Oct. 12, 1965 J. W. BOYD 3,211,329

DISPENSER FOR VARIOUS SIZED CUPS

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FIG. 1

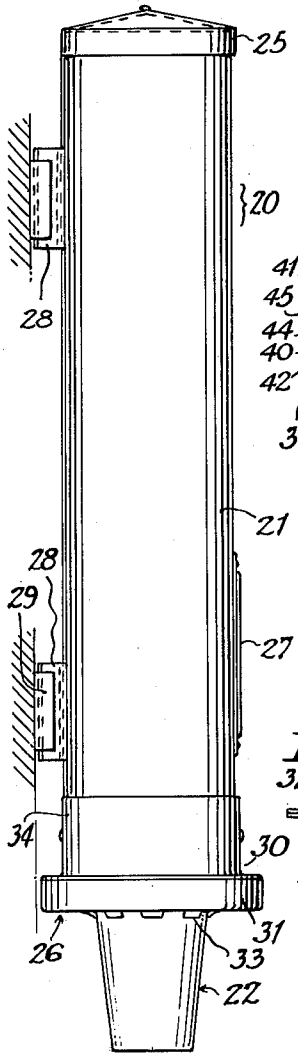


FIG. 2

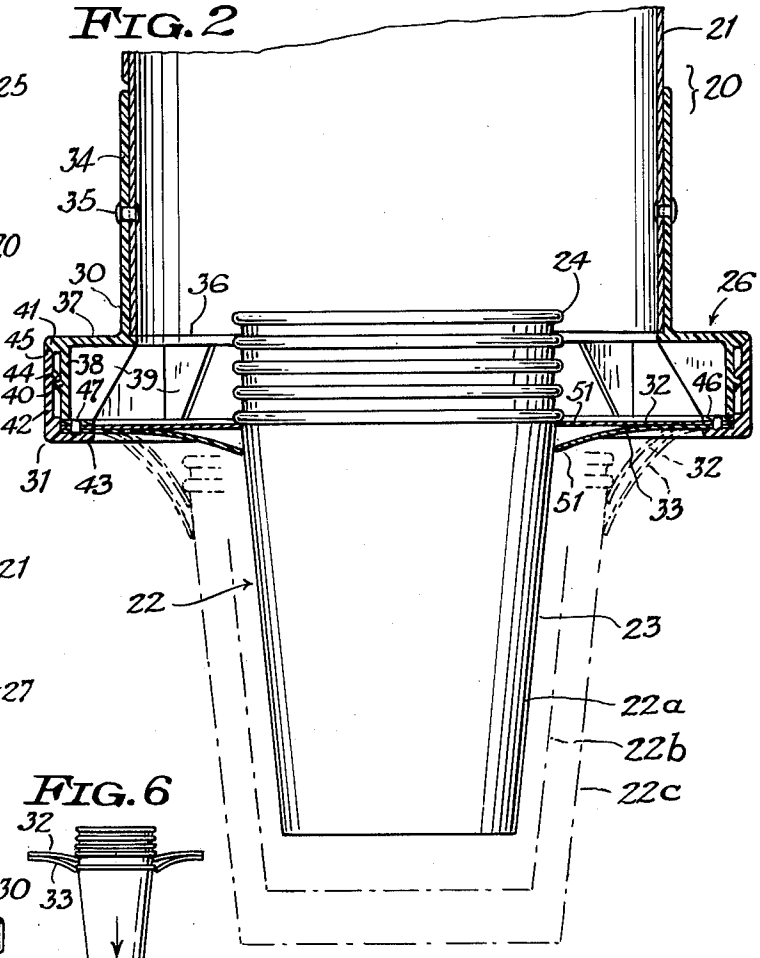
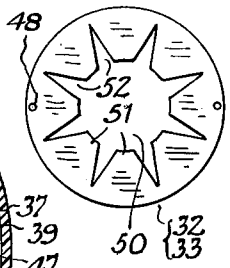
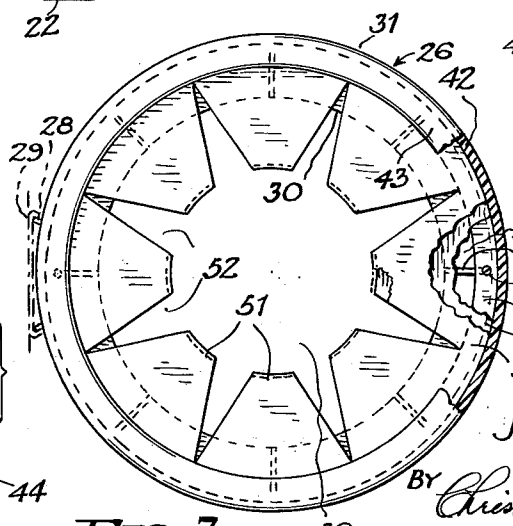


FIG. 6

FIG. 5





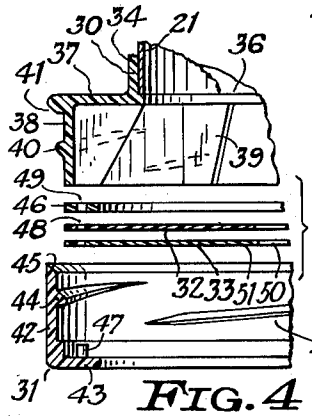


FIG. 4

FIG. 3

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FIG. 8

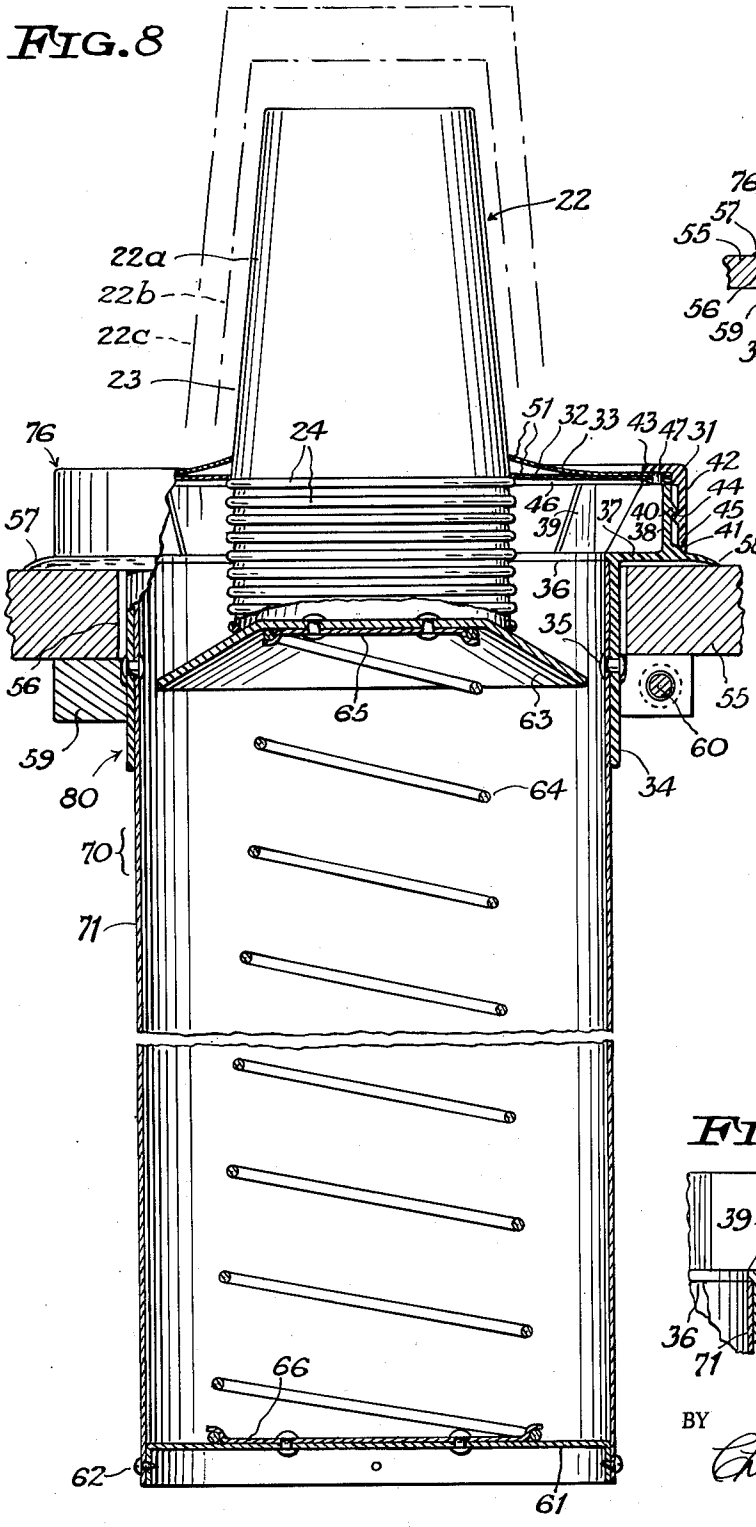


FIG. 7

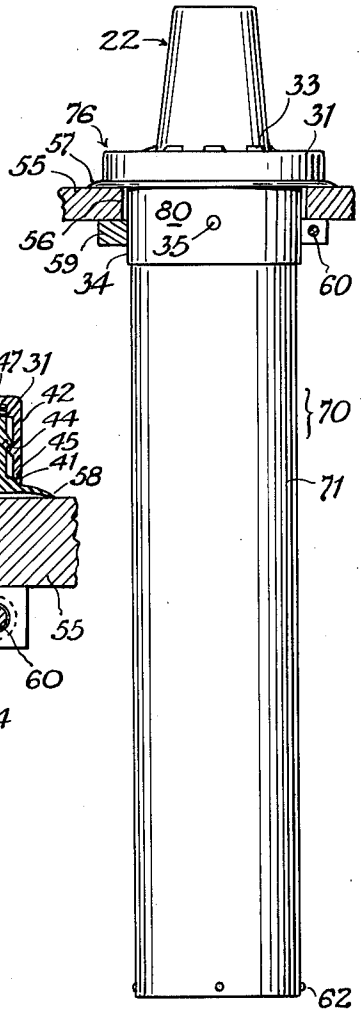
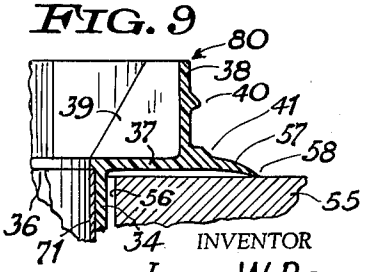


FIG. 9



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FIG. 10

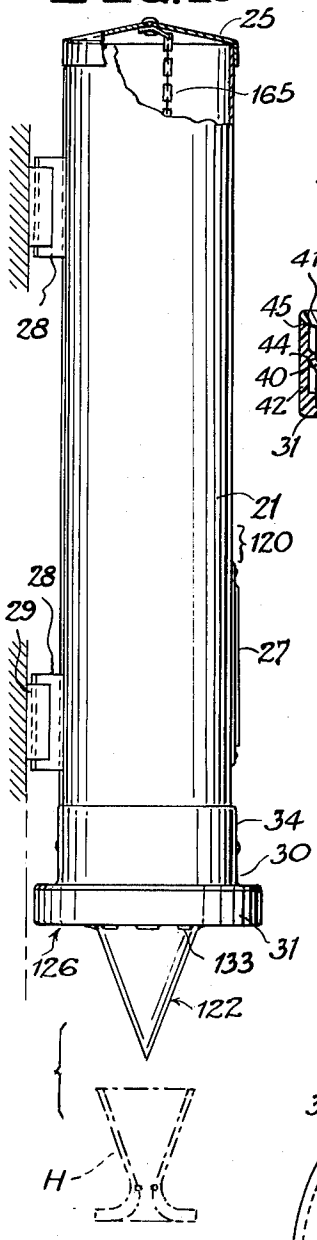


FIG. 11

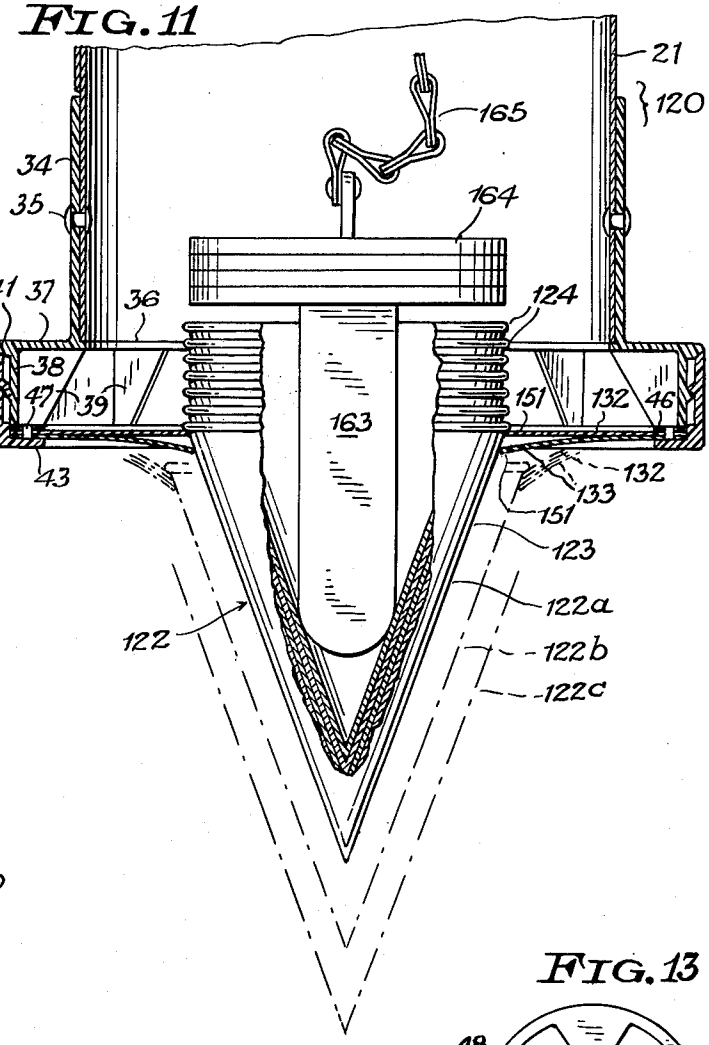
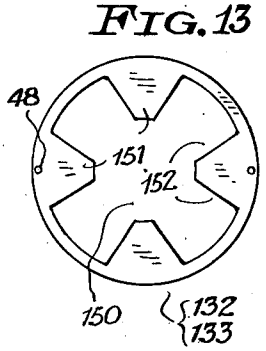


FIG. 13



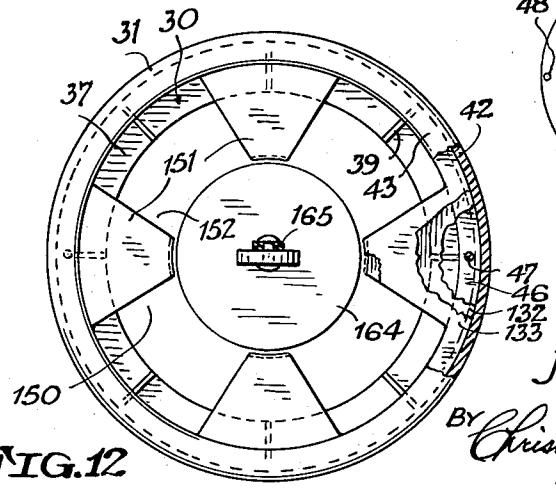


FIG. 12

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FIG. 16

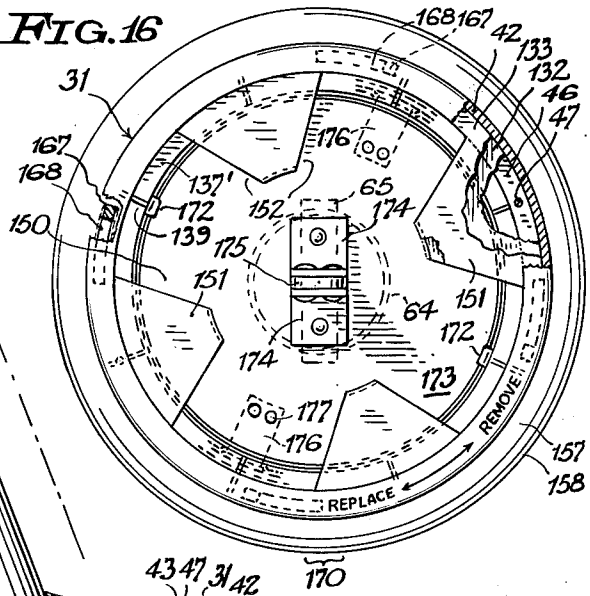


FIG. 15

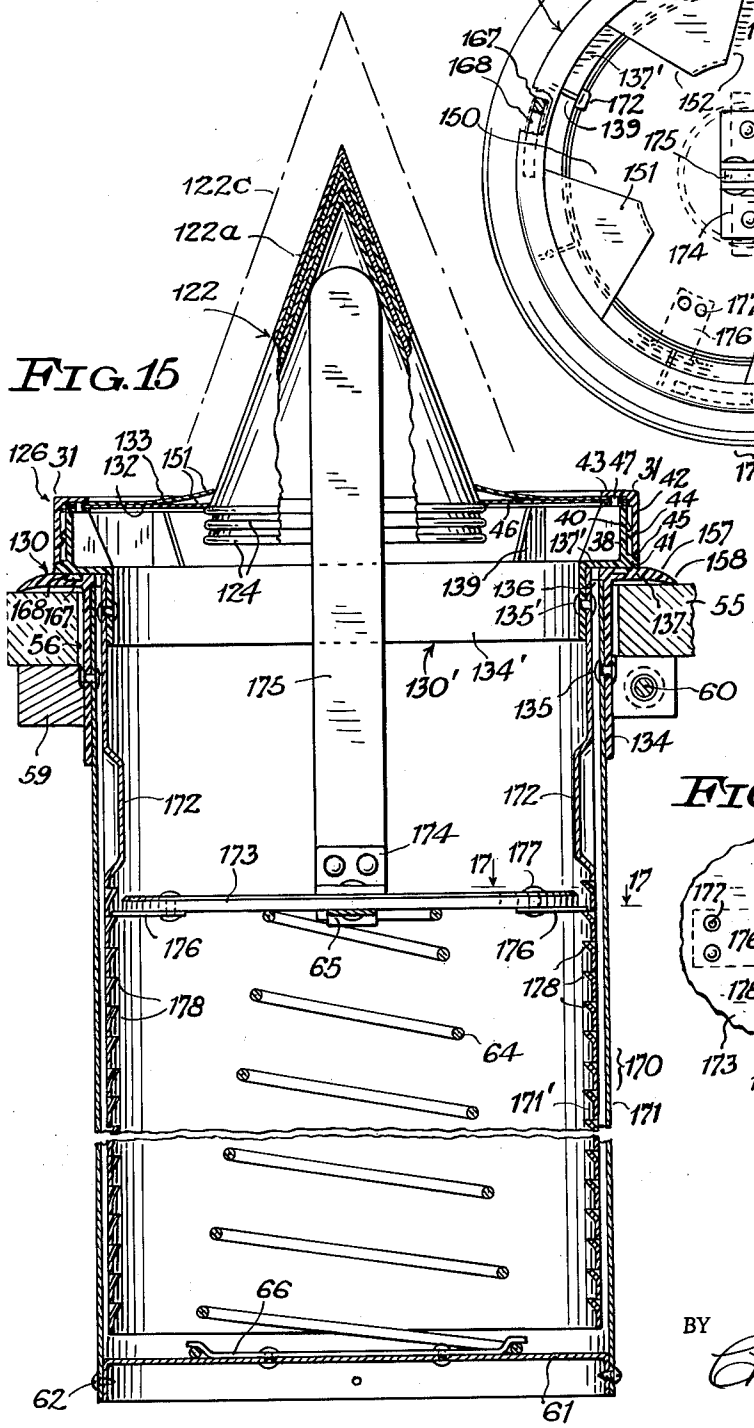


FIG. 14

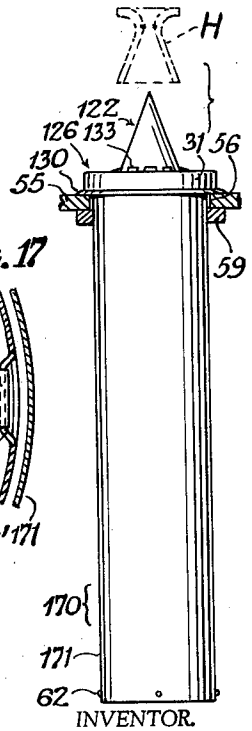


FIG. 17

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United States Patent Office 3,211,329 Patented Oct. 12, 1965

3,211,329

DISPENSER FOR VARIOUS SIZED CUPS

John W. Boyd, West Allis, Wis., assignor to Griffith-Hope Company, West Allis, Wis., a corporation of Wisconsin

Filed Sept. 20, 1963, Ser. No. 310,198
8 Claims. (Cl. 221—279)

This invention relates to dispensers for nested articles, such as disposable drinking cups and the like made of paper or thin plastic material.

Cups of this type are manufactured in a wide range of sizes, and it has been common practice to provide a dispenser for each cup size or for a relatively narrow range of cup sizes.

An object of the invention is to provide an improved cup dispenser capable of accommodating and dispensing stacked paper cups and the like having a relatively wide range of rim diameters so as to avoid the need for supplying numerous sizes of dispensers.

Another object is to provide a cup dispenser which includes simplified and improved means for forming a restricted dispensing throat capable of automatic adjustment to accommodate and retain the various-sized cups and to insure individual delivery of the cups.

Still another object is to provide a cup dispenser which includes a dispensing throat formed by a plurality of superposed centrally open throat disks of inexpensive construction having inwardly projecting resilient cup-retaining tongues or blades, and which further includes simplified and improved means for mounting the throat disks.

A further object is to provide a cup dispenser which will accommodate both frusto-conical and fully conical cups, as well as dishes, bowls, and the like, and which can be arranged as a downfeed dispenser or an upfeed dispenser.

A further object is to provide a cup dispenser in which the dispensing parts can be inexpensively constructed of plastic material.

A further object is to provide a cup dispenser including means for resisting retrograde movement of the stacked cups during dispensing by a pick-up or gripping-type cup holder, and in which said means is rendered ineffective during loading of the dispenser.

The invention further consists in the several features hereinafter described and claimed.

In the accompanying drawings, illustrating certain embodiments of the invention,

FIG. 1 is a side elevational view of a downfeed cup dispenser constructed in accordance with the invention and arranged for dispensing nested frusto-conical cups;

FIG. 2 is an enlarged sectional elevational view of the lower or delivery portion of the dispenser, showing in full lines relatively small-sized cups accommodated therein, and showing in broken lines other larger-sized cups;

FIG. 3 is a bottom plan view of the dispenser with the cups omitted, parts being broken away and parts being shown in section;

FIG. 4 is a fragmentary exploded sectional view of parts of the delivery end portion of the dispenser;

FIG. 5 is a plan view of one of the throat disks of the dispenser;

FIG. 6 is a diagrammatic elevational view showing the dispenser throat disks as they appear during withdrawal of the lowermost or foremost cup;

FIG. 7 is an elevational view of a modified form of dispenser arranged for upfeed dispensing of the cups and adapted for counter mounting, parts being shown in section;

FIG. 8 is a fragmentary sectional elevational view of the cup dispenser of FIG. 7;

FIG. 9 is a fragmentary detail sectional elevational view on an enlarged scale, of the delivery portion of the dispenser of FIGS. 7 and 8, parts being omitted;

FIG. 10 is a side elevational view of another modified form of dispenser, generally similar to that of FIG. 1 but arranged for downfeed dispensing of nested conical cups, parts being shown in section;

FIG. 11 is a fragmentary sectional elevational view of the lower or delivery portion of the cup dispenser of FIG. 10;

FIG. 12 is a bottom plan view of the dispenser of FIG. 10 with the cups omitted, parts being broken away and parts being shown in section;

FIG. 13 is a detail plan view of one of the throat disks for the dispenser of FIG. 10;

FIG. 14 is an elevational view of a further modified dispenser arranged for upfeed dispensing of conical cups, parts being shown in section;

FIG. 15 is a fragmentary sectional elevational view of the cup dispenser of FIG. 14;

FIG. 16 is a top plan view of the dispenser of FIG. 14 with the cups omitted, parts being broken away and parts being shown in section, and

FIG. 17 is a detail sectional view taken generally on the line 17—17 of FIG. 15.

Referring to the drawings, the downfeed cup dispenser illustrated in FIGS. 1 to 6 is designated generally by the numeral **20** and includes a vertically extending tubular casing **21** of cylindrical shape forming a magazine for housing therein a stack of nested disposable cups **22**, such as of paper or plastic. These cups, here shown to be of a conventional frusto-conical type, have resilient side walls **23** and resilient beaded rims **24**, the rims of adjacent nested cups being axially spaced. The tubular casing **21**, which is formed of sheet metal or other suitable material, has an open upper end for loading the stacked cups therein, and normally closed by a skirted domed cap or cover member **25**. The inner diameter of the casing is selected to accommodate the largest-sized cups to be dispensed. The lower end of the casing is provided with an enlarged throat-forming cup-dispensing head designated generally by the numeral **26** and hereinafter described. The casing is equipped with the usual vertically extending inspection window **27** in the lower portion of its side wall. For wall mounting of the dispenser, the casing is provided with one or more of the usual wedge-type flange members **28** detachably interengageable with wall brackets **29**.

The dispensing head **26** comprises an annular end fitting or adapter **30** and a cap ring **31** detachably secured thereon, as hereinafter described, for mounting a pair of throat disks **32** and **33**, hereinafter described, arranged in superposed relation coaxially of the tubular cup casing **21**. The end fitting **30**, which is desirably formed of molded plastic such as polyethylene, includes a sleeve portion **34** snugly fitting over the lower end portion of the tubular casing and rigidly attached thereto, as by rivets **35**, the lower end of the sleeve portion having an internal annular shoulder **36** against which abuts the lower edge of the tubular casing. The end fitting **30** further includes an outwardly projecting flat ring portion **37** integrally joining the outer end of the sleeve portion, and a downwardly projecting cylindrical ring portion **38** integrally joining the outer edge portion of the flat ring portion. Peripherally spaced radial ribs **39** at the inner side of the cylindrical ring portion integrally connect this ring portion and the flat ring portion **37**, the lower edges of these ribs being coplanar with the bottom edge of the cylindrical ring portion. The outer periphery of the cylindrical ring portion **38** is provided with projecting segmental screw threads **40**, and the outer bead-like edge

of the flat ring portion **37** presents a downwardly facing bevel seat **41**. The cap ring **31**, which is also formed of molded plastic, such as polyethylene, is detachably screwed onto the end fitting **30** and comprises a cylindrical ring portion **42** and an inturned annular bottom or end flange **43**. The cylindrical cap ring portion **42** is provided at its inner side with segmental threads **44** engageable with the external threads **40** of the end fitting **30**, and the upper periphery of the cap ring portion **42** has a bevel seat **45** engageable with the bevel seat **41** of the end fitting.

The flat throat disks **32** and **33** are marginally clamped between the inturned flange **43** of the cap ring and the annular lower edge of the end fitting **30**, the upper disk **32** engaging a flat gasket ring **46** of resilient plastic, such as polyethylene, which bears against the lower edge of the end fitting and the lower edges of the ribs **39**. The gasket ring **46** is somewhat thicker than the throat disks. The cap ring flange **43** has integrally formed on its inner face a pair of diametrically opposite dowel projections **47** extending parallel to the axis of the cap ring. The dowel projections pass through holes **48** formed in the throat disks and into holes **49** formed in the gasket ring, the latter ring being pressed onto the dowel projections so that the throat disks will remain on the cap ring when it is unscrewed from the end fitting **30**.

The normally flat throat disks **32** and **33** are desirably formed of a thin resilient material, preferably a plastic such as polypropylene, polytetrafluoroethylene, and acetate resin, and are conveniently stamped out of flat sheet stock or are molded to shape. Each throat disk has a star-shaped central opening or aperture **50** defined by evenly spaced inwardly projecting radial tongues or blades **51** of inwardly tapering shape, eight tongues or blades being provided in the present instance, and the inner ends of the inwardly divergent spaces **52** between the inner ends of the blades being about equal to the width of the blades. The edges of the inner ends of the blades are here shown to be slightly concave. The inner diameter of the opening in the outer disk **33**, that is, the distance between the inner ends of opposite tongues, is slightly smaller than the cup diameter of the smallest cup **22***a* to be dispensed at a region immediately adjacent to the underside of the rim bead, so as to compensate for sag-flexing when a full column of cups is loaded, and the inner diameter of the opening in the inner disk **32** is slightly larger than that of the outer disk, a difference of about $\frac{1}{16}$ inch in these diameters being found suitable. As seen in full lines in FIG. 2, the inner ends of the tongues or blades of the upper or inner throat disk **32** engage the side walls and the underside of the resilient rim of the lowermost cup, and the inner ends of the tongues or blades of the outer disk **33** engage the tapered side walls of the cup at a region spaced downwardly from the rim, thus supporting and retaining the stack of cups. In the case of cups **22***b* and **22***c* with larger rim diameters, as indicated by broken lines in FIG. 2, the cup-retaining tongues of the two throat disks assume downwardly deflected stack-retaining positions.

When the cup dispenser is to be loaded, the casing cover **25** is temporarily removed and a stack of cups is lowered into the casing. In the case of the smaller-sized cups the lowermost cup will freely enter the central openings in the throat disks until it is stopped by the inner ends of the dispensing tongues **51**, while in the case of cups **22***c*, FIG. 2, with a bottom diameter larger than the normal gap between opposed tongues, the weight of the stack of cups or additional downward pressure on the stack will deflect the tongues downwardly and force the lowermost cup through the throat disks a sufficient distance so that it can be grasped by the user's fingers. In some instances, the user may insert his fingers upwardly into the throat disk openings to pull the lower portion of the lowermost cup into the disk openings to dispensing position.

When the lowermost cup is to be withdrawn from the dispenser, it is grasped at its protruding lower portion by the user's fingers and pulled downwardly, further deflecting the dispensing tongues of the throat disks until the cup is released from these tongues. During the withdrawal of the lowermost cup, the resilient rim of the lowermost cup passes through the two throat disks in succession and may temporarily bulge slightly into the inter-tongue spaces of the throat disks. During this withdrawal, the following cup is drawn downwardly by the frictional engagement between the cups a short distance but is restrained against withdrawal by the tongues of the upper or inner throat disk **32**, thus separating the cups. This momentary condition is illustrated in FIG. 6. After the lowermost cup is free of the dispenser the tongues snap back to the cup-retaining position seen in FIG. 2. When dispensing the larger cups, the flexing action of the throat disks is much more pronounced, but operation and separation is equally effective.

The cup dispenser **70** illustrated in FIGS. 7 to 9 is arranged for upfeed dispensing of frusto-conical paper cups **22**, and is adapted for mounting on a counter or table top **55** having an opening **56**. The dispenser includes a tubular casing **71** the upper portion of which extends through the counter opening **56** and is provided with a dispensing head **76**. The dispensing head includes an end fitting **80** similar to the fitting **30** of FIG. 1 except that the flat ring portion **37** thereof is provided with an added peripheral flange **57** of curved outwardly tapered cross-section having a thin outer edge **58** adapted to be flexed tightly against the counter top to provide a moisture seal. As in FIG. 2, the dispenser is provided with a cap ring **31** detachably screwed onto the end fitting **80** and mounting a pair of stacked throat disks **32** and **33** and an annular gasket **46**. The casing **71** is fixed in position by a surrounding split ring **59** which is formed in one or two parts and attached thereto by one or more clamping screws **60** and which engages the underside of the counter top. A peripherally flanged cover **61** is secured in the lower end of the casing as by sheet metal screws **62**.

A domed cup follower **63** of frusto-conical shape is axially movable in the magazine and is urged upwardly, as by a conical coil spring **64**. The upper end of the cup-elevating spring is secured to the follower by a clip **65** riveted to the follower, and the lower end of the spring is secured to the bottom cover **61** of the casing by a riveted clip **66**.

To load the dispenser of FIG. 8, the throat-carrying cap ring **31** is unscrewed from the end fitting **80**, whereupon a stack of the inverted nested cups **22** is pushed downwardly into the casing against the pressure of the elevator spring **64**, the rim of the lowermost cup bearing on the cup follower **63**. While the cup stack is held depressed, the cap ring is screwed back onto the end fitting, and the cup stack is then permitted to rise slightly to bring the uppermost cup into engagement with the dispensing tongues. Alternatively, the throat-carrying cap ing **31** may be engaged about the uppermost cup to assist in pushing the cup stack into the container.

The upwardly urged stacked cups are retained by the resilient tongues **51** of the throat disks **32** and **33** the inner ends of which engage the walls of the outermost or uppermost cup in the same manner as in the downfeed dispenser of FIG. 2, and individual withdrawal of the cups from the dispenser is effected in the same manner.

The downfeed dispenser **120** shown in FIGS. 10 to 13 is generally similar to that of FIG. 1 but is slightly modified for dispensing nested conical paper cups **122**, either directly by hand or by means of a pick-up or gripping-type cup holder H, FIG. 10. The dispenser includes a dispenser head **126** having therein a pair of throat disks **132** and **133** which are similar to the throat disks **32** and **33** of FIG. 5 except that in forming the central opening **150** of each disk alternate resilient tongues are

omitted, leaving wider spaces **152** between the remaining four tongues **151**. The throat disks are mounted in the dispenser head **126** in the same manner as in the dispenser head **26** of FIG. 2 and will accommodate a wide range of cup sizes. Stacked cups **122***a* of relatively small size are shown by full lines in FIG. 11, and cups **122***b* and **122***c* of considerably larger size are indicated in broken lines. Each of the cups has a resilient conical side wall **123** and a resilient rim bead **124**.

A follower weight **164** is movable in the tubular casing **21** and includes a downwardly projecting bar **163** engaging the inner walls of the uppermost cup, as seen in FIG. 11. The weight is connected by a retaining chain **165** to the center of the underside of the removable casing cover **25**.

The stacked cups are loaded into the casing from above and are urged downwardly by the follower weight, the pointed lower ends of the lowermost cups projecting through the central openings of the throat disks. As shown by full lines in FIG. 11, the deflectable resilient tongues **151** of the throat disks **132** and **133** engage the outer walls of the lowermost cup **122***a* to retain the stack of cups in the dispenser; and in the case of cups with larger rim diameters, the dispensing tongues will assume a normal downwardly deflected position as shown by broken lines.

When the first or lowermost cup is withdrawn downwardly, either directly by hand or by means of the pick-up or gripper-type holder H of FIG. 10, the resilient rim portion of the cup is forced past the inner ends of the resilient tongues **151** of the two throat disks in succession, deflecting these tongues downwardly, and parts of the resilient rim portion of the cup momentarily bulging into the inter-tongue spaces. The second or following cup, however, is retained by the tongues of the upper throat disk, as in FIG. 6. The follower weight resists upward displacement of the stacked cups, particularly when the lowermost cup is withdrawn by the gripping-type holder H which is pushed upwardly into engagement with this cup.

The modified form of dispenser **170** illustrated in FIGS. 14 to 17 is arranged for upfeed dispensing of conical paper cups **122** and is adapted for mounting on a counter or table top **55**, as in FIG. 8. The dispenser includes a casing assembly comprising coaxial outer and inner tubular casing members **171** and **171'** which extend vertically through an opening **56** in the counter and are attached at their upper ends to a dispensing head assembly **126**. The dispensing head assembly includes a pair of relatively rotatable annular end fittings or adapters **130** and **130'** of molded material, such as polyethylene, and further includes a cap ring **31** having a detachable screw-threaded connection with the end fitting **130'**. The end fitting **130** includes a sleeve portion **134** snugly fitting on the outer casing member and rigidly secured thereto by rivets **135**, the upper end of the sleeve portion having an internal annular shoulder **136** against which abuts the upper edge of this casing member. The end fitting **130** further includes an outwardly projecting flat ring portion **137** integrally joining the upper end of the sleeve portion **134** and provided with a peripheral flange **157** of tapered cross-section having a thin outer edge **158** adapted to be flexed tightly against the container top to afford a moisture seal. As in FIG. 8, the outer casing **171** is fixed in position by a surrounding split clamping ring **59** engaging the underside of the counter and clamped about the casing by one or more screws **60**. The lower end of the outer casing is provided with a bottom cover or closure **61**, as in FIG. 8.

The inner tubular casing member **171'** is slightly smaller in diameter than the outer casing member and is rotatable therein about its vertical axis through a small angle as hereinafter described. The upper end of the inner casing member has rigidly secured thereto the end fitting **130'** which includes a sleeve portion **134'** fitting within the inner casing member and secured thereto as by rivets **135'**. The end fitting **130'** further includes a flat ring portion **137'** which slidably bears on the upper face of the flange **137** of the companion end fitting **130** and is connected thereto by peripherally spaced projections **167** which slidably fit in arcuate dovetail slots **168** formed in the flange **137**. Integrally formed on the outer edge portion of the flat ring portion **137'** is an upstanding cylindrical ring portion **38** which is provided with exterior interrupted screw threads **40** corresponding to the screw threads **40** of FIG. 4 and engageable with internal screw threads **45** formed on the cap ring **31**. Peripherally spaced radial bracing flanges **139** integrally connect the inner side of the cylindrical ring portion **38** with the flat ring portion **137'**.

A pair of centrally open resilient throat disks **132** and **133**, like those of FIG. 13, and an associated annular gasket ring **46** are detachably clamped to the end fitting **130'** by the screw-threaded cap ring **31** which is like that of FIGS. 2 and 8. The cap ring is detachable to permit downward loading of a stack of cups into the inner casing member, and the throat disks and gasket ring remain on the cap ring when it is detached.

A follower plate or disk **173** is movable axially in the inner casing member **171'** and is urged upwardly by a coiled conical spring **64** attached to this plate and to the bottom closure by respective riveted clips **65** and **66**. The upward travel of the follower plate is limited by stop embossments **172** formed on the inner casing member. The spring-urged follower plate **173** has rigidly attached thereto, as by riveted angle brackets **174** an upstanding bar **175** which enters the lowermost one of the inverted stacked conical cups **122** and engages the inner walls of this cup, thus urging the stacked cups upwardly.

To resist or limit downward or retrograde movement of the stacked cups during a dispensing operation the follower plate **173** is provided with a pair of diametrically opposite pawls **176** in the form of thin resilient metal plates secured at their inner ends, as by rivets **177**, to the underside of the follower plate, the outer ends of these pawls being engageable with diametrically opposite vertical rows of ratchet teeth or shoulders **178** struck up from the inner casing member **171'**. The pawls **176** will yield past the teeth to permit upward spring-urged displacement of the follower plate **173** as the cups are successively withdrawn from the dispenser.

When the dispenser of FIG. 15 is to be loaded with a stack of cups, the cap ring **31** is rotated in unscrewing direction to remove this ring. During the first part of this rotation the inner casing member **171'** rotates with the cap ring and end fitting **130'** through a small angle to bring the ratchet teeth **178** of this casing member out of register with the pawls **176** on the follower plate, so as to permit downward displacement of the plate against the pressure of the cup-elevating spring **64**. This rotation is limited by the abutment of the connector projections **167** with ends of the arcuate dovetail slots **168**. Further rotation of the cap ring in the same direction will release this ring from the end fitting **130'** and permit a limited upward travel of the follower plate into abutment with the stop embossments **172**. A stack of the inverted conical cups **122** is then pushed downwardly into the inner casing member, the inner walls of the lowermost cup engaging the upstanding follower bar **175** and depressing the follower plate **173**. The cap ring, carrying the throat disks, is then screwed back onto the end fitting **130'**, and during some part of this angular displacement of the cap ring the inner casing member is rotated thereby to bring the pawls **176** back into alignment with the rows of ratchet teeth **178**. The dispenser is then in condition for dispensing of cups from the device.

FIG. 15 shows the position assumed by the tongued throat disks **132** and **133** when a stack of the smallest-sized conical cups **122***a* is housed in the casing, these cups being shown in full lines. In the case of somewhat

larger conical cups **122***c*, one of which is indicated in broken lines, the resilient tongues of the throat disks will assume a normal outwardly deflected position, similar to that shown by broken lines in FIG. 11.

The foremost or uppermost cup is withdrawn from the dispenser of FIG. 15 either by direct manual grasping of the cup or by the use of the cup-gripping holder H shown in FIG. 14, the ratchet-controlled follower plate **173** preventing or limiting retrograde movement of the stacked cups during this dispensing operation, and the resilient tongues of the throat disks flexing outwardly to pass the foremost cup and to separate this cup from the following cup.

In each form of cup dispenser, the provision of two or more cooperating throat disks simultaneously engaging the foremost cup insures proper support or retention of a relatively long column or stack of cups, while permitting the use of relatively thin disks with cup-engaging tongues which are quite resilient and deflectable through a large angle without acquiring a permanent set, so that the dispenser is able to accommodate cups having a wide range of rim diameters. By way of example, the plastic throat disks may have a thickness of the order of 0.015 inch. While the resilient throat disks are desirably formed of plastic, in some instances they may be made of sheet metal.

I claim:

1. In a cup dispenser for accommodating and dispensing paper cups and the like having a relatively wide range of different rim diameters, comprising a tubular casing for holding therein a stack of nested cups and having an internal breadth of a size for receiving stacks of cups of different rim diameters, said casing having a dispensing end through which the cups may be individually withdrawn from the stack, an enlarged annular head member rigidly secured to the dispensing end of the casing and having an externally screw-threaded peripheral portion, a cap ring detachably screwed onto said peripheral portion, a plurality of at least two normally substantially flat superposed, centrally open throat disks marginally clamped between said head member and cap ring and each disk including radially inwardly projecting resilient tongues to provide an automatically adjustable dispensing throat through which the foremost cup of the stack protrudes, the tongues of the outer disk projecting inwardly slightly farther than the tongues of the inner disk, the inner ends of the tongues of both disks being normally engageable with the protruding foremost cup for retaining the cup stack, the outer disk tongues when in normal cup-retaining position being deflected outwardly to a greater extent than the inner disk tongues, said resilient tongues being outwardly deflectable from the planes of said disks during withdrawal of the foremost cup to permit release of said cup, the inner ends of the tongues of the inner throat disks acting to restrain withdrawal of the following cup as the foremost cup is withdrawn, and the tongues of said throat disks having an increased outward deflection from the planes of said disks to enlarge the dispensing throat when nested cups of larger rim diameter are to be dispensed.

2. In a cup dispenser, a casing for holding therein a stack of nested cups and having a delivery end, and a dispensing throat disposed at said delivery end through which the foremost cup of the stack protrudes and comprising inner and outer sets of radially inwardly projecting resilient tongues, the tongues in each set being normally substantially coplanar, the outer set of said tongues projecting inwardly slightly farther than the inner set of said tongues, the inner ends of both sets of said tongues being engageable with the protruding foremost cup for retaining the cup stack, the outer disk tongues when in normal cup-retaining position being deflected outwardly to a greater extent than the inner disk tongues, both sets of said resilient tongues being deflectable outwardly from their normal planes during withdrawal of the foremost cup, the inner set of said tongues acting to restrain withdrawal of the following cup as the foremost cup is withdrawn, and both sets of said resilient tongues having an increased outward deflection from their normal planes to enlarge the dispensing throat when stacked cups of larger rim diameter are to be retained and dispensed.

3. In a cup dispenser, a casing for holding therein a stack of nested cups and having a delivery end, an enlarged annular head member on the delivery end of said casing, a clamping ring member coaxial with said head member and having a detachable screw-threaded connection with said head member, and a plurality of at least two normally substantially flat, centrally open throat disks marginally clamped between said head member and clamping ring member and each having a series of inwardly projecting resilient tongues the inner ends of which define a dispensing throat through which the foremost cup of the stack protrudes, one of said members having parts interfitting with said disks for positioning said disks, the tongues of the outer disk projecting inwardly slightly farther than the tongues of the inner disk, the inner ends of the tongues of both disks being normally engageable with the foremost cup for retaining the cup stack, said resilient tongues being outwardly deflectable from the planes of said disks during withdrawal of the foremost cup to permit release of said cup, and the inner ends of the tongues of the inner disk acting to restrain withdrawal of the following cup, said throat disks being attached to said clamping ring member and remaining thereon when said clamping ring member is unscrewed from said head member.

4. In a cup dispenser, a casing for holding therein a stack of nested cups and having a delivery end, an enlarged annular head member on the delivery end of said casing, a clamping ring member coaxial with said head member and having a detachable screw-threaded connection with said head member, and a plurality of at least two normally substantially flat, centrally open throat disks marginally clamped between said head member and clamping ring member and each having a series of inwardly projecting resilient tongues the inner ends of which define a dispensing throat through which the foremost cup of the stack protrudes, means for retaining said disks on said clamping ring member when said clamping ring member is unscrewed from said head member, the tongues of the outer disk projecting inwardly slightly farther than the tongues of the inner disk, the inner ends of the tongues of both disks being normally engageable with the foremost cup for retaining the cup stack, said resilient tongues being outwardly deflectable from the planes of said disks during withdrawal of the foremost cup to permit release of said cup, and the inner ends of the tongues of the inner disk acting to restrain withdrawal of the following cup.

5. In a cup dispenser, a casing for holding therein a stack of nested cups and having a delivery end, an annular head member having a sleeve portion rigidly secured to said casing and further having an outwardly projecting annular flange and a cylindrical flange projecting axially from the outer portion of said annular flange and presenting a clamping seat, said annular flange and cylindrical flange being connected by internal radial ribbing, and said cylindrical flange being externally screw-threaded, a clamping ring member detachably screwed onto said cylindrical flange, a plurality of at least two normally substantially flat superposed, centrally open throat disks marginally clamped between said clamping seat and said clamping ring member, each disk including radially inwardly projecting resilient tongues to provide a dispensing throat through which the foremost cup of the stack protrudes, the tongues of the outer disk projecting inwardly slightly farther than the tongues of the inner disk, the inner ends of the tongues of both disks being engageable with the protruding foremost cup for retaining the cup stack, the outer disk tongues when in

normal cup-retaining position being deflected outwardly to a greater extent than the inner disk tongues, the resilient tongues of both disks being deflectable outwardly from the planes of said disks during withdrawal of the foremost cup, and the tongues of the inner disk acting to restrain withdrawal of the following cup as the foremost cup is withdrawn, said throat disks being attached to said clamping ring member and remaining thereon when said clamping ring member is unscrewed from said head member.

6. In a cup dispenser for use with a stack of nested cups the foremost of which is to be removed by a cup-gripping holder passed thereon, a casing for holding the stack of cups and having a delivery end, dispensing throat means at said delivery end for retaining said stack of cups and for controlling individual withdrawal of the cups, said throat means including a cap ring detachably screwed onto said casing, ratchet means for resisting retrograde movement of the stacked cups during application of said holder to the foremost cup, and means actuated by the unscrewing of said cap ring for disabling said last-named means to permit reloading of the casing with cups from its delivery end.

7. In an upfeed cup dispenser for use with a stack of nested cups the foremost of which is to be removed by a cup-gripping holder passed thereon, a casing for holding the stack of cups and having a delivery end, means forming a dispensing throat at said delivery end through which the foremost cup of the stack protrudes, said throat-forming means including a cap ring detachably screwed onto said casing, stack-elevating means including a cup-supporting follower urging the cup stack upwardly, and ratchet means resisting downward displacement of the cup stack when the cup-gripping holder is passed downwardly over the protruding foremost cup, said ratchet means including a toothed rack-forming member in said casing extending about said follower and a pawl carried by said follower and engageable with the rack teeth, said rack-forming member being angularly shiftable through a limited angle about the longitudinal axis of said casing

to place the rack teeth out of register with said pawl and thereby permit downward displacement of said follower to facilitate loading of cups with the magazine through the dispensing throat, and means actuated by the screwing and unscrewing of said cap ring to angularly shift said rack-forming member respectively into and out of operative position.

8. In an upfeed cup dispenser, a casing for holding a stack of nested cups and having an upper delivery end adapted to extend through an opening in a counter, said delivery end having a dispensing throat, and stack-elevating means in said casing for urging the cups upwardly, said casing having an enlarged annular top portion with a resilient deflectable taper-edged rim adapted to engage the upper surface of the counter, and clamping means for holding said resilient rim in firm sealed engagement with the counter surface.

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