Aug. 9, 1955 D. P. DAVIS 2,714,977

TIME DELAY POURING SPOUT

Filed Nov. 28, 1952

Fig. 1.

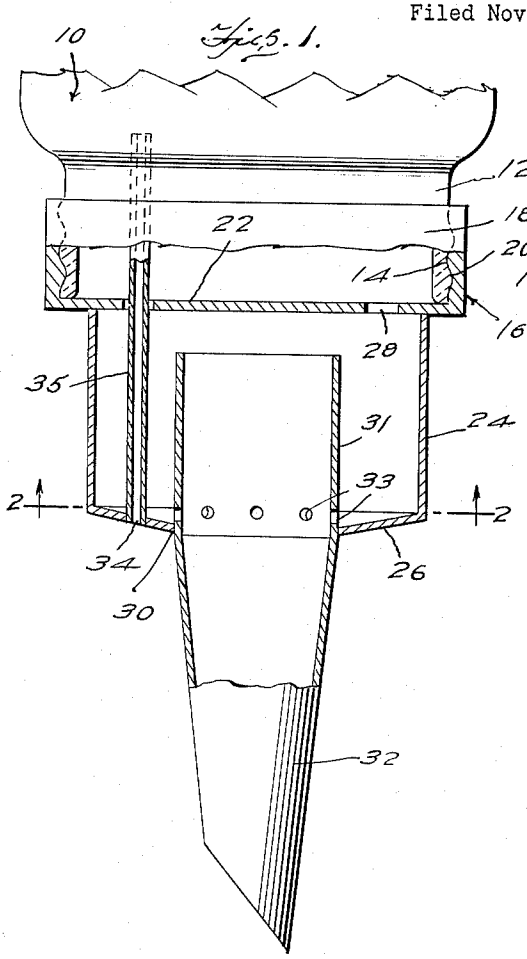



Fig. 3.

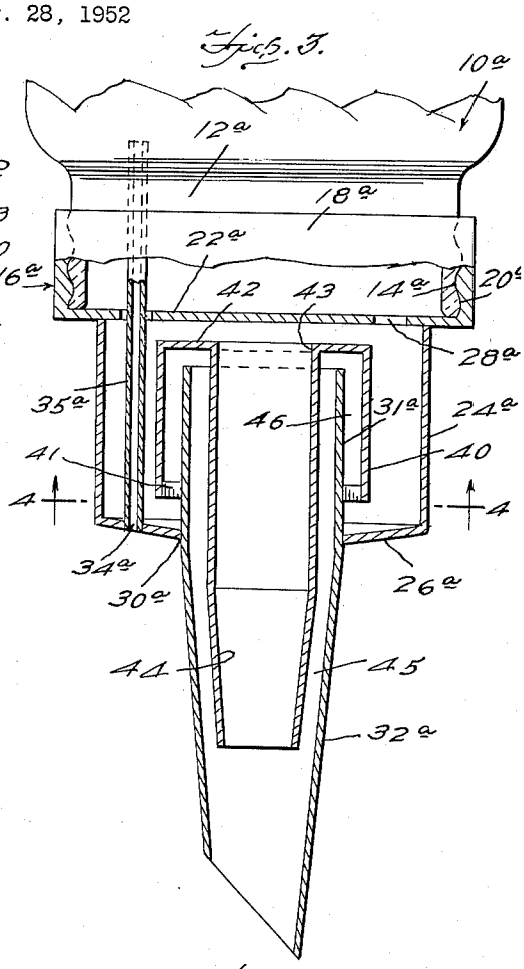



Fig. 2.

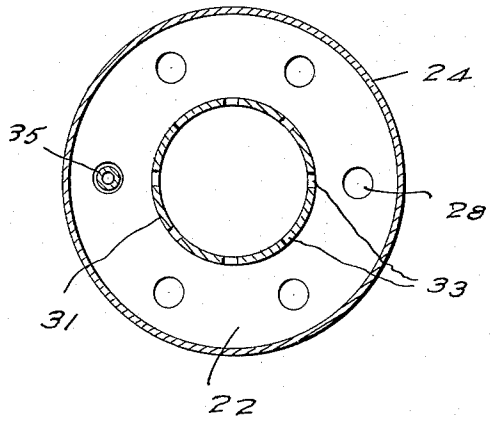
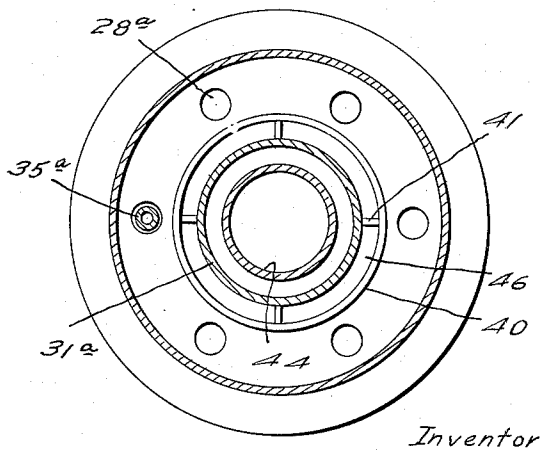



Fig. 4.




Inventor

Douglas P. Davis

By Wilfred E. Lawson

United States Patent Office 2,714,977 Patented Aug. 9, 1955



2,714,977

# TIME DELAY POURING SPOUT

Douglas P. Davis, Burbank, Calif.

Application November 28, 1952, Serial No. 323,026

1 Claim. (Cl. 222—424.5)

This invention relates to liquid dispensing devices and is directed particularly to dispensing spouts designed for application to a liquid container.

In the sale of motor vehicle oil as carried out at filling stations where the oil is frequently dispensed from an original container or receptacle directly into the crank case of the motor vehicle engine, one practice commonly followed is to provide the oil in quart containers to the threaded mouth of which is applied a cap carrying a dispensing spout which is introduced into the receiver opening or spout leading to the motor vehicle crank case. This procedure involves the inversion of the container in order to introduce the discharge spout into the oil filling opening and to accomplish this the oil container must be partly inverted before the spout can be put into the filling opening, as a result of which the oil is frequently spilled over the engine thereby not only losing some of the oil but requiring the attendant to wipe up the same.

It is an object of the present invention to provide a dispensing spout or cap designed for application to an oil containing receptacle, which is designed to retard the flow of oil for a short period after the receptacle has been inverted so as to give the attendant sufficient time to introduce the outlet end of the discharge spout into the oil filling opening of the engine crank case before the oil starts to flow out.

Another object of the invention is to provide a dispensing cap and spout of the character stated which provides an initial trap for the oil after the receptacle has been inverted, with means for draining all of the oil from the trap so as to assure the dispensing of the full quantity of oil paid for by the customer.

Other objects and advantages of the invention will become apparent as the description of the same proceeds and the invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming a part of the specification, with the understanding, however, that the invention is not to be limited to the exact details of construction shown and described since obvious modifications will occur to a person skilled in the art.

In the drawing:

Figure 1 is a view partly in longitudinal section and partly in elevation of a dispensing cap and spout constructed in accordance with a preferred embodiment of the invention, the cap being shown applied to the mouth of a receptacle.

Figure 2 is a sectional view taken substantially on the line 2—2 of Figure 1 looking in the direction of the arrows.

Figure 3 is a view partly in section and partly in elevation of a second embodiment of the invention.

Figure 4 is a sectional view taken substantially on the line 4—4 of Figure 3, looking in the direction of the arrows.

Referring now more particularly to the drawing, one embodiment of the invention is illustrated in Figures 1 and 2, wherein in Figure 1, the numeral 10 generally



designates the top or mouth end of a receptacle such as a quart glass jar of the character commonly used in gasoline stations for dispensing motor vehicle oil. The jar has a neck portion 12 which is provided with threads 14 to facilitate the attachment over the mouth of the jar of the dispensing cap and nozzle which is here generally designated 16.

The device comprises a collar 18 which is internally screw threaded as indicated at 20 for engagement with the threaded neck of the receptacle 10 and this collar has a head 22 thereby providing a cap.

In accordance with the present invention the head of the cap has secured to the outer side thereof a trap chamber comprising a circular wall 24 and an outer end wall 26 which is inclined or sloped so as to cause the oil to gravitate toward the center of the chamber when the dispensing receptacle is in the inverted or dispensing position.

The wall 22 is provided with an annular series of openings or ports 28 through which the oil passes from the receptacle 10 into the trap chamber.

The trap chamber wall 26 has a central opening 30 and fixed into this opening is an end portion 31 of a tapered nozzle or spout 32. The joint between the portion 31 of the nozzle and the edge of the opening 30 is, of course, fluid tight. The inner end of the portion 31 of the nozzle is opened as shown and terminates short of the wall 22, while at its opposite end is provided with a series of drain apertures 33 which are in close proximity to the inner side of the wall 26 of the trap chamber as illustrated.

Fixed in an opening in the wall 26 of the trap chamber, as indicated at 34, is an end of an air admission tube 35 which extends through the chamber and through one of the openings 28 for a substantial distance beyond the edge of the collar 18 of the cap so as to project into the receptacle 10 and thus provide means for the admission of air as the oil drains from the receptacle to prevent the formation of a vacuum and stoppage of the oil flow.

In this embodiment of the invention it will be seen that when the receptacle is inverted the oil therefrom will first be discharged into the trap chamber 24 through the openings 28. The circle of the openings 28 lies outside the inner end portion 31 of the nozzle so that the oil will flow first into the trap chamber and when the trap chamber is filled it will then flow through the opened inner end of the portion 31 of the nozzle and through the nozzle into the crank case in the customary manner. After the receptacle is emptied and the level of the oil in the trap chamber 24 falls below the top of the portion 31 of the nozzle, it will then drain off through the drain openings 33 so that the customer is assured of getting his full quantity of oil.

In the second embodiment of the invention as shown in Figures 3 and 4 the same delaying action in the initial discharge of the oil is effected by a somewhat different means. In this embodiment the receptacle is designated 10*a*, while the neck is designated 12*a* and the threads are designated 14*a*.

The dispensing cap and nozzle is designated generally by the reference character 16*a* and comprises the cap collar 18*a* having the internal threads 20*a* and the head 22*a*.

The numeral 24*a* designates the trap chamber circular wall which is secured to the head 22*a* and the outer end of the chamber has the sloping wall 26*a* as shown.

The numeral 28*a* designates the discharge apertures formed through the head 22*a* of the cap so that the oil will flow from the receptacle into the trap chamber.

The numeral 30*a* designates the central opening in the wall 26*a* of the trap chamber through which the

inner end portion 31*a* of the nozzle 32*a* extends as in the first embodiment.

This second embodiment also has an air admission tube designated 35*a* and having one end fixed in an opening in the wall 26*a* as indicated at 34*a*.

The numeral 40 designates a cup which is inverted over the inner end portion 31*a* of the nozzle and is supported by radial spacer arms 41 which are secured between the outer side of the part 31*a* of the nozzle and the inner side of the cup at the downwardly directed mouth thereof. This inlet or mouth of the cup is spaced close to the wall 26*a* of the trap chamber, while the bottom of the cup, designated 42, is spaced from the open inner end of the portion 31*a* of the nozzle and is provided with a central opening 43 in which is fixed an end of a tube 44 which extends downwardly a substantial distance in the nozzle and is spaced only a slight distance from the wall of the nozzle thus forming a siphoning passage 45 which connects with the space between portion 31*a* of the nozzle and the inner surface of the portion 40 of the cup, which latter space forms a continuation of the siphoning passage and is designated 46.

In the operation of this modified construction, when the receptacle 10*a* is inverted, the oil passes down through the openings 28*a* into the trap chamber 24*a* as in the first embodiment and when the chamber is filled it flows over the top of the cup and down through the passage provided by the tube 44. After the receptacle 10*a* has been emptied, a siphoning action will take place through the passages 45 and 46 so as to draw off the oil remaining in the trap chamber.

From the foregoing it will be apparent that there is provided by the present invention a novel means whereby a slight delay will be produced in the flow of the oil from the dispensing receptacle after the receptacle has been inverted to direct the discharge nozzle downwardly so that the person desiring to introduce the end of the discharge nozzle into the motor vehicle filling opening will have sufficient time to do so before the oil starts to flow and thus loss of oil will be prevented as well as preventing it from flowing over the parts of the motor vehicle which would then require the cleaning of such parts.



I claim:

In a time delay pouring spout for a receptacle having a neck, a cap closure having an end wall and an annular wall threaded on said neck, a liquid trap chamber formed on the outer side of said end wall, said end wall having a liquid outlet opening into said chamber, an elongated open ended spout having an inner cylindrical end portion extending centrally into said chamber and an outer downwardly tapered end portion extending from said cylindrical end portion outwardly of the chamber, a second open ended spout depending through the inner end of said cylindrical portion, an annular flange outturned from the inner edge of said second spout, an annular wall depending from said flange and spacedly encircling said cylindrical portion, radially disposed spacer arms extending between the lower end of said annular wall and the cylindrical portion, and an air admission tube extending through said chamber and the said end wall of the cap and into the receptacle, the discharge of the liquid from within the receptacle through the outlet opening in the said end wall into said chamber being facilitated by the atmospheric pressure of the air passing inwardly through said admission tube.

**References Cited** in the file of this patent

UNITED STATES PATENTS

| | | |
|---|---|---|
| 2,333,310 | Greening | Nov. 2, 1943 |
| 2,442,133 | Legarra | May 25, 1948 |

FOREIGN PATENTS

| | | |
|---|---|---|
| 286,520 | Italy | June 13, 1931 |