July 14, 1942. L. FRANK 2,289,880

DISPENSING CONTAINER

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Fig. 1.

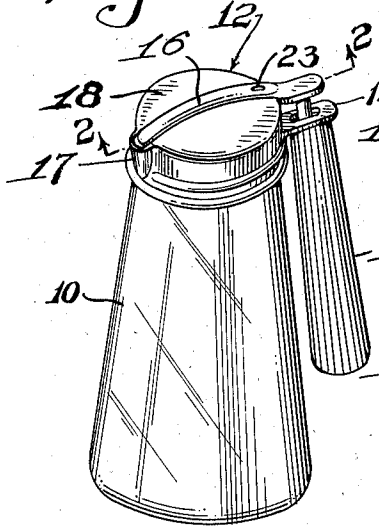


Fig. 2.

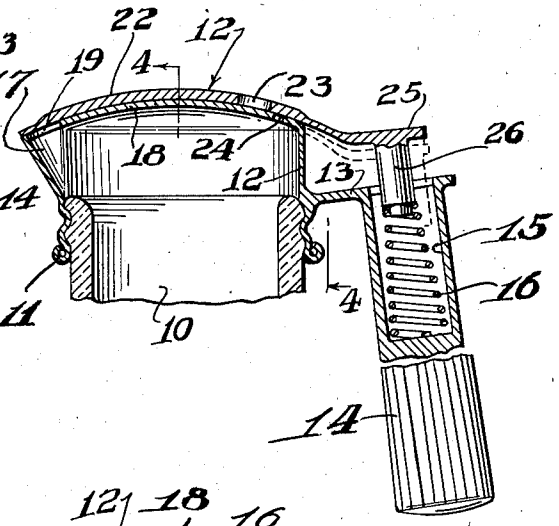


Fig. 3.

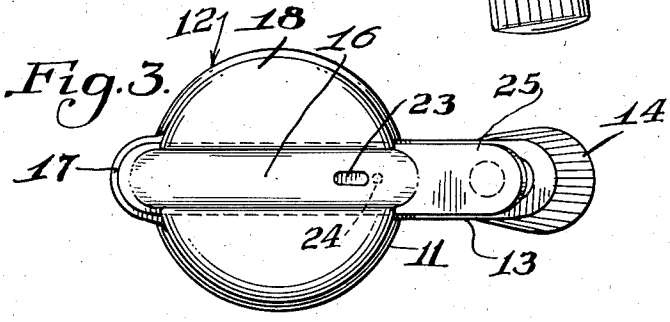
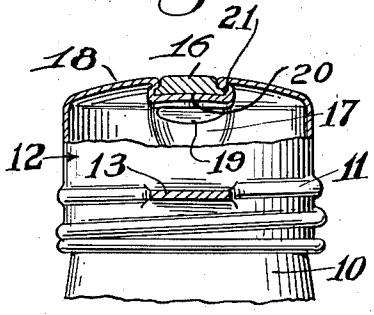


Fig. 4.



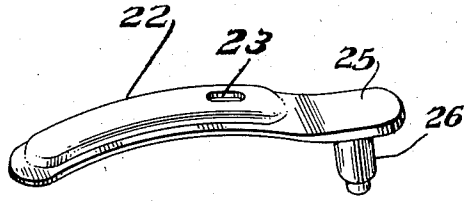
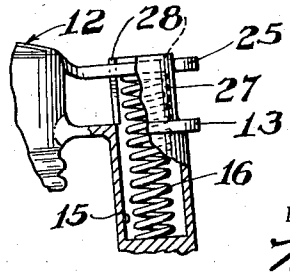


Fig. 5.

Fig. 6.



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Fig. 7.

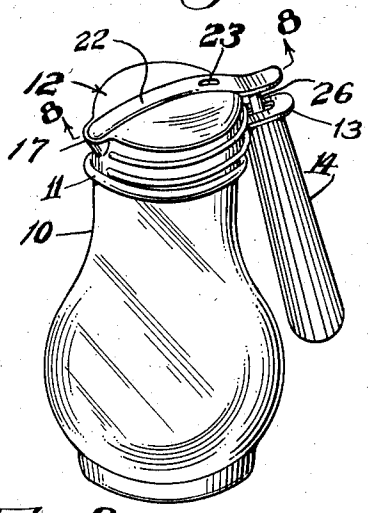


Fig. 8.

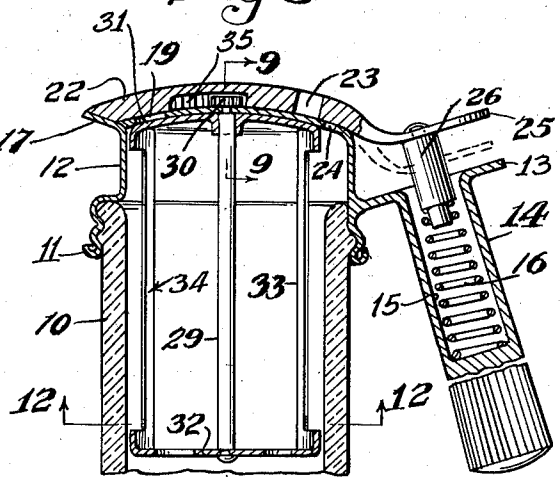


Fig. 9.

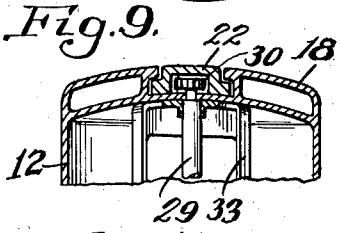


Fig. 10.

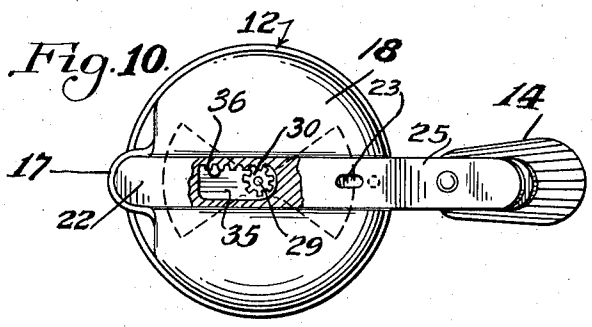


Fig. 11.

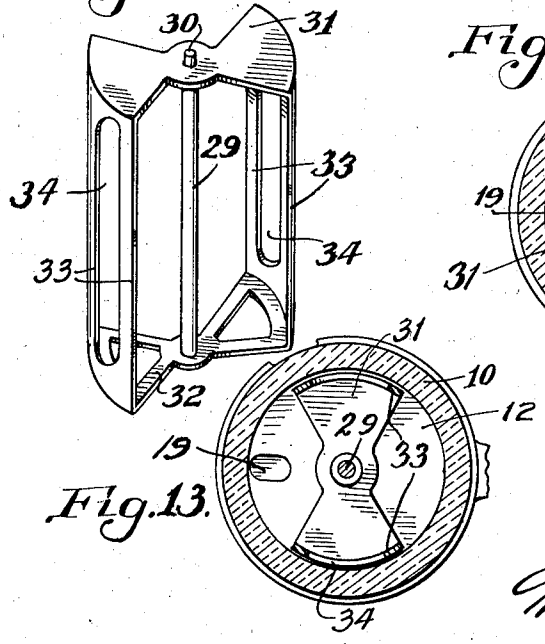


Fig. 12.

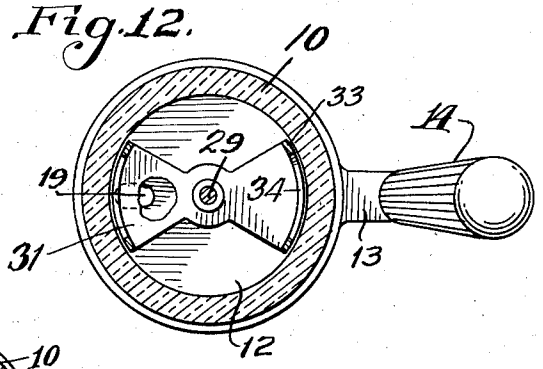


Fig. 13.

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Fig. 14.

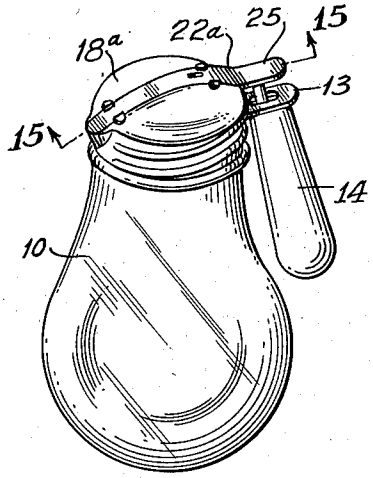


Fig. 15.

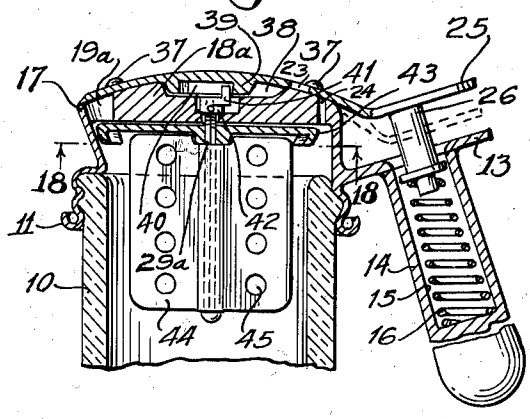


Fig. 16.

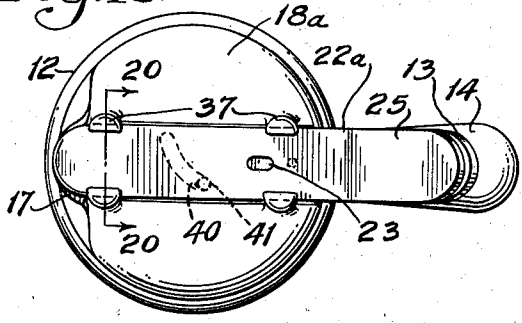


Fig. 17.

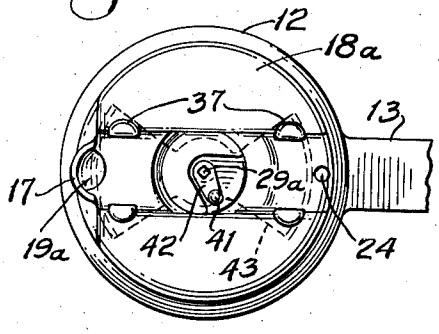


Fig. 18.

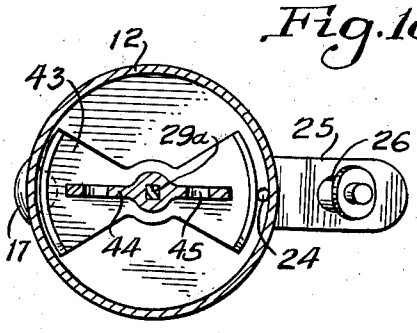


Fig. 19.

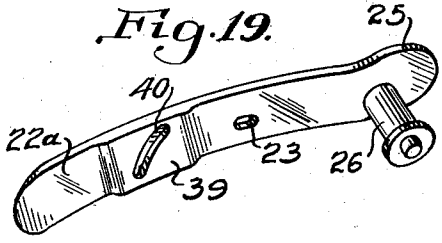
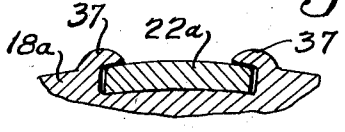


Fig. 20.



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Patented July 14, 1942

2,289,880

UNITED STATES PATENT OFFICE

2,289,880

DISPENSING CONTAINER

Louis Frank, Taft, Calif., assignor of one-third to Adolph Reader, Taft, Calif.

Application December 1, 1939, Serial No. 307,100

4 Claims. (Cl. 65—31)

My invention relates to a dispensing container and has for its principal object the provision of a relatively simple, practical and inexpensive device in the nature of a closure that is adapted to be removably applied to containers, such as glass jars, and which closure is constructed so as to be conveniently manipulated in order to control the dispensing or discharge of various materials or substances from the container, for instance, powdered, pulverized or granular products or viscous liquids such as syrups, strained honey, heavy oils and the like.

Further objects of my invention are, to generally improve upon and simplify the construction of the existing forms of dispensing closures now on the market, further, to provide a device of the character referred to that is normally maintained in closed position by means of a spring and which is opened as a result of pressure of the thumb or finger on a sliding member that controls the discharge outlet of the closure and further, to combine with the closure, stirring devices that extend downward into the upper portion of the jar or receptacle on which the closure is mounted and which stirring means is acutated during the opening and closing movements of the sliding member that closes the discharge opening, thereby stirring the contents of the jar or receptacle in order that said contents will flow more readily while being dispensed or discharged from the receptacle.

With the foregoing and other objects in view, my invention consists in certain novel features of construction and arrangement of parts that will be hereinafter more fully described and claimed and illustrated in the accompanying drawings in which:

Fig. 1 is a perspective view of a dispensing closure constructed in accordance with my invention and the same being positioned on a container.

Fig. 2 is an enlarged vertical section taken on the line 2—2 of Fig. 1.

Fig. 3 is a plan view of the dispensing closure.

Fig. 4 is a vertical section taken on the line 4—4 of Fig. 2.

Fig. 5 is a perspective view of the sliding plate that controls the discharge opening of the closure.

Fig. 6 is a detail view partly in section and showing a modified form of the handle of the closure.

Fig. 7 is a perspective view of a modified form of the closure.

Fig. 8 is an enlarged vertical section taken on the line 8—8 of Fig. 7.

Fig. 9 is a cross section taken on the line 9—9 of Fig. 8.

Fig. 10 is a plan view of the closure with a portion thereof in section.

Fig. 11 is a perspective view of the stirring element utilized with the form of closure illustrated in Fig. 1.

Fig. 12 is a horizontal section taken on the line 12—12 of Fig. 8.

Fig. 13 is a horizontal section similar to Fig. 12 and showing the stirring element in shifted position.

Fig. 14 is a perspective view of a further modified form of the dispensing closure.

Fig. 15 is an enlarged vertical section taken on the line 15—15 of Fig. 14.

Fig. 16 is a top plan view of the form of dispensing closure illustrated in Figs. 14 and 15.

Fig. 17 is a top plan view of the closure with the sliding plate removed.

Fig. 18 is a cross section taken on the line 18—18 of Fig. 15.

Fig. 19 is a perspective view of the sliding plate forming a part of the closure.

Fig. 20 is an enlarged cross section taken on the line 20—20 of Fig. 16.

Referring by numerals to the accompanying drawings and particularly to the construction illustrated in Figs. 1 to 5 inclusive, 10 designates a jar or container which may be of any desired size and shape and preferably composed of glass. The upper portion of this receptacle is externally threaded for the reception of the threaded skirt portion 11 of a cap 12, which latter may be formed of metal, plastics, or any suitable material and which serves as a closure for the open upper end of the receptacle.

Projecting outwardly from the lower portion of the cap body 12 of the closure is a short arm 13 and formed integral with and depending from the outer portion of said arm is a handle 14 provided in its upper portion with a chamber 15 in which is located an expansive coil spring 16.

Formed integral with and projecting outwardly from the closure body 12 diametrically opposite the handle 14 is a pouring spout 17 and formed in the top 18 of the cap 12 immediately above said spout is an opening 19 through which the contents of the jar or container are adapted to discharge when said opening is uncovered.

Formed on the upper surface of top plate 18 and extending from the discharge opening 19 diametrically across said top is a groove or channel

20 having under-cut side edges 21 and arranged to slide freely in said groove or channel is a plate 22, the side edges of which occupy the grooves formed in the under-cut side edges of channel 20.

Formed through the rear portion of sliding plate 22 is a short longitudinally disposed slot 23 which when the plate is drawn rearwardly so that the forward end thereof uncovers the discharge opening 19 registers with the aperture 24 that is formed in plate 18, thus permitting air to enter the receptacle on which the closure is positioned and consequently facilitating the flow of liquid or granular product therefrom. The top plate 18 of the closure is curved in cross section with its convex face externally arranged and to conform with this shape the sliding plate 22 is curved longitudinally.

Projecting from the rear end of plate 22 is a short arm 25 and formed integral with and depending from said arm is a depending finger 26 that enters the open upper end of chamber 15 in handle 14 and engages the upper end of the coil spring 16. The diameter of the finger 26 is considerably less than the diameter of the recess or chamber 15 that is occupied by spring 16 and thus, said finger is permitted considerable lateral movement during the opening and closing movements of the sliding plate 22.

Under normal conditions spring 16 exerting pressure against the rear end of sliding plate 22 maintains the same so that the forward end of said plate covers the discharge opening 19, thus preventing air and dust from entering the receptacle. While the sliding plate is in its forward closed position, the slot 18 is positioned slightly in front of the air inlet aperture 24. To uncover discharge opening 19 so as to permit discharge of the contents of the receptacle 10 or a portion thereof, the operator grasps handle 14 and with the thumb or finger presses downwardly and rearwardly upon the plate 14, thus imparting rearward sliding movement to plate 23 and which action compresses spring 16.

As the forward end of plate 22 moves away from the pouring spout 17 the discharge opening 19 is uncovered and at the same time slot 23 registers with air inlet opening 24, thus permitting air to enter the container and enabling the contents thereof to flow freely through the discharge opening. After the desired portion of the contents of the container have been poured through spout 17 and out through opening 19, the operator withdraws the thumb or finger from the rear end of the sliding plate. Tension of spring 16 acts to slide plate 22 forwardly on the cap or cover, thereby closing the discharge opening 19 and cutting off the further flow of product from the receptacle in such a manner as to prevent any drip from the spout and at the same time the slot 23 in the sliding plate moves away from the air inlet opening 19.

In the modified construction illustrated in Fig. 6, a short tubular extension 27 projects upwardly from the rear portion of plate 22 for the accommodation of the upper portion of the expansion spring 16 that is contained in chamber 15 and the projecting rear portion of plate 22 passes through vertically disposed slots 28 that are formed in the upwardly projecting tubular member 27 and rests directly upon the upper end of the spring, such construction eliminating the finger 26 on the rear end of the sliding plate.

The modified construction illustrated in Figs. 7 to 13 inclusive is practically the same as the form of dispenser heretofore described, but the modification includes stirring means that depends from the cover of the receptacle and which is operated by the sliding plate 22. In this modified construction, a vertically disposed shaft 29 has its upper end journalled in the center of the plate 18 and on the end of the shaft that projects through said plate is mounted a small pinion 30. Secured to the shaft 29 just beneath plate 18 is a cross arm 31 and a similar cross arm 32 is secured to the lower end of the shaft.

Connecting the outer portions of the cross arms 31 and 32 are vertically disposed plates 33 that are provided with vertically disposed slots 34 (see Fig. 11).

Formed in the under side of the central portion of the sliding plate 22 is a recess 35 for the accommodation of the pinion 30 and formed along one side of this recess is a series of teeth 36 that engage with the teeth of said pinion.

As a result of the construction just described, the shaft 29 carrying the stirring means will be rotated first in one direction and then in another as the sliding plate 22 moves rearwardly and thence forwardly, which rotation of the stirring means results from the engagement of the teeth 36 on the sliding plate with the teeth of the pinion 30 and thus the product within the upper portion of the receptacle will be stirred whenever the sliding plate 22 is actuated, thus facilitating the flow of the product from the receptacle through the discharge opening 19.

The construction illustrated in Figs. 14 to 20 inclusive is a modified form of the material stirring means and in this construction the sliding plate 22a that controls the discharge opening 19a in the closure is retained for sliding movement in the groove across the top of the closure by means of lips 37 that project from the plate 18 at the sides of the channel therein, inwardly over the side edges of the sliding plate 22a (see Fig. 20). In this construction the top plate 18a of the closure has considerable thickness and formed in the upper face of the central portion thereof is a depression 38 for the reception of a lug 39 that projects downwardly from the under side of sliding plate 22a.

Formed in the under face of the depending lug 39 is an inclined slot 40 which receives the upwardly projecting pin 41 that is formed on the end of a short crank arm 42, the latter being carried by the upper end of the shaft 29a that is journalled for rotation in plate 18a. Mounted on the upper portion of shaft 29a just beneath plate 18a is a cross arm 43, one end of which is normally positioned beneath and closes the lower end of the discharge opening 19a (see Fig. 15).

Mounted on shaft 29a beneath cross arm 43 is a stirring plate 44 provided with apertures 45.

In this construction the sliding plate 22a under normal conditions is at its forward limit of movement and when so positioned the forward end of said sliding plate closes the upper end of discharge opening 19a and one end of the cross arm 42a closes the lower end of said discharge opening.

As sliding plate 23 is drawn rearwardly to uncover the discharge opening 19a, the slot 40 engages pin 41 so as to swing crank arm 42 and thereby impart partial rotary motion to shaft 29a, consequently rotating the stirring plate 44 in the upper portion of the receptacle and as this movement takes place the end of cross arm 43 moves away from the lower end of discharge opening 19a so that product or material from

the receptacle is free to discharge through said opening.

In order to increase the stirring effect of the rotating member **44** and to cause the same to act in moving heavy liquids or the like toward the closure on the end of the receptacle when material or product is being dispensed therefrom, the stirring plate **14** may be twisted on its axis so that the opposite side portions of said plate are spirally disposed and consequently performing the functions of a conveyer.

If desired, the stirring plate **44** may be eliminated, with the shaft **29***a* carrying only the cross arm or plate **43** and thus the latter together with the sliding plate **22***a* provide a double closure for the pouring opening **19***a*.

Instead of forming the top plates **14**, **18**, and **18***a* with convex upper surfaces that are arcs of a large circle, said plates and the narrow plates that slide across said top plates may be semi-circular in shape, thereby providing the dispensing container with a rounded or dome-shaped top.

Thus it will be seen that I have provided a dispensing closure for receptacles that is relatively simple in construction, inexpensive of manufacture and very effective in performing the functions for which it is intended.

The sliding member that closes the discharge opening in the top of the closure and the part that is engaged by the thumb or finger for imparting movement to said sliding member are formed in a single piece, thereby facilitating and reducing production costs, and the stirring element that is arranged in the upper portion of the receptacle on which the closure is positioned is automatically operated by the sliding member of the closure so as to stir and agitate that portion of the contents of the receptacle that is moving toward the discharge opening while the same is open.

It will be understood that minor changes in the size, form and construction of the various parts of my improved dispensing container, may be made and substituted for those herein shown and described, without departing from the spirit of my invention, the scope of which is set forth in the appended claims.

I claim as my invention:

1. A dispensing container comprising a receptacle, a closure removably positioned on the upper end of said receptacle, said closure being provided with a discharge opening, there being a groove formed in the top of the closure, a plate arranged for sliding movement in said groove, the forward portion of which plate normally closes the discharge opening in said closure, the rear portion of which plate extends a substantial distance beyond the rear portion of said closure, a handle formed integral with the rear side of the closure, the upper portion of said handle being provided with a vertically disposed recess, an expansion spring positioned in said recess and a stud depending from the rear portion of said sliding plate, the lower portion of which stud enters the recess in the handle and bears against the spring therein.

2. A dispensing container as set forth in claim 1 and with a pouring spout formed on said closure around said discharge opening.

3. A dispensing container as set forth in claim 1, with an air inlet aperture formed in the top of said closure and there being an air inlet aperture formed in said sliding plate and which coincides with the aperture in the top of the closure when said plate is drawn rearwardly on said closure.

4. A dispensing container comprising a receptacle, a closure removably applied to the open upper end of said receptacle, the top of which closure is curved in cross section so as to provide a convex upper surface, there being a groove formed in said upper surface, there being a discharge opening formed through the top of the closure at the forward end of said groove, a curved plate arranged for sliding movement in said groove, the rear portion of which plate extends a substantial distance beyond the closure, a handle formed integral with said closure, said handle having a vertically disposed recess in its upper portion, a stud depending from the rear portion of said sliding closure, which stud extends into the recess in the handle, an expansive spring arranged in said recess and bearing against the lower end of said stud and the diameter of the recess in the upper portion of said handle being substantially greater than the diameter of said stud.

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