June 8, 1937. R. S. FETTER 2,082,881

BARREL CLOSURE

Filed April 10, 1936 2 Sheets-Sheet 1

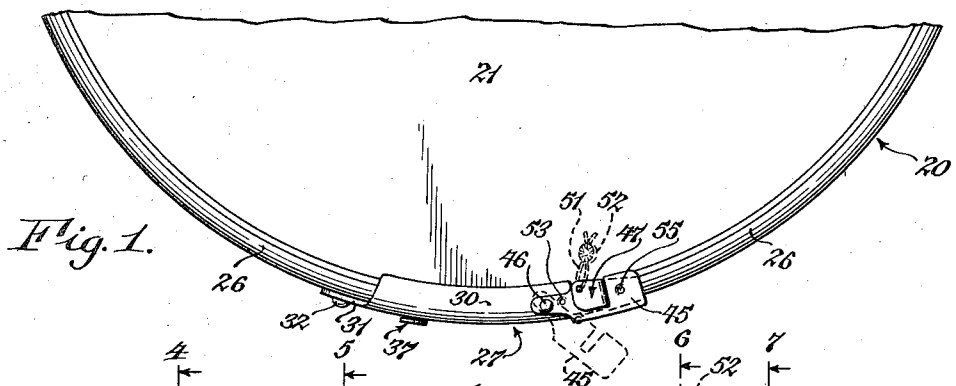


Fig. 1.

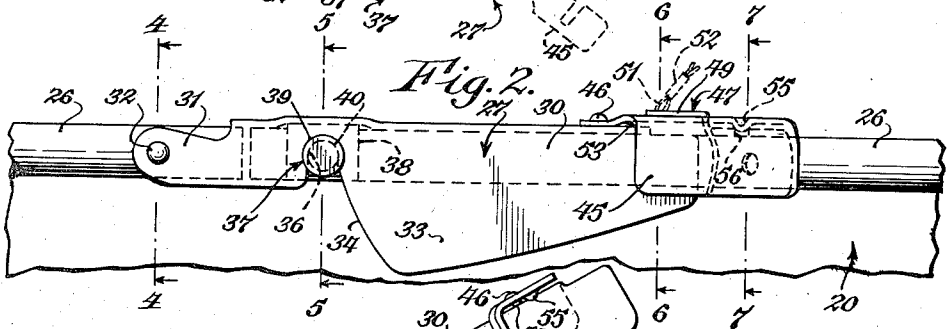


Fig. 2.

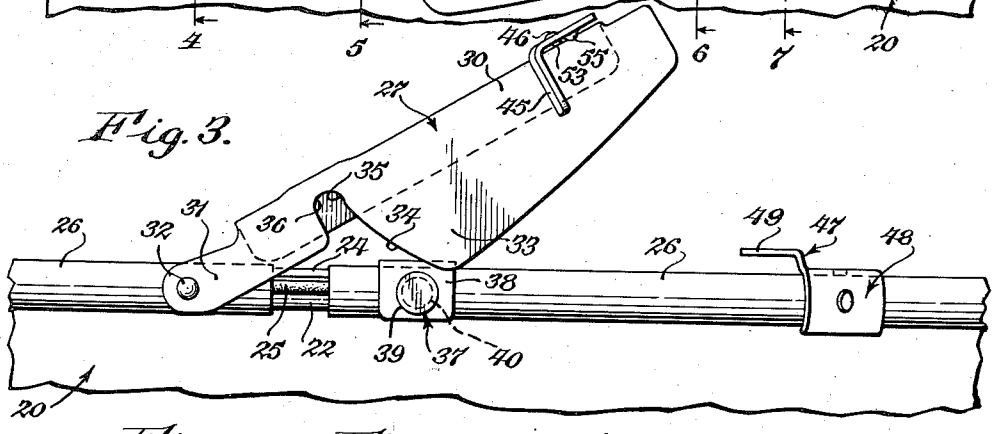


Fig. 3.

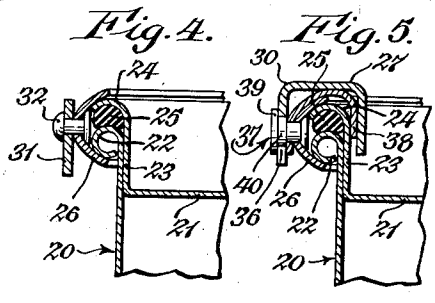
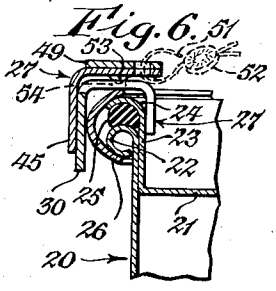


Fig. 4.

Fig. 5.



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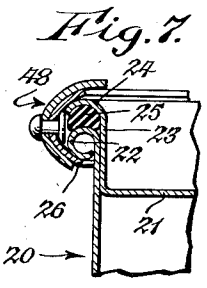

Fig. 7.

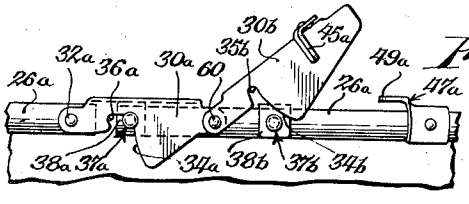

Fig. 8.

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BARREL CLOSURE

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Fig. 9.

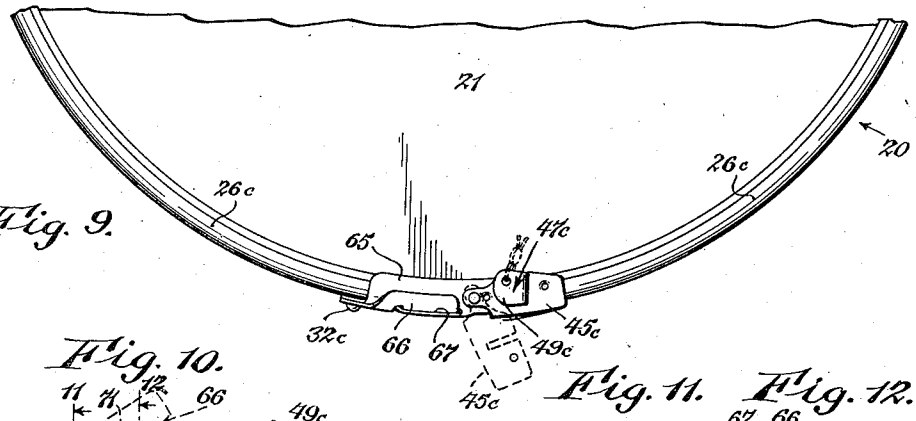


Fig. 10.

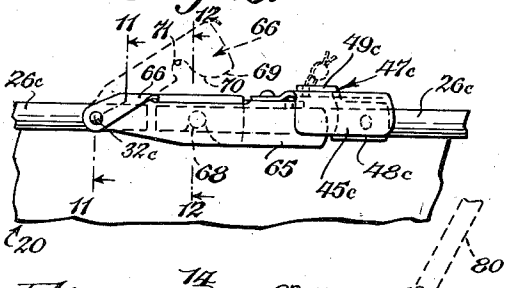


Fig. 11.

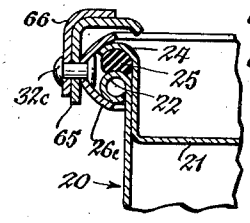


Fig. 12.

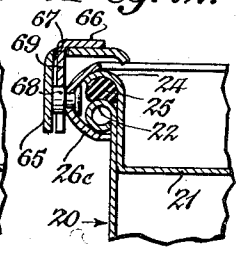


Fig. 13.

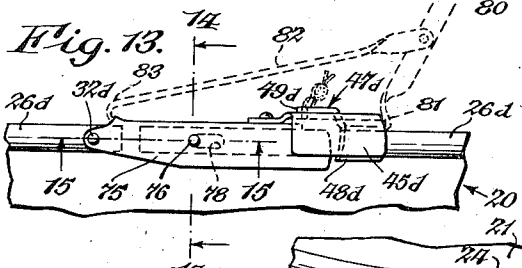


Fig. 14.

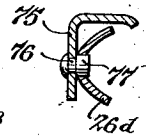


Fig. 15.

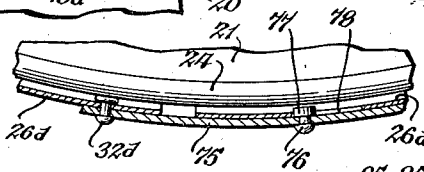


Fig. 16.

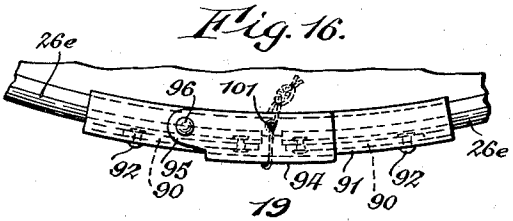


Fig. 17.

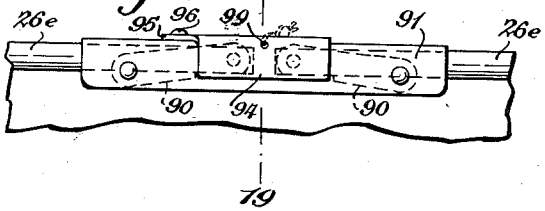


Fig. 18.

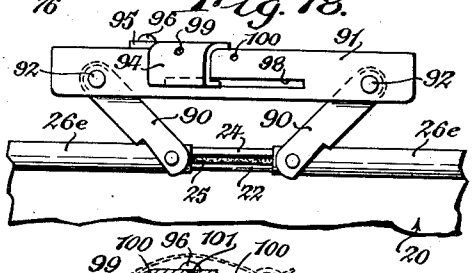
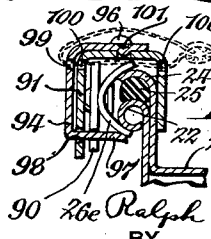


Fig. 19.



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Patented June 8, 1937 2,082,881

UNITED STATES PATENT OFFICE

2,082,881

BARREL CLOSURE

Ralph S. Fetter, Buffalo, N. Y.

Application April 10, 1936, Serial No. 73,709

12 Claims. (Cl. 220—61)

This invention relates to a closure for barrels and more particularly to closure means associated with the removable heads of steel drums such as are used in shipping various materials.

Steel drums such as those to which the present invention particularly relates, are used but once for shipping materials and cannot be used a second time. It is therefore apparent that one of the principal objects in inventions of this character is to reduce the cost of the barrel, head and closure means to a minimum. The invention is not, however, to be construed as being necessarily limited to a one-trip container.

A further object is to provide a barrel which is adapted for the transportation of materials which are injured by moisture. It is therefore another object of the present invention to provide a reliable and effective seal between the barrel head and the barrel which insures both against leakage of material from the barrel and also against the entrance of moisture or other contaminating agents.

A further object is to provide such a barrel and closure which is strong and durable and which will withstand rough handling to which barreled goods are subjected in transit.

Another object is to provide a closure for a barrel which can be quickly and easily applied to a barrel and sealed and latched in position after the barrel is filled and ready for transit and can be as quickly released and the closure opened when the barrel arrives at its destination and its contents are to be emptied.

A further object is to provide a closure which insures that the barrel head is firmly held in engagement with the barrel and in which there is no danger that the closure will become accidentally released in transit due to the rough handling to which barrels of this character are frequently subjected.

Another purpose is to provide means for sealing the barrel closure by means of the usual wire and lead seals so that if there is any pilfering or adulteration of the contents of the barrel before being received it is immediately detectable and the carrier is enabled to determine the exact place at which the pilfering occurred, thereby increasing the chances of apprehending the parties guilty of the pilfering.

Another object is to provide a split ring closure for holding the head on the barrel in which the ends of the split ring are drawn together about the barrel and its head by a lever which provides a powerful cam action in contracting the ring.

Another aim of the present invention is to provide in combination with such a cam closure, means for locking the cam element in its closed position and to provide, in combination with such a cam closure, means for locking the cam element in its closed position and to provide, in combination with such locking means, a seal for preventing unlocking of the locking means without breaking the seal.

Another object of the present invention is to provide, in combination with such a cam closure, a lock therefor which is adapted to be sealed by a lead and wire seal, the wire of this seal passing through the lock in such manner that there is no danger of accidentally shearing the wire and destroying the seal.

A further aim of the present invention is to provide such a closure which is neat and trim in appearance and which does not contain any parts which are apt to be bent out of shape through rough handling and interfere with the ready operation of the closure in either opening or again closing the same.

In the accompanying drawings:

Fig. 1 is a fragmentary top plan view of a barrel showing a head latched thereon in accordance with my invention and showing the latching means sealed by means of a lead and wire seal, the lead and wire seal being shown by dotted lines.

Fig. 2 is an enlarged side elevation thereof showing the cam member in its operative position and this member located and sealed in position.

Fig. 3 is a view similar to Fig. 2 showing the cam member in its released position.

Figs. 4, 5, 6, and 7 are vertical fragmentary sections, taken on the correspondingly numbered lines in Fig. 2.

Fig. 8 is a view similar to Figs. 1 and 2 showing a modified form of the invention. In this form of the invention two jointed cam members are employed for contracting the ring around the barrel and its head, one of these members being shown in its operative position and the other being shown in a released position.

Fig. 9 is a view similar to Fig. 1 showing a further modified form of my invention.

Fig. 10 is a fragmentary side elevation of the form of the invention illustrated in Fig. 9 and showing the latching means closed and locked in its closed position, the released position of the cam latching means being shown by dotted lines.

Figs. 11 and 12 are vertically radial sections, taken on the correspondingly numbered lines of Fig. 10.

Fig. 13 is a view similar to Fig. 10 showing a further modified form of my invention in which a special tool is employed for contracting the ring and the latching means are of a modified form acting purely as a holding means.

Figs. 14 and 15 are, respectively, vertical and horizontal sections, taken on the correspondingly numbered lines of Fig. 13.

Fig. 16 is a view similar to Figs. 1 and 9 showing a further modified form of my invention.

Fig. 17 is a side elevation of the form of the invention shown in Fig. 16 and showing the parts in their closed or operative positions.

Fig. 18 is a view similar to Fig. 17 showing the parts in the released position.

Fig. 19 is a fragmentary vertical section, taken on line 19—19, Fig. 17.

Referring to Figs. 1–7 the numeral 20 represents the usual steel drum or barrel such as are used in transporting materials and which are generally provided with a permanent closure or head (not shown) at one end, while their upper ends are left open to receive the contents with which they are packed, this open end being subsequently closed by a removable barrel head 21. The open upper end of the barrel is specially formed to receive the removable head 21 and for this purpose is beaded outwardly as indicated at 22. The removable barrel head 21 is also made of sheet metal and is formed at its edge with an upstanding rim 23. The upper edge of this rim 23 is flanged outwardly, as indicated at 24, and this flange 24 is rounded to fit over the bead 22 of the barrel. Between this flange 24 of the barrel head and the bead 22 of the barrel a gasket or seal 25 of rubber or other material is placed so that a moisture-proof and dirt-proof seal is provided between the barrel and head during shipping.

In order to fasten the barrel head in its closed position and in order to press the barrel head firmly against the bead 22 of the barrel and effect a reliable seal, a split ring 26 is placed around the flange and bead of the barrel head and barrel and the ends of this split ring are drawn tightly into engagement with the barrel and head by means of a cam latch indicated generally at 27. The split ring 26 is of inwardly opening channel form and is rounded in cross section, the upper rim of this split ring wedging against the upper face of the flange 24 of the barrel head and the lower rim of this split ring wedging against the under face of the bead 22 of the barrel.

The cam latching mechanism 27 includes a relatively long lever 30 which is of channel form in cross section so that when driven down it fits closely around the opposing ends of the split ring 26 and also around the inside of the upstanding rim 23 of the barrel head. At one end the lever 30 is formed to provide an ear 31 which is pivotally secured by means of a rivet 32 to the outside of one end of the split clamping ring 26. This rivet 32 is radially disposed so that the lever 31 swings in a direction parallel with the axis of the barrel and around an axis which is at right angles or radial to the axis of the barrel.

The outside vertical wall of the channel-shaped lever 30 is preferably extended downwardly a substantial distance, as illustrated at 33 and this downwardly extending portion is formed to provide a cam face 34 terminating in a land 35, this land being disposed within a notch 36 in the outside wall of this lever. The cam edge 34 and land 35 are adapted to engage a headed rivet 37. This rivet projects laterally outward from the end of the split ring 26 opposite from that to which the lever 30 is pivoted and its shank extends through the split ring 26 and also through a hook-shaped plate 38, the free end of which extends laterally inward from the split ring 26 so as to prevent this end of the split ring from being pushed down beyond the bead of the barrel head and thereby facilitate the application of the ring to the barrel head and bead of the barrel. The head 39 of the rivet 37 is spaced outwardly from the adjacent face of the hook-shaped plate 38 by means of an enlarged portion 40 on its shank. In closing the barrel the head and gasket are first set in position and the split ring is then placed around the beads of the head and barrel, one end of this ring being supported by the book-shaped plate 38. The lever 30 is then moved downwardly until its cam edge 34 engages the enlarged portion 40 of the shank of the rivet so that the depending portion 33 of the outer wall of the lever 30 is disposed between the outer face of the hook-shaped plate 38 and the head 39 of the rivet 37, the head of this rivet thereby guiding the lever 30 in its further downward movement. The lever 30 is thereupon driven home by means of a mallet or other suitable instrument. As the lever 30 is so driven down the headed rivet 37 is caused to ride along the cam edge 34 and this relative movement of the cam edge and rivet exerts a powerful contracting force which draws the two ends of the split ring 26 together and since this ring is channel-shaped, this construction of the ring causes the beads of the head and barrel shell to be drawn axially together thereby compressing the gasket 25 and providing a moisture and dirt-proof seal between the head and barrel.

When the lever 30 is driven toward its final position the enlarged portion of the headed rivet 37 rides up on the land 35 and into the notch 36. The purpose of this land is, of course, to prevent any tendency of the lever 30 to unlatch as would be the case if the cam edge 34 were continued into the notch 36.

In order to further lock the lever in its closed position an L-shaped lock 45 is pivoted to the free end of the lever 30, this pivot comprising a rivet 46 extending through the top of the lever 30 and also through the upper leg of this lock and securing it to the upper side of the lever 30. This L-shaped lock 45 cooperates with a catch 47 which is permanently secured to that end of the split ring 26 which carries the headed rivet 37. This catch comprises a rounded portion 48 which is fitted and secured to the outside of the split ring 26 by rivets or in any other suitable manner and an upwardly offset catch portion 49 under which the lock 45 is adapted to swing, the lock being provided with a notch 50 for this purpose. When the lever 30 is in its closed position the L-shaped lock 45 can be swung to its locked position under the catch portion 49 of the catch 47. In this position a hole in the lock 45 registers with a hole in the lever 30 and a sealing wire 51 can be drawn through these registering holes and the ends of the wire 51 sealed with a lead seal 52 in the usual manner. In order to hold the lock 45 in its closed position independently of the sealing wire 51, and thereby avoid the possible danger of shearing the sealing wire if an accidental blow hits the lock 45 a detent teat 53 is pressed inwardly from the lock 45 and, when the lock is closed, engages a holding recess 54 provided in the free end of the lever 30. Similarly, a locking teat 55 is pressed inwardly from the free end of the top of the lock 45 and, when the lock 45 is closed, engages a recess 56 in the base portion 48 of the catch 47. It will be seen that the teats 53 and 55 jointly serve to prevent displacement of the lock 45 from its locked position and thereby avoid the danger of shearing the sealing wire 51.

The form of the invention shown in Fig. 8 is similar in form and operation to the preferred form illustrated in Figs. 1–7 except that in place of the single cam lever 30 two such cam levers are provided so that a more powerful contract-

ing force can be exerted on the ends of the split ring. In this form of the invention one end of the split ring is provided with two spaced headed rivets 37a and 37b, these rivets extending through hook-shaped plates 38a and 38b which are of the same form and function in the same manner as the hook-shaped plate 38 in the preferred form of the invention. The cam means for contracting the ends of the split ring include a lever 30a which is of the same general form as the lever 30 and is secured to one end of the split ring 26a by means of a rivet 32a corresponding to the rivet 32 in the preferred form of the invention.

The cam edge 34a and land of the lever 30a are adapted to engage the shank of the headed rivet 37a so as to draw the ends of the split clamping ring together when the lever 30a is driven down. It will be noted, however, that the notch 36a of the lever 30a is considerably longer, in a direction parallel with the split ring 26a than the notch 36 of the preferred construction.

To the free end of the lever 30a is pivotally secured another generally similar lever 30b by means of a rivet 60, this rivet being so disposed that the two levers 30a and 30b swing in the same general direction. The lever 30b is generally similar to the levers 30 and 30a and its cam edge 34b and land 35b are adapted to engage and draw upon the shank of the headed rivet 37b when this second lever 30b is driven down. The outer end of the second lever 30b pivotally carries a lock 45a which is identical with the lock 45 in the preferred construction and engages under the catch portion 49a of a catch 47a, this catch 47a being identical with the catch 47 shown in the preferred form of the invention and being capable of being sealed by a lead and wire seal in the same manner.

It will be seen that in closing the form of the invention shown in Fig. 8 the split ring is first placed in position and the first lever 30a is then hammered downwardly, its cam face 34a engaging and drawing the shank of the first headed rivet 37a so as to initially contract the split ring 26a. After the first lever 30a is driven home the second lever 30b is hammered down, its cam edge 34b engaging the shank of the headed rivet 37b and thereby further contracting the split ring. The contraction of the split ring 28a is therefore performed in two stages which provides a tighter seal and renders the closure more easily operated. After both levers 30a and 30b have been driven home the lock 45a is swung under the catch 47a and the wire of the lead seal is passed through the openings (not shown) in the lock and catch.

The form of the invention illustrated in Figs. 9–12 is, in general, similar to the preferred form of the invention in Figs. 1–7 except that the cam portion of the cam lever and the pin with which it cooperates are concealed so as to render the closure neater in appearance and to guard against accidental release. In this form of the invention two levers 65 and 66 are pivoted on the rivet 32c which corresponds to the rivet 32 in the preferred form and connects these levers with one end of the split ring 26c. The inner lever 65 is generally of L-shaped form in cross section and extends along the top and outer face of the split ring 26c when it is driven home. This lever 65 is also provided with a longitudinal slot 67 located immediately above a pin 68 which is secured to and projects outwardly from the other end of the split ring. The outer lever 66 fits over the inner lever 65 and is also formed to provide a cam extension 69 which is adapted to be driven through the slot 67 so that its cam face 70 and land 71 can engage the pin 68, the cam face 70 drawing the pin so as to contract the ring and the land 69 serving to hold the parts in a locked position as in the other forms of the invention. The locking means, as is the preferred form of the invention, consist of an L-shaped lock 45c which is pivoted to the outer end of the lever 65 so as to swing horizontally. This lock 45 cooperates with the catch 47c which is permanently secured to the corresponding end of the split ring 26c in any suitable manner. As in the preferred construction this catch has a base portion 48c which is fitted and secured to the split ring 26c and has an upwardly offset catch portion 49c under which the lock 45 is adapted to be swung and sealed by means of the usual wire and lead seal.

It will be seen that in closing this device the ring is first placed around the rims of the barrel head and barrel and the lever 65 is first swung into position. The outer lever 66 is then driven down its cam face engaging with the pin 68 and contracting the split ring about the barrel. The lock 45c is then swung under the catch and sealed by means of the lead and wire seal.

In the modified form of the invention illustrated in Figs. 13–15 a form of the invention is shown in which a separate tool is employed to contract the split ring, the latching means being employed to hold the ring in its contracted position and this form of the invention also having locking means for locking the latching means in its operative position. In this form of the invention the split clamping ring 26d pivotally carries, at one end, a lever 75, this lever 75 being pivoted by means of a rivet 32d so as to permit the lever 75 to swing vertically. This lever 75 is of L-shape in cross section and carries a rivet 76, one head of which projects inwardly and forms a catch 77. This catch 77 is adapted to engage an elongated slot 78 provided in the opposite end of the split ring 26d. This lever 75 is located in its operative position by means of a lock 45d which is identical with the lock 45 shown in the preferred construction and is pivoted to swing horizontally under the overhanging portion 49d of a catch 47d, this catch being riveted to the same end of the split ring 26d which has the slot 78. The lock 45d and catch 47d are adapted to be sealed together by means of the usual lead and wire seal as in the preferred form of the invention.

In closing a barrel with the form of closure shown in Figs. 13–15 the lever 75 is first swung downwardly into a position engaging and embracing both ends of the split ring. Thereupon the ring is contracted by means of the tool shown in Fig. 13. This tool consists of a hand lever 80 which has a hook-shaped end 81 adapted to engage the end of the base portion 48d of the catch 47d and a link 82 pivoted to the handle 80 adjacent the hook-shaped end 81 and having a hook end 83 adapted to engage under the lever 75 adjacent to the pivot 32d. It will be seen that by placing the tool in the position shown in Fig. 13 and bearing down upon the handle 80 the ends of the split ring 26d will be drawn together until the catch head 77 of the rivet 76 snaps into the slot 78 and holds the ring in its contracted condition. The purpose of making the opening 78 in the form of a slot is, of

course, to facilitate the closing operation, the slot form permitting the ring to be contracted beyond the point at which the rivet head will engage with this slot. If a round opening the size of the rivet were employed it will be seen that considerable difficulty might be experienced in getting the catch head 77 into such an opening, the slot eliminating this difficulty.

After the lever 75 has been so latched its lock 45*d* is swung under the catch 47*d* and the lead and wire seal applied to the registering openings in these parts. In releasing the form of the closure shown in Figs. 13–15 the lead seal is, of course, broken and the lock 45 sprung outwardly free from the catch 45*d*. Thereupon the lever 75 can be sprung outwardly by means of any suitable tool so as to release the catch head 77 from the slot 78 and permit the split ring 26*d* to expand.

In the modified form of the invention shown in Figs. 16–19 the ends of the split ring 26*e* are connected together by a pair of short links 90 which in turn are connected to a cross bar 91. This cross bar is of channel form in cross section and each of the links 90 is secured against the inside of the outer wall of the cross bar by rivets 92. In the elevated position of the cross bar 91, as shown in Fig. 18, the links 90 extend upwardly and outwardly from their connections with the split ring 26*e* so that when the cross bar 91 is forced downwardly the ends of the links 90 which are joined to the split ring 26*e* are forced inwardly thereby contracting this ring. When the cross bar 91 is driven downwardly to its seated position around the ends of the split ring 26*e*, as shown in Fig. 17, the short links 90 are completely housed within the channel-shaped cross bar. It is also desirable that in the operative position shown in Fig. 17 the links 90 travel beyond dead center so that the tendency of the split ring to expand does not tend to elevate the cross bar 91 but instead tends to draw it more tightly into its seated position.

With this form of the invention a somewhat different form of lock is provided. This lock consists of an L-shaped plate 94 having an ear 95 which is secured to the top of the cross bar 91 by means of a rivet 96. The lock 94 is also provided with a flange or lip 97 at its lower end, this lip being adapted to be swung into a slot 98 provided in the outer wall of the cross bar 91. This lip swings under the opposite ends of the split ring 26*e* and it will therefore be seen that this lock prevents the channel-shaped cross bar from being lifted when the lock is in the operative position shown in Figs. 16, 17, and 19. In order to provide for sealing this form of closure an opening 99 is provided in the side wall of the lock 94, this opening registering with the pair of openings 100 in the opposite side walls of the cross bar 91. It will be seen that on moving the lock 94 to its closed position the wire of a seal can readily be passed through the openings 99 and 100 and the ends of the wire joined by the usual lead seal as best illustrated in Fig. 19. A small detent teat 101 is also provided in the lock 94, this teat engaging a recess provided in the cross bar.

In releasing the form of closure shown in Figs. 16–19 the lead and wire seal is first removed, the lock 94 is swung outwardly to move its flange 97 out from under the ends of the split ring 26*e* and the cross bar 91 is then elevated in any suitable manner so as to permit the split ring 26*e* to expand and be removed.

From the foregoing it is apparent that the various forms of the present invention provide a very inexpensive closure for barrels which can be quickly applied and released and securely seals the barrel and head so that there is no danger of contaminating the contents of the barrel. Further the various closures will withstand rough handling without danger of becoming injured or being accidentally opened and each form of closure shown is provided with a lock which can be sealed so as to reduce the danger of pilfering.

I claim as my invention:

1. The combination of a barrel shell having a beaded mouth and a head having a rim fitting over said bead, a split ring formed to embrace said bead and rim, a lever which is channel-shaped in cross section and provided at one end with a side ear, a rivet connecting said ear to one end of said ring, said lever being movable vertically to embrace the opposite ends of said ring and also the adjacent portions of said rim and bead, and a pin provided in the side of the opposite end of said split ring, said lever being provided with an opening adapted to catch said pin when said ring is contracted.

2. The combination of a barrel shell having a beaded mouth and a head having a rim fitting over said bead, a split ring formed to embrace said bead and rim, a lever having an upper wall adapted to extend over the top of said rim and an outer vertical wall extending alongside said ring, a horizontal rivet pivotally securing one end of the side wall to one end of said split ring, the side wall of said lever being formed to provide a cam edge opposing said rivet, a pin projecting outwardly from the other end of said split ring and engageable with said cam edge whereby upon forcing said lever downwardly the cam edge engages said pin and effects a contraction of said ring and means for locking said lever in its depressed position.

3. The combination of a barrel shell having a beaded mouth and a head having a rim fitting over said bead, a split ring formed to embrace said bead and rim, a lever which is channel-shaped in cross section and adapted to embrace the opposite ends of the said ring and the adjacent portions of said bead and rim, the outer vertical wall of said lever being connected to one end of said split ring by a horizontal rivet thereby permitting said lever to be swung vertically and the outer vertical wall of said lever also being formed to provide a cam edge opposing said rivet, and a pin projecting outwardly from the other end of said split ring and engageable with said cam edge whereby upon forcing said lever downwardly the cam edge engages said pin and effects a contraction of said ring.

4. The combination of a barrel shell having a beaded mouth and a head having a rim fitting over said bead, a split ring formed to embrace said bead and rim, a lever having an upper wall adapted to extend over the top of said rim and an outer vertical side wall extending along the side of said ring, the upper wall of said lever being provided with a longitudinal slot, a second lever having a cam portion adapted to be projected through said slot and alongside said ring, means pivotally connecting the adjacent ends of said levers to one end of said split ring, and a pin projecting outwardly from the other end of said split ring and engageable with said cam portion whereby upon forcing said second lever down-

wardly the cam portion enters said slot, engages said pin and effects a contraction of said ring.

5. The combination of a barrel shell having a beaded mouth and a head having a rim fitting over said bead, a split ring formed to embrace said bead and rim, a lever having an upper wall adapted to extend over the top of said rim and an outer vertical side wall extending along the side of said ring, the upper wall of said lever being provided with a longitudinal slot, a second lever having a cam portion adapted to be projected through said slot and alongside said ring, a single rivet pivotally connecting the adjacent ends of said levers to one end of said split ring, and a pin projecting outwardly from the other end of said split ring and engageable with said cam portion whereby upon forcing said second lever downwardly the cam portion enters said slot, engages said pin and effects a contraction of said ring.

6. The combination of a barrel shell having a beaded mouth and a head having a rim fitting over said bead, a split ring formed to embrace said bead and rim, a lever having an upper wall adapted to extend over the top of said rim and an outer vertical side wall extending along the side of said ring, the upper wall of said lever being provided with a longitudinal slot, a second lever having a cam portion adapted to be projected through said slot and alongside said ring, means pivotally connecting the adjacent ends of said levers to one end of said split ring, a pin projecting outwardly from the other end of said split ring and engageable with said cam portion whereby upon forcing said second lever downwardly the portion enters said slot, engages said pin and effects a contraction of said ring, and locking means mounted on the free end of said first lever and the end of said split ring carrying said pin to prevent upward movement of said first lever.

7. The combination of a barrel shell having a beaded mouth and a head having a rim fitting over said bead, a split ring formed to embrace said bead and rim, comprising a lever which is L-shaped in cross section having a side wall adapted to extend alongside the opposite ends of said split ring and having a top wall adapted to extend over the top of said rim, said side wall being provided with a central longitudinal slot, a rivet connecting said side wall at one end of the lever with one end of said split ring, a pin projecting radially outward from the opposite end of said split ring and adapted to enter said slot when said lever is depressed and said ring contracted and means for locking the free end of said lever to the end of said split ring carrying said pin.

8. The combination of a barrel shell having a beaded mouth and a head having a rim fitted over said bead, a split ring formed to embrace said bead and rim, a lever pivotally connected to one end of said ring, said lever being formed to provide a salient cam face opposing said pivotal connection, a member fixed to the other end of said split ring, said salient cam face being so arranged that upon swinging said lever toward said other end of said split ring, said salient cam face engages said member on its side opposite to the said pivotal connection and moves said member along said salient cam face to draw the ends of said split ring together.

9. The combination of a barrel shell having a beaded mouth and a head having a rim fitted over said bead, a split ring formed to embrace said bead and rim, a lever pivotally connected to one end of said ring, said lever being formed to provide a salient cam face opposing said pivotal connection terminating in a land, a member fixed to the other end of said split ring, said salient cam face being so arranged that upon swinging said lever toward said other end of said split ring, said salient cam face engages said member on its side opposite to the said pivotal connection and moves said member along said salient cam face to draw the ends of said split ring together, the final movement of said lever causing said member to ride up on said land to hold the lever in the position in which the ends of the ring are contracted.

10. The combination of a barrel shell having a beaded mouth and a head having a rim fitted over said bead, a split ring formed to embrace said bead and rim, a lever pivotally connected to one end of said ring, said lever being formed to provide a slot extending inwardly from one edge of said lever, one edge of said slot being formed to provide a salient cam face opposing said pivotal connection, a member fixed to the other end of said split ring, said salient cam face being so arranged that upon swinging said lever toward said other end of said split ring, said salient cam face engages said member on its side opposite to the said pivotal connection and moves said member along said salient cam face to draw the ends of said split ring together.

11. The combination of a barrel shell having a beaded mouth and a head having a rim fitted over said bead, a split ring formed to embrace said bead and rim, a lever pivotally connected to one end of said ring, said lever being formed to provide a salient cam face opposing said pivotal connection and arranged to exert force in a direction tangential to said ring, a member fixed to the other end of said split ring, said salient cam face being so arranged that upon swinging said lever toward said other end of said split ring, said salient cam face engages said member on its side opposite to the said pivotal connection and moves said member along said salient cam face to draw the ends of said split ring together.

12. The combination of a barrel shell having a beaded mouth and a head having a rim fitted over said bead, a split ring formed to embrace said bead and rim, a lever having an upper wall adapted to extend over the top of said rim and an outer vertical wall extending alongside said ring, a horizontal rivet pivotally securing one end of the side wall of said lever to one end of said split ring, the side wall of said lever being provided, intermediate its ends, with a slot extending inwardly from its edge, one edge of said slot being formed to provide a salient cam face opposing said rivet and a horizontal pin projecting outwardly from the other end of said split ring, said salient cam face being so arranged that upon swinging said lever toward the said other end of said lever, said salient cam face engages said pin on its side opposite to said rivet and moves said pin along said cam face to draw the ends of said split ring together.

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