June 22, 1948. W. R. JUSTUS 2,443,862

DISPENSER FOR NESTED OR SERIALLY ARRANGED ARTICLES

Filed April 12, 1947

FIG. 2

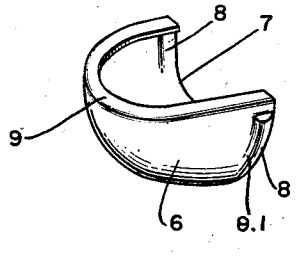


FIG. 1

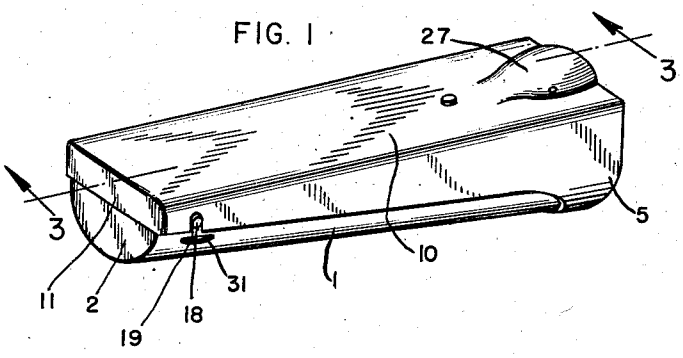


FIG. 3

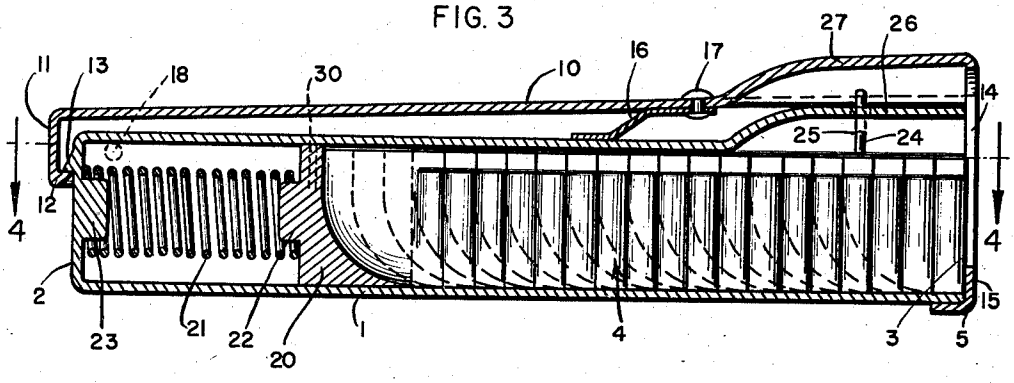


FIG. 4

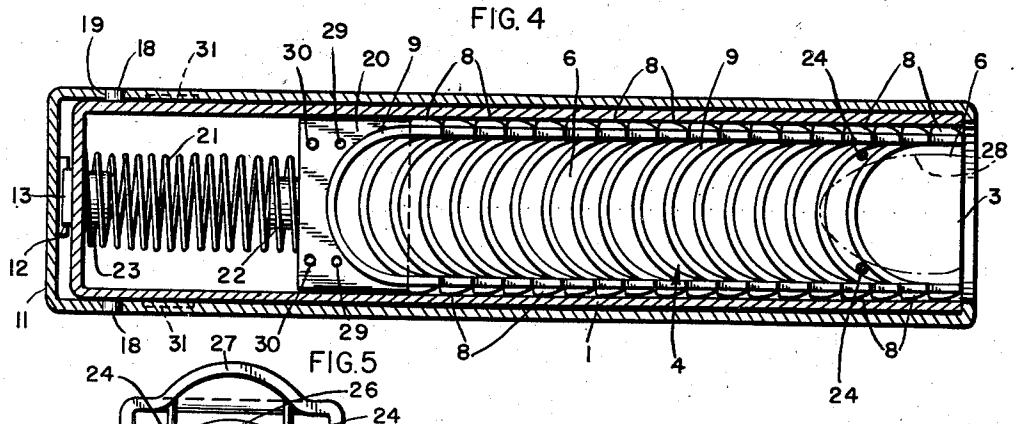
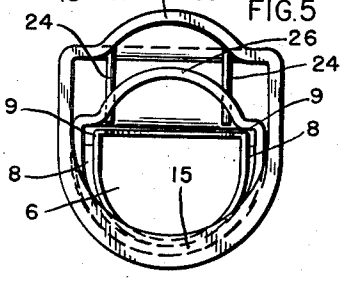


FIG. 5



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DISPENSER FOR NESTED OR SERIALLY ARRANGED ARTICLES

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9 Claims. (Cl. 312—70)

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This invention relates to dispensers of articles, and particularly to dispensers arranged to contain a series or a column of articles, and having delivery means for releasing such articles one at a time.

The main objects of this invention are to provide an improved dispenser for releasing articles one at a time from a series or a column of nested articles contained within the dispenser; to provide such a device in which a column of articles, normally urged toward the delivery end of the device, is automatically held against forward movement upon actuation of means for releasing the first article of the column; to provide an improved dispenser for hollow nested articles; to provide such a device adapted to dispense nested finger tip shields one at a time directly onto the end of the user's finger; to provide such a device arranged to automatically withhold the remainder of a series of nested articles while the first is released; and to provide such a device that is of simple construction, compact and easy to operate.

A specific embodiment of this invention is shown in the accompanying drawings in which:

Figure 1 is a perspective view of a dispenser for finger tip shields, embodying the invention.

Fig. 2 is a perspective view of a finger tip shield such as may be dispensed from the improved device.

Fig. 3 is a sectional view of the dispenser as taken on line 3—3 of Fig. 1.

Fig. 4 is a sectional view of the same as taken on line 4—4 of Fig. 3 and

Fig. 5 is an end view of the dispenser showing its delivery end.

In the form shown in the drawings, the improved device is particularly designed for dispensing relatively small nested articles, such as cap-like finger tip shields, and comprises a hollow, tubular body 1, closed at its rear end 2 and having an opening 3 at its forward end, through which the nested articles are supplied to the dispenser and from which the articles may be individually removed. The interior section of the tubular body 1 is preferably shaped to conform to the shape of the column 4 of nested articles and is preferably of a size which will permit the articles to be held freely but without turning. The column of stacked or nested articles is inserted into the dispenser through the end opening 3 and is retained within the dispenser by means of a laterally slidable cap or gate member 5, disposed over the open end of the dispenser body.

As shown in Fig. 2, the finger tip shield, for

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which the present embodiment of this invention is designed, comprises a hollow shell 6, having generally the shape of a quarter section of a hollow sphere, adapted to fit on and enclose the ball end of the user's finger. One end 7, of the shell 6, through which the finger is inserted in use of the shield, is provided at its sides with a laterally projecting bead 8, shaped to provide a forwardly facing shoulder 8.1, spaced from the edge of the opening 7. The top opening of the shell 6 is provided with a marginal flange 9 which extends laterally inward from the top opening edges.

As will be readily understood, the shields, or hollow shell 6, can be readily nested, one within the other, and the column of such articles held by the dispenser comprises a plurality of the articles so nested. The nested articles are, however, separated or spaced apart slightly, as indicated in Fig. 4, by engagement of the shoulder 8.1 of one article with the edge of the end opening 7 of the next rearward article. The purpose of such spacing will be hereafter explained.

As shown, the gate member 5 is a cap-like element which fits over the open end 3 of the dispenser body and this cap-like element includes a side or shank portion 10 which partially houses the body 1 and extends longitudinally along its upper surface to the rear end where the shank or side portion terminates in an overhanging end member 11 which partly overlaps the closed end 2 of the dispenser. The lower edge of the overhanging member 11 is formed to provide a hook or dog 12 which engages a lug 13 projecting from the end 2 of the dispenser body. It is by this means that the shank 10 of the cap member 5 is retained on the dispenser.

The gate or cap member 5 is shaped to fit the sides of the dispenser body quite closely, but is of a greater vertical length than the open end 3 of the body whereby the cap member may be shifted laterally across the open end. The cap portion 5 is also provided with an end opening 14 of at least the same size as the open end 3 of the dispenser body. However, the opening 14 is located eccentrically in the cap portion 5 so that the lower margin 15 of the opening 14 normally extends partially across the open end 3 of the dispenser body.

The cap portion and the shank or side portion thereof are normally held in offset relation to the dispenser body 1 by means of a leaf spring 16 suitably secured to the inner side of the shank 10, as by means of the rivet 17, and bearing against the outside surface of the body 1. In this position of the shank 10 and the cap mem-

ber 5, the nested articles within the dispenser are retained by the overhanging margin 15 of the cap opening 14.

As shown, the shank or side portion 10 is also engaged on a pair of laterally projecting bosses 18 which extend from opposite sides of the body of the dispenser and which are engaged in slots 19, formed in the sides of the shank 10 which overhang the sides of the dispenser body. These bosses serve as guides which prevent sidewise tipping of the shank 10 during the operation of the gate or cap member.

In order to keep the nested articles constantly urged toward the delivery end of the dispenser, a shaped follower block 20 is provided within the dispenser body which block is normally urged toward the delivery end of the dispenser by means of a helical spring 21, disposed between the follower block 20 and the closed end of the dispenser and held in position by means of bosses 22 and 23 formed on the inner end of the follower block and the end 2 of the dispenser respectively.

The follower block 20 is preferably shaped to fit the end contour of the shield 6 in order to provide a uniform forward movement of the stack or column of shields and to avoid crushing or distorting the endmost shield.

Since the device is intended to dispense the articles one at a time, and such articles are released for removal from the dispenser by alinement of the cap opening 14 with the end opening 3 of the dispenser body, the device is also arranged to automatically block forward movement of the column of articles, under the influence of the spring 21 and the follower block 20, during the period that the outlet openings are alined. This is accomplished by interlock means which physically engages the column of articles and holds back all but the first article which is to be removed.

In the form shown, the interlock means comprises a pair of pins 24, fixed to and projecting laterally inward from the forward end of the shank or side portion 10, which pins extend through suitable apertures 25 in the upper wall of the tubular body 1 so as to be engageable with the column of articles, preferably between the first and second articles of the series. Normally the pins 24 are retracted from the body 1, being so held by the shank 10 which is urged laterally away from the dispenser body by the spring 16, and the column or series of articles is free to move against the margin 15 of the cap opening.

In the particular embodiment of the invention herein shown, the nested articles served by the dispenser are spaced from each other, as shown in Fig. 4, by engagement of the edge of the end opening 7 of one article with the shoulder 8.1 of the next adjacent article, thereby leaving a space between the nested ends of the articles in which the interlock pins 24 may engage between the two leading articles, so that the column can be held against forward movement when the openings 3 and 14 are alined.

The retaining pins 24, or interlocking means, are therefore located with reference to the dispensing end of the device so as to be positioned directly over the space between the two leading articles when the column is in engagement with the overhanging margin 15 of the cap opening, whereby upon operation of the shank 10 to aline the cap opening 14 with the body opening 3, the pins 24 will be projected between the two leading articles.

As shown, the dispenser is particularly designed for handling the hollow, quarter sphere-like shells

which comprise finger tip shields, and the shields are dispensed by inserting the user's finger through the end opening of the dispenser so as to cause the first shield to engage on the end of the finger sufficiently that when the finger is withdrawn from the dispenser the first shield will be carried with it. In this operation, the finger is inserted with the finger nail uppermost or on the side of the dispenser along which the shank 10 is disposed, and since it is intended that the finger nail should overhang the rounded end of the shield when the shield is applied to the finger, the dispenser is so constructed to provide clearance for the finger nail. This is done by providing a dome-like portion 26 on the upper side of the dispenser body 1 at the delivery end, which dome-like portion extends rearwardly a sufficient distance to clear the finger nail when the finger is in engaging position with the leading shield.

The forward end of the shank or side portion 10 is likewise provided with a complementary dome-like portion 27 to permit lateral operation of the cap member, and in the form shown the interlock pins 24 are secured to the shank in the dome portion 27 and project through the apertures 25 which are formed in the dome portion 26 of the dispenser body.

It is desirable that the transverse or sidewise spacing of the pins 24 should be as wide as possible in order to permit the tip of the finger nail to pass between the pins when the finger is inserted into the dispenser for removal of the leading finger tip shield. The position of the finger nail when the finger is inserted in the dispenser is indicated by the dotted outline 28 in Fig. 4.

Also, as shown in Figs. 3 and 4, means are provided to prevent ejection of the follower block 20 at the time that the last shield or article is dispensed, such means consisting of two pairs of sockets or recesses 29 and 30 formed in the upper side of the follower block near the rearward end of the block, wherein the interlock pins 24 may engage during the dispensing of the last shield or article in the dispenser and during any operation of the cap member 5 after the last article has been removed.

The sockets or holes 29 are positioned to receive the interlock pins 24 at the time the last article is being removed from the dispenser; and the sockets 30 are located rearwardly of the sockets 29 in a position to receive the interlock pins 24 after the last article has been removed.

In the operation of the particular embodiment of my invention herein shown and described, the delivery end of the device is first opened by pressing the shank 10 against the dispenser body so as to aline the cap opening 14 with the end opening 3 of the dispenser. This operation projects the interlock pins 24 between the first and second articles in the dispenser so that the column of articles is held back against the action of the spring 21 and the follower block 20. The user then inserts a finger through the alined openings of the dispenser and pushes the finger into the dispenser body until the first shield is fitted onto the ball portion of the finger tip.

Then, upon removal of the finger from the dispenser opening, the first shield is lifted or carried out of the dispenser. When the first or leading shield has been thus removed, the shank 10 is released and by the action of the spring 16 is shifted laterally away from the dispenser body thereby causing the cap opening 14 to be shifted so that the margin 15 thereof will overlap the dispenser opening 3. Such release of the shank

10 causes the retaining or interlock pins 24 to be retracted and the column of articles then shifts forwardly, under the action of the spring 21, until the next article or shield abuts the margin 15 of the cap opening. This operation may be repeated until all of the articles have been dispensed.

Refilling of the dispenser is accomplished by removing the cap member 5 from the dispenser body. The shank portion 10 is retained on the dispenser body by means of the rear end hook 12 and may be released by merely springing the hook portion 12 outwardly, away from the lug 13 on which it engages. Then the shank can be lifted away from the dispenser body and shifted forwardly to disengage the cap end. The dispenser then can be readily refilled by merely pushing a new series or stack of articles into the open end 3, thereby forcing the follower block 20 to the rearward end of the body. After the articles have been inserted into the dispenser, the cap 5 is engaged over the end of the dispenser body to retain the articles, and the rearward end of the shank is pressed toward the dispenser body so as to cause engagement of the hook portion 12 with the lug 13, the shank 10 being retained in hooked position by the inherent resiliency of the end portion 11 on which the hook 12 is carried.

As shown, the dispenser body may be provided with a finger grip 31 on each side to facilitate holding the body during the operation of releasing the shank portion 10 from the dispenser.

The main advantages of this invention reside in the simple construction for dispensing nested or serially arranged articles, one at a time, while maintaining a substantially constant feeding pressure on the column of articles to urge the column toward the delivery opening. Other advantages are to be found in the compact arrangement of the dispenser whereby it can be of a small size and yet contain a substantial quantity of articles. Further advantages are found in the ease of operation of the device and, as a dispenser for finger tip shields, in the arrangement whereby the shield is applied directly onto the user's finger without danger of contamination by handling. And still further advantages reside in the fact that as a finger tip shield dispenser the device may be made of cheap light weight materials and easily carried in a handbag or purse.

Although but one specific embodiment of this invention is herein shown and described, it will be understood that details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined by the following claims.

I claim:

1. A dispenser comprising a tubular container having an opening at one end and adapted to hold a plurality of serially arranged articles, means normally urging said articles toward said end opening, a cap member disposed across said end opening and having a dispensing opening located eccentrically relative to said end opening, said cap member being shiftable laterally to aline said dispensing opening and the end opening of said container, a side portion on said cap member extending rearwardly along the outer wall of said container, means disposed between said side portion and said container normally urging said cap member laterally with respect to the open end of said container, and a pin extending laterally inward from said side portion and arranged to project into said container at a predetermined distance from the open end thereof upon shifting said cap member to aline said openings, said container having an opening in its sidewall positioned to receive said pin.

2. A dispenser comprising a tubular container having an opening at one end and adapted to hold a plurality of serially arranged articles, means normally urging said articles toward said end opening, a cap member disposed across said end opening and having a dispensing opening located eccentrically relative to said end opening, said cap member being shiftable laterally to aline said dispensing opening and the end opening of said container, a side portion on said cap member extending rearwardly along the outer wall of said container, means disposed between said side portion and said container normally urging said cap member laterally with respect to the open end of said container, and a pair of transversely spaced pins extending laterally inward from said side portion and arranged to project into said container at a predetermined distance from the open end thereof upon shifting said cap member to aline said openings, said container having openings in its sidewall positioned to receive said pins.

3. A dispenser comprising a tubular container having an end opening and adapted to hold a plurality of serially arranged articles, a follower in said container, means normally urging said follower toward said end opening, a gate member disposed across said end opening and having a dispensing opening located eccentrically relative to said end opening, said gate member being shiftable laterally to aline said openings, means actuated by said gate member arranged to project laterally into said container upon shifting said gate member to aline said openings, and socket means in said follower positioned to receive the last named means when said follower is engaged with said gate member.

4. A dispenser comprising a tubular container having an end opening and arranged to hold a plurality of serially arranged articles, a follower in said container adapted to urge said articles toward said end opening, a cap member disposed over said end opening and having a dispensing opening located eccentrically relative to said end opening, said cap member being shiftable to aline said openings, interlock means extending laterally inward from said cap member and arranged to project into said container upon alinement of said openings, said interlock means being positioned to engage the second one of the articles in said container and said container having an opening in its sidewall to receive said interlock means, and socket means in said follower positioned to receive said interlock means when said follower is engaged with said cap member.

5. A dispenser comprising a tubular container having an end opening and arranged to hold a plurality of serially arranged articles, a follower in said container adapted to urge said articles toward said end opening, a cap member disposed over said end opening and having a dispensing opening located eccentrically relative to said end opening, said cap member being shiftable to aline said openings, an interlock element disposed on one side of said container and positioned to be projected laterally into said container and engage the second of the articles therein, said interlock element being arranged for actuation by said cap member upon shifting of the same to aline said openings, and said container having an opening in its sidewall to receive said interlock element, and an opening in said follower positioned to receive said interlock element when said follower is engaged with said cap member.

6. A dispenser comprising a tubular container having an end opening and arranged to hold a plurality of serially arranged articles, a follower in said container adapted to urge said articles toward said end opening, a cap member disposed over said end opening and having a dispensing opening located eccentrically relative to said end opening, said cap member being shiftable to aline said openings and having a rearwardly extending portion, a pair of transversely spaced pins extending laterally inward from the rearwardly extending portion of said cap member, said container side wall being open to receive said pins and said pins being positioned to project between the first and second of the articles in said container upon shifting said cap member to aline said openings, and socket means in said follower positioned to receive said pins when said follower is engaged with said cap member.

7. In a dispenser comprising a tubular container having an end opening and arranged to hold a plurality of articles to be dispensed through said opening, a gate member comprising a cap having a rearwardly extending peripheral margin disposed over and enclosing the open end of said container and having a dispensing opening eccentrically located relative to said end opening, said cap being arranged for lateral shifting movement across the end of said container to aline said openings, a shank portion on said cap extending from the margin thereof along one side of said container toward the rear end thereof, means pivotally connecting the rear end of said shank to said container, and means normally urging said shank portion laterally away from the side of said container.

8. In a dispenser comprising a tubular container having an end opening and arranged to hold a plurality of articles to be dispensed through said opening, a gate member comprising a cap disposed over the open end of said container and having a dispensing opening eccentrically located relative to said end opening, said cap being arranged for shifting movement across the end of said container to aline said openings, a shank portion on said cap extending along the side of said container to the rear end thereof and having its rear end overhanging the rear end of said container, a hook member on said rear end engaged with a projection on the rear end of said container, and spring means disposed between said shank portion and said container normally urging said shank portion laterally away from said container.

9. A dispenser for nested articles comprising a tubular container arranged to hold a column of the articles and having an end opening, a cap member disposed eccentrically over the end opening of said container and having a dispensing opening located eccentrically relative to said end opening, said cap member being arranged for lateral shifting movement to aline said openings, a side portion on said cap member extending rearwardly from the laterally spaced side thereof, releasable means pivotally connecting the rear end of said side portion to said container, means normally urging the cap end of said side portion laterally away from said container, and retaining means extending laterally inward from said side portion and arranged to project into said container upon shifting said cap member to aline said openings, said retaining means being positioned and adapted to engage between adjacent margins of the leading pair of nested articles, and said container having a side wall opening to receive said retaining means.

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