June 1, 1943. W. F. STRAUB 2,320,484

DISPENSING CLOSURE FOR CONTAINERS

Filed Aug. 30, 1939 3 Sheets-Sheet 1

Fig. 1.

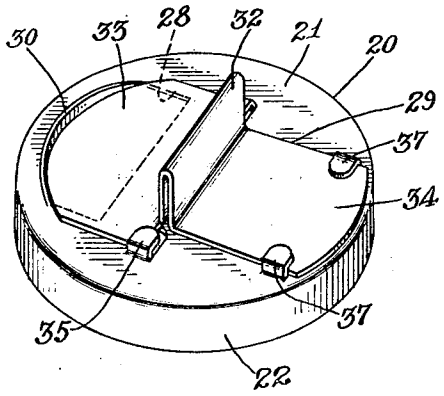


Fig. 2.

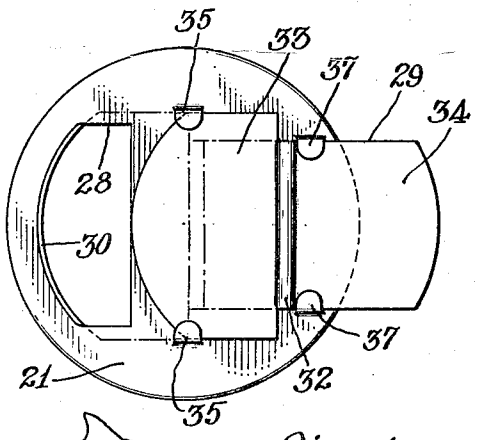


Fig. 3.

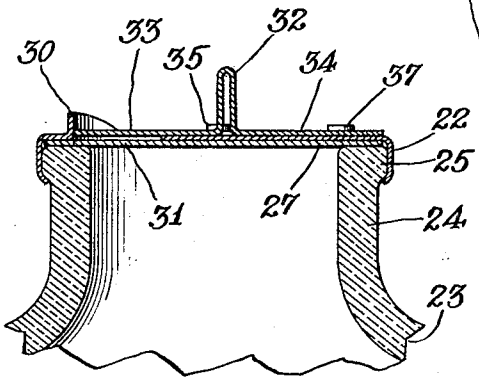
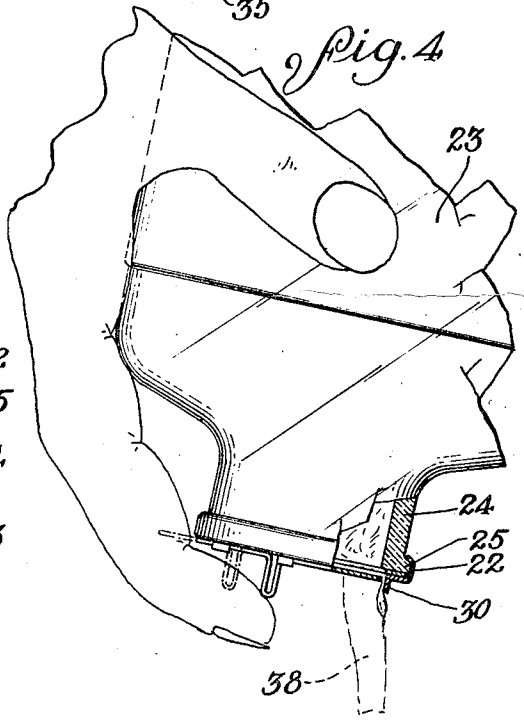


Fig. 4.



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DISPENSING CLOSURE FOR CONTAINERS

Filed Aug. 30, 1939 3 Sheets-Sheet 2

Fig. 5.

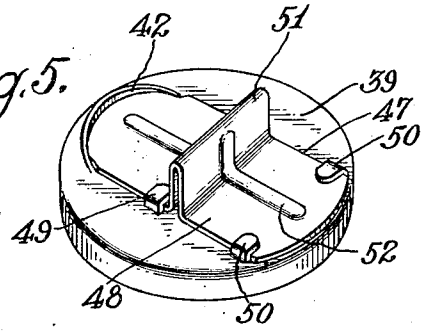


Fig. 7.

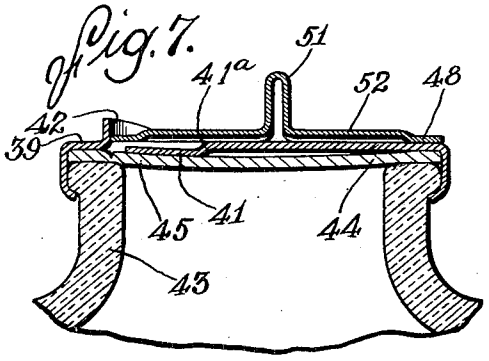


Fig. 6.

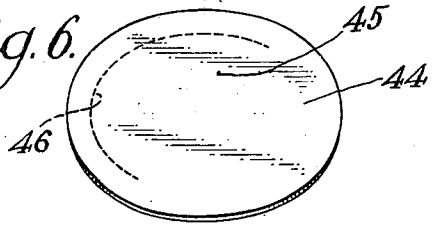


Fig. 8.

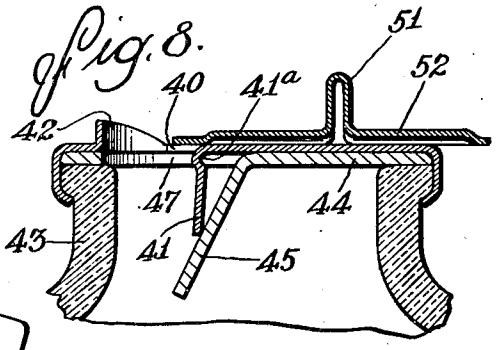


Fig. 9.

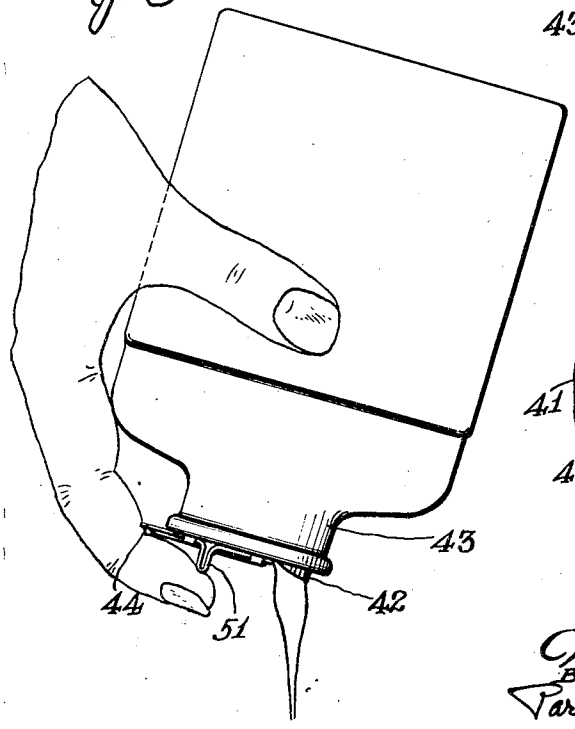
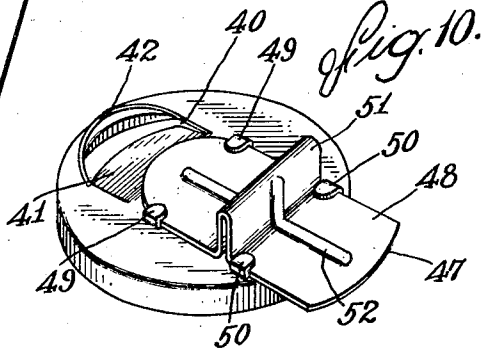


Fig. 10.



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DISPENSING CLOSURE FOR CONTAINERS

Filed Aug. 30, 1939 3 Sheets-Sheet 3

Fig. 11.

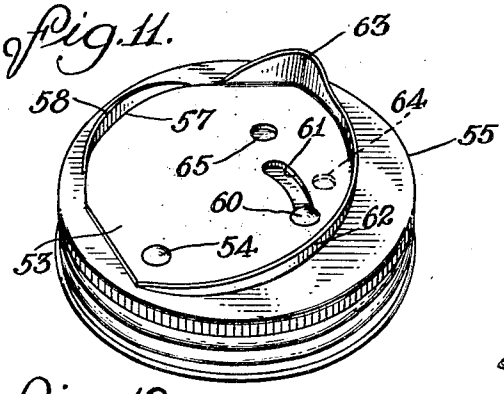


Fig. 13.

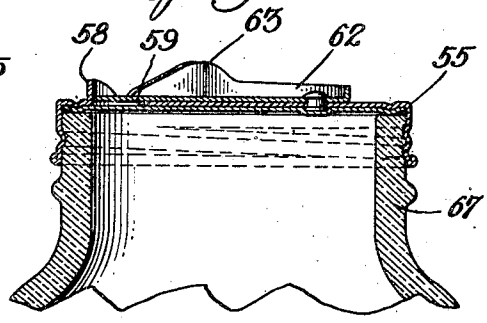


Fig. 12.

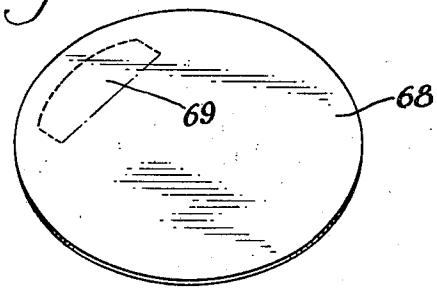
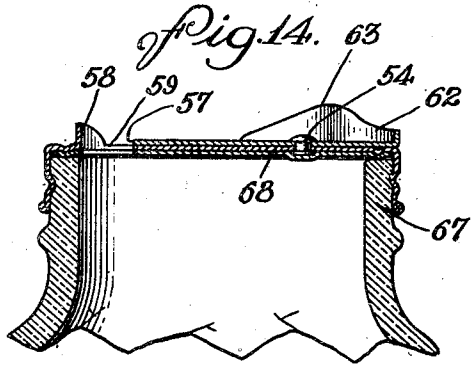


Fig. 14.



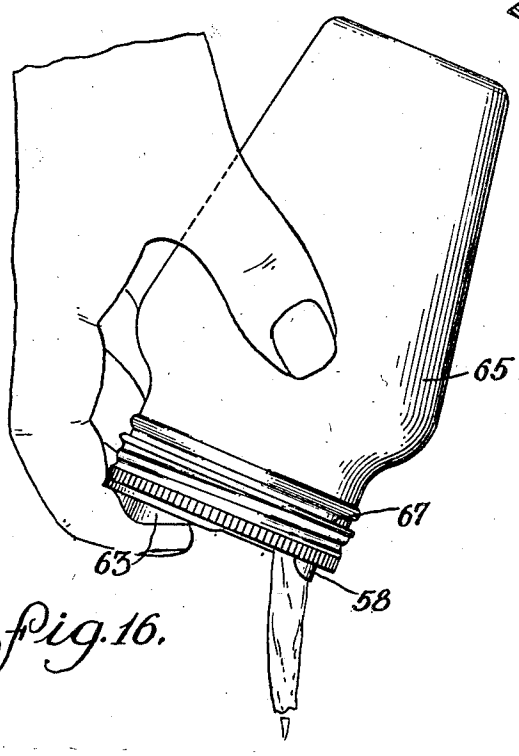
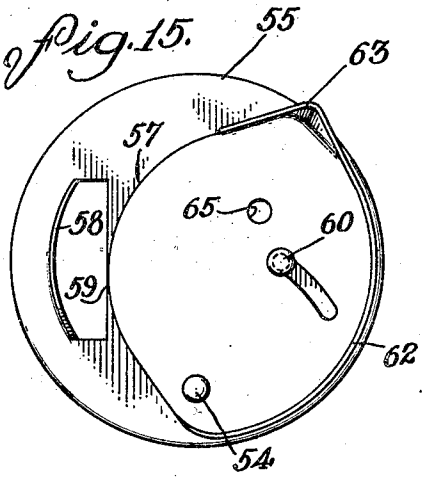


Fig. 16.

Fig. 15.



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Patented June 1, 1943 2,320,484

UNITED STATES PATENT OFFICE

2,320,484

DISPENSING CLOSURE FOR CONTAINERS

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Application August 30, 1939, Serial No. 292,571

4 Claims. (Cl. 221—21)

This invention relates to improvements in dispensing closures for containers and more particularly concerns a closure of the type having an opening through which the contents of the container may be poured under the control of a slidable cover.

A principal object of the invention is to provide a container closure of this type having improved means cooperative with the cover for controlling the outflow of material from the container.

More particularly, it is an object to provide a container closure of the foregoing general character having an improved discharge spout arrangement so related to the slidable cover that outflowing material can be accurately regulated as to volume and quantity, and after the required amount of material is discharged the flow can be quickly and completely discontinued in a clean-cut manner which avoids the waste and annoyance of stringing or dribbling and running down the exterior of the container, especially where the material comprises a viscous or syrupy substance such as honey.

Another object is to provide a dispensing container closure having a discharge spout and slidably guided cover the manipulation of which is facilitated by a handle engageable with the cover-guiding means to define the fully open position, while the forward end of the cover is engageable with the spout in the closed position.

Still another object is to provide a dispensing container closure having an improved slidable cover construction.

A further object is to provide an improved slidable cover container closure of this type which is simple in construction and highly efficient in use and which can be produced at low cost by simple manufacturing methods from inexpensive and readily available materials.

Other objects and advantages will become apparent in the following description and from the accompanying drawings in which:

Fig. 1 is a perspective view of a container closure embodying the invention.

Fig. 2 is a top plan view of the closure.

Fig. 3 is a vertical sectional view longitudinally through the cover and showing part of a container with which the closure is adapted to be used.

Fig. 4 is a fragmentary elevational view, partially in section, of the container and closure held in pouring position.

Fig. 5 is a perspective view of a modified form of closure.

Fig. 6 is a perspective view of a liner adapted to be used with the closure shown in Fig. 5.

Fig. 7 is a vertical sectional view through the modified closure showing the same applied in sealing relation to the mouth of a container.

Fig. 8 is a sectional view taken in the same plane as Fig. 7 but showing the closure and liner in condition for pouring from the container.

Fig. 9 is an elevational view showing the modified closure and container held in pouring position.

Fig. 10 is a perspective view similar to Fig. 5 showing the slidable cover of the closure in open position.

Fig. 11 is a perspective view of a further modified form of the invention.

Fig. 12 is a perspective view of the liner adapted to be used with the closure shown in Fig. 11.

Figs. 13 and 14 are vertical sectional views through the further modified form of closure showing the same applied to the mouth of a container and showing the cover in closed and open positions, respectively.

Fig. 15 is a top plan view of the further modified closure showing the cover thereof in open position.

Fig. 16 is an elevational view of the further modified form of closure and container held in pouring position.

In a preferred embodiment of the invention (Figs. 1 to 4, inclusive), the closure is constructed as a round cap **20** which may be stamped or otherwise formed from suitable sheet metal to provide a generally flat end wall or crown **21** merging with an integral, peripherally formed attachment flange **22**. In practice the closure is mounted in closing relation to the discharge opening of a dispensing container such as a bottle **23** which may have a generally cylindrical pouring neck **24**. The closure cap may be secured to the neck **24** by spinning or otherwise attaching the flange **22** about an outer, circumferential end bead **25**. Interposed between the cap **20** and the end of the pouring neck **24** is a suitable gasket or liner **27**.

To enable controlled discharge of material from the container through the cap **20**, the crown **21** is provided adjacent to one side thereof with a pouring opening **28** of limited area closed by a slidable gate or cover **29**. By preference, the opening **28** is of greater width than depth and the outer or pouring edge thereof is provided with an outstanding lip or flange **30** defining a pouring spout formed on a radius concentric with the periphery of the cap. The arcuate shape of

the pouring spout flange results in the formation of a smoothly flowing, formed stream when pouring.

In the present instance, the inner face of the spout flange **30** is preferably spaced inwardly from the cap periphery slightly less than the thickness of the underlying bottle neck edge as best seen in Figs. 3 and 4. As a result, the inner spout face is offset outwardly relative to the inner wall surface of the bottle neck so as to expose a portion of the uppper edge of the neck to lie opposite the forward end of the cover **29** for a purpose which will hereinafter more fully appear.

Freedom from possible leakage of the container contents through the pouring opening **28** during shipment or storage prior to dispensing from the container is assured by the sealing liner **27** through which an opening for discharge of the contents may be made when desired by removing a section **31** (Fig. 3) which may be conveniently delineated and weakened in an area substantially conforming to the pouring opening **28** by means of suitable scoring.

The cover **29** is preferably formed of an elongated, flat strip or plate of sheet metal transversely folded intermediate its ends to provide an outstanding right angular finger piece or handle **32**. Forwardly of the handle **32** the cover has a sealing head section **33** somewhat wider than the opening **28** which it is adapted to close, while rearwardly of the handle the cover includes a centrally alined tail piece section **34** substantially narrower than the sealing head but of the same width as the handle **32**. As a result, the cover **29** has a substantially T-shaped appearance with the side edge portions of the sealing head **33** projecting laterally wing-like beyond the edges of the handle **32** and with the forward wall of the handle substantially alined with the rear edge of the sealing head **33**. Longitudinally, the cover is preferably dimensioned to extend, in the closed position thereof, from the rear edge of the crown **21** to the pouring spout flange **30**, the forward and rear edges of the cover being formed on radii matching the underlying curvatures of the pouring flange and the cap periphery, respectively. As a result of this arrangement the forward edge of the cover is adapted to engage in a substantially sealing manner the spout flange **30** which also serves as a limit stop defining the fully closed position of the cover.

To guide the cover **29** for longitudinal movement into and out of the closed position, suitable means, such as spaced pairs of alined forward and rear overlying retaining and guiding lugs or tongues **35** and **37**, preferably struck out of the crown **21**, may engage the sealing head **33** and the tail piece **34**, respectively. The forward tongues **35** are preferably so located with respect to the range of movement of the sealing head **33** from the open to the closed positions, taking into consideration the front edge curvature thereof, that adequate engagement will be maintained in all positions of the cover. Thus, the tongues **35** engage the rear corners of the sealing head **33** in the closed position of the cover (Fig. 1 and the dot-dash position in Fig. 2) generally in line with the handle **32**, while in the open position thereof the tongues **35** engage the sealing head at the ends of its curved forward edge.

The rear tongues **37** are preferably located to be spaced as far as possible from the tongues **35** and as close as practicable to the arcuate rear edge of the crown **21** and in such rearwardly spaced relation to the forward tongues **35** as will enable full opening of the sealing head **33**. By their location and construction, the rear tongues **37** are adapted to function as limit stops for defining the fully open position of the cover **29**, the relationship herein being such that the handle **32** engages these tongues as shown in full outline in Fig. 2. In this connection, it should be noted that the narrow proportion of the tail piece **34** enables a substantially greater rearward spacing of the tongues **37** upon the relatively small diameter crown **21** than would be possible if the tail piece were as wide as the sealing head **33**.

In pouring from the container **23**, it may be held upside down and the cover **29** slid by means of the handle **32** into open position substantially as shown in dot-dash outline in Fig. 4. The discharging material will appear as a relatively small, smoothly formed stream **38**. As soon as the desired quantity of material has discharged, the cover **29** may be slid back toward closed position and will effect a progressive attenuation of the stream **38** until the forward edge of the sealing head **33** attains a position substantially opposite the exposed portion of the underlying bottle neck edge (full line position Fig. 4). Thereupon, the flow of material, particularly where it is of a viscous character like honey, will be substantially stopped; and in the interval while the cover is moved to close the remaining gap between its forward edge and the pouring spout flange **30** the stream will be cut off clean. As a result, substantially all of the material that discharges from the container will pass beyond the pouring spout flange by the time the cover is fully closed and when the bottle is returned to upright non-pouring position there will be complete freedom from any accumulation of material that might tend to run over onto the crown **21** or down the side of the bottle. Any slight amount of the material that adheres to the inner face of the pouring spout **30** may run down toward the base thereof and form a seal along the forward edge of the sealing head **33**.

In the modified form of the invention shown in Figs. 5 to 10 inclusive, the closure has a crown **39** provided with a relatively small pouring opening **40** which in the original condition of the closure is substantially blocked by a bendable tongue **41**. The opening preferably has the outer or pouring edge thereof equipped with an arcuate struck up lip or pouring spout flange **42** formed on a sharper arc than the adjacent periphery of the cap, the center of the arc being offset outwardly from the underlying edge of a bottle neck **43**. Due to its shortening by the metal removed in the formation of the pouring spout flange **42**, the tongue **41** will adequately clear the exposed portion of the bottle neck edge. To facilitate bending the tongue it may be prebent adjacent the line of its connection with the end wall or crown as by means of a line of scoring or crimping **41a** extending across the base thereof, thereby also avoiding possible warping or damage to the adjacent crown areas incident to the bending.

Interposed between the crown **39** and the bottle neck **43** is a liner **44** which in the region underlying the tongue **41** is preferably formed with a severable area **45** defined by a line of scoring **46** adapted to register with the pouring edge of the crown opening **40** and extending beyond the side edges of the opening **40** to avoid the necessity of accurately registering it with the side edges (Figs. 6 and 7). The area **45** is adapted

to be forced inwardly as shown in Fig. 8 by bending the tongue 41 thereagainst to provide an opening 47 through the liner for passage of material to discharge from the pouring opening 40.

To close the pouring opening 40, an elongated slidable cover 48 is mounted diametrically across the crown 39 between spaced pairs of forward and rear retaining lugs or tongues 49 and 50 respectively. The cover may be formed of a single strip of suitable sheet metal of uniform width throughout intermediately folded upon itself to provide a right angular finger piece or handle 51. In the closed position of the cover 47 the forward edge thereof engages the pouring spout flange 42 which serves for this purpose as a movement-limiting stop (Figs. 5 and 7). In the open position of the cover 47 the rear pair of tongues 50 by engagement with the handle 51 function as limiting stops (Fig. 10).

For strengthening the cover 47 a longitudinal reenforcing bead 52 may be formed therein. This bead stops short of the opposite ends of the cover so as to avoid interfering with full contact of the rear end portion of the cover substantially sealingly with the crown 39 and the front end with the pouring spout flange 42. The bead also has the effect of slightly drawing up the cover medially for creating a slight lateral divergence in the plane of the sections thereof at opposite sides of the bead. This results in creating a frictionally resistant interengagement between the cover and the retaining tongues 49 and 50 and between the cover and the crown 39 to facilitate retaining the cover in the adjusted open or closed positions.

In the modified form of the invention shown in Figs. 11 to 15, inclusive, a generally ovate, slidable cover 53 is pivotally connected adjacent to one end thereof as by means of a rivet 54 for swinging movement upon the flat crown of a cap 55. At its forward edge, identified at 57, the cover 53 is preferably formed on a radius conforming to the radius of a spout lip flange 58 which extends perpendicularly upwardly from the cap crown and defines the pouring edge of a discharge opening 59 therein. In the closed position of the cover 53 (Figs. 11 and 13) the forward edge 57 has substantially sealing engagement with the inner face of the flange 58.

The open limit of the cover 53 is defined by suitable means such as headed rivet 60 which is secured in fixed position upon the cap crown and slidably engages the cover through an arcuate slot 61 therein. This slot is long enough to enable the limited swinging movement of the cover and is adapted to be engaged at its forward end by the rivet 60 in the fully open position of the cover (Fig. 15). The rivet 60 preferably serves also as a frictional hold-down means for the cover for aiding in retaining the cover selectively in open or closed position.

To reenforce the cover 53, an upstanding stiffening flange 62 may be provided along the rear edge thereof and running around the free end. The free end portion of this flange may be enlarged as indicated at 63 to provide a finger grip for manipulating the cover.

An air vent from the interior of the cap 55 to facilitate pouring may be provided in the open position of the cover 53 by the registration of suitable perforations 64 and 65 in the crown of the cap and in the cover, respectively. In the closed position of the cover, the perforations 64 and 65 are out of register and an imperforate portion of the cover substantially seals the crown vent perforation 64.

This form of the invention is particularly adapted for closing relatively wide mouth jars, an exemplary form of which is shown at 65 of Fig. 16. Such a jar may have a threaded neck 67 (Fig. 13) upon which the cap may be screwed. A liner 68 (Fig. 12) is preferably interposed between the end edge of the neck 67 and the cap 55 and may have a weakened area 69 adapted to register with the discharge opening 59 so that when material is to be discharged from the jar, the weakened area can be removed as by cutting the same out with a knife. If desired, a vent opening in registration with the crown aperture 64 may be punched through the liner 68.

From the foregoing, it will be apparent that the present invention provides an improved container closure which is adapted for conveniently controlling discharge of material such as a viscous fluid like honey. Through the novel pouring spout lip and sliding cover arrangement, the smoothly flowing stream of liquid can be nicely and cleanly cut off without stringing or dribbling. The novel construction of the cover, and the means for retaining and guiding the cover which confines the limit of opening thereof, taken together with the spout lip which defines the closed limit of the cover, affords a simple and inexpensive construction which can be produced at low cost from readily available materials and which operates very efficiently in use.

I claim as my invention:

1. A closure device of the character described having, in combination, a cap, a slidable cover member mounted on said cap including a handle and two sections extending oppositely therefrom, a reenforcing bead extending longitudinally of both of said sections and effecting a slightly transverse divergence from the plane of said sections to cause the edges of the cover to lie closely against said cap, and means on said cap for receiving said sections to retain and guide said cover, said divergence of the sections effecting a frictionally resistant interengagement thereof with said means and said cap to assist in holding said cover in adjusted position.

2. A closure for a container comprising, in combination, a sheet metal cap having an end wall provided with an opening, and a bendable tongue extending into the opening, said tongue being prebent adjacent the line of its connection with the end wall to facilitate bending of the tongue without affecting the adjacent areas of the end wall, a liner for the cap having a weakened line extending along one edge of said opening, said liner being adapted to separate along said line and a portion bent inwardly by bending said tongue inwardly thereagainst, and a cover on said end wall for closing said opening.

3. A dispensing closure for a container comprising, a sheet metal cap having an end wall provided with an opening adjacent the periphery, a portion of the metal punched to provide said opening being bent outwardly along the peripheral edge of the opening to form a pouring spout, the remainder of said metal being severed from the end wall along its side edges to provide a bendable tongue extending into said opening, a liner for the cap having a weakened line coincident with the outer edge of said opening, said liner being adapted to separate along said line and a portion thereof bent inwardly by bending said tongue inwardly thereagainst, and a cover

on said end wall shiftable into abutment with said spout to close said opening.

4. A closure device of the character described having, in combination, a cap adapted to be attached in sealing relation to a container and having a discharge opening with an outer curved edge adjacent its periphery, an elongated slidable cover mounted on said cap, means on said cap for receiving said cover to retain and guide it for sliding movement to open and close said opening, and a reinforcing bead extending longitudinally of said cover and effecting a slight transverse divergence of the respective opposite sides of said cover to cause the edges thereof to lie closely against said cap, said divergence effecting a frictionally-resistant interengagement of said cover with said means and said cap.

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