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LIQUID DISPENSING PUMP.

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1,072,636.

Patented Sept. 9, 1913.

Fig. 1.

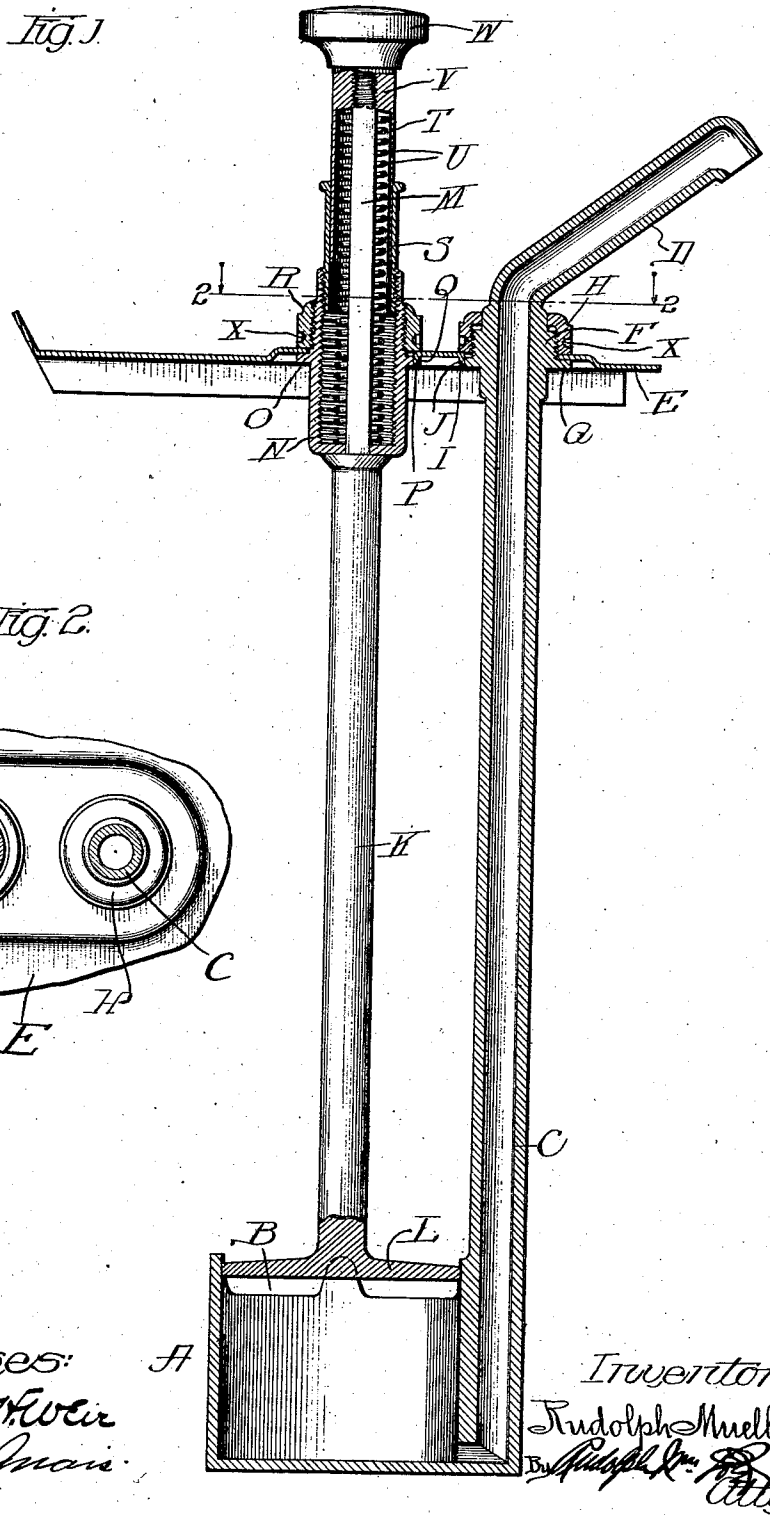


Fig. 2.

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LIQUID-DISPENSING PUMP.

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To all whom it may concern:

Be it known that I, RUDOLPH MUELLER, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Liquid-Dispensing Pumps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has for its object to provide a novel construction in a pump for discharging predetermined quantities of liquids and which is particularly adapted for use in dispensing syrups at soda fountains and the like.

The invention consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings illustrating the invention: Figure —1— is a central vertical longitudinal section of a dispensing pump constructed in accordance with my invention. Fig. —2— is a detail section of the same on the line 2—2 of Fig. —1—.

My said invention has for its primary object to provide a pump in which the pump barrel and delivery spout consists of a single integral casting whereby I am enabled to make the same from a non-corrosive metal particularly adapted to contain syrups, etc., and which is proof against the acids or the like contained therein, the metal best adapted to the purpose being a block tin alloy.

A further object of the invention is to provide means whereby the pump barrel and its delivery spout are conveniently suspended from the cover plate of the receptacle containing the liquid to be dispensed.

A still further object of the invention is to provide a pump plunger which is reciprocally movable through the cover plate from which the pump barrel is suspended and which may be adjusted to discharge at each operation any desired volume of liquid from the maximum capacity of the pump barrel to a fraction of the same, and in which the adjusting means are operable from the exterior of the vessel.

A still further object of the invention is to provide means for attaching the delivery spout and the member in which the pump plunger is reciprocally movable to the cover plate by means which when normally disposed relatively to each other will not expose to the eye of the purchaser any threads or other matter or devices detracting from the neat finished appearance of the apparatus.

My said pump comprises the barrel A which is cylindrical and is provided in its upper edge with recesses B through which liquid flows by gravity into said barrel. Cast integral with said pump barrel and communicating with the latter adjacent the bottom thereof is the delivery spout C of tubular form, the latter having an angularly off-set portion D at its upper or delivery end which projects outwardly beyond the forward edge of the cover plate E of the receptacle in which the pump barrel is suspended. An externally threaded collar F is secured to the delivery spout C adjacent the upper end thereof by placing the same in the mold and casting the spout therethrough thus rendering said collar F substantially integral with the said spout but enabling said collar to be composed of a harder corrosive metal, such as brass, without, however, affording any danger of contact of the liquids passing through the spout with the same. The said collar F is provided with an annular flange G between which and the nut H the portion of the cover plate E surrounding the opening through which the threaded portion of said collars passes is firmly engaged. The said flange G is provided at one point with a notch or recess I in which the lug J formed by making two incisions in the cover plate at one side of the opening and bending down the interposed metal is adapted to engage, the said collar being thus firmly held against rotation relatively to the cover plate E and thus preventing the pump barrel from being positioned laterally out of proper alinement with the central opening in said cover plate E through which the pump plunger K passes. The latter carries the piston L at its lower end, which is cast integral with said plunger K and both said parts being composed of the same metal as the pump barrel and delivery spout.

A rod M preferably square in cross-section is secured in the upper end of the plunger K by inserting one end of said rod in the mold and casting the metal of said plunger K around the same, the upper end portion of said rod M being turned off to render same cylindrical and externally threaded for pur-

poses which will be hereinafter set forth. The said rod M passes through the square central opening in a cup member N which is provided between its ends with an annular flange O bearing against the lower face of said cover plate E and which is similarly provided with a notch or recess P in which a lug Q similar to the lug J engages. The said cup member is also internally threaded and receives and engages the lower threaded end portion of a sleeve S which serves as a stop to limit the downward movement of said plunger K. Said sleeve S is shown disposed in the highest position intended, whereby the minimum stroke of plunger is attained. On the upper threaded end of the latter there is mounted the tubular member T which is telescopically movable in the sleeve S and is open at its lower end, the upper end portion thereof being plugged or otherwise rendered thick and having a central threaded opening adapted to engage the upper threaded end portion of said rod M. A helical compression spring U is disposed within the cup member N and said tube T and bears at its lower end upon the bottom of said cup member and at its upper end upon the plug or other enlargement V of said tube T, said spring serving to maintain the rod K and piston L normally at the upper limit of their movement. A knob W is mounted upon the threaded upper end portion of the rod M above said tube T and is adapted to be engaged by the hand of the operator in displacing said plunger K for the purpose of delivering liquid from the pump barrel A.

The vessel or receptacle in which the pump barrel A is suspended and which is closed by means of the cover plate E has been omitted from illustration as being superfluous. It will be understood, of course, that the level of liquid in said receptacle must be maintained higher than the upper end portion of the pump barrel in order that the latter may fill by gravity therewith after each operation of the plunger K.

The nuts H and R are preferably of cylindrical form and provided with small recesses or openings X for engagement of a suitable tool therewith for rotating the same. In view of the fact that under normal conditions nothing but smooth surfaces are exposed to view it will be obvious that a high degree of finish and polish may be maintained on same to render them at all times clean and pleasing to the eye.

By casting the pump barrel and spout of a single piece of non-corrosive metal, such as block tin or a block tin alloy, sufficient strength is obtained to render it unnecessary to employ other metals in the construction of the device. It is well-known that brass and other similar metals are easily affected by the acids contained in syrups or the like, and that a chemical reaction takes place between said substances which frequently deleteriously affects the syrups and renders them unwholesome and this single casting constitutes an essential feature of the invention.

I claim as my invention:

1. In a dispensing device, the combination with a receptacle cover, of a discharge pipe for liquid passing through said cover, and having an angularly disposed discharge nozzle rigid therewith, an annularly enlarged threaded collar on said pipe having an annular flange, a nut on said collar between which and said flange said cover is engaged, a projection on said cover engaging in a recess in said flange for preventing relative rotation of said cover and said discharge pipe, a pump barrel integral with and communicating at its discharge end with said pipe and supported upon said cover solely by the latter, a piston for said pump, a piston-rod for said piston passing through said cover and reciprocably movable relatively to the latter, and a spring operatively engaged with said piston rod for maintaining the same normally at the upper limit of its movement.

2. In a syrup pump, a pump barrel, a discharge pipe and an angular discharge spout integral with each other, a collar between the ends of the discharge pipe having an annular flange and exteriorly threaded above said flange, a receptacle cover having an opening to receive said collar, a nut for said collar between which and said flange, said cover is engaged, a piston rod reciprocably mounted in said cover, a piston thereon reciprocably movable in said pump barrel, and coacting interengaging means on said cover and said discharge pipe for positively maintaining said pump barrel axially alined with said piston.

3. In a dispensing device, the combination with the cover of a receptacle for liquid to be dispensed, of a pump-barrel having a discharge pipe integral therewith and passing through said cover and rigidly secured thereto for supporting said pump-barrel thereon, a piston and piston rod for said pump barrel, a cup member passing through an opening in said cover and rigidly secured thereto, said cup member internally threaded, an externally threaded extension member for said cup member adjustable therein, said piston rod passing through said cup member and said extension member, a knob on said piston rod having a tubular extension member, a stop on said piston rod adapted to engage the lower end of said cup member for limiting its upward movement, and a helical compression spring interposed between said knob and the bottom of said cup member for normally maintaining said piston rod at the upper limit of its movement, said first named extension member disposed in the

path of said knob and constituting an adjustable stop for limiting the downward movement of said piston rod.

4. In a syrup pump, a pump barrel, a discharge pipe and an angular discharge spout integral with each other, a collar between the ends of the discharge pipe having an annular flange and exteriorly threaded above said flange, a receptacle cover having an opening to receive said collar, a nut for said collar between which and said flange, said cover is engaged, a piston rod reciprocably mounted in said cover, a piston thereon reciprocably movable in said pump barrel, coacting interengaging means on said cover and said discharge pipe for positively maintaining said pump barrel axially alined with said piston, a screw-threaded cup member projecting through an opening in said cover and provided with a flange, a nut on said threaded portion between which and said flange said cover is engaged, coacting interengaging means on said cover and said cup member for preventing relative rotation thereof, said piston rod passing through said cup member and carrying a knob at its upper end, a spring in said cup member bearing on said knob to maintain said piston rod at the upper limit of its movement, a stop on said rod engaging the lower end of said cup member for limiting the upward movement of said rod, an extension sleeve having threaded engagement with the interior of said cup member and adjustable therein and constituting a stop adapted to be engaged by said knob to limit the downward movement of said piston rod, and a depending sleeve on said knob fitting telescopically in said extension sleeve.

In testimony whereof I have signed my name in presence of two subscribing witnesses.

RUDOLPH MUELLER.

Witnesses:
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S. HANSEN.