Jan. 7, 1936. R. J. HUTT ET AL 2,027,231

CONTAINER

Filed Jan. 21, 1933 2 Sheets-Sheet 1

Fig. 1.

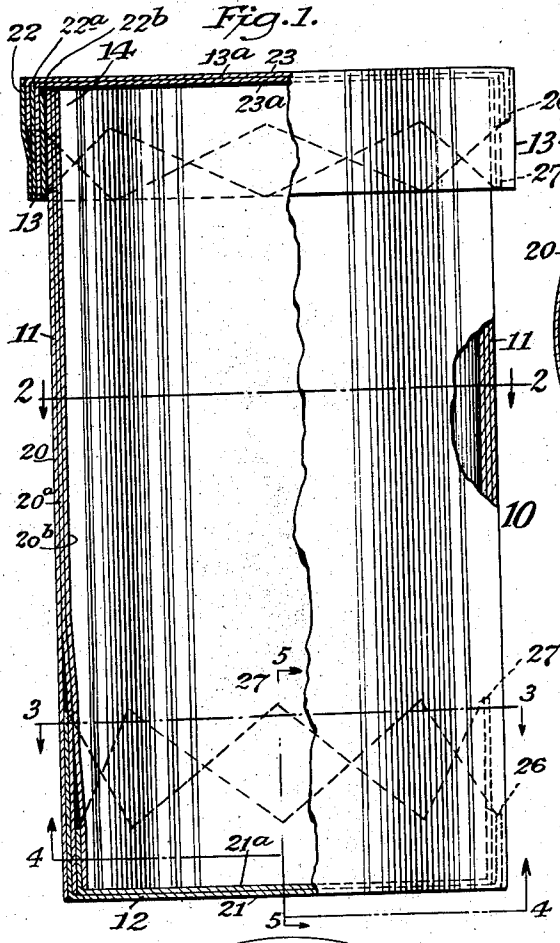


Fig. 2.

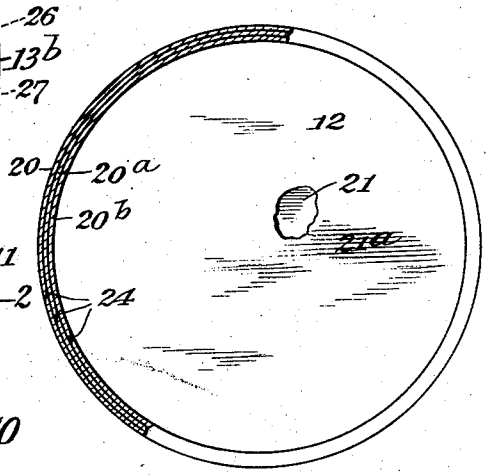


Fig. 3.

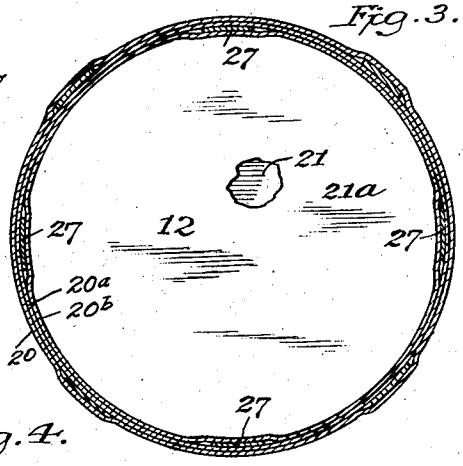


Fig. 4.

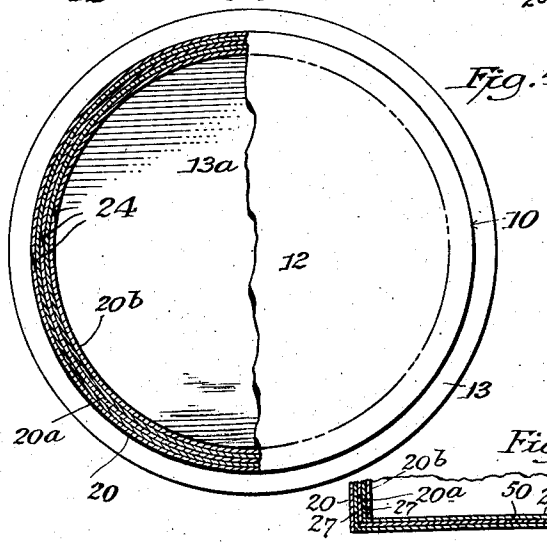


Fig. 5.

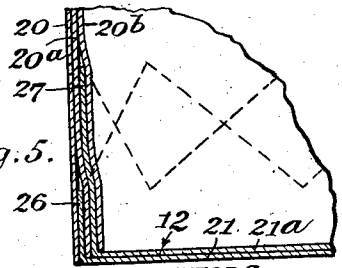
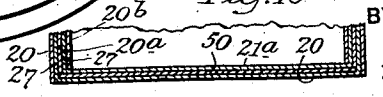


Fig. 10



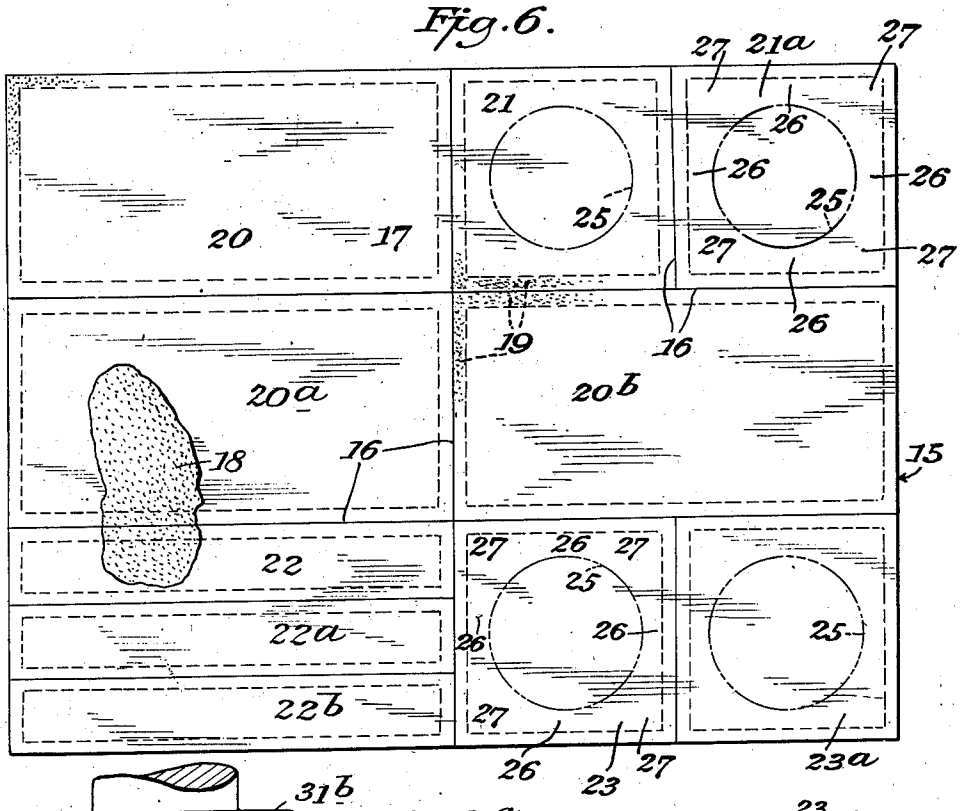
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their ATTORNEY.

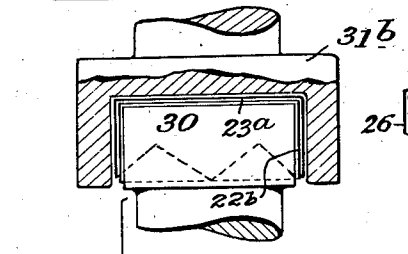
Jan. 7, 1936. R. J. HUTT ET AL 2,027,231

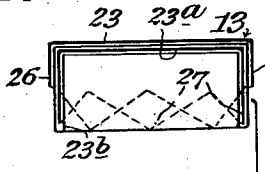
CONTAINER

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Fig. 6.







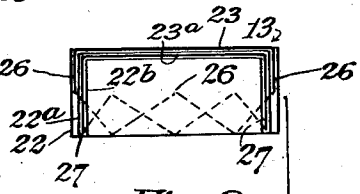
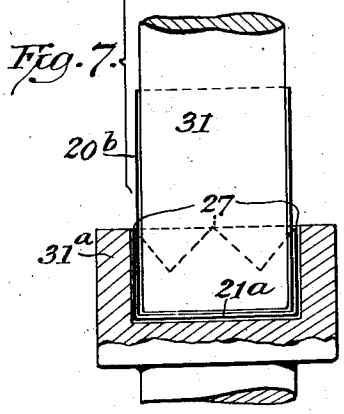
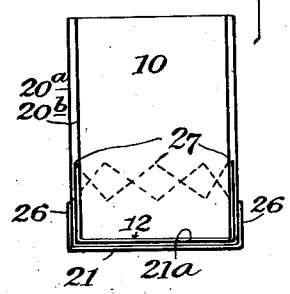


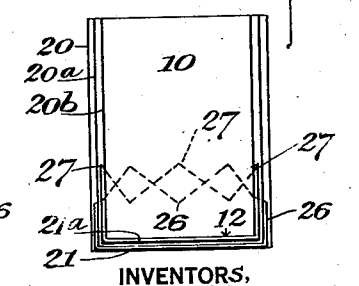
Fig. 8.

Fig. 9.

Fig. 7.







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UNITED STATES PATENT OFFICE

2,027,231

CONTAINER

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Brooklyn, N. Y.

Application January 21, 1933, Serial No. 652,802

5 Claims. (Cl. 229—5.5)

This invention relates to an improved article of manufacture, and the method of making the same from any appropriate sheet material, such as paper.

A principal feature being to build up a container structure with the aid of shapers or mandrels, from pieces of a pre-formed and scored sheet blank, appropriately divided into relative component parts for conjunctive assembly to form the bodies and covers of containers able to withstand a maximum service and of such low cost to encourage its use for heavy duty in an article of this type.

A principal object of the present invention is to provide a complete substantially fluid-proof container, including a body portion and a cover, each having means, in the walls thereof, for effectively reinforcing the structure to withstand the destructive action of fluids or other contents for an unusual length of time.

A further object is to provide a method for making reinforced containers for many purposes, including drinking cups, from pre-cut parts of a single rectangular sheet of material with absolutely no waste pieces of material remaining, thus resulting in high economy and super-strength in an article of the laminar type.

Suitable means, such as a powerful fluid-proof adhesive, may be employed to unite the built up parts in forming the container, drinking cup or the like; the adhesive being applied to advantageous or desirable areas on the several portions of a sheet blank at the time the cutting is done to prepare the parts for use, if desired, or said adhesive may be applied to an entire face of each of said parts or to an entire face of the said sheet blank, before the cutting operation.

For the sake of simplicity, there is shown and described a container of rounded or cylindrical conformation, in cross section, but, of course, various cross-sectional or general shapes may be adopted and no limitation is intended by the phraseology of the above statements of invention or in the following description in detail, with reference to the drawings, illustrating one form of the invention, which show the container as having vertical parallel side walls, but said container may be formed with flaring walls (not shown) to provide a drinking cup or other useful article of that general shape, or other practical shapes.

In the drawings illustrating one preferred form of our invention, Fig. 1 is a partial sectional side elevation of a container constructed according to what we now believe to be a good form of our invention, the walls being broken away to better disclose the conjoining of the parts but in exaggerated relative dimensions.

Fig. 2 is a partial horizontal section on the broken line 2—2 of Fig. 1.

Fig. 3 is a horizontal section taken on the broken line 3—3 of Fig. 1.

Fig. 4 is a partial horizontal section, taken on the broken line 4—4 of Fig. 1.

Fig. 5 is a fragmentary view taken on the line 5—5 of Fig. 1.

Fig. 6 is a face view of a paper or other sheet blank divided into pieces or portions providing the material from which the improved container is constructed by a method of sequential step operations.

Figs. 7, 8, and 9 are diagrammatic views showing, respectively, the first, second and third operative steps in the method of forming a container of the type described.

Fig. 10 is a fragmentary section showing an additional disk-piece between the layers 21 and 21*a*, of the bottom to reinforce the same.

Referring now to the drawings in detail, the improved container body 10, as in Fig. 1, comprises a cross-sectionally cylindrical side wall 11, a bottom 12, and a separate removable cover 13, having a top 13*a*; the cover being of a size to fit snugly around and over the mouth or open end 14, of the container.

Our method of building the improved container 10 consists in first supplying a sheet blank (Fig. 6) of proper size and contour so that no stock waste remains. This sheet blank 15, being divided or cut as at 16, into pieces or portions 17 to be assembled and united as hereinafter set forth:

In carrying out the invention, one face of the sheet blank may be entirely coated with a suitable adhesive as at 18, or the edges only of the pieces or portions 17, may have applied thereto lines of adhesive, as at 19.

In the present form, the identical portions 20, 20*a* and 20*b* may comprise, collectively, the laminated 3 ply side wall 11 of the container shown in Figs. 1 to 5 inclusive, and the identical parts 21 and 21*a* collectively may comprise the laminated 2 ply bottom 12 of the said container.

The identical portions or pieces 22, 22*a* and 22*b* of the sheet blank 15, may comprise in a general sense, the side wall 13*b* of the cover 13 of the container, and the identical parts or portions 23 and 23*a* of the sheet blank 15, may collectively comprise the top 13*a* of the cover 13, as hereinafter described.

The side walls or laminations are preferably provided with overlapping sealed joints as at **24** in Fig. 2 of the drawings, and in the hereinafter description no further joints will be referred to as it will be understood that the laminated walls of the container and its cover, when properly assembled, are subjected to high sealing pressure throughout to provide a hard, rigid reinforced structure, when dry.

The circular bending lines of the bottom poritons **21** and **21***a*, and the top of the cover portions **23** and **23***a*, are indicated at **25** on the sheet blank **15**, and outward of these circular bending lines are short and longer reinforcing portions **26** and **27**, which, in the assembling operation, are turned inwardly between the respective side walls of the container body and its cover to reinforce the corners, and the side walls for some distance from said corners, as clearly shown in Figs. 1 and 5 of the drawings.

By referring to Figs. 1 and 3 of the drawings, it will be seen that the short and longer reinforcing portions **26**, **27** of the top and bottom parts or layers, are placed in diametrically staggered relation, to lie at eight diametrically opposite points in the side walls, so that the reinforcement of said walls is extended further at eight equally spaced areas, and of course the shape and size of these longer reinforcing extensions may be varied if desired or required, or the reinforcements in the walls of the container and its cover may be of other forms.

The blank pieces for forming the bottom and top layers of the container are here shown as squares of sheet material, the corners of said squares and the narrower portions therebetween being turned upwardly or inwardly between the side walls to serve as the reinforcing extensions of said top and bottom pieces of the blank **15**, as will be evident.

Suitable mandrels or forms **30** and **31** may be supplied, on which the wall portions **22**, **22***a* and **22***b* and **20**, **20***a* and **20***b* may be rolled alternately with respect to the application and bending the reinforcing portions of the top layers **23** and **23***a* and the bottom layers **21** and **21***a* inwardly and against the side of each progressive wall portion or layer to be permanently interposed in the wall structures, as best shown in Fig. 1, of the drawings.

Briefly, with reference to Fig. 6, a body wall piece **20***b*, is rolled around the mandrel **31**; its ends overlapping and sealed as at **24** in Fig. 2, after which, a square bottom piece **21***a* is placed in proper position on the cylinder thus produced and is engaged by a suitable cupped die **31***a*, which turns the reinforcing portions **26—27** inwardly or upwardly into contact with the outer lower wall portions of the portion or piece **20***b*; a second wall piece **20***a* is then applied, rolled and sealed over the last described pieces, after which, a second bottom piece **21**, is applied by the cupped die **31***a*, and finally another wall piece **20** is rolled and sealed over the laminated wall and bottom described, thus providing a 3 ply wall and a 2 ply bottom in a container, and finally this structure may be hard pressed, with or without heat, making a hard, rigid body portion which will stand up under long hard service.

The cover **13** for the container body **10** is constructed in the same manner by using the mandrel **30** and a cupped die **31***b*, see Fig. 7.

Of course it will be understood that for high speed production, power driven means or mechanism may be employed for assembling, shaping and uniting the component parts of the laminar container and its cover, above described, and as shown in the accompanying drawings.

In the claims, the body and cover collectively will be termed "container", unless otherwise designated, and since the body and cover are constructed by the same method, a claim for forming the body only will be submitted.

In Fig. 10, of the drawings there is shown a disk-piece **50**, placed between the bottom layers **21** and **21***a* to reinforce the same, if required, and a similar disk-piece may also be located between the layers **23** and **23***a* for the purpose set forth.

What we claim is:—

1. A container comprising side and end walls of multiple sheet paper, the sheets of the side walls being one greater in number than the end walls; the sheets of the end walls having triangular reinforcing extensions interposed respectively between the inner sheet and the next outer sheet of the side wall and between the next outer sheet and outer sheet of the side wall of the structure, said reinforcing extensions being permanently fixed in cross wall staggered relation and in circumferential equidistant positions between said sheets.

2. A container comprising laminated side and end walls; the laminæ of the end walls each having four corner extensions interposed between the respective center and side laminæ of the side walls in alternate cross-wall and annular staggered relation to add strength to the said side wall.

3. A container comprising an odd number of side wall layers and an even number of end wall layers of sheet material; the end wall layers having prolonged corner portions interposed respectively in staggered relation between the side wall layers of the container at opposite sides of the center layer and within the other layers of said wall.

4. A container comprising a side wall of layers and end walls of layers, each layer of the end walls being provided with four diametrically opposite reinforcing corner portions extending from the end walls and interposed between the side wall layers of the container in respective staggered relation at opposite sides of the central layer of said side wall.

5. A container comprising a laminar side wall of three layers and laminar end walls of two layers, the layers of the end walls being provided with corner portion extensions interposed between the layers of the side wall in respective annular and cross-wall staggered relations.

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GEORGE A. HUTT.