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H. CAREW

2,610,492

HOLDER FOR PAPER CUPS

Filed Aug. 26, 1947

2 SHEETS—SHEET 1

Fig. 2

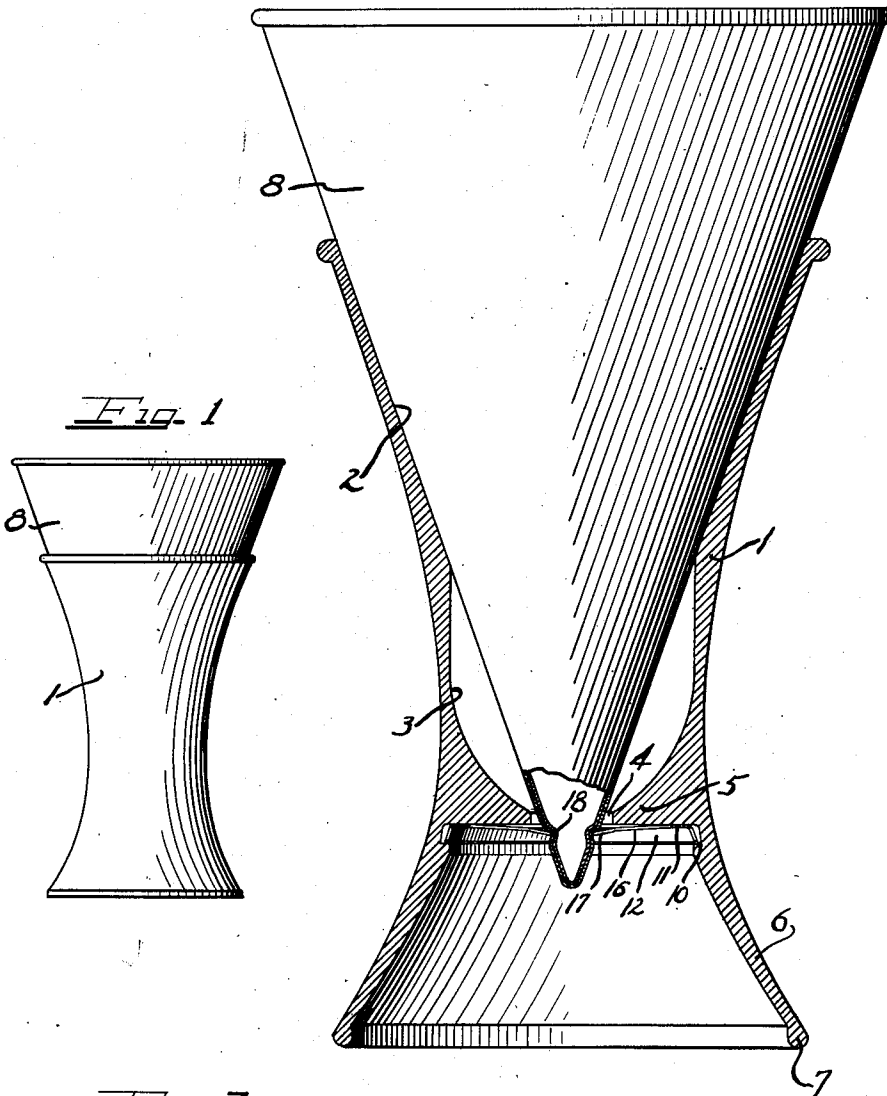


Fig. 1

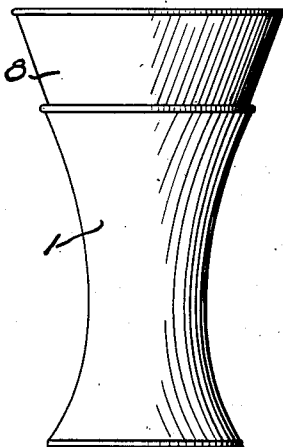
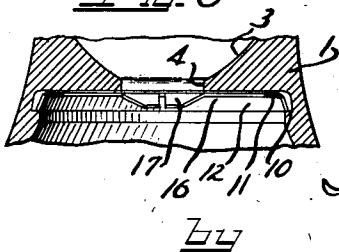


Fig. 3



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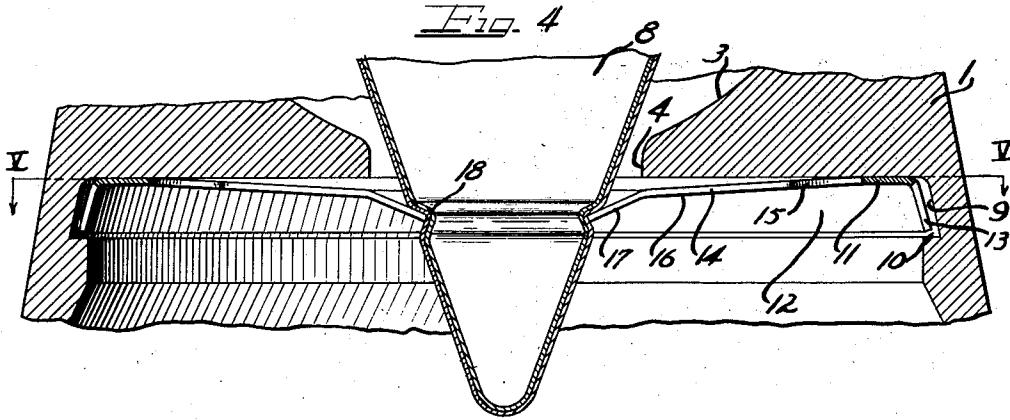
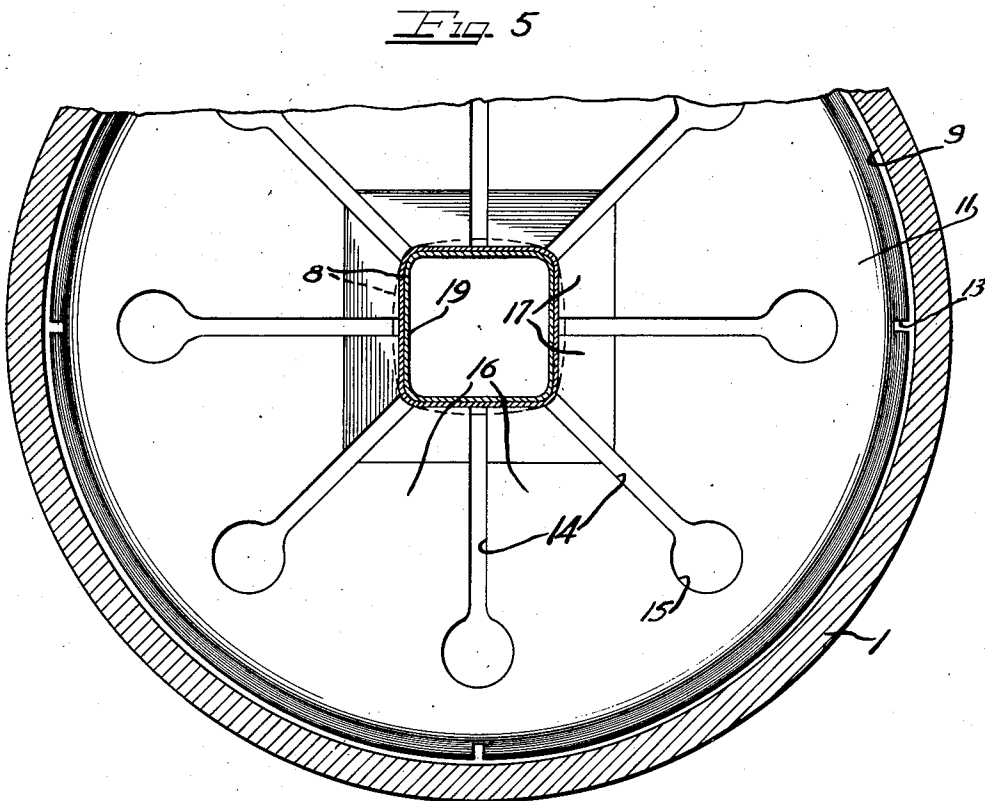
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2 SHEETS—SHEET 2



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UNITED STATES PATENT OFFICE

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HOLDER FOR PAPER CUPS

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7 Claims. (Cl. 65—61)

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This invention relates to improvements in a holder for paper cups, both the holder and the cups being of the type highly suitable for use in soda fountains and similar locations for the dispensing of sodas, hot or cold soft drinks, and the like, although the invention will have other uses and purposes as will be apparent to one skilled in the art.

In soda fountain usage today, pickup holders are employed to carry a paper cup, especially a conical paper cup, during the filling of the cup and during the consuming of the commodity with which the cup has been filled. These holders automatically engage the cup sufficiently to eliminate the probability of the cup becoming accidentally dislodged from the holder just prior to the filling, during the filling operation, while the customer may be drinking from the cup, and after the empty cup and holder are being returned to the place where the cup is manually removed for discarding in a waste receptacle. Sometimes the cups are mounted in stacked nested relationship, inverted, in a suitable container or rack on the counter, and the attendant grasps the holder by the bottom, holding it in inverted position, and places it axially over the uppermost cup on the stack. This axial movement alone is sufficient, and the holder engages the cup when the attendant may simply by retaining his grip on the holder lift both cup and holder and take it to the place where it is filled with whatever commodity is ordered. When the cups are so stacked in inverted position, heavy pressure may be used when the holder is placed over the cup. However, it frequently happens that the cups are contained in a dispensary either disposed vertically with the lowermost cup projecting out of the bottom of the dispenser, or disposed horizontally on the counter with the lowermost cup projecting through the bottom of the dispenser. In such case, a sudden pressure or a heavy pressure cannot be used too well because it may result in jarring the cups back into the holder. It is desirable, therefore, to have a holder that will positively engage a cup, solely upon an axial movement relatively to the cup and upon an exceedingly light movement. With such a holder the cups may then be successively withdrawn from dispensers of substantially any type, or picked up from an inverted stack upon the counter, as the case may be, with no danger of failing to properly secure the cup in the holder, and with no danger of disturbing the remainder of the cups to such an extent that it may be difficult to place a holder over the following cup.

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With the foregoing in mind, it is an important object of the instant invention to provide a holder for a paper cup embodying resilient and yieldable means positioned to automatically frictionally and bitingly engage the outer tapering wall of a paper cup upon a simple relative movement in an axial direction between the cup and holder.

Another object of the invention is the provision of a holder containing resilient gripping means that yield with a cup as it seats in the holder, or as the holder passes over the cup, whichever the case may be, and thereafter resist a tendency of the cup to move out of the holder.

Another feature of the invention resides in the provision of a holder for paper cups, the holder being equipped with a plurality of relatively thin spring fingers having inwardly extending edge portions for frictional engagement with the smooth exterior wall of a paper cup, to retain the cup in the holder against accidental dislodgement.

It is also a feature of this invention to provide a paper cup holder which may be made of any suitable material, and which is provided with an insert of thin resilient metal, the insert being in the form of a disc disposed transversely of the holder, and provided with a central aperture with radial slots leading away from that aperture to define relatively flat broad fingers for edgewise engagement with the outer wall of a paper cup to retain the same in the holder.

Still another object of this invention resides in the provision of a holder for paper cups, which holder is provided with a plurality of inwardly extending resilient fingers disposed for edgewise engagement with the wall of a paper cup, the inner end portions of said fingers being turned downwardly at an oblique angle to give with the cup entering the holder, and resist a tendency of the cup to move out of the holder.

A further object of the invention resides in the provision of a holder for a conical paper cup, the holder being shaped to receive the cup apex first in a cup receiving cavity having an open bottom, the open bottom being too large for the adjacent portion of the cup wall, and the holder being provided with highly resilient fingers extending inwardly beyond the confines of the opening in the bottom of the cup receiving cavity to frictionally engage the wall of the lower portion of the cup extending through that cavity, whereby at that portion of the holder the fingers are the only parts of the holder actually contacting the cup wall.

It is also an object of this invention to provide

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a holder for a conical paper cup, which holder is provided with a cup receiving cavity having an open bottom through which the apical portion of the cup may extend, and the holder also being provided with a plurality of resilient gripping fingers arranged to outline in general a polygonal opening in contradistinction to the circular cross section of the cup wall at the point of engagement by the fingers, whereby the fingers tend to distort the shape of the cup wall in the plane of engagement and enhance the positive gripping action upon the cup wall tending to retain the cup within the holder.

Still a further feature of the instant invention is the provision of a cup holder for paper cups having an annular groove or recess in its inside wall with an insert snapped into engagement in such groove or recess, said insert being shaped to define a plurality of resilient gripping fingers for edgewise engagement with the wall of a cup.

While some of the more salient features, characteristics and advantages of the instant invention have been above pointed out, others will become apparent from the following disclosures, taken in conjunction with the accompanying drawings, in which

Figure 1 is a side elevational view of a holder embodying principles of the instant invention with a cup seated in the holder;

Figure 2 is an enlarged central vertical sectional view through the structure of Fig. 1, with the major portion of the cup being shown in elevation;

Figure 3 is a fragmentary vertical sectional view through the holder alone, this figure being an enlargement of the lower central portion of Fig. 2, with the cup removed;

Figure 4 is a fragmentary vertical sectional view through the cup and holder, this figure being a greatly exaggerated showing of the lower central portion of Fig. 2 to illustrate with greater clarity the action of the gripping means; and

Figure 5 is a fragmentary plan sectional view taken substantially as indicated by the line V-V of Fig. 4, looking in the direction of the arrows.

As shown on the drawings:

The illustrated embodiment of the instant invention includes a cup holder embodying a body portion 1 that is generally of hour glass shape. This body portion or holder may be made of any suitable material, a molded plastic such as a phenolic condensation product being highly satisfactory for the purpose. While the holder may embody principles of the instant invention and be adapted for receiving the so-called flat bottom paper cup which has the general form of a truncated cone, the holder is herein shown and described for receiving a conical paper cup which is, of course, more difficult to maintain in a holder against accidental dislodgement, by virtue of the great volume of the upper portion of the cup projecting out of the holder, and by virtue of the sharper taper of the outer cup wall.

With reference more particularly to Fig. 2, it will be seen that the holder defines an open-bottomed cup receiving cavity or socket of which the upper portion 2 is shaped to intimately fit the outer wall of a conical cup, while the lower portion of this cavity, as at 3, is outwardly bulged well beyond any point the cup wall may reach, so as to save material in the manufacture of the holder. The cup receiving cavity has an opening 4 at the bottom in the form of a central aperture through a transverse partition-like portion 5 of the holder. Beneath this partition portion 5 the

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holder flares outwardly as indicated at 6, to define a hollow base terminating in an annular bead 7 upon which the holder is seated.

In the drawings I have shown a conical paper cup 8 associated with the holder. This cup may be of substantially any desirable construction, a common form of such cup being a convolutely wound cup made from a substantially sector-shaped blank of stock. However, with the instant invention it is not necessary to have any free edge portion of paper stock projecting anywhere from the cup in order to provide adequate engagement with the holder. The wall of the cup may be perfectly smooth throughout, and yet the holder will engage that cup with a positive gripping action. When the cup is seated in the holder it will be noted that a part of the cup, the mouth portion, projects well without the holder, and the portion of the cup immediately below the outer part intimately fits within the upper part 2 of the cup receiving cavity. The apical portion of the cup extends through the opening 4 at the bottom of the cup receiving cavity, and the cup neither contacts the bulged portion 3 of the cavity nor does it contact the edge of the opening 4, although with the instant invention the cup could contact the edge of the opening 4, if so desired, and still be held positively within the holder against accidental dislodgement.

With reference now to the greatly exaggerated showings in Figs. 4 and 5, it will be seen that the holder is provided with an annular groove or recess 9 immediately below the opening 4 in the bottom of the cup receiving cavity. This recess is so made as to provide an abrupt narrow annular shoulder 10 on the underside of the recess or groove.

The cup retaining means, in the illustrated instance, is in the form of a relatively thin disc-like member 11 having a downwardly turned and outwardly inclined flange 12. This flange is preferably slotted at periodic intervals therearound as indicated at 13 so that the flange may give inwardly when the entire insert is snapped into position in the annular groove 9 of the holder.

This may be accomplished by simply pressing the insert upwardly against the top wall of the groove, the segments of the flange 12 flexing over the inner edge of the shoulder 10 and snapping into position behind that shoulder. This disc-like insert may be made of any suitable material, and I may mention that by way of example, stainless steel of a thickness of .01 inch is satisfactory.

The disc 11 is centrally apertured, preferably in a polygonal shape which, in the illustrated instance, is shown generally in the form of a square. Extending from this central opening is a plurality of radial slots 14, each slot terminating in an enlarged opening 15, as best seen in Fig. 5. These slots 14 together with their enlarged openings 15 define a plurality of resilient fingers or teeth 16, these terms being used synonymously, the inner end portions of which are bent so as to extend obliquely downwardly as indicated at 17. The inner edge portions of these fingers define the central opening in the disc through which the apical portion of the cup 8 extends.

When there is no cup in the holder, the resilient fingers 16 extend inwardly substantially horizontally, except for their downwardly inclined end portions 17, substantially in the position seen in Fig. 3. When a cup is placed in the holder, or more usually when the holder is held by the bottom portion and moved axially over the terminal

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cup of a stack of nested cups, the fingers engage the wall of the apical portion of the cup and are flexed downwardly, as better seen in Fig. 4. The inner edges of these fingers biting engage the outer wall of the cup to such an extent that this wall is usually disrupted especially when the cup is forcibly removed from the holder by the hands of the operator after use. Obviously, any disruption of the outer wall of the cup by the fingers is not sufficient to effect a penetration of the wall. When the fingers engage the cup wall and are bent downwardly as seen in Fig. 4, a positive grip of the cup wall by the fingers ensues, and this grip is sufficient to indent the cup as indicated at 18 in Fig. 4 and change the cross-sectional contour of the cup wall in the plane of the fingers. In the illustrated instance, the cross-section of the cup wall at the plane of engagement will be in general a square as indicated at 19 in Fig. 5, although both above and below the indented and distorted portion of the cup wall the wall remains round in cross-section.

With the fingers bending bodily slightly downwardly at the time of engagement of the cup, plus the normally inclined end portions 17 of these fingers, a firm and positive engagement on the cup wall by the edges of the fingers is insured, and as is obvious from the showing in Fig. 4, that engagement will tend to resist any movement of the cup out of the holder. The cup is firmly locked in the holder against accidental dislodgement, and must be forcibly withdrawn from the holder by the hand of the operator when it is to be discarded. The inherent resiliency of the fingers permits such withdrawal and then the fingers will assume the original position as seen in Fig. 3 prior to the engagement with the next cup.

The pressure necessary to effect the engagement shown best in Fig. 4 is only a light pressure because of the resilient character of the spring fingers 16. Thus, a cup may be withdrawn from a dispenser, even though that dispenser is disposed horizontally, without disturbing the position of other cups inside the dispenser and regardless of how carelessly an attendant might act in engaging a cup in a holder, the engagement will always be sufficiently positive for all intended purposes.

From the foregoing, it is apparent that I have provided a simple form of cup holder equipped with means to effect a positive gripping action upon a paper cup even upon a very light pressure at the time of engagement. Further, it will be noted that by virtue of the opening 4 in the lower portion of the cup receiving cavity, the holder may be readily and thoroughly cleansed when that becomes necessary at infrequent intervals. The entire holder is very simple in construction, highly efficient in operation, and may be economically manufactured and used.

It will, of course, be understood that various details of construction may be varied through a wide range without departing from the principles of this invention and it is, therefore, not the purpose to limit the patent granted hereon otherwise than necessitated by the scope of the appended claims.

I claim as my invention:

1. A holder for a paper cup, including a body portion defining a cavity to receive therein a paper cup bottom first, and a disc-like member of thin metal in said holder having several radial slots therein connecting with a central opening to define an annular series of resilient fingers

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for biting engagement with the wall of the cup, said member being relatively thin, and said fingers having at least their inner end portions turned obliquely downwardly.

2. A holder for a paper cup, including a body portion defining a cavity to receive therein a paper cup bottom first, and a thin metallic disc-like member in said holder having several radial slots therein connecting with a central opening to define an annular series of resilient fingers for biting engagement with the wall of the cup, said fingers being relatively wide and having at least their inner end portions turned obliquely downwardly, and the inner ends of said fingers defining said central opening in polygonal form to cause distortion of the cup wall from its natural configuration.

3. A holder for a paper cup, including a body portion defining an open bottomed cup receiving cavity, said holder having an annular groove in the inner wall thereof below the open bottom of said cavity, there being an annular shoulder defining the underside of said groove, and a disc-like member having a downwardly turned flange extending obliquely outwardly snapped into said groove, said member having a central opening with a plurality of radial slots leading therefrom to define a plurality of resilient fingers extending inwardly to frictionally engage the wall of a cup extending through the bottom of said cavity.

4. A holder for a conical paper cup, including a body portion defining a cavity for the reception of a conical paper cup apex first, the wall of said cavity being outwardly bulged adjacent the bottom thereof, said cavity having an opening in the bottom through which the apical portion of the cup extends and of greater diameter than the corresponding wall portion of the cup, said body portion having an annular groove in the inner wall thereof just below said opening, and a relatively thin metal disc-like member inverted readily into said groove, said disc having a central opening with radial slots leading therefrom to define resilient teeth for biting engagement with the cup wall.

5. A holder for a conical paper cup, including a tubular body portion of generally hour-glass shape externally, said body portion defining a tapering walled cup receiving socket therein with an opening at the bottom of the socket through which the apical portion of the cup extends, a relatively thin metallic disc-like holding element including a substantially horizontally extending annular portion attached to the holder adjacent said opening, and a plurality of downwardly inclined resilient fingers integral with said annular portion extending inwardly and radially from said annular portion beyond the boundary of said opening to frictionally engage the cup wall.

6. A holder for a paper cup, including a body portion defining therein a cavity to receive a paper cup bottom first, and a disc-like member of thin metal in said holder having a plurality of radial slots extending outwardly from a central opening through which the lower end of a cup extends, said slots defining an annular series of resilient fingers for biting engagement with the wall of a cup, said fingers having transversely straight cup engaging ends, the inner ends of said fingers being downwardly inclined.

7. A holder for a conical paper cup, including a body portion defining a cavity for the reception of a conical paper cup apex first, said cavity having an opening in the bottom through which the apical portion of the cup extends, and a one-

piece resilient disc-like member adjacent said opening cut to define inwardly extending cup engaging teeth around a central opening in said member, the central portion of said member being dished away from the horizontal to cause at least the inner portions of said teeth to be inclined from the horizontal prior to the reception of a cup to enhance the gripping action of said member on the wall of a cup.

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