M. H. PETIGOR.

DISPENSING PUMP.

APPLICATION FILED APR. 11, 1906.

923,201. Patented June 1, 1909.

Fig: 6.

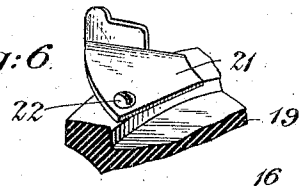


Fig: 1.

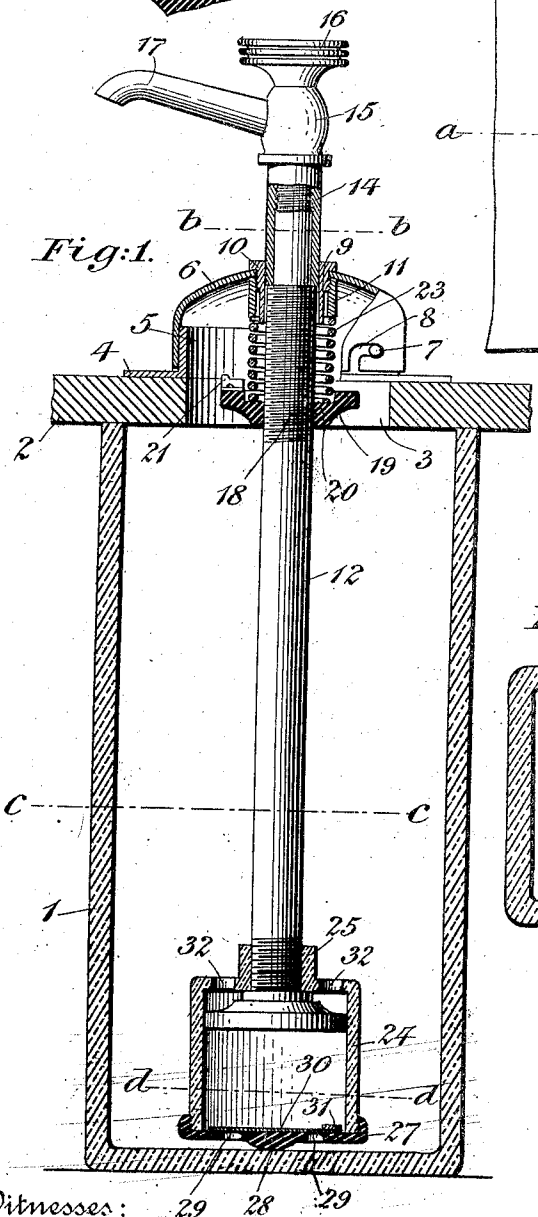


Fig: 2.

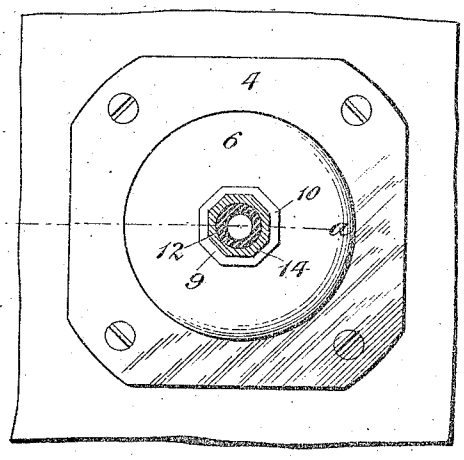


Fig: 3.

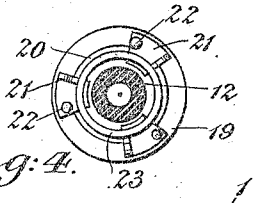


Fig: 4.

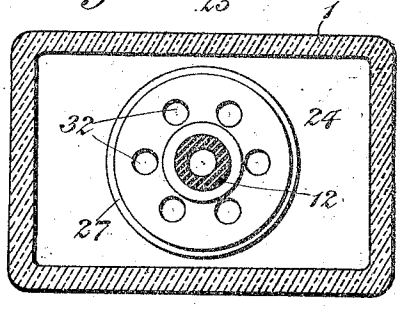
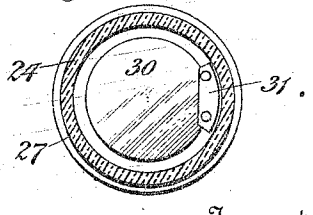


Fig: 5.



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UNITED STATES PATENT OFFICE.

MORRIS H. PETIGOR, OF NEW YORK, N. Y.

DISPENSING-PUMP.

No. 923,201. Specification of Letters Patent. Patented June 1, 1909.

Application filed April 11, 1906. Serial No. 311,111.

To all whom it may concern:

Be it known that I, MORRIS H. PETIGOR, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Dispensing-Pumps, of which the following is a specification.

This invention relates to that class of pumps which are more particularly designed and adapted for dispensing soda water syrups and the like, and of which the device illustrated in the Letters Patent No. 778,757 granted December 27, 1904 to William J. McCahill is a type, and the object of the invention is to provide a dispensing pump of this general character of a simple and comparatively inexpensive nature and of a strong and compact construction having certain features of improvement which add to the durability of the device and lessen the liability of breakage and derangement of the parts and which render the improved pump capable of more convenient and effective use.

The invention consists in certain novel features of the construction, and combinations and arrangements of the several parts of the improved dispensing pump, whereby certain important advantages are attained and the device is rendered simpler, less expensive and otherwise better adapted and more convenient for use, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

In the accompanying drawings which serve to illustrate my invention—Figure 1 is a vertical section taken axially through the improved pump in the plane indicated by the line *a*—*a* in Fig. 2; Fig. 2 is a horizontal section taken through the actuating stem of the device in the plane indicated by the line *b*—*b* in Fig. 1; Fig. 3 is a sectional view taken through the actuating stem of the device in a plane below that of Fig. 2, and showing certain features of construction of the means for connecting the lower end of the retracting spring to said stem; Fig. 4 is a sectional view taken transversely through the syrup receptacle and actuating stem in the plane indicated by line *c*—*c* in Fig. 1; Fig. 5 is a sectional view taken horizontally through the barrel or cylinder of the pump in the plane indicated by the line *d*—*d* in Fig. 1, and Fig. 6 is an enlarged fragmentary perspective view showing the construction of one of the clips for detachably connecting the lower end of the retracting spring to the actuating stem.

In these views 1 represents a suitable jar or receptacle for containing the syrup or other liquid to be dispensed and 2 represents a counter, shelf or like support arranged above said receptacle and having an opening 3, affording access to the interior of the receptacle and through which the improved pumping device supported on the shelf or counter 2 is permitted to depend into the syrup in the receptacle for use in dispensing such syrup.

4 represents a plate of thin metal secured upon the shelf or support 2 by means of screws or the like and having an upturned circular flange 5 surrounding the opening 3 in the shelf or support, while 6 represents a cap having a pendent marginal portion fitted over the circular flange 5 in such a manner that the cap, when in place, serves as a closure for the opening 3 in the shelf or support. A detachable connection is provided for holding the cap securely in place over the opening but permitting ready removal of said cap whenever desired, and as herein shown, this detachable connection comprises a pin 7 projecting from the flange 5 and adapted for engagement in the horizontal part of a bayonet slot 8 in the pendent marginal portion of the cap 6 to hold the cap securely in place when the same is turned.

The cap 6 has a central opening produced in its top to receive a guide sleeve 9 provided with a flange 10 rested on the top surface of the cap, the lower end of said sleeve being externally screw-threaded to receive a nut 11 which is engaged against the under surface of the cap in such a way as to afford a secure connection between the guide sleeve and said cap 6.

12 represents the tubular rod or stem of the pump, the upper end whereof is fittted within a guide stem 14 connected with the head 15 of said rod or stem which latter is formed with a part 16 adapted to be conveniently pressed upon by the attendant for depressing said rod or stem and operating the pump, and said head 15 is also provided with a laterally directed discharge nozzle or spout 17 provided with a liquid passage communicating with the bore of the tubular rod or stem 12 and adapted for the

discharge of the syrup when the pump is operated.

The metallic guide stem 14 is engaged at its lower end in the guide sleeve 9 of the cap 6 and is made polygonal in cross section, as seen in Fig. 2, the aperture of the guide sleeve in which it is engaged being similarly formed so that said guide stem is guided to play vertically through the guide sleeve 9 of the cap when the head 15 is depressed for operating the pump as will be hereinafter explained.

According to the present invention the tubular pump rod or stem 12 is formed from hard rubber or similar inert material so as not to be acted upon or to deleteriously affect the syrups, and the upper end of said rod or stem being inclosed in the metallic guide stem 14, which latter plays in contact with the guide sleeve 9 of the cap 6, is thereby strengthened and prevented from being broken in the use of the improved pump.

Below the cap 6, the pump rod or stem 12 has an externally screw-threaded portion 18 whereon is engaged a correspondingly screw threaded collar or enlargement 19, also formed from inert material so as to be unaffected by acid syrups, and which is made capable of adjustment in the direction of the length of said pump rod or stem 12 by reason of its threaded connection therewith.

The collar or enlargement 19 has an annular seat or recess 20 produced in its upper surface, encircling the pump rod or stem 12, the raised edge portion of said collar or enlargement serving to receive a plurality of clips 21 which are pivotally held thereon at 22 and have free end portions adapted, when the clips are moved pivotally in one direction, to be extended inwardly beyond the outer margins of the seat or recess 20 as shown in Fig. 3 and when the clips are reversely moved, to be withdrawn from their positions overhanging the seat or recess, as shown clearly in Fig. 6.

23 represents a spiral spring of a diameter adapted to loosely encircle the pump rod or stem 12, its upper end being connected with the nut 11 upon the lower end of the guide sleeve 10, so as to be supported thereby, while its lower end is adapted to be engaged in the seat or recess 20 in the upper surface of the collar or enlargement 19, in such a way that the clips 21 may thereafter be pivotally moved to cause their free ends to engage with the lowermost whirls of the spring to effectively lock the pump rod or stem 12, whereon the collar or enlargement 20 is held, to the lower end of said spring while the connection of the parts thereby afforded is capable of being readily detached when desired.

24 represents a pump barrel or cylinder arranged at the base of the receptacle 1 and having at its upper part a central integral upwardly directed boss or bearing 25 of reduced diameter, through which the lower end of the pump rod or stem 12 is passed and adapted for vertical sliding movement, the lower extremity of said rod or stem 12 carrying a piston 26 also of hard rubber by preference, and of a diameter adapted to fit snugly and play vertically within the barrel or cylinder in a well known way.

27 represents the bottom of the pump barrel or cylinder having a central projection 28 upon its lower side for contact upon the bottom of the receptacle 1 as shown in Fig. 1 whereby the outer portions of said bottom 27 are held elevated so as to be out of contact with the bottom of the receptacle, and said outer portions of the bottom 27 have ports 29 pierced through them for the admission of the syrup from the receptacle 1 into the chamber of the pump barrel or cylinder 24 below the piston 26. A flap valve 30 of rubber or the like is held by means of a clip 31 upon the upper face of the bottom 27 within the chamber of the barrel or cylinder so as to control the ports 29 against the escape of the syrup when the piston is depressed in the operation of the pump, and the upper end of the barrel or cylinder 24 has a series of ports 32 surrounding the central reduced bearing 25 and adapted for the free entry and escape of syrup at the upper part of the cylinder or barrel above the piston so that the operation of the pump is facilitated.

In the operation of the improved pump the piston 26 being connected with the rod or stem 12 is normally upheld by the tension of spring 23 so as to stand, as shown in Fig. 1, at the upper part of the pump barrel or cylinder which latter depends by gravity and rests with the projection 28 of its bottom in contact with the bottom of the receptacle 1, in which position of the parts the valve 30 offers no resistance to the entry of the syrup through the ports 29 wherefore the chamber of the barrel 24 below said piston is filled with the syrup.

Pressure being applied by the attendant upon the head 14 to depress the pump rod or stem 12, the spring 23 is distended and placed under tension and the piston 26 is pressed downwardly in the barrel 24, sealing the valve 30 and causing the syrup contained in the barrel below the piston to flow up through the bore of the stem or rod 12 to the discharge nozzle or spout 17 whence it is discharged into the glass held by the attendant. The head 14 being released, the spring 23 is permitted to retract the parts to their initial positions wherein they are capable of further operation for the dispensing of syrup.

In devices of this character, for reasons of economy and also to prevent contamina-

tion of the fruit syrups, the acids of which are often quite active, it is desirable to form the barrel or cylinder 24 of the pump from glass, since this material is at once inexpensive and unaffected by the acid syrups, but I have found that a very considerable pressure is often imposed upon the bottom of the said cylinder or barrel by the attendant in forcing down the head 14, causing the piston 26 to strike so forcibly upon the bottom of the barrel or cylinder as to shatter the same so as to render the device unfit for use. In order to overcome this defect I form the bottom 27 of the pump barrel or cylinder separately from the body portion 24 thereof, said body portion being formed from glass while the bottom 27 is formed from hard rubber by preference, since I have found this material, while being more expensive to be better adapted to withstand the strain imposed upon the bottom in the operation of the device as above described. The said bottom 27 is held upon the body portion of the barrel or cylinder by means of a flange 33 around the edge of the bottom and which has screw connection with the body portion so as to be capable of being quickly and conveniently detached therefrom when desired. In devices of this character, when used for dispensing syrups, there is a tendency for the syrup to thicken or solidify at the lower part of the pump barrel or cylinder so that the valve 30 frequently becomes clogged. The arrangement of said valve according to my invention, upon the readily removable bottom 27 of the pump barrel or cylinder is very advantageous, since access may be readily had to the valve for repairs and cleaning by merely removing the bottom 27 from the cylinder or barrel and without disconnecting the piston therefrom.

Having thus described my invention, I claim,—

1. A dispensing pump comprising a tubular pump rod, a supported part having a guide through which the pump-rod is passed for longitudinal movement, a spring having connection with said supported part and extended parallel with the pump-rod and a detachable connection between the lower end of the spring and said pump-rod.

2. A dispensing pump, having a pump-rod which is screwthreaded at its upper part, a spring-support 18, screwed on said rod, a spring 17 on said rod, and clips 19 pivotally mounted on the support and engaging the whirls of the spring.

3. A dispensing pump, having a fixed, flanged plate 20 provided with one element of a bayonet-fastening, an apertured cap 22, fitting on the flange of said plate and provided with the other element of said fastening, a flanged, screwthreaded sleeve 14, in the aperture of said cap, the flange thereon bearing on the cap, a clamping sleeve 16, screwed onto the sleeve 14 under said cap, the said sleeves clamping the cap between them, the pump-rod, the head 13, provided with a stem which plays in the sleeve 14, the pump-rod secured removably to the said stem, the piston and the pump-barrel.

4. A dispensing pump comprising a tubular pump-rod, a supported part having a guide through which the pump-rod is passed for longitudinal movement, a spring coiled around the pump rod and having connection with said supported part at its upper end and a device carried by the pump-rod and having means for detachable connection with the lower end of said spring.

5. A dispensing pump comprising a tubular pump-rod, a supported part having a guide through which the pump-rod is passed for longitudinal movement, a spring coiled around the pump-rod and having connection at its upper end with said supported part, a collar carried by the pump-rod and a plurality of devices pivotally held by said collar and adapted to be moved in and out of engagement with the coils of said spring and affording a detachable connection between the lower end of said spring and the pump-rod.

6. A dispensing pump comprising a support, a part detachably held thereto and provided with a central guide, a tubular pump-rod extended through the guide of said part and below said support and adapted for endwise movement, and an extensible spring the upper end of which has connection with the supported part and the lower end of which has connection with said pump-rod.

7. A dispensing pump comprising a support, a part detachably held thereon and provided with a central guide, a tubular pump-rod extended through said guide below said support and adapted for endwise movement, an extensible spring held at its upper end to the supported part and encircling the pump-rod and a detachable connection between the lower end of the spring and said pump-rod.

8. A dispensing pump comprising a tubular pump rod, a supported part having a guide through which the pump rod is passed for longitudinal movement, a spring connected at its upper end with said supported part, and a device adjustable lengthwise upon the pump rod and having connection with the lower end of said spring.

9. A dispensing pump comprising a tubular pump rod, a supported part having a guide through which the pump rod is passed for longitudinal movement, a spring connected at its upper end with said supported part, and a device adjustable lengthwise upon the pump rod and having detachable connection with the lower end of said spring.

10. A dispensing pump comprising a tubular pump rod, a supported part having a guide through which the pump rod is passed for longitudinal movement, a collar held to move with the pump rod and having an annular recess surrounding the rod, and a spring coiled around the pump rod and having at one end supporting connection with the supported part and having its opposite end engaged in the annular recess in said collar.

11. A dispensing pump comprising a tubular pump rod, a supported part having a guide through which the pump rod is passed for longitudinal movement, a collar mounted on the pump rod and having an annular recess surrounding said rod, a spring coiled around the pump rod and having at one end supporting connection with said supported part and having its opposite end engaged in the recess in the collar and a detachable fastening for holding the spring to said collar.

12. A dispensing pump comprising a tubular pump rod, a supported part having a guide through which the pump rod is passed for longitudinal movement, a collar adjustable lengthwise upon the pump rod and having an annular recess, surrounding said rod, a spring coiled around the pump rod and having at one end supporting connection with said supported part and having its opposite end engaged in the recess in the collar and a detachable fastening for holding the spring to said collar.

In witness whereof I have hereunto signed my name this 10th day of April 1906, in the presence of two subscribing witnesses.

MORRIS H. PETIGOR.

Witnesses:

WILLIAM J. FIRTH,

H. G. HOSE.