June 29, 1937. R. NOYES 2,085,669

DISPENSING DEVICE

Filed April 20, 1936

Fig. 1.

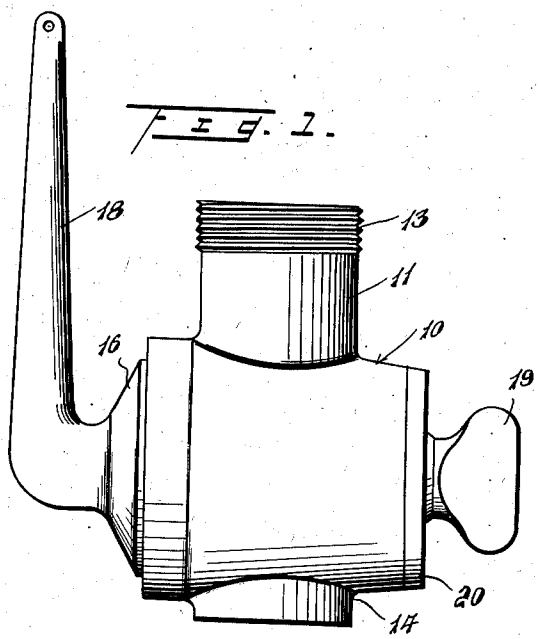


Fig. 3.

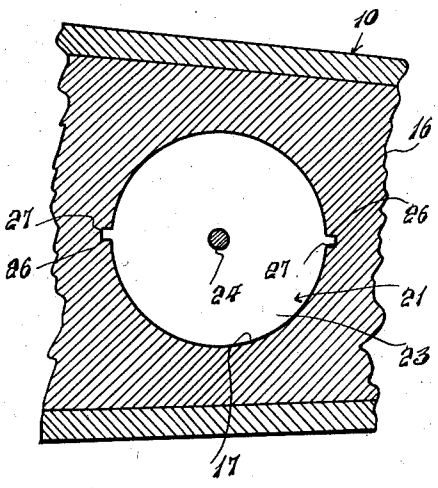
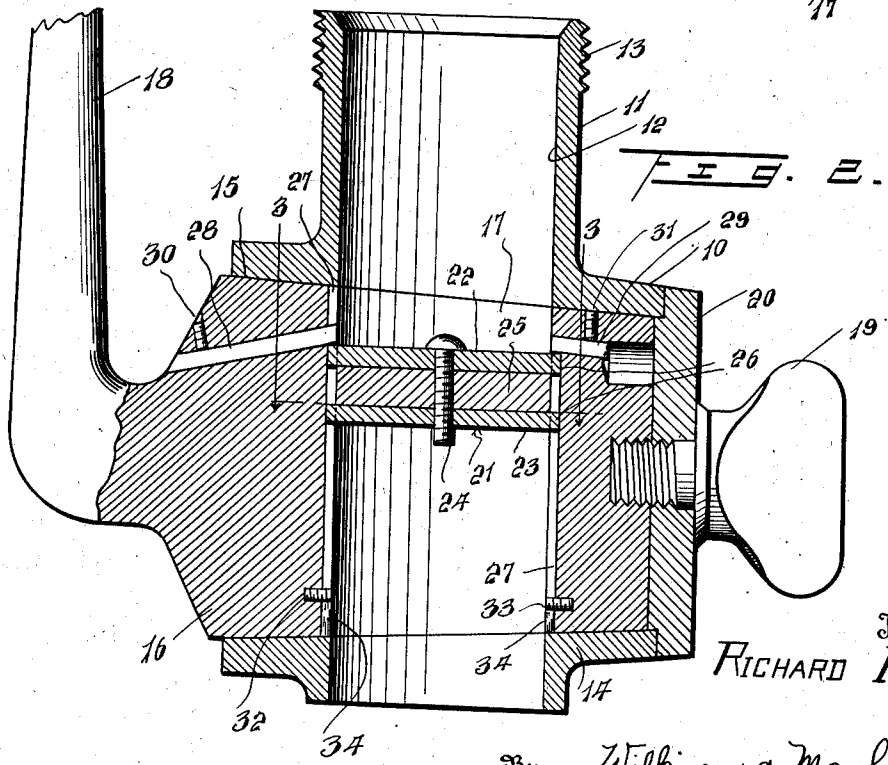


Fig. 2.



Inventor

RICHARD NOYES

By Wilkinson & Mawhinney

Attorneys.

Patented June 29, 1937 2,085,669

UNITED STATES PATENT OFFICE

2,085,669

DISPENSING DEVICE

Richard Noyes, Portland, Maine

Application April 20, 1936, Serial No. 75,489

2 Claims. (Cl. 221—106)

This invention relates to dispensing devices, and more particularly to a combined dispensing and measuring valve.

An object of this invention is to provide a dispensing and measuring device which is particularly designed for dispensing and measuring material in a plastic state which is under pressure.

Another object of this invention is to provide a device of this character which is designed particularly for dispensing and measuring ice cream or like material.

A further object of this invention is to provide a device of this character which is readily cleansed and wherein the measuring means is contained entirely within the rotatable valve member.

A still further object of this invention is to provide a device of this character which may be readily attached to or removed from a container, the device having a straight opening therethrough which is intersected by a measuring means and the material being ejected by the pressure applied to the container.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the appended claims.

In the drawing, wherein like symbols refer to like or corresponding parts throughout the several views:

Figure 1 is a detail side elevation of a measuring valve constructed according to an embodiment of this invention.

Figure 2 is an enlarged vertical section, partly in detail, of the valve.

Figure 3 is a fragmentary sectional view taken on the line 3—3 of Figure 2.

Referring to the drawing, the numeral 10 designates generally a valve housing which is adapted to be secured to a suitable container having plastic or semi-plastic material disposed therein. The housing 10 has a nipple 11 secured thereto which is provided with exterior threads 13 which are adapted to engage a suitable connection carried by the container to which the housing 10 is connected. The housing 10 has a bore or measuring opening 12 therethrough which at one end communicates with the bore of the nipple 13 and the other end of the opening or bore 12 extends through a boss or enlargement 14 which constitutes the discharge end of the bore 12. The opening 12 through the housing 10 is of the same diameter as the interior diameter of the nipple 13, and the opening through the discharge nozzle 14 is also of the same diameter as the bore 12.

The housing 10 is also provided with a tapered valve seat or opening 15 disposed at right angles to the bore 12 and intersecting the bore 12. A tapered valve member 16 engages in the tapered opening 15, and this valve member 16 is provided with a passage 17 therethrough which is adapted to register with the bore 12 when the valve member 16 is in open position. One end of the valve member, and in this instance the large end, is provided with a handle 18 which may be cast integral with the valve member 16 or may be secured thereto in any suitable manner.

The other or reduced end of the valve member 16 has a thumb screw 19 threaded thereinto, and this thumb screw extends through a plate 20 which engages against the adjacent end of the housing 10 so as to hold the valve member 16 in operating position in the tapered opening 15.

The opening 17 in the valve member 16 constitutes the measuring means for the material passing through the housing 10, and in order to provide a means whereby the material to be measured may not freely pass through the valve member 16 when this valve member is in open position, I have provided a plunger, generally designated at 21 which is slidable in the opening or cylinder 17. The plunger 21 is constructed of a pair of discs 22 and 23 which are secured together by means of an axially disposed bolt or screw 24. A spacing member 25 is interposed between the discs 22 and 23, and this spacing member 25 provides a means whereby the quantity of material to be dispensed may be varied without the necessity of providing a new plunger.

The plunger 21 is held against rotation in the cylinder or bore 17 by means of diametrically opposed keys 26 which slidably engage in keyways 27 provided in the cylinder or bore 17. A pair of removable stop pins 28 and 29 are mounted in the valve member 16 and have their inner ends projecting into the keyways 27. The pin 28 is locked against movement by means of a set screw 30, and the pin 29 is locked against movement by means of a set screw 31. The pins 28 and 29 are disposed adjacent one end of the keyways 27, whereas stop members 32 and 33 are disposed in the keyways 27 adjacent the opposite ends thereof, these stop members 32 and 33 being constructed in the form of pins or threaded members, and preferably the ends of the keyways 27 projecting beyond the stop members 32 and 33 are filled up by solder 34 or

the like so that none of the material to be dispensed will lodge therein.

In the use and operation of this dispensing and measuring valve, the nipple 13 is adapted to be threaded into a suitable connection provided in the container which has a predetermined degree of pressure therein in order to force the material to move through the valve. The handle 18 is turned to a position wherein the cylinder 17 will register with the bore 12, and in this position the material in the container will pass through the nipple 13 and force the plunger 21 outwardly to the limit of the stops 28—29 or the stops 32—33, depending only upon the manipulation of the handle 18. When the cylinder 17 is filled with the material and the plunger 21 is forced outwardly to its limit, the handle 18 is then turned through an arc of one hundred and eighty degrees so that the plunger 21 will be disposed in an innermost position. The pressure which is applied to the material in the container will then force the plunger 21 outwardly, and outward movement of the plunger 21 will eject all of the material in the cylinder 17 through the nozzle 14. The plunger 21 is forced outwardly by the material moving through the nipple 13, and when the plunger 21 reaches its outermost position the cylinder 17 will again be filled so that each half turn of the handle 18 and the valve member 16 will dispense a measured quantity of material.

It will be apparent from the foregoing that an exceedingly simple measuring valve has been devised which will measure a predetermined quantity of material, and that the quantity of material to be measured and dispensed may readily be changed when the need therefor exists by merely changing the size of the spacer 25. Furthermore by providing a valve member with a straight opening therethrough and having a nozzle or discharge means of the same size, the material to be ejected will be more firmly packed and present a better appearance than where a small discharge opening is used which is relatively smaller than the plunger.

It is obvious that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claims.

What is claimed is:

1. A dispensing and measuring valve comprising a housing having a passage therethrough, a valve member intersecting said passage and having an opening therethrough adapted to register with said passage when the valve member is in open position, said valve member having a pair of diametrically opposed keyways in the opening thereof, a plunger slidable in said valve member opening, keys carried by the plunger engaging in said keyways, stop members carried by the valve member adjacent one end of the opening, a pair of removable stop pins carried by the valve member adjacent the opposite end of the opening, and means for removably securing said stop pins in the valve member.

2. A dispensing and measuring device comprising a housing having a substantially vertical opening therethrough for the movement of material, a plug valve mounted in said housing for rotation on a substantially horizontal axis and having an opening therethrough adapted to register with the vertical opening in said casing, said plug valve having key-ways therein communicating with the opening, a plunger mounted to reciprocate in the opening in said plug valve and composed of an intermediate flat spacing block, a pair of discs abutting said block, one disc being on each side of the block, said discs having keys thereon for riding up and down in said key-ways and means for binding said pair of discs to said block, and stop members projecting into said key-way at opposite sides of said plunger and positioned to encounter said keys to restrict the throw of the plunger.

RICHARD NOYES.