May 6, 1941. H. A. STEELE 2,240,944

CONTAINER CONSTRUCTION

Filed Feb. 15, 1938 2 Sheets-Sheet 1

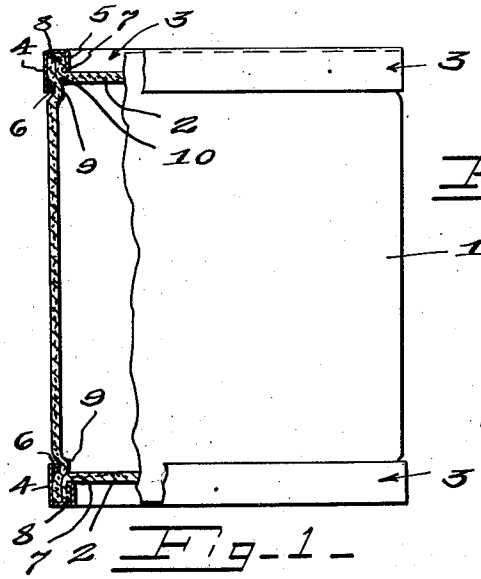


Fig-1-

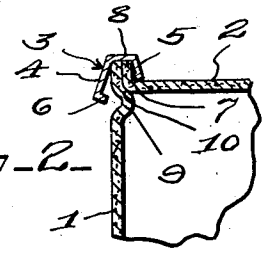


Fig-2-

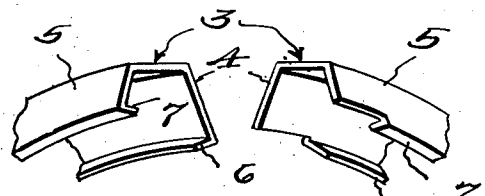


Fig-3-

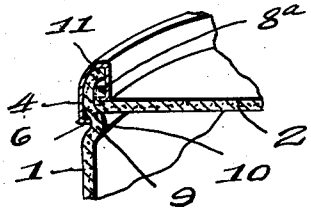


Fig-4-

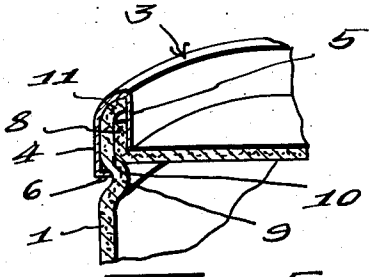


Fig-5-

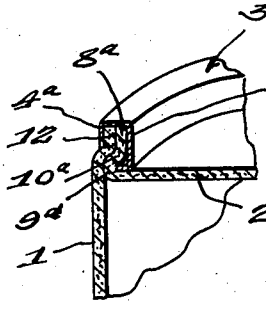


Fig-6-

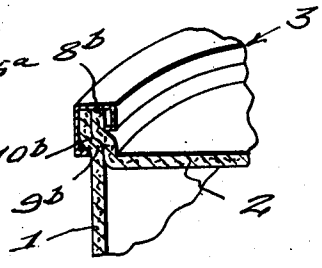


Fig-7-

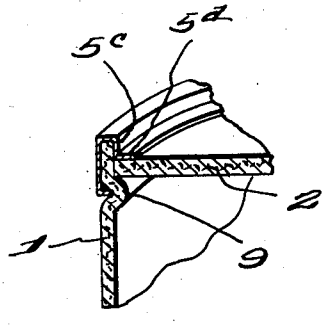


Fig-8-

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May 6, 1941. H. A. STEELE 2,240,944

CONTAINER CONSTRUCTION

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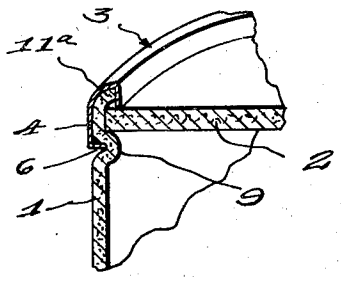


Fig-9-

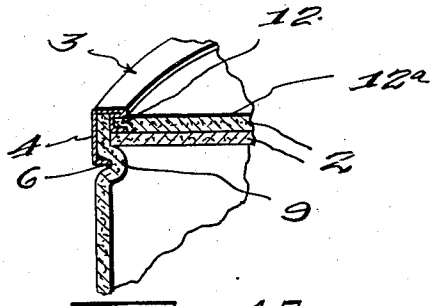


Fig-10-

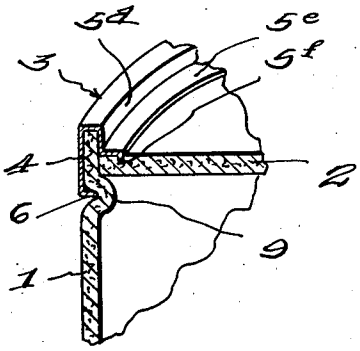


Fig-11-

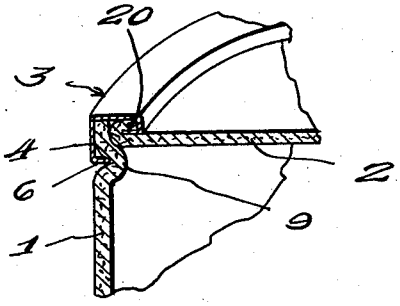


Fig-12-

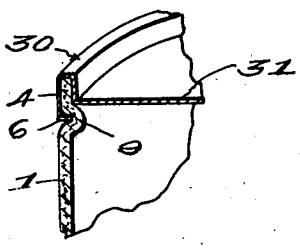


Fig-13-

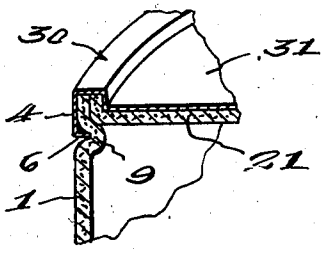


Fig-14-

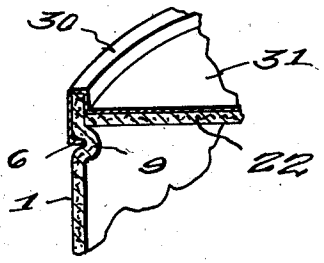


Fig-15-

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Patented May 6, 1941 2,240,944

UNITED STATES PATENT OFFICE

2,240,944

CONTAINER CONSTRUCTION

Harry A. Steele, Syracuse, N. Y.

Application February 15, 1938, Serial No. 190,636

2 Claims. (Cl. 229—5.7)

This invention relates to containers made for the most part of paper board, cardboard or fibrous material, as distinguished from metal containers or cans and has for its object a union or joint between the side wall of the container and the head or heads of the container, that is, the top or bottom disks or both, the joint including a metal ring interlocked with the margin of the circumferential or side wall and with the head and coacting with the margin of the head to prevent displacement of the head, the interlocking or coacting portions being out of transverse alinement.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is an elevation, partly broken away, of a cylindrical container embodying this invention.

Figure 2 is an enlarged fragmentary view of parts seen in Figure 1.

Figure 3 is an enlarged fragmentary view of the lapping ends of the retaining ring, these being shown as separated.

Figures 4, 5, 6, 7 and 8 are fragmentary perspective views of modified forms of the joint shown in Figure 1.

Figures 9, 10, 11, 12, 13, 14 and 15 are fragmentary views similar to Figures 4, 5, 6, 7 and 8 of additional modified forms of the invention.

1 designates the circumferential or side wall of a container or can, this being preferably rounding and that here shown cylindrical. The side wall is composed of any fibrous material, and in the interest of brevity, the term "paper board" is used, and this term is intended to include any fibrous material, whether or not it is, strictly speaking, paper board, cardboard or a paper pulp material.

2 designates a head at either or each end of the side wall 1.

The feature of the invention is means for securing the head in position including a ring, channel-shaped in cross section, with one side flange of the channel formation lapping the outer margin of the side wall at one end thereof and the other flange interlocking or coacting with the head to prevent displacement of the head, the ring being arranged astride the margin of the side wall and one of the flanges being of less width than the other, and each flange having an angular lip at its edge for interlocking or clinching into the outer face of the side wall or the head. Owing to the fact that one flange is wider than the other, these angular lips are out of transverse alinement, and hence the strain, due to the weight thereon of the contents of the container, is not concentrated or localized in one circular line or zone of the side wall.

Another feature of the invention is that the side wall is formed with an inwardly deflected portion, as a corrugation, against which the margin of the head seats.

3 designates the ring, channel-shaped in cross section, with one side flange 4 wider than the other side flange 5. In the form shown in Figures 1, 4 and 5, and other figures, as will be hereinafter pointed out, the flange 4 lapping the outer surface of the margin of the side wall 1 of the container is wider than the flange 5. The flanges 4, 5 are provided respectively with inturned lips 6, 7, the lip 6 interlocking with or clinching into the side wall 1 and the lip 7 interlocking with or clinching into the head 2. The head 2 is shown in Figure 1 as having an outturned angular flange 8 lapping the inner margin of the container and the channel-shaped ring is arranged astride said margin and the flange 8, the lip 7 clinching into the head 2 at the base of the flange 8.

The side wall 1 of the container is formed with an internal circumferentially extending corrugation 9 against which the margin of the head 2 seats at 10. Also, the lip 6 of the wider flange 4 interlocks with or clinches into the groove provided on the outer side of the wall 1 by the corrugation 9.

In placing the ring in position, it is slightly open, as shown in Figure 2, and by means of suitable tools or mechanism, not forming part of this invention, is rolled into the position shown in Figure 1 from that shown in Figure 2. Preferably, the head is assembled into the ring and the head and ring applied to the end of the container. The end portions of the ring overlap and in order that one end may telescope within the other, the portions of the lips 6, 7 at one end are removed, as seen in Figure 3.

In Figure 4, the margin of the end of the container within the ring is deflected inwardly at 11 to overhang the end of the angular flange 8a on the head 2 and the ring is correspondingly shaped in cross-section to cause the deflection of the margin at 11. With this construction, any outward force tending to pull or displace the head out of the can is obstructed by the over-

hanging portion 11 of the margin of the side wall 1 so held by the ring in overhanging position.

A similar construction is shown in Figure 5 in which the inner flange 5 is unprovided with the lip 7 and the overhanging portion 11 of the margin of the container relied upon to hold the head 2 from outward displacement.

In the modification shown in Figure 6, the outer flange 4^a of the channel formation is of less width than the inner flange 5^a and the margin of the side wall 1 is deflected inwardly at 12 within a smaller diameter than that of the major part of the container, forming a seat 10^a for the head, and the angular flange 8^a of the head 2 is deflected inwardly providing an annular bead or corrugation at 9^a seating on the inner deflection at 10^a of the margin of the container. The inner and wider flange 5^a clinches into the corrugation, as clearly seen in Figure 6.

In the form shown in Figure 7, the general type of ring shown in Figure 1 is shown but the margin of the side wall 1 is deflected outwardly at 10^b into a larger diameter than the diameter of the major part of the side wall 1, and the angular flange 8^b of the head 2 is correspondingly deflected, so as to seat at 9^b on the deflection 10^b.

In Figure 8, the head 2 is unprovided with an angular flange and seats at its edge on the corrugation 9 and the ring is similar in formation to that shown in Figure 1 with the exception that the inner shorter flange 5^c is provided with an out-turned flange 5^d which rests upon the margin of the head 2.

In the form shown in Figure 9, the head 2 is unprovided with an angular flange and the ring 3 is approximately of the form shown in Figure 4, with the exception that there is no lip on the inner shorter flange and the overhanging portion 11^a of the margin of the side wall 1 serves to prevent displacement of the head 2 when the outer flange of the ring is clinched into the corrugation, as in Figure 1.

In the form shown in Figure 10, the head 2 consists of two disks without marginal angular flanges and one disk rests against the corrugation 9, as in Figure 1, and the other disk interlocks, as at 12, with the inner narrower flange of the ring 3. This inner narrower flange is shaped, as shown, to form an inwardly facing annular channel which receives the margins of the outermost bottom or head disk 12^a.

In Figure 11, the construction is generally the same as that shown in Figure 1, with the exception that the head 2 has no angular flange, and the inner narrower flange 5^d of the ring 3 is provided with an inwardly extending flange 5^e, similar to the flange 5^d, (Figure 8), and this inwardly extending flange is formed with a lip 5^f extending into the outer face of the head 2.

In the form shown in Figure 12, the side wall construction with the corrugation 9 is shown substantially as in Figure 1, and the head 2 formed with a marginal flange 20 folded back over the head 2 and the ring 3 is comparatively wider than the ring shown in Figure 1 and is formed with an inwardly facing channel for receiving or interlocking with the reversely folded flange 20.

In Figures 13, 14 and 15, the retaining ring 30 is integral with a metal web or head portion 31, and in Figure 13, no head of fibrous material is used. The ring 30, in Figure 13, embraces the margin of the side wall 1 as in Figure 1, and the lip 6 thereof is interlocked with the side wall or in the groove provided by the internal corrugation 9.

In Figure 14, a head 21 is used underlying the metallic head 31, this having a marginal flange extending into the channel of the ring 30, as in Figure 1.

In Figure 15, the construction shown is similar to that in Figure 13, with the addition that a head 22 of fibrous material, corresponding to the head 2, is interposed between the metal head 31 and the corrugation 9.

In all forms of the invention, it is preferable to place the head in juxtaposition to the ring, and then place the ring and the head, as a unit, on the side wall 1, and then press or clinch the ring in position.

In any form of the invention, the ring interlocks with or clinches onto the side wall and interlocks or coacts with the head to prevent displacement of the head, along circular lines which are out of transverse alinement.

By the joints of this invention, the heads of containers or cans may be readily placed in position, and when attached to the side wall 1, can not become detached therefrom by rough handling or by the weight of the contents therein, etc. These cans are usable for any purpose for which paper cans are now used, as for instance, packing ice-cream, food products, etc. and may be used with or without a liner.

What I claim is:

1. A container construction including a circumferential side wall of a paper board material and a head fitting in one end of the side wall, means for securing the head in position, the head being formed with an angular flange fitting into the side wall at one end thereof, and a ring, channel-shaped in cross section arranged astride the angular flange of the head and the adjacent margin of the side wall, the outer flange of the ring being of greater width than the inner flange, and said flanges having inturned marginal lips, the lips of the flanges being located out of transverse alinement and the lips of the flanges clinching the circumferential side wall and said angular flange, the inner flange clinching into the angular flange of the head of the angle of said flange and the body of the head.

2. A container construction including a circumferential side wall of a paper board material and a head fitting in one end of the side wall, means for securing the head in position, the head being formed with an angular flange fitting into the side wall at one end thereof, and a ring, channel-shaped in cross section arranged astride the angular flange of the head and the adjacent margin of the side wall, the outer flange of the ring being of greater width than the inner flange, and said flanges having inturned marginal lips, the lips of the flanges being located out of transverse alinement and the lips of the flanges clinching the circumferential side wall and said angular flange, the side wall having a circumferential internal corrugation at the base of which the head fits at the corner of the head and its angular flange, and the lip of the outer flange of the ring extending into the groove on the outer side of the side wall provided by the internal corrugation.

HARRY A. STEELE.