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J. M. HOTHERSALL

2,180,357

CONTAINER

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Fig. 1

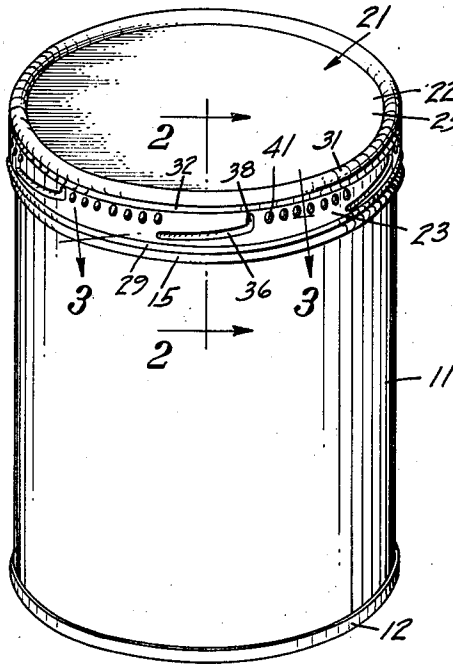


Fig. 2

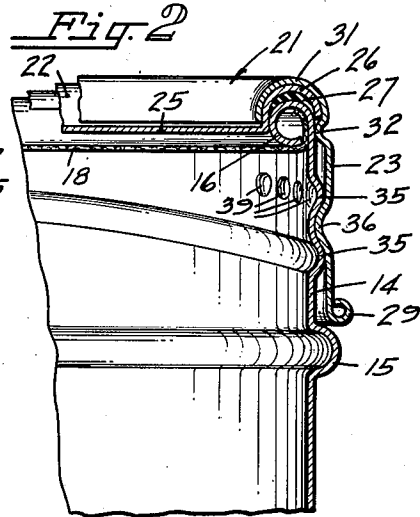


Fig. 3

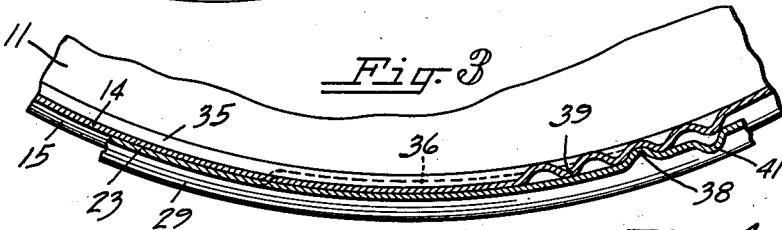


Fig. 5

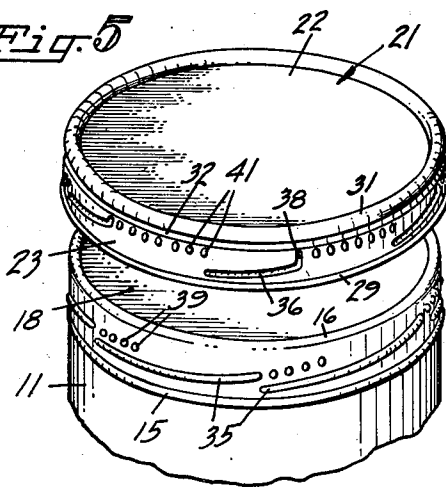
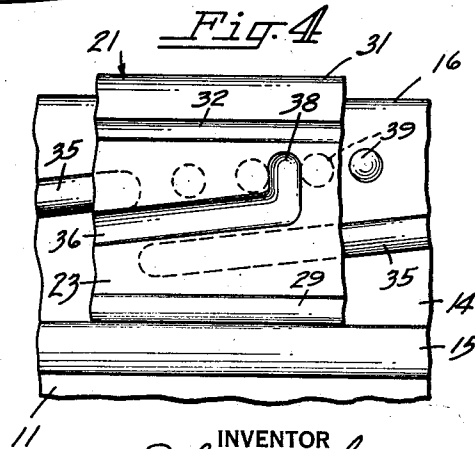


Fig. 4



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## UNITED STATES PATENT OFFICE

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## CONTAINER

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4 Claims. (Cl. 220—39)

The present invention relates to a sheet metal container or can having a compound gasket lined removable cover which is secured in closed and sealed position on the container by interrupted screw threads and has particular reference to the combination of cover locking elements and to a two piece cover construction of special design which permits easy turning of the cover into and out of closed and locked position without damaging the gasket.

Covers having a sealing gasket of compound lining material when secured to containers by means of interlocking interrupted screw threads have heretofore presented considerable difficulty when opening the container because when the cover is screwed down tight, the gasket compound adheres so tenaciously to the container as to render the cover very difficult to remove.

It is therefore an object of the present invention to provide an improved compound lined cover adapted to be secured to a can by means of cooperating interrupted screw threads and locking elements wherein the cover may be turned down into tight hermetically sealed position on the container and locked against accidental loosening and dislodgement but yet may be easily removed when desired by a simple turning action and without damaging the sealing gasket so that the cover may be used as a reclosure.

Another object is the provision of improved cooperating locking elements formed in the can and cover for preventing loosening and dislodgement of the latter when in closed position and a further provision of a cooperating two piece cover construction which permits relative sliding movement between its parts for facilitating the engagement and disengagement of the locking elements and the closing and opening of the cover.

Still another object is the provision of such a two piece cover wherein rotation of one of the parts, as when removing the cover, lifts the remaining part vertically and without rotative movement to disengage its attached sealing gasket from the container without destroying the former.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawing, discloses a preferred embodiment thereof.

Referring to the drawing:

Figure 1 is a perspective view of a container and cover embodying the instant invention, the

view showing the cover in fully closed position on the container;

Fig. 2 is an enlarged fragmentary transverse section taken through a part of the cover and the upper part of the container as viewed substantially along the line 2—2 in Fig. 1;

Fig. 3 is an enlarged fragmentary sectional detail taken substantially along one of the interlocked interrupted threads as indicated by the inclined line 3—3 in Fig. 1;

Fig. 4 is an enlarged side elevation showing a fragmentary part of the upper end of the container and a fragmentary part of the cover in closed and locked position; and

Fig. 5 is a perspective view of the upper end of the container showing the cover in opened and separated position.

A preferred embodiment of the invention as disclosed in the drawing comprises a cylindrical sheet metal container body 11 closed at its bottom end with a closure member which is secured to the body in a suitable seam 12. The upper end of the body wall (designated by the numeral 14 in Fig. 2) is strengthened by an annular outwardly bent bead 15 and terminates above the bead in an inward curl 16.

The can is preferably closed with a suitable frangible seal 18 and a removable two piece cover 21. The seal is held in place in any suitable manner as by embodying its peripheral edge in the body curl 16. The cover is preferably applied to the can over the top of the seal and may be used as a reclosure after the seal is cut away.

The two piece cover 21 comprises a substantially flat disc 22 (Fig. 2) and an annular clamping ring 23. The cover disc consists of a horizontal top wall 25 which at its outer edge merges into an upwardly and outwardly curled flange wall 26 which is adapted to lie directly over the body curl 16 when the cover is in place on the can. The curved wall 26 forms a concave seat for holding a sealing gasket 27 of a suitable compound or the like material which is preferably applied to the seat in a liquid or semi-liquid form and dried in place before the cover is used.

The clamping ring 23 overhangs the can body 11 when the cover is in place and extends down adjacent and parallel with the body wall 14. At its lower edge the ring terminates just above the body bead 15 and is bent outwardly into a curl 29. At its upper end the ring merges into an inwardly curved flange wall 31 which extends over the top of the curved flange wall 26 in conforming engagement therewith, terminating adjacent the top wall 25 of the disc 22. The nested

curved flange walls 26, 31 provide for holding the cover disc and the clamping ring in concentric cooperative position, and further provide reinforcement against strains set up in the flanges when the cover is applied to the can.

At the base of the flange wall 31 where it merges into the wall of the ring 23 an annular inwardly bent bead 32 (Fig. 2) is provided which engages against the terminal edge of the inner flange wall 26. The bead loosely holds together the two pieces of the cover and forms a unitary cover structure in which there may be free rotary movement between the ring 23 and the disc 22 when the cover is applied to the can, the metal to metal engagement of the curved flange walls 26, 31 permitting the proper sliding action.

Screw threaded sections formed in the body wall 14 and the cover ring wall 23 provide for securing the cover to the can. These threaded sections include spaced and inclined interrupted threads 35 (Figs. 2, 3, 4 and 5) which are struck outwardly from the body wall 14, the forward end of each thread terminating adjacent and slightly above the rear end of the preceding thread. These threads cooperate with similar spaced and inclined short threads 36 which are struck inwardly from the cover ring wall 23. This general form of thread section is often used in sheet metal cans for securing can and cover together.

Lateral projections or abutments 38 (Figs. 3, 4 and 5) which are struck inwardly from the cover ring wall 23 provide locking elements for holding the interrupted threads, when interlocked, against inadvertent disengagement. These projections are arranged at or near the rear or upper end of each cover thread 36 and cooperate with protuberances 39 which are struck out from the can body wall 14. There are a plurality of these protuberances 39 equally spaced apart and disposed in a straight line adjacent the forward end of each body thread 35 and at the same angle of inclination, which may effect a continuation of the thread.

When the cover 24 is applied to the can the cooperating pairs of interrupted screw threads 35, 36 are interlocked in the usual manner by a turning or rotation of the cover relative to the can. Beads 41 struck out of the ring wall 23 below the annular bead 32 and between the threads 36 provide a hand grip for facilitating this turning movement.

The cover disc 22 turns with the ring 23 until stopped by engagement of the gasket 27 with the body curl 16. Thereafter the ring flange 31 slides over the disc flange 26, the projections 38 of the threads 36 moving over the tops of and into locking engagement with the protuberances 39.

Reverse movement of the ring 23 is resisted by these interlocked projections and protuberances, the latter functioning as barriers or stops to prevent accidental cover displacement. However, this barrier resistance is easily overcome by force when the cover is purposely unscrewed.

In reverse movement of the ring 23 it rotates while the cover disc 22 remains stationary due to the clinging of the gasket compound to the body curl 16 until the annular bead 32 of the ring lifts the cover disc and prys loose the compound gasket from the body curl which action takes place without damaging the gasket and with only a slight effort.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent

that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A container, comprising a body part having an open end, a cover part having a wall fitting around said end, thread sections formed in said body part adjacent its open end, thread sections formed in said cover part wall and adapted to engage with the body part threads when said cover is applied and rotated relative to said body part to close the container, a plurality of spaced locking protuberances associated with one of said container parts and arranged in a line adjacent one end of its threads and separated therefrom but forming a continuation of the threads in line therewith, and lateral locking projections associated with the thread sections in the other of said container parts and adapted to cooperate with said locking protuberances for locking the container parts together against inadvertent loosening and dislodgement.

2. A container, comprising a body having an open end, a two piece cover for closing said open end consisting of a disc section provided with a curved flange wall for holding a sealing gasket and a clamping ring provided with a conforming curved flange wall which overlaps said disc flange wall and which is rotatable thereon, the parts of said cover being held together in a unitary structure by an inwardly bent annular bead formed in said ring and engaging under said disc flange wall, cooperating interrupted screw threads formed in said cover ring wall and said body for securing said cover to said body, locking protuberances formed in said body adjacent and spaced from one end of each of the screw threads therein and forming a continuation of said threads, and lateral locking projections formed in said cover ring adjacent one end of its screw threads and extending upwardly therefrom for interlocking with said body protuberances when the cover is turned into closed and sealed position for locking the same against loosening and dislodgement.

3. A container comprising a body having a curved annular curl surrounding an open end, a cover having a part fitting over said open end, thread sections formed in said body adjacent its open end, thread sections formed in said cover part adapted to engage with the body threads when said cover is applied and rotated relative to said body to close the container, certain of said thread sections having at their rear and upper ends upwardly extending locking projections, said cover consisting of a disc having an outwardly curved annular flange which is adapted to engage with said body curl when the cover is applied and a clamping ring having an inwardly curved annular flange adapted to have sliding engagement with the curled flange of said disc, said disc being held within the clamping ring and with its curled flange seated within the curled flange of the ring so that the cover may be applied to and removed from the container as a unitary structure, the curved flange of said disc having an attached gasket which is adapted to seat directly upon the said body curl when the cover is applied, the sliding engagement of the flanges of said disc and ring providing for relative rotative movement therebetween when cover and container are brought together by their interlocking threads.

4. A container for easy opening comprising a container body formed with a top ledge defining an opening, a two-piece unitary cover for closing said opening, said cover including a cover disc having a peripheral seating flange and a clamping member having an annular mounting with the flange of said disc and providing relative rotation between said disc and said member to pull down on the disc, a gasket on said flange for engaging said ledge, cooperating screw threads formed in said body and in said clamping mem-

ber for positively moving said clamping member upwardly and downwardly, peripheral inwardly projecting means spaced around said clamping member above said threads and below said flange adapted to engage said flange and lift the latter and the cover disc out of sealing engagement with said ledge when said clamping member is rotated to release the same from the container body.

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