Jan. 17, 1961 P. MESHBERG 2,968,427

VALVE FOR AEROSOL CONTAINER

Filed June 28, 1955

Fig. 1

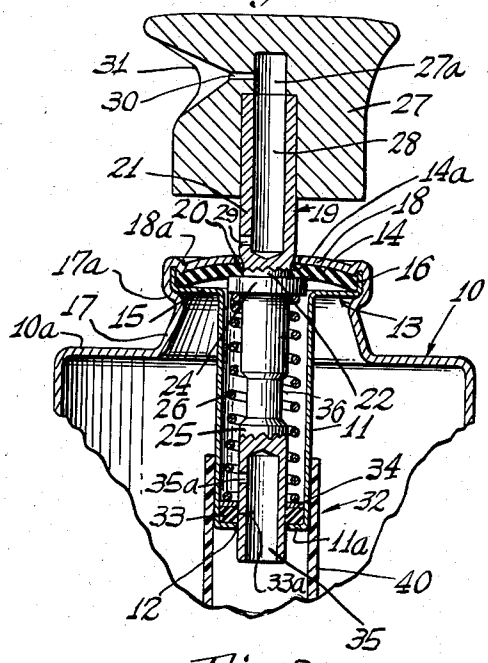


Fig. 2

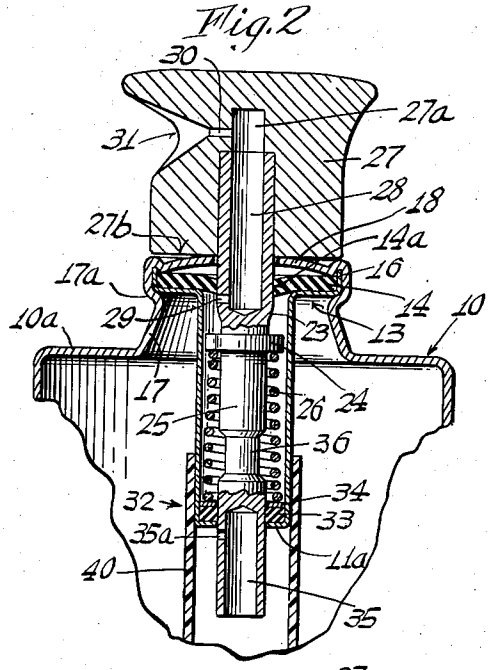


Fig. 3

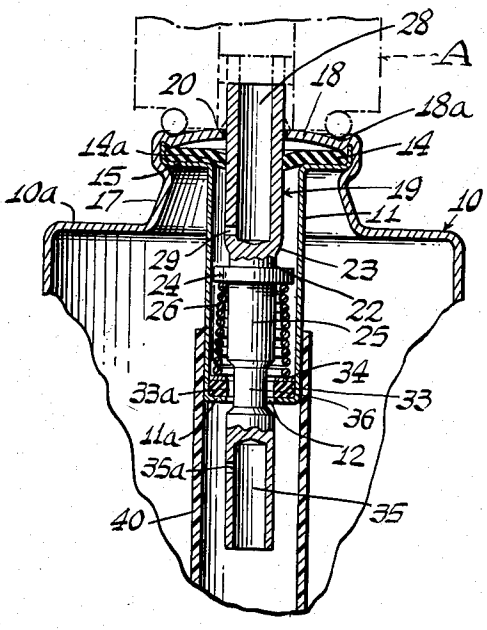
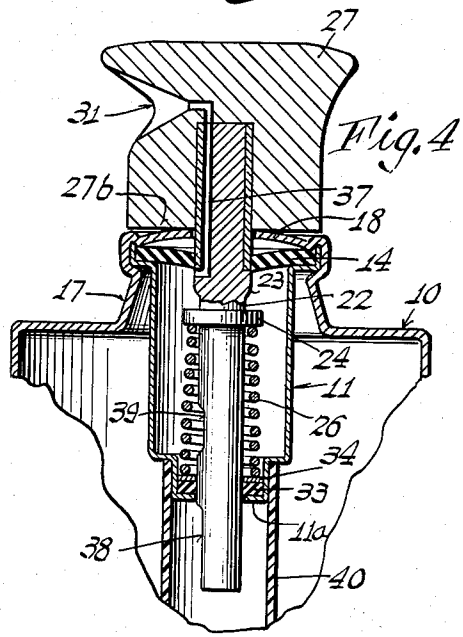


Fig. 4



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United States Patent Office 2,968,427
Patented Jan. 17, 1961

2,968,427

VALVE FOR AEROSOL CONTAINER

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Filed June 28, 1955, Ser. No. 518,535

13 Claims. (Cl. 222—394)

The present invention relates to valves for aerosol containers.

It is an object of the present invention to provide a valve for an aerosol container which is simple of construction, easy to assemble and inexpensive to manufacture.

Another object of the invention is to provide a valve construction which can be readily adapted for dispensing measured or unmeasured charges.

It is a still further object of the invention to provide a valve which is quick acting and which is sure in operation under all operating conditions.

In carrying out the invention the valve stem is slidably carried by a valve housing and has a valve disk cooperating with the valve stem to normally control the dispensing of the fluid and may be provided with a second valve in spaced relation to the first valve for controlling the measured charge.

A feature of the invention resides in the novel valve disk and the domed top which cooperate to provide a valve stem which has a substantially long stroke before the dispensing operation occurs which is an advantage, particularly where a measured valve is concerned, for it enables the cut off to be made prior to the dispensing of the material even though variances of manufacturing of the stem or swelling of the sealing disk may occur.

Another feature of the invention resides in the dish-shaped valve disk in that it is gripped adjacent its periphery so that it has a long flexing movement and is tensioned during the movement to assist the usual spring in returning the valve stem to sealing relation.

Another feature of the invention resides in the fact that the dome-shaped end portion provides space to accommodate any swelling in the valve disk as may occur when perfumes and the like are used which without having swelling interfere with the operation of the valve.

Another feature of the invention resides in the novel cut off construction for measuring the fluid to be dispensed which comprises merely a resilient washer which is floatingly carried by the housing and normally pressed into sealing relation with the housing by the usual spring urging the stem to extended position and which is also compressed by the pressure of the spring to closely engage the stem to perform the cut off operation, which pressure against the stem is increased as the stem is moved against the urging means into dispensing position.

Another feature of the invention resides in the provision of means whereby the container can be pressure filled with great ease.

Other features and advantages of the invention will be apparent from the specification and claims when considered in connection with the drawings in which:

Figure 1 shows the valve of the present invention in normal position.

Fig. 2 shows the valve in dispensed position.

Fig. 3 shows the valve in pressure filling position.

Fig. 4 shows another form of valve stem.

The invention as shown in the drawings is applied to a valve for dispensing measured quantities of aerosol or fluid material under pressure and is particularly useful in dispensing cosmetics or the like material where limited quantities are required.

As shown in Fig. 1, an aerosol container **10** has a valve housing **11** mounted therein and, while the housing may be made of any suitable impervious material it is at present preferred to form it of a sheet metal stamping or drawn piece of tubular construction having an aperture **12** in inner wall **11***a* forming one end of the measuring chamber, and an enlarged mouth **13** at the other end adapted to receive a sealing gasket and a valve disk **14** of suitable resilient sealing material.

In the illustrated form of the invention the enlarged mouth is formed by providing the housing with a lateral flange **15** having on its periphery a cylindrical peripheral wall **16** forming, in effect, a cup into which the disk **14** can be inserted.

Although the housing may be mounted in any suitable way, in the illustrated form of the invention the mounting means is formed on the top **10***a* of the container by providing it with a projecting neck **17** having a transverse wall **18** extending thereacross so that the valve housing can be inserted into the neck and is held in position by having the walls of the neck crimped at **17***a* under the wall to clamp it, as shown, between the transverse wall **18** closing the neck and the crimped portion. The transverse wall is crimped inwardly at **18***a* so that it grips the periphery of the valve disk **14** and clamps it against the flange **15** to secure the disk in position. The peripheral wall, therefore, not only serves to locate and mount the housing on the container but also effectively controls the gripping action of the transverse wall on the edge of the valve disk.

As shown in the drawings, the valve disk is made of resilient flexible material such as rubber, synthetic rubber compounds or flexible plastic materials and is provided with a bore **14***a* through which a valve stem **19** projects, the bore being aligned with a central aperture **20** in the transverse wall **18**. The valve stem is preferably formed as a unitary member and, while it may be molded of plastic or made as a hollow member on an eyelet machine, it is at present preferred to form it as a solid member by means of a header or screw machine. As shown, it is provided with an outer portion **21** passing through the bore **14***a* in the valve disk so as to project through the aligned aperture **20** in the transverse wall portion of the mounting means to the exterior of the container. The bore of the disk is of such a diameter that it frictionally engages the outer portion **21** and provides a seal therewith, yet readily permits it to be longitudinally moved therethrough from the sealing position of Fig. 1 to the discharge position of Fig. 2.

If desired, that part of the outer portion which normally engages the bore of the disk in the position of Fig. 1 may be slightly reduced in diameter, as shown at **22**, and joined with the remainder of the outer portion by a portion having a large radius of curvature as shown at **23**. This reduced portion tends to locate the stem and disk in normal position and the curved portion permits the stem to coact with the disk in moving to the position of Fig. 3 without any damage to the bore in the disk and enables the disk to return to the position of Fig. 1 to properly correlate the disk and stem.

At the inner end of the outer portion **21** of the valve stem there is provided an enlarged section or collar **24** adapted to extend outwardly from the stem so as to engage the undersurface of the valve disk. Preferably, the collar is of a dimension larger than the aperture **20** in the transverse wall so that as the valve is held in sealing position the valve disk will be clamped between the collar and

the transverse wall portion to produce a second seal for the device. The inner portion **25** of the stem located below the collar passes through the aperture **12** in the inner wall **11***a* of the housing. The valve stem, so positioned, will be guided adjacent each end by the aperture **20** in the mounting means and the aperture **12** at the inner wall of the housing, which apertures are in alignment and hold the stem against tilting movement and restrict it to substantially longitudinal movement so that there can be no leakage between the walls of the bore in the disk and the cylindrical portion.

The valve stem is urged to normal sealing position by any suitable means. In the herein illustrated form of the invention a spring **26** is positioned within the housing so as to press against the collar to urge the stem to projected position and the collar into sealing relation.

As shown in the drawings, the upper end of the stem has mounted thereon an actuating button **27** so as to be an extension thereof. The button has a centrally disposed recess **27***a* which aligns with and forms a continuation of a longitudinally extending passage **28** formed in the outer portion of the valve stem. Adjacent the inner end of the passage **28** there is provided an inner lateral passage **29** extending through the wall of the stem, which lateral passage is normally located on the exterior of the container as shown in Fig. 1. The upper end of the longitudinal passage connects with a second lateral passage **30** formed in the button so as to communicate with recess **31** and which forms the discharge aperture or nozzle for the device. As shown in Fig. 2, the bottom **27***b* of the button engages the top of the transverse wall and forms a stop for the valve stem in the discharge position with the inner lateral passage **29** in communication with the interior of the valve housing so that fluid under pressure in the valve housing will pass therefrom through the lateral passage **29** to the longitudinal passage **28** to the outer lateral dispensing passage **30**.

In accordance with the preferred form of the invention the transverse end wall **18** is dome-shaped and the washer is normally dished, as shown in Fig. 1. This provides a substantial advantage in that as the stem is moved from the position of Fig. 1 to the position of Fig. 2 it will cause the center of the disk to be deflected inwardly to assume the position as shown in Fig. 2. It will be seen that this permits a substantial movement on the part of the stem from normal sealing position to dispensing position which, as will be explained later, is of importance in metering valves. Furthermore, this provides sufficient space to permit swelling of the sealing disk by the contents without adversely affecting the operation of the valve. With the center displaced as shown in Fig. 2, the tendency for the sealing disk to return to normal position will assist the spring **26** in quickly moving the valve to sealing position upon the release of the button.

In order to dispense measured amounts of fluid under pressure in accordance with the present invention, a second valve means **32** is provided for sealing off the housing from the interior of the container so as to trap a predetermined quantity of material therein prior to the movement of the inner passage **29** into communication with the valve housing. While this may take many forms, in the illustrated form of the invention a resilient washer **33** which is of less diameter than of the housing is floatingly positioned in the bottom of the housing between the spring **26** and wall **11***a* so as to overlie the wall **11***a* and has a bore **33***a* through which the inner portion **25** of the stem extends. A bearing washer **34** overlies the washer **33** and transmits the pressure from the spring **26** thereto, which pressure maintains the resilient washer **33** in sealing relation with the wall **11***a* and also distorts the bore **33***a* to grip the stem **25** and form a seal therewith which sealing pressure is increased as the spring is compressed during movement of the stem from the position of Fig. 1 to that of Fig. 2 so that a maximum sealing of the housing from the container during the dispensing period is obtained. By using this floating washer construction the second valve means can center itself and close tolerances respecting the washer and housing are not required. The inner portion **25** is provided with a passage **35** extending inwardly from the end of the stem and laterally at **35***a* so as to connect the container to the housing when in normal position of Fig. 1. When the stem is moved longitudinally inwardly the passage **35***a* moves past washer **33** and the washer will engage the inner portion of the stem and seal the interior of the housing from the container prior to the movement of the inner lateral passage **29** of the outer portion of the stem into communication with the valve housing. Thus, only the aerosol material which is trapped in the valve housing will be dispensed for each operation of the valve. As will be noted in Fig. 2, the button will stop the stem in this position to insure the proper location of the second valve means during the dispensing operation.

It will be seen from the foregoing that by the use of the dome top, which permits a long stroke of the valve stem before discharge, the location of the passage **35***a* is not as critical as might be required since it will insure movement of the passage **35***a* to the position of Fig. 2 even though manufacturing variations might cause the passage to be at a slightly different distance from the end of the stem. Furthermore, this construction enables the passage **35***a* to be located sufficiently above the washer **33** to insure communication of the housing with the container in the position of Fig. 1 even though the valve disk **14** may become swollen to some degree since there is sufficient leeway, as far as stroke is concerned, so that it will not interfere with this relationship.

Under some circumstances, it is desired to pressure fill the aerosol container. This can be accomplished by the present invention by providing a by-pass around the second valve means. In the illustrated form of the invention this is accomplished by providing a by-pass passage **36** on the inner portion **25** located inwardly from the inner end of the stem a predetermined distance so that it will be disposed in the bore **33***a* and by-pass the washer **33** when the spring is fully compressed and the valve stem is in position as shown in Fig. 3. Thus it will be seen that by moving the valve stem to the position shown in Fig. 3, prior to the application of the actuating button **27**, and connecting a charging nozzle A to passage **28**, the container can be readily charged by forcing the aerosol material under pressure through the longitudinal passage **28** of the stem, through the inner lateral passage **29**, along the housing and through the by-pass passage **36** to the interior of the container. Also, the aerosol forced under pressure will cause the edges of the disk **14** around the bore **14***a* to deflect inwardly and permit passage of the aerosol into the housing, thus greatly facilitating the pressure filling of the container. As soon as the container is charged, the stem is returned to the position of Fig. 1 and the button applied thereto.

A feature of the invention resides in the fact that the present valve includes a minimum of parts and is readily adaptable for use either as a metered valve or as an unmetered valve. When it is desired to use the device as an unmetered valve, it is merely necessary to omit the inclusion of the washers **33**, **34** which form the second seal. Thus it will be seen that a tremendous saving in inventory of parts can be made.

In the form of the invention shown in Fig. 4 the passages on the stem are formed by providing flats on the stem, the flat **37** in the upper part of the stem cooperating with the button forming the equivalent of passages **28**, **29** and **30**, the flat **38** in the inner end of the stem forming the equivalent of passages **35**, **35***a* and the flat **39** located inwardly from the inner end of the stem producing the equivalent of the by-pass passage **36**. Under some conditions of manufacture it may be easier to form the passages in this manner rather than in the manner shown in the form of Figs. 1 to 3.

By utilizing housings of different diameters, the volume

of the measuring chamber can be accurately controlled to the desired amount without in any way changing the construction and arrangement of any of the other interchangeable parts of the valve. This may be seen from the housing shown in Fig. 4 which has a greater volume than that in Figs. 1 to 3.

If desired, in all forms of the invention, a siphon tube 40 may be connected to the housing to extend to the bottom of the container in the usual manner.

Variations and modifications may be made within the scope of the claims and portions of the improvements may be used without others.

I claim:

1. Valve means for controlling the discharge of a measured amount of fluid under pressure from a container comprising a tubular valve housing having a transverse apertured wall extending thereacross to form one end of a measuring chamber, and having a laterally projecting flange at the other end provided with a peripheral wall; an outwardly dished resilient valve disk having a central bore therein disposed within the peripheral wall; means mounting the housing on the container including an outwardly domed portion extending over the valve disk and having an indented portion clamping the disk to the flange adajcent the periphery thereof whereby the center is free to flex; a valve stem mounted in said housing for movement between a normal sealing position and a normal discharge position and having a portion at the outer end thereof extending through said bore in the valve disk and the domed portion extending thereover and projecting beyond the container, said stem having a sealing portion cooperating with the disk in normal sealing position to prevent passage of the fluid from the container and a portion at the inner end passing through the apertured wall of the housing to guide the stem against tilting; and spring means on the housing urging the stem into sealing relation with the disk, manual movement of said stem inwardly against the spring means a predetermined distance from normal sealing position to normal discharge position causing the valve disk to flex inwardly and out of sealing relation with the stem to permit passage of fluid from said housing, said domed wall providing space for permissive swelling of the valve disk and said flexed valve disk aiding the return of the stem to sealing relation.

2. Valve means for controlling the discharge of a measured amount of fluid under pressure from a container comprising a tubular valve housing having a transverse apertured wall extending thereacross to form a measuring chamber; a resilient valve disk having a centrally disposed bore therein disposed across the end of the housing; means mounting the housing on the container, said disk being gripped adjacent the periphery thereof whereby the center is free to flex; a valve stem mounted in said housing and having a portion at the outer end thereof extending through said bore in the valve disk and projecting beyond the container, said stem having a sealing portion cooperating with the disk to prevent passage of the fluid from the container and a portion at the inner end passing through the apertured wall of the housing to guide the stem against tilting; and resilient means urging the stem into sealing relation with the disk, manual movement of said stem against the urging means a predetermined distance from normal sealing position causing the valve disk to flex inwardly and out of sealing relation to permit passage of fluid from said housing, said housing having a second valve means at the apertured wall and means on the stem spaced inwardly from the inner end thereof and controlled by inward movement of said valve stem to cooperate with the second valve means to seal the housing from the container prior to the movement of the first valve means out of sealing relation, thereby dispensing only the fluid in the valve housing, said flexed valve disk and said resilient means quickly returning the stem to normal sealing position upon release thereof.

3. Valve means for controlling the discharge of a measured amount of fluid under pressure from a container comprising a tubular valve housing having a transverse apertured wall xtending thereacross to form one end of a measuring chamber and a resilient valve disk having a bore mounted therein to seal the other end of the chamber; means mounting the housing on the container; a valve stem mounted in said housing and having a portion at the outer end thereof extending through said bore in the valve disk and projecting beyond the container, said stem having a portion cooperating with the disk to control the dispensing of fluid from the chamber and a portion at the inner end passing through the apertured wall of the housing to guide the stem against tilting; spring means within the housing urging the stem into normal sealing relation with the disk, said housing having a free-floating resilient washer disposed within the chamber and overlying the apertured wall, said washer having a bore through which the stem passes, said spring means applying pressure to the washer to cause said washer to be pressed into sealing relation with the wall and the bore into sealing relation with the stem; and means on the stem extending inwardly from the inner end thereof for connecting the chamber with the interior of the container when the stem is in sealing relation to permit fluid from the container to fill the chamber, said means being moved into sealing relation with the washer to prevent fluid entering the chamber from the container when the stem is moved inwardly to discharge fluid from the chamber.

4. Valve means for controlling the discharge of a measured amount of fluid under pressure from a container comprising a tubular valve housing on the container having a transverse apertured wall extending thereacross to form a measuring chamber and a resilient valve disk mounted therein to seal the other end of the chamber; a valve stem mounted in said housing and having an outer portion cooperating with the disk to control the dispensing of fluid from the chamber and a portion at the inner end passing through the apertured wall of the housing to guide the stem against tilting; and spring means within the housing urging the stem outwardly to normal sealing position, said housing having a free-floating resilient washer disposed within the chamber and overlying the apertured wall, said washer having a bore through which the stem passes, said spring means applying pressure to the washer to cause said washer to be pressed into sealing relation with the wall and the bore of the washer into sealing relation with the stem, and means on the stem extending inwardly from the inner end thereof for connecting the chamber with the interior of the container when the stem is in sealing position to permit fluid from the container to fill the chamber, movement of the stem inwardly a predetermined distance causing fluid to be dispensed from the chamber and the means on the stem to be moved into sealing relation with the washer to prevent fluid from entering the chamber from the container during the dispensing of fluid therefrom.

5. Valve means for controlling the discharge of a fluid under pressure from a container comprising a tubular valve housing having a transverse apertured wall extending thereacross; an outwardly dished resilient valve disk having a bore therein disposed across the end of the housing; means mounting the housing on the container, said disk being gripped adjacent the periphery thereof whereby the center is free to flex inwardly; a valve stem mounted in said housing and having a portion at the outer end thereof extending through said bore in the valve disk and projecting beyond the container, said stem having a portion of reduced diameter cooperating with the disk in normal sealing position to prevent passage of the fluid from the container; a discharge passage located outwardly of said portion of reduced diameter and a portion at the

inner end passing through the apertured wall of the housing to guide the stem against tilting; and resilient means urging the stem into normal sealing relation with the disk, manual movement of said stem against the resilient urging means a predetermined distance from normal sealing position causing the valve disk to flex inwardly and out of sealing relation and causing said discharge passage to communicate with said container to permit passage of fluid from said container, said flexed valve disk and said resilient means quickly returning the stem to normal sealing position upon release thereof.

6. Valve means for controlling the discharge of a fluid under pressure from a container comprising a tubular valve housing having a transverse apertured wall extending thereacross and having a laterally projecting flange at the other end provided with a peripheral wall; an outwardly dished resilient valve disk having a bore therein overlying the laterally projecting flange; means mounting the housing on the container, the edge portion of said disk being gripped adjacent the peripheral wall whereby the center is free to flex inwardly; a valve stem mounted in said housing and having a portion at the outer end thereof extending through said bore in the valve disk and projecting beyond the container, said stem having a portion of reduced diameter cooperating with the disk in normal sealing position to prevent passage of the fluid from the container; a discharge passage normally located outwardly of the valve disk and a portion at the inner end passing through the apertured wall of the housing to guide the stem against tilting; and resilient means urging the stem into normal sealing relation with the disk, manual movement of said stem against the resilient urging means a predetermined distance from normal sealing position causing the valve disk to flex inwardly and out of sealing relation and causing said discharge passage to communicate with said container to permit passage of fluid from said container, said flexed valve disk and said resilient means quickly returning the stem to normal sealing position upon release thereof.

7. Valve means for controlling the discharge of a measured amount of fluid under pressure from a container comprising a tubular valve housing having a transverse apertured wall extending thereacross to form one end of a measuring chamber and having a laterally projecting flange at the other end provided with a peripheral wall; an outwardly dished resilient valve disk having a central bore therein disposed within the peripheral wall; means mounting the housing on the container including an outwardly domed portion extending over the valve disk and having an indented portion clamping the disk to the flange adjacent the periphery thereof whereby the center is free to flex; a valve stem mounted in said housing for movement between a normal sealing position and a normal discharge position and having a portion at the outer end thereof extending through said bore in the valve disk and the domed portion extending thereover and projecting beyond the container, said stem having a sealing portion cooperating with the disk in normal sealing position to prevent passage of the fluid from the container and a portion at the inner end passing through the apertured wall of the housing to guide the stem against tilting; spring means on the housing urging the stem into sealing relation with the disk, manual movement of said stem inwardly against the spring means a predetermined distance from normal sealing position to normal discharge position causing the valve disk to flex inwardly and out of sealing relation with the disk to permit passage of fluid from said housing, said housing having a free-floating resilient washer disposed within the chamber and overlying the apertured wall, said washer having a bore through which the stem passes, said spring means applying pressure to the washer to cause said washer to be pressed into sealing relation with the wall and the bore into sealing relation with the stem; and means on the stem extending inwardly from the inner end thereof for connecting the chamber with the interior of the container when the stem is in sealing relation to permit fluid from the container to fill the chamber, said means being moved into sealing relation with the washer to prevent fluid entering the chamber from the container when the stem is moved inwardly to discharge fluid from the chamber.

8. Valve means for controlling the discharge of a measured amount of fluid under pressure from a container comprising a tubular valve housing having a transverse apertured wall extending thereacross to form one end of a measuring chamber and having a laterally projecting flange at the other end provided with a peripheral wall; an outwardly dished resilient valve disk having a central bore therein disposed within the peripheral wall; means mounting the housing on the container including an outwardly domed portion extending over the valve disk and having an indented portion clamping the disk to the flange adjacent the periphery thereof whereby the center is free to flex; a valve stem mounted in said housing for movement between an outer normal sealing position, an intermediate normal discharge position and an inner filling position, said stem having a portion at the outer end thereof extending through said bore in the valve disk and the domed portion extending thereover and projecting beyond the container and having a sealing portion cooperating with the disk in normal sealing position to prevent passage of the fluid from the container and a portion at the inner end passing through the apertured wall of the housing to guide the stem against tilting; spring means on the housing urging the stem into sealing relation with the disk, manual movement of said stem inwardly against the spring means a predetermined distance from normal sealing position to normal discharge position causing the valve disk to flex inwardly and out of sealing relation with the disk to permit passage of fluid from said housing, said housing having a free-floating resilient washer disposed within the chamber and overlying the apertured wall, said washer having an aperture through which the stem passes, said spring means applying pressure to the washer to cause said washer to be pressed into sealing relation with the wall and the bore into sealing relation with the stem; and means on the stem extending inwardly from the inner end thereof for connecting the chamber with the interior of the container when the stem is in sealing relation to permit fluid from the container to fill the chamber, said means being moved into sealing relation with the washer to prevent fluid entering the chamber from the container when the stem is moved inwardly to discharge fluid from the chamber, said stem having means thereon spaced from the inner end to permit passage of fluid past the washer when the stem is in the inner position and fluid under pressure is applied to the outer end of the stem and valve disk to pressure fill the container.

9. Valve means for controlling the discharge of a measured amount of fluid under pressure from a container comprising a tubular valve housing having an enlarged gasket-receiving mouth at one end thereof and a transverse apertured wall at the other end, a resilient valve disk having a central bore mounted in said enlarged mouth and secured adjacent the edge thereof whereby the center of the disk is free to flex; mounting means securing the valve housing to the container; a valve stem mounted in said housing and having a portion at one end extending through said bore to project beyond the container, a sealing portion cooperating with the disk to seal the container, and a portion of reduced diameter at the other end passing through the apertured wall of the housing; and spring means urging the stem into an outer position in sealing relation with the disk, movement of said stem inwardly against the urging means a predetermined distance from normal sealing position to an intermediate normal discharge position causing said sealing portion to be moved out of sealing relation and to permit discharge of the fluid therethrough from the housing, said housing

having a second valve means adjacent the apertured wall controlled by movement of said valve stem to seal the housing from the interior of the container prior to the movement of the first valve means out of sealing relation thereby controlling the fluid to dispense only the measured fluid trapped in the valve housing, said stem having means to by-pass said second valve means when moved to an innermost filling position whereby pressure filling of the container can be achieved.

10. Valve means for controlling the discharge of a measured amount of fluid under pressure from a container comprising a tubular valve housing on the container having a transverse apertured wall extending thereacross to form a measuring chamber and a resilient valve disk mounted therein to seal the other end of the chamber; a valve stem slidably mounted in said housing and having an outer portion cooperating with the disk to control the dispensing of fluid from the chamber and a portion at the inner end passing through the apertured wall of the housing to guide the stem against tilting; spring means within the housing urging the stem outwardly to normal sealing position, said housing having a free-floating resilient washer disposed within the chamber and overlying the apertured wall, said washer having an aperture through which the stem passes, said spring means applying pressure to the washer to cause said washer to be pressed into sealing relation with the wall and the bore into sealing relation with the stem; and passage means on the inner portion of the stem extending inwardly from the inner end thereof for connecting the chamber with the interior of the container when the stem is in sealing position to permit fluid from the container to fill the chamber, movement of the stem inwardly a predetermined distance to dispensing position causing the means on the stem to be moved into sealing relation with the washer to prevent fluid entering the chamber from the container and causing fluid to be discharged from the chamber, said stem having a longitudinally extending by-pass passage disposed inwardly of the passage in the inner portion of the stem and of a length greater than the thickness of the washer to be disposed in the bore in the washer when the stem is moved inwardly from dispensing position to filling position whereby the container can be pressure filled.

11. Valve means for controlling the discharge of fluid under pressure from a container comprising a tubular valve housing having a transverse wall at the inner end having an aperture to communicate with the container and a resilient valve disk having a cylindrical bore mounted at the outer end of the housing, means for mounting said housing on the container, a valve plunger stem mounted in said housing for solely sliding movement and against tilting and having a top cylindrical portion slidable in said bore in the valve disk and projecting from the container, the wall of said bore yieldably gripping said cylindrical portion to form a seal therewith, said plunger having an enlarged portion at the inner end of said cylindrical portion adapted to engage the undersurface of the valve disk, and means urging the enlarged portion of the plunger into engagement with the valve disk to provide a second seal for the container, said plunger having a longitudinal passage in the cylindrical portion communicating with an outlet lateral passage, the outer end of the longitudinal passage forming the discharge opening and the lateral passage being normally located adjacent the valve disk, whereby longitudinal movement of said plunger stem against the urging means from normal sealing position to a discharge position causes said enlarged portion of the plunger to be moved out of engagement with the valve disk and said lateral passage to be moved into communication with an interior reservoir chamber disposed in the valve housing to dispense the fluid under pressure therefrom, said plunger having a bottom cylindrical portion having a longitudinal passage communicating with a bottom lateral inlet passage, the outer end of the bottom longitudinal passage forming the inlet opening in the plunger communicating continuously with the liquid of the container, the bottom inlet lateral passage being normally in communication with the reservoir chamber.

12. Valve means for controlling the discharge of fluid under pressure from a container comprising a tubular valve housing having a reservoir chamber and having an enlarged disk-receiving collar at one end thereof and a transverse wall at the other end having an aperture to communicate with the container, a combined resilient sealing gasket and valve disk having a cylindrical bore mounted in said collar, a valve plunger mounted in said housing and having a top cylindrical portion slidable in said bore in the disk so as to project from the container, the walls of said bore yieldably gripping said cylindrical portion to form a seal therewith, an enlarged middle section at the inner end of said top cylindrical portion of said plunger having an outer diameter greater than that of the bore of the valve disk and a bottom cylindrical portion of reduced diameter therebelow and passing through the apertured transverse wall of the housing, the apertures in the housing and valve disk holding the plunger against tilting movement, and spring means urging the middle section of the plunger into engagement with the valve disk whereby the valve disk is compressed between the plunger middle section and the collar to provide a gas tight seal therebetween, said plunger having a longitudinal conduit in said top cylindrical portion communicating with a top lateral passage normally located adjacent the valve disk and further having a longitudinal conduit in said bottom cylindrical portion communicating with the bottom lateral passage normally in communication with the reservoir chamber, whereby longitudinal movement of said plunger against the urging means from normal sealing position to a discharge position causes said plunger middle section to be moved out of engagement with the valve disk and said top lateral passage to be moved into communication with the reservoir chamber of the valve housing.

13. The valve means of claim 12 comprising an apertured bottom sealer ring disposed on said wall through the aperture of which the bottom cylindrical plunger portion passes in seal-tight relationship whereby movement of said plunger first seals off the bottom lateral passage from contact with said chamber prior to effecting communication of the top lateral passage.

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