

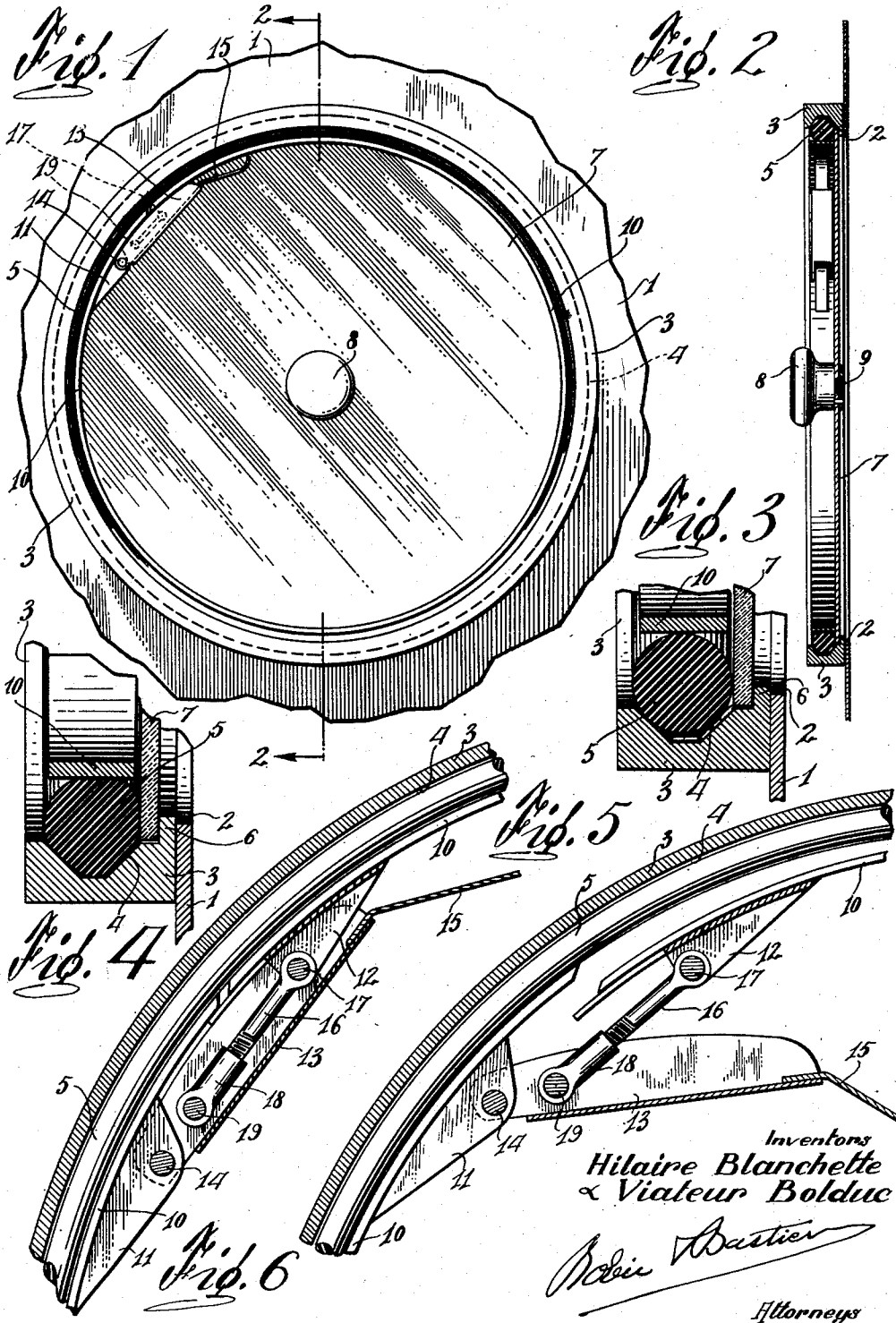
March 1, 1955

H. BLANCHETTE ET AL

2,703,188

DRUM DOOR AND CLAMPING RING THEREFOR

Filed Dec. 10, 1952



Inventors
Hilaire Blanchette
& Viateur Bolduc

Robin Bastier
Attorneys

1

2,703,188

DRUM DOOR AND CLAMPING RING THEREFOR

Hilaire Blanchette, St. Simon de Drummond, Quebec, and Viateur Bolduc, Drummondville, Quebec, Canada, assignors to La Compagnie J. A. Gosselin, Limitee, Drummondville, Quebec, Canada

Application December 10, 1952, Serial No. 325,171

2 Claims. (Cl. 220—55)

The present invention relates to a drum closure and more particularly to a leakproof closure for butter churns and the like.

Doors for hermetically closing drums or other receptacles under pressure, and more particularly butter churns, are usually provided with a complicated mechanism in which a plurality of wheels or levers have to be rotated for opening or closing the door.

The operation of this mechanism is time consuming especially in connection with a butter churn which has to be opened and closed several times during one churning operation.

Accordingly, the general object of the present invention is the provision of a drum door and clamping ring therefor which will obviate the above mentioned defect.

An important object of the present invention is the provision of a drum closure of the character described which is readily and easily opened or closed.

Yet another important object of the present invention is the provision of a door closure of the character described which will be completely leakproof for both liquid and gases and in which a uniform pressure will be applied on the entire periphery of the door.

Still another important object of the present invention is the provision of a drum closure of the character described which is relatively simple and inexpensive to manufacture and will give a prolonged service.

The foregoing and other important objects of the present invention will become more apparent during the following disclosure and by referring to the drawings in which:

Figure 1 is an elevation of the drum closure according to the invention in closed position;

Figure 2 is a cross-section along line 2—2 of Figure 1;

Figure 3 is a detailed cross-section of the door assembly showing the clamping ring in non-clamping position;

Figure 4 is a cross-section similar to that of Figure 3 showing the ring in clamping position;

Figure 5 is a partial longitudinal section of the door assembly showing the clamping ring in non-clamping position; and

Figure 6 is a section similar to that of Figure 5 showing the ring in clamping position.

Referring now more particularly to the drawings in which like reference characters indicate like elements throughout, the numeral 1 denotes a wall of a butter churn or the like receptacle provided with a circular opening 2 to give access therein. A ring member 3 of substantially the same internal diameter as the opening 2 is rigidly secured to the outside face of the wall 1 and is co-axial with said opening 2. The inner face of the ring member 3 is provided with a V-shaped groove 4 for removably receiving an annular gasket 5 made of rubber or the like elastic material and of circular cross-section when released.

Adjacent the wall 1, the ring 3 is also provided with an inwardly projecting rim 6 adapted to form an abutment for the marginal portion of the door 7.

The door 7 is a flat disc preferably made of transparent non-breakable material and is provided with a center knob or handle 8 rigidly secured thereto by a screw 9.

A slit clamping ring 10, preferably made of steel, is adapted to be removably inserted against the inner surface of the rubber gasket 5. The clamping ring 10 is provided near its free ends with the respective brackets 11 and 12. A toggle lever 13 is pivoted at 14 to the bracket 11 and is provided at its outer free end with an operating handle 15. A connecting rod 16 is pivoted on the bracket 12 at 17 and its threaded outer end

2

engages a sleeve 18 pivoted on the lever 13 on pivot 19 spaced from the pivot pin 14. Pivotal movement of the toggle lever 13 towards the clamping ring 10 moves the ends of the latter away from each other whereby said clamping ring 10 tightly engages the gasket 5 and compresses the same within the groove 4 to deform said gasket and bring it in contact with the outer marginal face of the door 7 as shown in Figure 4. In this manner, a completely leakproof closure is obtained.

The clamping force exerted by the ring 10 is uniform over its entire surface and may be adjusted by screwing or unscrewing the connecting rod 16 into or away from the sleeve 18.

To open the churn or drum, it is only necessary to unclamp the ring 10 by inward movement of the lever 15, whereby said clamping ring 10, the gasket 5 and the door 7 may be removed successively. The reverse operation is effected to close the churn or drum. The complete closing or opening of the drum may thus be effected in a very short time.

The drum closure, according to the invention, is completely leakproof and will remain so despite vibrations to which it might be subjected.

While a preferred embodiment according to the present invention has been illustrated and described it is understood that various modifications may be resorted to without departing from the spirit and scope of the appended claims.

We claim:

1. A leakproof closure for a container having a circular opening, comprising a ring member secured to said container and surrounding said opening and having a groove made at the inner face thereof, a rim projecting from said ring member intermediate said opening and said groove and adjacent to said groove, a disk shaped door adapted to abut against said rim, a deformable annular gasket engaging the groove and a marginal portion of said door and a clamping ring disposed within and in the plane of said gasket in contact with the inner peripheral portion of said gasket, and means to outwardly radially expand said clamping ring to deform said gasket in order that the latter may tightly engage the marginal portion of said door.

2. A leakproof closure for a butter churn having a circular opening in one wall thereof, comprising a ring shaped member rigidly secured to the outer face of said wall, coaxially with said opening and having an internal diameter substantially equal to the diameter of said opening, said ring shaped member having an inwardly projecting rim formed adjacent to said wall and a substantially V-shaped groove made in the inner face thereof outwardly from and adjacent to said rim, a circular door adapted to abut against said rim to close said opening, a deformable annular gasket of circular cross-section engageable with said V-shaped groove and inwardly projecting from said groove to extend opposite the marginal portion of said door, a slit clamping ring of cylindrical shape disposed within and in the plane of said gasket to engage the inner peripheral portion of the gasket along the whole length thereof, and toggle lever means pivoted at the free ends of said clamping ring and operable to cause the latter to exert a radial outward force against said gasket to deform the same and establish contact between said gasket and said door over a substantial area in order to achieve a leakproof closure.

References Cited in the file of this patent

UNITED STATES PATENTS

1,179,188	Kanty	Apr. 11, 1916
2,279,595	Phillips	Apr. 14, 1942
2,285,728	Leinen	June 9, 1942
2,301,879	Jenny	Nov. 10, 1942

FOREIGN PATENTS

24,776	Great Britain	of 1901
289,123	Germany	Dec. 4, 1915
498,619	Germany	May 24, 1930
498,789	Germany	May 27, 1930
317,043	Italy	Apr. 23, 1934