Nov. 8, 1949 G. C. JOHNSON ET AL 2,487,712

HOLDER FOR PAPER CUPS

Filed July 13, 1946 2 Sheets-Sheet 1

Fig. 1

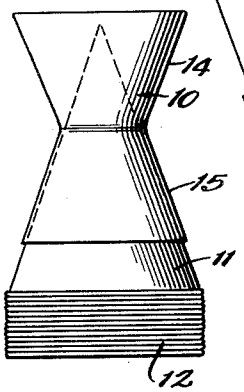


Fig. 2

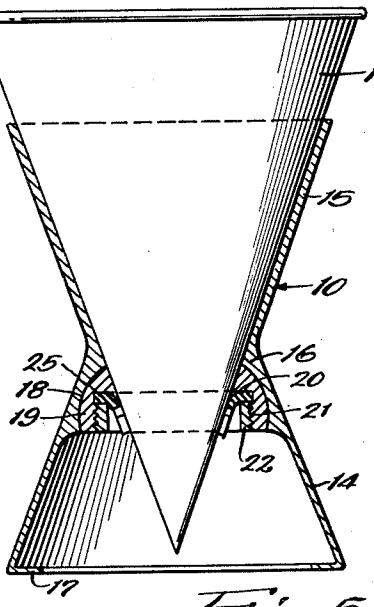


Fig. 3

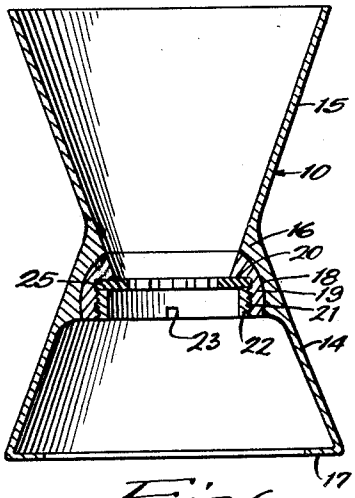


Fig. 4

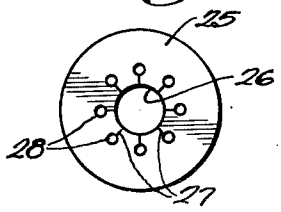


Fig. 5

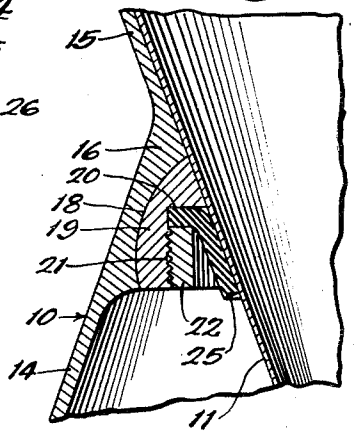
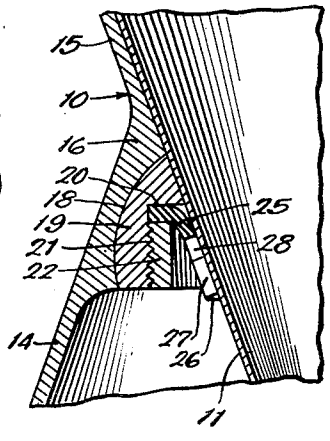


Fig. 6



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Fig. 7

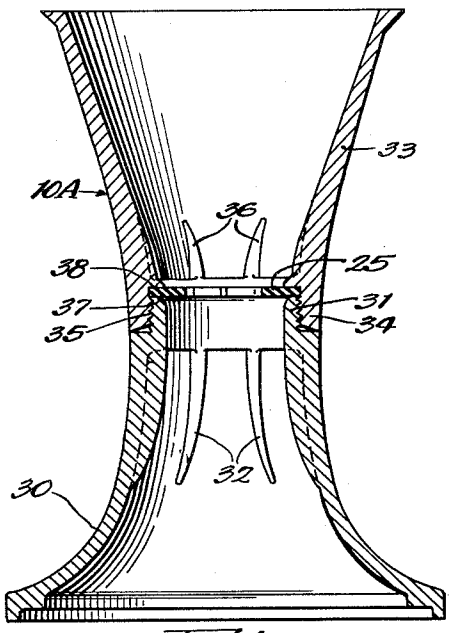


Fig. 8

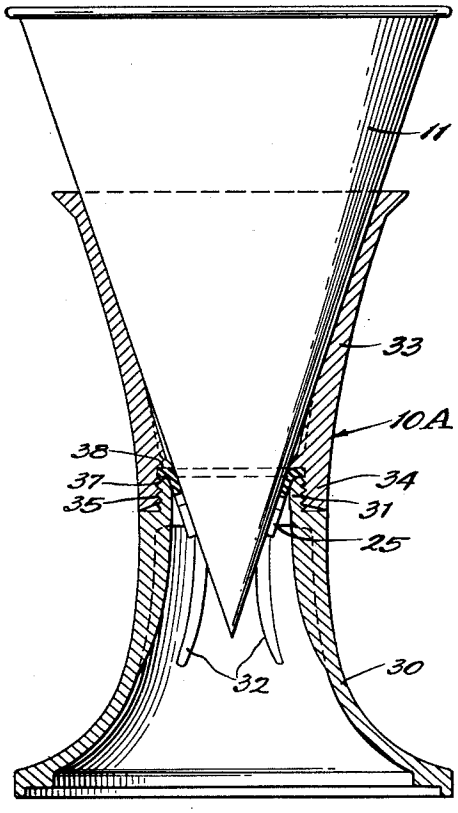
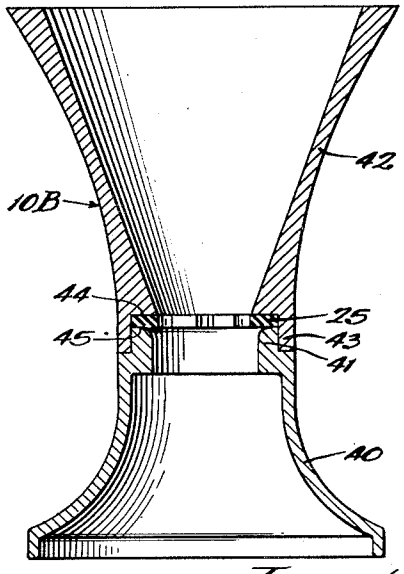


Fig. 9



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UNITED STATES PATENT OFFICE

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HOLDER FOR PAPER CUPS

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Application July 13, 1946, Serial No. 683,462

6 Claims. (Cl. 65—61)

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This invention relates to cup holders for paper cups and more particularly to cup holders having means for automatically gripping the paper cup when it is received within the holder.

The principal object of this invention is to provide an improved gripping means in the cup holder for automatically gripping a paper cup when it is received within the holder. By reason of the improved gripping means the cup holder may be placed over the outer paper cup of a stack of cups for positively gripping the outer paper cup to pick it from the stack. The improved gripping means also serves to retain the paper cup in the holder in a positive and efficient manner. The improved gripping means also provides for efficient and sanitary handling of the paper cups by eliminating the need for any unnecessary manual contacts with the paper cups.

A further object of this invention is to form the gripping means of a resilient annular pickup member suitably held in position in the holder. The resilient annular pickup member may be made from a resilient plastic material such as "Tygon," or rubber composition or other suitable resilient material. By utilizing the resilient annular pickup member construction, sharp edges and rigid sharp projections are eliminated which greatly enhances the serviceability of the cup holder.

Another object of this invention is to provide the resilient annular pickup member with slits each terminating at the outer end in a small hole forming a continuation of the slit. These slits, in pairs, together form a plurality of inwardly extending fingers. Upon reception of a conical paper cup in the pickup holder the fingers are displaced and the portion of the member immediately beyond the fingers or holes is distorted and stretched by the paper cup for automatically gripping the paper cup. The fingers and the portion of the member immediately beyond the fingers form respectively primary and secondary grippers and the fingers prevent the distorted and stretched portion of the secondary gripper of the member from reversing its position and causing accidental release of the cup.

A further object of this invention is to provide improved means for retaining the resilient annular pickup member in the cup holder. In this connection, internal annular surfaces or shoulders may be provided for clamping the resilient annular pickup member in place.

Still another object of this invention is to provide an improved cup holder which may be

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metallic and readily formed by spinning and which may be provided with internal rings for forming the annular surfaces or shoulders for clamping the resilient annular pickup member in place therein.

A further object of this invention is to provide an improved two-piece cup holder of metal or plastic or other material wherein the adjoining portions of the holder are provided with annular surfaces or shoulders for clamping the resilient annular pickup member in place.

Other objects and advantages will become apparent to those skilled in the art upon reference to the accompanying specification, claims, and drawing, in which—

Fig. 1 is an elevational view showing the cup holder applied to a stack of paper cups;

Fig. 2 is an enlarged sectional view through one form of the cup holder with a paper cup received therein;

Fig. 3 is an enlarged sectional view through the cup holder with no paper cup therein;

Fig. 4 is a plan view of the resilient annular pickup member forming the gripping means;

Fig. 5 is an enlarged sectional view through a portion of the cup holder and through the resilient annular pickup member between the slits;

Fig. 6 is a view similar to Fig. 5 but with the section being taken along the slits;

Fig. 7 is a sectional view through another form of the cup holder;

Fig. 8 is a sectional view similar to Fig. 7 but showing a paper cup received therein; and

Fig. 9 is a sectional view through a further form of the cup holder.

The cup holder is generally designated at 10 and is adapted to receive a paper cup such as a conical paper cup 11 and, as shown in Fig. 1, the paper cups may be included in a stack such as the stack 12.

In order to receive a paper cup in the cup holder from a stack of cups, all that is necessary is to place the cup holder over the outer paper cup of the stack and the gripping means in the cup holder will automatically grip the outer cup of the stack and retain the cup within the holder. In this way when the holder is removed from the stack, the outer paper cup is removed therewith and is positively retained in the holder. This provides a simple means for inserting paper cups in cup holders.

The cup holder 10, as shown in Figs. 2 and 3, comprises a base portion 14 and a receptacle portion 15 which are joined or merged together at 16. The base portion 14 may be provided

with an inturned flange 17 to finish the appearance of the holder. Preferably the cup holder is made of metal such as aluminum and may be spun or otherwise formed into the shape shown. Adjacent the juncture of the base and the receptacle portions, which forms a throat therebetween, the cup holder is provided with an internal surface 18 for receiving a ring 19. The ring 19 may be secured into the holder by spinning the metal of the holder therearound and the ring is provided with an internal annular surface or shoulder 20 and screw threads 21. A clamping ring 22 is screw threaded into the ring 19 and in order to facilitate this operation the clamping ring 22 is provided with suitable notches 23.

The internal annular surface or shoulder 20 and the clamping ring 22 provide a pair of opposed annular surfaces or shoulders for clamping a resilient annular pickup member 25 within the holder. The resilient annular pickup member 25 resembles a washer in appearance and forms the automatic gripping means for retaining a paper cup within the holder. It is preferably made of a suitable resilient plastic material such as "Tygon," rubber composition, or other suitable resilient material.

The resilient annular pickup member or washer 25 is preferably provided with a plurality of slits 27 terminating in holes 28 in order to provide a plurality of resilient fingers or grippers for the paper cup. When the resilient washer 25 is clamped in the holder 10 it assumes a position substantially like that illustrated in Fig. 3. However, when a paper cup is received in the receptacle portion 15, the resilient washer is displaced or distorted by the paper cup and is internally forced downwardly, as shown in Figs. 2, 5, and 6. The portions of the resilient washer between the slits 27, that is, the fingers, grip the side walls of the paper cup and, therefore, form what may be termed primary grippers.

The gripping action of the fingers or primary grippers depends primarily upon the resiliency of the displaced or distorted portions between the slits 27. The portion of the resilient washer immediately beyond the holes 28 or fingers is also displaced or distorted by the reception of the paper cup and the tendency is to stretch the resilient washer in this area. The portions of the resilient washer immediately beyond the holes 28 in resisting this stretching tendency, therefore, form what may be termed secondary grippers for the paper cup. The fingers prevent the distorted and stretched portion of the washer from reversing its position and prevents accidental release of the conical paper cup.

The primary gripping action is more clearly illustrated in Fig. 6 while the joint primary and secondary gripping actions are more clearly illustrated in Fig. 5. Because of these gripping actions the paper cup 11 is positively retained within the holder 10 until such time as the paper cup is forcefully extracted therefrom.

While the dimensions of the resilient annular pickup member or washer are not critical and may be varied to fit particular applications, the following dimensions in connection with a resilient plastic material known as "Tygon" have proved very successful in retaining the paper cup within the holder with the proper amount of force: outside diameter of 1.218"; inside diameter of .343"; 8 holes of .050" diameter; .593" diameter centers for holes; .062" thick. The resilient washer of this construction has produced

thousands upon thousands of operations without any material change in the retaining force.

Another form of cup holder is generally designated at 10A in Figures 7 and 8 and may be formed of metal or plastic or any other suitable material. It is preferably formed of two parts, a base portion 30 and a receptacle portion 33. The base portion 30 is provided with an extension 31 and may be provided with reinforcing ribs 32. The receptacle portion 33 is provided with an extension 34 telescoping the extension 31. The telescoping extensions 31 and 34 may be provided with screw threads 35 for securing together the base portion and the receptacle portion 33 and form a throat therebetween. Also the receptacle portion 33 may be provided with reinforcing ribs 36.

The extension 31 of the base portion 30 and an internal flange on the receptacle portion 33 provide opposed shoulders 37 and 38 for clamping the resilient washer 25 in place. The extension 31 is preferably recessed on its inner side to permit downward bending or folding of the resilient washer. The resilient washer 25 of Figs. 7 and 8 operates to retain the paper cup 11 within the holder just as it does in the form shown in Figs. 2 and 3.

In Fig. 9, the cup holder is generally designated at 10B and it includes a base portion 40 having an inwardly offset extension 41 and a receptacle portion 42 having an extension 43. The extensions 41 and 43 telescope and present opposed annular surfaces or shoulders 44 and 45 for clamping the resilient annular pickup member or washer 25 in place. The two parts 40 and 42 in accordance with this modification may be held together in telescope relation either by a forced fit or by cementing in the case of plastic holders. The resilient annular pickup member or washer 25 of Fig. 9 operates to maintain a paper cup in the holder 10B just as it does in the other modifications herein described.

While for purposes of illustration one form of this invention has been disclosed, other forms thereof may become apparent to those skilled in the art upon reference to this disclosure and, therefore, this invention is to be limited only by the scope of the appended claims and prior art.

We claim as our invention:

1. A substantially hollow pickup holder for preformed conical paper cups comprising a base portion, a substantially conical cup receptacle portion joining the base portion, the juncture forming a throat between the base and receptacle portions, said receptacle portion receiving and supporting a preformed conical paper cup with the apexial end of the paper cup extending into said throat, and an annular resilient pickup member located in said throat and including inwardly extending fingers, said fingers being displaced and the portion of said member immediately beyond the fingers being distorted and stretched by the conical paper cup when received in the receptacle portion for automatically gripping the conical paper cup near the apexial end thereof.

2. A substantially hollow pickup holder for preformed conical paper cups comprising a base portion, a substantially conical cup receptacle portion joining the base portion, the juncture forming a throat between the base and receptacle portions, said receptacle portion receiving and supporting a preformed conical paper cup with the apexial end of the paper cup extending into said throat, and an annular resilient pickup member located in said throat and including

radial slits each terminating outwardly in a small hole together to form inwardly extending fingers, said fingers being displaced and the portion of said member immediately beyond the small holes being distorted and stretched by the conical paper cup when received in the receptacle portion for automatically gripping the conical paper cup near the apexial end thereof.

3. A substantially hollow pickup holder for preformed conical paper cups comprising a base portion, a substantially conical cup receptacle portion joining the base portion, the juncture forming a throat between the base and receptacle portions, said receptacle portion receiving and supporting a preformed conical paper cup with the apexial end of the paper cup extending into said throat, and an annular resilient pickup member located in said throat, opposed internal annular surfaces in said throat, and an annular resilient pickup member located in said throat and clamped between said annular surfaces and including inwardly extending fingers, said fingers being displaced and the portion of said member immediately beyond the fingers being distorted and stretched by the conical paper cup when received in the receptacle portion for automatically gripping the conical paper cup near the apexial end thereof.

4. A substantially hollow pickup holder for preformed conical paper cups comprising a base portion, a substantially conical cup receptacle portion joining the base portion, the juncture forming a throat between the base and receptacle portions, said receptacle portion receiving and supporting a preformed conical paper cup with the apexial end of the paper cup extending into said throat, and an annular resilient pickup member located in said throat, an internal annular surface in said throat, an annular resilient pickup member located in said throat and engaging said annular surface, and a ring for clamping said pickup member against said annular surface, said pickup member including inwardly extending fingers, said fingers being displaced and the portion of said member immediately beyond the fingers being distorted and stretched by the conical paper cup when received in the receptacle portion for automatically gripping the conical paper cup near the apexial end thereof.

5. A substantially hollow pickup holder for preformed conical paper cups comprising a base portion, a substantially conical cup receptacle portion joining the base portion, the juncture forming a throat between the base and receptacle portions, said receptacle portion receiving and supporting a preformed conical paper cup with the apexial end of the paper cup extending into said throat, and an annular resilient pickup member located in said throat, a ring located in said throat and provided with an internal annular surface, an annular resilient pickup member located in said throat and engaging said annular surface, and a clamping ring secured to the other ring for clamping said pickup member against said annular surface, said pickup member including inwardly extending fingers, said fingers being displaced and the portion of said member immediately beyond the fingers being distorted and stretched by the conical paper cup when received in the receptacle portion for automatically gripping the conical paper cup near the apexial end thereof.

6. A substantially hollow pickup holder for preformed conical paper cups comprising a base having an annular surface, a substantially conical cup receptacle having an internal annular shoulder, the base and receptacle being secured together to form a throat with said surface and shoulder opposed to each other to form a groove in the throat, and an annular resilient pickup member located in said throat and clamped between said surface and shoulder, said pickup member including inwardly extending fingers, said fingers being displaced and the portion of said member immediately beyond the fingers being distorted and stretched by the conical paper cup when received in the receptacle portion for automatically gripping the conical paper cup near the apexial end thereof.

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