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1,454,958

W. T. DAVIES

METAL CONTAINER

Filed Feb. 20, 1922

Fig. 1.

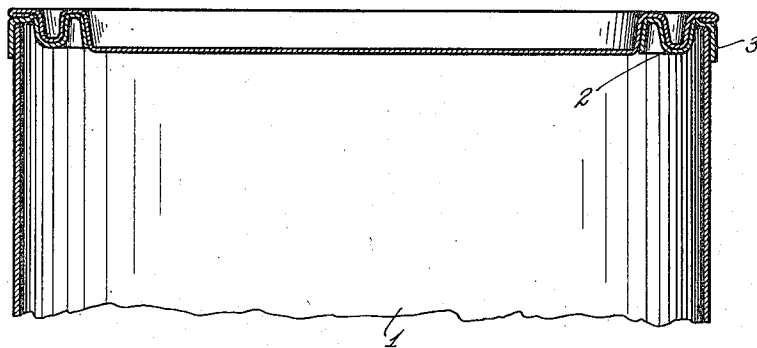


Fig. 2.

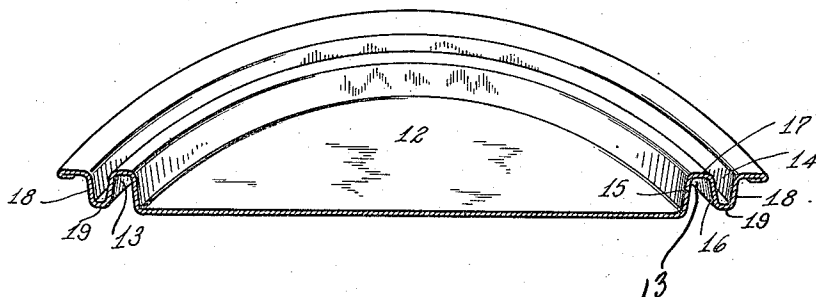


Fig. 3.

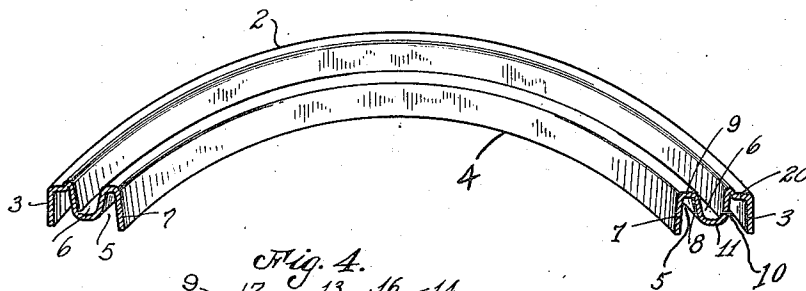
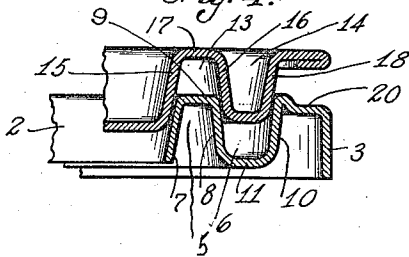


Fig. 4.



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METAL CONTAINER.

Application filed February 20, 1922. Serial No. 537,692.

To all whom it may concern:

Be it known that I, WILLIAM T. DAVIES, citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in and Relating to Metal Containers, of which the following is a specification.

This invention relates to sheet metal cans of the so-called "friction top" type and has as its chief object the construction of a can of the class described wherein a plurality of wide, annular substantially parallel walls separated by resilient bridges are provided on each of the top ring and cover members.

Another object is to construct a friction top can provided with a plurality of relatively wide friction surfaces on both the top and cover members, the surfaces of one member being adapted to have a substantially pressed fit engagement with those of the other member.

Other objects will appear hereinafter.

In the drawings attached hereto and forming a part thereof;

Fig. 1 is a fragmentary view in cross section of a can provided with my improved form of top ring and cover.

Figs. 2 and 3 are respectively perspective views of the cover and top ring.

Fig. 4 is an enlarged detail view in cross section showing the cover and top ring in position ready for pressing together.

Friction top types of cans, as constructed heretofore, for example, as shown in British Patent No. 28,332, of 1908, have had a plurality of friction surfaces on the cover and can top in more or less close engagement with each other but not in such close engagement as to be termed a "pressed" fit, namely, that obtained by machine pressure as contrasted with hand pressure. As a result of such relatively loose fits, liquid may leak past the cover and where heavy liquids are to be handled, the cover may even be displaced by expansion of contents after the can is closed or by formation of gases, which frequently happens.

I have discovered, however, that by suitably constructing the top ring and cover, a "pressed fit" between the engaging surfaces of the two parts can be obtained which will entirely avoid the previous difficulties.

My improved construction comprises broadly the provision in both the top ring

and cover parts of a plurality of adjacent channels comprising relatively wide side walls connected by resilient bridges, such structure being capable of sufficient distortion to permit nesting of the two parts by the use of considerable pressure with consequent close contact of the side walls over wide areas.

Referring to the drawings, 1 designates an ordinary can to which my improved friction top ring 2 is secured, preferably by joining depending flange 3 thereof to the side of the can in any suitable manner. Top ring 2 is formed with a central opening 4, and is provided with a plurality of, and preferably two, annular, adjacent, concentric channels 5 and 6. Each channel is formed by spaced side walls which are substantially parallel to one another, there being only sufficient inclination of one wall to the other to permit ready removal of the top ring from the forming die. Channel 5 opens into the can and is formed by side walls 7 and 8 and a bottom wall or resilient bridge 9. Channel 6 opens out of the can and is formed by side wall 8 of channel 5, side wall 10 and bottom wall or resilient bridge 11. It will be noted that wall 8 is common to both channels.

The bridges 9 and 11 are sufficiently resilient, to permit the walls 7, 8 and 10 to be distorted, pressed together or spread apart or otherwise deformed to receive the can cover hereinafter described.

My improved cover 12 is preferably circular and of about the same overall diameter as the diameter of the top ring 2. It has annular channels corresponding in number, size, shape and configuration to the channels of top ring 2. Channel 13, corresponding to channel 5 of top ring 2, opens toward the interior of can 1 and is formed by side walls 15 and 16 connected by resilient bottom wall or bridge 17. Channel 14, corresponding to channel 6 in top 2, opens away from the interior of can 1 and is formed by side walls 16 and 18 and bottom wall or resilient bridge 19, the wall 16 being common to both channels.

It will be noted that the side walls of each pair of walls 7 and 8, 8 and 10, 15 and 16 and 16 and 18 are inclined slightly to each other, converging toward the ends which are integral with the bridges. By reason of this arrangement and location of

side walls, the channels of the top ring will mesh with the channels of the cover, the surfaces of each pair of side walls being parallel with those of the corresponding channel.

I prefer to press the channels in both the top ring and cover in dies having forming parts of the same size thereby giving to each, exactly the same dimensions. When so formed it will be found that, due to the slight inclination of the channel side walls as above described, the channels will nest with each other only to a small extent, as indicated approximately in Fig. 4. The application of force to the cover will however cause the channels to nest as is shown in Fig. 1. Practically a pressed fit is thus obtained, the side walls of each channel having close, frictional engagement throughout substantially their entire width with each other. I believe that the resilient character of the bridges facilitates and possibly controls the closeness of this engagement between the side walls, since with a rigid connection between the side walls, they would resist more strongly any pressure tending to force the top and cover together. The nature and extent of the engagement between the surfaces of the side walls as well as the practicability of forming the channels in both top ring and cover in dies having forming parts of the same size thus seem to depend on the resiliency of the bridges and the structures as units.

After the metal blanks pass through the channels forming press operation, the top rings and covers have a cylindrical flange

depending from the outer periphery thereof similar to flange 3 in the drawings. For the covers, an additional press operation is needed to bend this flange inwardly thus leaving a smooth edge, and it may be desirable to subject the top rings to an additional press operation to provide space near the periphery for seating the inturned edge of the cover, as shown at 20.

Having thus described my invention in such detail that those skilled in the art may practice it, that which I desire to secure by Letters Patent is defined in what is claimed.

What is claimed is:

In a device of the class described, in combination, a can; a top ring secured thereto, the said top ring being provided adjacent its inner periphery with an annular channel opening into the can and formed by two radially spaced, substantially parallel walls connected by a resilient bridge, the top ring also being provided with another annular channel of greater diameter than, but adjacent to the first channel and opening out of the can, this latter channel being formed by the outer wall of the first said channel a wall spaced radially outwardly therefrom and substantially parallel therewith and a resilient bridge connecting the two walls; and a cover having two annular channels, the side walls of which are adapted to engage frictionally with substantially all of the surfaces of each of the corresponding side walls of the annular channels in the top ring.

In testimony whereof I affix my signature.
WILLIAM T. DAVIES.