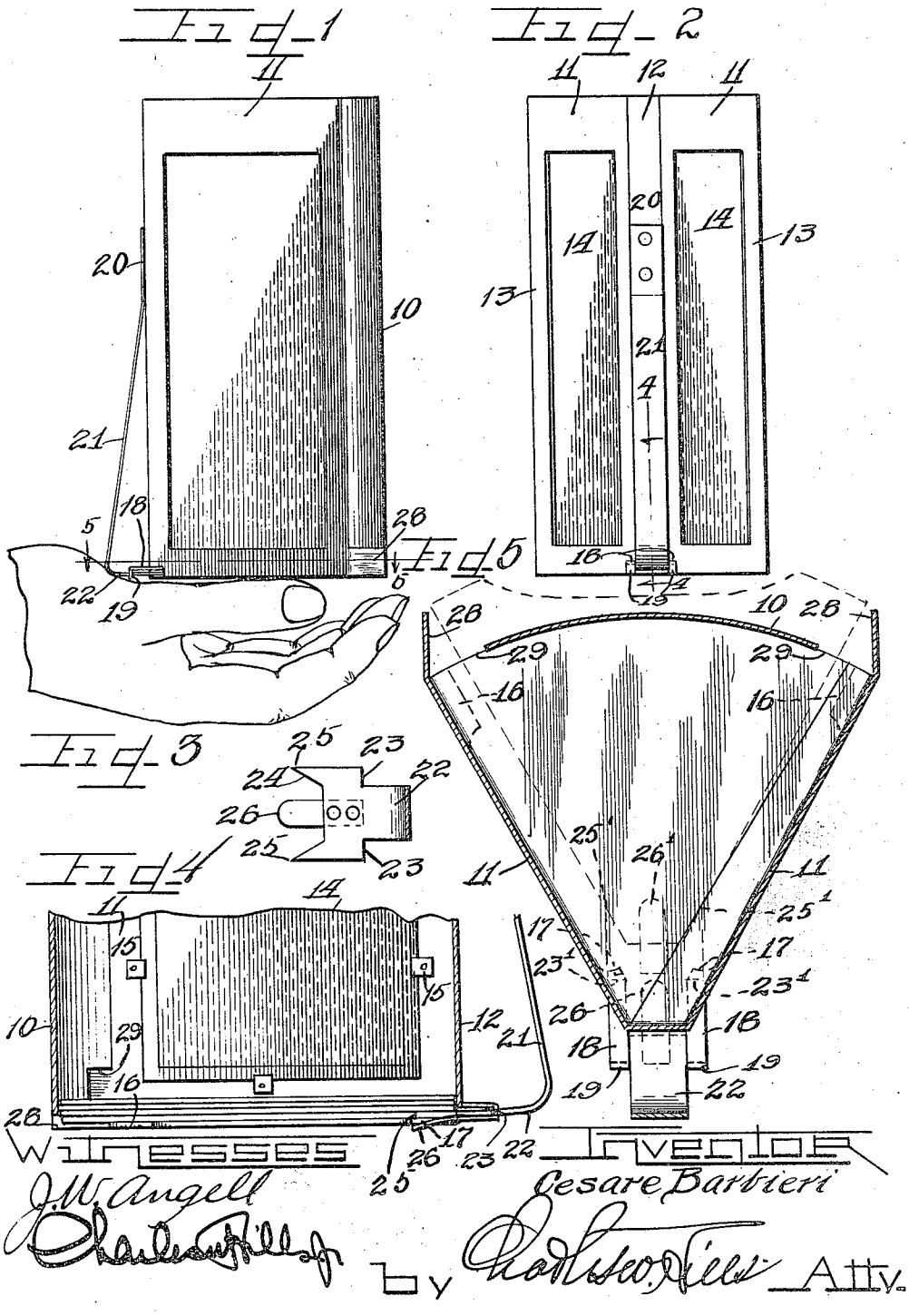
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C. BARBIERI

EJECTOR MECHANISM FOR PAPER CUP DISPENSERS

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CESARE BARBIERI, OF NEW YORK, N. Y., ASSIGNOR TO THE VORTEX MFG. CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

EJECTOR MECHANISM FOR PAPER-CUP DISPENSERS.

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To all whom it may concern:

Be it known that I, CESARE BARBIERI, a subject of the King of Italy, and a resident of the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in an Ejector Mechanism for Paper-Cup Dispensers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

This invention relates to containers of the sort that are intended to hold flat sector-shaped drinking cups of paper or other material which are folded into a flat shape for storage in the container and expanded into cup shape for drinking.

It is an object of this invention to provide a container of the sort described with an ejector mechanism which shall remove one cup at a time from the container.

It is a further object of this invention to provide an ejector mechanism that can be operated by one hand of the operator with the hand in position to receive the ejected cup.

It is a further object of this invention to provide means for retaining the other cups in position so that only one cup will be ejected.

It is a further object of this invention to provide a device of the class described which can be made of stamped sheet metal without the necessity of any expensive operations in the manufacture thereof.

Other and further important objects of this invention will be apparent from the disclosures in the drawings and specification.

The invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is a side elevation of the device.

Figure 2 is a front elevation.

Figure 3 is a detailed section showing a portion of the ejector.

Figure 4 is a section on the line 4—4 of Figure 2.

Figure 5 is a section upon the line 5—5 of Figure 1.

As shown on the drawings:

The container has a main body of approximately columnar form with a cross-section corresponding to the shape of the folded cup. The container therefore has a curved side 10 and two wide converging faces 11 connected at their nearer edges by a narrow flat face 12. Each of the faces 11 is provided with a window 13 in which is secured a transparent material 14 such as glass, mica, celluloid or any similar substance. The sheet of transparent substance is retained in place by clips 15 or in any other desired way. The container is supported by means of a bracket (not shown) secured to the curved surface 10 in any desired manner.

The lower edges of the faces 11 are provided with short inturned flanges 16 shown in dotted lines in Figure 5, at their rear ends, that is the ends nearest the curved surface 10. The other ends of the lower edges of the faces 11 are provided with inturned flanges 17, also illustrated in dotted lines in Figure 5. Near the latter ends of the lower part of the faces 11 are provided tongues 18 projecting forwardly from the outer surface of the container. The forward ends of these tongues are turned downward as shown at 19 in Figure 1 to afford a stop as will be explained below.

Secured to the narrow face 12 at any desired height above the bottom is the flat end 20 of a leaf spring 21. This end is secured by soldering, riveting or in any other desired manner. The lower end of the spring 21 projects forward from the lower end of the face 12 an abundant distance to provide for the motion between the formed position of the spring and the position in which it contacts with the face 12. The lowermost part of the spring is bent through an angle somewhat greater than a right angle so that the lower end of the spring is horizontal as shown at 22.

The rear end of the horizontal part 22 of the spring is enlarged by providing shoulders 23. Contact of the shoulders 23 against the stops 19 fixes the forward position of the spring. The enlarged portion of the horizontal part of the spring is provided with a recess 24 of a shape to fit the small ends of the folded cups. The flaring sides

of this recess meet the edges of the enlargement 23 in points 25. Secured to the under side of the horizontal part 22 is a tongue 26 which is fastened to the horizontal part by riveting, soldering, or in any other desired manner.

The rear wall 10 of the container does not extend all the way down to the level of the flanges 16, but terminates above that level by a distance equal to the thickness of one cup as shown at 27 in Figure 4. Projecting guide pieces 28 are provided at the rear ends of the lower margins of the faces 11. Preferably these pieces are made by cutting away and bending into this position portions of the round surface 10. The cut away places are shown at 29. The guides 28 project parallel to one another and parallel to the direction of motion of the horizontal parts 22 of the spring 21. The lower edges of the guides 28 are in the same plane as the lower surfaces of the flanges 16. They project downward therefore further than the lower edge of the curved face 10.

In the operation of the device, the container is filled with a pile of flat folded cups. These cups when folded are shaped like the sector of a circle except that instead of a point they have short edges or small ends where the points have been folded against the bodies of their cups. The small ends of the cups contact with the inner surface of the face 12. The radial edges of the cup contact with the inner surfaces of the faces 11 and the curved edges of the cup contact with the inner surface of the face 10. The lowermost cup rests upon the flanges 16 and 17. After the cups are placed in the container, if desired the upper end of the container may be covered with any suitable closure (not illustrated).

When it is desired to remove a cup from the container, the operator thrusts his hand beneath the container letting the end of the palm nearest the wrist contact with the lower part of the spring 21. This pushes the spring 21 backward toward the curved face 10. The limit of this motion is reached when the spring 21 contacts with the face 12. The rearmost position of the horizontal part 22 of the spring is illustrated in dotted lines in Figure 5, 23′ being the rearmost position of the shoulders 23, 25′ the corresponding position of the points 25, and 26′ the corresponding position of the tongue 26. As the part 22 moves toward the dotted line position, the recess 24 contacts with and guides the movement of the small end of the cup. The corners of the cup at the two ends of the curved edge thereof contact with the guide pieces 28. The cup therefore is guided at all four corners while being moved by the inward motion of the parts 22. During the first part of this motion, the flanges 17 and 16 support the cup. After the cup has moved rearwardly far enough to escape these flanges, it is supported only by the tongue 26 and the operator's hand. The cup therefore drops naturally into the operator's hand. The operator continues to move his hand toward the rear, lowering it slightly to escape the front lower edge of the container and the spring 21. This movement leaves the cup wholly free from the container and resting in the operator's hand. When the hand is withdrawn from the spring 21, either by being moved downward far enough to escape it or by being again drawn forward, the spring returns by its resiliency to its normal position. Meanwhile, the remainder of the cups descends by gravity and rests upon the flanges 17 and 16. They are thus in position for the removal of the next cup when the operator again moves the spring backward.

I am aware that numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted otherwise than necessitated by the prior art.

I claim as my invention:

1. A container for flat folded cups of truncated sector shape, having a narrow forward face adapted to fit the small end of the cups and two radial faces adapted to fit the radial edges of these cups, a spring secured to said narrow face, an ejector mechanism actuated by the lower end of said spring, the said narrow face acting as a stop to limit the motion of the spring and of the ejector mechanism.

2. In a device of the class described, a columnar container, flanges integral with two sides of said container for retaining the cups therein, an ejector mechanism for moving the lowermost cup beyond the position in which it is supported by the flanges, and means for operating said ejector mechanism by a motion of the operator's hand which brings the hand into position to receive the liberated cup.

3. In a device of the class described, an ejector mechanism having a recess shaped to conform to the small end of a cup shaped like a truncated sector, and projections located at the delivery end of the container opposite the ejector mechanism, and on each side of said end whereby the cup will be guided at all four corners during ejectment.

4. In a container for folded cups having the shape of a truncated sector, a leaf spring secured to one face of the container, a horizontal part integral with said spring, said horizontal part having a recess adapted to fit the small end of the folded cup, and an auxiliary supporting means secured to the under side of said horizontal part.

5. In a device of the class described, a

vertical container having an open bottom, inwardly turned flanges integral with the lower edge of said container, and means for moving the lowermost cup beyond the position in which said flanges support said cup.

6. In a container for approximately sector-shaped cups, a pair of radial walls, a cylindrical wall, guide members integral with the radial walls formed by striking out portions of the cylindrical wall, said guide members extending to a point below the lower edge of the cylindrical wall.

7. In a container of the class described, a pair of radial walls, flanges integral with the lower edge of said radial walls and extending inward therefrom, a cylindrical wall extending between said radial walls and terminating at a point above said flanges, guide members formed by striking out portions of said cylindrical wall, said guide members being integral with said radial walls and extending downward to the lower faces of said flanges.

8. In a device of the class described, a vertical container, an ejector mechanism associated with the lower end of said container, said ejector mechanism including a part projecting forwardly from the container to a position in which it is adapted to be engaged by the portion of an operator's hand near the wrist, whereby the operator may operate the ejector mechanism and bring his hand into a position to receive the ejected article by one continuous motion of his hand toward the rear of the container.

9. In a device of the class described, a vertical container of sector shaped cross section inwardly extending flanges at the bottom of said container, leaving an open lower end between said flanges one wall of said container stopping above said flanges whereby a column of flat sector shaped cups may be held in said container and the bottom cup freed therefrom by a motion toward the curved side and the freed cup can then pass downward between the flanges.

10. In a device of the class described, a columnar container whose cross section has the form of a truncated sector, inwardly extending flanges on the lower edge of the radial sides of said container, the curved side of said container stopping above the plane of said flanges and a reciprocating ejector in position to act upon the lowermost object in the container, the width of said flanges being less than the travel of said ejector.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

CESARE BARBIERI.

Witnesses:

CHARLES W. HILLS, JR.,

CARLTON HILL.