May 28, 1929. C. BARBIERI 1,715,025

PAPER CUP

Filed July 7, 1927

Fig. 2

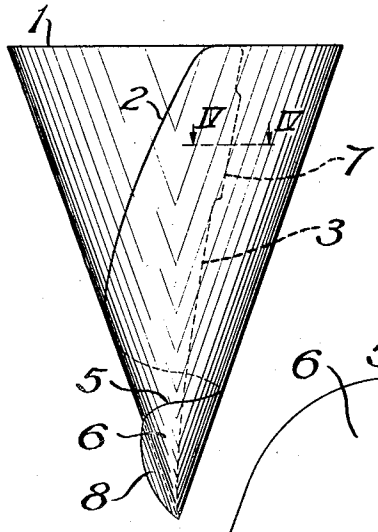


Fig. 3

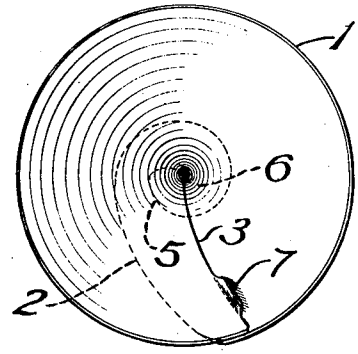


Fig. 1

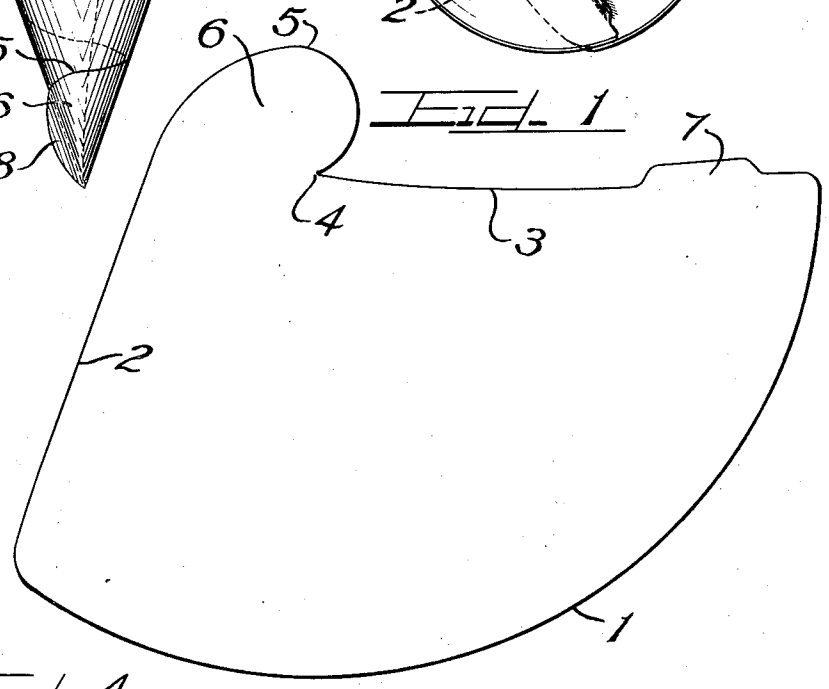
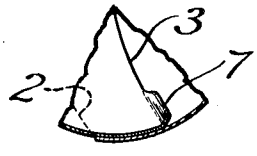


Fig. 4



Inventor

Cesare Barbieri

Charles G. Wells

by Attys.

Patented May 28, 1929. 1,715,025

UNITED STATES PATENT OFFICE.

CESARE BARBIERI, OF NEW YORK, N. Y., ASSIGNOR TO THE VORTEX MFG. CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

PAPER CUP.

Application filed July 7, 1927. Serial No. 203,924.

This invention relates to improvements in blanks for paper cups and more particularly to a cup blank or form designed to afford a considerable saving of material over what has been required to produce conical cups of a similar size from blanks used heretofore, said improved blank, furthermore, including in its design a suitable gripping extension to facilitate holding of the blank during the formation thereof into a conical cup upon a conical formed mandrel.

It is an object of this invention to provide an improved cup blank designed to effect a considerable saving of material over blanks heretofore used for forming conical cups of a size equal to that resulting from the use of an improved blank.

It is also an object of this invention to provide a conical cup blank having a plurality of projections adapted when the blank is formed into a conical cup to be positioned on the exterior and interior of said cup to permit a plurality of such cups to be stacked in nested relation without any danger of said cups adhering to one another.

It is a further object of this invention to provide a conical cup blank having integrally formed on one of the margins thereof a projection or tab adapted to be engaged by a gripper carried by a forming mandrel to hold the blank in position during the forming thereof around said mandrel without interfering with the application of an adhesived margin or portion of the blank to the body portion of the cup being formed.

It is furthermore an object of this invention to provide an improved conical cup blank one margin of which is provided with a plurality of extensions or tabs one of which is adapted to be engaged by a gripper carried by a mandrel to hold the cup blank in position during the forming of the cup blank around the mandrel, permitting the second extension or tab to be coiled around the apex of the cup to reinforce the same, said tabs or extensions being positioned on the inside and outside of the formed cup to space the body of the cup from similar cups of a nested stack to obviate any danger of said cups becoming atached to one another.

Still another object of this invention is to provide a cup blank provided with an extension or tab to permit the cup blank to be conveniently held during the formation thereof and, furthermore, affording a projection on the interior of the cup whereby a similar cup when disposed in a formed cup may be held in spaced relation therefrom to prevent said interfitting cups from nesting so closely to one another, thereby facilitating convenient separation of said cups.

It is an important object of this invention to provide an improved conical cup blank designed to effect a substantial saving of material by providing a gripping extension to facilitate forming of the cup into a conical form requiring an adhesived portion of reduced size to form a substantially narrow overlapped margin for the body of the cup.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

This invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is a developed plan view of an improved conical cup blank embodying the principles of this invention.

Figure 2 is a front elevation of the blank formed into a conical cup.

Figure 3 is a top plan view of the formed cup.

Figure 4 is fragmentary detail sectional view taken on line IV—IV of Figure 2.

As shown on the drawings:

The improved conical cup blank is of substantially quadrantal form having an arcuate edge 1 which forms the mouth of the cup when completed. The cup blank, furthermore, is bounded by a substantially straight edge 2 and a slightly curved edge 3 one end of which connects up with the arcuate edge 1 while the inner end is connected at a point 4 with one end of the curved edge 5 forming an extension or tab 6. The other end of the curved edge 5 merges into one end of the straight edge 2. The slightly curved edge 3 of the cup blank is provided near its outer end with an integral extending flange, tab, or lip 7. One surface of the extension 6 and one side of the margin of the cup blank adjacent the straight edge 2 is adapted to be provided with a layer or patch of a cementitious material the edge of which stops short of the edges 2 and 5 of the cup blank in a manner similar to that illus-

trated and described in my earlier Patent No. 1,610,192, dated December 7, 1926, covering a "conical paper cup and process for making the same."

The improved cup blank has been designed to effect a substantial saving in material by reducing the width of the overlapping margins of the cup when formed. This is made possible by providing the extending flange or rib 7 on the slightly curved edge 3 of the cup blank for the purpose of permitting a gripper mounted within a recess in the periphery of a conical forming cone or mandrel to engage said flange and slightly deflect the same into said recess during the time the mandrel is rotated to wrap the cup blank therearound until the adhesived portion overlaps to a limited degree the outer face of the margin of the blank adjacent the slightly curved edge 3 and until extension 6 is wrapped around the apex of the body portion of the formed cup and is pressed thereon by means of a pressing cone or mandrel positioned to coact with the forming cone.

The provision of the flange or lip 7 not only affords a convenient arrangement whereby a gripper may engage a cup blank to permit forming of the same into a cup, but, furthermore, obviates the necessity of having a gripper engage a margin or portion of the cup blank proper, as has been done heretofore, thereby interfering with the efficient forming of the cup blank, making it necessary to provide a substantially wide overlapping of the margins of the cup to insure adhesion between said overlapped portions of the cup to properly hold the same in shape. With the provision of the extra extension, flange, or lip 7 the amount of material forming a cup blank to produce a cup blank of a predetermined capacity has been materially reduced, this saving being effected adjacent the margins 2 and 3 and around the curved margin 5 of the extension 6. The provision of the extra flange 7 while affording a means adapted to be engaged by a gripper also permits the cementitious material to be applied in the form of a patch adjacent the edge 2 and on the extension 6 so that in the forming of a blank into a conical cup on the forming mandrel the outer margin 2 of the cup overlaps the inner margin 3 an amount substantially less than has heretofore been the custom in forming conical paper cups. Since the gripper mounted within the recess of the forming cone does not interfere with the operation of the presser cone, said presser cone may act on the cup blank to press the adhesived margin of the blank into engagement with the cup body and also cause the adhesived extension 6 to be coiled around the apex of the body of the cup, as illustrated in Figures 2 and 3.

After the forming of the cup, as described, the cone is moved out of coacting relation with the forming cone and the gripper is released from engagement with the slightly deflected flange 7 so that the formed conical paper cup may be removed. The adhesive having been applied to within a short distance of the edge 5 of the extension 6 a portion 8 of said extension is left substantially free and is permitted to spring a slight distance away from the apex or lower portion of the cup to act as a cushioning lip 8 when a formed cup is inserted or nested in a similar cup to hold said cups slightly separated one from the other. The flange 7 provided on the edge 3 of the cup blank in addition to affording a gripping flange to be engaged by a gripper during the formation of the cup also affords a cushioning lip which is slightly separated or sprung inwardly away from the inner surface of the cup, as clearly illustrated in Figure 3, to space the inner face of one cup from the outer face of another cup nested therein. It will thus be noted that the improved cup resulting from the improved cup blank is provided with a cushioning lip on the exterior and one on the interior of the cup to hold the cups when associated in nested stacked relation slightly separated from one another so that they will not stick together, but will afford an arrangement permitting convenient individual separation of the cups when desired.

The amount of material at the overlapping portions of the cup is permitted to be reduced for the reason that a solid patch of cementitious material may be applied to a selected portion of the cup blank since no provision has to be made to permit the accommodation of grippers at the adhesived portion of the cup blank, as has been necessary heretofore, since the improved blank of this invention is provided with a separate tab or extension in the form of the flange 7 along the edge or margin 3 of the cup blank which, as shown in Figure 3, is positioned within the cup when formed, leaving the margins 2 and 5 to be properly acted upon by the pressing roller without any interference from the gripper mechanisms used for holding the blank in position upon the forming cone during a forming operation of a cup.

I am aware that many changes may be made, 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.

I claim as my invention:

1. A blank for paper cups haing an arcuate and two converging edges, a projection between and connecting said converging edges, and an extension integrally formed on one of said converging edges and spaced

from said projection to facilitate forming of said blank into a conical cup.

2. A cup blank of substantially quadrantal form having an arcuate edge, a substantially straight edge, and a slightly curved edge, with said slightly curved edge having a plurality of spaced extensions integral therewith.

3. A paper cup blank bounded by an arcuate edge and a pair of converging edges, with one of said converging edges having an extension integrally formed thereon to afford a cushioning lip on the interior of the cup when the blank has been formed into a cup.

4. A cup blank comprising a substantially quadrantal form having a plurality of separated extensions integrally formed on one edge thereof adapted to be positioned to afford cushioning means on the interior and on the exterior of a cup formed from said blank.

5. A conical paper cup having convolutions, an outwardly springing projection adjacent the point thereof, and an inwardly springing projection within the cup to hold cups of said type when nested resiliently spaced apart.

6. A paper cup comprising a conical body section having resilient means projecting from the exterior and the interior surfaces thereof to afford cushioning means between adjacently disposed nested cups to hold the same slightly separated one from the other.

7. The combination with a cup blank, of a plurality of extensions formed along one edge thereof adapted to afford exterior and interior cushioning means for a cup when formed from said blank.

8. The combination with a paper cup, of cushioning means therein projecting beyond the seam of the cup to hold another cup when nested therein slightly spaced therefrom.

9. A conical cup blank comprising a quadrantal body having an arcuate edge, a pair of converging edges, an extension integral with said body and connecting said converging edges, and a flange integrally formed on one of said converging edges remote from said extension.

10. A cup blank comprising a body section having an arcuate edge and a pair of converging edges, and an extension on one of said converging edges near said arcuate edge to afford a means for engaging the blank to facilitate formation thereof into a conical cup.

In testimony whereof I have hereunto subscribed my name at Chicago, Cook County, Illinois.

CESARE BARBIERI.