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DISPENSING DEVICE

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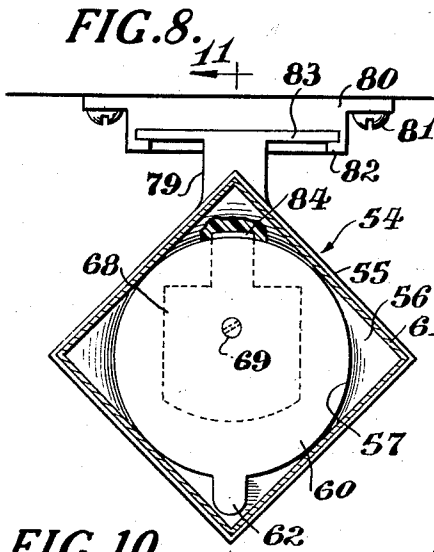
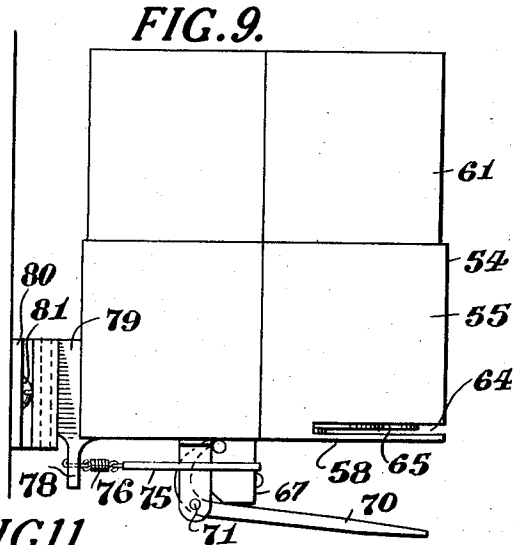
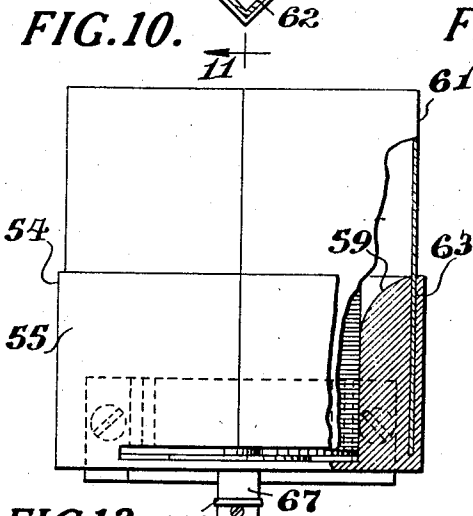
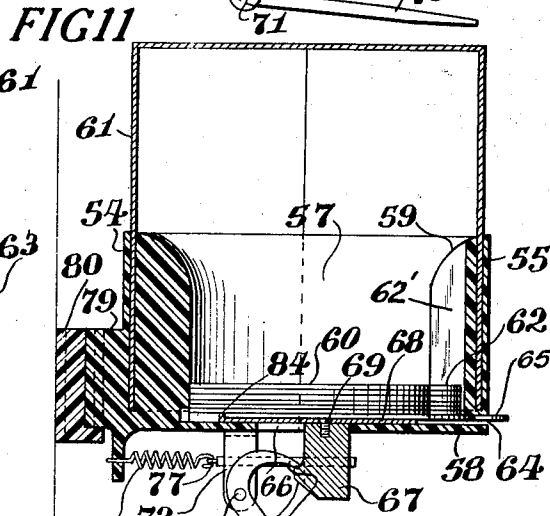
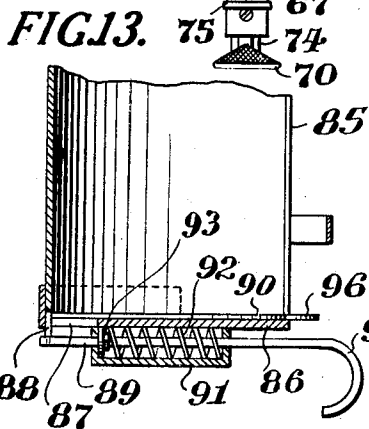
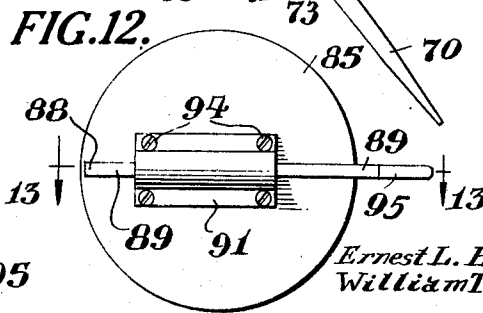
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DISPENSING DEVICE

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1 Claim. (Cl. 221-273)

The present invention relates to an improved dispensing device for ejecting articles from a container.

An important object is to provide a dispensing device with simple, efficient, economical and sanitary means for withdrawing singly or sequentially articles therefrom.

A further object consists in providing an article dispenser which may be conveniently connected to a wall and which includes a supporting base on which articles are stacked, such as lids for paper cups and the like. A reciprocating ejector plate is slidably mounted on the base and is connected to an operating member so that the lowermost lid on the base may be moved outwardly in order that a projecting tab portion can be readily grasped to withdraw the lid from the dispenser.

Other objects and advantages of the invention will become apparent from the following description when taken in conjunction with the accompanying claim and drawings.

Referring to the drawings,

Figure 1 is a side view of a dispensing device constructed in accordance with the present invention.

Figure 2 is a front view of Figure 1.

Figure 3 is a sectional view taken substantially along the line 3-3 of Figure 2.

Figure 4 is a view similar to Figure 3 showing a lid being projected from the dispenser.

Figure 5 is a sectional view taken substantially along the line 5-5 of Figure 3.

Figure 6 is a side view with parts in section showing means for transferring lids from a carton to a dispenser.

Figure 7 is a sectional view of a modified form of housing for the articles.

Figure 8 is a plan view with parts in section of a modified form of the invention.

Figure 9 is a side view of Figure 8.

Figure 10 is a front view with parts in section of Figure 8.

Figure 11 is a sectional view taken substantially along the line 11-11 of Figure 8.

Figure 12 is a bottom plan view of a modified form of the invention, and

Figure 13 is a sectional view taken substantially along the line 13-13 of Figure 12.

Referring to the drawings, 15 indicates a supporting base which, as shown in Figure 1, has a circular bottom 16 provided with an elongated opening 17. Extending upwardly from the bottom 16 is a semicircular flange 18 having diametrically disposed slots 19 for receiving the radial pins 20 that extend outwardly from opposite sides of an article container, such as the housing 21 which, as shown, is provided with an open lower end 22 and an open upper end 23 that may be closed by a removable cover 24. The articles 25 to be dispensed, such as paper lids for drinking cups and the like, are stacked in the housing 21, preferably in a manner subsequently to be described, so that the lowermost lid 26 (Fig. 1) will rest on the top of the base 16. A reciprocating ejector plate or member 27 (Fig. 5) is slidably mounted on the bottom

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16 on the base and is secured to a depending lug 28 that extends loosely through the slot 17 in any suitable manner such as by the screw 29. The plate 27 may be shaped as shown in Figure 3 and has a reduced centrally disposed rear portion 30 that terminates in an upwardly extending lip or lug 31 which normally is positioned below the lower end of the housing 21 (Fig. 3) and is movable outwardly to the position as shown in dotted lines in Figure 4, when ejecting the lowermost lid from the dispenser. The base 15 has extending outwardly from one side thereof, an arm 32 (Fig. 3) arranged to be vertically movable in a slot 33 of the bracket 34 which is suitably secured to a wall or the like by the bolts 35. The arm 32 terminates in an angularly disposed flange 36 arranged to abut the inner side of the front of the bracket 34 when the parts are assembled.

A bifurcated member 37 extends downwardly from the underside of the bottom 16 of the base and has a manually operated lever 38 pivotally connected thereto as at 39. The inner end of the lever 38 terminates in a curved portion or hook 40 which is arranged to engage a cam shouldered surface 41 on one side of the depending member or lug 28 (Fig. 5) so that when the lever 38 is moved downwardly from the position as shown in Figure 1 to that disclosed in Figure 5, it will cause the depending member 28 and the ejector plate 27 to be moved outwardly relative to the base 15. The arm 32 (Fig. 5) has extending downwardly therefrom, a lug 42 to which is connected at one end a coil spring 43 that has secured to its opposite end as at 44, a substantially rectangular strap member 45 that extends loosely around the depending lug 28 so that normally, the tension of the spring 43 will urge the lug 28 and the ejector plate 27 to their inoperative position as shown in Figure 3. The outer end of the lever 38 may terminate in a triangular shaped flat portion 46 so as to facilitate the manual operation of the lever.

Assuming that the dispenser is to be used for ejecting the lids of paper cups or the like 25, each of which is of circular shape (Fig. 4) and is formed with an outwardly projecting tab 47, the housing 21 preferably has its vertical side edges 48 spaced apart (Fig. 2) so as to form the slot 49 in which is slidably mounted the tabs 47 when the housing is mounted on the dispenser. The opposed sides 48 are connected preferably by the vertically spaced straps 50 which are welded or otherwise connected to opposite sides of the housing. The strap member 45 may be maintained in position on the lug 28 in any suitable manner such as by the pin 51 which limits the downward movement of the strap 45 when the parts are assembled.

In order that the lids may be applied to their containers, such as drinking cups or the like, in a sanitary condition and without danger of contaminating the contents of the cups with which they are used, the base 15 and housing 21 may be bodily removed from the wall bracket 34 (Fig. 6) and inserted in the square or diamond shaped carton 52 (Fig. 6) in which the lids 25 are packed, so as not to damage the tabs 47. The tabs are positioned to register with the vertical slot 49 in order that the lids 25 may be inserted in the housing 21 without coming in contact with the hands of the operator. After the lids have been transferred from the carton or box 52 to the housing 21, the base 15 and the housing 21 may again be connected to the wall bracket 34 so as to be maintained in proper position for ejecting the lids from the dispenser. Instead of the housing 21 being provided with a vertical slot or opening 49, it may be formed in one piece as shown in Figure 7, and be provided with an integral curved projection 53 for slidably receiving the tabs 47 when the lids are stacked in the housing.

Thus, it will be seen that when the parts are assembled,

as shown in Figure 1, the lowermost lid 26 rests upon the ejector plate 27 and is engaged by the lip 31. The tension of the spring 43 now maintains the lever 38 in substantially horizontal position so that it may be conveniently actuated. When the lever 38 is depressed, so as to assume the position as shown in Figure 5, the hook portion 40 initially engages the cam surface 41 so as to force the lug 28 outwardly. At the same time, it moves the ejector plate 27 and the lowermost lid 26 outwardly in order to expose the tab 47 (Fig. 4) so that the lid may be manually withdrawn and applied to the cup or container with which the lid is associated. Upon release of the handle 38 the tension of the spring 43 causes the ejector plate and its associated parts to be returned to their normal or inoperative position so that the next lowermost lid may be withdrawn from the dispenser.

In the modified form of the invention shown in Figures 8, 9, 10 and 11, the supporting member or base 54 has its outer surface or sides 55 of substantially square or diamond shape, and its inner surface formed of a circular inner wall 57 that extends upwardly a limited distance from the bottom 58 of the supporting member (Fig. 11). The inner circular wall 57 terminates in an outwardly curved or flared portion 59 for a purpose subsequently to be described. The lids 60 are stacked in the square carton or container 61 so that the tabs 62 are positioned loosely in the vertical cut-out portion or groove 62' that constitutes a guide and protecting means for preventing the tabs from being bent or damaged. The tabs are located adjacent the juncture of two sides of the carton (Fig. 8). The supporting member 54 is formed with a substantially square shaped recess or groove 63 of the same size and shape as the carton 61 so that the lower end of the carton 61 may be inserted therein in order that the lids may be properly positioned so as to be sequentially ejected from the dispenser. The recess 63 terminates short of the bottom 58, and the front side of the base adjacent the bottom is provided with a transverse slot or discharge throat 64 through which the lowermost lid 65 (Fig. 9) in the carton is ejected. The bottom 58 of the base has an elongated slot 66 through which extends the depending lug 67 that is connected to the slidable ejector plate 68 by the screw 69. An operating lever 70 is pivotally connected as at 71 to a bracket 72 connected to the underside of the bottom 58. The lever 70 has a curved or hooked inner end 73 arranged to engage the cam shouldered surface 74 on the inner side of the lug 67. The ejector plate 68 is maintained in its inoperative position by a rectangular shaped strap or member 75 which loosely engages the lug 67 at one end and is connected at its opposite end to a coil spring 76 as at 77. The opposite end of the spring 76 is connected to a depending boss 78 that projects from the centrally disposed arm 79 of the base 54. A bracket 80 (Fig. 8) may be connected to a wall by the bolts 81 and is provided with the spaced lugs 82 which slidably receive the transverse flange 83 that extends laterally from the arm 79 so as to detachably secure the base 54 and its associated parts in a fixed position. The flared portion of the wall 57 serves to guide the lids downwardly into the base so that they will be properly positioned relative to the ejector plate.

The base 54 and its associated parts are substantially similar in construction and operation to the base 15 previously described. The ejector plate 68 is formed at its inner end with an upwardly extending lug 84 (Fig. 8) which normally is positioned so as to engage the periphery of the lowermost lid 65 so that upon actuation of the handle 70, this lid will be moved outwardly in order to expose the tab 62 through the opening 64 in order that the lid may be manually removed from the dispenser and applied to a cup or the like.

In the modified form of the invention shown in Figures 12 and 13, the dispenser housing 85 may be similar in construction to the forms previously described, and has its

bottom 86 adjacent its rear end provided with an elongated slot 87 in which is slidably mounted a lug 88 that extends upwardly from a reciprocating rod 89. The lug 88 normally engages the adjacent side of the lowermost lid 90. The rod 89 extends through a housing 91 in which is confined a coil spring 92 that is connected at one end to a fixed collar or flange 93 on the rod. The housing 91 may be connected to the underside of the bottom 86 in any suitable manner such as by the spaced bolts 94. The rod 89 at its outer end is preferably formed with a handle 95. Normally, the tension of the spring 92 causes the rod 89 and the lug 88 to assume the position as shown in Figure 13. When it is desired to eject the lowermost lid in the dispenser 85 therefrom, the handle 95 is pushed outwardly, thus exposing the tab 96 of the lid so that it may be manually engaged and withdrawn from the dispenser. Upon release of pressure on the handle 95, the spring 92 returns the rod and the lug 88 to their normal or inoperative position so that the lug now engages the lowermost lid in order that the same may be ejected when the handle 95 is again moved outwardly.

Thus it will be seen that in all forms of the invention the supporting base member is arranged to have mounted thereon a stack of articles, such as paper or cardboard lids in order that these lids may be conveniently ejected from the dispenser. Further, positive means are provided for preventing contact of the hands with portions of the lid which come in contact with the contents of the cup or container with which the lids are to be used. While the dispensing device has been shown associated with lids, it will be manifest that it is equally efficient for use for dispensing separately various other articles such as plastic or wooden spoons, flat sheet materials and the like. The housing for the articles may be formed of any light, durable material, such as transparent plastic or the like.

It will be understood that the forms of the invention shown are merely illustrative of preferred embodiments and that such changes may be made as come within the scope of the following claim.

We claim:

In combination with a dispenser for paper cup lids, a carton having circular lids packed therein, said lids having tabs extending laterally and outwardly therefrom, said dispenser including a supporting member having a horizontal base provided with a hollow upwardly extending portion, said extending portion having an outer surface of substantially square shape in horizontal cross section and a substantially cylindrical shaped inner surface, the inner wall of said extending portion having a vertical groove substantially coextensive in length therewith and communicating with a laterally extending discharge throat adjacent said base, said groove being disposed adjacent a corner of the outer square surface of the supporting member, the upwardly extending portion of said supporting member having a substantially square shaped recess extending vertically and downwardly from the top thereof, said carton being of substantially square shape and having an opened end mounted in said recess so that the lids in the carton fall into said cylindrical shaped inner surface and the tabs extend into said vertical groove when the opened end of the carton is inserted into said recess, an ejector plate having an upwardly extending ejector finger slideably mounted on said base so that the lowermost lid in the carton rests on the ejector plate in front of said finger, and means for actuating said plate so as to eject the lowermost lid through said discharge throat.

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