Aug. 16, 1960 C. T. BREWER 2,949,216

BLANK FOR TRUNCATED CONICAL CUPS

Filed Sept. 30, 1958

Fig. 3.

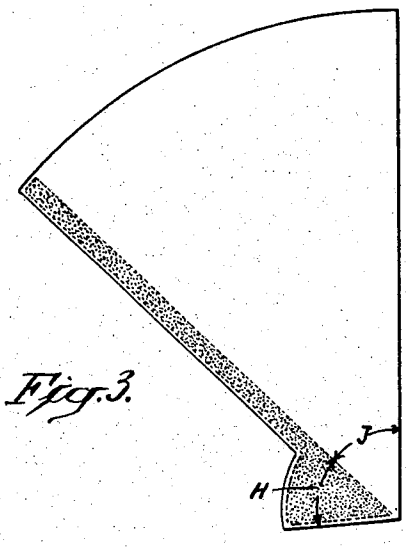


Fig. 4.

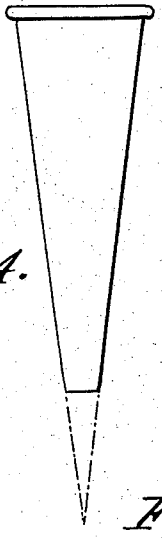


Fig. 6.

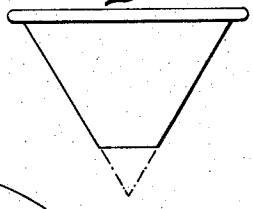


Fig. 5.

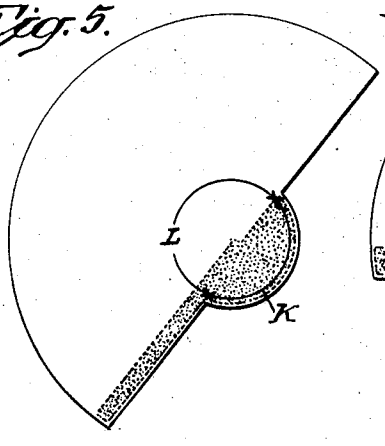


Fig. 1.

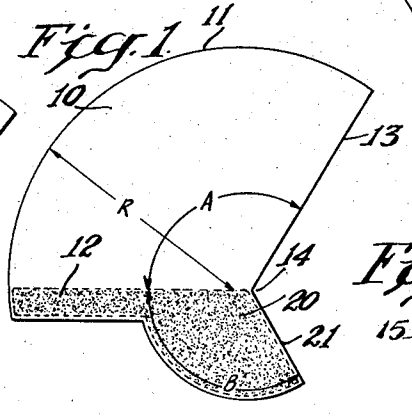
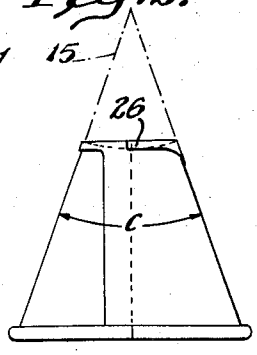


Fig. 2.



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BLANK FOR TRUNCATED CONICAL CUPS

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3 Claims. (Cl. 229—1.5)

This invention relates to paper cups and particularly to conical paper cups.

Such cups as commonly manufactured and used have sharp pointed ends. Attempts have been made to blunt or round the ends but such blunted or rounded ends have not been entirely satisfactory since the compressed ends or folds or creases therein tend to sag and open up and to leak due to the weight of the liquid in the cup. Furthermore, the paper, when compressed or creased, tends to crack and leak.

In order to have a strong, substantial, and smooth truncated or blunted bottom on a conical cup, it is desirable that the apex portion of the cup or the area of the cup wall to be truncated be formed of a plurality of layers of paper and have a substantially uniform double or multiple thickness.

This invention has for its salient object to provide a blank so designed that when it is folded into a conical cup the apex portion of the cup to be blunted or truncated will have a substantially uniform thickness throughout.

Another object of the invention is to provide a blank so designed that it will provide a multi-layer apex portion in the cup and can be cut from a web of paper with a minimum amount of waste.

Another object of the invention is to provide a blank design that is equally adaptable to a wide range of cone angles in a conical cup.

Another object of the invention is to provide a blank for truncated conical paper cups so designed as to have a substantially uniform double thickness wall at the apex portion of the cup to be truncated.

Another object of the invention is to provide a conical cup blank for a truncated conical cup in which the area to be truncated and compressed will be of substantially uniform strength before and after it is truncated.

Another object of the invention is to provide a blank for a truncated conical cup so formed that the apex arrangement of the blank when the blank is folded into a conical cup will have uniform foldability.

Another object of the invention is to provide a blank for a conical cup so constituted that when folded into a conical cup the cup shell will have compressive strength properties so that when placed on a truncated anvil and pressure is applied to the apex by a punch, successive, even, folds are formed as the punch progresses toward the cup mouth.

Further objects of the invention will appear from the following specification taken in connection with the drawings which form a part of this application, and in which

Fig. 1 is a plan view of a blank embodying the invention for forming a multiple thickness blank;

Fig. 2 is a side elevation of a conical cup formed from the blank shown in Fig. 1;

Fig. 3 is a plan view of a different size of blank embodying the invention;

Fig. 4 is an elevational view of the cup formed from the blank shown in Fig. 7, the cup having a 15° cone angle; and

Figs. 5 and 6 show respectively the blank, in plan, and an elevation of the cup having a 60° cone angle.

In the embodiment of the invention illustrated in Fig. 1, there is shown a blank **10** having an arcuate edge **11** and two substantially straight edges **12** and **13** which intersect at a point **14** and at their outer ends extend to the ends of the arcuate edge **11**.

The blank **10** constitutes a circular sector and the angle between the edges **12** and **13** is designated A. Beyond the edge **12** there is provided an adhesive extension.

The blank is so designed as to provide a substantially uniform double thickness of material at the apex portion **15** of the concial cup formed from the blank and illustrated in Fig. 2. In order to form the second layer of material at the apex portion of the cup, the blank has formed thereon an arcuate or sector-shaped extension **20** which extends beyond the edge **12**, adjacent the adhesive extension and the apex point **14** and the angle B between the edge **12** and the outer edge **21** of the sector-shaped extension or tab **20** is substantially equal to the angle A of the circular sector forming the main portion of the blank. The radius R of the sector **20** will depend on the cone angle C of the conical cup **25** and the diameter of the truncated bottom **26** which is formed by compressing the apex portion of the cup between a suitably formed punch and anvil.

The adhesive area in the blank **10** is indicated by stippling on Fig. 1.

Fig. 2, as above stated, shows the cup formed from the blank shown in Fig. 1. In this figure, the apex portion **15** is truncated to form the truncated bottom **26** and since the portion **15** consists of two layers of material, the truncated bottom **26** will also have two layers or a double thickness of folds or pleats.

It should be understood, however, that the invention is not limited to this particular size of cone angle.

For example, Figs. 3 and 4 show a blank for making a cup and the cup made from the blank. This cup has a tab angle H which equals the angle J.

Fig. 5 shows a blank for making a 60° angle blank and the tab angle K equals the angle L, and Fig. 6 shows a conical cup formed from the blank shown in Fig. 5.

Although certain specific embodiments of the invention have been particularly shown and described, it will be understood that the invention is capable of modification and that changes in the construction and in the arrangement of the various cooperating parts may be made without departing from the spirit or scope of the invention, as expressed in the following claims.

What I claim is:

1. A blank for forming a truncated, conical paper cup having a circular sector for forming the conical cup wall, said sector having an arcuate, convex outer edge for forming the open mouth edge of the cup and having two straight edges meeting at their inner ends to form the cup apex, an adhesive extension on one edge, and an additional arcuate sector adjacent the cup apex and said extension, said additional sector having substantially the same angular extent as the angle between the straight edges of the first named sector.

2. A blank for forming a truncated, conical paper cup having a circular sector for forming the conical cup wall, said sector having an arcuate, convex outer edge for forming the open mouth edge of the cup and having two edges converging to form the cup apex, an adhesive extension on one edge, one of said edges having an additional arcuate sector adjacent the cup apex and said ex-

tension, said additional sector having substantially the same angular extent as the angle between the converging edges of the first named sector.

3. A blank for forming a truncated, conical paper cup having a circular sector for forming the conical cup wall, said sector having an arcuate, convex outer edge for forming the open mouth edge of the cup and having two straight edges meeting at their inner ends to form the cup apex, an adhesive extension on one edge, an additional arcuate sector adjacent said extension and the cup apex, said additional sector having substantially the same angular extent as the angle between the straight edges of the first named sector, and said blank being semi-circular in plan view with the additional sector having equal portions thereof extending at opposite sides of the apex of the cup.

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