Nov. 13, 1951 W. A. LEBUS 2,574,876

LEVER ACTUATED OPERATING MECHANISM FOR SPOUT CLOSURES

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Fig. 1.

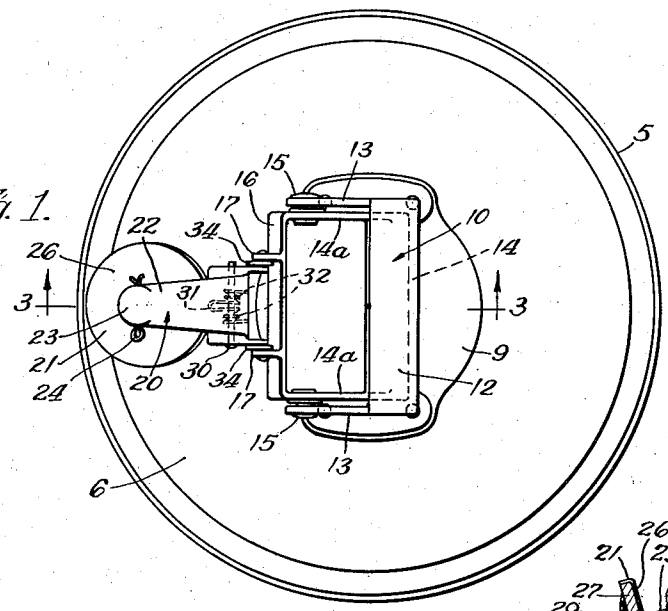


Fig. 2.

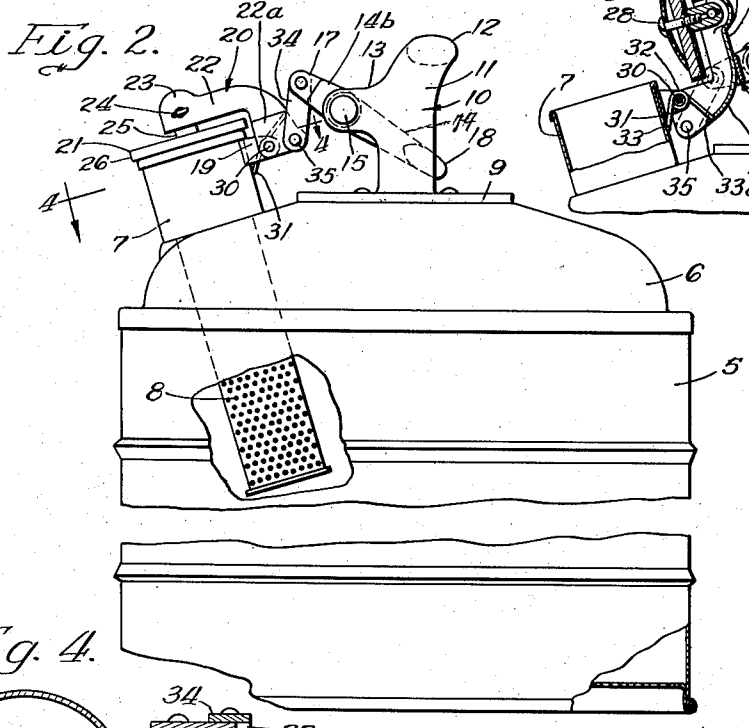


Fig. 3.

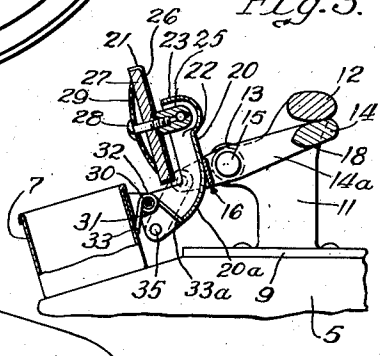
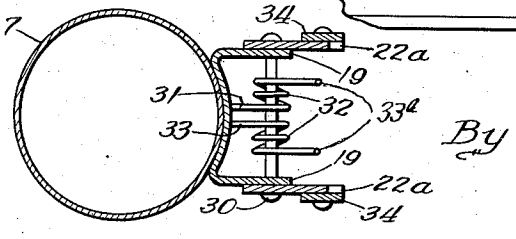


Fig. 4.



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LEVER ACTUATED OPERATING MECHANISM FOR SPOUT CLOSURES

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8 Claims. (Cl. 222—473)

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This invention relates to operating mechanism for spout closures of cans, and its principal object is to provide a spring actuated closure for the spout, of which the spring tightly seats the closure on the spout, but its force is overcome somewhat when the closure operating means has been moved to the open position of the closure.

Another object is to provide a handle by means of which the can may be handled and providing means to facilitate the manipulation of the closure operating mechanism.

Another object is to provide a toggle action hand lever constructed and operating in a manner to offset the action of the spring on the lever when the cover is fully opened.

With these and other objects and advantages in view, this invention consists in the several novel features of construction, arrangement and combination of parts hereinafter fully described and more definitely pointed out in the appended claims.

The invention is clearly illustrated in the accompanying drawing, in which:

Fig. 1 is a plan of a can equipped with a spout closure operating mechanism embodying a simple form of the present invention;

Fig. 2 is a side elevation thereof with the can partly broken away and partly broken out to show a flame arrester that is located within the can;

Fig. 3 is a cross section taken on the line 3—3 of Fig. 2; and

Fig. 4 is a detail section taken on line 4—4 of Fig. 2.

Referring to said drawing which is merely illustrative of one embodiment of the invention, the reference character 5 designates a can of conventional form having a dome-shaped top 6, from which projects a spout 7, through which the can may be filled, and from which the contents may be poured out. The spout is welded or otherwise secured to the can top 6, and from the lower end of the spout leads a flame arrester 8, as is customary for cans handling hazardous liquids.

Riveted, welded or otherwise secured to the can top is the base 9 of a handle 10 which comprises the base, and two upright legs 11 connected at their upper ends by a handle grip 12. Lugs 13 project toward the spout from the legs 11 and support a closure operating lever 14 pivotally connected to the lugs 13 as by rivets 15 or their equivalents. The ends of the arms 14b of the lever are connected by a bar 16, formed integral therewith and having a pair of lugs 17 that are parallel with the arms 14a, 14b. The arms 14a are connected by a hand grip 18, which underlies the handle grip 12.

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Pivotally mounted on a pair of ears 19, welded or otherwise secured to the spout, is a closure carrying member 20 which carries the closure 21. If desired, the closure carrying member may be in the form of a metal stamping, or it may be constructed of cast metal. The closure carrying member is of L-shape and is generally U-shaped in cross section. Its longer arm 22 has a dome-shaped end 23, in which is pivotally mounted, as by a cotter pin 24, a stud 25 to which the closure 21 is secured. The closure may comprise a flanged disc-like backing 26, in which is held a gas treated washer 27, a disc 29 which bears against the washer and a screw 28 which extends through the disc and washer and is threaded in the stud and seats the washer on the backing 26.

The other arms 22a of the closure carrying member are pivotally mounted upon the ears 19 as by a headed pin 30, which extends through the arms 22a and through the ears 19. A spring 31 having two coils that surround the pin 30 and terminate in arms 33, 33a that bear respectively against the side of the spout and against the lower edge of the wall 20a of the closure carrying member functions to tightly hold the closure in its closed position on the spout.

A pair of links 34 connect the lugs 17 of the lever 14 with the closure carrying member 20 as at 35. The closure actuating lever is in the nature of the lever of the first order with the links 34 connected to the shorter arms 14b of the lever.

The lever 14 and links 34 provide a toggle joint, and when the lever is moved to the position seen in Fig. 3, the pivot connections between the lugs 17 of the lever and the links 34 approach the dead center between the pivot 15 of the lever and the pivot connections 35 between the links and closure carrying member, giving the lever an enormous mechanical advantage against the spring.

To actuate the closure operating mechanism, the attendant places the palm of his hand upon the handle grip and reaches under the hand grip with his fingers and closes his hand upon the handle grip and hand grip, thereby swinging the lever up against the handle grip and moving the closure into its open position.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence, I do not wish to be understood as limiting myself to the exact form, construction, arrangement and combination of parts herein shown and described or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:

1. In operating mechanism for spout closures, a can handle having a handle grip, a lever fulcrumed intermediate its ends on said handle below said handle grip and having a hand grip adjacent one end paralleling said handle grip and movable toward and away from said handle grip, a spout adjacent the other end of said lever, a closure therefor, a pivotally mounted closure carrying member, a spring functioning to urge the closure carrying member to the closed position of the closure and linkage pivotally connected to the lever and to the closure carrying member for transmitting movement of said lever when the hand grip thereon is moved toward the handle grip to said closure carrying member in a direction operative to move the closure to an open position.

2. In operating mechanism for spout closures, a can handle having a handle grip, a lever fulcrumed intermediate its ends on said handle below said handle grip and having a hand grip adjacent one end paralleling said handle grip and movable toward and away from said handle grip, a spout adjacent the other end of said lever, a closure therefor, a closure carrying member fulcrumed on said spout, a spring having arms engaging said spout and said closure carrying member and functioning to urge the closure carrying member to the closed position of the closure and linkage pivotally connected to the adjacent end of the lever and to the closure carrying member for transmitting movement of said lever when the hand grip thereon is moved toward the handle grip to said closure carrying member in a direction operative to move the closure to an open position.

3. In operating mechanism for spout closures, a can handle having two spaced legs and a hand grip connecting said legs, a lever having two lever arms fulcrumed upon said legs and connected at one end by a hand grip paralleling said handle grip and adapted to be manually moved towards said handle grip, a spout, a closure therefor, a closure carrying member pivoted on an axis paralleling the axis of the lever, a spring engaging said closure carrying member and adapted to urge the latter toward the closed position of the closure, and linkage pivotally connected to the lever and to the closure carrying member and forming with said lever a toggle joint.

4. In operating mechanism for spout closures, a can handle having two spaced legs and a hand grip connecting said legs, a lever having two lever arms fulcrumed upon said legs and connected at one end by a hand grip paralleling said handle grip and adapted to be manually moved towards said handle grip, a spout, a closure therefor, a closure carrying member pivoted on said spout on an axis paralleling the axis of the lever, a coiled spring having arms engaging said spout and said closure carrying member and adapted to urge the latter toward the closed position of the closure, and linkage between the lever and closure carrying member forming with said lever a toggle joint.

5. In operating mechanism for spout closures, a can handle having a base, two spaced legs rising therefrom and a handle grip connecting said legs, a lever having two lever arms fulcrumed upon said legs and connected at one end by a hand grip paralleling said handle grip, a bar connecting the other ends of said lever arms, lugs projecting from said bar, a spout, a closure therefor, a pivotally mounted closure carrying member pivoted on an axis paralleling the axis of the lever, a spring engaging said closure carrying member and adapted to urge the latter toward the closed position of the closure, and linkage between the lugs of said lever and the closure carrying member forming with said lever a toggle joint.

6. In operating mechanism for spout closures, a can handle having a base, two spaced legs rising therefrom and a handle grip connecting said legs, a lever having two lever arms fulcrumed upon said legs and connected at one end by a hand grip paralleling said handle grip, a bar connecting the other ends of said lever arms, lugs projecting from said bar, a spout, a closure therefor, a closure carrying member pivoted on said spout on an axis paralleling the axis of the lever, a coiled spring having arms engaging said spout and said closure carrying member and adapted to urge the latter toward the closed position of the closure, and linkage between the lugs of said lever and the closure carrying member forming with said lever a toggle joint.

7. In operating mechanism for spout closures for a can having a handle, a spout, a lever, one end of which is positioned adjacent the spout, support means formed as the handle and having lugs extending toward the spout for supporting said lever for movement about a fixed axis of the lugs relative to said spout, said axis being positioned intermediate the ends of said lever, a closure structure for said spout spring biased to closed position and movable relative to the spout to cover or uncover the spout, and link means pivotally connecting said closure structure and adjacent end of said lever for transmitting movement of the end of said lever to said closure structure to move the closure structure to an open position.

8. In operating mechanism for spout closures, a spout, a lever, one end of which is positioned adjacent the spout, means for supporting said lever for movement about a fixed axis relative to said spout, said axis being positioned intermediate the ends of said lever, said lever having a hand grip thereon adjacent the other end thereof, a handle fixed relative to said axis and positioned adjacent the hand grip on said lever, a closure structure for said spout movable relative to the spout to cover or uncover the same, link means pivotally connected to the closure structure and to said lever thereby said link means operatively connecting said closure structure and said end of lever adjacent the spout for transmitting movement of the lever to said closure structure to move the closure structure to an open position when the hand grip on said lever is moved toward said handle.

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