June 24, 1958 E. OSTERMANN 2,840,281

POURING DEVICE FOR CONTAINERS

Filed June 16, 1954

FIG. 1

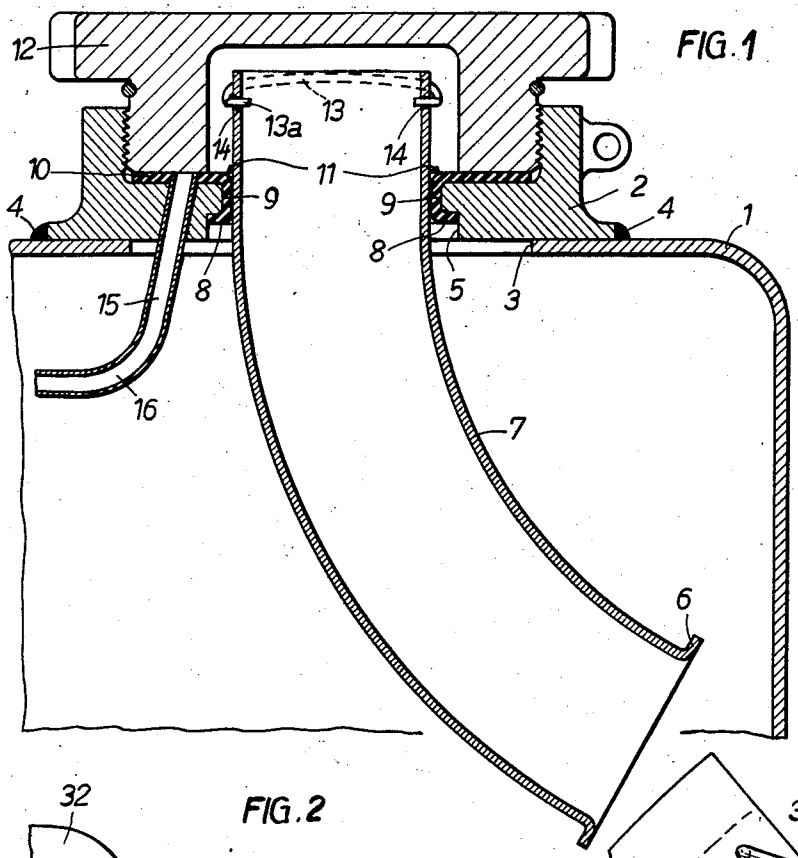
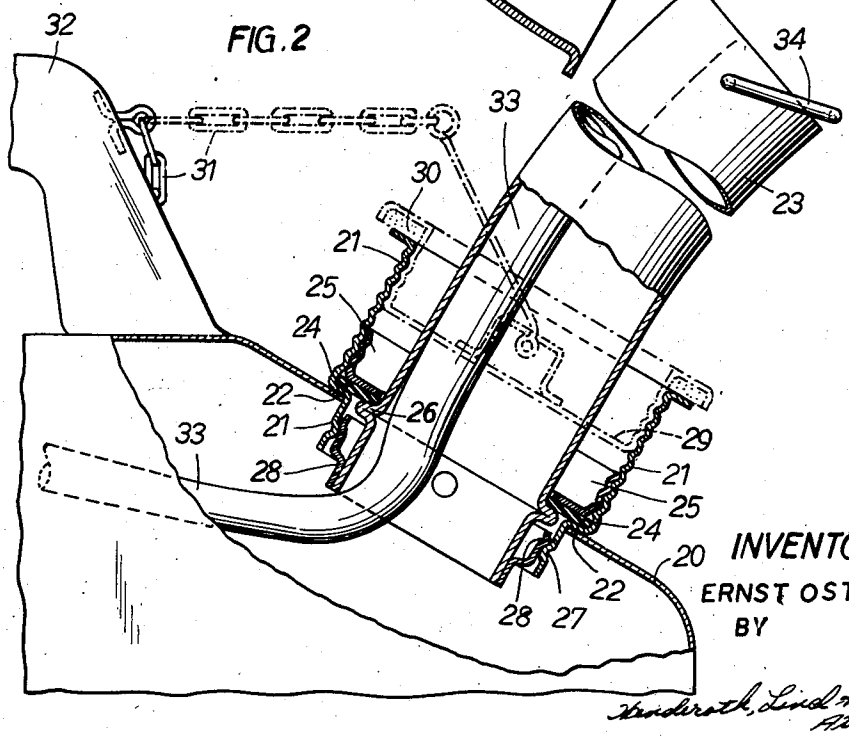


FIG. 2



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United States Patent Office 2,840,281 Patented June 24, 1958

2,840,281

POURING DEVICE FOR CONTAINERS

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Application June 16, 1954, Serial No. 437,195

Claims priority, application Germany June 19, 1953

3 Claims. (Cl. 222—484)

The present invention relates to a pouring device for containers such as casks and canisters, and more particularly for fuel cans.

The heretofore known spouts of casks and cans have simple screw or hinge covers and emptying of such containers without auxiliary means such as funnels, or for example in connection with fuel cans without a separately carried spout tube is practically impossible. In many cases it is not possible for one man alone to empty a container and substantial volumes of liquid are ordinarily wasted. Moreover, it is known from experience that ordinarily such auxiliary means are not at hand when they are necessitated.

It is a prime object of the present invention to provide a pouring device which avoids the afore-described disadvantages.

For this purpose the pouring device according to the invention is characterized by a spout tube slidably arranged in longitudinal direction in the opening of the container, which spout tube in its rest position, in which it is retracted in the container, has its upper end disposed in a mouthpiece closable by a cover.

Preferably the spout tube is tightened in its pulled out position by means of a flange provided at the lower end of the tube and pressed against a packing arranged at the inside of the opening of the container, while in its retracted position the spout tube, which projects only to a small extent beyond the opening in the container is closed by a cover acting upon another packing surface for tightly closing the mouthpiece.

The packing surfaces for the flange of the spout tube, for the wall of the tube and for the cover are preferably arranged on one packing ring, which in cross-section forms an U having one shortened leg.

In order to obtain a continuous emptying of the container means must be provided to permit entering of a continuous air stream into the container in order to replace the discharged liquid during the emptying operation. For this purpose an air pipe may be provided either at the outside or within the spout tube. Preferably such an air pipe has its end projecting into the container bent into a direction opposite the direction into which the container is inclined to be emptied.

Other objects and advantages of the invention will become apparent from the description, now to follow, of two preferred embodiments thereof, in which reference will be had to the accompanying drawings in which:

Fig. 1 is a partly sectional view of a first embodiment, and

Fig. 2 is a partly sectional view of the second embodiment.

In the embodiment represented in Fig. 1 reference numeral **2** designates an annual mouthpiece tightly secured to the container by a welding seam or like means over an opening **3** provided in the wall of the container **1**. This mouthpiece **2** is recessed as at **5** forming a shoulder adapted to receive and retain a flange **6** provided at the

lower end of a tubular spout **7**, which is axially slidable in said mouthpiece **2**. In the working position of the spout **7**, i. e. when it is completely pulled out the flange **6** bears against the portion **8** of a rubber packing **11**. The portion **9** of the same packing **11** serves to tighten the slidable spout **7** with respect to the opening in the mouthpiece **2**, while the portion **10** of still the same packing **11** forms the tightening surface for a screw cap **12**. Reference numeral **13** designates a wire stirrup engaging with its two short bend ends **13***a* two openings **14** provided in the upper end of the spout **7**. In order to permit continuous emptying of the container **1** through the spout **7**, means must be provided through which a continuous air stream may enter the container to replace the discharged liquid. For this purpose there is provided an air pipe **15**, which in the embodiment illustrated in Fig. 1 is arranged at the outside of the spout **7**. This air pipe **15**, which has its one end projecting through the opening **3** into the container **1** is bent as at **16** to run substantially parallel with the upper wall of the container, in order to prevent the liquid contained in the container to leave the latter through the air pipe when the liquid level moves or when the container is inclined to be emptied. The portion of the air pipe **15** situated at the outside of the container **1** ends in the tightening surface **10** of the rubber packing **11**, provided for the screw cap **12**. As is clearly visible from Fig. 1 the rubber packing **11** provides the tightening surfaces for the flange **6** of the spout as well as also for the screw cap **12** closing the mouthpiece. At the same time the cap **12** screwed into the mouthpiece **2** closes with its lower surface resting on the tightening surface **10** the upper end of the air pipe **15**.

Of course it is possible to close the container **1** by means of a hinge cover instead of with a screw cap. Such a hinge cover may for example be held in its closing position by a device similar to a lever-operated bottle stopper.

As the opening of the container must to a certain extent guide the spout **7** and as moreover sharp edges and corners should be avoided an arrangement in which the opening in the container corresponds to the outer diameter of the spout is not advisable. The arrangement shown in Fig. 1, with a mouthpiece **2**, which may be formed by a casting, arranged on the somewhat larger opening **3** in the container **1** and containing the aforesaid tightening surfaces, is by far preferable.

Owing to the friction between the outer wall of the spout **7** and the rubber packing **11** it is usually not necessary to provide locking means for locking the spout in its two end positions of the spout. If for reasons of manufacture or owing to long use this friction should become insufficient this is not necessarily a disadvantage as the spout is drawn out and retained in the pulled out position by its proper weight when the container is inclined to be emptied. Of course spring means could be provided in order to secure the spout in the two end positions. Such spring means could for example be a snap spring co-operating with recesses provided in the spout.

Fig. 2 illustrates a second embodiment of the invention in connection with a fuel canister.

Fuel cans for liquid fuels must meet various requirements. In addition to easy handling it must be possible to store and stack them under optimum use of the available space for example on trucks or the like. For this purpose they are preferably given a parallelepipedic form. The spouts provided on the canisters must be such, that the parallelepipedic form of the complete can, which permits the space-saving stacking, is maintained. The use of separate spout tubes, which are not fixed on the canisters is not recommendable for practical reasons, as it is known from experience that a separate spout is usually not at hand when it is necessitated.

Also in fuel cans the pouring device must be arranged so that a continuous air stream can enter the can during emptying of the latter in order to replace the discharged liquid and enable a continuous emptying.

The canister illustrated on Fig. 2 is designated by reference numeral **20** and comprises a mouthpiece **21** tightly secured to the canister by welding or brazing as at **22**. As in the first embodiment the spout tube, designated by reference **23** in Fig. 2 is axially slidable in the opening of the mouthpiece between two end positions corresponding to the working and rest position, respectively. When the spout **23** is shifted from one end position into its other end position it is guided in a packing ring **24** retained in its position at the mouthpiece by a screw ring **25**. As is clearly visible from Fig. 2 the simple construction permits easy replacement of the packing ring **24** and of the spout tube **23**. In the pulled out position the spout **23** is pressed with its flange **26** against the lower surface of the packing ring **24**. It is releasably retained in this position by a spring stop **28** secured to the lower end of the spout **23** and co-operating with an annular groove **27** provided on the lower end of the mouthpiece.

The mouthpiece is in this embodiment again closed by a screw cap **29** provided with an interchangeable packing ring **30**. The cover **29** is connected over a chain **31** with the handle **32** of the canister **20** so that it cannot be lost.

In order to guarantee in this embodiment the continuous arrival of air to replace the discharged liquid in the container an air pipe **33** is welded at the interior of the spout tube **23**.

The openings **14** in the upper end of the spout tube, in addition to their function of holding the bail **13** or **34**, also serve to permit the liquid in the mouthpiece to return into the can. Likewise the lower end of the spout tube may be provided with openings, one of which is shown at **35** in Fig. 2, permitting a complete emptying of the canister.

As in the first embodiment the upper end of the spout is provided with a wire stirrup **34** facilitating the pulling out of the spout tube and at the same time forming the lower abutment for the spout in its rest position.

In both described embodiments a short portion of the spout projects in the rest position of the latter, beyond the container so that it may easily be seized. However, the provision of the wire stirrup **13** and **34**, respectively, substantially facilitates the pulling out of the spout. In order to prevent that the stirrup hinders the emptying operation by falling into the liquid stream leaving the spout, it is preferably of such dimensions that owing to its proper elasticity and in co-operation with the elasticity of the spout tube it is resiliently pressed against the wall of the spout tube and retained in the position shown in Fig. 1.

In both described embodiments the spout is formed by a slightly curved tube. This curved form facilitates the handling and the emptying operation, but of course the spout could also be constituted by a straight tube without substantial disadvantages resulting therefrom.

In its rest position the spout tube has a substantial portion of its length dipped into the liquid contained in the container. Owing to the provided packings the spout contains in its upper portion a closed volume of air, which has an advantageous damping effect onto the liquid movements.

Although I have shown and described particular embodiments of my improved pouring device for containers, I do not desire the invention to be limited to the particular arrangements disclosed, and I intend in the appended claims to cover all modifications which do not depart from the spirit and scope of my invention.

I claim:

1. In a container having an opening therein, a pouring device comprising a mouthpiece tightly secured to said container around said opening, a removable cover adapted to close said mouthpiece, packing means in said mouthpiece surrounding said opening, a spout tube slidable in said packing means having a plurality of holes therein adjacent each end thereof, stop means on the inner end of said spout tube, said stop means bearing directly on said packing means when said tube is in the extended position, a bail on the outer end of said spout tube, resiliently held in two of said plurality of holes so that it lies against the outside of said tube and is positioned to act as stop means at the outer end of said tube, and an air pipe having one end within said container bent in a direction opposite to the direction of pouring and the other end opening out of the container through said mouthpiece.

2. A pouring device as claimed in claim 1 in which said mouthpiece comprises an internally threaded portion and an outwardly flanged portion by which said mouthpiece is attached to said container, and said packing means comprises a resilient packing ring the internal diameter of which is less than the diameter of the opening in said container and which engages said spout tube, and a screw ring threaded into said mouthpiece to hold said packing ring against said inwardly flanged portion of said mouthpiece.

3. A pouring device as claimed in claim 1 in which said mouthpiece has an outwardly facing threaded recess therein adapted to receive said cover, an inwardly facing recess adapted to receive the stop means on the inner end of said spout tube, and a spout tube aperture between said recesses, and said packing means comprise a packing ring extending along the bottom of said cover receiving recess through said spout tube receiving aperture and along the bottom of the stop means receiving recess, and said air tube extends through said mouthpiece into the bottom of said cover receiving recess through the packing ring thereon and terminates at the surface of said packing ring.

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