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D. W. CURTIS

CLAMPING LID FOR CONTAINERS

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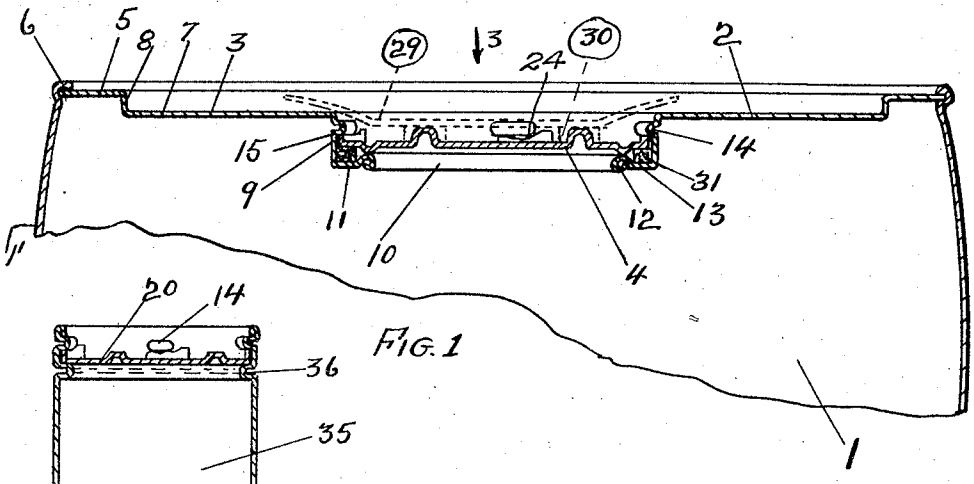


FIG. 1

FIG. 7.

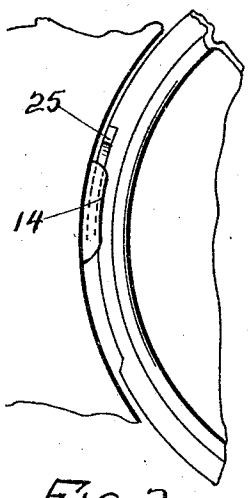


FIG. 2

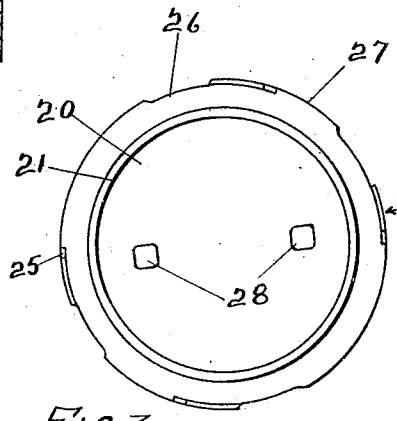


FIG. 3

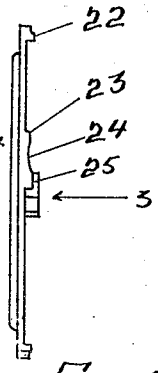


FIG. 4

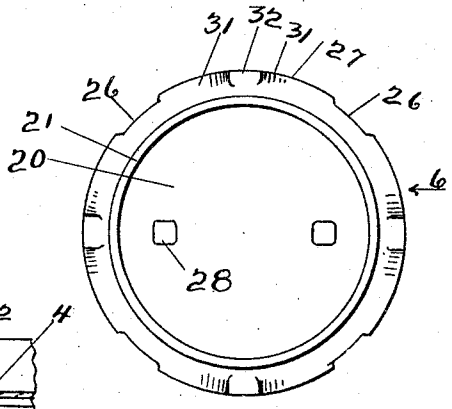


FIG. 5

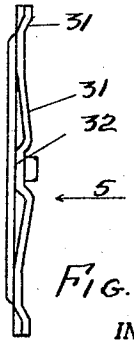


FIG. 6

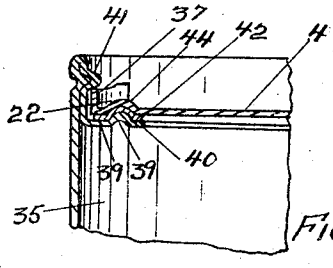


FIG. 8

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UNITED STATES PATENT OFFICE.

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CLAMPING LID FOR CONTAINERS.

Application filed May 20, 1925. Serial No. 31,503.

My invention is a clamping lid for containers such as metal barrels, paint drums, metal kegs or cans; and comprises a cap which is adapted on turning to wedge in the opening of a cover.

An object of my invention is to provide a closure cap for metal containers such as above described in which a disc like cap may, on being given a partial turn, wedge tightly in a circular opening in a lid or container top and thereby form a tight closure which may be made substantially air tight.

Another feature of my invention is to lock the cap after being turned.

I accomplish the above results by providing a cover or top which may be seamed to a barrel or any other container at its rim. The cover has an inwardly pressed neck and a laterally extending flange forming a seat on which the cap is placed. The cap is formed of a disc of sheet metal and has either lugs on its outside edge or rim formed cam shaped or else the rim is bent to form a cam. The cam portions of the cap engage a series of inwardly pressed ribs on the neck of the cover so that after the cap has been inserted and partially turned the cam surface of the disc presses against the ribs and thereby forces the cap tightly against the seat formed by the inturned flanges. A gasket may be used between the seat and the cap to form an air tight joint between the cap and the cover.

My invention will be more readily understood from the following description and the accompanying drawing in which Figure 1 shows a transverse section of the upper part of a container showing my cover, in which is illustrated the container top and the disc cap secured therein. Figure 2 is a plan of part of Figure 1 on an enlarged scale showing the cover and the cap secured in an engagement and the cam being locked to a projecting rib. Figure 3 is a plan view of the disc of Figure 1 showing the type of cap with the upturned rim cams. Figure 4 is a side elevation of the disc shown in Figure 3. Figure 5 is a modified form of cap in which the disc is pressed upwardly at certain portions to form a cam surface adapted to bear against the ribs formed on the cover. Figure 6 is a side elevation of the cap shown in Figure 5.

Figure 7 is a modification of my invention illustrating my cap secured directly to the wall of a container such as a can. Figure 8 is a form alternative to Figure 7, showing the end of the can body being turned in and having a seat formed by a flange.

Referring particularly to Figures 1 and 2 a container is indicated generally by the numeral 1 having walls 1′ and a lid indicated generally by the numeral 2, this latter comprising the cover 3 and the disc cap 4. The cover 3 is formed from a disc of sheet metal preferably having an outer ring 5 which is seamed to the walls 1′ by any suitable seaming joints 6. The cover has a depressed portion 7 inside of the ring connected thereto by the vertical edge 8. A neck 9 is pressed inwardly from the portion 7. This neck is concentric to the axial line of the opening 10. A horizontal flange 11 is formed with a bead 12 forming the opening. The bead preferably extends above the bottom of the flange 11 as indicated at 13. This flange forms a seat for the cap. A series of short ribs 14 are pressed inwardly from the neck 9 of the cover. The ribs 14 are practically all parallel on their lower edge 15 and this edge is also preferably parallel to the flange 11, although it may be at a slight angle similar to a screw thread.

A cap shown in Figures 3 and 4 is constructed as follows:

A cap designated generally as 20 is constructed of a disc of metal having an annular downwardly turned bead 21 adapted to contact with or substantially meet the bead 12 of the cover. The outer periphery has a series of upwardly turned rim cams 22, these being the same in number as the ribs 14 on the cover and are adapted to lock therewith. The entrance end 23 of the cams is sufficiently low, that is close to the plane of the disc, to form an entering edge underneath the ribs 14. The recesses 24 are to form a positive lock with the short ribs so that the cap will spring up slightly and engage the rib 14, the shoulder 25 being a positive stop to limit the turning of the cap. There are a series of segmental recesses 26 adjacent the rim cams for the purpose of allowing the cap to fit over the ribs when it is inserted in position. These, of course, are the same in number as the ribs and the cams. The outer periphery of the disc is designated by 27.

In order to turn the disc a plurality of lugs 28 are preferably formed by pressing the metal upwardly. A permanent handle 29 for the cap shown dotted in Figure 1 may

be attached to the lugs by spot welding or the like, or it may be removable and have sockets designated by the numeral 30.

The manner of securing the cap to the cover is as follows: A gasket 31 is placed on the seat formed by the flange 11 and the bead 12, whereupon the disc is inserted so that the ribs 14 pass through the segmental recesses 26. Then on turning the cap with the handle the disc is forced tight against the gasket by the cam action of the rim cams 22 on the lower surface of the ribs 15. It may be turned until the shoulders 25 contact with the end of the ribs when the cap will be locked by the ribs engaging in the recesses 24.

The cap shown in Figures 5 and 6 is constructed as follows: Disc 20 has a bead 21, a series of segmental recesses 26 peripheral sections 27 and lugs 28 the same as the cap shown in Figures 3 and 4. However, these discs instead of having an upturned rim cam have a series of cams 31 formed by bending the metal upwardly between each pair of segmental recesses 26. Between the cam surfaces 31 there is a depression 32 to form a lock by engagement with the ribs 14.

With this type of cap it is inserted in the cover with the ribs 14 passing through the notches 26 and it may be turned in either direction so that the cam surface 31 will bear against the lower surface 15 of the ribs 14. The disc may be turned until the ribs snap into the depressions 32 which lock the cap and cover together. A gasket will be used with this type of cap the same as with that shown in Figures 3 and 4. The cam surfaces are formed by merely pressing upwardly the sections of the disc immediately adjacent the periphery so that the beads 21 and 12 will preferably be in substantial alignment.

It will be apparent that a cap and cover connection such as I have above described would make a satisfactory clamping lid for various types of containers and may be made in such sizes as are suitable for barrels or larger containers to those of such size for household use and may be utilized for keeping articles which it is desired should be kept from the free air after they have once been opened, as with my type of cap a practically air and moisture proof fitting may be made and this by construction which is very simple and cheap to manufacture.

In Figure 7 a can 35 has an inwardly pressed bead 36 extending completely around its periphery in effect forming a flange the equivalent of a seat for a disc cap 20 which may be of the design shown in Figures 3 and 4, or Figures 5 and 6. The series of ribs 14 are pressed inwardly from the wall of the can and engage the cam surface of the cap. It will be seen that the function of the elements of this figure are the same as shown in Figure 1 except that no cover element per se is used. This makes a simple closure for an ordinary can in which the removable cap is the same size as the can.

In Figure 8 the can 35 has the reversed wall section 37 bent inwardly and pressed close against the outer wall and an inturned flange 38 formed on the end. This flange has an upward pressed bead 39 and an inwardly protecting ring 40. The ribs 41 similar to the ribs 14 of Figure 1 are formed by indenting both the outside wall and the reversed wall sections. An annular packing ring 42 is inserted over the bead 39 and is compressed by the upturned bead 44 of the cap section 4. This cap otherwise is similar to that shown in Figure 1, having the rim cams 22 pressing against the lower edge of the ribs 41. In this construction the cap practically fills the whole body of the can and leaves a large opening except such as would be formed by inturned flange 38.

It will be apparent that my invention may be considerably modified in details without departing from the spirit thereof.

Having described my invention, what I claim is:—

A closure for a drum or the like, comprising a top plate having an annular section of the same depressed to form an annular flange and a ledge extending inwardly from the edge thereof and terminating in an annular curl forming a seat, and an annular groove therearound, a gasket in said groove exceeding the curled seat in height, ribs extending inwardly from the flange, intermediate the height thereof, a closure cap formed with peripheral recesses allowing the same to be lowered past the ribs and with adjacent cams adapted for clamping introduction between the gasket and the bottom faces of the ribs on a turning motion; the closure cap being formed with an annular depression arranged to be pressed upon the curled seat when the cap is placed in position.

In testimony whereof I affix my signature.

DAVID W. CURTIS.