

Nov. 26, 1935.

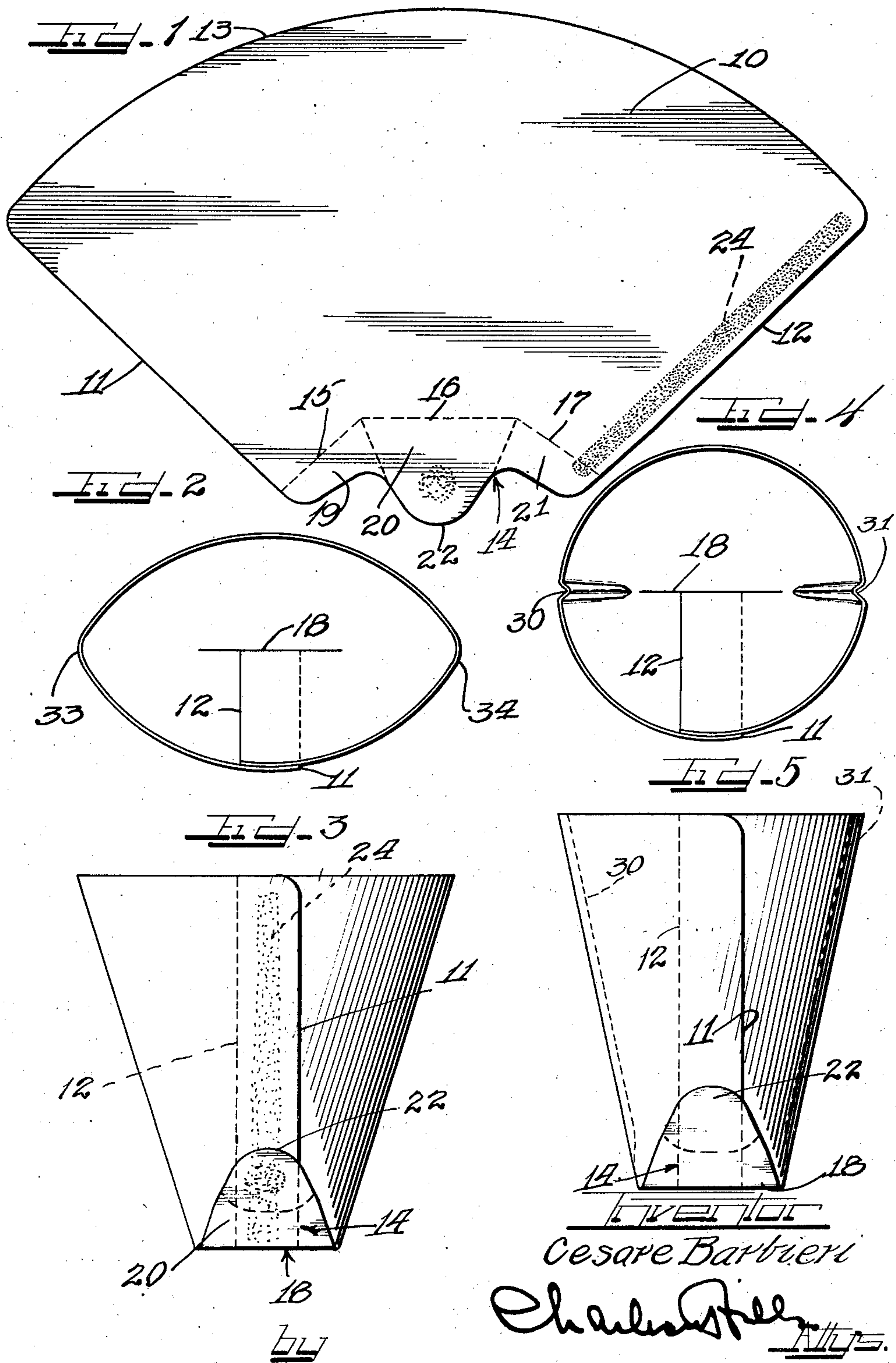
C. BARBIERI

2,022,177

CUP

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2 Sheets-Sheet 1



Nov. 26, 1935.

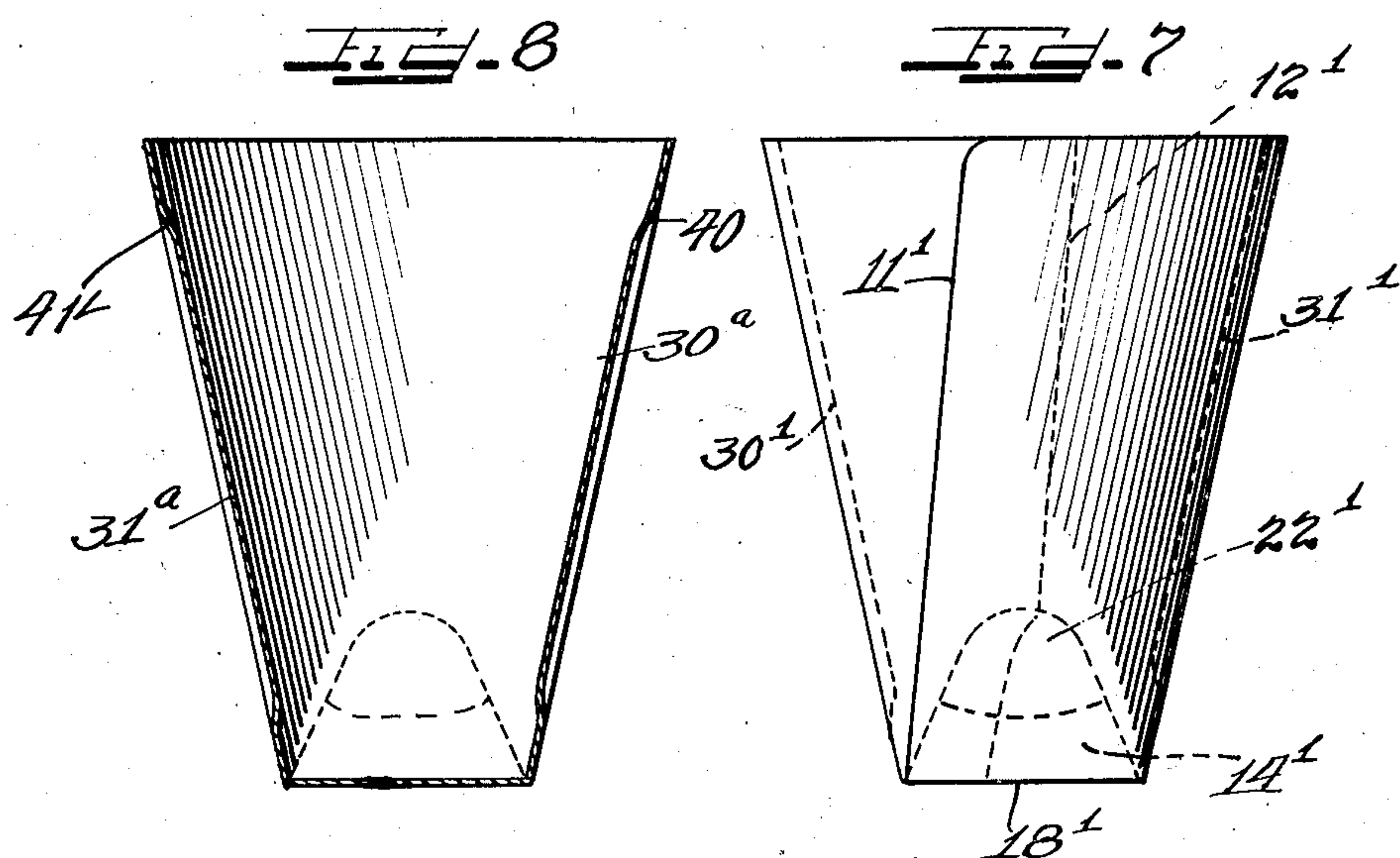
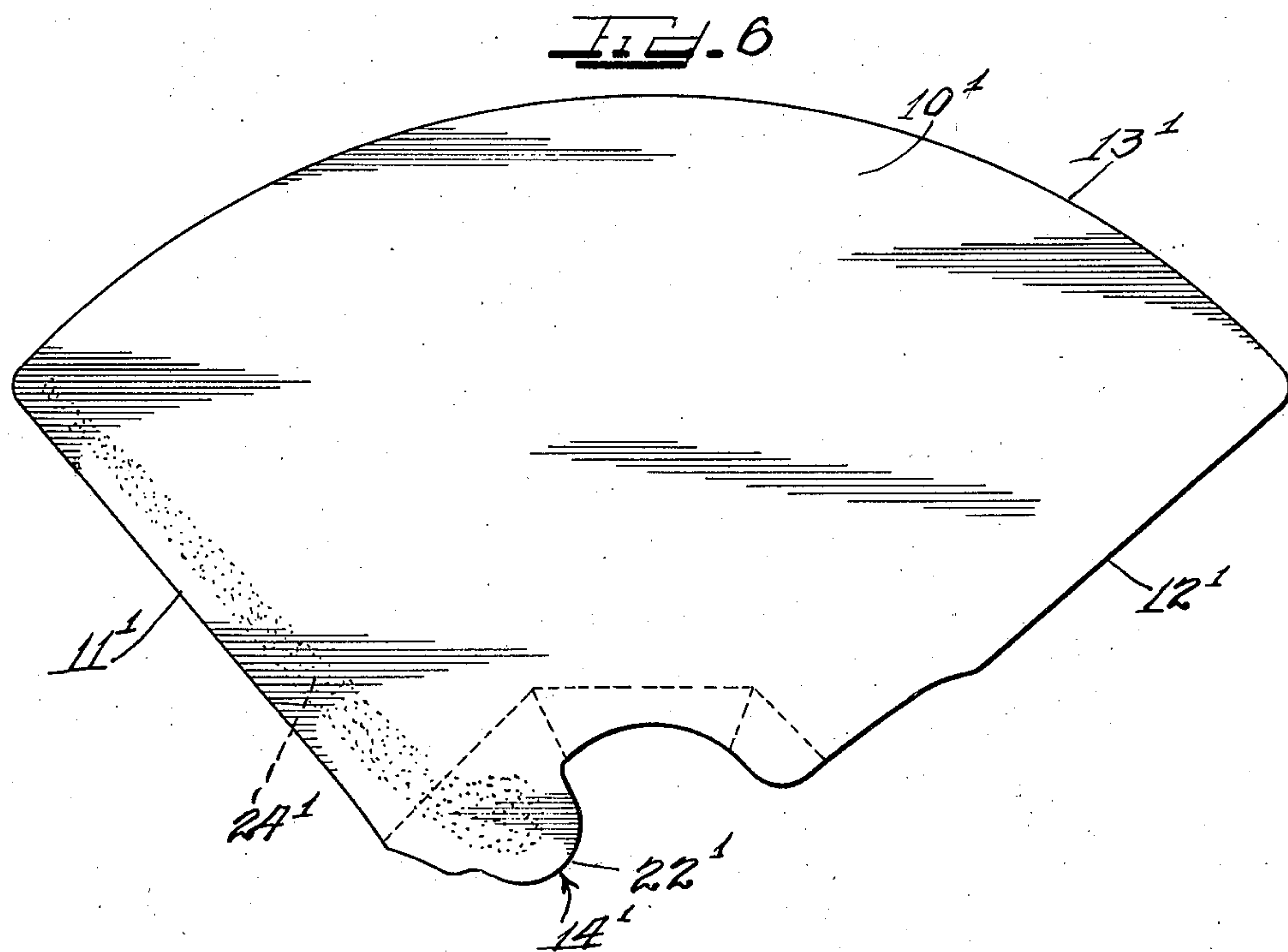
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2,022,177

CUP

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2 Sheets-Sheet 2



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by

UNITED STATES PATENT OFFICE

2,022,177

CUP

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7 Claims. (Cl. 229—1.5)

This invention relates to the art of paper receptacles, and more particularly to individual paper cups of the type disclosed in my United States Letters Patent No. 1,870,223, granted August 9, 1932.

An object of this invention is to provide an improved cup of the open or self-extended type which is better adapted to resist any tendency to collapse it during dispensing or use of the same.

Another object of the invention is to so improve a cup of the above-noted type that the open end of the cup is forced to assume a shape which more nearly approximates a circle.

A further object of the invention is to depress the wall of a cup in such a manner and at such points as to cause the cup to be better able to retain an open shape in condition for immediate use.

In accordance with the general features of this invention, there is provided a cup having a body portion adapted when in use to present a substantially rounded mouth and being of open form, tapering from its mouth in wedge-like shape to a tight bottom closure made by a straight edge transverse fold-up of the cup material secured to the body portion, the wall of the body portion having longitudinally extending inwardly depressed ribs for accomplishing the objects noted hereinabove.

Also, in accordance with the features of this invention, there are provided a number of modified forms of cups embodying features of the invention, in one form of which the rib-like depressions extend substantially the full length of the cup, whereas in the other form the rib-like depressions do not extend the full length of the cup but are disposed in an intermediate position between the top and bottom of the cup.

It is also the aim of this invention to provide an improved method of making a cup having the foregoing features. However, it is thought that my novel method will be fully understood from a description of a cup made as a result of the use of the method.

Other objects and features of this invention will more fully appear from the following detailed description taken in connection with the accompanying drawings, which illustrate several embodiments thereof, and in which

Figure 1 is a view of a paper blank from which my novel cup is made.

Figure 2 is a top view of a cup made from the blank shown in Figure 1.

Figure 3 is a side view of this cup.

Figure 4 is a top view of the same cup after

the cup has had opposite depressed ribs incorporated therein involving the features of this invention.

Figure 5 is a side view of the cup shown in Figure 4.

Figure 6 is a view of a modified blank from which a cup embodying this invention can also be constructed.

Figure 7 is a side view of a cup made from the blank shown in Figure 6, and having depressed ribs in accordance with the features of this invention.

Figure 8 is a vertical sectional view through a modified form of cup similar to that shown in Figure 5 but differing therefrom in that the longitudinal ribs do not extend the full length of the cup.

As shown on the drawings:

The reference character 10 designates generally a blank which may be made from paper or any other suitable material and from which a cup embodying the features of my invention is adapted to be constructed. This blank has converging side edges 11 and 12 which at their outer extremity terminates in a curved edge 13 adapted to define the rounded mouth of the cup. The inner extremities of the side edges 11 and 12 terminate in a fold-up portion designated generally by the reference character 14. This fold-up is adapted to be folded about transverse lines of fold indicated by dotted lines and designated by the reference numerals 15, 16 and 17. These lines merely indicate where the bottom portions of the cup or folded upon the main body of the cup to define the fold-up 14.

It will, of course, be appreciated that in the formation of the cup these lines of fold are superimposed upon each other. Of course, by reason of the angular relation of the lines of fold 15 and 17 to the line 16, the lines 15 and 17 will be directly over the line 16 when the blank is folded into a wedge-shaped cup. When thus folded, they will define a transverse straight-edge 18 (Figure 3) at the bottom of the cup. This edge 18 will be located at the line 16 (Figure 1).

The portions of the cup blank between the lines 15, 16 and 17 and the bottom extremity of the cup comprises in reality a plurality of superimposed layers in the resulting fold-up 14 shown in Figure 1. The portions of the cup which are adapted to be thus formed in superimposed layers are designated by the reference numerals 19, 20 and 21 in Figure 1. The exterior layer or portion 20 of the fold-up has an extension or adhesive tab 22. In other words, the layer or por-

tion 20 constitutes an exterior layer which is slightly longer than the underlying layers 19 and 21.

The side of the blank 10 at the edge 12 is provided with a strip of adhesive designated by the reference numeral 24. This marginal portion with the strip of adhesive thereon is adapted to be overlapped by the side portion of the blank adjacent the edge 11 and to be glued to that portion, as will be evident from Figure 3. Thereafter the fold-up 14 is turned upwardly about the line 16 and is glued to the side of the cup over the overlapped side edges by means of adhesive on the tab 22.

This results in the cup being provided with a water-tight straight edge transverse fold up at the bottom of the cup.

In the formation of the cup from the blank 10 the blank is rolled upon any suitable apparatus such, for example, as a mandrel, into the wedge-like form shown in Figures 2 and 3. In this form the cup has a rounded mouth and is creaseless. In other words it is of a self-extended open form tapering from its mouth in wedge-like form to the tight bottom closure made by the fold-up 14.

An object of this invention is to further strengthen the cup shown in Figures 1, 2 and 3 so that it is better able to resist collapsing and so that its open end is forced to assume a shape which more nearly approximates a circle. I accomplish the aim of the invention by providing the wall of the body portion of the cup with longitudinally extending inwardly depressed ribs 30 and 31 which, as will be evident from Figure 5, extend substantially the full length of the cup. That is to say, these depressions are formed in the cup as far down toward the bottom of the cup as the structure will permit without distorting or damaging the bottom closure. These depressions are diametrically opposite and are formed in the diametrically opposite narrow sides 33 and 34 of the cup shown in Figure 2. In Figure 2 it will be perceived that the cup has an elliptical cross-sectional shape. It is at the narrow sides 33 and 34 of this cup of elliptical cross-sectional shape that I form the depressions 30 and 31 shown in Figures 4 and 5.

These depressions may be formed by any suitable apparatus. I find that they may be incorporated in the cup by disposing the cup over a mandrel of proper cross-sectional shape and by thereafter running ribbing fingers over the edges 33 and 34 of the cup. In carrying out this operation the pressure on the sides or edges 33 and 34 of the cup presses these narrow end sides or edges inwardly so that the open end of the cup is caused to assume a shape which more nearly approximates that of a circle. In other words, the cup is opened to a still further extent so that it is in effect changed from a cup having an open end of an elliptical cross-section to a cup having an end of substantially a circular cross-section as shown in Figure 4.

In Figures 6 and 7 I have illustrated a modified form of the invention in which the principal difference resides in the change of the location of the adhesive tab 22' as well as the location of the strip of adhesive 24'. The cup in this form of the invention is made from a blank 10' having converging side edges 11' and 12' terminating at their outer ends in the curved edge 13' for defining the open end of the cup. The inner extremities of these side edges terminate in a fold-up 14' made up of three plies, the outer layer of which is longer than the other layers so as to

form an extension or tab 22'. This fold-up is folded about the transverse straight edge 18' as shown in Figure 7.

In this form of the invention the extension tab 22', instead of being formed in a central position with reference to the side edges, is formed adjacent one of the side edges 11' so as to in effect constitute an extension of that side of the blank. This enables a single strip of adhesive 24' to be applied in a substantially straight line along the 10 side edge 11' and also on the extension tab 22'.

After the cup has been formed into a self-extended wedge-like shape, the depressions 30' and 31' are formed therein in the same way as described in connection with the first form of the 15 invention.

In Figure 8 I have illustrated a modification of the first form of the invention in which the only difference resides in the fact that the ribs 30a and 31a do not extend substantially the full 20 length of the cup but terminate below the open end of the cup as indicated at 40 and 41. With this exception this form of the invention is like the form shown in Figure 5.

I am aware that many changes may be made 25 and numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I, therefore, do not purpose limiting the patent granted hereon otherwise than necessitated by the prior art. 30

I claim as my invention:

1. A cup having a body portion adapted when in use to present a substantially rounded mouth and being of open form tapering from its mouth in wedge-like form to a tight bottom closure made 35 by a straight edge transverse fold-up of the cup material secured to the body portion, said cup having substantially a non-circular cross-sectional shape below its rounded mouth, the wall of said body portion having longitudinally extending inwardly depressed ribs for aiding in resisting collapsing or distortion of the cup one of said ribs being located at one narrow side of the wedge-like cup and the other at the opposite narrow side. 40 45

2. A cup having a body portion adapted when in use to present a substantially rounded mouth and being of self-extended open form tapering from its mouth in wedge-like form to a tight bottom closure made by a straight edge transverse 50 fold-up of the cup material secured to the body portion, the line of fold of said fold-up being of sufficient length to enable substantially the entire body portion to assume an elliptical cross-sectional shape, the wall of said body portion 55 having longitudinally extending inwardly depressed ribs for aiding in resisting collapsing or distortion of the cup, said ribs being diametrically opposite each other and converging toward the straight edge fold-up and to act as a stiffening 60 medium for causing the open end of the cup to assume and maintain a shape which more nearly approximates a circle.

3. A cup having a body portion adapted when in use to present a substantially rounded mouth 65 and being of self-extended open form tapering from its mouth in wedge-like form to a tight bottom closure made by a straight edge transverse fold-up of the cup material secured to the body portion, the line of fold of said fold-up being 70 of sufficient length to enable substantially the entire body portion to assume an elliptical cross-sectional shape, the wall of said body portion having longitudinally extending inwardly depressed ribs one being located at one narrow side 75

of the wedge-like cup and the other at the opposite narrow side whereby the open end of said cup is forced to assume a shape more nearly approximating a circle.

5 4. A cup having a body portion adapted when in use to present a substantially rounded mouth and being of self-extended open form tapering from its mouth in wedge-like form to a tight bottom closure made by a straight edge transverse fold-up of the cup material secured to the body 10 portion, the line of fold of said fold-up being of sufficient length to enable substantially the entire body portion to assume an elliptical cross-sectional shape, said fold-up comprising a plurality of superimposed layers of material and an exterior layer slightly longer than the others so as to project beyond the underlying layers, the fold-up being turned upwardly about transverse lines of fold in said layers of material, the wall 15 of said body portion having longitudinally extending inwardly depressed ribs, one being located at one narrow side of the wedge-like cup and the other at the opposite narrow side.

25 5. A cup having a body portion adapted when in use to present a substantially rounded mouth and being of self-extended open form tapering from its mouth in wedge-like form to a tight bottom closure made by a straight edge transverse fold-up of the cup material secured to the body 30 portion, the line of fold of said fold-up being of sufficient length to enable substantially the entire body portion to assume an elliptical cross-sectional shape, the wall of said body portion having longitudinally extending inwardly depressed ribs, one being located at one narrow 35 side of the wedge-like cup and the other at the opposite narrow side, whereby the open end of said cup is forced to assume a shape which more

nearly approximates a circle, said ribs each having its ends terminating short of the open end and the fold-up end of the cup.

6. A cup having a body portion adapted when in use to present a substantially rounded mouth 5 and being of self-extended open form tapering from its mouth in wedge-like form to a tight bottom closure made by a straight edge transverse fold-up of the cup material secured to the body portion, the line of fold of said fold-up being 10 of sufficient length to enable substantially the entire body portion to assume an open non-circular cross-sectional shape, the wall of said body portion having depressed portions therein for aiding in resisting collapsing of the cup and 15 which depressed portions exert a transverse inward force for causing the open end of the cup to assume and maintain a shape which more nearly approximates a circle.

7. A cup having a body portion adapted when 20 in use to present a substantially rounded mouth and being of self-extended open form tapering from its mouth in wedge-like form to a tight bottom closure made by a straight edge transverse fold-up of the cup material secured to the body 25 portion, the line of fold of said fold-up being of sufficient length to enable substantially the entire body portion to assume an open non-circular cross-sectional shape, the wall of said body portion having depressed portions therein 30 for aiding in resisting collapsing of the cup, said depressions being diametrically opposite each other in portions of the cup wall which are slightly pressed inwardly by the forming of such depressions whereby the open end of the cup is 35 forced to assume a shape which more nearly approximates a circle.

CESARE BARBIERI.