

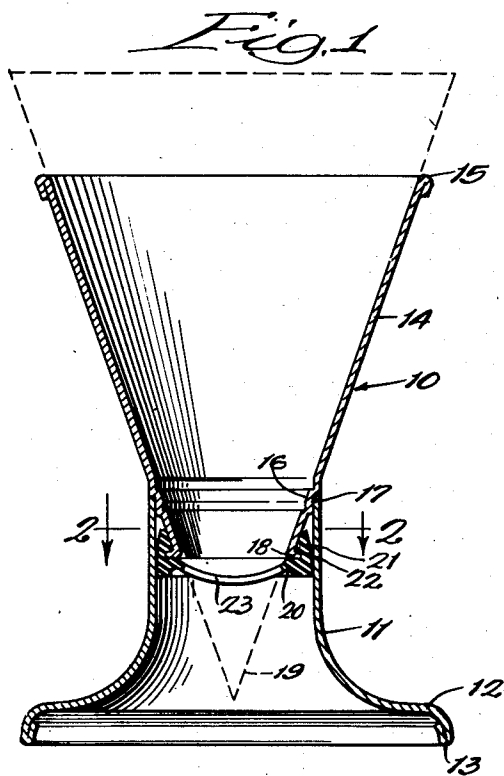
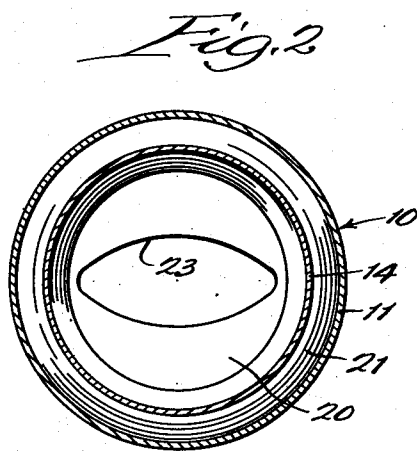
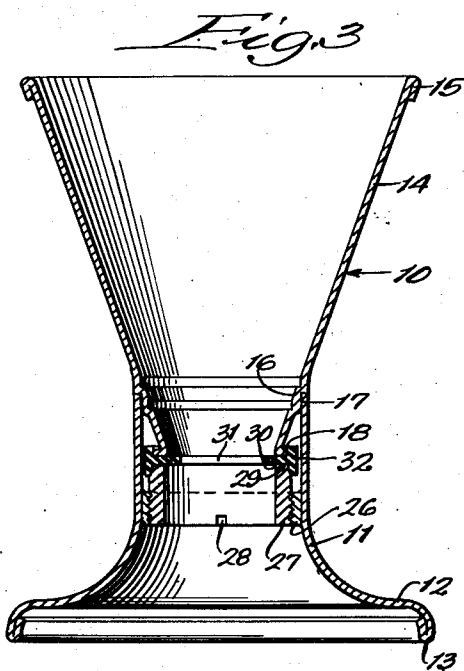
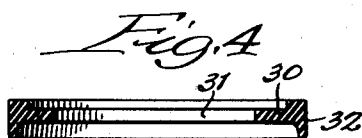
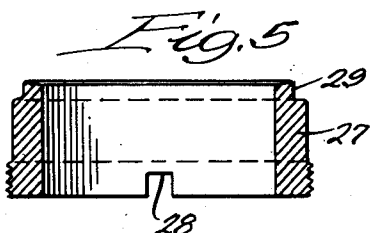
Nov. 1, 1949

W. E. AMBERG
HOLDER FOR PAPER CUPS

2,487,014

Filed June 2, 1947

3 Sheets-Sheet 1



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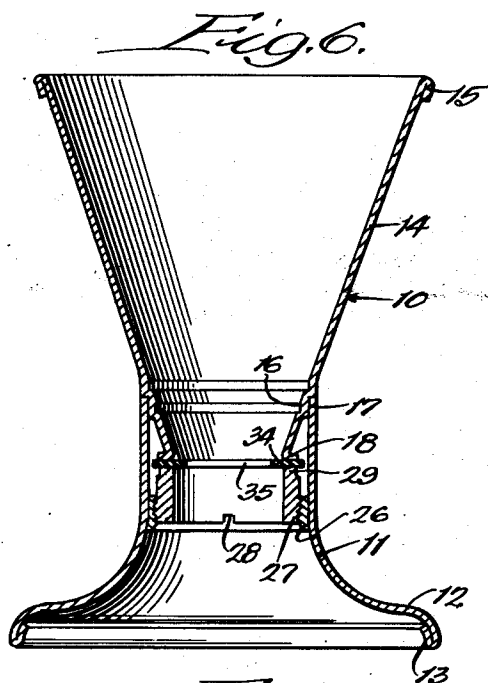
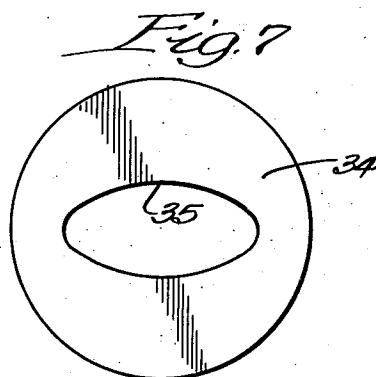
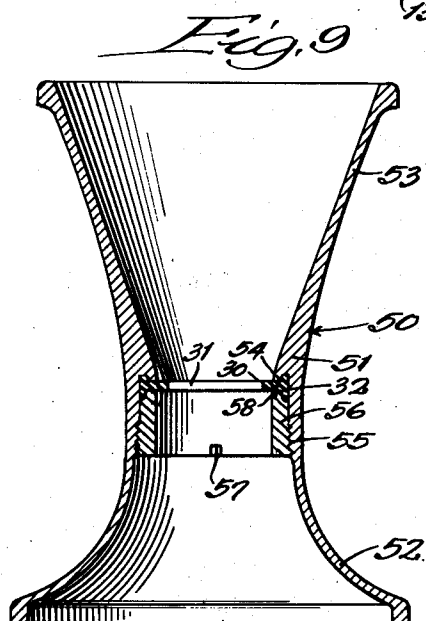
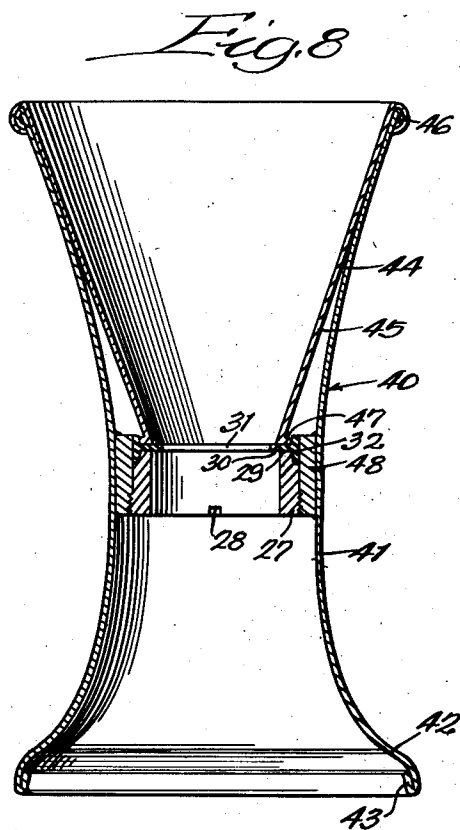
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2,467,014

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3 Sheets-Sheet 3

Fig. 10

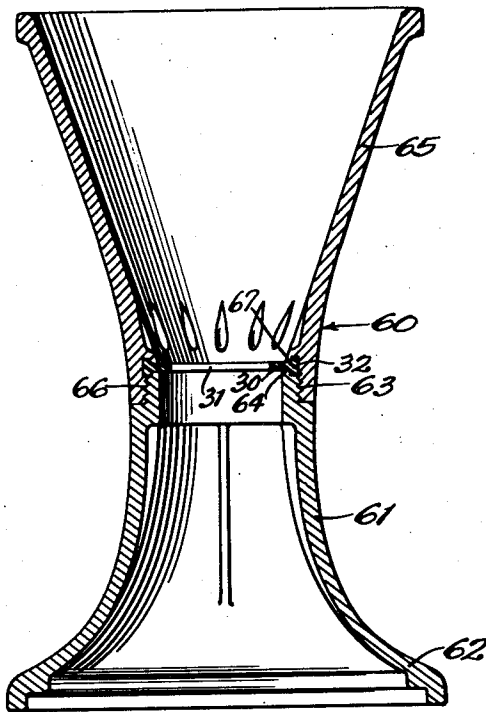


Fig. 11

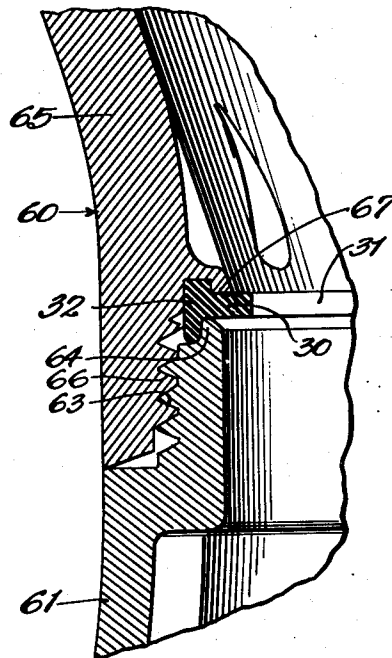


Fig. 12

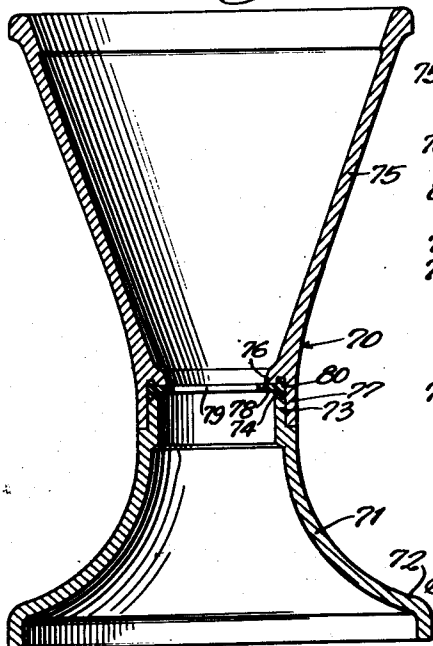


Fig. 13

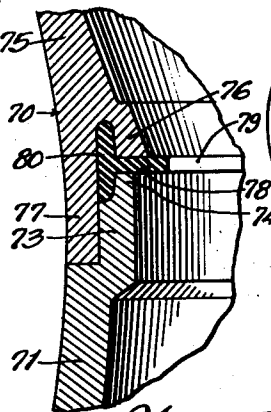
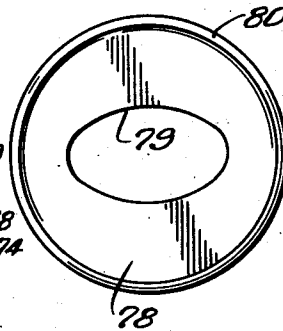


Fig. 14



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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 cup holders for conical paper cups and more particularly to pickup 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 stick it up from the stack. The improved gripping means also serves to retain the paper cup in the holder in a positive and efficient manner and further provides for efficient and sanitary handling of the paper cups by eliminating the need for any unnecessary manual contacts with the paper cups.

In accordance with this invention, the improved gripping means may comprise a resilient annular pickup member made from a resilient plastic material such as "Tygon" or rubber composition, or other suitable resilient material. Preferably, the opening in the resilient annular pickup member is substantially elliptical so that the opposing sides of the opening are displaced and operate to resiliently clamp or grip the paper cup therebetween. The ends of the opening have little or no displacement and, therefore, the paper cup is permitted to deform somewhat in an elliptical direction. In other words, the resilient gripping force is not equally applied all the way around the paper cup but is applied primarily to opposite sides of the paper cup whereby any deformation of the paper cup by the resilient washer is primarily one of bending and not one of indenting. In this way, rupture of the paper fibers, particularly when they become wet, and resultant leaking of the paper cup are entirely prevented.

Also, in accordance with this invention, the resilient annular pickup member is preferably dished downwardly to assist in guiding the apex of the paper cup into the opening therein.

A further object of this invention is to provide improved means for securing the resilient annular pickup member in the cup holder and for permitting the use of various types of resilient annular pickup members in various types of cup holders.

In accordance with one form of this invention, the receptacle portion of the cup holder is provided with an inner annular overhanging projection having an external flange to which the

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resilient annular pickup member is secured. The resilient annular pickup member may be provided with an enlarged periphery having an internal groove for receiving the external flange for securing purposes. The cup holder may also be provided with an annular offset projection to clamp the resilient annular pickup member between it and the external flange for securing purposes, and the resilient annular pickup member may be provided with an enlarged periphery beyond the flange and projection to assist in maintaining the washer in the holder. In accordance with another form of this invention, the cup holder may be provided with opposed inner annular overhanging projections for clamping the resilient annular pickup member therebetween and the resilient annular pickup member may be provided with an enlarged periphery beyond the projections to assist in maintaining the washer in the holder.

The cup holders of this invention may be formed from various materials in various ways. For example, the cup holders may be formed from metal or plastics and may be fabricated, cast, or molded. The base portions and receptacle portions thereof may be made in a single unit or in separate units suitably secured together.

Further objects of this invention reside in the details of construction of the pickup holder and the cooperative relationship between the component parts thereof.

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

Figure 1 is a vertical sectional view through one form of the invention;

Figure 2 is a horizontal sectional view taken substantially along the line 2—2 of Fig. 1;

Figure 3 is a vertical sectional view of the cup holder of Fig. 1 modified in accordance with this invention;

Figure 4 is a sectional view through the resilient annular pickup member utilized in Fig. 3;

Figure 5 is a sectional view through the clamping ring utilized in Fig. 3;

Figure 6 is a vertical sectional view of the cup holder of Fig. 3 but utilizing a different resilient annular pickup member;

Figure 7 is a plan view of the resilient annular pickup member utilized in Fig. 6;

Figure 8 is a vertical sectional view through another form of cup holder;

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Figure 9 is a vertical sectional view through still another form of cup holder;

Figure 10 is a vertical sectional view through a further form of cup holder;

Figure 11 is an enlarged sectional view of a portion of Fig. 10;

Figure 12 is a vertical sectional view of still another form of cup holder;

Figure 13 is an enlarged sectional view of a portion of Fig. 12;

Figure 14 is a plan view of the resilient annular pickup member utilized in Fig. 12.

Referring first to Figs. 1 and 2, the cup holder is generally designated at 10 and it includes a base portion 11 preferably formed of sheet metal which is generally cylindrical in form and which is flared outwardly at 12 and provided with a rim 13. The cup holder generally designated at 10 also includes a frustro-conical receptacle portion 14 having a rim 15. The receptacle portion 14 is also preferably formed of sheet metal and is annularly indented at 16 to be received in the base portion 11. The receptacle portion 14 and the base portion 11 are secured together as by welding at 17 forming a throat therebetween. The lower end of the receptacle portion 14 provides an inner annular overhanging projection which is in turn provided with an external flange 18 which is spaced from the interior of the base portion 11. The receptacle portion is adapted to receive a pre-formed conical paper cup 19, indicated in dotted lines in Fig. 1.

A resilient annular pickup member 20 resembling a washer in appearance is adapted to be secured to the external flange 18. The resilient annular pickup member or washer 20 is preferably formed from a resilient plastic material such as "Tygon" or rubber composition, or other suitable resilient material. The resilient annular pickup member or washer 20 is provided with an enlarged periphery 21 which, in turn, is provided with an internal groove 22 for receiving the external flange 18. The resilient washer 20 is also provided with a substantially elliptical shaped opening 23 and is preferably dished downwardly as indicated at 24.

After the base portion 11 is secured to the receptacle portion 14, the resilient annular pickup member or washer 20 is secured in the holder 10. In so doing, the enlarged periphery 21 of the resilient washer overlaps and engages the inner annular overhanging projection and is forced over the external flange 18 until such time as the internal groove 22 receives the external flange 18. This operation is permitted by the resiliency of the washer. When the resilient washer is thus secured to the external flange 18, it is held firmly in place in the holder by the external flange 18 and by the periphery of the resilient washer engaging the internal surface of the base portion 11.

When a paper cup 19 is received in the receptacle portion 14, the apex of the paper cup passes through the substantially elliptical opening 23 and the paper cup displaces the sides of the substantially elliptical opening 23 downwardly and outwardly with very little, if any, displacement at the ends of the substantially elliptical opening 23. As a result, the resilient washer at the sides of the substantially elliptical opening 23 resiliently grips opposite sides of the conical paper cup for retaining the same in the receptacle portion 14. The resilient gripping force thus applied to the paper cup is not equally applied all the way around the paper cup but is primarily applied

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to opposite sides thereof whereby any deformation of the paper cup by the resilient washer is primarily one of bending the paper cup into substantially elliptical shape and not one of indenting the paper cup. In this way, rupture of the fibers of the paper cup, particularly when they become wet, and resultant leaking of the paper cup are prevented.

Thus when a paper cup is received in the cup holder, it is automatically and firmly gripped by the resilient gripping washer 20. By reason of this automatic gripping action, the cup holder may be placed over the outer paper cup of a stack of cups and positively grip the paper cup to pick it from the stack. The paper cup so picked from the stack of cups is firmly held in place within the cup holder until such time as the paper cup is forcefully extracted therefrom.

The downward dishing of the resilient washer operates to guide the apex of the conical paper cup into the oval opening thereby greatly facilitating the pickup action of the holder.

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:

	Inches
Outside diameter.....	1.247
Diameter of groove.....	$\frac{1}{8}$
Thickness.....	.040
Length of opening.....	.750
Width of opening.....	$\frac{1}{2}$
Thickness of enlarged periphery.....	$\frac{1}{2}$
Radius of downward dishing.....	.750

The resilient washer of this construction has produced thousands of thousands of operations without any material change in the retaining force.

Referring now to Figs. 3, 4, and 5, the cup holder generally designated at 10 is the same as that illustrated in Fig. 1 and like reference characters have been utilized for like parts. However, the cup holder 10 of Fig. 3 utilizes a different form of resilient washer and a different manner of securing the same in the holder. In this connection, the base portion 11 of the holder has a threaded ring 26 secured therein as by welding. The threaded ring receives a nut 27 having notches 28 for screwing the same into the ring 26. The nut 27 is provided with an inner offset annular shoulder 29 which lies opposite the external flange 18. A resilient annular pickup member or washer 30 is clamped between the external flange 18 and the annular shoulder 29 for securing the same in the holder. The resilient washer 30 is provided with a substantially elliptical opening 31 and is also provided with an enlarged periphery 32 for overlapping and engaging the flange and shoulder for assisting in maintaining the washer 30 in the holder.

The annular pickup member or washer 30 with the substantially elliptical opening 31 operates in the same manner as the washer 20 of Fig. 1, and, therefore, a further description at this point is considered unnecessary. Thus, the cup holder 10 may utilize the washer 20, as shown in Fig. 1, or may utilize the washer 30, as shown in Fig. 3, with substantially the same results.

The cup holder generally designated at 10 in Fig. 6 is also the same as that shown in Figs. 1

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and 3 and like reference characters have been utilized for like parts. In Fig. 6, however, a different form of resilient annular pickup member or washer 34 may be utilized. The resilient washer 34 is in the form of a flat disk provided with a substantially elliptical opening 35 and is clamped between the external flange 18 and the annular shoulder 29. It is thus seen that the cup holder 10 of Figs. 1, 3, and 6 may be adapted for utilizing three different types of resilient washers for obtaining substantially the same results.

In Fig. 8, there is shown another form of cup holder, the cup holder being generally designated at 40. It includes a base portion 41 flared outwardly at the bottom 42 and provided with a rim 43 and flared outwardly at the top as at 44. It also includes a frustro-conical receptacle portion 45 fitting within the flared-out part 44 of the base portion 41. The upper edges of the base portion 41 and the receptacle portion 45 are rolled together to form a rim 46 and to secure the receptacle portion 45 in the base portion 41. The lower end of the receptacle portion 45 forms a throat and is provided with an external flange 47 and a ring 48 provided with internal screw threads is suitably secured to the base portion 41 adjacent the external flange 47 such as by welding. The cup holder 40 of Fig. 8 may utilize any one of the types of resilient washers utilized in Figs. 1, 3, and 6. For purposes of illustration, it is shown as utilizing the resilient washer 30 illustrated in Figs. 3 and 4, the washer being clamped between the external flange 47 and the annular offset shoulder 29 formed on the nut 27 which is screwed into place in the ring 48 with the aid of notches 28. The enlarged periphery 32 of the resilient washer 30 extends beyond and overlaps and engages the external flange 47 and annular shoulder 29 just as in Fig. 3. The form of the invention illustrated in Fig. 8 operates in substantially the same manner as that of Fig. 1.

Another form of the invention is illustrated in Fig. 9. There the cup holder is generally designated at 50 and includes a one-piece body 51 having an outwardly flaring base portion 52 and a frustro-conical receptacle portion 53 forming a throat therebetween. The lower end of the receptacle portion 53 terminates in an inner annular overhanging projection 54 and the upper part of the base portion 52 is provided with internal screw threads 55. A nut 56 similar to the nut 27 of Fig. 5 is carried by the screw threads 55 and is screwed into place with the assistance of notches 57. The nut 56 is provided with an inner annular offset shoulder or inner annular overhanging projection 58 for clamping a resilient washer between it and the annular shoulder 54. The cup holder 50 of Fig. 9 is adapted to receive the resilient washer 30 of Figs. 3 or 4 or the resilient washer 34 of Fig. 7. For purposes of illustration in Fig. 9, the washer 30 is utilized and it is clamped between the annular shoulders 54 and 58 with the enlarged periphery 32 extending beyond and overlapping and engaging the projections. The form of the invention illustrated in Fig. 9 operates in substantially the same way as the other forms of the invention heretofore described. The cup holder of Fig. 9 may be molded from plastic or cast from metal.

Another form of the cup holder is generally designated at 60 in Figs. 10 and 11 and it includes a base portion 61 flared outwardly at 62 and provided at its upper end with an extension which is externally screw threaded as at 63. The extension is also provided with an annular offset

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shoulder or annular overhanging projection 64. The cup holder 60 also includes a frustro-conical receptacle portion 65 having at its lower end an extension which is internally threaded as at 66. The receptacle portion also includes an annular overhanging projection 67. A resilient washer is adapted to be clamped between the annular projections 64 and 67 at the throat of the holder when the two parts of the cup holder are screwed together by the screw threads 63 and 66. The cup holder 60 is adapted to utilize the resilient washer 30 of Figs. 3 and 4 or the resilient washer 34 of Figs. 6 and 7. For purposes of illustration, it is shown as utilizing the washer 30 of Figs. 3 and 4 and, in this respect, like reference characters have been utilized for like parts. The operation of the form of the invention shown in Figs. 10 and 11 is substantially the same as the operation of the forms previously described.

In Figs. 12 and 13, another form of the invention is illustrated and the cup holder thereof is generally designated at 70. It includes a base portion 71 flared outwardly as at 72 and having an extension 73 provided with an annular offset projection 74. The holder 70 also includes a substantially frustro-conical receptacle portion 75 provided with an annular overhanging projection 76 and an extension 77. When the extension 73 is telescopically received in the extension 77, the annular projections 74 and 76 oppose each other for clamping a resilient washer therebetween. The resilient washer is designated at 78 and includes a substantially elliptical opening 79 and an enlarged periphery 80. The washer 78 is clamped in the throat of the holder between the projections 74 and 76 and the enlarged periphery 80 overlaps and engages the projections and assists in maintaining the resilient washer in place. The resilient washer 78 is similar to the resilient washer 30 of Fig. 4 although it is slightly different in cross section. It, however, operates in the same manner for accomplishing the same results. The telescoping extensions 73 and 77 may be secured together by a press fit or may be secured together by cementing or other adhesive. As in the previous arrangements, a flat resilient washer without the enlarged periphery may likewise be utilized. The cup holders 60 and 70 of Figs. 10 and 12 may be molded from plastic.

While, for purposes of illustration, several forms of this invention have 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.

I claim for my invention:

1. A pickup holder for conical paper cups comprising a base portion, a frustro-conical receptacle portion extending into the base portion and provided with an external flange within the base portion, and a resilient annular pickup member secured to the flange, the inner portion of said resilient annular pickup member to be distorted by a paper cup when received in the receptacle portion for automatically gripping the paper cup.

2. A pickup holder for conical paper cups comprising a base portion, a frustro-conical receptacle portion extending into the base portion and provided with an external flange within the base portion, and a resilient annular pickup member having an enlarged periphery provided with an internal groove to receive the external flange for securing the resilient annular pickup member in

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the holder, the inner portion of said resilient annular pickup member to be distorted by a paper cup when received in the receptacle portion for automatically gripping the paper cup.

3. A pickup holder for conical paper cups comprising a base portion, a frustro-conical receptacle portion extending into the base portion and provided with an outwardly extending flange within the base portion, an inner offset annular projection carried by the base portion adjacent the outwardly extending flange, and a resilient annular pickup member between the inner offset annular projection and the outwardly extending flange and provided with an enlarged periphery overlapping and engaging said inner offset annular projection and said outwardly extending flange for securing the resilient annular pickup member in the holder, the inner portion of said resilient annular pickup member to be distorted by a paper cup when received in the receptacle portion for automatically gripping the same.

4. A pickup holder for conical paper cups comprising a base portion, a frustro-conical receptacle portion extending into the base portion and provided with an external flange within the base portion, and a resilient annular pickup member secured to the flange and provided with an enlarged periphery beyond the flange for securing the resilient annular pickup member in the holder, the inner portion of said resilient annular pickup member to be distorted by a paper cup when received in the receptacle portion for automatically gripping the paper cup.

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 apical end of the paper cup extending into said throat, an inner annular overhanging projection in the throat of said holder, a resilient annular pickup member located in said throat and having an enlarged periphery overlapping and engaging said inner annular overhanging projection, and annular means for securing the enlarged periphery of said member in overlapping engagement with said inner annular overhanging projection to secure the resilient annular pickup member in said throat, the inner portion of said resilient annular pickup member to be distorted by a paper cup when received in the receptacle portion for automatically gripping the same.

6. 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 apical end of the paper cup extending into

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said throat, an inner annular overhanging projection in the throat of said holder, a resilient annular pickup member located in said throat and having an enlarged periphery overlapping and engaging said inner annular overhanging projection, an external flange on said inner annular overhanging projection, and an internal groove in the enlarged periphery of said member receiving the flange for securing the enlarged periphery of said member in overlapping engagement with said inner annular overhanging projection to secure the resilient annular pickup member in said throat, the inner portion of said resilient annular pickup member to be distorted by a paper cup when received in the receptacle portion for automatically gripping the same.

7. 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 apical end of the paper cup extending into said throat, an inner annular overhanging projection and an opposed offset projection in the throat of said holder, and a resilient annular pickup member located in said throat and having an enlarged periphery overlapping and engaging said inner annular overhanging projection and said offset projection, the overlapping engagement of said enlarged periphery of said member with said inner annular overhanging projection and said offset projection securing said resilient annular pickup member in said throat, the inner portion of said resilient annular pickup member to be distorted by a paper cup when received in the receptacle portion for automatically gripping the same.

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