and the bands being adapted to embrace the bottle neck, each band having a flange to engage a shoulder on the bottle neck.

**FOLDING BED FRAME.**—Jacob Levy, Brooklyn, N. Y. According to this improvement the bed frame is so constructed that it may be folded up to occupy less space than an ordinary bed frame, being designed for use as a cot as well as for full-sized beds. An angle iron frame supports the web or springs, and this frame is supported upon pivoted legs which are connected by links to sliding head pieces, the whole being adapted to fold against the frame. The frame is very strong and of inexpensive construction.

**HAT AND COAT LOCK.**—Jeremiah D. Burns, Washington, D. C. This is a device for use in hotels, restaurants and other public places, for securing hats, coats and other garments, and affords a cheap and simple fastening as well as an unobtrusive wall attachment. It has a recessed or chambered body in which the locking bolt slides vertically and a peculiar key which holds the bolt locked in open position when the key is fully inserted, the bolt descending and locking the garment in place when the key is withdrawn.

**WASHING MACHINE.**—Stephen D. Cole, Wallace, Idaho. To facilitate the quick and thorough washing of clothes without tearing or destructive strains, this invention provides a vibrating cage or basket to be immersed within the water in a tank, a slatted and vibrating lid or follower being arranged to bear upon the top of the clothes in the cage and having an opposite movement from the cage. A crank shaft is revolved to impart movement to the cage, an opposite reciprocation being imparted to the lid or follower, the reciprocation being very rapid.

**BUNG AND FAUCET.**—George C. Kachel and Henry Sager, Girardville, Pa. For bungs for tapping beer and ale casks and kegs, without necessitating the use of a mallet, this invention provides a novel faucet and a bushing and barrel to receive the faucet, so constructed that the kegs or casks will be practically as clean when returned to the brewery as when taken therefrom, as all the liquid may be drained from the receptacle.

**FORMALDEHYDE GENERATOR.**—Franklin C. Robinson, Brunswick, Me. Heretofore, in generating this powerful disinfectant, a lamp has been used, with a fount in the base for the wood spirit, into which dips a wick, above which is an oxidizing chimney having a platinized asbestos diaphragm, with air inlets below the diaphragm. This invention provides a portable apparatus to more rapidly yield a larger volume of the antiseptic, comprising a shallow pan, an automatic feed device for maintaining a thin film of wood spirit in the pan, above which is an oxidizing chamber, in which, directly above the pan, is a pervious catalytic diaphragm. The pan is relatively large, and the film is rapidly evaporated by heat from the diaphragm directly above and overspreading it, causing a rapid and profuse generation of the antiseptic in a direct and unobstructed manner.

**GAS INCANDESCENT.**—Oskar Knöfler, Charlottenburg, Germany. This invention provides an improved process of manufacture for the mantles of incandescent gas lamps, in which are employed threads of colloidal made of an emulsion or mixture of colloidal with an inorganic substance, the mixture being forced out of capillary tubes and the threads being either dried in warm air or fixed by passing them through water, an alkali being added to the fixing water. The threads may be spooled, spun or woven, and are denatured preferably with sulphureted alkalies. They are strong and durable and more flexible than those ordinarily used; so that it is easy to give the mantle any desired shape.

**STOP FOR PIANOS.**—Alfred R. Spoerl, Brooklyn, and William L. Geisler, Hempstead, N. Y. In mute attachments for ordinary pianos, this invention provides an improved touch and technic stop, arranged to enable the performer to render the piano mute and to permit finger exercise with any degree of resistance to the keys. The invention comprises a novel connection of the mute attachment with the resistance for the keys, and a novel construction of such resistance, which consists of a frame in which slide spring-pressed rods, a bar being adjustably held over the springs, and there being means for shifting the bar and a device for indicating the position of the bar relatively to the springs.

**STREET SWEEPER.**—John H. Barth, Indianapolis, Ind. This sweeper is adapted to be pushed manually along a street, and has a comparatively large dust receptacle into which the dirt is thrown by revolving brushes at the front. The brush shaft is revolved by belts at each side from the supporting wheels, as the sweeper is pushed along, and the dust chamber has a forwardly extending chute portion with opening close in the rear of the brushes. The drum and all the attached parts may be readily lifted to a tilted position by pressing down on the handle bar at the rear, thus throwing rearward the dirt on the chute.

**CENTER FOR ARCHES.**—Thomas M. Clancy, New York City. To facilitate the construction of the floors of buildings, this invention provides an improved center for forming a temporary support for the concrete or other filling to be placed between the adjacent floor beams, the center being conveniently placed and adjusted in position according to the shape of the intended arch, and readily removable after the arch is finished. It mainly consists of sheet metal bent to the desired form, and provided on its under side with stiffening ribs or plates, while angle irons are attached to the ends of the sheet.

**EYE SHADE.**—William S. Bevan, Brooklyn, N. Y. This shade is adapted to be held at a distance from the forehead, being provided with spaced supports which will not absorb perspiration or conduct it to the body of the shade, which may be of delicate and light material. The shade has a series of inwardly projecting, soft, non-absorbent pads, formed of cork cushions, to rest against the forehead and hold the shade from contact therewith, while also allowing for the circulation of air between the shade and the head.

**BOOK REST.**—George K. Putnam, Montpelier, Vt. This invention affords a simple and inexpensive device, more especially designed for conveniently holding account books on tables or desks the surfaces of which are either flat or inclined. The rest comprises a rigid main portion and two sliding side portions, and on

its lower rear edge is a hand-supporting plate which may be adjusted along the edge as desired, the plate being useful when the writer has reached the lower lines of the pages.

**THILL COUPLING.**—Frank V. Stevens, Sr., Brooklyn, N. Y. This is an anti-rattler coupling of simple and inexpensive construction, and which does not require set screws, bolts and nuts. The device comprises a fixed member and a hinged member, the closing of the latter upon the former constituting a socket in which is held the thill iron, the meeting portions of the members being cushioned to exclude dust or foreign matter and prevent rattling, while a novel fastening or locking device is employed, which may be secured by a spring latch, the engagement or disengagement of the thill being quickly and readily effected.

**CHIMNEY AND REFLECTOR.**—Otto Herrmann, Memphis, Tenn. The opposite sides of the chimney, according to this invention, are provided with integral bearings upon which fit the angular trunnions of a reflector, preferably made of glass coated with mercury, the reflector being somewhat cup-shaped and having a central opening through which the chimney extends. The reflector may be adjusted by turning the trunnions in the socket portions of the bearings, to throw the light in any desired direction.

**IRONING MACHINE.**—George P. Walter, Brownwood, Texas. A simple and inexpensive machine especially adapted for household or family use is provided by this invention, in which the said iron may be reciprocated by foot power and shifted sidewise by a hand-operated shifter. The said iron may be readily connected and removed, and the frame and table are folding, for convenient storage and shipment. Provision is also made for properly weighting the said iron.

**NECKTIE HOLDER.**—Winfred J. Herbert, East Liverpool, O. To hold a bow necktie under a turn-down collar, the holder yielding to conform to the collar and yet being rigid enough to retain its shape, is the object of this invention, being an improvement on the pasteboard lining and elastic button loop. This holder consists of a length of wire bent to form upwardly curved side wings and a central loop, the two free ends of the wire being turned loosely over the loop and provided with eyes with which a metal button loop has swinging connection. The resiliency of the wire causes the portion of the tie or bow under the collar to bear up against the inner upper edge of the collar, and securely engage the button loop with the collar button.

**MOISTENING DEVICE FOR STAMPS, ETC.**—Levin C. Dillon, Brooklyn, N. Y. To facilitate the attaching of labels and postage stamps and sealing of envelopes, etc., this invention provides a novel device in which a bottle-shaped container has a wedge-shaped slotted cap, a plug valve having tapered sides being movable through the slot, and a spring holding the valve yieldingly in its seat. To moisten stamps, etc., the container is inverted and the end of the valve pressed slightly against the surface to be moistened, the pressure forcing the valve inward to allow for the discharge of sufficient water as the device is drawn across the gummed surfaces.

**BEER DISTRIBUTING APPARATUS.**—Edward D. Case, Flint, Mich. To facilitate the distribution of beer, etc., from one or a series of barrels, quickly regulating the temperature and admitting of one or more barrels being readily cut out of the system, is the object of this invention, means being also provided whereby the pipes in the system may be easily and quickly cleaned by a circulation of water. A series of dispensing pipes is provided with cross connections controlled by independent valves, whereby liquid may be drawn from either one of the supply vessels or may be caused to circulate back and forth between the cross connections, mixing the beer of one or more barrels with that of another barrel, etc.

**NON-REFILLING BOTTLE STOPPER.**—Peter Lesch, New York City. This is a device which may be applied to bottles, jugs, etc., without any change being made in the vessels themselves, the stopper being complete in itself and independent from the structure of the containing vessel. It comprises a hollow plug having an opening at its outer end, a valve seat upon which rests a valve within the plug, a yoke having a guided movement and connected with the valve and a float adapted by its buoyancy to move the yoke to open the valve. The stopper affords free outlet for the contents of the bottle, but prevents supplying it with additional liquid.

## Designs.

**HAND BAG.**—Louis Sanders, Brooklyn, N. Y. This design is for a bag which has one compartment above another, the lower compartment being reached by breaking the bag between its ends.

**CHURN LID.**—Edward D. Benninghoff, Creston, Iowa. This invention provides a lid for churns having a revolvable dasher, there being aligned apertures in the lid and in the top of a U-shaped bracket thereon.

**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.

**MANIPULATION OF THE MICROSCOPE.** By Edward Bausch, Rochester, N. Y.: Bausch & Lomb Optical Company. Pp. 200. Price, cloth, \$1.

This useful work gives in clear and concise language all information regarding the principles, and leads to the intelligent use of the microscope. Beginning with the purpose of the microscope, the parts of the instrument are described in detail, together with the principles involved in their construction, followed by a chapter outlining requisites for work. How to work, not only with the microscope, but with its various accessories, is supplemented by a chapter on advanced manipulation. Chapters on how to select and how to care for a microscope contain valuable information, and enable one to select the proper instrument for the work to be done, and to keep it in working order after it has been secured.

## SCIENCE VS. THEORY.

BY CYRUS ALDRICH.

Prejudiced theories always disappear before the breeze of scientific inquiry, just as fogs are dissipated by the sun. Guesses cannot forever answer facts, nor uninformed assertion successfully combat the argument that comes from the fine accuracy of expert investigation and chemical analysis. We are finding fresh illustration of this in recent Chicago dispatches in the daily papers regarding the cigarette investigation in that city. Chicago always takes the shortest cut to a conclusion, and its attitude toward the cigarette is a case in point.

The cigarette was under a cloud, but the investigation has failed to demonstrate that the cloud was of its own smoke. Prejudice, catching at hearsays, jumping to conclusions, well intentioned may be, but blind, deaf and self-assured, had condemned the cigarette without formality of trial. The point d'appui of the opposition was the deleteriousness of the cigarette. Strangely enough, every reformer took it as a fact that the cigarette was adulterated. Accordingly, under the direction of a city ordinance, an investigation was ordered. Probably no other health measure has been such a surprise to its sponsors as has this cigarette ordinance. Ostensibly designed to protect the smokers from the unwitting use of harmful drugs, it has simply served to prove more effectively and conclusively, than could the manufacturers of cigarettes themselves, that their product is absolutely free from impurities of any kind. Under the ordinance the Commissioner of Health is instructed to inspect and examine samples of all cigarettes offered for sale, thorough analyses to be made from time to time under his direction. Acting under this authority, City Chemist Cass L. Kennicott and Assistant City Chemist D. B. Bisbee made exhaustive analyses of fourteen brands, and their report is now on file with the Commissioner of Health and open for the inspection of the public.

Prof. Kennicott talks freely of the false ideas that prevail concerning the presence of harmful drugs in cigarettes. Having carried on the analyses with the greatest care and thoroughness, he naturally is positive in his conclusions.

## AMERICAN CIGARETTES PURE.

"American cigarettes," he declares, "contain nothing more dangerous than the tobacco itself. Prof. Bisbee and myself made a careful analysis of every brand of cigarettes offered for sale in Chicago during the summer. The samples were gathered at random throughout the city, and the shopkeepers had no knowledge as to whom they were selling. We examined as many as fifty cigarettes of each separate brand. There was nothing wrong with any of them. All were found to be entirely free from opium, morphine, jimson weed, belladonna, atropine or hyoscyamine. Neither was any arsenic or lead found in the paper wrappers.

"As a matter of fact, there is nothing in any of the fourteen brands of cigarettes on the Chicago market that the smoker need be afraid of. American cigarettes are made of bright Virginia tobacco—not only the best in the market, but the mildest. Frequent analyses, made in England as well as in America, show that this tobacco contains only from 1 to 1½ per cent. of nicotine. The mildest Havana contains much more, while the best grades of domestic cigars often reach as high as 8½ per cent. Of course, the less nicotine in your smoke, the less danger of ill effects.

"The idea that arsenic or lead is sometimes found in cigarette papers is equally erroneous. We find arsenic, it is true, in some colored papers, and in wall papers where it is present as a constituent of the color, and we find white lead in highly glazed papers sometimes, and more especially in those glazed cards which were used many years ago for visiting cards. These are the only instances that I know of in which either of these substances enters into the composition of paper in any way.

"As a matter of fact, the paper, considered merely as paper, which is wrapped around cigarettes is about as pure a form of paper as it is possible to get by any means."

The outcome of the investigation, resulting as it does in the absolute acquittal of the cigarette from all charges of impurity, is as satisfactory to cigarette smokers as it is disconcerting to those who have opposed it.

## Business and Personal.

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