Sept. 18, 1934. F. E. BAKER ET AL 1,974,201

SECURING MEANS FOR REMOVABLE BARREL HEADS

Filed April 21, 1933

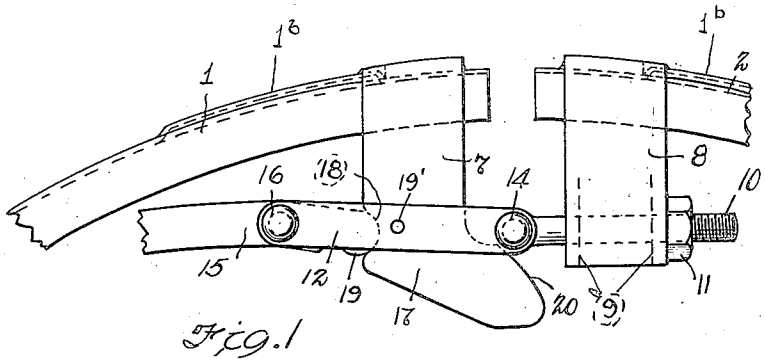


Fig. 1

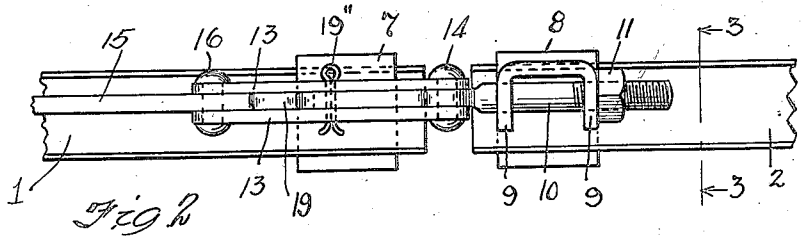


Fig. 2

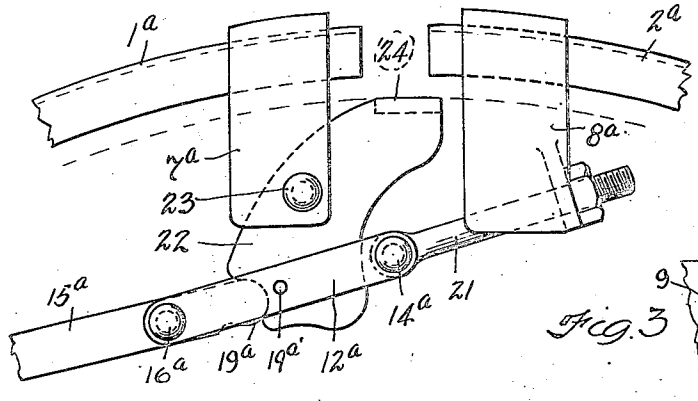


Fig. 4

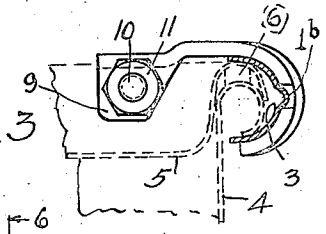


Fig. 3

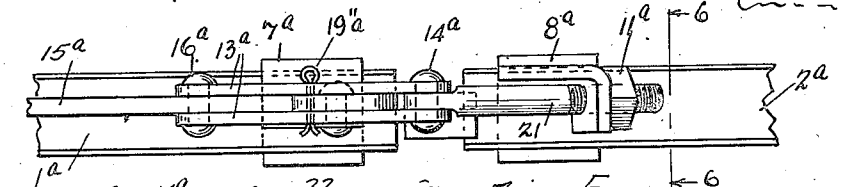


Fig. 5

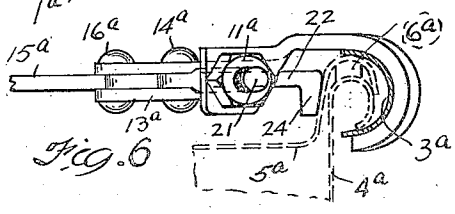


Fig. 6

INVENTORS
Frank E. Baker.
Frank Dvorak and
Homer L. Mueller
BY Day, Obeirne & Day
ATTORNEYS.

Patented Sept. 18, 1934 1,974,201

UNITED STATES PATENT OFFICE

1,974,201

SECURING MEANS FOR REMOVABLE BARREL HEADS

Frank E. Baker, Frank Dvorak, and Homer L. Mueller, Cleveland, Ohio, assignors to The Cleveland Welding Company, Cleveland, Ohio, a corporation of Ohio

Application April 21, 1933, Serial No. 667,176

9 Claims. (Cl. 220—61)

This invention relates as indicated to securing means for removable heads for barrels and more particularly to removable chime rings adapted to be clamped around the chime ring of a metallic barrel for the purpose of removably securing the head in the barrel

Barrels or similar containers which are employed for the purpose of packaging, storing and shipping materials such as solid grease, heavy oils and the like are frequently used many times, so that before being refilled, it is necessary that the previously used container be thoroughly cleaned before the new contents is introduced. In order to facilitate such cleaning, it is desirable to be able to remove the entire head of the barrel.

Some means must, therefore, be provided for removably securing the head in the barrel and such securing means must be capable of easy manipulation and in addition must be effective to close the joint between the head and the body of the barrel against leakage. Any means which is provided for the purpose of securing the removable head in a barrel should be capable of being sealed against unauthorized opening of the barrel to guard against the substitution by unauthorized persons of inferior material after the package has once been filled by the proper parties.

It is among the objects of my invention to provide a securing means for the removable heads of barrels having all of the above-named desirable characteristics.

Other objects of our invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—

Figure 1 is a fragmentary view of a transversely split chime ring designed for the purpose of securing the head in a barrel, such ring having associated therewith one form of the apparatus constructed according to the principles of this invention; Figure 2 is a side elevational view of the device illustrated in Figure 1; Figure 3 is a part sectional, part end elevational view of the device illustrated in Figure 2 taken on a plane substantially indicated by the line 3—3; Figure 4 is a plan view similar to Figure 1 but showing a modified form of device; Figure 5 is a side elevational view of the device illustrated in Figure 4; and Figure 6 is a part sectional, part end elevational view of the device illustrated in Figure 5 taken on a plane substantially indicated by the line 6—6.

Referring now more specifically to the drawing and more especially to Figures 1 to 3, the apparatus herein illustrated is shown associated with the ends 1 and 2 of a transversely split chime ring 3, the form of which is most clearly illustrated in Figure 3.

The chime ring 3 is channel-shaped so as to engage the peripheral bead or chime on one end of the barrel body 4 and the marginal flange or bead formed on the removable head 5 for such barrel.

In the space generally indicated at 6 will be provided a compressible gasket of some material such as rubber, so that when the head is forced down on to the barrel, a fluid-tight seal will be provided. The present invention relates to the means for contracting the chime ring 3 about the chime of the barrel in order to force the head into sealing engagement with the end of the barrel; to maintain such head in assembled relation; to prevent unauthorized persons from removing the head to substitute spurious materials for the original contents of the barrel; and to facilitate the operation necessary to secure the head in or remove the same from the barrel.

To this end, substantially U-shaped lugs 7 and 8 are respectively secured to the opposite ends 1 and 2 of the chime ring 3. These lugs extend substantially radially inwardly so that the locking mechanism presently to be described occupies a position substantially entirely within the recess of the head of the barrel, so as not to be damaged when the barrels are either rolled, stood on end or stored against other barrels.

The ends 1 and 2 of the chime rings 3 to which the lugs 7 and 8 are respectively connected are provided with circumferentially extending reenforcing ribs 1*b*, which assist in stiffening the ends of the ring when it it stressed during assembly. The lugs 7 and 8 are provided with recesses into which these reenforcing ribs extend so that the ring and lugs are interlocked in addition to being welded. This interlocking increases the mechanical strength of the connection and also facilitates the welding operation.

The inner end of the lug 8 is provided with laterally spaced depending ears 9 which are pro-

vided with axially aligned openings adapted to receive an anchor eye-bolt 10 which has a nut 11 threaded thereon and in engagement with one side of the bracket 8.

To the unthreaded end of the anchor bolt 10 is secured a toggle link 12 which consists of spaced bars 13 pivotally secured to the anchor bolt 10 by some suitable means such as a rivet 14. Positioned between the opposite end of the bars 13 forming the toggle link 12 is a second toggle link or lever member 15 which is pivotally secured intermediately of its ends to the first-named toggle link 12 by some suitable means such as a rivet 16. The bars 13 comprising the link 12 are laterally spaced, as above indicated, to permit the insertion therebetween of the end 17 of the lug 7 and such lug 7 is, at one side, provided with a recess 18 adapted to receive in abutting relation the curved end 19 of the toggle lever 15. The end 17 of the lug 7 is provided with a cam face 20 arranged to engage the end of the anchor bolt 10 when the chime ring is contracted for the dual purpose of preventing the anchor bolt 10 from being bent radially inwardly and also to maintain the end 1 of the chime ring radially inwardly against the outer periphery of the chime of the barrel. If this engagement were not provided, the end 1 of the chime ring might spring outwardly and away from the barrel either while the toggle links are being moved into locking position or after such links have been locked in the manner presently to be explained.

The operation of the locking device just explained may briefly be described as follows:— The transversely split chime ring is first placed in approximately proper engagement with the chime of the barrel, whereupon the lug 7 will be inserted between the bars 13 forming the link 12. The end 19 of the toggle arm 15 will then be engaged in the recess 18 provided therefor in the lug 7 and the lever 15 then rotated in a clockwise direction about the axis of the rivet 16 until brought into the position illustrated in Figure 1.

The bars 13 forming the link 12 and the lug 7 are provided with apertures 19' which will be axially aligned when the toggle link is in the locking position to permit the insertion through these members of any suitable positive locking means such as a cotter pin 19''. Instead of employing a cotter pin, a wire may be threaded through these holes and the ends of the wire brought together by means of a seal denoting that the head of the barrel was secured in place by properly authorized parties and that the contents of the container are, therefore, genuine.

It may be found that a particular chime locking ring, if made separate from a particular barrel with which the same is to be used may be either slightly longer or shorter than desired so that it may be impossible to bring the locking arm 15 into the position illustrated in Figure 1 or if brought into such position, the chime ring will not engage the barrel head with sufficient force in order to effect a proper seal. Such variation may be compensated for by axially adjusting the anchor bolt 10 with respect to the lug 8 by axial adjustments of the nut 11 on such anchor bolt, and accordingly proper engagement between the locking ring and the head of the barrel may be insured.

The apparatus just described and illustrated in Figures 1 to 3 inclusive may be modified in the manner most clearly illustrated in Figure 4.

The modification as illustrated in Figures 4, 5 and 6 relates particularly to the relation of the toggle link to the ends of the chime ring and also the manner and means whereby such linkage is connected to the lugs.

As most clearly illustrated in Figure 4, the anchor bolt 21 is secured to the lug 8*a* at an obtuse angle to a diameter on the barrel head passing through the lug. In this modification the toggle linkage instead of engaging the lug 7*a* directly, engages one end of a fulcrum member generally indicated at 22. The fulcrum member is pivotally secured to the lug 7*a* by some suitable means such as a rivet 23, and at its outer end is provided with a flange 24 adapted to engage the inner periphery of the chime of the barrel.

The toggle links 12*a* and 15*a* are formed and interconnected similarly to the construction illustrated in Figures 1 and 2 and the end 19*a* of the toggle link or arm 15*a* engages a recess in the fulcrum member 22 similarly to the recess 18 provided in the device illustrated in Figure 1. The operation of the modified form of construction as illustrated in Figures 4 to 6 is similar to that of the apparatus illustrated in Figures 1 to 3. The arrangement of the anchor bolt 21 at an obtuse angle is to insure that there will be a direct axial pull on such bolt during the time when the toggle linkage is actuated to bring the ends of the chime ring together. Provision of the fulcrum member 22, which pivots about the axis of the rivet 23 and engages the inner periphery of the chime of the barrel, is for the purpose of insuring an inward pull on both ends of the split chime ring at all times and to maintain sufficient radial inward pressure in the region where the securing ring is split, so as to provide a proper seal between the head and body of the barrel in this region.

In all other respects than those above pointed out the two forms of construction are identical and in order to simplify the description of these forms, the ordinal "a" is applied to the reference characters of Figures 1 to 3 to respectively designate like parts in the modification illustrated in Figures 4 to 6.

It is believed that a further description of the apparatus and the mode of its operation will not be necessary for those familiar with the art.

Other modes of applying the principle of our invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

We, therefore, particularly point out and distinctly claim as our invention:

1. The combination with a transversely split removable chime ring for barrels, of radially inwardly extending lugs secured to the opposite ends of said ring, and a longitudinally adjustable member having a cam engaging part secured to one of said lugs adapted to removably engage the other lug to contract said ring, said other lug having a cam surface thereon engageable by said part.

2. The combination with a transversely split removable chime ring for barrels, of radially inwardly extending lugs secured to the opposite ends of said ring, and a member secured to one of said lugs and adapted to removably engage the other lug, said member adapted when said lugs are moved toward each other to force said last-named lug radially inwardly with respect to the other lug.

3. The combination with a transversely split

removable chime ring for barrels, of substantially radially inwardly extending lugs secured to opposite ends of said ring, a member adjustably secured to one of said lugs, said member having spaced bars connected thereto arranged to receive therebetween the lug on the opposite end of said ring, and a toggle link pivotally supported intermediately its ends on said spaced bars and adapted to removably engage said last-named lug.

4. The combination with a transversely split removable chime ring for barrels, of substantially radially inwardly extending lugs secured to opposite ends of said ring, a member adjustably secured to one of said lugs, said member having spaced bars connected thereto arranged to receive therebetween the lug on the opposite end of said ring, and a toggle link pivotally supported intermediately its ends on said spaced bars and terminally adapted to engage said last-named lug.

5. The combination with a transversely split removable chime ring for barrels, of substantially radially inwardly extending lugs secured to the opposite ends of said ring, an anchor bolt secured to one of said lugs, a toggle link pivotally secured to said anchor bolt, said link comprising spaced bars arranged to receive therebetween the lug on the opposite end of said ring, a second toggle link pivotally secured intermediately of its ends to said first named link and adapted to engage said last-named lug, said last-named lug provided with a portion arranged to engage said anchor bolt for the transmission of radial thrust during contraction of said ring.

6. The combination of a transversely split removable chime ring for barrels, of substantially radially inwardly extending lugs secured to the opposite ends of said ring, an anchor bolt adjustably secured to one of said lugs, a toggle link pivotally secured to said anchor bolt, a second toggle link pivotally secured intermediately of its ends to said first-named link and adapted to engage the lug on the opposite end of said ring, and a cam surface formed on said last-named lug for engagement with said anchor bolt and transmission of radial thrust during contraction of said ring.

7. The combination with a transversely split removable chime ring for barrels, of substantially radially inwardly extending lugs secured to the opposite ends of said ring, an anchor bolt secured to one of said lugs, a toggle link pivotally secured to said anchor bolt, said link comprising spaced bars arranged to receive therebetween the lug on the opposite end of said ring, a second toggle link pivotally secured intermediately of its ends to said first-named link and adapted to engage said last-named lug, said last-named lug provided with a portion arranged to engage said anchor bolt for the transmission of radial thrust during contraction of said ring, and means for securing said first-named toggle link to said last-named lug.

8. The combination of a transversely split removable chime ring for barrels, of substantially radially inwardly extending lugs secured to the opposite ends of said ring, an anchor bolt adjustably secured to one of said lugs, a toggle link pivotally secured to said anchor bolt, a second toggle link pivotally secured intermediately of its ends to said first-named link and adapted to engage the lug on the opposite end of said ring, and a cam surface formed on said last-named lug for engagement with said anchor bolt and transmission of radial thrust during contraction of said ring, and means for securing said first-named toggle link to said last-named lug.

9. The combination with a transversely split removable chime ring for barrels, of radially inwardly extending lugs secured to the opposite ends of said ring, and a longitudinally adjustable member having a cam engaging part secured to one of said lugs adapted to removably engage the other lug to contract said ring, said other lug having a cam surface thereon engageable by said part, said ring provided with circumferentially extending reinforcing ribs respectively extending into interlocking engagement with said lugs.

FRANK E. BAKER.
FRANK DVORAK.
HOMER L. MUELLER.