Aug. 5, 1930. W. A. WHITTLE 1,772,377

DISPENSING DEVICE

Original Filed Feb. 9, 1928

Fig. 1.

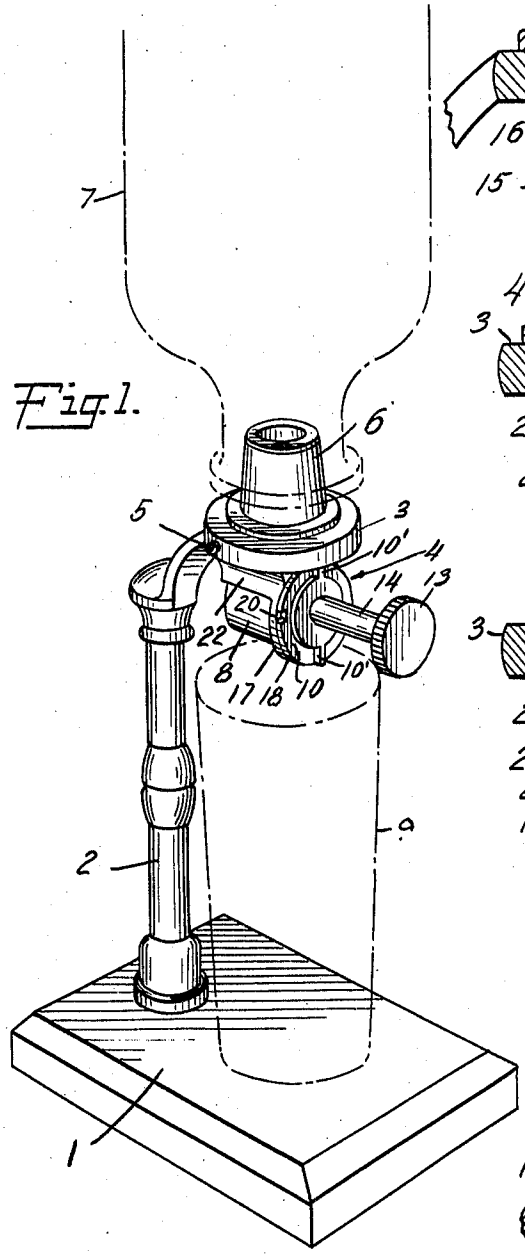


Fig. 2.

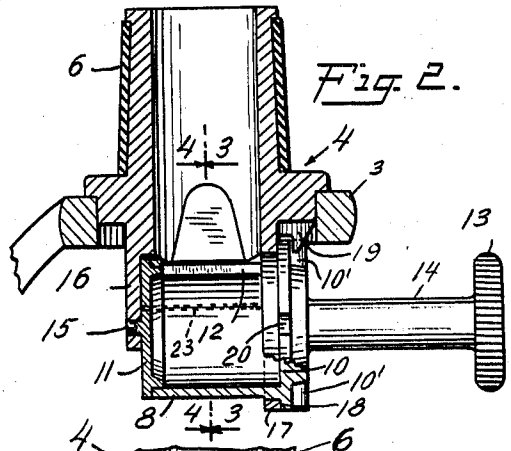


Fig. 3.

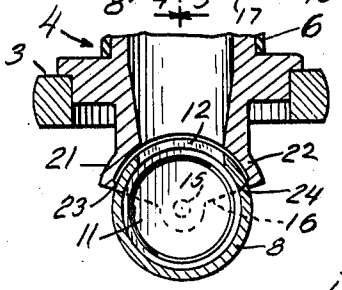


Fig. 4.

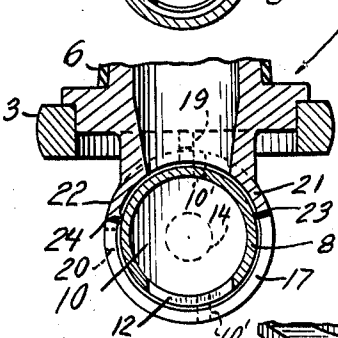


Fig. 5.

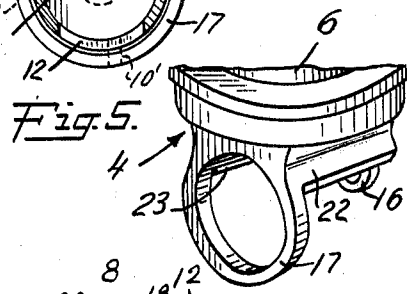
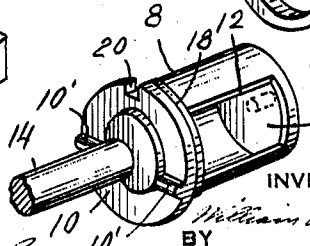


Fig. 6.



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Patented Aug. 5, 1930

1,772,377

UNITED STATES PATENT OFFICE

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DISPENSING DEVICE

Continuation of application Serial No. 253,066, filed February 9, 1928. This application filed March 6, 1929. Serial No. 344,811.

This invention relates to dispensing devices and more particularly to devices for dispensing powdered or granular material. This application is a continuation of my prior application, Serial Number 253,066, filed February 9, 1928.

My invention relates to improvements in dispensing devices of the type illustrated and described in the C. R. Warters Patent No. 963,342. Dispensing devices of this general type are adapted for use with a container placed in an inverted position, the dispensing device serving to dispense the contents of the container in measured portions into a glass or other receptacle placed below the dispensing device.

In handling a powdered or granular material with a dispensing device, such as that here under consideration, it is desirable to have the device so constructed and arranged that measured portions of the material may be discharged from the container for the same with a minimum of effort and without the necessity of giving the device frequent attention to keep it in good operating condition. This is especially important where the material being dispensed is somewhat hygroscopic in which case the material has a tendency to adhere to the surfaces with which it comes in contact.

It is an object of the present invention to provide a simple and inexpensive dispensing device, the relatively moving parts of which are so formed as to provide a minimum of friction between these parts and to eliminate the possibility of the moving parts becoming clogged by an accumulation on them of the material being dispensed. My invention contemplates the provision of a rotatable cup for alternately receiving charges of the material being dispensed and discharging the same, this cup cooperating with other parts to provide a seal preventing accidental discharge of the powdered or granular material, the several parts being so constructed and arranged as to provide a minimum area of contact between the rotatable cup and the other parts of the device. My invention also includes improved means for scraping the exterior surface of the rotatable cup to prevent accumulations thereon of particles of the material being dispensed.

The various objects and advantages of my invention will be more apparent upon considering the following detailed description and the accompanying drawings illustrating one embodiment of my invention. In the accompanying drawings

Fig. 1 is a perspective view of a dispensing device embodying my invention;

Fig. 2 is a vertical section view of the dispensing device shown in Fig. 1;

Fig. 3 is a vertical section view of a portion of the device shown in Fig. 2, taken on line 3—3 of Fig. 2;

Fig. 4 is a vertical section view of a portion of the device shown in Fig. 2, taken on line 4—4 of Fig. 2;

Figs. 5 and 6 are detailed perspective views of parts of the device shown in Fig. 2.

The embodiment of my invention, illustrated in the accompanying drawings, includes a base plate 1 carrying an upright standard 2 having an integral yoke 3 at the upper end thereof and adapted to support a dispensing head 4. The head 4 may be secured to the yoke 3 by any suitable means, such as the set screw 5. The dispensing head is substantially tubular in form and is provided with an upper portion 6 adapted to communicate with a container 7 placed in an inverted position on the head so that the contents of the container may flow by gravity into the tubular head. A rotatable cup or barrel 8 is mounted near the lower portion of the head 4 and is adapted to alternately receive charges of material from the container 7 and discharge the same into a glass or other receptacle 9 placed on the base plate 1.

Referring particularly to Figs. 2 to 6, inclusive, it will be noted that the cup or barrel 8 there illustrated comprises a cylindrical member having closed ends 10 and 11. The cylindrical wall of the cup has an opening 12 therein adapted to register with the tubular bore of the dispensing head 4. The cup 8 may be rotated by turning a knob 13 connected to the cup by a shaft 14. The end plate 11 forming a closure for one end of

the cup is provided with an external projection 15 adapted to serve as a stub shaft or journal engaging a bearing in a journal bracket 16 depending from the head 4. It will be noted that this journal bracket 16 does not cover the entire surface of the end plate 11. Its function is primarily to provide a journal bearing for the adjacent end of the cup 8 and the friction of the cup against the journal bracket is very small because of the fact that this bracket engages only a relatively small portion of the end of the cup.

The dispensing head 4 is provided with an integral extension in the form of a ring 17 adapted to encircle the cup 8 near one end thereof, and it will be understood that the cup is rotatably mounted near the lower portion of the dispensing head by virtue of its engagement with the ring 17 and with the journal bracket 16. The end plate 10, closing that end of the cup adjacent to the knob 13, is somewhat larger in diameter than the cylindrical portion of the cup, thereby providing a flange 18 engaging the ring 17. A projection 19 is provided on the dispensing head 4 for engaging the exposed side of the flange 18, thereby holding the cup in proper position. The flange may be provided with a notch 20 adapted to register with the projection 19 when the cup occupies a certain position and when this condition obtains the cup may be readily withdrawn from the lower end of the dispensing head. The end plate 10 may be provided with a transverse rib 10′ which acts as a stop or abutment adapted to engage the projection 19 to limit the rotation of the cup and thereby ensure proper alignment of the opening in the cup with the bore of the dispensing head.

The dispensing head is provided with integral extensions 21 and 22 extending at substantially right angles to the journal bracket 16 and the ring 17 and having internal curved surfaces conforming in contour with the cylindrical external surface o f the cup 8. The inner surfaces of these extensions 21 and 22 cooperate with the external surface of the cup or barrel 8 to provide a seal for the lower end of the dispensing head 4. I have discovered that the dispensing device will operate most efficiently if these extensions 21 and 22 are so formed that they cover only a very small portion of the dispensing cup. In general these extensions should be spaced apart around the exterior of the cup a distance greater than the width of the opening in the cup and I prefer to have them so formed as to expose the major portion of the cup. In fact the area of the inner surface of each of these extensions may be less than that of the opening in the cup, in which event these extensions are incapable of completely closing the opening when the cup is being rotated. I have found that for all practical purposes it is possible to dispense measured portions of the powdered or grandular material with a sufficient degree of accuracy, even though the extension pieces 21 and 22 are not large enough to completely close the opening in the dispensing cup and by thus reducing the area of the extension pieces 21 and 22 the friction between these pieces and the cup is greatly reduced and the danger of having the parts become clogged is negligible. To further ensure free operation of the device under all conditions I may provide radially extending scraping edges 23 and 24 adapted to engage the exterior surface of the cup and remove therefrom all particles which have a tendency to adhere thereto. As illustrated in the drawing the scraping edges 23 and 24 are located at the lower extremities of the housing extensions 21 and 22, thus being adapted to scrape almost the entire exterior surface of the cup 8. The scraping edges are so located as to scrape all portions of the cup registering with the sealing portions of the head or housing.

Where my invention is used in the form illustrated in the accompanying drawings, or in any equivalent form, it will be found that the device will be very easy to operate and will be in good operating condition at all times, even though used for the purpose of dispensing material having a considerable tendency to adhere to the surfaces with which it comes in contact. In general this result is brought about by reducing to a minimum the area of contact between the rotatable cup and all parts associated therewith, thereby reducing the friction between the cup and the other parts of the device and preventing the device from becoming clogged by an accumulation on the parts thereof of the material being dispensed. The efficiency of the device may be improved by providing scrapers, as above described, and by this invention dispensing devices of the type under consideration are rendered more useful for the purposes for which they have previously been employed and they can be used for handling materials impossible to handle efficiently with the dispensing devices heretofore employed.

It is to be understood that my invention is not limited to the details of construction illustrated and described but includes such modifications thereof as fall within the scope of the appended claims.

I claim—

1. In a device of the character described a tubular head having means for communicating with a dispensing container, and a hollow cylindrical cup rotatably supported by said head and having an opening therein, for alternately receiving material from said container and discharging the same, said head having portions cooperating with the exterior surface of said cylindrical cup to form a seal for said head, said portions being

spaced apart around said cup a distance greater than the width of the opening in said cup, each of said portions having less area than the opening in said cup.

2. In a device of the character described a tubular head having means for communicating with a dispensing container, and a hollow cylindrical cup rotatably supported by said head and having an opening therein, for alternately receiving material from said container and discharging the same, said head having portions cooperating with the exterior surface of said cylindrical cup to form a seal for said head, each of said portions having less area than the opening in said cup.

3. In a device of the character described a tubular head having means for communicating with a dispensing container, and a hollow cylindrical cup rotatably supported by said head and having an opening therein, for alternately receiving material from said container and discharging the same, said head having portions cooperating with the exterior surface of said cylindrical cup to form a seal for said head, said portions being spaced apart around said cup a distance greater than the width of the opening in said cup, and said portions having radially projecting scraping edges at the lower extremities thereof for scraping the exterior of the cup.

4. In a device of the character described a tubular head, a receiving and dispensing cup rotatably mounted at the base thereof, extensions depending from said head and housing the upper portion of said cup, and radially projecting scraper edges formed internally of said extensions at the lower extremities thereof and extending longitudinally of and engaging the external surface of said cup.

In testimony whereof I affix my signature.

WILLIAM ALOYSIUS WHITTLE.