Dec. 8, 1953 A. TREFF 2,661,610

HOLDER FOR CONICALLY SHAPED CUPS

Filed Feb. 21, 1951

Fig. 1

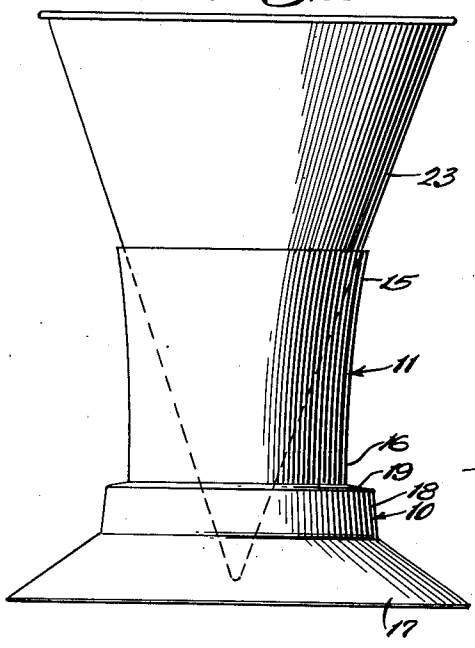


Fig. 2

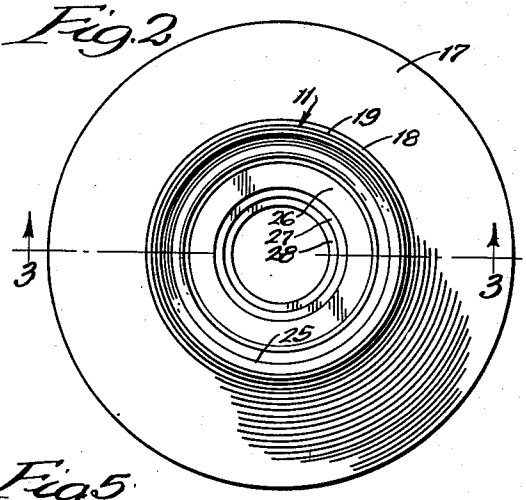


Fig. 5

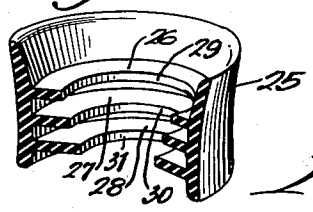


Fig. 3

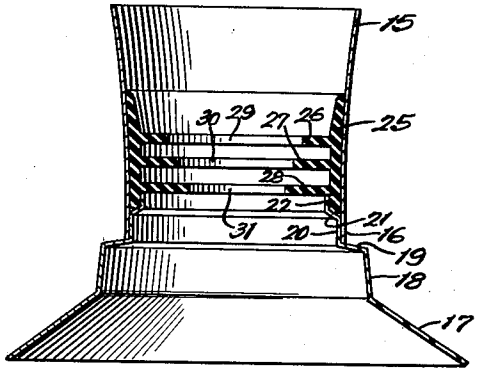


Fig. 4

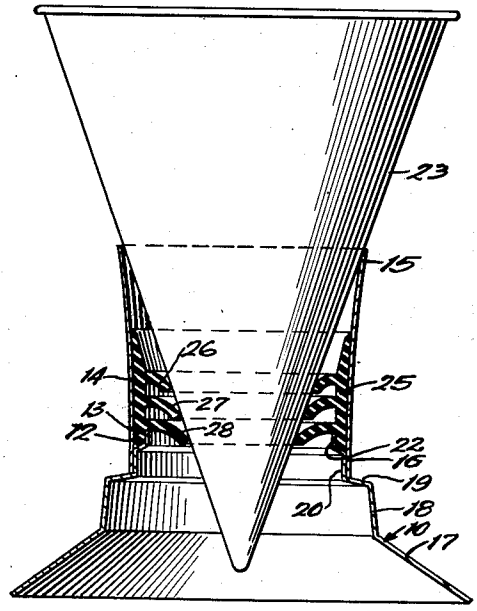
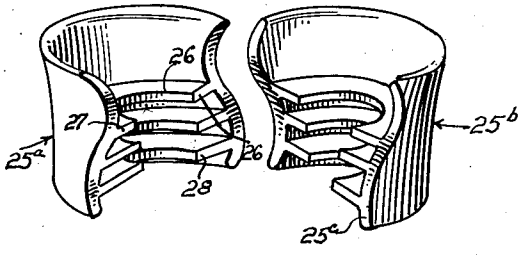


Fig. 6



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Patented Dec. 8, 1953

2,661,610

UNITED STATES PATENT OFFICE

2,661,610

HOLDER FOR CONICALLY SHAPED CUPS

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Application February 21, 1951, Serial No. 212,134

3 Claims. (Cl. 65—61)

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This invention relates to holders adapted particularly for use with paper cups of conical shape and it relates more specifically to a holder characterized by means for establishing a gripping relation with the side walls of the cup while in position of use to resist inadvertent displacement as an incidence to normal handling.

Paper cups of the type described find wide acceptance for dispensing liquid substances, such as coffee, drinks, sodas, ice cream and the like, at homes, at soda fountains, at picnics and at a large number of public functions. As a result, it is desirable to make use of cups which can be discarded after a single use. Suitable low cost cups are preferably formed of thin wall paper stock, treated or untreated, to render the paper resistant to the passage of hot or cold fluids.

Such light weight cups having very little body are sensitive to wind currents or other forces often encountered as an incidence to normal use and it is desirable to provide means in the holder for establishing a suitable gripping relation to prevent inadvertent displacement. It is also desirable to embody in a cup holder of the type described, means for establishing the desired gripping relation responsive to movement between the cup and the holder while locating the cup in position of use. When such latter means are provided, it is possible to insert the cup in position of use as the holder is pressed downwardly over the end of an inverted stack of cups thereby to effect the assembly of the cup in the holder without the necessity of handling the cup.

A number of holders embodying gripping means have been placed on the market but in practically every instance, the desired gripping relation has resulted from indentation or substantial deformation of the side walls of the cup by pins, which provide point contact, or by fins or serrated metallic rims, which provide for line contact. In order to provide for a proper gripping relation with holders of the type heretofore produced, it is often necessary to effect such deformation as might lead to piercing or rupture of the side walls of the cup or such deformation as might mar the appearance or the utility thereof. In some instances, especially with very thin wall cups, a gripping relation which relies upon frictional contact has been found insufficient properly to anchor the cup in position of use.

It is an object of this invention to produce a new and improved cup holder embodying means for establishing a gripping relation firmly to anchor the cup in position of use and it is a related

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object to provide a cup holder of the type described for use with conically shaped cups having relatively thin walls.

Another object is to produce a holder for conical paper cups having means for establishing a frictional grip over a substantial area of the cup located within the holder to anchor the cup therein with sufficient rigidity to prevent inadvertent removal without introducing excessive distortion or endangering the ability of the cup for holding fluids and the like. It is a related object to provide a holder of the type described having means for gripping the cup intermediate its ends about a number of spaced apart portions along the outer wall of the cup while in position of use so as to distribute the load while increasing the effectiveness thereof.

A further object is to produce a holder for conical paper cups having a long frusto conical passage through which the cup extends while in position of use whereby substantial gripping relation is established coupled with a guiding action properly to anchor the cup until ejected from the holder by the application of outside force.

A still further object is to produce a holder of the type described which is formed of relatively few simple parts easily assembled to form a low cost structure for use in anchoring discardable paper cups or containers without the necessity for handling the cups for placement into position of use and without the danger of inadvertent removal which might lead to loss of the cup or spillage of the content material.

These and other objects and advantages of this invention will hereinafter appear and for purposes of illustration, but not of limitation, an embodiment of the invention is shown in the accompanying drawing in which—

Figure 1 is an elevational view of the cup holder embodying features of this invention with a conically shaped paper cup anchored therein in position of use;

Figure 2 is a plan view taken from the underside of the assembly shown in Figure 1;

Figure 3 is a sectional view taken along the line 3—3 of Figure 2;

Figure 4 is a view corresponding to that of Figure 1 with the holder in section in order to show the arrangement of parts;

Figure 5 is a fragmentary sectional view of the adapter forming part of the holder for establishing the desired gripping relation with the cup, and

Figure 6 is a perspective view showing a modified form of adapter.

As shown in the drawing, a holder embodying features of this invention comprises a base portion 10 which receives a tubular body portion 11 in partial telescoping relation with an upper end of the base portion disposed within the tubular body portion being spaced inwardly therefrom to provide an annular groove 12 adapted to receive an end portion 13 of the adapter 14 for establishing the desired gripping relation, as will hereinafter be described.

The tubular body portion 11 is in the form of a relatively short tubular section which is curvilinear in shape with the upper end portion 15 being of slightly larger diameter than the lower end portion 16. The base 10 has an outwardly extending flared out portion 17 at the lower end to provide a suitable rest when the holder is placed on a table top or other substantially flat surface. Integral with the upper and inner edge of the flared out portion 17 is an upright tubular section 18 which is inclined inwardly so as to provide an opening at the lower end which is substantially larger than the span across the top portion 15 of the tubular member 11 while the opening at the upper end is dimensioned to receive the upper end portion 15 of the tubular member in snugly fitting relation. An inwardly extending flanged portion 19 integral with the upper edge of the section 18 provides a stop against which the upper edge of the tubular body portion rests when one holder is stacked on top of another and extending upwardly from the inner edge of the flanged portion 19 is another tubular section 20 dimensioned to correspond with the opening through the lower end portion 16 of the tubular member 11 so as to enable the corresponding end portions to telescope one into the other to the extent permitted by the flanged section 19.

Thus the tubular body portion is assembled onto the base portion. The frictional grip between walls of the telescoping sections may be sufficient to secure the parts together in their assembled relation while permitting separation for purposes of replacement, repair or cleaning. In the alternative, the parts may be secured together in their assembled relation by suitable joining means, such as by welding, riveting, screwing or the like.

An upper end portion of the base 10 disposed within the tubular body portion 11 when in the assembled relation is formed to provide a short inwardly extending flanged portion 21 and an upwardly extending lip 22 to provide an annular groove 12 in the area between the lip 22 and the side wall of the tubular member 11. The recess or groove 12 is adapted to receive the lower end portion 13 of an adapter 14 for establishing a frictional grip with the outer walls of the conically shaped cup 23 when in position of use.

The tubular body portion 11 and base 10 should be formed of relatively rigid material, such as of metal, plastics or wood. It is possible to form one section of one material while the other may be formed of the same or substantially dissimilar materials.

The adapter 14, shown in the drawing, comprises a tubular section 25 contoured to fit snugly against the inner wall of the tubular body portion 11 when the lower edge portion 13 thereof seats within the groove 12. Extending inwardly from intermediate portions of the tubular member 25 are a number of vertically spaced, horizontally disposed plates or shelves 26, 27 and 28 formed of resilient, highly flexible material preferably having a high coefficient of friction, such

for example as rubber, rubber-like material, leather or synthetic resinous compositions or the like. Aligned openings 29, 30 and 31 respectively are provided through the central portion of each shelf with the openings decreasing in diameter from top to bottom so as to define a frusto conical shape. When the cup member 23 is projected through the aligned openings 26, 27 and 28, the inner edge portions of each plate adjacent the openings will be engaged by the outside wall of the cup before the cup is in position of use. Continued relative movement to seat the cup in position of use will cause the contacted edge portions of the plates to be deflected downwardly with the cup and bring the top surfaces of the respective plates into frictional engagement with the outside wall of the cup. Thus the area of engagement will be vastly increased and the resilient forces developed function constantly to increase the gripping relation between the cup and the holder plates. When, as it is preferred, the openings are arranged so that a projection of the frusto conical shape defined thereby passes a short distance inwardly from the upper edge of the tubular body portion, it will be evident that the outside wall of the cup will come to rest upon the upper edge of the tubular body portion when in position of use to provide an additional support and guiding feature.

The adapter may be formed as by molding into an integral unit of such highly flexible, resilient material, as shown in Figure 5, or it may be molded of separate parts 25^a and 25^b having interfitting side walls 25^c to prevent inadvertent relative movement when in the assembled relation, as shown in Figure 6. Instead, the tubular portion may be formed of rigid material, such as metal or plastics, and the shelves of highly flexible, resilient material may be fixed to the inner wall in spaced apart relation. It is possible to vary the number of plates or shelves but it is preferred to make use of two or more, so long as sufficient area of contact is provided all around to distribute the force and minimize deformation of the cup while providing sufficient force to hold the cup in position of use.

It will be manifest from this description that the parts forming the cup holder may be separately fabricated and assembled in an economical and efficient manner to provide a low cost yet sturdy cup holder. The holder may be taken apart for purposes of cleaning, repair or replacement and it will be evident that cleaning in the assembled relation will not be subject to dangers occasioned by the availability of projecting parts.

In use, the cup may be placed in the holder and pressed down to establish the desired gripping relation. In soda fountain use or the like, the holder may be inserted over an inverted stack of cups and then pressed downwardly onto the stack. In either event, the apical uppermost portion of the cup will pass through the aligned openings in the adapter until deflected sufficiently by contact with the side walls of the cup to provide areas of frictional grip which properly positions the cup within the holder and serves to anchor the cup therein with sufficient force to prevent inadvertent displacement. Upon removal of the holder, the uppermost cup is removed with it in position of use. When such use has been completed, the cup may be removed and discarded by application of force onto the apex of the cup from the underside of the holder or by pulling the cup out of the holder.

It will be understood that a number of changes may be made in the details of construction, arrangement and operation without departing from the spirit of the invention, especially as defined in the following claims.

I claim:

1. In a holder for conical paper cups, an adapter for establishing a frictional gripping relation with the outside wall of the cup when in position of use comprising a plurality of vertically spaced, horizontally disposed plates of highly flexible material having aligned openings of gradually decreasing dimension from the top plate to the bottom plate, the portions of the plates adjacent the openings being deflected upon engagement with the cup as it is projected through said openings into position of use to bring top surfaces of the plates into frictional engagement with the outside wall of the cup.

2. A cup holder as claimed in claim 1 in which the openings in the plates determine a surface of conical shape having a slope corresponding to that of the conically shaped paper cups.

3. A cup holder as claimed in claim 1 in which the openings in the plates determine a conical surface which is closely spaced from the upper edge of the holder when extended upwardly thereto.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
395,409	Waters	Jan. 1, 1889
1,957,263	Gray	May 1, 1934
2,329,512	Clifford, Jr.	Sept. 14, 1943
2,414,920	Amberg	Jan. 28, 1947
2,487,712	Johnson et al.	Nov. 8, 1949
2,552,080	Amberg	May 8, 1951
2,570,954	Kasman	Oct. 9, 1951

FOREIGN PATENTS

Number	Country	Date
9,676	Great Britain	Apr. 29, 1903