June 19, 1945. A. B. WILSON 2,378,878

CONTAINER AND METHOD OF FORMING THE SAME

Filed May 5, 1941

Fig. 1.

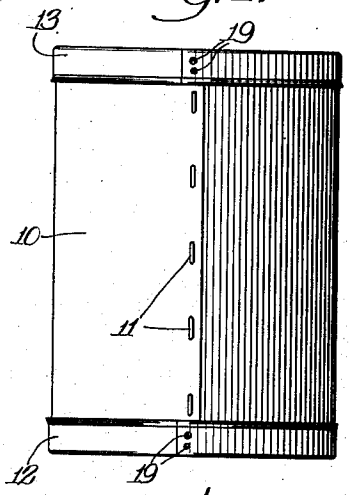


Fig. 2.

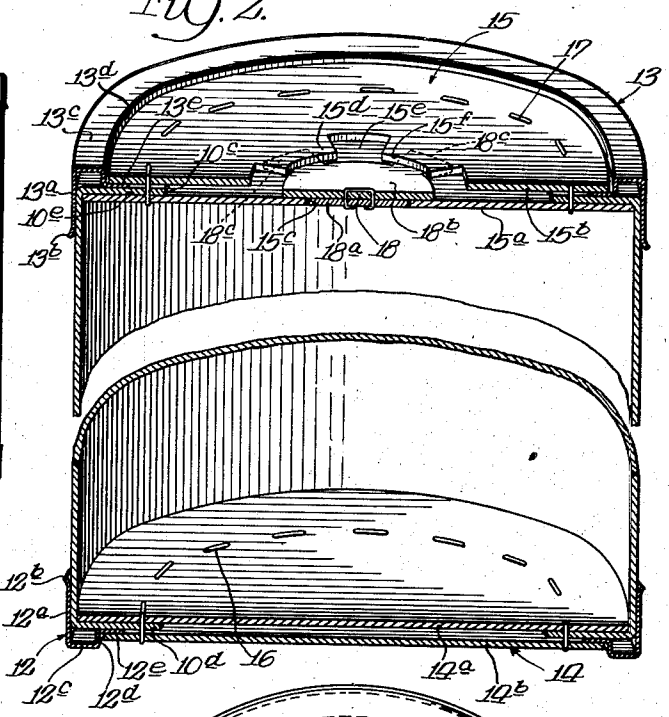


Fig. 4.

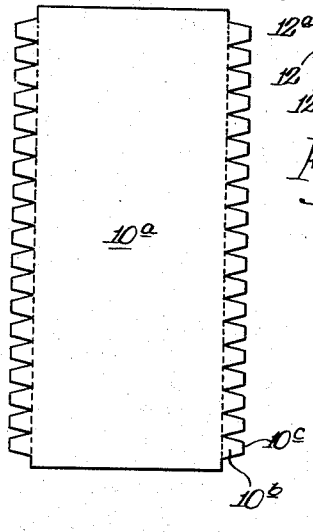
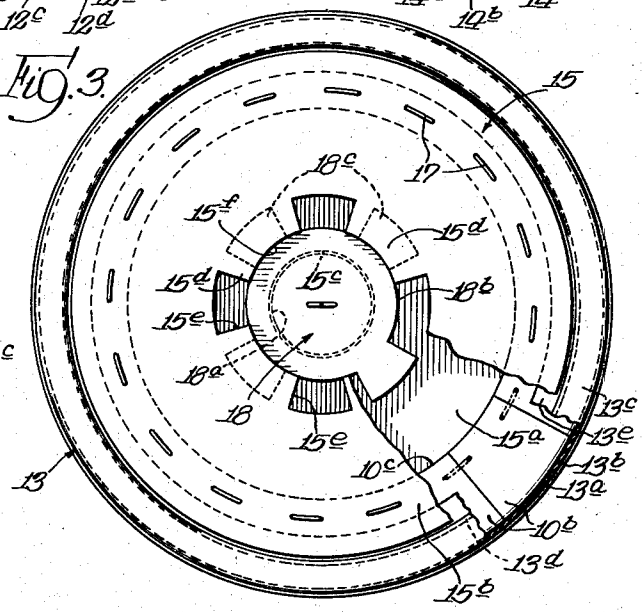


Fig. 3.



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CONTAINER AND METHOD OF FORMING THE SAME

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10 Claims. (Cl. 93—39.1)

This invention relates to improvements in containers and method of forming them and its purpose is to provide a vessel, formed largely of paperboard or the like, which may be used for packing and shipping products of a granular or plastic nature, such as cereals, chemicals, sugar or the like.

The principal object of the invention is to provide a container having an annular non-metallic wall which is capable of being packed and shipped in flat condition in a bundle with other similar wall portions and of being readily assembled by the user in proper relation to end walls and annular metallic rims, which may also be packed and shipped separately. Another object of the invention is to provide a container comprising an annular wall and end walls each formed of separate parts which may be secured together for holding in assembled relationship the end walls and the annular wall and also metallic rims which extend around the end portions of the annular wall. A further object is to provide an improved method of forming and assembling a container according to which a flat sheet of paperboard or the like is provided along its longitudinal edges with projecting tabs adapted to be extended inwardly to form upper and lower flanges when the sheet is rolled into annular form and its edges united, the flange at each end of the wall being then turned inwardly between the inner and outer end wall sections which also enclose an annular flange of a metallic rim arranged to surround the end portion of the annular wall, these end wall sections being then stitched together through the tabs to hold all of the parts in assembled relationship.

Other objects relate to various features of construction and arrangement and to various details of the method which will appear more fully hereinafter.

The nature of the invention will be understood from the following specification taken with the accompanying drawing in which one embodiment is illustrated. In the drawing,

Figure 1 shows a side elevation of the improved container when it has been completely assembled;

Fig. 2 shows a partial axial vertical section and partial perspective view of the container illustrated in Fig. 1;

Fig. 3 shows a top plan view of the container illustrated in Figs. 1 and 2 with parts thereof broken away; and

Fig. 4 shows, on a reduced scale, a plan view of the annular wall in the flat condition in which it is shipped to the user.

As illustrated in the drawing, the invention is shown as being embodied in a container comprising a cylindrical upright wall 10 formed of a sheet of paperboard or the like with its overlapping edges secured together by wire stitching 11. The ends of the annular wall are surrounded by a lower metallic rim 12 and an upper metallic rim 13, which rims are interlocked with the bottom wall 14 and the top wall 15, respectively. The bottom wall 14 is of circular form and is made up of two disks 14^a and 14^b formed of relatively stiff paperboard or the like, which are secured together by wire stitching 16. Similarly, the top wall 15 is formed of two disks 15^a and 15^b, formed of relatively stiff paperboard or the like, which are secured together by wire stitching 17. To permit access to the interior of the container after its parts have been completely assembled, the top wall 15 is provided with a removable cover 18 comprising a circular disk 18^a which occupies and closely fits a circular hole 15^c formed in the lower disk 15^a of the top wall, and an upper disk 18^b which is of larger diameter than the disk 18^a so that it overlaps the edge of the hole 15^c. The disk 18^b is glued or stitched to the lower disk 18^a and it is provided with a plurality of outwardly extending wings 18^c which are adapted to underlie a series of inwardly extending wings 15^d which are formed in the top section 15^b of the top wall between the outwardly extending notches 15^e in this wall. The aperture 15^f in the wall section 15^b which lies within the inner margins of the wings or tongues 15^d is slightly larger in diameter than the disk 18^b so that, when the removable cover 18 is rotated to a position where the wings 18^c register with the notches 15^e, the cover may be lifted upwardly through the aperture 15^f in the top wall and entirely removed to permit access through the hole 15^c to the interior of the container. Upon replacing the cover 18, it may be rotated, after inserting the wings 18^c through the notches 15^e, so that these wings will then underlie the projections 15^d, as shown in Fig. 2, thereby securing the cover in its closed position.

The annular wall 10 of the container is formed from a flat sheet 10^a of paperboard or the like, which is substantially rectangular in form, as shown in Fig. 4, and which is provided along its longitudinal edges with a plurality of projecting tabs 10^b. These tabs are of tapered form and are provided with outer edges 10^c which are in alignment with each other on each side of the sheet and parallel to the longitudinal axis of the sheet. The metal rims 12 and 13 are identical in form and are formed preferably from straight

metal strips which are subjected to a rolling and curling process to cause them to assume the shape illustrated. After being curled into annular form, the overlapping ends of each rim are secured together by spot welds or the like, as shown at 19, thus providing complete annular rims which are shipped in this form from the place of manufacture to the place of use.

The bottom rim 12 comprises a cylindrical portion 12^a which is adapted to fit over the lower end of the wall 10 and which is flared outwardly along its upper edge as shown at 12^b to permit it to be passed readily over the cylindrical wall in the process of assembly. The lower edge of the cylindrical part 12^a is united with an inwardly extending annular part 12^c, located in a plane extending parallel to the bottom wall 14, and this part 12^c is united with an upwardly extending annular part 12^d forming an annular shoulder within which the lower disk 14^b of the bottom wall is located. The annular part 12^d is united along its upper edge with an inwardly extending annular flange 12^e which projects between the bottom disk 14^b of the bottom wall and the inwardly extending flange 10^d formed by the tabs 10^b along the lower edge of the wall 10. The top rim 13 is similar in form to the rim 12, although it is reversed in position. This rim comprises a cylindrical body portion 13^a, an outwardly flared edge 13^b, and parts 13^c, 13^d and 13^e which correspond in form and relative location to the parts 12^c, 12^d and 12^e, respectively.

The end wall sections 14^a, 14^b, 15^a and 15^b, and the parts of the cover 18 may be stamped from sheets of stiff cardboard and shipped to the user in compact bundles.

In the operation of assembling the parts of the container, the sheet 10^a is first rolled into cylindrical form and the overlapping edges are united by the wire stitching 11. The tabs 10^b of one end of the cylinder are then bent inwardly over the disk 15^a, which is preferably seated upon a suitable upright pedestal or support. The top rim 13 is then placed in position over the upper end of the annular wall 10 with the flange 13^e resting upon and holding in position the tabs 10^b of the annular wall which form the upper inwardly extending flange 10^e. The next step is to place the top disk 15^b of the top wall in position over the flange 13^e of the top rim. The stitching 17 is then applied to secure the two disks 15^a and 15^b together, thereby clamping the flange 13^e between the top disk and the flange 10^e of the outer wall so that the rim is held in fixed relation to the annular wall as well as with respect to the top wall 15. The stitching 17 may extend through the tabs 10^b which form the top flange 10^e of the annular wall 10, as shown in the drawing, but this is not essential.

Having secured the top wall 15 and the top rim 13 to the annular wall, in the manner described above, the partially assembled vessel is removed from the supporting pedestal and reversed in position, with the pedestal extending upwardly through the apertures 15^c and 15^f in the top wall, and the disk 14^a is then inserted within the wall 10 until it rests upon the pedestal or support with its outer edge located just below the bases of the tabs 10^b which are to form the lower flange 10^d of the annular wall. These tabs 10^b are then bent inwardly over the disk 14^a preliminary to putting in place the lower rim 12 with its cylindrical part 12^a surrounding the end portion of the wall 10 and with the flange 12^e holding the tabs 10^b against the disk 14^a. The disk 14^b is then applied within the flange 12^d and against the flange 12^e, whereupon the two disks 14^a and 14^b are united by the stitching 16. This stitching may also extend through the tabs 10^b which form the flange 10^d and the flange 12^e is thereby secured in position between the flange 10^d and the bottom disk 14^b of the bottom wall. The parts of the container are then completely assembled except for the insertion of the cover 18 which may be put in position after the container has been removed from the supporting pedestal, reversed in position, and filled with its contents. In this way, there is provided a strong and durable container which may be readily assembled by the user without the use of any tools or other auxiliary devices, except the stitching device required for uniting the disks of the end walls by the wire stitches 16 and 17. The rims 12 and 13 may preferably have a loose fit upon the wall 10 to facilitate the assembly of the container and also to prevent damage to the paperboard of which the annular wall 10 is formed

Although one form of the invention has been shown and described by way of illustration, it will be understood that it may be constructed in various other embodiments coming within the scope of the appended claims.

I claim:

1. The combination in a container, of an annular non-metallic wall, a metallic rim having a part surrounding a portion of said annular wall, said annular wall and said rim having inwardly extending parts, and an end wall having parts attached to each other independently of said rim and embracing said inwardly extending parts of said annular wall and said rim.

2. The combination in a container, of an annular non-metallic wall, a metallic rim having a part surrounding a portion of said annular wall, said annular wall and said rim having inwardly extending flanges, and an end wall comprising a pair of members secured directly to each other and embracing said flanges.

3. The combination in a container, of an annular non-metallic wall, a metallic rim having a part surrounding a portion of said annular wall, said annular wall and said rim having inwardly extending flanges, and an end wall comprising a pair of members secured together and embracing said flanges, said rim having a shoulder surrounding one of said members.

4. The combination in a container, of an annular wall having an inwardly extending flange portion, a metallic rim having a part surrounding a portion of said annular wall and having an inwardly extending part lying parallel to said flange portion, and an end wall comprising inner and outer members secured together independently of said rim to clamp said flange portion and said inwardly extending part together.

5. The combination in a container, of an annular non-metallic wall having an inwardly extending flange portion, a metallic rim surrounding the end portion of said annular wall and having an inwardly extending part terminating in an annular shoulder, said rim having an annular flange extending inwardly from said shoulder in contact with said flange portion of said annular wall, and an end wall comprising a disk seated on said flange of said rim within said shoulder and another member secured to said disk and engaging said flange portion within said annular wall.

6. The combination in a container, of an annular non-metallic wall having an inwardly extending flange portion, a metallic rim surround-

ing the end portion of said annular wall and having an inwardly extending part terminating in an annular shoulder, said rim having an annular flange extending inwardly from said shoulder in contact with said flange portion of said annular wall, and an end wall comprising a pair of disks secured together, one of said disks being seated on said flange of said rim within said shoulder and the other disk being positioned within said annular wall to clamp said flange portion and said flange against the other disk.

7. The method of forming a container, which consists in rolling a flat non-metallic sheet and securing its edges together to form a cylindrical wall, turning the end portion of said wall inwardly to form an annular flange, placing around the end portion of said wall a metallic rim having an annular shoulder and a flange extending inwardly from said shoulder parallel to said first-named flange, placing an end wall disk within said annular wall against said first-named flange, placing another disk against said second-named flange within said shoulder, and then securing said disks together.

8. The method of forming a container which consists in forming an annular wall and providing it with inwardly extending projections, applying an annular rim with a part thereof surrounding said annular wall and with another part thereof extending inwardly parallel to said projections, then applying a pair of disks to form an end wall and causing said disks to embrace said projections and said inwardly extending part of said rim, and then securing said disks and said projections to each other inwardly of said rim.

9. The combination in a container, of an annular non-metallic wall having an inwardly extending flange at its end, an end wall comprising a pair of disks embracing and attached to said inwardly extending flange of said annular wall, and a protective metallic rim surrounding the end portion of said annular wall and extending inwardly on the outer side of said flange with a part thereof projecting between the outer parts of said disks to hold the rim in place.

10. The combination in a container, of an annular non-metallic wall having an inwardly extending flange at its end, an end wall comprising a pair of disks secured together and having their outer parts embracing said inwardly extending flange, and a protective metallic rim having an annular cylindrical portion fitting over and extending endwise beyond the end portion of said annular wall and having an annular part extending parallel to said cylindrical portion and inwardly therefrom to form a shoulder opposite the outer one of said disks, said rim being provided with an integral flange extending inwardly from said shoulder between said disks to hold said rim in assembled relationship to said end wall and said annular wall.

ALLEN B. WILSON.