April 5, 1932. A. C. WOOD 1,852,766

CUP DISPENSER

Filed May 31, 1930 2 Sheets-Sheet 1

Fig. 1

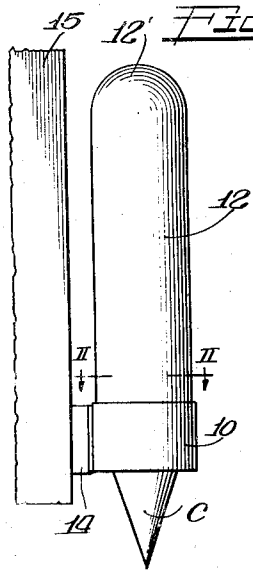


Fig. 2

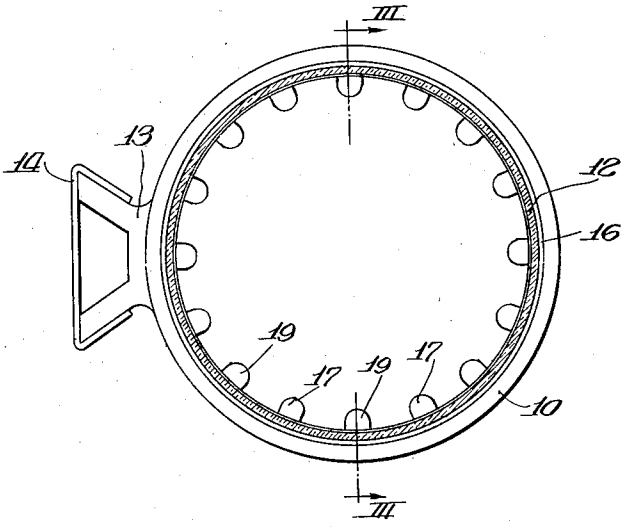


Fig. 3

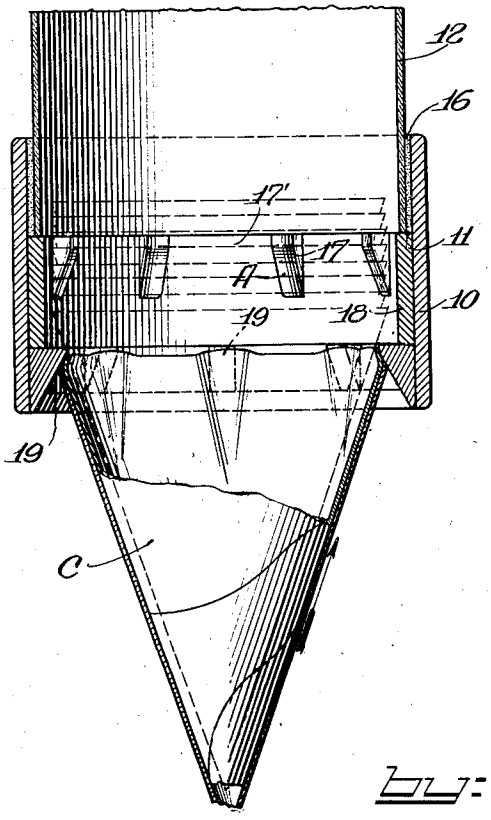
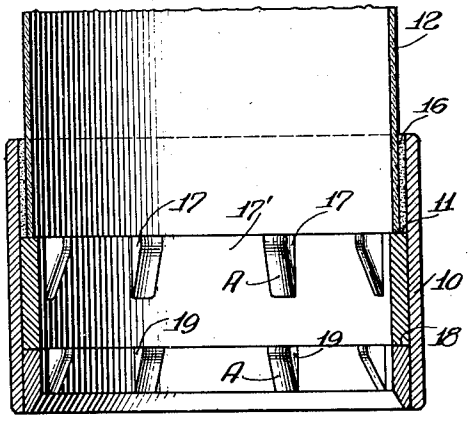


Fig. 4



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CUP DISPENSER

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Fig. 5

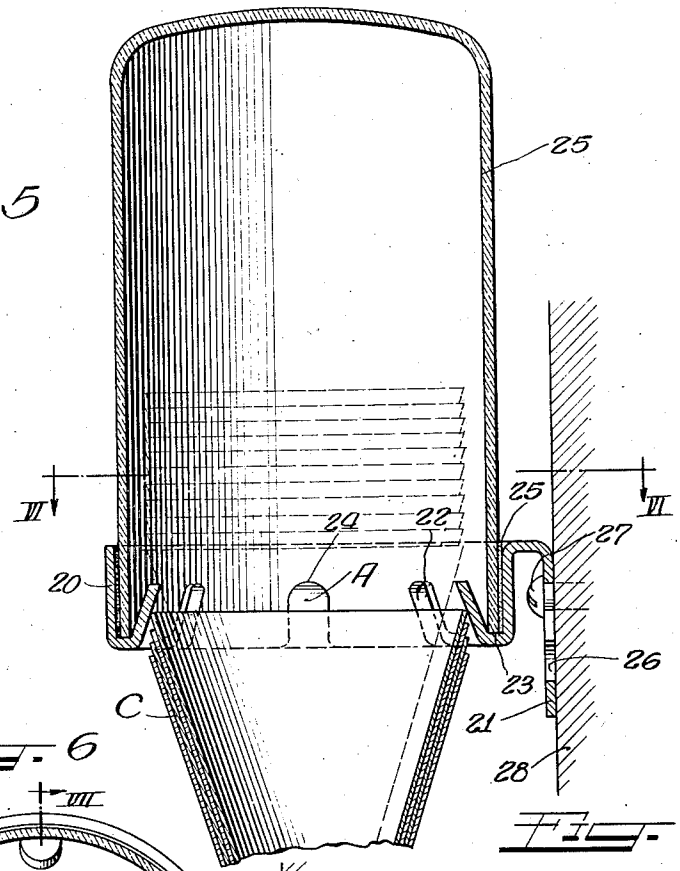


Fig. 6

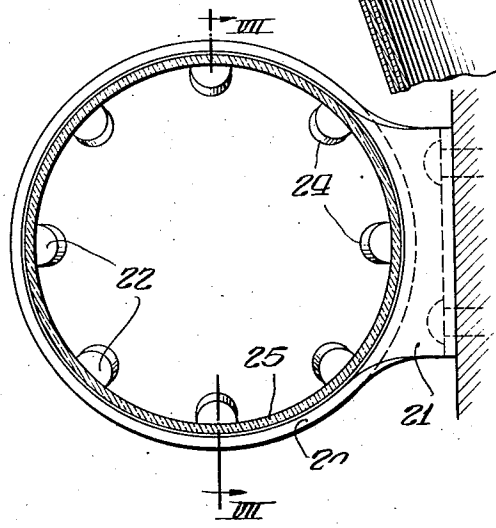
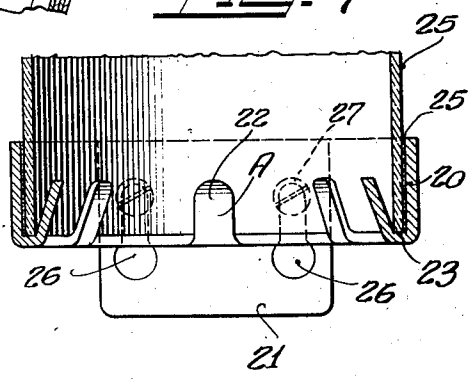


Fig. 7



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Patented Apr. 5, 1932

1,852,766

UNITED STATES PATENT OFFICE

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CUP DISPENSER

Application filed May 31, 1930. Serial No. 458,294.

This invention relates to dispensers for conical paper cups.

Dispensers for this type of cup usually comprise a base having escapement members therein for supporting a stack of paper cups and for controlling the one-by-one separation or dispensing of the cups from the stack through the bottom of the base. A cover or housing is also provided above the base for enclosing and guiding the stack.

Heretofore, on account of the nature of the dispensing arrangement within the base, it was impossible to refill or reload the housing through the dispensing outlet of the base and consequently it was necessary to remove the cover for the insertion therein of a fresh stack of cups. This, of course, requires considerable manipulation to reload a container and also requires some locking means for locking the cover to the base.

The important object of this invention is to provide such an arrangement that a stack of cups may be inserted upwardly through the base past the dispensing structure and into the cover without the need of removing the cover from the base, so that the cover may be permanently secured to the base.

A further object is to provide dispensing structure within the base which will permit reloading of the cover through the base, but which will efficiently control the one-by-one withdrawal or dispensing of the cups from the stack.

Still another object is to provide escapement or dispensing mechanism within the base which will require no manipulation to permit loading of the container through the base yet which will efficiently control the one-by-one withdrawal or dispensation of the cups from the container.

The above mentioned and other features are incorporated in the structure disclosed on the drawings, in which drawings

Figure 1 is a side elevation of a container supported on a wall;

Figure 2 is an enlarged section on plane II—II of Figure 1;

Figure 3 is a section on plane III—III of Figure 2 showing the action during reloading;

Figure 4 is a similar cross-section showing a modified arrangement of the dispensing elements;

Figure 5 is a vertical diametral section of a modified form of dispenser;

Figure 6 is a section on plane VI—VI of Figure 5; and

Figure 7 is a section on plane VII—VII of Figure 6.

In the structure shown in Figures 1 to 4, the base 10 is annular and at its upper end is of increased diameter to provide a supporting shoulder or ledge 11 for the stack enclosing cover or container 12. The base is of some suitable metal, and the cover is preferably of transparent material such as glass and has the dome-shaped upper end 12′.

Secured to the base is a dove-tail shaped lug 13 for engaging with a similarly shaped bracket 14 which may be secured to a supporting wall 15 so that the container may be readily applied to or disconnected from the supporting bracket 14.

The diameter of the cover 12 at its lower end is less than the end of the base above the ledge 11 to leave a space for receiving sealing and securing material 16, such as plaster of Paris, for permanently securing the cover to the base and for forming a sealed joint.

Within the base, just below the end of the cover 12, there is a circumferential row of dispensing teeth 17 which are equally spaced circumferentially and whose upper surfaces are in a common horizontal plane. The base may be an integral structure and the teeth may be integral therewith, or, as shown, the base may be formed of an outer annulus of uniform thickness and an inner ring or bushing 18. This inner ring will at its upper

end provide the ledge 11 for supporting the cover 12 and the dispensing teeth may be formed integral with the ring, and the ring may be of sheet metal or may be in the form of a casting and is rigidly secured to the outer ring as by spot-welding.

The teeth 17 project radially a distance below the end of the cover 12 and the diametral distance between opposite teeth is less than the diameter of the cups C at the upper edge thereof so that when a stack of cups is within the cover the edges of the teeth will engage with the lowermost cup a short distance below its edge to thereby support the stack. The spaces 17′ between the teeth are comparatively large as compared to the width of the teeth so that when the lowermost cup of a stack, which projects through the lower end of the base, is pulled downwardly, the flexible wall or the cup adjacent to its edge will bulge into the spaces 17′ between the teeth and the cup can be readily withdrawn, and after the cup edge passes the teeth, the next lowermost cup will be engaged a short distance below its edge by the teeth to prevent its escape with the withdrawn lowermost cup.

It may sometimes happen that when the lowermost cup is pulled downwardly past the teeth 17, one or more other cups may follow, but to permit only the lowermost cup to be withdrawn from the base I preferably provide a second circumferential row of teeth 19 below the teeth 17 and a short distance above the base outlet. If any cup or cups follow a withdrawn cup past the teeth 17, when the lower teeth 19 will retain such cups and prevent their escape with the lowermost cup. The upper and lower teeth 17 and 19 may be in staggered relative arrangement as shown in Figure 3, or as shown in Figure 4 they may be vertically aligned.

In order to permit reloading of the cover 12 through the base, the teeth are made of considerable vertical depth and at their inner ends are beveled to form the inclined guide surfaces A extending from the inner surface of the supporting ring 18 to the cup engaging edges of the teeth, and the inner ends of the teeth are also preferably transversely rounded as clearly shown in Figure 2. With this form and arrangement of dispensing teeth, a full stack of cups may be inserted upwardly through the base and past the teeth into the cover 12 and when the upper edge of the lowermost cup has passed the upper teeth 17 the stack may be released and it will then be supported on the teeth 17 ready for the one-by-one dispensation of cups therefrom. As shown in Figure 3, as the cups of an inserted stack successively engage the inclined surfaces A of the teeth the cup edges will be deflected and will bulge into the spaces 17′, first between the lower teeth 19 and then between the upper teeth 17 and such guiding and distortion of the cups readily permits them to easily pass by the teeth whereafter the elasticity of the cup walls will cause them to assume their normal conical shape. The transverse rounding of the teeth will prevent too sudden bending or kinking of the cups and they will be caused to deflect or bulge gradually so that they may readily regain their conical shape after they enter the cover 12 during a reloading operation.

On Figures 5, 6 and 7 I show a modified form of dispenser. Here the base 20 and its supporting bracket 21 and the dispensing teeth 22 are formed from a single piece of sheet metal. The base 20 is annular and the teeth extend radially inwardly a distance to form the horizontal seating surfaces 23, and then extend diagonally upwardly to form the cup engaging edges 24 and the inclined guide surfaces A. The dome-shaped container 25, preferably of glass, rests on the surfaces 23 and is surrounded at its lower end by the body 20 between which and the container sealing material 25 such as plaster of Paris or other cement is inserted to permanently secure the container to the base. When a stack of cups C is inserted into the bottom of the dispenser the guide surfaces A will deflect the cup edges so that the flexible cup walls will bulge into the spaces between the teeth. A stack can thus be readily inserted past the teeth and into the container 25 and after passage of the last cup and release of the stack the cup edges 24 will engage with the lowermost cup a distance below its edge and the stack will be supported and the one by one dispensation of cups therefrom will be controlled.

The bracket 21 may be provided with vertical bayonet slots 26 for receiving screws 27 secured in a suitable supporting wall 28. The dispenser thus comprises only two elements, the base member with the integral supporting bracket, and the container 25. The structure can thus be very economically manufactured and sold.

With my improved structure and arrangement, the container or any part thereof, need never be removed from its support and when empty, all that is necessary is to insert a fresh stack upwardly through the base into the container. The cover thus always remains closed and by its sealing engagement with the base affords an efficient seal and protection for the cups and keeps them clean and in sanitary condition.

I have shown and described practical and efficient embodiments of the features of my invention, but I do not desire to be limited thereto as changes and modifications may be made without departing from the scope and principles of the invention.

I claim as follows:

A cup dispenser comprising a base having a container associated therewith for enclosing a stack of flexible cups to be dispensed,

and dispensing elements comprising a plurality of inwardly extending rigid teeth in said base arranged for supporting a stack of cups in a vertical position and for controlling the one-by-one dispensation of cups therefrom, each of said teeth having a top shoulder and a downwardly and outwardly inclined guide surface whereby said container may be reloaded by inserting a stack of cups upwardly through said base over and past the inclined surfaces of said teeth and into said container above said shoulder.

In testimony whereof I have hereunto subscribed my name at Chicago, Cook County, Illinois.

ANDREW C. WOOD.