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ADJUSTABLE CUP DISPENSER

Filed Aug. 25, 1965

Fig. 3

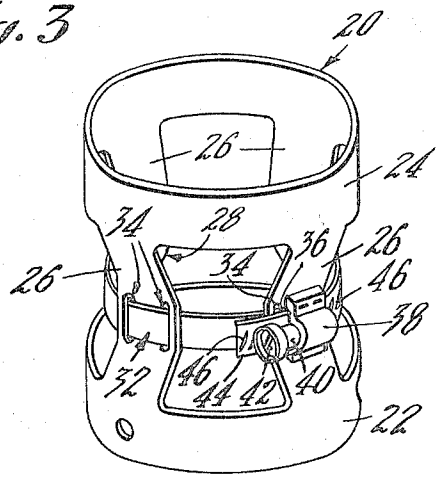


Fig. 1

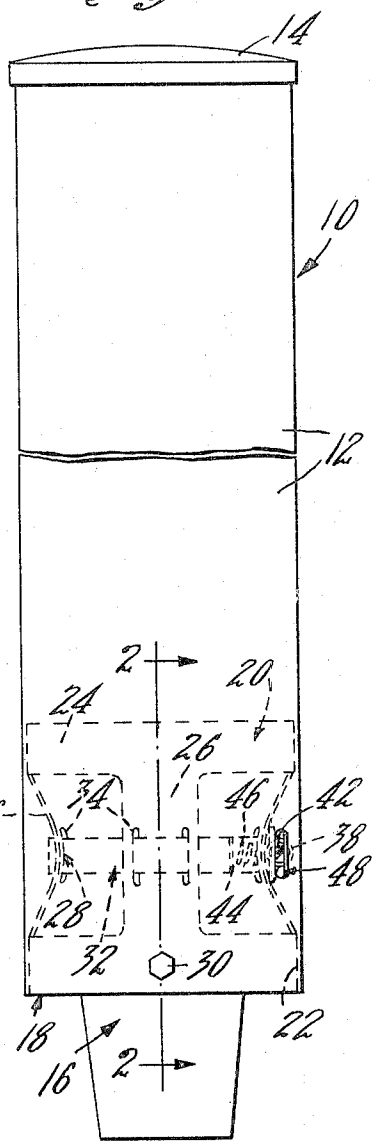
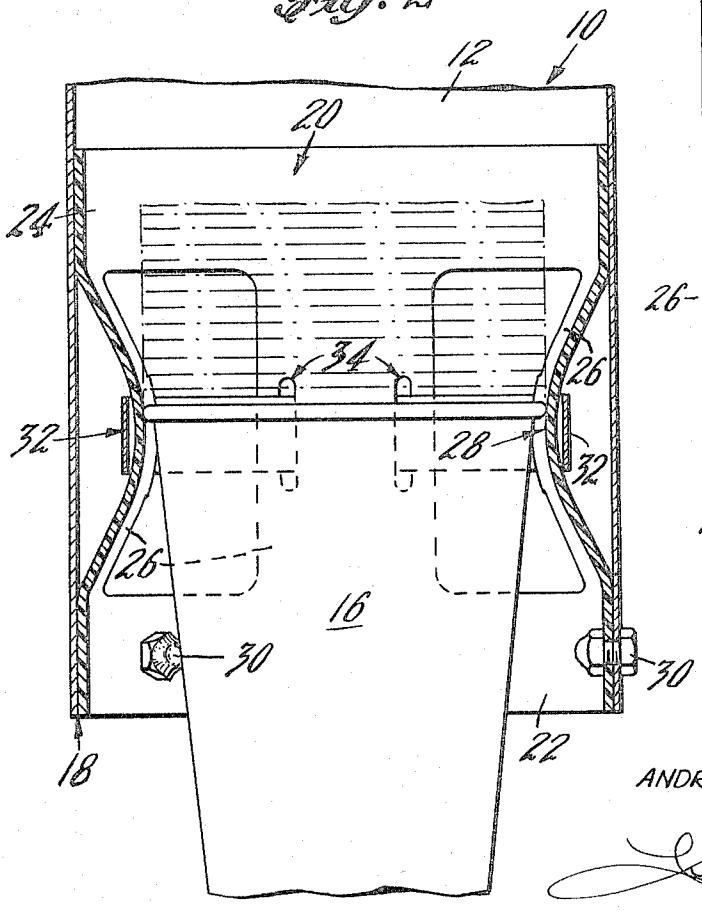


Fig. 2



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ADJUSTABLE CUP DISPENSER

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This invention relates to cup dispensers, and more particularly concerns a cup dispenser having an improved arrangement for adjusting the dispenser so that it may be used to store and dispense nested stacks of cups of various sizes. The primary object of my invention is to provide an improved adjustable cup dispenser which is simpler and lower in cost than the cup dispensers presently available from manufacturers in the highly competitive container industry.

Another object of my invention is to provide an improved cup dispenser which may be adjusted readily by the user of the device so that it may accommodate cups of various sizes.

Still another object of my invention is to provide an adjustable cup dispenser in which the major components of the adjusting system may be made of low cost plastic material, thus eliminating the need for relatively expensive metallic springs and the like.

Briefly stated, in one embodiment of my invention I provide an adjustable cup dispenser of the type which includes a tubular casing having an open delivery end, and a novel cup-retaining throat structure which may be contracted or enlarged so as to engage cups of various diameters. One of the features of the invention embodied in the throat structure resides in the utilization of inwardly bowed cup-engaging members formed from plastic material and positioned by an adjustable encircling band, whereby the size of the throat may be varied as required.

Another feature of the invention resides in the concept of securing the cup-engaging members to a pair of spaced circumferential support members, one of which is fastened to the casing of the dispenser and the other of which is free to move along the axis of the casing as the adjusting band is tightened or loosened.

A further feature of my invention involves the use of plastic material to form an integral throat structure including the cup-engaging members and a circumferential support member or members.

Other features of my invention and the maner in which the foregoing and other objects of the invention are achieved will be most readily understood by referring to the following detailed description of a preferred embodiment thereof selected for the purpose of illustration and shown in the accompanying drawing, in which:

FIG. 1 is a front elevation view of a cup dispenser embodying the present invention;

FIG. 2 is an enlarged fragmentary cross-sectional view taken along the line 2—2 in FIG. 1; and

FIG. 3 is a perspective view of the throat member shown in FIGS. 1 and 2.

In the preferred embodiment of my invention there is provided an adjustable cup dispenser, generally designated by the numeral **10**, which comprises an elongated casing **12** of tubular or other appropriate cross-sectional configuration provided with a lid **14** and adapted to contain a stack of nested cups **16**. It will be understood that the cups **16** may be made of any material used in the manufacture of such articles, and also that the present invention may be used in dispensers for containers and similar articles of various types.

The casing **12**, as illustrated, is mounted vertically and includes a cup delivery opening **18** at the lower end thereof. Under these circumstances the force of gravity may be utilized to feed the cups **16** to the delivery opening **18**; however, if additional force is desirable or if the casing **12** is to be mounted in a horizontal, upwardly inclined or inverted position a conventional spring biased cup follower may be mounted in the casing **12**.

For the purpose of retaining the cups **16** in the casing **12** until they are manually removed, one-by-one, there is provided an adjustable throat member **20** located in the cup delivery opening **18** of the casing **12**. The throat member **20** includes a pair of axially spaced circumferential members **22, 24** positioned in coaxial relation within the casing **12** and interconnected by four longitudinally extending cup-engaging members **26**. If desired, three members **26** may be utilized or, in certain instances, more than four may be used. The circumferential members **22, 24** and the cup-engaging members **26** are made of any suitable resilient material such as thin sheet metal, e.g. stainless steel or plastic. Plastic is preferred because of its ease of fabrication into the throat member **20**. Suitable plastics are linear polyethylene, polypropylene, polystyrene and polyvinyl chloride; and, whatever the material, the throat **20** is integrally formed to provide a unitary structure. In any event the cup-engaging members or portions **26**, as shown, are composed of a suitable plastic material which is sufficiently resilient to allow them to be bowed inwardly toward the longitudinal axis of the casing **12** so as to define a restricted delivery opening **28** of lesser circumference than the inner diameter or circumference of either the casing **12** or the circumferential members **22, 24**.

In order to provide stability to the throat member **20** during dispensing operations, and to enhance the appearance of the cup dispenser **10**, it is desirable that the throat member **20** be positioned wholly within the casing **12**. To this end the lower circumferential member **22** is secured to the casing **12** adjacent the delivery opening **18** at the lower end thereof and the upper circumferential member **24** is laterally supported and guided by adjacent portions of the casing **12**. However, it is conceivable that a user of cup dispensers might wish to have the throat member **20** project from the delivery end of the casing **12** (to increase the capacity of the dispenser, for example) and such an arrangement is within the scope of the present invention. In any case a plurality of suitable fasteners **30** may be utilized to secure one of the circumferential members **22, 24** to the casing **12**.

For the purpose of permitting the user of the cup dispenser **10** to adjust the device to accommodate cups of various sizes the cup-engaging members **26** of the throat member **20** are encircled by an adjustable band **32** threaded through suitably located pairs of guide slots **34** in the cup-engaging members **26**. One end portion **36** of the band **32** is secured to one such guide slot **34** and carries a bracket **38** on which is supported a freely turning worm screw **40** having a slotted adjusting head **42**, or other appropriate adjusting device. The other end portion **44** of the band **32** is positioned between the bracket **38** and the end portion **36** and is formed with a series of spaced diagonal slots **46** arranged to cooperate with the work screw **40** so as to cause the circumference of the bank **32** to increase or decrease as the slotted head **42** is turned to the left or right. In order to allow access to the slotted head **42** for adjustment (by means of a tool such as a screwdriver, for example) an aperture **48** is formed in the casing **12** in general alignment with the axis of the worm screw **40**.

As mentioned above, the throat member **20** is preferably formed as an integral part composed of plastic material. It may be fabricated by a suitable molding process (by extrusion molding, for example) or by stamping the appropriate openings in a strip of plastic material and joining the ends of the strip by mechanical fasteners

or cement to form the desired generally cylindrical structure. Likewise, the band **32**, the bracket **38** and the worm screw **40** may be made of suitable plastic materials by known fabricating processes. Alternatively, metallic adjusting bands which are commercially available may be utilized.

In use, the cup dispenser **10** may be prepared to hold cups of various sizes, limited only by the range of effective diameters within which the throat member **20** may be adjusted. It will be understood that the appropriate throat diameter for a particular cup size will be one which allows the cup-engaging members **26** to frictionally engage the upper rim or lip of the cup with sufficient force to retain the cup stack in the casing **12** while permitting manual withdrawal of each cup as desired.

From the foregoing description it will be seen that my invention provides an improved cup dispenser which is simple in design, is relatively inexpensive to manufacture (particularly because the throat member may be formed of plastic material) and which may be easily adjusted by the user to accommodate cups of various sizes.

While I have shown and described a particular embodiment of my invention, I do not desire the invention to be limited to the particular construction disclosed herein and I intend by the appended claims to cover all modifications within the true spirit and scope of my invention.

What I claim is:

1. A cup dispenser, comprising:

a casing adapted to contain a stack of nested cups, said casing having a cup delivery opening at one end thereof;

an adjustable throat member adjacent said delivery opening for releasably retaining the cups in said casing;

said throat member having a support portion and resilient cup-engaging portions extending from the support portion and inwardly toward the path of movement of the cups so as to define a restricted opening, said support portion being secured to said casing; and

an adjustable band encircling said cup-engaging portions, whereby the size of the restricted opening defined by said cup-engaging portions may be adjusted to accommodate cups of various sizes.

2. A cup dispenser as set forth in claim **1** wherein said throat member is positioned within said casing and said casing is provided with an aperture adjacent said band allowing access to the adjustable band from a location external of the casing for the purpose of adjustment.

3. A cup dispenser, comprising:

a casing adapted to contain a stack of nested cups;

said casing having a longitudinal axis along which the cups move therein and a cup delivery opening at one end thereof;

an adjustable throat member secured to said casing adjacent said delivery opening for releasably retaining the cups in said casing;

said throat member including a pair of axially spaced circumferential support members interconnected by a plurality of longitudinally extending inwardly bowable cup-engaging members; and

a flexible band encircling said cup-engaging members, and adjustable means for varying the circumference of said flexible band, said adjustable means being housed within said casing, and means defining an aperture in said casing to provide for manipulation of the adjustable means externally of the casing, whereby the size of the restricted opening defined by said cup-engaging members may be adjusted to accommodate cups of various sizes.

4. A cup dispenser, comprising:

a casing adapted to contain a stack of nested cups;

said casing having a longitudinal axis along which the cups move therein and a cup delivery opening at one end thereof;

an adjustable throat member positioned within said casing adjacent said delivery opening for releasably retaining the cups in said casing;

said throat member being integrally formed and including first and second axially spaced circumferential support members interconnected by a plurality of resilient longitudinally extending cup-engaging members bowed inwardly toward the longitudinal axis of said casing so as to define a restricted opening;

said first circumferential member being fixedly secured to said casing adjacent said delivery opening and said second circumferential member being free to move a limited distance longitudinally within said casing;

an adjustable band encircling said cup-engaging members; and

said casing having an aperture therein adjacent said band allowing access thereto for the purpose of adjustment, whereby the size of the restricted opening defined by said cup-engaging members may be adjusted to accommodate cups of various sizes.

5. In a cup dispenser having a longitudinally extending casing adapted to contain a stack of nested cups and having a cup delivery opening at one longitudinal end thereto, the improvement comprising an adjustable throat member positioned within said casing adjacent said delivery opening for releasably retaining cups in said casing, said throat member being integrally formed and including first and second axially spaced suport members interconnected by a plurality of resilient longitudinally extending cup-engaging members bowed inwardly toward the longitudinal axis of said casing so as to define a restricted opening, one of said support members being fixedly secured to said casing and the other of said support members being free to move longitudinally within said casing, and adjustable means operable on said cup-engaging members to adjust the size of the restricted opening defined by said cup-engaging members to provide for accommodation of cups of various sizes.

6. In a cup dispenser as set forth in claim **5** wherein said adjustable means comprises a circumferentially adjustable band operable on said cup-engaging members whereby the latter are moveable radially with the band as the latter is adjusted.

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