Dec. 20, 1932. A. BODOR 1,891,866

SPINNER FOR PAPER CONTAINERS

Original Filed Sept. 26, 1929

Fig. 1.

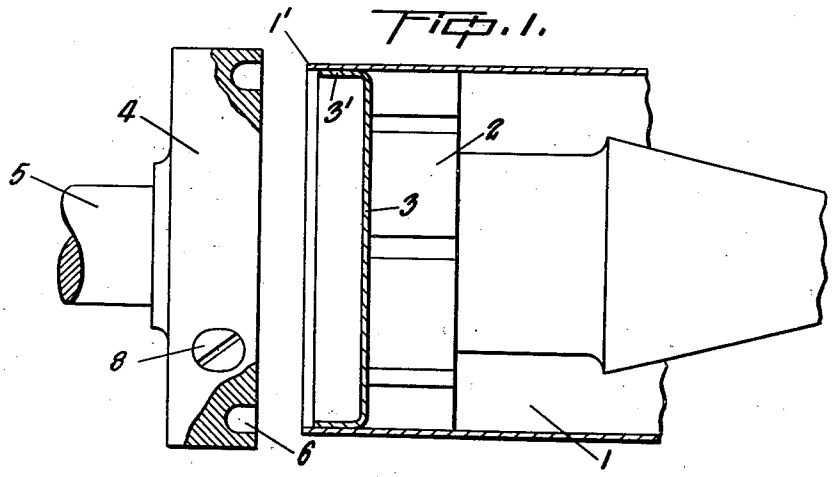


Fig. 2.

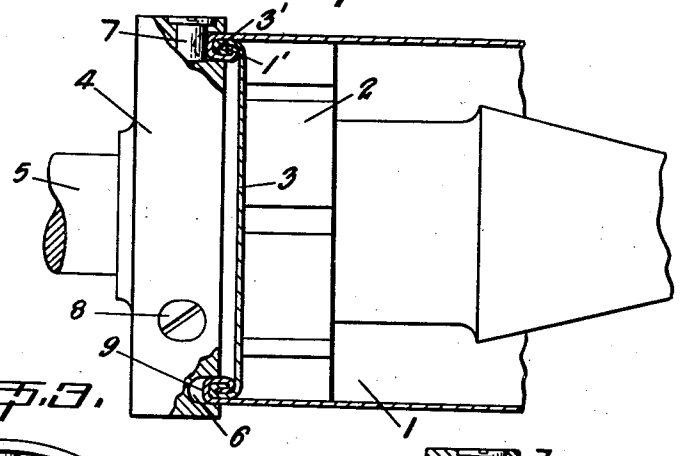


Fig. 3.

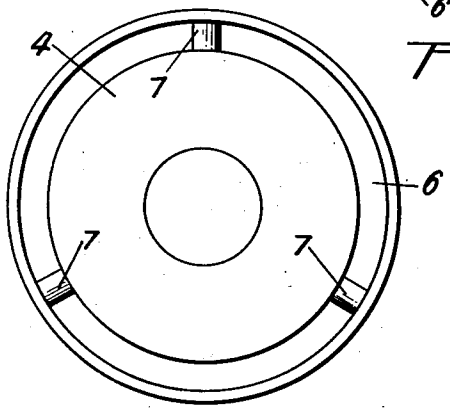
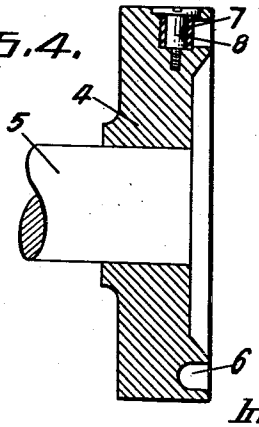


Fig. 4.



Inventor
Andrew Bodor
By Arthur Hanghey & Co
Attys.

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UNITED STATES PATENT OFFICE

ANDREW BODOR, OF NEWARK, NEW JERSEY, ASSIGNOR TO REINFORCED PAPER BOTTLE CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE

SPINNER FOR PAPER CONTAINERS

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My invention relates to improvements in the method of spinning and the spinner itself for forming the crimped rim at the bottom of a bottle or container made of paper, and the object of the invention is to devise a very simple, accurate and reliable method and spinner which will effectually turn the flange or bead of both the bottom and the bottom edge of the container and interlock the same in such a manner as to produce the maximum of strength fully capable of resisting any pressure to which it may be subjected due to the handling of the bottle.

My invention consists of the method hereinafter described and the spinner used to carry out such method coacting preferably with a collapsible mandrel, the spinner being provided with a face groove near its periphery and rollers suitably formed and journalled and set in the disc and at the base of the groove, such rollers being preferably spaced at equal distances apart and being of any desired number, all the parts coacting and being constructed and arranged as hereinafter more particularly described and illustrated in the accompanying drawing.

Figure 1 is a longitudinal section through the spinner and collapsible mandrel showing the position of the bottom end of the bottle in relation to the spinner previously to its being forced into the groove to form up the crimped rim at the bottom of the bottle or container.

Fig. 2 is a similar view showing the final position of the bottom edge of the bottle and flange of the bottom as finally upset and turned up interiorly.

Fig. 3 is a face view of the spinner, and

Fig. 4 is a longitudinal section of the spinner itself.

In the drawings like characters of reference indicate corresponding parts in the different views.

In the formation of bottles or containers made of paper, particularly designed for milk, it has always been difficult to make the bottom edge of the bottom and its connection to the bottom edge of the body sufficiently strong to meet the necessary resistance and prevent collapsing. Heretofore, the flange of the bottom has been inserted and held in a double inturned flange at the bottom edge of the paper container, where such container has been made of paper sheets. It has been found that this type of bottom edge or flange is not sufficiently strong and that it is necessary to provide for a double reinforcement or crimped rim.

After considerable experiment I have found it necessary not only to devise a method whereby the reinforced bottom edge or crimped rim may be successfully formed up but also a particular type of spinner to effect this method.

1 is the body of the container which may be formed of one or more layers of paper wrapped upon each other in cylindrical form. In the drawing I show merely the bottom portion of the container and such bottom portion is supported on a suitable collapsible mandrel 2 which may be of any approved construction the particular requisite of which is to hold the bottom 3 rigidly in position in proximity to the bottom edge 1′ of the container. The bottom 3 has an outwardly extending flange 3′ and it is the outer edge of this flange which is secured in such a position as to leave a marginal annular space between the extreme edge 1′ and the extreme edge of the flange 3′. This marginal space is necessary in order that its greater flexibility will permit of the combined edges being curled with facility as shown in Fig. 2, as will hereinafter appear.

4 is the spinner proper which is suitably secured on an arbor 5. The spinner 4 is in the shape of a disc and has formed in its face opposite the collapsible mandrel an annular groove 6 the outside edge of which is of a periphery substantially corresponding to the outer periphery of the container. The inside peripheral edge is of such a diameter as will make the width of the groove of the right dimension to determine the thickness of the reinforced bottom edge or crimped rim of the container. 7 are rollers which are set radially into the disc 4 being journalled on pins 8 held in suitable sockets in the disc. The rollers 7 extend across the annular groove 6 near the bottom or base thereof and are inclined

backwardly from the outer peripheral face of the groove 6 so as to practically form a bevel. In the drawing I show three rollers 7 and their corresponding parts but it will of course be understood that I may use any desired number.

Having now described the principal parts involved in my invention I shall describe the method whereby the crimped rim is formed or spun.

The collapsible mandrel and container thereon as well as the spinner are given the requisite relative rotation, the spinner at the same time being forced up against the bottom of the container so that the edge 1′ is forced into the groove and against the rollers 7 which being set on a bevel as hereinbefore described turn the weak marginal edge inwardly so that it follows the groove by which it is confined and serves likewise to cause the bottom edge of fiange 3′ to correspondingly curl till it reaches the condition shown in Fig. 2 in which one curled edge is curled up within the other as clearly indicated in this figure, and a flat bottom face 9 is produced. This bottom edge or face makes a very stable support for the bottom of the container or bottle.

Although I describe the rollers 7 as being inclinedly set it will be understood that they might be formed of a different shape to accomplish the end desired.

Again, although I describe a mandrel supporting the bottom 3 in position in the container it will likewise be understood that such bottom might be supported by other means such as by air pressure. In short, the parts and their precise construction and location may be varied depending upon the type of rim it is desired to produce without departing from the spirit of my invention.

What I claim as my invention is:

1. The hereindescribed means of forming a crimped rim at the bottom cylindrical end of a container and the flanged bottom thereof comprising means for holding the bottom with the flange thereof adjacent the bottom edge of the container securely in position, means for positioning the container, a spinner comprising a disc having a face groove into which the bottom edge of the container and the flange of the bottom are designed to be brought, means for rotating the disc, and means situated within and located at the base of and cooperating with the sides of the groove whereby the bottom edge of the container and the bottom edge of the flange of the bottom are given an inward turn and formed up or spun to produce a crimped rim.

2. The hereindescribed means of forming a crimped rim at the bottom cylindrical end of a cointainer and the flanged bottom thereof comprising means for holding the bottom with the flange thereof adjacent the bottom edge of the container securely in position, means for positioning the container, a spinner comprising a disc having a face groove into which the bottom edge of the container and the flange of the bottom are designed to be brought, means for rotating the disc, and rollers situated at the base of the groove and so formed and confined within the groove and operating in connection therewith whereby the bottom edge of the container and the bottom edge of the flange of the bottom are given an inward turn and formed up or spun to produce a crimped rim.

3. The hereindescribed means of forming a crimped rim at the bottom cylindrical end of a container and the flanged bottom thereof comprising means for holding the bottom with the flange thereof adjacent the bottom edge of the container securely in position, means for positioning the container, a spinner comprising a disc having a face groove into which the bottom edge of the container and the flange of the bottom are designed to be brought, means for rotating the disc, and rollers extending into the groove beyond the inner face thereof suitably journalled and inclined backwardly from the outer peripheral face to the inner peripheral face of the groove.

4. A spinner for forming up the crimped rim of a paper container comprising a disc having a face groove into which the bottom edge of the container and flange of the bottom are designed to be brought, and rollers extending into the face groove beyond the bottom edge thereof radially arranged and journalled on pins and inclined backwardly from the outer peripheral face of the groove to the inner peripheral face.

5. A method of forming up the bottom edge of a rim of a cylindrical container, consisting in inserting the flanged bottom into the bottom end of the container so that the flange of the bottom lies adjacent to but clearly within the bottom edge of the container so as to form a weak projecting circumferential edge and double flange then exerting a gradually increasing rotating pressure on such weak edge of the bottom edge of the container and at the same time circumferentially confining and spinning the weak and the double flanges successively so as to cause them to curl one within the other.

ANDREW BODOR.