April 26, 1955 G. G. BROWNING ET AL 2,707,069

SYRUP DISPENSER

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FIG. 3.

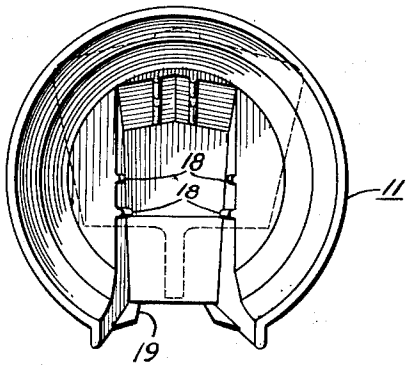


FIG. 1.

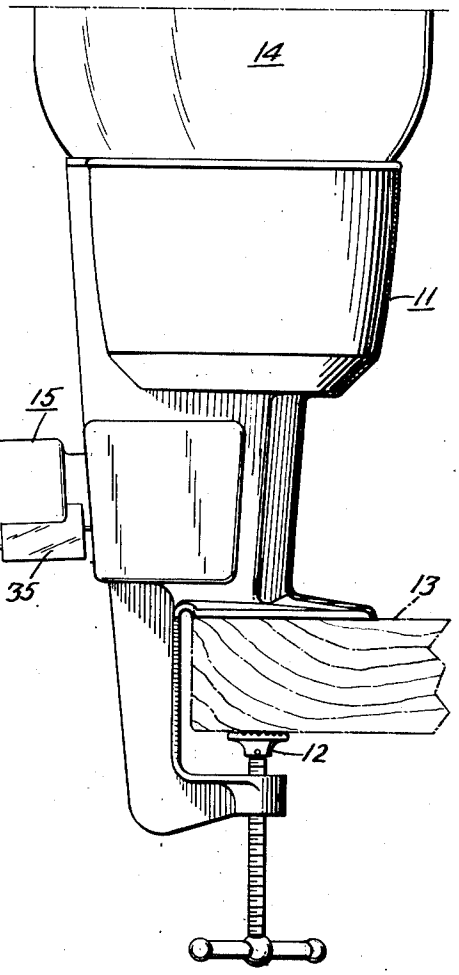
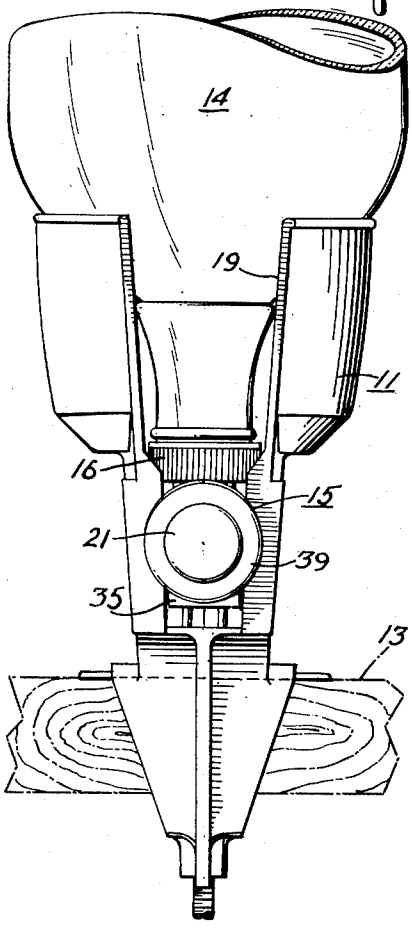


FIG. 2.



Inventors
George G. Browning
Walter P. Browning
by Howson & Howson
Attys.

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FIG. 4.

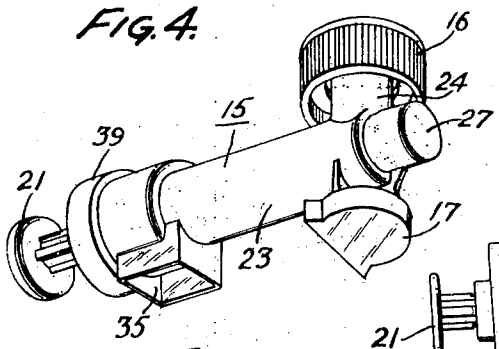


FIG. 5.

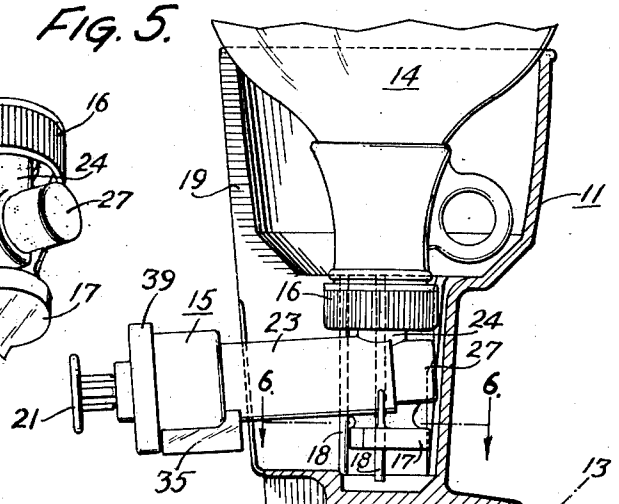


FIG. 6.

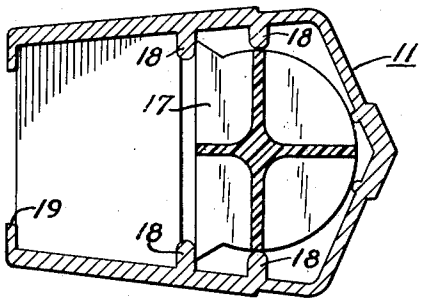


FIG. 7.

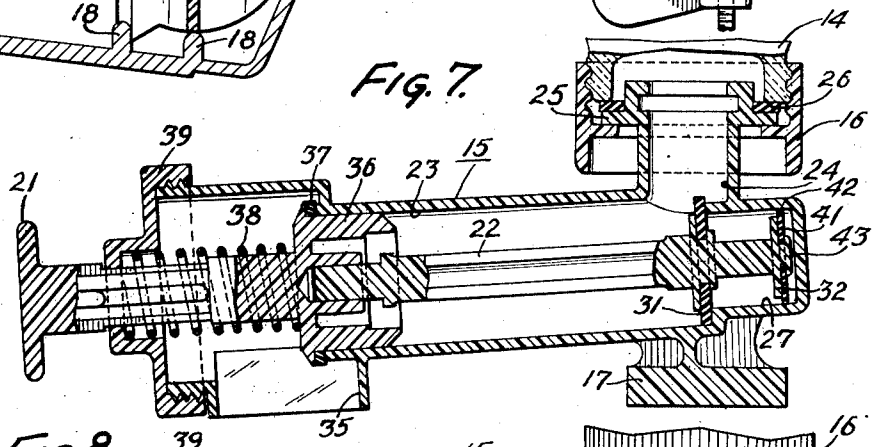
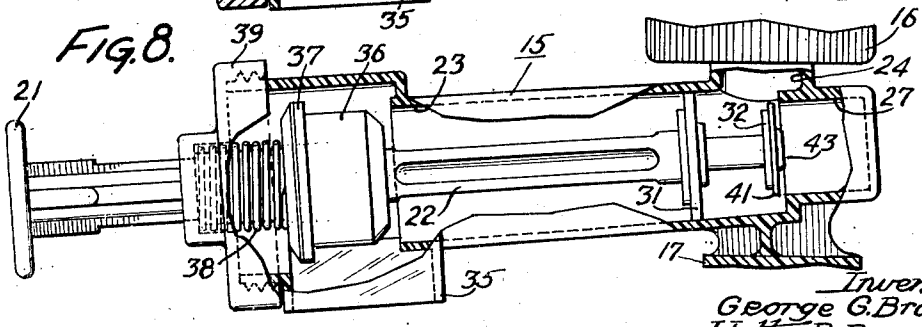


FIG. 8.



Inventors:
George G. Browning
Walter P. Browning
by Howson & Howson
Attys.

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SYRUP DISPENSER

George G. Browning and Walter P. Browning, Devon, Pa., assignors to The G & W Manufacturing Company, Inc., a corporation of Pennsylvania

Application August 4, 1954, Serial No. 447,711

5 Claims. (Cl. 222—449)

The present invention relates to a syrup dispenser and more particularly to a dispenser adapted to be secured to the neck of a jug containing the syrup concentrate and which is operable to dispense a metered quantity of syrup.

The conventional dispensing apparatus for soda fountains and the like consists of an open receptacle for receiving the syrup in bulk form. A valve assembly is mounted in the receptacle is filled from the jugs or other containers for the syrup and the valve assembly is then mounted in the receptacle. At the end of each day's operation the valve assembly is removed from the receptacle and the operating parts thereof are cleaned, in order to prevent sticking and clogging of the valve parts. The cleaning necessitates emptying the container or receptacle for the syrup and soaking the valve in warm or hot water to remove the syrup contained therein. When the soda fountain installation has a substantial number of syrup outlets, it is a tedious and time-consuming task to empty all of the receptacles and remove and clean the valve elements of the various dispensing assemblies.

With the foregoing in mind, a principal object of the present invention is to provide a syrup dispenser assembly which utilizes the usual storage jug as the syrup reservoir and has a readily demountable valve element which may be easily removed and cleaned at the end of each day's operation.

Another object of the present invention is to provide a novel valve element which may be secured to an inverted supply receptacle to accurately meter the syrup discharged from the receptacle.

Another object is to provide a simple and effective metering device having a minimum number of movable parts and which is highly economical in manufacture and use.

Another object of the present invention is to provide a metering valve for syrups and the like having a dashpot arrangement to prevent closure of the valve before all of the metered quantity of syrup has been discharged.

These and other objects of the invention and the details of the construction and operation thereof are more fully set forth hereinafter with reference to the accompanying drawing, in which:

Fig. 1 is a side elevational view of the syrup dispenser assembly;

Fig. 2 is a front elevational view similar to Fig. 1;

Fig. 3 is a plan view of the assembly with the valve and the supply receptacle removed;

Fig. 4 is a detached perspective view of the valve element;

Fig. 5 is a view similar to Fig. 1 with a portion of the casing broken away to illustrate the position of the valve element;

Fig. 6 is a sectional view taken on the line **6—6** of Fig. 5;

Fig. 7 is an enlarged longitudinal sectional view through the valve element of the dispenser; and

Fig. 8 is a fragmentary sectional view similar to Fig. 7 showing the valve in its open position.

Referring now to the drawings, the dispensing apparatus of the present invention comprises a casing **11** which is releasably secured as indicated at **12** to the edge of a soda foundation **13** or the like. The casing **11** supports an inverted jug **14** having secured to its neck a valve housing **15**. As shown in Figs. 4 to 6 inclusive the valve housing **15** has at its one end a screw cap **16** for

releasable engagement with the threaded neck of the jug **14**. Disposed below the screw cap **16** is a foot portion **17** to support the jug **14** therein against both downward and lateral displacement. As shown in Figs. 4 and 6, the foot portion is snugly received between inwardly projecting lugs or bosses **18** formed in the lower portion of the casing **11**. The lugs **18** prevent rotary movement of the valve housing **15** and also serve to support both the valve housing and the jug in the casing **11**. As shown in Fig. 2 the forward face of the casing **11** is formed with an elongated recess **19** which receives the body portion of the valve housing **15** so that it projects outwardly of the casing.

The present invention provides a dispensing assembly which may be releasably secured to the counter of a fountain to increase the capacity of the fountain without requiring alteration of the pre-existing arrangements. This is particularly useful when a new variety of soft drink is being introduced to the public. The present dispenser may be secured to the fountain in a prominent location and it may be readily removed if it is found to lack the necessary sales appeal. Another use of the present invention is in temporary fountain locations, such for example as at local fairs or carnivals. Here the dispensing apparatus may be secured to the counter without the necessity for expensive fountain equipment. In this case the only permanent equipment required is a carbonated water outlet. As shown in Figs. 1 and 2 the casing **11** presents an attractive appearance, and may be readily installed and removed from the counters of preexisting fountains.

In accordance with the present invention the valve meters out a given quantity of the syrup from the jug **14** upon each actuation. To this end, the valve comprises a handle **21** which mounts a piston rod **22** in a hollow cylindrical body portion **23** of the valve housing. The cylindrical portion **23** terminates at one end in an upwardly extending conduit **24** which is provided with the threaded sleeve **16** for securement to the threaded neck of the jug **14**. As shown in Fig. 7 the conduit **24** terminates in an outwardly projecting flange **25** having a gasket **26** thereon to seal between the neck of the jug **14** and the flange **25**. A smaller cylindrical chamber **27** is formed beyond the inlet conduit **24** for a purpose more fully set forth hereinafter.

A piston **31** is mounted in the cylindrical chamber **23** and normally bears against the forward end of the chamber **27** to shut off the latter chamber from the former. As shown in Fig. 8, when the handle **21** is actuated forwardly, the piston **31** closes off the chamber **23** from the inlet conduit **24** and opens the auxiliary chamber **27** into fluid communication with the inlet conduit **24**. An auxiliary piston **32** is mounted on the forward end of the piston rod **22**.

At the opposite end of the main cylindrical portion **23** discharge outlet **35** is provided to discharge the contents of chamber **23**. The forward end of the cylindrical chamber **23** is normally closed by a plug member **36** fixedly mounted on the piston rod **22** and having a gasket **37** for engagement against the end shoulder of the chamber **23**. In normal position the plug **36** is biased against the end of the chamber **23** by a spring **38** compressed between the plug **36** and the housing **39** of the valve element **15**. Thus when the valve is in normal position, the cylindrical chamber **23** is loaded with the syrup from the jug **14** through the inlet conduit **24**, and a given quantity of the syrup is retained in the chamber **23** by the plug closure **36**.

When it is desired to discharge the given quantity of syrup retained in the chamber **23**, the handle **21** is actuated outwardly against the bias of the spring **38**. This uncovers the open end of the chamber and allows the syrup contained therein to flow out through the outlet **35**, as shown in Fig. 8. At the same time the piston **31** closes off the chamber **23** from the inlet conduit **24** and operates to prevent more than the desired quantity of syrup from flowing out of the chamber **23**. Thus a given metered quantity of the syrup is discharged upon each actuation of the handle **21**.

When the handle is released the spring **38** tends to

snap the plug **36** and the piston **31** respectively against the forward ends of the chamber **23** and the chamber **27**. However, the snap action is impeded by the dashpot arrangement provided by the auxiliary piston **32** in the auxiliary chamber **27**. To this end, the piston **32** is provided with a flexible gasket member **41** having, if desired, a notch **42** permitting limited fluid flow from one side thereof to the other upon rightward movement as shown in Figs. 7 and 8. The notch provides a throttling of the syrup as it flows from one side of the piston to the other so as to retard the return action of the piston rod **22** under the bias of the spring **38**. It should be noted, however, that the piston **32** and the gasket **41** does not seriously retard the forward movement of the piston **22**. To this end, the trailing edge of the piston, as indicated at **43**, does not back up the gasket member **42** sufficiently to prevent the gasket from being displaced rearwardly. This permits fluid flow between the gasket and the wall of the auxiliary chamber **27**. Thus, the piston **32** affords quick opening action of the valve, and yet retards or damps the return movement thereof.

Preferably, the valve assembly **15** is formed of Lucite or a like transparent plastic material. This enables the operator of the fountain to watch the operation of the valve, and also insures that the valve housing is properly cleaned at the end of each day's operation. By providing a transparent valve member the chance of foreign material becoming lodged in the valve housing and remaining there for an indefinite period, is minimized.

While a particular embodiment of the invention has been herein illustrated and described, it is not intended to limit the invention to such disclosure and changes and modifications may be made therein and thereto within the scope of the following claims.

We claim:

1. For a syrup dispenser, having a casing and an inverted receptacle releasably mounted on said casing, a metering valve for securement to said receptacle comprising a housing defining a substantially horizontal main cylindrical chamber having a predetermined capacity, an auxiliary chamber at the rearward end of said main chamber in axial alignment therewith, an inlet opening intermediate said main and auxiliary chambers, and an outlet opening adjacent the forward end of said main chamber, a longitudinally reciprocal piston rod in said housing, an auxiliary piston at the rearward end of said rod and mounted for longitudinal displacement in said auxiliary chamber having means thereon affording free forward movement and retarding rearward movement, a main piston mounted for forward and back movement in said main chamber and operable in its rearward limit position to close said auxiliary chamber and open said inlet to said main chamber, and in its forward limit position to close off said inlet from said main chamber, a plug member adjacent the forward end of said rod mounted for reciprocation therewith, disposed in its rearward limit position intermediate said outlet opening and said main cylinder to close off said outlet and in its forward limit position in advance of said outlet opening to afford discharge of said predetermined quantity of material in said main chamber, means to bias said rod to its rearward limit position to afford loading of said main chamber from said supply, and means to actuate said rod to said forward limit position to discharge the load from said main chamber.

2. A metering valve according to claim 1 wherein said housing is formed with a foot portion to engage said casing and support the same against downward and horizontal displacement.

3. A metering valve according to claim 1 wherein said auxiliary chamber is smaller in diameter than said main chamber to provide a shoulder therebetween, said shoulder forming a seat for said main piston in its forward limit position.

4. A metering valve according to claim 3 wherein said outlet opening is coaxial with and larger in diameter than said main cylinder to form a shoulder therebetween, said shoulder forming a seat for said plug member in its forward limit position.

5. A metering valve according to claim 4 including a removable cap for the forward end of said housing in axial alignment with said outlet opening and said chambers, the forward extremity of said rod passing through said cap, and said bias means comprising a spring compressed between said plug and said cap.

No references cited.