Oct. 2, 1934. J. D. REIFSNYDER 1,975,649

CUP DISPENSER

Filed April 22, 1933

Fig. 1.

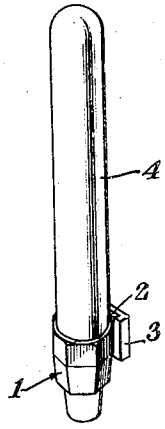


Fig. 2.

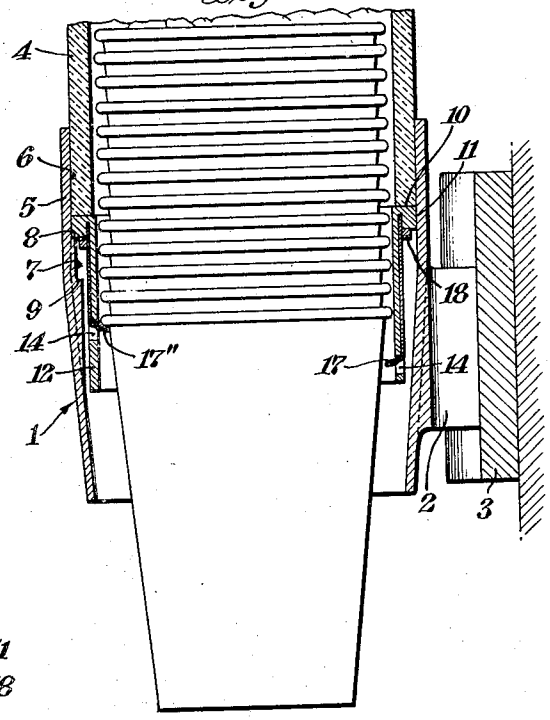


Fig. 4.

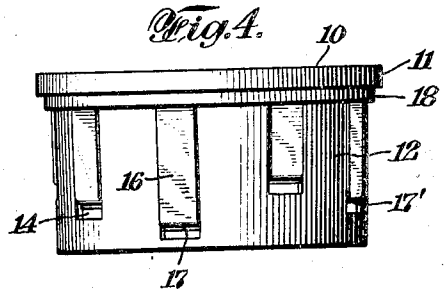
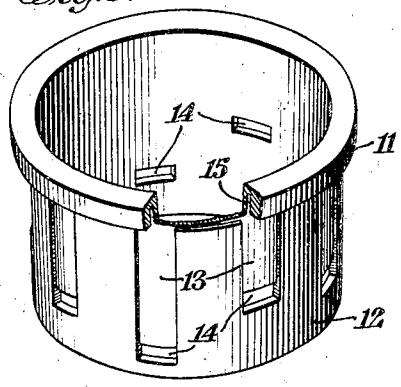


Fig. 5.



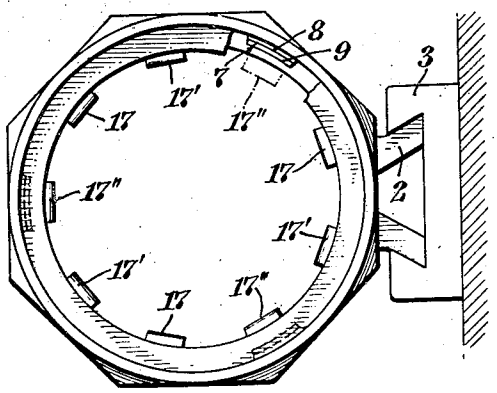


Fig. 3.

INVENTOR

James D. Reifsnyder

BY Ward Crosby & Neal

His ATTORNEYS

Patented Oct. 2, 1934 1,975,649

UNITED STATES PATENT OFFICE

1,975,649

CUP DISPENSER

James D. Reifsnyder, Flushing, N. Y., assignor to Lily-Tulip Cup Corporation, New York, N. Y., a corporation of Delaware

Application April 22, 1933, Serial No. 667,366

8 Claims. (Cl. 312—43)

This invention relates to devices for dispensing paper drinking cups and is particularly adaptable to what are known in the art as free dispensers.

The present invention is in the nature of an improvement over the device set forth in Letters Patent No. 1,058,787, patented April 15, 1913, for Cup dispensing device.

An object of the present invention is to provide a structure which is simple and durable and which permits of economic and rapid production, and more particularly one in which the relatively fragile moving parts may not be easily tampered with or put out of adjustment either intentionally or unintentionally.

Another object is to provide a device which may be readily and economically adapted to dispense a plurality of sizes of cups.

The invention consists in the novel features, arrangements and combination of parts embodied by way of example in the apparatus hereinafter described as illustrating the preferred form of the invention, and the invention will be more particularly pointed out in the appended claims.

Further and more specific objects, features and advantages will more clearly appear from the detailed description given below taken in connection with the accompanying drawing which forms a part of this specification and in which:

Fig. 1 is a perspective view of the dispenser;

Fig. 2 is a transverse longitudinal sectional view on an enlarged scale with certain parts broken away;

Fig. 3 is a plan view of the dispensing head with the glass cover removed;

Fig. 4 is a side view showing the inner sleeve assembly including dispensing fingers in position; and

Fig. 5 is a perspective view partly in section of the inner sleeve.

Referring to Figs. 1, 2 and 3: the dispensing head 1 is provided with suitable attaching means 2 in the present form of a male V which is adapted to fit into a cooperating female groove formed in a supporting block 3, and this device may be supported from a suitable wall portion. As is usual in such structures a suitable glass tube 4, which is closed at the top, may be provided for protecting the cups from dust.

The dispensing head comprises an outer shell 5 with dispensing mechanism supported therein. The shell 5 has an inner cylindrical bore 6 and abutment or supporting means, which in the present embodiment takes the form of a plurality of circumferentially spaced pads or projections 7, on which the said mechanism rests. These pads are preferably provided with a plurality of shoulders 8 and 9 for accommodating one or another dispensing mechanism of predetermined size to provide for dispensing cups of one or another size, so that a single size device may be utilized for a range of sizes.

Referring to Figs. 4 and 2: an inner shell 10 comprises an upper outwardly extending flange 11 and dependent sleeve 12. The sleeve 12 is provided with a plurality of axially extending and circumferentially spaced grooves 13 which extend downwardly from the flange 11 and terminate in openings 14, which extend inwardly through the wall of the sleeve 12. The openings 14 are arranged in three groups, each of which is in a respectively different plane and each of which groups comprises three equidistantly spaced openings. The under side of the flange 11 is provided with an undercut annular groove 15 for the accommodation of the upper ends of resilient fingers 16 (Fig. 4); the said fingers 16 being seated in respectively corresponding grooves 13 and having their lower ends 17 projecting inwardly.

For purposes of illustrating the respective positions of the lower ends of the fingers the lowermost group will be designated 17, the next higher group 17' and the uppermost group 17'', it being understood that as in the case of the disposition of the openings 14 the said groups 17, 17' and 17'' are arranged respectively in different planes and each group comprising a plurality of inwardly projecting ends. These ends project inwardly as illustrated in Fig. 2 in such manner as to engage the rims of cups being dispensed. The resilient fingers 16 are rigidly secured at their upper ends contiguous to the flange 11 and for this purpose the ring 18 may be employed although it is within the contemplation of the invention that the springs may be clamped within the undercut groove 15 by means of squeezing inwardly on the flange 11.

The outer diameter of the flange 11 is of such size as to tightly fit within the bore 6 within which it is forcibly pressed until it lies upon the supporting shoulder such as 8, to thereby attach the inner and outer shells integrally. In this position an annular space is provided between the outside of the inner shell and the inner wall of the outer shell. The resilient fingers 16 are positioned within this space and are fully protected from either intentional or unintentional displacement or interference while at the same time being permitted a sufficient degree of radial movement in order to permit the desired outward

movement of the cup-engaging ends 17, etc. The nest of cups is normally supported on the uppermost ends 17'', which engage the under side of the rim or lip of the lowermost cup of the series, and the parts are so proportioned that the lowermost part of the body of the cup projects beyond the lower edge of the outer shell 5 to permit of readily grasping the same for the purposes of withdrawal. To facilitate the withdrawal of the cups the inwardly projecting ends 17 etc. are preferably slightly inclined downwardly. Upon pulling on the lowermost cup, the upper series of fingers are flexed outwardly permitting the cup-engaging ends to recede outwardly through the shell 12 and the lowermost cup then comes into engagement with the second series of fingers which are acted upon in a similar manner and then with the third series of fingers which are similarly flexed permitting the cup to be withdrawn from the device. The purpose of having a plurality of cup-engaging ends in vertically spaced series is to provide for resiliently holding successive cups of a series while the first cup is being withdrawn to prevent more than one cup being withdrawn at a time, as is well understood in the art.

As will be readily appreciated from the foregoing, if it is desired to use the device for a smaller size cup than that illustrated, a somewhat smaller inner shell 10 similarly formed and constructed and carrying a corresponding assembly of resilient fingers may be inserted within the outer shell 5 and in such case will rest upon the lower series of shoulders 9. By this provision it will be appreciated that it will only be necessary to provide different sizes of inner shell assemblies in order to accommodate a given device for cups of different sizes; thereby greatly reducing the cost of production and the number of sizes of dispensers necessary to carry in stock.

From the foregoing it will be appreciated that if the dispenser is empty and anyone attempts to distort or derange the inwardly projecting fingers, the same will be practically impossible since the only position in which the fingers may be moved is in an outward direction, and this movement is perfectly normal and is permitted due to the flexure of the fingers. The extent of such movement may only conveniently be the distance which the fingers project in the shell and the shell itself will prevent substantial circumferential or axial displacement.

Having thus described my invention with particularity with reference to its preferred form, it will be obvious to those skilled in the art, after understanding my invention, that other changes and modifications may be made therein without departing from the spirit and scope of my invention, and I aim in the appended claims to cover such changes and modifications.

What I claim is:

1. In a cup dispenser, the combination of a dispensing head having outer and inner wall members, a plurality of downwardly extending resilient fingers circumferentially spaced and positioned between said inner and outer walls, said fingers being supported in said head from their upper ends and having their lower ends projecting inwardly beyond the inner wall to provide cup-engaging portions, the downwardly extending resilient fingers being permitted sufficient freedom of movement between said wall members to permit the cup-engaging ends thereof to be moved outwardly to permit the withdrawal of a cup.

2. In a cup dispenser, the combination of a dispensing head having outer and inner wall members, a plurality of downwardly extending resilient fingers circumferentially spaced and positioned between said inner and outer walls, said fingers being rigidly held in said head at their upper ends and having their lower ends projecting inwardly through said inner wall to provide cup-engaging portions, the downwardly extending resilient fingers being permitted sufficient freedom of movement between said wall members to permit the cup-engaging ends thereof to be moved outwardly to permit the withdrawal of a cup, and the said inner wall providing means for restricting the circumferential movement of said fingers.

3. In a cup dispenser, the combination of a dispensing head having outer and inner wall members, a plurality of downwardly extending resilient fingers circumferentially spaced and positioned with their entire downwardly extending portions concealed and protected between said inner and outer walls, said fingers being rigidly held in said head at their upper ends and being provided at their lower ends with inwardly projecting cup-engaging portions, the downwardly extending resilient fingers being permitted sufficient freedom of movement between said wall members to permit the cup-engaging ends thereof to be moved outwardly to permit the free withdrawal of a cup.

4. In a cup dispenser, the combination of an outer shell, an inner shell, a plurality of downwardly extending resilient fingers rigidly secured to said inner shell adjacent their upper extremities and circumferentially disposed between said shells with limited freedom of movement in a radial direction and each provided with an inwardly projecting cup-engaging end, said ends extending inwardly beyond the inner face of the inner shell and said inner shell serving to conceal and protect the remaining portions of the resilient fingers, said ends being disposed in a plurality of substantially horizontal planes and there being a plurality of said ends in each plane.

5. In a cup dispenser, the combination of an outer shell, an inner shell, a plurality of downwardly extending resilient fingers whose upper ends are rigidly secured to said inner shell, said fingers being circumferentially disposed between said shells and permitted limited free movement in a radial direction and each provided with an inwardly projecting cup-engaging end, said inner shell serving also to restrict circumferential movement of said ends and to protect the remaining portions of the resilient fingers, said cup-engaging ends being disposed in a plurality of substantially horizontal planes and there being a plurality of said ends in each plane.

6. In a cup dispenser, the combination of an outer shell, an inner shell, a plurality of downwardly extending resilient fingers secured to said inner shell and circumferentially disposed between said shells with limited freedom of movement in a radial direction and each provided with an inwardly projecting cup-engaging end, said ends extending inwardly through openings in said inner shell beyond the inner face thereof and said inner shell serving to restrict the axial and circumferential movement of said ends and to conceal and protect the remaining portions of the resilient fingers, said ends being disposed in a plurality of substantially horizontal planes and there being a plurality of said ends in each plane.

7. In a cup dispenser, the combination of an outer shell provided with interior supporting means, an inner shell comprising an outwardly extending upper flange resting on said supporting means and whose outer periphery engages the inner bore of said outer shell with a drive fit to form thereby an integral structure and a depending sleeve spaced inwardly from said outer shell to provide an annular chamber, a plurality of resilient fingers rigidly secured at their upper ends to said flange lying adjacent to and extending downwardly substantially axially of and circumferentially disposed about said sleeve and lying within said chamber, said fingers being provided at their respective lower ends with inwardly projecting cup-engaging ends extending inwardly beyond the inner face of said sleeve, and said ends being disposed in a plurality of substantially horizontal planes and there being a plurality of ends in each plane.

8. In a cup dispenser having an outer supporting shell, the combination of dispenser mechanism supported thereby and comprising a shell having an upper outwardly extending flange and a dependent sleeve, said sleeve being provided with a plurality of axially extending substantially parallel circumferentially spaced grooves on its outer periphery and having openings extending from adjacent the lower ends of said grooves through its side wall, a plurality of resilient fingers seated in respectively corresponding of said grooves with their upper ends secured to said shell contiguous said flange, and provided with lower ends extending inwardly through corresponding of said openings and providing cup-engaging means within said shell, said lower ends being divided into a plurality of groups each comprising a plurality of ends and each group disposed in a respectively different plane.

JAMES D. REIFSNYDER.