

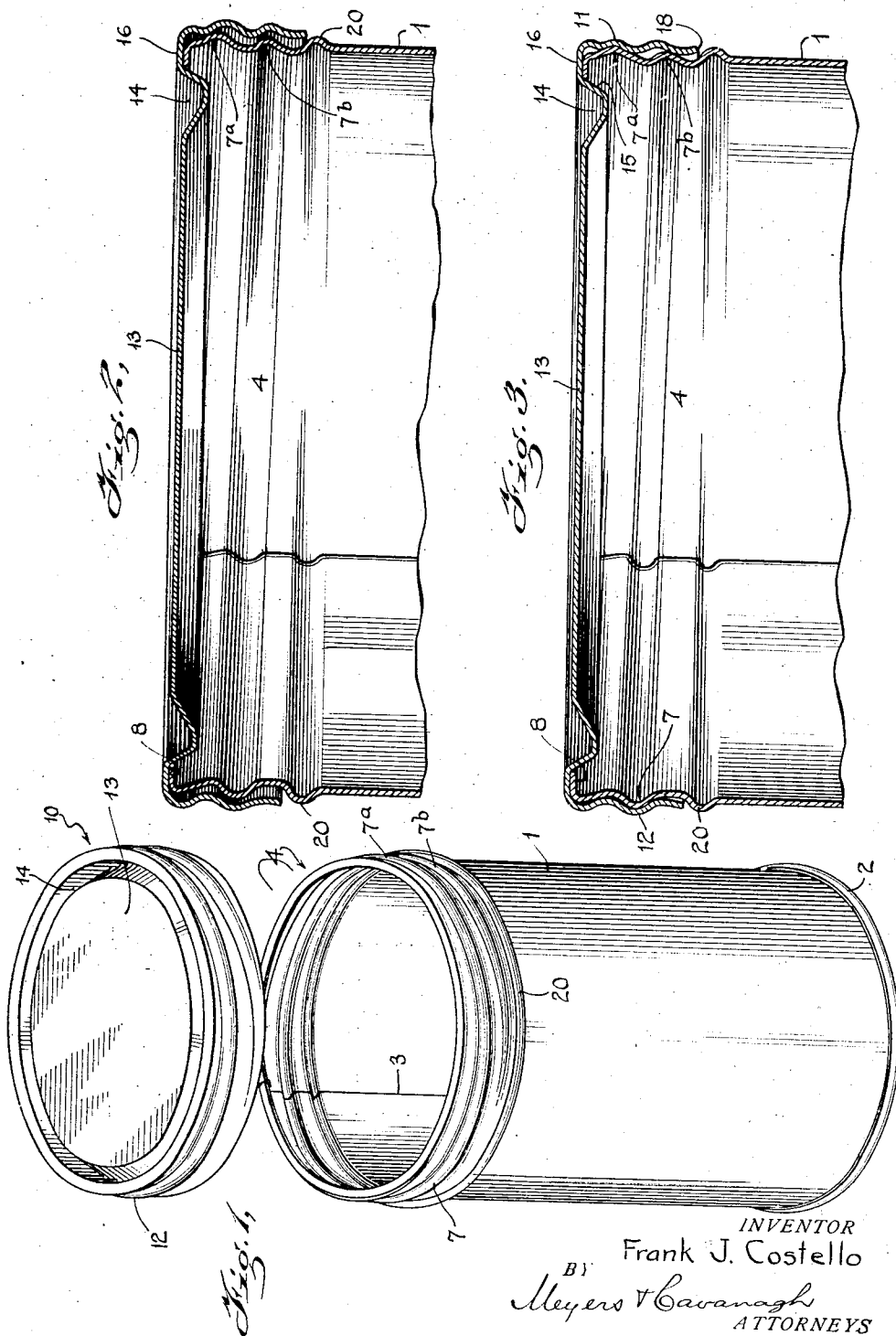
April 10, 1928.

1,665,908

F. J. COSTELLO

CAN AND CLOSURE

Filed March 30, 1923



INVENTOR  
Frank J. Costello  
BY  
Meyers & Cavanagh  
ATTORNEYS

# UNITED STATES PATENT OFFICE.

FRANK J. COSTELLO, OF BALTIMORE, MARYLAND, ASSIGNOR TO FEDERAL TIN COMPANY, INCORPORATED, OF BALTIMORE, MARYLAND, A CORPORATION OF NEW YORK.

## CAN AND CLOSURE.

Application filed March 30, 1923. Serial No. 628,819.

My invention relates to sheet metal cans and closures therefor, and especially to quick-acting closures, in which the can cover is securely held in tightly closed position, but can be removed by a small part of a turn and easily reapplied and tightened by a small part turn.

The general object of the invention is to provide a closure of this class and a can body adapted for such a closure, in which the cover and body have cooperating helical beads or "threads" extending substantially entirely around their circumference, and preferably extending somewhat more than one complete turn around the respective parts, with considerable normal lateral clearance between the threads and between the cover and body walls so that when the cover is screwed down tight the body and cover threads are in full locking engagement throughout their circumference, the cover is accurately centered and all looseness or lateral play is taken up and the can is tightly or practically hermetically sealed, and the cover may be released and removed by rotating it less than a full turn, and preferably only a small fraction of a turn, and replaced and tightened by less than a full turn, and usually only a small part turn.

The construction differs radically from that class of can closures having a plurality of interrupted diagonal beads or threads, or cooperating projections and depressions in the body and cover corresponding substantially to a bayonet joint construction, and in which the interlocking devices are more or less separated or spaced apart, and do not provide a continuous interlocking engagement between the cover and body when the cover is screwed down.

The characteristics and advantages of the invention are further sufficiently explained in connection with the following detail description of the accompanying drawings, which show one representative embodiment of the invention. After considering this, persons skilled in the art will understand that many variations may be made within the scope of the invention, and I do not limit myself to details except as claimed.

Figure 1 is a perspective view of a can and

cover embodying the invention in one form.

Figure 2 is a vertical section, enlarged, through the upper part of the can body and cover in loosely applied position.

Figure 3 is a similar section showing the cover in tightened or fully applied position.

The can body 1 may be of any usual or suitable construction, including any suitable bottom 2 and usually having a side seam 3. Near the upper end of the body is formed a helical bead or thread 7, which preferably makes at least one full turn about the circumference of the can, and preferably somewhat more, but not much more, than a full turn, so that at one point of the circumference the thread has vertically overlapping portions 7<sup>a</sup> and 7<sup>b</sup>. This overlap is usually not very extensive, amounting usually to something less than one-half the circumference or substantially about one-third. The bead or thread is usually of full depth, as shown at 7, throughout most of its length, but this thread depth is gradually reduced toward the ends of the thread, which gradually taper into the main cylindrical outline of the can. The body at its upper end has an inbent portion 8 preferably formed into a flat flange, although in some cases this member might be of rolled formation.

The cover 10 has a cylindrical flange 11 formed with a helical bead or thread 12 corresponding substantially with the body thread, but with substantially all parts of the flange 11, including the thread parts, of slightly greater diameter than the corresponding body parts to provide an appreciable lateral play or looseness of the cover when it is loosely applied to the body, as shown in Figure 2. Desirably the web or top portion 13 of the cover is formed with an annular inbent bead or depression 14, an outer wall 15 of which is rounded or angularly arranged, as sufficiently shown in Figures 2 and 3, to engage the inner edge of body flange 8, while a flat annular portion 16 of the cover outside the depression 14 is adapted to engage the outer surface of the flange.

To apply the cover it is turned to such a position that the overlapped portion of the cover threads is not in exact registry with

the overlapped portion of the body thread. The thread arrangement is such that the cover may be loosely applied, as shown in Figure 2, in almost any of its rotative positions. If it is attempted to apply the cover with the overlapped portions of the cover and body threads in almost exactly alined positions, it will be found that the cover is not readily slipped down to full loose engagement with the body as shown in Figure 2, and then a slight turn of the cover in either direction, will enable it to be easily put in position. To fully tighten or lock the cover it is then turned in a right-hand direction, corresponding to the right-hand arrangement of the threads in the present instance, somewhat less than a full turn, and usually when the cover has been applied in such a position that the overlapped body and cover thread portions nearly correspond, a small part of a rotation, and frequently only about one-eighth of a turn, or even less in some cases, is sufficient to fully tighten the cover. In this rotative movement of the cover the cover and body threads come into full engagement, and at the same time the cover is centered by the tightening engagement of its annular portion 16 with the body flange 8. Finally, at the completion of the closing movement portions of the cover thread are securely locked below convex portions of the body thread throughout the complete thread circumference, and all lateral play is taken up and the cover cannot be removed, without the application of destructive force, until it is desired to remove it in a normal way by an unscrewing action.

To remove the cover it is only necessary to turn it in a left-hand or unscrewing direction, a small fraction of a revolution, and the same amount of movement in every instance will suffice to release the cover, since when it is fully locked it is always in the same position in relation to the body. When the cover is turned as described, a slight distance, the threads are again relatively loose or they are partly retracted in a rotary direction from the fully overlapped relation of the threads, and the cover may then be easily removed endwise, and this removal is in some cases

somewhat facilitated by tilting the cover as it is pulled off.

When the cover is screwed down as shown in Figure 3, a very tight or substantially hermetic seal is provided between the body flange 8 and cover annulus 16. To permit complete locking at this point the lower edge 18 of the cover flange is usually located so that it will not engage, or at least will not engage tightly against the annular rib 20, or any other bead that may be similarly located on the body.

It will be understood from the preceding description that an important characteristic of the invention is the provision of substantially continuous or unbroken locking means such as helical beads or threads on the cover and body, these threads having a substantial overlap, or extending somewhat more than one revolution about the respective parts, with a substantial looseness or lateral play between the threads or between the cover and body in certain positions of the cover, the parts being constructed and arranged so that by a part rotation the cover may be securely tightened by rotary or screw action, and with an accompanying full engagement of the separate threads, and the cover may be easily removed by a small part of a rotation.

I claim:

A can construction including a body and a flanged cover, the body and the cover flange having threads interengaging to lock the cover to the body when the cover is centered on the body, the flange and cover of enough greater diameter than the body to permit the engagement of the threads by a combined tilting and lateral or radial movement of the cover on the body, the cover having an internal annular rib near the periphery thereof, and the body an inturned flange for engagement by the rib to center the cover on the body when it is drawn into close engagement therewith, and to prevent release of the threads by radial movement of the cover with respect to the body.

Signed at Baltimore in the State of Maryland this 21st day of March A. D. 1923.

FRANK J. COSTELLO.