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D. WABER ET AL
DISPENSING CONTAINER

2,605,892

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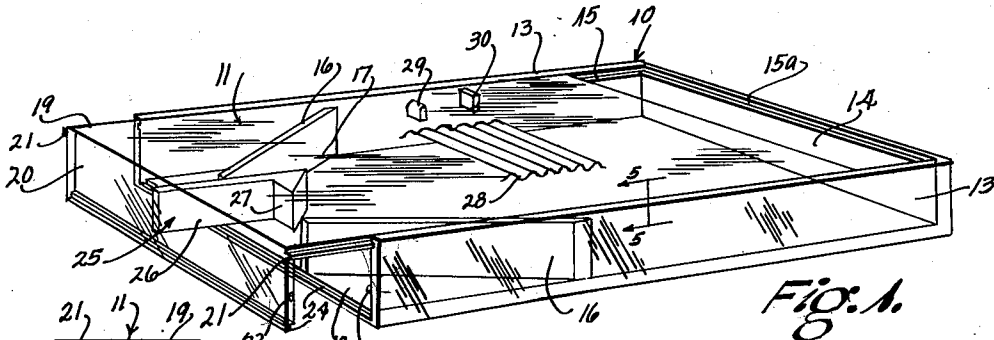


Fig. 1.

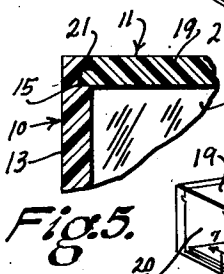


Fig. 5.

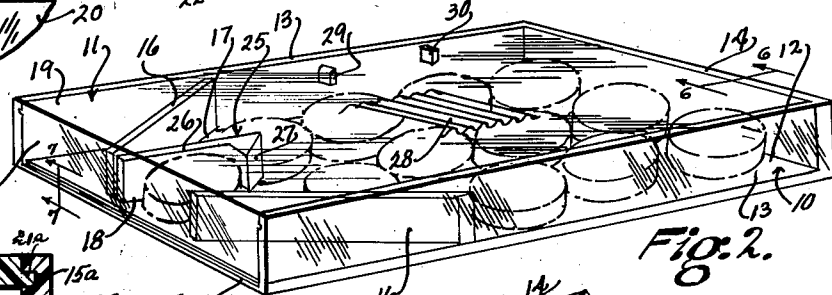


Fig. 2.

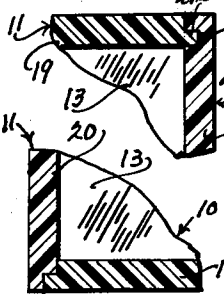


Fig. 6.

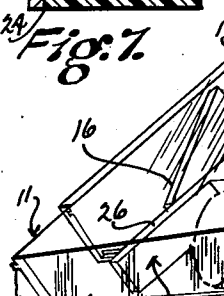


Fig. 7.

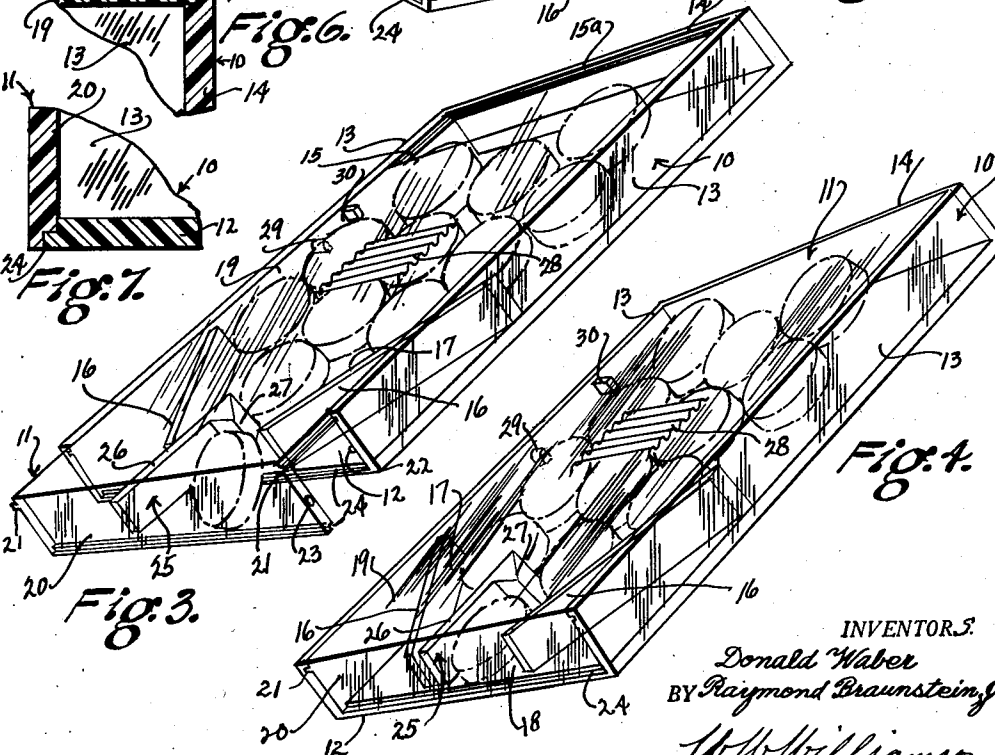


Fig. 3.

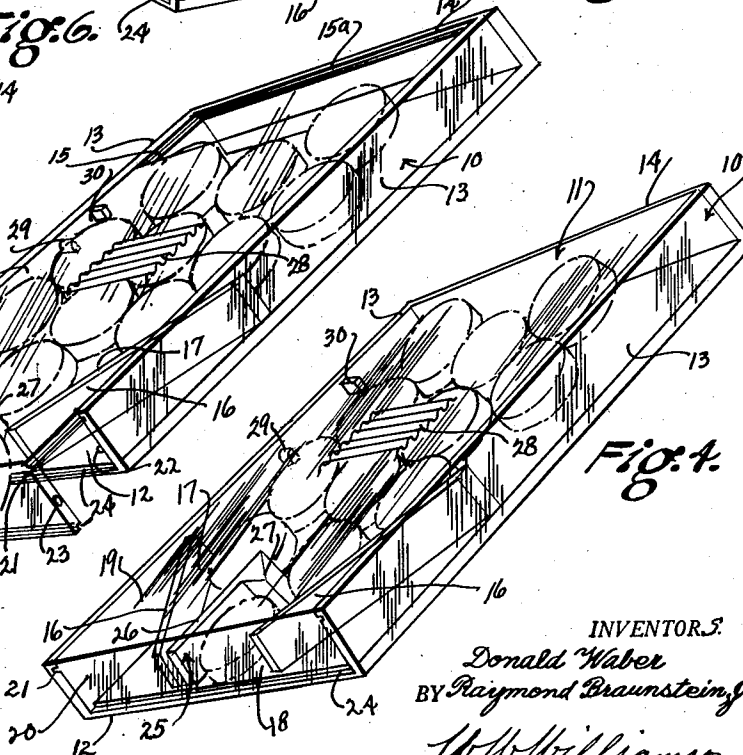


Fig. 4.

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DISPENSING CONTAINER

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9 Claims. (Cl. 206—42)

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Our invention relates to new and useful dispensing containers and has for one of its objects to supplement and improve the structures disclosed in our copending applications, Serial Nos. 190,478, filed October 17, 1950, and 228,414, filed May 26, 1951.

Another object of the present invention is to simplify the construction of dispensing containers of the type set forth herein whereby they will be relatively inexpensive in the cost of manufacture although highly efficient in operation.

Another object of this invention is to produce a dispensing container in the form of a small box-like package holding a plurality of articles, to be dispensed one or a few at a time, said package capable of being carried in a person's apparel pocket, purse or other equivalent place for easy and quick access whenever it is necessary or desirable to use any of the contents of the package.

Another object of the invention is to so construct the dispensing container that the contents will be delivered from a substantially central lower location of one end of the container as the dispensing elements are actuated thus providing for operation while held in one position in either the right or left hand.

Another object of the invention is to produce a dispensing container having a substantially central exit, relative to the sides of the container and at the bottom of the latter, a gradually diminishing guideway leading to said exit and comprised of baffles oblique to the side walls, and a trap formed by a combined ejector and agitator in cooperative relation to the baffles, the entrance to said trap being progressively reduced laterally during the dispensing operation to prevent accidental displacement of other articles in the container during delivery of one or more articles, according to the dimensions of the trap and the size of the articles, being dispensed.

Another object of the invention is to produce a dispensing container of the type employed for packaging a quantity of articles, such as medicinal and confectionary tablets or other items, and subsequently dispensing them, as one at a time, from the center of one end at the bottom of the container to eliminate the necessity of tilting the container sidewise, shaking it for the purpose of releasing jammed articles or inverting it for delivering said articles.

Another object of the invention is to construct a new and novel dispensing container by utilizing some of the structural features disclosed in our above mentioned copending applications for Letters Patent and combining them with other ele-

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ments to produce a novel structure having a new and different mode of operation.

A further object of this invention is to produce a dispensing container including a receptacle or box-like body, normally open at the top and one end, with baffles inside of said body adjacent the open end thereof and converging towards said open end to provide a gradually decreasing or diminishing guideway leading to a centrally located exit over the front edge of the bottom of the body, a closure slidably mounted in the upper portion of said body in parallel relation to the bottom of the body and including a top and front to generally close the respective top and front openings of the body, and said closure having a combined agitator and ejector extending rearwardly from the closure front into the body and cooperating with the baffles to form a trap, the entrance to which will be progressively reduced as the closure is moved forwardly during each dispensing operation.

A still further object of the invention is to provide stop means to limit the forward or projection movements of the closure, said means being constructed in a manner to permit easy assembly of the closure on the body.

With the above and other objects in view this invention consists of the details of construction and combination of elements hereinafter set forth and then designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same we will describe an embodiment thereof in detail, referring by numerals to the accompanying drawing, in which:

Fig. 1 is a perspective view of a dispensing container constructed according to our invention and shown in a partially open position.

Fig. 2 is a similar view with the closure in the closed position and dispensible articles included in the container.

Fig. 3 is a perspective view of the dispensing container in a slightly upended or tilted position with the closure partially open for carrying out a dispensing operation.

Fig. 4 is a similar view showing the container closed and one of the dispensible articles in the trap ready to be ejected.

Fig. 5 is an enlarged fragmentary sectional view on the line 5—5 of Fig. 1 to illustrate a structural detail.

Fig. 6 is a similar view on the line 6—6 of Fig. 2.

Fig. 7 also is a similar view on the line 7—7 of Fig. 2.

In carrying out our invention as herein em-

bodied 10 and 11 represent, respectively, a receptacle or box-like body and a closure produced from any suitable or desirable material having sufficient stiffness or rigidity to retain the shapes desired and being opaque, translucent or transparent, according to the requirements or demands of the trade, and having some inherent resiliency for certain purposes to be hereinafter fully brought out.

The receptacle or box-like body 10 comprises a bottom 12 from which projects the upwardly extending perpendicular side walls 13 and rear wall 14 so that the top and front end of the body are normally open. The bases and upper edges of said side and rear walls are parallel or substantially so.

Track grooves or runways 15 are shown as providing means for slidably mounting the closure 11 on the body and said runways, for purposes of illustration, are depicted as formed in the inner faces of both side walls longitudinally and adjacent the upper edges thereof. These grooves may be continued across the inner face of the rear wall from one side to the other, as at 15a, to form part of a dust-proof joint.

Within the body 10 are located stationary baffles 16 which extend from a location a short distance to the rear of the open front end of said body, at the side walls thereof, towards and, preferably, to said open front end. The construction of these baffles may be anything appropriate, such as strips of material fastened in place, to provide opposed surfaces oblique to the body side walls and constituting a gradually decreasing outlet passageway 17 converging towards the open front end of the body and the extreme forward ends of said baffles are spaced apart to provide a restricted exit 18, Figs. 2 and 4, of sufficient width to accommodate at least one item of the contents at a time and said exit is directly over the forward edge of the bottom of the body so that an article ejected through said exit will fall off of said bottom forward edge and descend into any receiver, such as a person's hand or mouth.

The closure 11 includes a top wall 19 and pendant front wall 20 fitting the top and front of the body and, for purposes of illustration only, are shown as substantially fitting within the confines of the body bounded by the front and rear ends and sides thereof.

Along the side edges of the top wall 19 of said closure are formed tongues or tracks 21, Fig. 5, which are slidably fitted into the runways 15 to allow the closure to slide longitudinally on the body 10 and these tracks may be continued along the rear edge of the closure top wall as at 21a, Fig. 6, to form the other part of the dust-proof joint when entered into the groove 15a. The tracks should snugly fit the runways 15 to frictionally retain the parts against accidental relative movements although the closure can be held in a fully closed position by a suitable holding means.

For purposes of illustration, a holding means is shown as comprising a projection 22, Figs. 1 and 3, formed with and extending from the inner face of a side wall 13 of the body 10 for registration with a socket 23 in a side edge of the closure front wall 20. It is believed obvious that the locations of the projection and socket can be provided in multiple, one at each side of the body and closure or positioned at other locations on the parts of the device.

The lower edge of the front wall of the clo-

sure and the forward edge of the bottom wall of the body are provided with companion rabbet joint formations 24 to provide a dust-proof joint at the front end when the container is completely closed.

A combined agitator and ejector 25 of novel formation is carried by the closure and depends or hangs from the top wall into close proximity to the bottom wall while extending from the closure front wall rearwardly an appreciable distance but within the space between the baffles 16, longitudinally of the top wall. This agitator-ejector includes a relatively thin stem 26 perpendicular to the closure top wall with a lateral nib 27 at the inner or rear end thereof. Said nib has a flat forward face for engaging an article to propel it forwardly and a canted rear face to deflect other articles within the container.

The agitator-ejector 25 is positioned to one side of the longitudinal center of the device whereby it is in a perpendicular plane contiguous the forward end of one baffle 16 with the nib 27 projecting towards the other baffle 16. The nose of the nib, formed by the meeting of the flat and canted faces, is spaced from the opposed baffle to provide an entrance of sufficient width to allow for the passage of a single article into the trap bounded by the closure front wall, the stem and nib of the agitator-ejector, and the baffle opposite said nib, when the closure is in the retracted position. As said closure is projected forwardly for delivering an article during the dispensing operation, the entrance to the trap is gradually decreased laterally as the nib nose approaches the forward end of the angularly positioned opposed baffle to prevent other articles entering the trap or being accidentally displaced.

During retraction of the closure, the inner or rear end of the agitator-ejector will engage any article in the path of rearward travel of said agitator-ejector and thereby scatter the articles remaining in the container, to some extent, to assist in positioning them for subsequent entrance into the convergent guideway and passage into the trap and said agitator-ejector will also loosen any jammed articles.

So that the closure may be readily operated to and fro by pressure of a person's thumb on the closure top wall, a roughened area 28 may be provided on the exterior surface of said top wall. The forward or ejecting movement of the closure is limited by stop means which, for purposes of illustration only, is shown as a pair of cooperating lugs 29 and 30. One of the stop lugs, as 29, is stationary and, for convenience of illustration, is shown as projecting from the interior face of one of the body side walls while the other lug 30 is movable and may depend from the underneath surface of the closure top wall 19. These stop lugs are so located that, when the closure is retracted or closed, they are spaced approximately the distance of the flat front face of the nib 27 to the rear or back of the open forward end of the device, preferably slightly more rather than less than said distance. This will insure a full opening of the forward end or exit to permit unrestricted delivery of an article therethrough just prior to the outward or forward movement of the closure being arrested by engagement of the movable lug 30 with the stationary lug 29 to prevent accidental or complete disengagement of the closure from the container body.

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The upper edge of the stationary lug 29 is arcuately beveled from its front face and the upper edge of the movable lug 30 is also arcuately beveled from its rear face whereby said movable lug 30 may ride over the stationary lug 29, due to the inherent resiliency of the closure material, when the closure is initially assembled on the container body.

All the exposed corners of the body and closure that do not have to be square, for operational purposes, are preferably rounded to reduce to a minimum the likelihood of the device catching in a person's clothing or on parts of a pocket, purse or other objects.

When it is desired to dispense the articles packaged in the container, said container is tilted forwardly so that the foremost articles will slide into the guideway 17, formed by the baffles, and at least one of said articles will pass through the entrance, between the nose of the nib and the opposed baffle, into the trap, formed by the closure front wall, the stem 26 and flat face of the nib 27 of the agitator-ejector, and the forward portion of said opposed baffle. The trapped article will prevent other articles behind it passing through the entrance to the trap. It is particularly pointed out that the distance between the bottom wall of the body and the top wall of the closure is approximately the same as the thickness of the packaged articles so there is no chance for one article to ride upon or over another.

As the closure 11 is projected forwardly the nib 27 of the agitator-ejector 25 will slide the trapped article towards and through the exit 18, forward between the adjacent forward ends of the oblique baffles, and over the forward edge of the bottom of the body from which location the article being dispensed may drop onto any surface below the container, such as the palm of a person's hand. The movement of the nib 27 of the agitator-ejector towards the diminishing space between the baffles gradually decreases the transverse size of the entrance to the trap to prevent passage of the succeeding article or articles into and through the trap and out of the exit during the dispensing operation. During the forward movement of the closure another or other articles may enter the guideway between the baffles but cannot pass out of the container due to the barrier formed by the agitator-ejector, especially the nib portion thereof.

After an article has been delivered the closure is retracted and the agitator-ejector will push any articles still within the container, in the path of travel of said agitator-ejector, rearwardly and to one side or the other so as to position them finally for passage towards the trap and loosen any that might be jammed. Also, the canted rear surface of the nib 27 will assist in deflecting the engaged article towards the entrance of the trap so that it may enter said trap prior to the next dispensing operation. The operations are repeated until all of the articles in the container have been dispensed.

In actual practice, the container is filled with articles prior to the closure being assembled on the body. After the container is filled, the closure is applied by sliding it endwise into the track grooves from the forward end of the body and by the use of a slight excessive pressure, the stop lugs, because of their beveled contiguous edges and the inherent flexibility of the body and closure, will be sprung past each other. Thereafter, as the closure is moved forwardly, the two op-

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posed flat faces of said stop lugs will contact and limit the ejecting movement of said closure to prevent accidental displacement thereof or an excessive stroke that might result in "spilling" of the articles. Each time an article is dispensed and the closure retracted, the articles remaining in the container will be dislodged or stirred about by the agitator-ejector to condition them for free sliding movements towards and into the trap for subsequent delivery from said trap through the exit by the nib portion of said agitator-ejector.

Particular attention is called to the fact that the exit is in the longitudinal center of the container thereby eliminating the necessity of tilting the same sidewise or shaking it about. Also the articles drop from the container exit by gravity in a natural manner thus overcoming the requirement of inverting the container prevalent in many dispensing containers. These features are exceedingly valuable in an instance where a person has only one hand in condition for use, either right or left, and desires to drop an article directly into the mouth. It should be apparent that this type of dispensing container is highly efficient because of its easy manipulation by either right or left handed persons and by one forward and rearward stroke which can be accomplished by the use of one finger or thumb of one hand.

Of course we do not wish to be limited to the exact details of construction herein shown and described as these may be varied within the scope of the appended claims without departing from the spirit of our invention.

Having described our invention what we claim as new and useful is:

1. A dispensing container comprising a box-like body having a normally open top and front end and adapted to hold a plurality of articles to be separately and individually dispensed therefrom, means on the bottom of the inside of said body to direct the articles towards the longitudinal center of said body at the front end thereof when said front end is tilted downwardly and forming a converging guideway leading to a restricted exit, a closure for the top and front end slidably mounted on the body and including top and front end walls, and pendant means on the underneath side of said top wall and extending rearwardly from the front wall a predetermined distance longitudinally of the top wall, said pendant means functioning as an agitator and having a laterally projecting surface to form an ejector and cooperating with said front wall and a portion of the means forming the guideway to provide a trap of a size to hold one article with an entrance large enough for the passage of an article therethrough only while the closure is retracted, said entrance being gradually decreased transversely as the closure is projected forwardly.

2. The dispensing container according to claim 1, in combination with cooperating means on the body and closure to limit the forward sliding movements of said closure.

3. The dispensing container according to claim 1, in combination with cooperating means on the body and closure to temporarily hold the latter in its retracted position.

4. The dispensing container according to claim 1, in combination with means to limit the forward sliding movements of the closure and other means to hold said closure in a temporarily retracted position.

5. The dispensing container according to claim

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1, in combination with a stop lug on the closure, and a second stop lug on the body in the path of travel of the stop lug on the closure to limit the forward movement of said closure.

6. The structure of claim 5 wherein the stop lug on the body has its upper edge beveled rearwardly from the front face and the stop lug on the closure has its lower edge beveled forwardly from the rear face whereby the lug on the closure will ride over the lug on the body during assembly of said closure on said body.

7. A dispensing container comprising a box-like body having a normally open top and front end adapted to hold a plurality of articles to be separately and individually dispensed therefrom, baffles on the inside of said body, one extending obliquely from each side thereof to the open front end of said body and cooperating to provide a convergent guideway leading to a restricted exit over the forward edge of the bottom in the longitudinal center of said body, a closure slidably mounted on the body and including a top wall to close the normally open top of said body and a pendant front wall to close the normally open front of said body when the closure is in the retracted position, a combination agitator and ejector pendant from the inside surface of the closure top wall and extending from the closure front wall rearwardly a predetermined

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distance and functioning within the guideway to move articles about in the container as the closure is retracted and to individually eject articles through the exit each time said closure is projected forwardly, and means to limit the forward movement of said closure.

8. The dispensing container according to claim 7 wherein the combination agitator and ejector includes a flat stem perpendicular to the closure top wall and situated in a plane adjacent the forward end of one baffle and a lateral nib at the rear end of said stem and projecting towards but spaced from the other baffle, said other baffle, nib, stem and closure front wall forming a trap to receive an individual article from the contents of the container through an entrance provided by the space between said other baffle and nib, said entrance being gradually decreased transversely as the closure is projected forwardly and said nib propelling the article within the trap to the exit from which said article will drop by gravity.

9. The structure of claim 8 wherein the nib has a flat forward face and a canted rear face slanting from the rear extremity of the agitator-ejector forwardly towards the other baffle.

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No references cited.