May 25, 1943. I. J. B. DEMERS 2,320,174

MILK CAN

Filed July 30, 1940

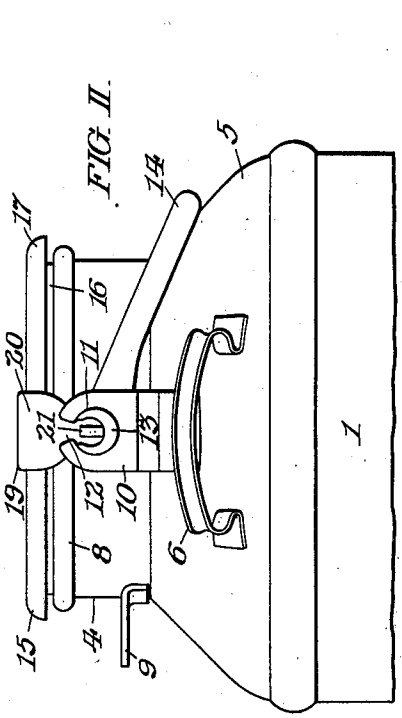


FIG. II.

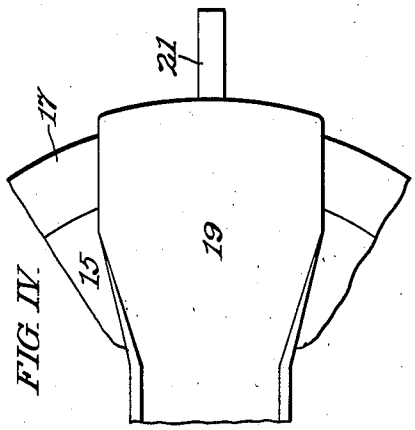


FIG. IV.

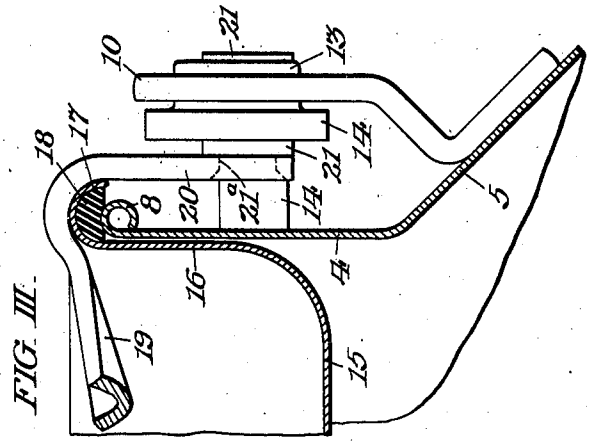


FIG. III.

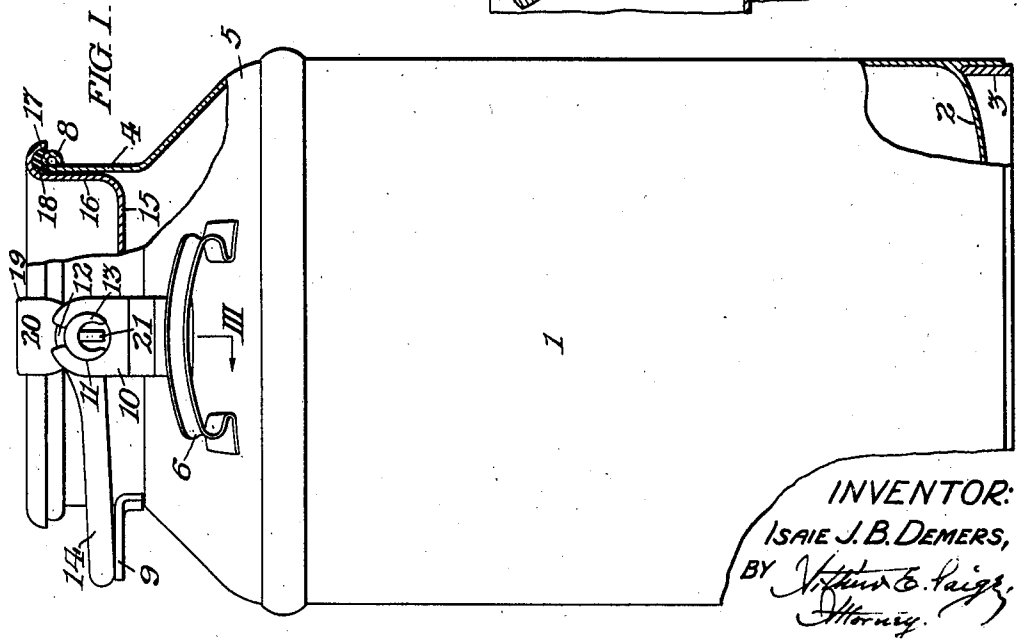


FIG. I.

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MILK CAN

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Application July 30, 1940, Serial No. 348,363

5 Claims. (Cl. 220—58)

It is the object and effect of my invention to provide simple and durable means for connecting a receptacle for milk or other material with a removable closure, whereby, the joint between them may be hermetically sealed or instantly opened, by manipulation of a bail lever which carries respective crescent shaped cams at its ends in coaxial alinement and forming fulcrums permanently journaled in bearing brackets fixed on the receptacle. In the form of my invention chosen for illustration, the closure is a cup shaped cover of slightly smaller diameter than the neck of the can, and having an outwardly turned annular gasket flange holding an annular gasket adapted to resiliently engage an annular bead at the top of the can neck. Said cover has a bar of metal extending diametrically across it and rigidly connected with the gasket flange, conveniently by welding, said bar being bent to U-shape in the portion which crosses the open top of the cover so that it may be conveniently grasped as a handle to lift the cover. The ends of the bar are pendent in parallel relation overhanging the gasket flange and having at their lower extremities respective locking lugs extending in diametrical relation with respect to the cover in a vertical plane common to the two lugs so that in one position of the bail the cams which are recessed upon one side thereof, parallel with their axis may receive the lugs and, when the bail is turned through an arc of approximately one hundred and eighty degrees the cams turning in their bearings on the can draw down the cover until the gasket is tightly compressed upon the can neck bead, in which position the bow of the bail rests upon a stop flange rigidly connected with and extending from the neck of the can transversely to the axis of the neck. When the bail lever is turned through an arc of more than one hundred and eighty degrees, until its bow rests upon the shoulder of the can, the crescent shaped cams are upturned and lift the locking lugs, in registry with respective slits in the tops of their bearings, through which the locking lugs may pass freely as the closure cover is applied to or removed from the can neck by said handle.

My invention includes the various novel features of construction, arrangement and method of operation hereinafter more definitely specified.

In said drawing,

Fig. I is a side elevation of a milk can conveniently embodying my invention partly broken away at the top and bottom to show the construction, the bail lever and cover being in the sealed position with the bail lever bow resting upon said stop flange.

Fig. II is a fragmentary elevation of the same side of the can shown in Fig. I, but with the bail lever turned to the position in which the cams release the locking lugs, so that the cover is released and lifted by the cams, and may be removed from the can by its handle.

Fig. III is a fragmentary vertical diametrical sectional view of the can and its neck and cover taken on the line III, in Fig. I in the direction of the arrow on said line, but on a larger scale, showing the cover in sealed position.

Fig. IV is a fragmentary plan view of the cover and its handle bar, showing one of the locking lugs of the latter.

In said figures, the can 1 forms a cylindrical receptacle having a bottom closure 2 with a rounded junction with the cylindrical shell of the can to facilitate cleaning the interior of the receptacle. Said receptacle is conveniently reinforced by the annular band 3 rigidly connected with the cylindrical shell and projecting downwardly therefrom to withstand the severe wear to which such cans are subjected. The can neck 4 is conveniently formed of reduced diameter, at the top of the annular cap piece 5, the lower end of which is rigidly connected with the cylindrical shell of the can. Said cap piece 5 forms a shoulder upon which are rigidly mounted diametrically opposite handles 6 by which the can may be manipulated, and the top of the neck 4 is provided with an outwardly extending annular bead 8. The stop flange 9 is rigidly connected at its inner end with the side of the neck 4 and projects therefrom in a plane which is at right angles to the axis of the can. Two bearing brackets 10 are respectively rigidly connected at their lower ends in diametrically opposite position on the shoulder of the cap piece 5. As shown in Fig. III the upper ends of said brackets 10 extend in parallel relation with the axis of the can, and side of the can neck 4.

The upper ends of the respective bearing brackets 10 have cylindriform bearings 11 as shown in Figs. I and II, with slit openings 12 at the top thereof, parallel with the axis of said bearings. Respective crescent shaped cams 13 which are rigidly connected in coaxial relation with the ends of the bail lever 14 are journaled in said bearings 11 and form fulcrum trunnions on the ends of said bail lever 14, by which they may be turned in their bearings 11 from the cover locking position shown in Fig. I to the cover unlocking position shown in Fig. II.

As shown in Figs. I and III the can closure cover 15 is cup shaped, having a cylindrical portion 16 which is loosely fitted in the cylindrical can neck 4. Said cover has the outwardly turned annular gasket flange 17 holding the resilient gasket 18. The cover handle bar 19 is formed of a primarily flat strip of metal which extends diametrically across the open top of the cover 15 and, intermediate of its width has its opposite edges bent upwardly, so that the bear is of U shape so that it may be conveniently grasped by the operator in applying and removing the cover 15 with respect to the can neck 4.

Each of the opposite ends 20 of the cover handle bar 19 is pendent vertically, parallel with the axis of the cover and, is provided with a radially extending locking lug 21. Said lugs 21 extend in a common vertical plane. In the position of the bail lever 14 shown in Fig. II the crescent shaped cams 13 are turned with their openings upward in registry with the slits 12 in the bearings 11, so that the closure lid 15 may be uplifted and released and movement of the cams to that position not only releases but lifts the closure cover 15 because the thick portions of the cams 13 are forced below the locking lugs 21 in the bearings 11. On the contrary, in the position shown in Fig. I, the thick portions of the cams 13 are interposed above the lugs 21 in the bearings 11 to press the cover 15 downwardly. In other words, the cams 13 are double ended wedges which when moved in one direction force the cover downward and when moved in the opposite direction force the cover upward.

I find it convenient to extend the cams 13 outwardly from the bail lever 14 into the bearings 11. However, they may be extended inwardly from the bail if the latter is mounted outside of said bearing brackets 10.

Although I have found it convenient to provide the stop flange 9 to limit the locking movement of the bail lever 14 so that the thickest portion of the crescent shaped cams 13 are then presented above the locking lugs 21, said stop flange 9 may be omitted. Moreover, although I have found it convenient to provide the shoulder of the can with a pair of diametrically opposite handles 6 to facilitate the manipulation of the can, those handles may be omitted as it is obvious that if the can cover is secured in closed position as shown in Fig. I, the can and its contents may be lifted by the cover handle 19, and, if the cover is removed, the can and its contents may be lifted by the bail lever 14 or, the can and its contents may be lifted with the cover in place by the bail lever 14 upturned to vertical position in which position the cover would be prevented from removal by the cams 13.

As indicated in Fig. III the locking lugs 21 are conveniently formed with inner ends of reduced width, indicated at 21^a, which are tightly fitted through rectangular slots in the ends 20 of the handle bar 19 and are riveted at the inner face of the respective bar end in which they are mounted. However, they may be otherwise constructed and arranged.

Therefore, I do not desire to limit myself to the details of construction, arrangement or method of operation herein set forth as it is obvious that various modifications may be made therein without departing from the essential features of my invention, as defined in the appended claims.

I claim:

1. The combination with a milk can comprising a cylindrical body with an annular top cap forming a shoulder and a cylindrical neck of smaller diameter having an annular bead at its open end; of two bearing brackets, having their lower ends rigidly fixed on said shoulder, at respective diametrically opposite sides of said neck, and their upper ends extending in spaced, parallel, relation with the outside of said neck; cylindrical bearings in the upper ends of said brackets, axially alined in diametrical relation to said neck and having respective top slits parallel with their common axis; a bail lever having cylindrical fulcrum trunnions at its respectively opposite ends, in coaxial relation, respectively journaled in said bearings; said trunnions being hollow and slotted and provided with a single internal cam surface formed eccentrically with respect to the cylindrical outer surface; whereby said single internal cam surface effects a clamping down of the can closure when said bail is moved into position at one side of the milk can neck and the same single internal cam surface effects a lifting up of said can closure when said bail is moved to the opposite side of said milk can neck; a cup shaped closure for said neck, having an outwardly turned annular flange, to engage said neck bead, and a handle bar fixed on said flange in diametrical position; and locking lugs projecting outwardly at the respectively opposite ends of said bar, adapted to be positioned into the top slits in said bearings and trunnion slots and be engaged by, and within, said cams to clamp said closure down in closed position, when said bail lever is turned to clamping position, and to lift and open said closure, when said bail lever is turned to unclamping position.

2. The combination with a milk can comprising a cylindrical body with a cylindrical neck of smaller diameter; of two bearing brackets, having their lower ends rigidly fixed on the can, at respective diametrically opposite sides of said neck, and their upper ends extending in spaced, parallel, relation with the outside of said neck; cylindrical bearings in the upper ends of said brackets, axially alined in diametrical relation to said neck and having respective slits parallel with their common axis; a bail lever having cylindrical fulcrum trunnions at its respectively opposite ends, in coaxial relation, respectively journaled in said bearings; said trunnions being hollow and slotted and provided with a single internal cam surface formed eccentrically with respect to the cylindrical outer surface; whereby said single internal cam surface effects a clamping down of the can closure when said bail is moved into position at one side of the milk can neck and the same single internal cam surface effects a lifting up of said can closure when said bail is moved to the opposite side of said milk can neck; a closure cover for said neck, having a handle bar fixed on said cover in diametrical position; and locking lugs projecting outwardly at the respectively opposite ends of said bar, adapted to be positioned into the slits in said bearings and trunnion slots and be engaged by, and within, said cams to clamp said closure down in closed position when said bail lever is turned to clamping position, and to lift and open said closure, when said bail lever is turned to unclamping position.

3. The combination with a can comprising a cylindrical body with a neck of smaller diameter; of two bearing brackets, rigidly fixed on said can, at respective diametrically opposite sides of said neck, with their upper ends extending in spaced relation with the outside of said neck; bearings

in the upper ends of said brackets, axially alined in diametrical relation to said neck and having respective slits parallel with their common axis; a bail lever having fulcrum trunnions at its respectively opposite ends, in coaxial relation, respectively journaled in said bearings; said trunnions being hollow and slotted and provided with a single internal cam surface formed eccentrically with respect to the cylindrical outer surface; whereby said single internal cam surface effects a clamping down of the can closure when said bail is moved into position at one side of the milk can neck and the same single internal cam surface effects a lifting up of said can closure when said bail is moved to the opposite side of said milk can neck; a closure cover for said neck, having a handle bar fixed on said closure and locking lugs projecting at the respectively opposite ends of said bar, adapted to be positioned into the slits in said bearings and trunnion slots and be engaged by, and within, said cams to clamp said closure down in closed position when said bail lever is turned to clamping position, and to lift and open said closure, when said bail lever is turned to unclamping position.

4. The combination with a receptacle having a neck; of two bearings rigidly fixed on said receptacle, at respectively opposite sides of said neck in spaced relation with the outside of said neck; having respective slits parallel with their common axis; a bail lever having fulcrum trunnions at its respectively opposite ends, in coaxial relation, respectively journaled in said bearings; said trunnions being hollow and slotted and provided with a single internal cam surface formed eccentrically with respect to the cylindrical outer surface; whereby said single internal cam surface effects a clamping down of the can closure when said bail is moved into position at one side of the milk can neck and the same single internal cam surface effects a lifting up of said can closure when said bail is moved to the opposite side of said milk can neck; a closure cover for said neck, having locking lugs projecting outwardly at the respectively opposite sides thereof, adapted to be positioned into the slits in said bearings and trunnion slots and be engaged by said cams to clamp said closure down in closed position when said bail lever is turned to clamping position, and to lift and open said closure, when said bail lever is turned to unclamping position.

5. The combination with a can having an open top; of two bearings rigidly fixed on said can, at respectively opposite sides thereof; respective slits at the upper parts of said bearings; a bail lever having fulcrum trunnions at its opposite ends respectively journaled in said bearings; said trunnions being hollow and slotted and provided with a single internal cam surface formed eccentrically with respect to the cylindrical outer surface; whereby said single internal cam surface effects a clamping down of the can closure when said bail is moved into position at one side of the milk can neck and the same single internal cam surface effects a lifting up of said can closure when said bail is moved to the opposite side of said milk can neck; a closure cover for said can; locking lugs projecting outwardly at opposite sides of said cover and adapted to be positioned into the slits in said bearings and trunnion slots and be engaged by said cams to clamp said closure down in closed position when said bail lever is turned to clamping position, and to lift up and open said closure, when said bail lever is turned to unclamping position.

ISAIE J. B. DEMERS.