

United States Patent

Bildsten

[15] 3,688,941

[45] Sept. 5, 1972

[54] **ARRANGEMENT FOR PRODUCING A SEAL BETWEEN A CONTAINER AND A LID**

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[22] Filed: **Nov. 25, 1970**

[21] Appl. No.: **92,731**

[30] **Foreign Application Priority Data**

Dec. 1, 1969 Sweden.....16489

[52] U.S. Cl.220/46 R

[51] Int. Cl.B65d 53/00

[58] Field of Search ...220/46 P, 85 TC, 46 MS, 46 R

[56] **References Cited**

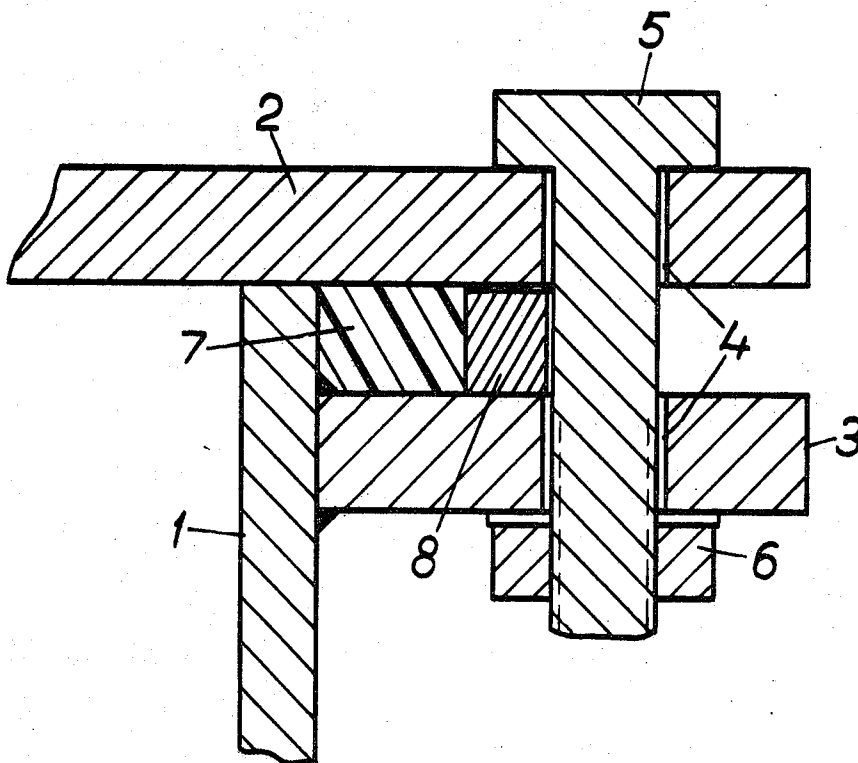
UNITED STATES PATENTS

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[57] **ABSTRACT**

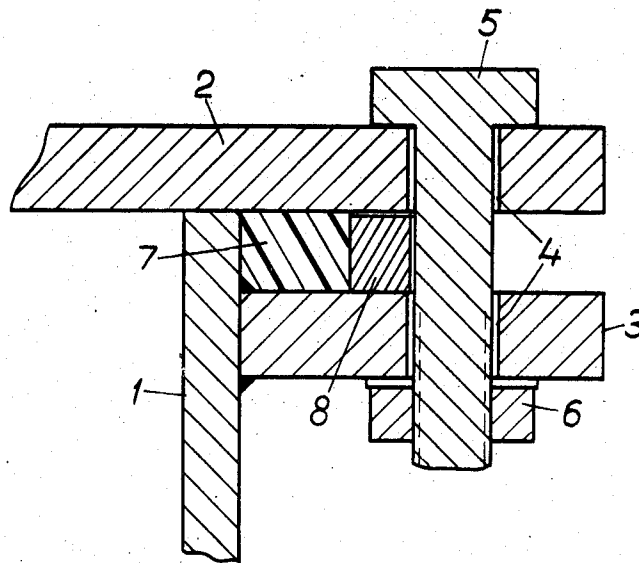
A container is provided with a lid which projects outwardly beyond the walls of the container and with a flange secured on the outside of the container slightly below its top. Bolts are provided passing through the projecting portion of the lid and the flange for drawing the two towards each other. Immediately outside the wall of the container is an annular washer of plastic material arranged in the space between the lid and the flange. A resilient support strip which is slightly less in height than the distance between the flange and the lid is positioned in the space between the washer and the bolts and abuts with one edge against the outside of the washer and with the other edge against the bolts.

2 Claims, 1 Drawing Figure



PATENTED SEP 5 1972

3,688,941



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ARRANGEMENT FOR PRODUCING A SEAL BETWEEN A CONTAINER AND A LID

BACKGROUND OF THE INVENTION

1. Field of the Invention
2. The Prior Art

In order to obtain a good seal between a container and its lid, the upper edge of the container is usually made smooth and a washer applied between this edge and the lid. Instead of using a flat washer, a groove is sometimes made in the edge of the container and a sealing strip inserted which is compressed and seals between container and lid when a number of bolts are tightened.

With large units, such as transformer boxes, such preparation of the upper edge of the box is expensive, partly because the circumference of the box is large and partly because the material in the walls of the box is extremely thick in large units.

SUMMARY OF THE INVENTION

The present invention relates to a means for sealing between a container and a lid on top of it which projects slightly outside the walls of the container. The invention is characterized in that on the outside of the container, and at a certain distance from its upper edge, a frame is placed around the container and in the groove formed between the frame and the part of the lid projecting outside the container a washer of plastic material is arranged nearest the container and a resilient support strip located outside the washer which abuts the washer with one edge and with the opposite edge abuts a number of bolts which pass through the lid and frame.

BRIEF DESCRIPTION OF THE DRAWING

The accompanying drawings show a section through an upper corner of a transformer tank where the invention is used to seal between the tank and lid.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The wall of the transformer tank is designated 1 and the lid 2. The lid projects outside the wall of the tank a little way. On the wall of the tank and at a certain distance from its upper edge is attached a frame 3 enclosing the tank. A number of holes 4 are drilled through the part of the lid lying outside the tank and through the frame, uniformly distributed around the circumference of the tank. Bolts 5 are arranged in the holes, each having a nut 6. In the groove between the wall of the tank, the lid and the frame is a washer 7 of plastic material. Between the washer and the row of bolts 5 is a resilient support strip 8, this being inserted so that its lefthand side in the drawing abuts the washer

whereas its righthand edge abuts the bolts.

The height of the washer 7 is chosen so that it substantially completely fills the groove between the lid and the frame, while the height of the support strip is somewhat less. When the nuts 6 are tightened, the frame and the projecting part of the lid will be pressed and flexed towards each other. The washer 7 will then be deformed and fill any spaces between the upper edge of the tank and the lid and also will intrude into the spaces between the frame and support strip and between the lid and the support strip. Since the support strip is resilient, it will to a greater or lesser extent be pressed out between the bolts as the lid and frame are drawn together. This means that the washer is continuous under a certain pressure and this means that the seal between the wall of the tank and the lid is maintained even if the volume of the washer alters somewhat because of temperature alterations.

The invention also makes it easy to machine the upper edge of the tank so that it is substantially smooth. The frame 3 is suitably attached to the tank by means of welding with its upper edge at a certain distance from the upper edge of the tank 1 before the upper edge is machined, this distance being at least as great as the final distance between the frame and the lid is to be. The upper edge of the tank is cut to the correct measurements with the help of a cutting torch movable on the upper side of the frame 3. The distance between the upper side of the frame and the lower side of the lid is then well-defined when the lid is placed on the tank. In order to obtain a completely satisfactory seal, the area of the washer 7 should exceed the area of the groove intended for the washer between the box wall 1, lid 2, frame 3 and the support strip 8 by about 20 percent. There is then sufficient excess volume in the washer so that, when the bolts are tightened, it fills out all the hollows in the edge of the groove and presses out the support strip between the bolts so that there is always sufficient spring pressure from the support strip on the washer.

I claim:

1. In combination with a container, a lid (2) arranged above the container and projecting out from the walls of the container, a frame (3) secured on the outside of the container spaced from its upper edge and surrounding the container, forming a groove between the frame and the part of the lid projecting outside the container, at least one bolt (5) passing through and connecting the lid and frame, a washer (7) of plastic material in said groove adjacent the container wall and a resilient support strip (8) in said groove outside the washer, one edge of which abuts the washer while the opposite edge abuts the bolt.

2. In a device as claimed in claim 1, the height of the support strip being slightly less than the distance between the frame (3) and the lid (2).

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