Dec. 18, 1962 I. D. EASTON ET AL 3,069,048

CUP DISPENSER

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Fig. 1.

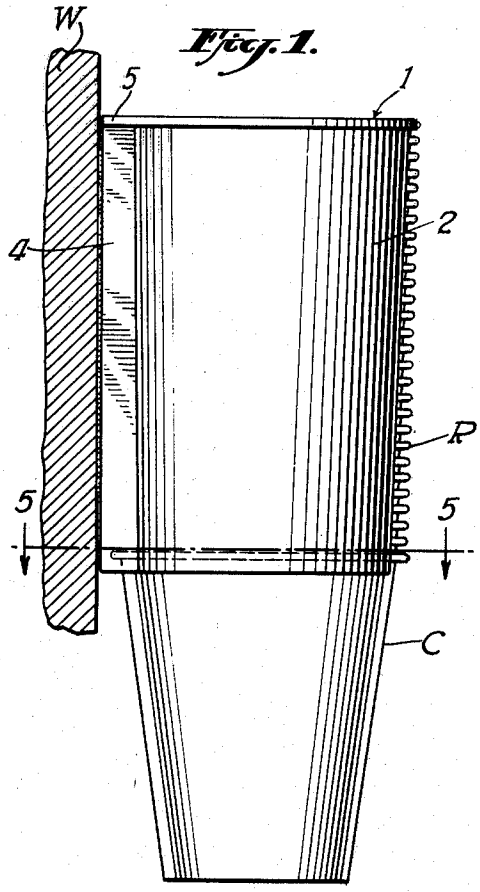


Fig. 2.

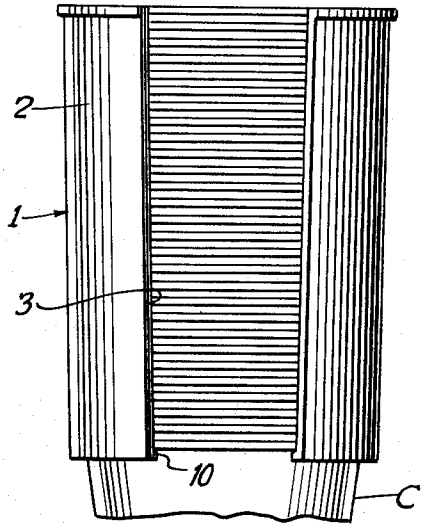


Fig. 3.

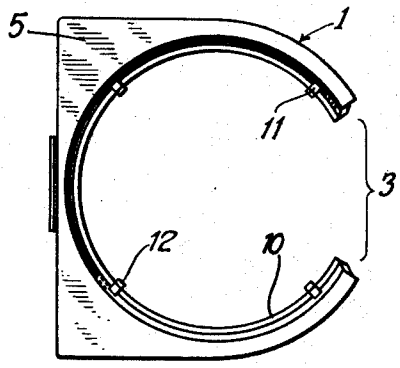
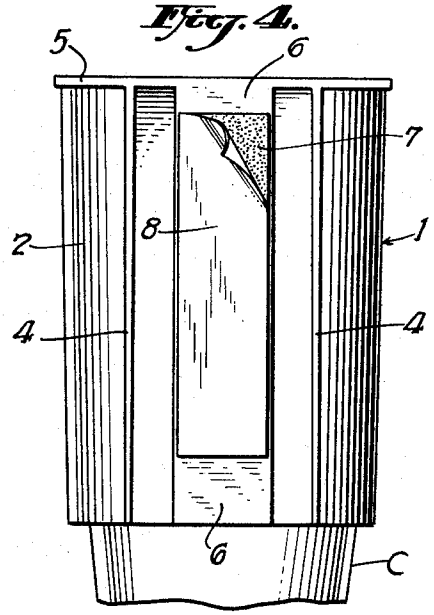


Fig. 4.



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Fig. 6.

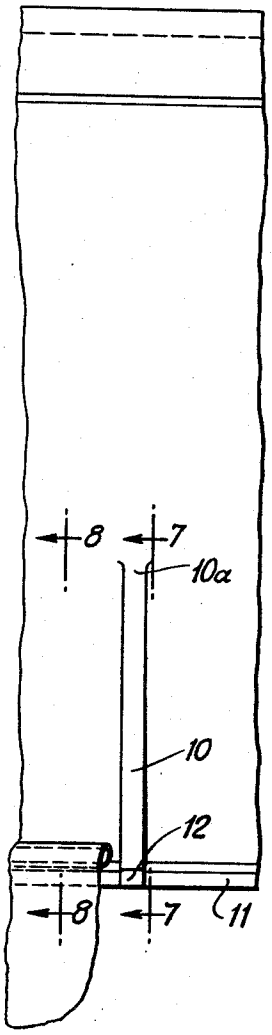


Fig. 5.

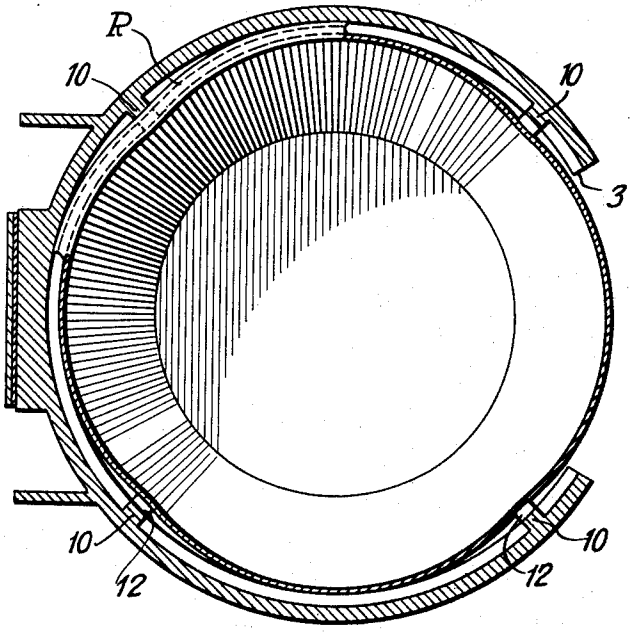


Fig. 7.

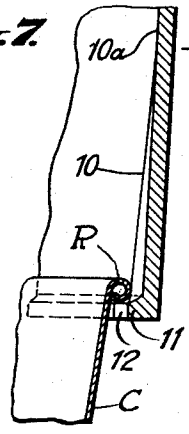
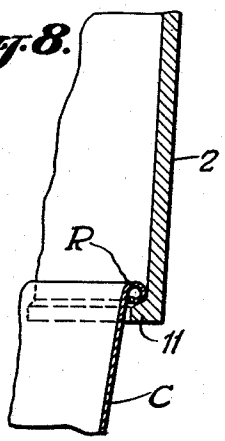


Fig. 8.



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3,069,048

CUP DISPENSER

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10 Claims. (Cl. 221—45)

This invention relates to a cup dispenser for holding a stack of disposable cups, such as nested paper cups provided with overhanging rims, and permitting the withdrawal from the stack of the lowermost cup while retaining the remainder of the stack in dispensing position.

Among the important features of the invention are the provision of a dispenser which may be economically made, is compact, is pleasing in appearance and may be easily supported from a smooth surface, such as wood, plaster, tile, etc., without the necessity of using nails, screws, brackets or fixtures. Another important feature of the invention is the provision of a dispensing throat having means for assuring the separate stripping of the lowermost cup from the end of the stack while retaining the next succeeding cup and the remainder of the stack positively supported within the dispenser.

An object of this invention is to produce an article possessing the foregoing desirable, useful and structural advantages while at the same time permitting of rapid and economical production methods in its manufacture.

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

Further objects, features and advantages of the invention will appear from the following specification and claims, taken in connection with the accompanying drawing, in which:

FIG. 1 is a side elevational view showing the present embodiment of the invention secured to a wall surface having a stack of nested cups positioned therein;

FIG. 2 is a front elevational view of the device shown in FIG. 1;

FIG. 3 is a top plan view of said device with the cups removed to better show the interior arrangement of the dispensing throat;

FIG. 4 is a rear elevational view of said device;

FIG. 5 is an enlarged cross sectional view taken at line 5—5 of FIG. 1, showing the position in the dispenser of the lowermost cup of the stack in its supported position within the dispenser throat;

FIG. 6 is an enlarged elevational view of a segment of the device as viewed from the interior, showing further details of the dispensing throat;

FIG. 7 is a longitudinal sectional view taken on line 7—7 of FIG. 6; and

FIG. 8 is a longitudinal sectional view taken on line 8—8 of FIG. 6.

Referring to the drawings and more particularly to FIGS. 1, 2, 3 and 4:

The dispenser is designated in its entirety as **1** and in the present embodiment is formed in one piece from suitable plastic material. Medium impact styrene has proven entirely satisfactory for this purpose, since it facilitates molding the dispenser and provides the degree of slight resilience preferred. The dispenser comprises a tubular wall **2** which is preferably circular in cross section and tapers slightly from its upper toward its lower end and is provided with an open slot **3** at its front extending vertically throughout the height of the wall. In the present embodiment this slot provides an opening extending about 60° of the circumference of the wall. This slot serves

several useful functions. It provides lateral flexibility to the adjacent sides of the tubular wall which serves as a magazine to hold and dispense the cups; it permits passage of a finger of the user to facilitate insertion of a stack of cups; and it provides visible means of ascertaining when the stack needs replenishing. A pair of vertically extending laterally spaced ribs, such as **4**, extend rearwardly from the wall **2** and terminate substantially in the vertical plane substantially parallel to the axis of the tubular wall **2**, so as to lie parallel to the surface of a supporting wall designated as W. The upper edge of the tubular wall **2** is provided with a substantially horizontal flange **5**, which is slightly wider than the tubular wall **2** and extends rearwardly to substantially the vertical plane defining the rear edges of the vertical ribs **4** and merges with the upper end of said ribs; the flange continuing along the side walls of the body **2** on opposite sides of the slot **3**. The rear portion of the wall **2** between the vertical ribs **4** (FIG. 4) is thickened to provide the flat surface **6** which lies in the vertical plane defining the rear edges of the horizontal flange **5** and the vertical ribs **4** and is shown with its upper edge merging with the underside of flange **5** and its lower end terminating at the lower end of the wall **2**. An adhesive coating **7** is applied to the flat surface **6** throughout its major vertical extent and for ready use is conveniently protected by masking tape, such as **8**, which may be readily peeled off. This adhesive coating may be conveniently applied by means of a tape whose front face is secured to the flat surface **6** and whose back possesses the desired adhesive qualities. We have found entirely satisfactory for this purpose a 7/8" x 2½" tape known as "Sticky Back Tape" by Minnesota Mining & Mfg. Co. #Y9001, or any other suitable coating may, of course, be employed.

The dispensing throat of the device, which forms an important part of the invention, will now be described, with particular reference to FIGS. 5–8. The interior wall of the body **2**, which provides the magazine for holding the stack of cups, is provided with a plurality of vertically disposed inwardly extending ribs, such as **10**, positioned adjacent the lower end of the body and peripherally spaced at equal intervals. In the present embodiment, there are four of the ribs **10** spaced 45° apart, with the two front ribs disposed a slight distance from opposite sides respectively of the slot **3**. The upper ends of these ribs commence in a thin feather edge which merges into the interior side wall at **10***a* and the ribs gradually increase to a greater inward extent, or thickness, down to the lower ends where they join an inwardly disposed peripheral bead **11** which extends inwardly of the side wall a distance slightly less than the overhang of the rim R of the cup C (FIG. 8); the overhang of the rim in this instance being of a conventional beaded lip formation. The ribs **10** are provided at their lower end with shoulders formed by inwardly extending projections or lugs, such as **12**, lying substantially in the plane of the bead **11** and extending radially inwardly (FIG. 5) beyond the bead **11** for a distance substantially equal to the inward extent of the bead **11**. The ribs **10** extend radially inwardly a distance which increases from top to bottom such that the upper ends of the ribs are defined by a circle whose diameter is substantially greater than the overall diameter of the cup rim R and the lower ends above the lugs **12** are defined by a circle whose diameter is appreciably smaller than the overall diameter of the cup rim R, for purposes to be pointed out below.

The embodiment of the invention illustrated is intended to hold cups in which the outside diameter of the rim R is about 2¼" and therefore the interior diameter of the magazine wall immediately above the bead **11** is preferably approximately 2¼"; the bead **11** has an internal diameter of about 2 3/16" and the lugs **12** extend inwardly

beyond the bead 11 about 1/32". A width of about 1/16" has been found satisfactory for the ribs 10.

Operation

With the stack of cups disposed within the dispenser, the ribs 10 will firmly support the stack so the lowermost cup is positioned slightly above the section line 5—5 of FIG. 1. When the lowermost cup is engaged and pulled downwardly to the position shown in FIGS. 1 and 2, the rim R (FIG. 5) of the lowermost cup is deflected inwardly on each of the ribs 10, which causes the rim R to be deformed outwardly intermediate the ribs 10 and thereby to forceably dispose the rims on the top of the bead 11 extending between the ribs 10. Upon applying further force to withdraw the lowermost cup, the rim R is forced inwardly over the lugs 12 and this deforms the ribs inwardly at the lug points a distance sufficient to permit the rim R to snap inwardly over the internal bead 11 to thus release the lowermost cup while positively and firmly supporting the next succeeding cup on the bead 11 and lugs 12. Accordingly, even with the relatively thin wall of the cups and rather fragile rims, the cups may be individually dispensed from the magazine without fear of withdrawing more than one cup at a time.

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

What we claim is:

1. A cup dispenser comprising a tubular magazine provided with an open slot extending vertically throughout its front wall and having a plurality of longitudinally extending laterally spaced ribs extending radially inwardly and terminating at their lower ends in shoulders disposed closely adjacent the lower end of said magazine, and an internal peripherally disposed bead at the lower end of said magazine extending inwardly therefrom a radial distance substantially the same as the inward extent of the lower ends of said ribs.

2. A cup dispenser comprising a tubular magazine provided with an open slot extending vertically throughout its front wall and having a plurality of longitudinally extending ribs disposed in peripherally spaced relation around the discharge throat of the magazine, extending radially inwardly to an extent increasing from their upper ends to their lower ends and terminating in shoulders disposed closely adjacent the lower end of said magazine, and an internal peripherally disposed bead at the lower end of said magazine extending inwardly therefrom a radial distance substantially the same as the inward extent of said ribs contiguous said shoulders and substantially less than the inward extent of said shoulders.

3. A cup dispenser comprising a tubular magazine provided with an open slot extending vertically throughout its front wall and having a plurality of longitudinally extending peripherally spaced ribs extending radially inwardly and tapered downwardly and inwardly and terminating at their lower ends in shoulders disposed closely adjacent the lower end of said magazine, and an internal peripherally disposed bead intermediate said ribs at the lower end of said magazine extending inwardly therefrom a radial distance substantially the same as the inward extent of said ribs.

4. A cup dispenser for holding a stack of nested cups of the type having an overhanging rim, said dispenser comprising a generally tubular wall provided at its lower end with a dispensing throat comprising a plurality of peripherally spaced longitudinally disposed ribs extending radially inwardly, the radial extent of said ribs at their upper ends being defined by a circle whose diameter is larger than the outside diameter of the rim of the cups to be dispensed and whose lower ends are defined

by a circle whose diameter is smaller than the outside diameter of the rim of the cups to be dispensed, an internal bead extending along a circular arc peripherally between said ribs adjacent their lower ends defining the outlet of said throat and shoulders disposed in alignment with said ribs respectively and substantially in the plane of said bead extending radially inwardly beyond said bead.

5. A cup dispenser for holding a stack of nested cups of the type having an overhanging rim, said dispenser comprising a generally tubular wall of substantially circular cross section at its lower end provided with an open slot in its front wall, said tubular wall tapering from its upper end to a smaller diameter at its lower end substantially equal to the outside diameter of the rim of the cups to be dispensed, the lower edge of said wall having an internal peripherally disposed bead extending inwardly a distance less than the overhang of the lip of said cups, a plurality of longitudinally extending peripherally spaced ribs disposed adjacent the lower end of said tubular wall, said ribs having their lower ends contiguous said bead extending radially inwardly substantially the same distance as said bead and having their upper ends tapered to a substantially thin edge, said ribs having shoulders at their lower ends substantially in the plane of said peripheral bead and extending radially inwardly beyond said bead.

6. A cup dispenser for holding a stack of nested cups of the type having an overhanging rim, said dispenser comprising a generally tubular wall, said tubular wall having a generally circular cross section at its lower end substantially equal to the outside diameter of the rim of the cups to be dispensed, the lower edge of said wall having an internal peripherally disposed bead, a plurality of longitudinally extending peripherally spaced ribs disposed adjacent the lower end of said tubular wall, said ribs having their lower ends contiguous said bead extending radially inwardly substantially the same distance as said bead, said ribs having shoulders at their lower ends substantially in the plane of said peripheral bead and extending radially inwardly beyond said bead.

7. A cup dispenser for holding a stack of nested cups of the type having an overhanging rim, said dispenser comprising a generally tubular wall of substantially circular cross section provided with an open slot in its front wall extending throughout the length of said tubular wall and having a width at the bottom thereof of the order of about one-quarter of the circumference of said tubular wall, said tubular wall tapering from its upper end to a smaller diameter at its lower end substantially equal to the outside diameter of the rim of the cups to be dispensed, the lower edge of said wall having an internal peripherally disposed bead extending inwardly a distance less than the overhang of the lip of said cups, a plurality of longitudinally extending peripherally spaced ribs disposed adjacent the lower end of said tubular wall, said ribs having their lower ends contiguous said bead extending radially inwardly substantially the same distance as said bead and having their upper ends tapered to a substantially thin edge, said ribs having shoulders at their lower ends substantially in the plane of said peripheral bead and extending radially inwardly beyond said bead.

8. A cup dispenser comprising a relatively thin plastic tubular magazine for holding a stack of nested cups, said magazine having an open slot extending throughout its front wall and having a dispensing throat at its lower end, longitudinally disposed laterally spaced ribs integral with said magazine extending rearwardly therefrom and terminating in a substantially vertical plane, the rear of said tubular magazine intermediate said longitudinal ribs being provided with a thickened panel having a flat surface lying substantially in said vertical plane and having an adhesive facing for securing said dispenser to a supporting wall and the upper end of said magazine having an integrally formed horizontal flange extending rearwardly

therefrom with its rear edge disposed substantially in said vertical plane.

9. A cup dispenser comprising a relatively thin plastic tubular magazine for holding a stack of nested cups, said magazine being substantially circular in cross section slightly tapered from its upper end to its lower end and having an open slot extending throughout its front wall and having a dispensing throat at its lower end, a pair of longitudinally disposed laterally spaced ribs integral with said magazine extending rearwardly therefrom and terminating rearwardly in a substantially vertical plane, the rear of said tubular magazine intermediate said longitudinal ribs being provided with a thickened panel having a surface lying substantially in said vertical plane and having an adhesive facing for securing said dispenser to a supporting wall and the upper end of said magazine having an integrally formed horizontal flange extending rearwardly therefrom interconnected with the upper ends of said ribs and having its rear edge disposed substantially in said vertical plane.

10. A cup dispenser comprising a relatively thin plastic tubular magazine for holding a stack of nested cups, said magazine having an open slot extending throughout its front wall to provide flexible side walls and having a dispensing throat at its lower end, longitudinally disposed laterally spaced ribs integral with the side walls of said magazine extending in parallel relationship rearwardly therefrom and terminating in a substantially vertical plane, the rear of said tubular magazine intermediate said longitudinal ribs being provided with a thickened panel having a flat surface lying substantially in said vertical plane and having an adhesive facing for securing said dispenser to a supporting wall and the upper end of said magazine having an integrally formed horizontal flange rigidly united with the upper ends of said ribs extending rearwardly therefrom and having its rear edge disposed substantially in said vertical plane.

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