March 19, 1935. J. A. WINGER ET AL 1,994,844

DRAINING APPARATUS

Filed June 26, 1930

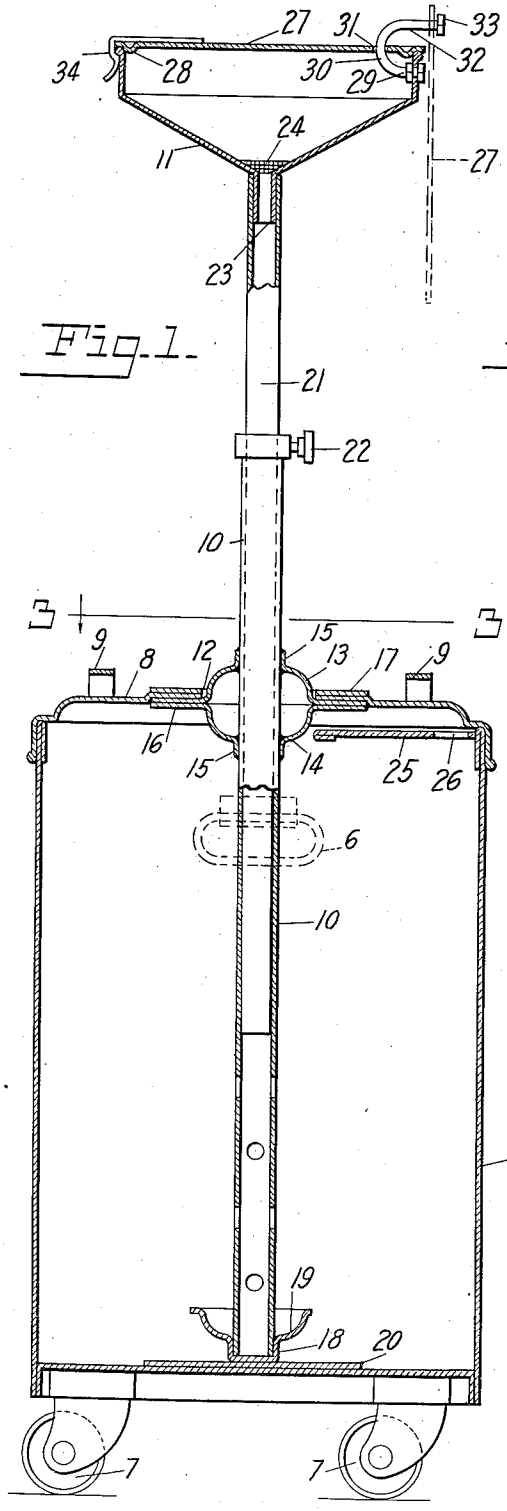


Fig. 1.

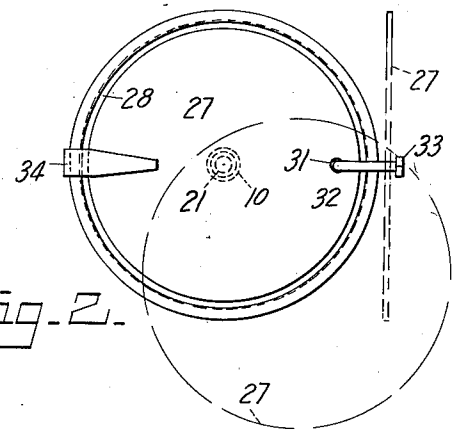


Fig. 2.

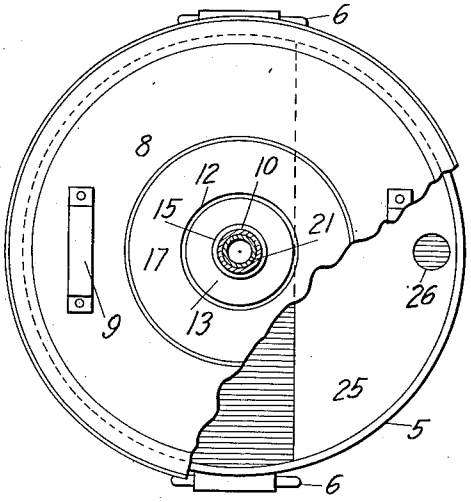


Fig. 3.

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DRAINING APPARATUS

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15 Claims. (Cl. 184—1.5)

This invention relates to a draining apparatus and is designed more particularly for draining the crank cases of automobiles.

One object of the invention is to provide a draining device which can be readily moved into and out of a position beneath the crank case and which can be adjusted vertically to accommodate the same to the height of the drain opening in the crank case.

A further object of the invention is to provide such an apparatus in which the drain pipe will be supported in a removable closure for the container which receives the oil from the crank case.

A further object of the invention is to provide such a device in which the container will have means for controlling the discharge of the oil therefrom when the container is tilted.

A further object of the invention is to provide a draining device in which the funnel will be provided with a closure which can be moved to its open position with but a minimum of vertical movement, thus permitting the funnel to be opened when it is located close to the crank case.

A further object of the invention is to provide such an apparatus which will be simple in its construction and which can be produced at a relatively low cost.

Other objects of the invention will appear as the apparatus is described in detail.

In the accompanying drawing Fig. 1 is a vertical sectional view taken centrally through an apparatus embodying our invention, with the drain pipe partly in elevation; Fig. 2 is a plan view of the funnel; and Fig. 3 is a section taken on the line 3—3 of Fig. 1, showing the container in plan, the cover being broken away.

In the drawing we have illustrated one embodiment of our invention but it will be understood that this particular embodiment has been chosen for the purposes of illustration only, and that the apparatus may take various forms without departing from the spirit of the invention.

In that embodiment here illustrated the apparatus comprises a container 5 which may be of any suitable size and shape and which, as here shown, is cylindrical in form and is provided on opposite sides with handles 6 by means of which it may be manipulated. If the container is of large capacity it is preferably mounted on wheels or casters, as shown at 7. The upper end of the container is closed by a removable closure or lid 8 having handles 9.

A drain pipe 10 is supported by the container and has its discharge end within the same, and a funnel 11 is supported by the drain pipe and is vertically adjustable with relation thereto. Preferably the drain pipe is supported in an upright position on the container by means of the closure 8 and, as here shown, that closure is provided with a central opening 12 and supporting members 13 and 14 are secured to the closure in line with the opening and provided with alined openings or bearings 15 to receive and support the drain pipe. The supporting members 13 and 14, as here illustrated, are cup-shaped and are provided with flanges 16 by means of which they are attached to the closure. The flanges are arranged beneath the closure and the upper supporting member 13 extends through the opening 12 in the closure to a point some distance above the same while the lower supporting member 14 extends downwardly into the container, so that the openings or bearing surfaces 15 are spaced apart such a distance as to provide a firm support for the drain pipe. If desired, an annular plate may be secured to the closure above the flanges 16 to reinforce the structure. The supporting members may be connected one to the other and to the closure in any suitable manner, as by spot welding. The supporting members 13 and 14 will ordinarily support the drain pipe in its proper position but we prefer to provide means within the container to rigidly hold the lower end of the drain pipe against lateral displacement. For this purpose a socket member 18 is arranged in the bottom of the container and has its upper portion flared, as shown at 19, to guide the end of the pipe into the same. Preferably the socket member is secured to a plate 20 which in turn is secured to the bottom wall of the container, the connections being preferably made by spot welding.

The funnel 11 is supported on the drain pipe 10 in such a manner that it may be adjusted vertically toward and from the container. In the construction here shown the funnel is carried by a pipe 21 which is slidably mounted within the drain pipe 10, the latter being provided with a set screw 22 to secure the pipe 21 in adjusted positions. The funnel has a depending discharge spout 23 which fits snugly in the upper end of the pipe 21 and serves to support the funnel thereon. If desired, the discharge opening in the funnel may be provided with a screen 24.

The drain pipe 10 is removably mounted in the supporting members 13 and 14 of the closure and may be withdrawn therefrom before the closure is removed from the container or the closure and

drain pipe may be removed together. When the closure has been removed the oil in the container is discharged therefrom by tilting the container and in order to control the discharge of the oil we have provided the container with a discharge plate 25 which is here shown as segmental in form and as having its outer or curved edge secured to the wall of the container at a point near the upper end thereof in such a manner as to support the plate in a substantially horizontal position. The plate is provided with an opening 26 arranged near the wall of the container and approximately midway between the ends of the plate. When the container is tilted the plate will retard the flow of oil and cause the same to be discharged through the opening 26 only, thus discharging the same in a relatively narrow stream and enabling the contents of the container to be poured into another receptacle without spilling.

The upper end of the funnel 11 is provided with a closure or lid 27 which, in the present instance, is in the form of a disk of metal and is provided with an inwardly extending part, such as a bead 28, to engage a wall of the funnel to properly position the lid thereon. In practice the operator will sometimes neglect to move the lid to its open position until after he has run the funnel up to the crank case. If the lid must be moved vertically any substantial distance in order to open the same it is necessary to lower the funnel before this can be done. In the present device, we have provided means for so connecting the lid with the funnel that by imparting a slight vertical movement to the lid it may be disengaged from the funnel and then moved laterally out of line therewith. The connecting device here shown comprises a substantially U-shaped rod, the lower arm 29 of which is rigidly mounted in the vertical side wall of the funnel in an approximately horizontal position. The transverse or curved portion 30 of the rod extends upwardly within the funnel through an opening 31 in the lid to a point above the funnel, and the upper arm 32 extends outwardly above the wall of the funnel to a point on the outer side thereof where it is provided with a stop 33. This device permits the lid to move vertically, with a sliding movement on the part 30 of the connecting rod, a distance sufficient to disengage the bead 28 from the wall of the funnel and the lid may then be swung about a vertical axis and moved out of line with the funnel. After the lid has been swung about its vertical axis it may be moved into a substantially vertical position, as shown in dotted lines in Fig. 1, the apertured portion of the lid moving along the upper arm 32 of the connecting rod to permit the lid to assume this position. The lid is retained normally in its closed position by a spring latch 34.

While we have shown and described one embodiment of our invention we wish it to be understood that we do not desire to be limited to the details thereof as various modifications may occur to a person skilled in the art.

Having now fully described our invention, what we claim as new and desire to secure by Letters Patent, is:

1. In an apparatus for draining crank cases and the like, a container, an upright pipe communicating with the interior of said container, a funnel carried by said pipe and vertically adjustable with relation to said container, a lid for said funnel, and means for connecting said lid with said funnel for vertical movement and for movement about a vertical axis.

2. In an apparatus for draining crank cases and the like, a container, an upright pipe communicating with the interior of said container, a funnel carried by said pipe and vertically adjustable with relation to said container, a lid for said funnel having a part to engage said funnel and position said lid thereon, and means for so connecting said lid with said funnel that it may be moved vertically to disengage said part from said funnel and then laterally to a position out of line with said funnel.

3. In an apparatus for draining crank cases and the like, a container, an upright pipe communicating with the interior of said container, a funnel carried by said pipe and vertically adjustable with relation to said container, a lid for said funnel having a part to engage said funnel and position said lid thereon, and means for so connecting said lid with said funnel that it may be moved vertically to disengage said part from said funnel, then laterally to a position out of line with said funnel, and then to a substantially vertical position at one side of said funnel.

4. In an apparatus for draining crank cases and the like, a container, an upright pipe communicating with the interior of said container, a funnel carried by said pipe and vertically adjustable with relation to said container, a lid for said funnel having a part to engage said funnel and position the lid thereon, said lid having an opening therethrough near one edge thereof, and a rod secured to said funnel and extending upwardly through the opening in said lid, whereby said lid may be moved upwardly on said rod to disengage said part from said funnel and then moved about a substantially vertical axis to a position out of line with said funnel.

5. In an apparatus for draining crank cases and the like, a container, an upright pipe communicating with the interior of said container, a funnel carried by said pipe and vertically adjustable with relation to said container, a lid for said funnel having a part to engage said funnel and position the lid thereon, said lid having an opening therethrough near one edge thereof, and a rod secured to said funnel and extending upwardly through the opening in said lid and thence laterally beyond the side of said funnel.

6. In an apparatus for draining crank cases and the like, a portable container, an upright pipe carried by said container and communicating with the interior thereof, a funnel carried by said pipe and vertically adjustable with relation to said container, a lid for said funnel having a part to engage said funnel and position the lid thereon, said lid having an opening therethrough near one edge thereof, and a substantially U-shaped rod having one arm mounted on a wall of said funnel, having its transverse portion extending upwardly within said funnel and through the opening in said lid and having its other arm extending across the upper edge of said wall to a point beyond the outer side of said wall.

7. In an apparatus for draining crank cases and the like, a funnel, means for adjustably supporting said funnel for movement toward and from the crank case, a lid for said funnel, and means for connecting said lid with said funnel for both vertical movement and transverse movement with relation thereto.

8. In an apparatus for draining crank cases and the like, a vertically adjustable pipe, a funnel carried by said pipe and adjustable therewith toward and from said crank case, a lid for said funnel having a part to engage said funnel and position said lid thereon, and means for connect-

ing said lid with said funnel for both vertical movement and transverse movement with relation thereto.

9. In an apparatus for draining crank cases and the like, a funnel, means for adjustably supporting said funnel for movement toward and from the crank case, a lid for said funnel having a part to engage said funnel and position said lid thereon, and means for so connecting said lid with said funnel that it may be moved vertically to disengage said part from said funnel and then moved about a substantially vertical axis to a position out of line with said funnel.

10. In an apparatus for draining crank cases and the like, a funnel, means for adjustably supporting said funnel for movement toward and from the crank case, a lid for said funnel having a part to engage said funnel and position said lid thereon, said lid having an opening therethrough near one edge thereof, and a rod secured to said funnel and extending upwardly through the opening in said lid to a point above the normally closed position of said lid, whereby said lid may be moved upwardly on said rod to disengage said part from said funnel and then moved laterally about said rod to a position out of line with said funnel.

11. In an apparatus for draining crank cases and the like, a funnel, means for adjustably supporting said funnel for movement toward and from the crank case, a lid for said funnel having a part to engage said funnel and position said lid thereon, said lid having an opening therethrough near one edge thereof, and a rod secured to said funnel and extending upwardly through the opening in said lid and thence laterally beyond the side of said funnel.

12. In an apparatus for draining crank cases and the like, a funnel, means for adjustably supporting said funnel for movement toward and from the crank case, a lid for said funnel having a part to engage said funnel and position said lid thereon, said lid having an opening therethrough near one edge thereof, and a substantially U-shaped rod having one arm mounted on a wall of said funnel, having its transverse portion extending upwardly within said funnel and through the opening in said lid and having its other arm extending across the upper edge of said wall to a point beyond the outer side of said wall.

13. In an apparatus for draining crank cases and the like, an upright portable container having an open upper end, a closure for said container removably mounted on the upper end thereof, a drain pipe extending through said closure, said closure having a bearing to receive said drain pipe, and support the same in an upright position, a socket arranged within said container to receive the lower end of said drain pipe and hold the same against lateral displacement and thereby relieve said bearing of twisting strains, a funnel, and means for adjustably supporting said funnel on said drain pipe.

14. In an apparatus for draining crank cases and the like, an upright portable container having an open upper end, a closure for the upper end of said container having an opening therethrough, supporting members mounted on said closure in line with the opening therein, extending respectively above and below said closure and having alined openings, a drain pipe mounted in the openings in said supporting members, extending into said container and having communication with the interior of said container, means arranged within said container to engage the lower portion of said drain pipe and brace the same against lateral displacement, a funnel communicating with said drain pipe, and means for supporting said funnel in adjusted positions with relation to said container.

15. In an apparatus for draining crank cases and the like, an upright portable container having an open upper end, a closure for said container having means for firmly but removably securing the same to said container, a drain pipe mounted in said closure and adapted to extend into said container when said closure is in position thereon, said closure having means to engage said drain pipe above and below said closure to support the same in an upright position, and said drain pipe being so mounted in said closure that it may be removed from said closure or may be removed from said container along with said closure, a funnel, and means for adjustably supporting said funnel on said drain pipe.

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