Aug. 1, 1967 J. KATZ 3,333,731

DISPENSING DEVICES

Filed Oct. 15, 1965

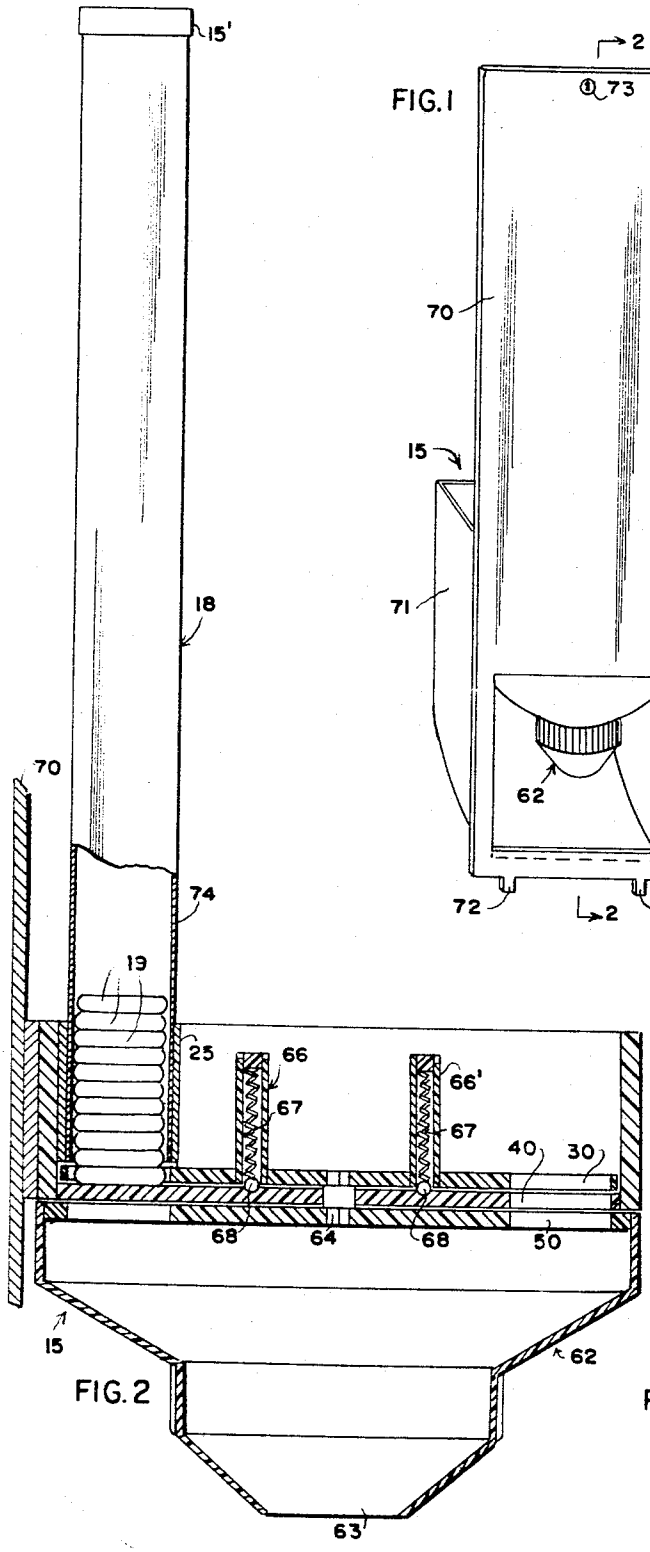



FIG. 2




FIG. 1

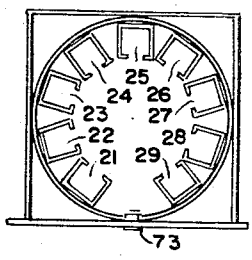



FIG. 3

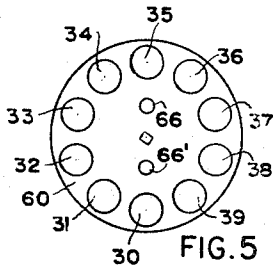



FIG. 5

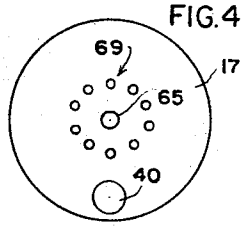



FIG. 4

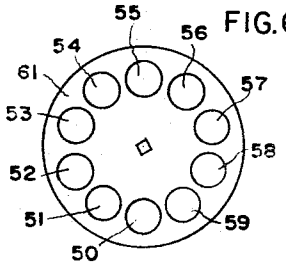



FIG. 6

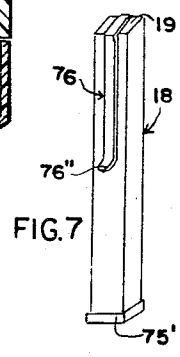



FIG. 7

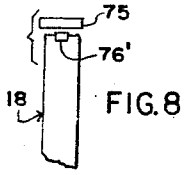



FIG. 8

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# DISPENSING DEVICES

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## ABSTRACT OF THE DISCLOSURE

A device to dispense articles one at a time, including three superimposed horizontal discs on a shaft. The upper and lower discs are fixed to the shaft, but the shaft is rotatable with respect to the middle disc which is fixed to a frame supporting stacks of identical articles. The lower disc is the bottom wall of an inverted empty receptacle. Said receptacle tapers towards its mouth through which at least one of the articles can pass. Each of the upper and lower discs have an identical series of identical holes and equi-spaced around a circle around the shaft; the holes in the upper and lower discs are in registry respectively. The intermediate disc has but one hole and there is no stack above it, but there is a stack above each hole in the upper disc, less the one which is over the single hole in the middle disc. Spring-biased means locate the upper and lower discs so the hole in the middle disc is in registry with one hole in each of the other discs. Said receptacle is accessible to be turned whereupon one article is dispensed at a time.

The present invention relates to dispensing devices, and as an example thereof, one for dispensing one-use soap tablets for use in public washrooms is shown and described.

The principal object of this invention is to provide a dispensing device of novel and improved construction, for dispensing articles one at a time by a slight turn of a chute, down which they fall into hand; the supply comprising a multiplicity of stacks, and successive items dispensed coming from different stacks respectively.

Another object thereof is to provide a dispensing device of the character described, of novel, improved and simple construction, which is reasonably cheap to manufacture, easy to operate and efficient in carrying out the purposes for which it is designed.

Other objects and advantages will become apparent as this disclosure proceeds.

For one practice of this invention, the dispensing device comprises a casing which is an open-top cylindrical receptacle. Within said receptacle, there is a disc covering its bottom wall, but slightly spaced therefrom. There is also a similar disc below the receptacle, covering its bottom wall, but slightly spaced therefrom. The thickness of the receptacle's bottom wall and that of each of said discs, is equal to the thickness of a tablet for which the device is designed to dispense. Said discs are mounted on a common rotatably mounted stud so they turn together therewith. Around the inner wall of said casing, the circumference is divided into a number of equi-spaced stations, which in embodiment shown, numbers ten. At each of nine of these stations or locations, there is provision to hold an upright stack of the tablets which are to be dispensed one at a time upon a tenth of a revolution of said discs. In normal rest position, each disc has a hole directly under each of the stacks, said holes being of a size just to admit one of the tablets. The bottom wall of the casing has a similar hole at the tenth station and so do each of said discs. The lower disc is the bottom wall of receptacle. This second receptacle generally converges to its mouth opening which is a little larger than a tablet, and through which a dispensed tablet falls in the palm of the hand



used to turn said second receptacle. Spring plungers carried on one of said discs, set into sockets in the receptacle's bottom wall at each station alignment of the disc holes with said stacks; said plungers being released from said sockets upon turning said second receptacle, which latter is the operating member of the dispensing device.

In the accompanying drawing forming part of this specification, similar characters of reference indicate corresponding parts in all the views.

FIG. 1 is a perspective view of a dispensing device embodying the teachings of this invention.

FIG. 2 is an enlarged section taken at line 2—2 in FIG. 1. Only one of the stack holders is shown in order to attain clarity of illustration, and such holder is shown laden with a cartridge package containing a stack of tablets.

FIG. 3 is a top plan view of FIG. 1.

FIG. 4 is a top plan view of the mentioned receptacle.

FIG. 5 is a top plan view of the disc which is inside said receptacle.

FIG. 6 is a top plan view of the disc which is outside said receptacle.

FIG. 7 is a perspective view showing a preferred package structure containing a stack of tablets, to be mounted as a cartridge, one at each of the stations where required.

FIG. 8 is a rear view of FIG. 7.

In the drawing, the numeral **15** designates generally a gravity-fed tablet-dispensing device comprising an open-top cylindrical receptacle **16**, whose bottom is the disc **17**, and whose cylindrical wall carries adaptors **21–29** on its inner surface, each of which is to receive a package like **18**, containing a stack of tablets **19**, immediately above a disc **60** within the receptacle **16**, which is extremely close to the receptacle's bottom wall **17**, and there is a disc **61** extremely close to the underside of said wall **17**, constituting the bottom wall of a receptacle denoted generally by the numeral **62**, which is positioned inverted and is of decreasing dimension downwardly to its mouth **63**, through which a tablet **19** can fall. The perimeter of the upper disc **61** is very close to the interior surface of the cylindrical wall of the receptacle **16**, and the diameter of the bottom disc **61**, is at least that of the said upper disc. The disc **17**, will hereinafter be referred to as the middle disc.

In the embodiment illustrated, the disc **60** has ten holes near its perimeter, which are equispaced around a circle. These holes **30–39** are identical and of a size somewhat larger than a tablet **19**. The disc **61** has a similar series of holes **50–59**, in respective alignment with the series **30–39** in the disc **60**. These discs **60** and **61** are fixed on a stud **64**, which is a shaft rotatably mounted through the hole **65** in the middle disc **17**. It is evident that upon turning the receptacle **62** which serves as a delivery chute, that the upper disc **60** and the lower disc **61** will turn with it. The middle disc has a single hole **40** of the same size as the others and at the same distance from center, hence as the receptacle **62** is turned, the hole **40** will be in registry successively with successive pairs of registering holes in the discs **60** and **61**.

Spring plungers indicated generally by the numerals **66**, **66'** are carried on the disc **60**. Each plunger comprises a tensed compression spring **67**, acting on a steel ball **68** which sets into a socket of the series around the circle **69** when the hole **40** of the middle disc **17** is in registery with a pair of aligned holes in the discs **60** and **61**. The adaptors **21–29** are above each hole in the upper disc **60**, except the one which is over the middle disc's hole **40**. Hence there is provision for nine stacks of tablets, there being none above the hole **40**.

The receptacle **16** is fixed to a wall for instance, by a suitable bracket, or to a front panel **70** having a rear cas-

ing **71** therefor, to be set into a wall recess with provision to receive the downward lugs **72**, and to be locked in place by a lock **73**, which manner of mounting is believed well understood without further explanation, as means for removal so that the supply of tablets can be replenished.

In place of the adaptors **21**, **22–29**, there may be tall tubes to carry a stack of tablets each, as is well known in the art, but I prefer to have these short adaptors for the cartridge package structure **18**, which pack is a convenient way to market them to users of these dispensing devices **15**; such package consisting of a thin-walled cardboard or plastic square tube **74**, closed by end caps **75**, **75'** and containing a stack of round tablets **19**. The cap **75** is removable, and the end it was on, has a tape **76** thereacross, one end **76'** of which is adhered by a pressure-sensitive adhesive on one tube wall, and an intermediate portion is likewise adhered to the opposite tube wall, with its other end portion extending along the tube to be accessible to get hold of to pull the tape off said cover tube when the package is set into an adaptor so that its tape-bearing end rests near the upper disc **60**.

To prepare for operation, tablet supply cartridges **18**, are mounted, one in each of the adaptors **21**, **29**. Remove the rip strips **76**. The bottom tablet of each pack will fall into the hole in the upper disc **60**, which is directly below. Assuming that at this time the holes **30**, **40** and **50** are aligned, and there being no tablet supply station at the hole **40**, the hole **30** will be vacant. Each of the holes **31–39** will have one tablet therein. The steel balls **68**, will each be in a socket of the series **69**. Now to dispense a tablet **19**, turn the knurled circumference **62'**, which will cause the upper disc **60** to turn together with the lower disc **61**, and stop when a click is heard, caused by the balls **68** entering the sockets next to those they were initially in. At this time the holes **31** and **51** will be in alignment with the hole **40**. The tablet in hole **31** will fall through the holes **40** and **51**, into the inverted receptacle **62** and out through the mouth **63**, into the operator's palm, or into the chute **77**, where it is stopped by the upward lip **77'**, and accessible to be picked up. The angular distance the rotatable discs **60** and **61** did move, being that between stations, the hole **30** will receive a tablet from the supply held at **29**, and all the tablets which originally were deposited in the holes of the disc **60** will have been moved one station. Every time the receptacle is turned as aforementioned, one pill will be brought over the hole **40**, and will thereby be dispensed through the mouth **63**. This will be repeated until all of the tablets have been dispensed, such occurring one at a time.

It is to be noted that the holes in the lower disc **61**, are merely to provide passage for the dispensed item to fall through the hole **40** in the fixed middle disc or plate **17**, to reach the discharge opening **63**. The use of the disc of the disc **61**, is merely to have a means to get to the disc **60**, to make the latter turn. The receptacle **62** is really a handle to turn the shaft **64**, and a convenient guide means for a tablet to fall down in, to reach the palm of the hand, or discharge station **77**. The member **61** must be with openwork therein to provide passage from each of the holes in the disc **60**, but such openwork need not



consist of individual openings under each of holes in said disc **60**.

The articles to be dispensed may be of any uniform size and the openings in the three discs are of course made to receive one such article at a time. The device **15** though specifically shown for use as a tablet dispenser, may be made of suitable dimensions to be used for dispensing other kinds of articles or small packages, as chocolate squares or packs of cigarettes, which is believed readily understandable to those versed in the art, without the necessity of further illustration.

This invention is capable of numerous forms and various applications without departing from the essential features herein disclosed. It is therefore intended and desired that the embodiments shown and described herein shall be deemed merely illustrative and not restrictive and that the patent shall cover all patentable novelty herein set forth; reference being had to the following claims rather than to the specific description and showings herein, to indicate the scope of this invention.

I claim:

**1.** In a device for dispensing identical articles one at a time, a frame, a horizontal plate fixed on the frame, a horizontal disc above and next to said plate, a rotatable shaft extending through said plate, an open-mouthed, upwardly tapering empty receptacle whose bottom wall is a disc, positioned inverted below and next to said plate; said discs being fixed on said shaft concentrically therewith; the mouth of said receptacle being sufficient to allow one of the articles to be dispensed, to pass therethrough; each of said discs having an identical series of identical holes equi-spaced around an entire circle which is concentric with said shaft; the holes in said discs being in registry respectively; said plate having a single hole in registry with one of the holes of said series, and vertical sockets fixed on the frame to hold removable, elongated packages which constitute stacks of identical articles which are to be dispensed, free for downward movement, one stack above each hole of said series except the one which is in registry with said single hole in said plate; all of said holes being of a size to hold one of the articles respectively; said receptacle being accessible to be turned by hand.

**2.** A dispensing device as defined in claim **1**, including means including a resiliently-biased element releasably restraining rotation of said discs at each position where a hole of said series is in registry with the single hole in said plate.


**References Cited**

UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 1,175,357 | 3/1916 | Jaeger | 221—107 X |
| 2,494,141 | 1/1950 | Perrin et al. | 221—265 X |
| 2,649,994 | 8/1953 | Lewis et al. | 221—265 |

FOREIGN PATENTS

| | | |
|---|---|---|
| 613,082 | 11/1960 | Italy. |



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