Aug. 30, 1966 L. PASSAVANTI 3,269,597

ARTICLE DISPENSING DEVICE HAVING A MOVABLY MOUNTED SUPPLY CONTAINER

Filed Oct. 13, 1964

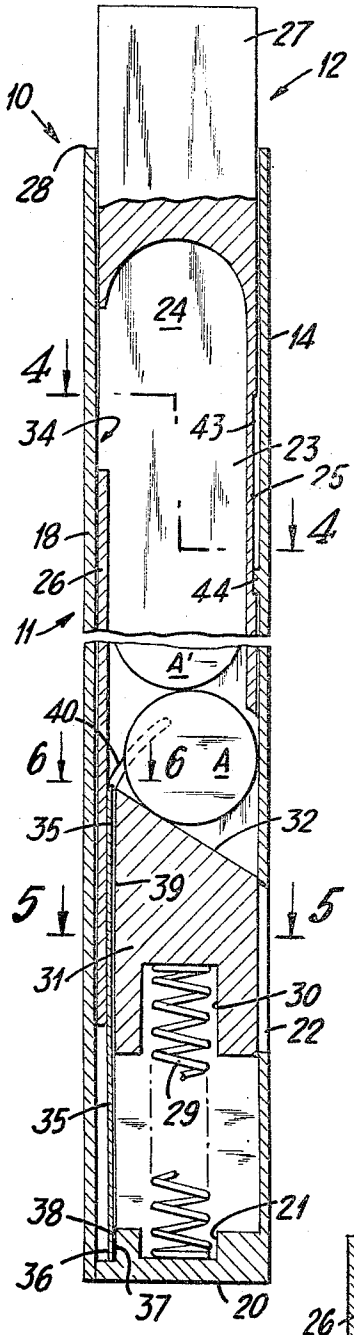


FIG. 1

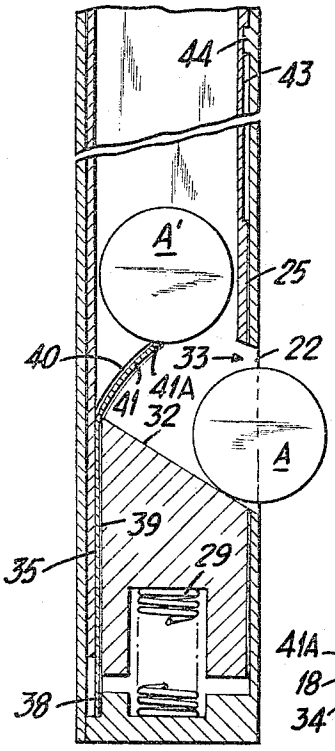


FIG. 2

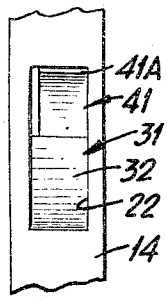


FIG. 3

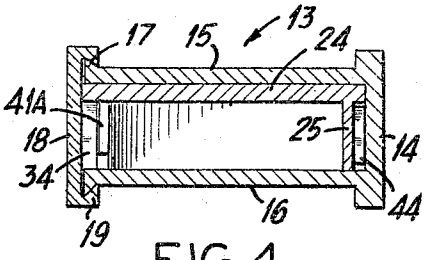


FIG. 4

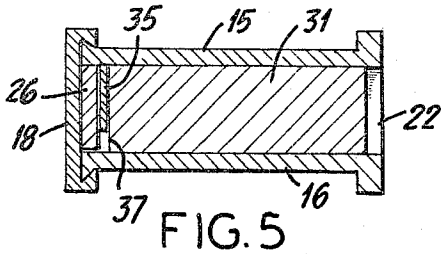


FIG. 5

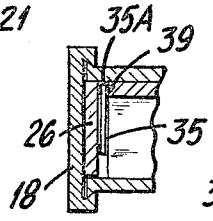


FIG. 6

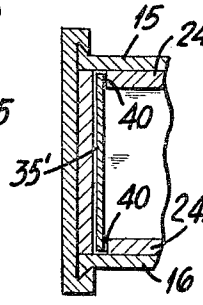


FIG. 7

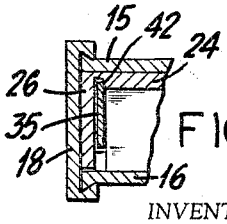


FIG. 8

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ARTICLE DISPENSING DEVICE HAVING A MOVABLY MOUNTED SUPPLY CONTAINER

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This invention relates to an article dispensing device and more particularly concerns a slim, compact form of article dispenser which is adapted to carry a stack of small articles such as pills, etc. for selective dispensation as required.

This invention is an improvement on the device set forth in applicant's copending application Ser. No. 280,210, filed May 14, 1963, now Patent No. 3,159,308.

An object of this invention is to provide in an article dispenser of the slim, compact pencil type, improved means for supporting the stack of articles immediately above the bottommost article as the same is being dispensed.

Another object of this invention is to provide in a device of the character descibed, improved supporting means which is in a normally flat, planar condition but is responsive to operation of the device to dispense a single article, to positively deflect a portion of the supporting means from its planar condition so as to curve the same and bring it into an operative position; the supporting means being restored to its normal planar condition when the article has been dispensed.

Other objects of this invention will in part be obvious and in part be hereinafter pointed out.

In the drawings, FIG. 1 is a vertical sectional view of an article dispensing device embodying the invention, and showing the elements thereof in a normal, non-dispensing relation;

FIG. 2 is a vertical sectional view similar to that of FIG. 1, showing the elements thereof in a dispensing relation;

FIG. 3 is a partial front elevational view showing the dispensing opening of the device;

FIG. 4 is a transverse sectional view taken on the line 4—4 of FIG. 1;

FIG. 5 is a transverse sectional view taken on the line 5—5 of FIG. 1;

FIG. 6 is a transverse sectional view taken on the line 6—6 of FIG. 1;

FIG. 7 is a transverse sectional view showing a modified form of supporting strip guide; and

FIG. 8 is a transverse sectional view showing another modified form of supporting strip guide.

The device of the instant invention comprises essentially a pair of telescopically related tubular members in slidable relation to each other with spring means for maintaining the members in a normally longitudinally displaced relation, the members having dispensing openings normally in offset relation but registrable upon depressing the inner member within the outer member against the action of the spring to allow the bottommost article of a stack of articles within the inner member to be dispensed through the registering openings.

The device further includes simple support means for the stack of articles while the bottommost article is being dispensed, such means comprising a thin flat, flexible but stiff strip in normally planar form and which is disposed within the device to become operative only on depressing the inner member within the outer member, in which case the free end of the strip is curved and positively deflected toward the longitudinal axis of the inner member so as to bring the end edge of the strip into supporting engagement with the bottom of the stack of articles; the strip reassuming its normal planar condition when the inner member moves back to its normal, non-dispensing position.

Thus, as shown in FIGS. 1–4, 10 designates an article dispensing device embodying the invention and adapted to carry a stack of articles such as pills or the like. The same comprises a pair of coaxially and reciprocably related elongated tubular members 11, 12, which are shown, for the purpose of illustration as being of rectangular cross-section. Members 11, 12 are formed of die cast metal but also may be made of molded plastic or the like.

The outer member comprises a channel shaped element 13 having a front wall 14 and side walls 15, 16. The side walls 15, 16 are formed along their outer longitudinal edges with outturned, slight flange portions 17. A back wall member 18 is arranged for slidably closing the open side of sidewalls 15, 16; member 18, having inturned flange portions 19 along the opposite edge portion thereof, for engaging flange portions 17 on side walls 15, 16. The member 11 is closed at its lower end by a bottom wall 20 formed with a centrally disposed socket 21 on its inner surface, for the purpose hereinafter appearing.

The front wall 14 of member 11 is formed with a dispensing opening 22 adjacent the lower end thereof.

The inner member 12 in the form of an elongated bar, is formed with an article carrying recess 23 defined by a single side wall 24, a front wall 25 and a rear wall 26. The recess 23 terminates at its upper end in spaced relation to the outer end of bar 12 to provide a depressible head portion 27 which projects outwardly of the upper open end 28 of outer member 11. The inner member 12 is maintained in a longitudinally displaced relation to outer member 11 by a coil spring 29 which is seated at its lower end in socket 21 of outer member 11 and at its upper end in a socket portion 30 formed on the underside of a solid abutment portion 31 which defines the lower end of recess 23.

Abutment portion 31 includes a transversely and downwardly inclined surface portion 32 which extends at its lower end to the lower end of a dispensing opening 33 formed in the front wall 25 of inner member 12. The back wall 26 is formed at its upper end with an elongated slot 34 to provide an article filling opening for recess 23, to permit the introduction of articles A by way of said slot 34 when back wall member 18 on the outer member 11 is retracted to expose said slot 34.

It is apparent that when inner member 12 is depressed relative to outer member 11 against the bias of spring 29, by way of head portion 27, the opening 33 will be brought into registry with opening 22, to allow the bottommost article A to pass outwardly through said openings, aided by the inclined surface 32, as shown in FIG. 2.

When head portion 27 of inner member 12 is released, the same is restored to its normal elevated position by the action of spring 29; thus leaving the openings 22, 33 in offset, nondispensing relation to each other, as shown in FIG. 1.

Means is provided for supporting the stack of articles in recess 23 while the bottommost article A is being dispensed. To this end, there is provided a thin, flat strip 35 which is formed of stiff but flexible material such as metal or plastic; such strip being a normally planar condition but being adapted to be flexed into curved form and for thereafter reassuming its planar condition when left unrestrained.

Strip 35 is anchored at its lower end 36 to a shouldered portion 37 of bottom wall 20 of the outer member 11, by adhesive or the like, as at 38. The strip 35 extends vertically upward and is adapted to project into a narrow guide slot 39 formed in abutment portion 31; said slot 39 being open at the lower end thereof and extending parallel to back wall 26. Slot 39 opens at its upper end

into recess 23 at the upper end of inclined abutment surface 32.

The rectilinear guide slot 39 has an extended arcuate slot portion 40 extending from the upper end thereof; said slot portion 40 being formed in side wall 24 and projecting at its outer end toward the longitiudinal axis of member 12. The strip 35 has one lateral edge portion 35A adapted to be received in slot portion 40 as inner member 12 is depressed toward its dispensing position, thereby curving the free end portion 41 of strip 35 and bringing the end edge 41A thereof into supporting engagement with article A' of the stack of articles as article A is being dispensed.

It will be apparent that normally planar strip 35 is positively flexed to curve the free end portion 41 into its article supporting position in timed relation to the outward movement of the dispensed article A so as to support the stack of articles as article A passes outwardly of the dispensing openings 22, 33. Furthermore, as inner member 12 is retracted to its normal position, the free end portion 41 of strip 35 is no longer constrained to its curved condition, and reassumes its normal planar condition in rectilinear slot 39.

The supporting strip 35 has a width somewhat less than the depth of recess 23, particularly when the articles of the stack are relatively small, particularly as to their dimension between walls 25, 26. In this case, support strip 35 is guided by a single curved slot portion 40. However, when the articles to be dispensed are somewhat larger and with extended dimensions between walls 25, 26; then inner member 12 is provided with opposed side walls 24, 24A. In this case, wall 24A is also formed with a curved slot portion 40 aligned with slot portion 40 on wall 24 to receive therein the other lateral edge of support strip 35; thereby providing full support on both sides of said strip in its curved, stack supporting condition. Of course the support strip will now have a full width between side walls 24, 24A.

Alternatively, in lieu of a through slot to form guide portions 40, side wall 24 may be formed on its inner surface with a guide groove 42 of curved form which extends from slot 39, see FIG. 8. Such groove may also occur on the inner surfaces of opposed walls 24, 24A, to guide the support strip 35 as the same is curved at its free end in the manner previously described.

To limit the reciprocal movement of inner member 12 relative to outer member 11, detent means is provided in the form of a shallow, longitudinally extending recess 43 formed in the outer surface of front wall 25 of inner member 12 with a shoulder detent 44 projecting from the inner surface of front wall 14 of outer member 11 into said recess 43 and to form stop means for limiting the travel of inner member 12 relative to outer member 11.

While device 10 is shown as having a rectangular cross section, it is understood that the same have cross sections of other geometrical configurations to suit the articles of the stack carried therein.

As various changes might be made in the embodiments of the herein disclosed invention without departing from the spirit thereof, it is understood that all matter herein shown or described shall be deemed illustrative and not by way of limitation except as set forth in the appended claims.

What is claimed is:

1. An article dispensing device comprising a pair of elongated members in telescopic, slidable relation to each other, the inner member having an elongated hollow portion for carrying a stack of articles to be dispensed, spring means for maintaining said members in a given longitudinal displaced relation, said inner member having a dispensing opening in a wall portion thereof in communication with the hollow portion thereof, said outer member having a dispensing opening in a wall portion thereof located to be in offset relation to the dispensing opening of said inner member when said members in said displaced relation and in registered relation to the dispensing opening of said inner member when said inner member is moved relative to said outer member against the action of said spring means, whereby the lowermost article of said stack of articles will be dispensed through said registering dispensing openings, and means for supporting said stack of articles while said lowermost article is being dispensed, said supporting means comprising an elongated thin strip anchored at one end to said outer member, said inner member being formed with a longitudinally extending guide slot for receiving therein said thin strip in its entirety when said inner member is in its normally longitudinally displaced relation to said outer member, said inner member having arcuate guide slot portions in aligned relation on opposite sides thereof for receiving therein side edge portions of said thin strip at the free end thereof whereby the free end thereof is operative to deflect from the plane of said strip toward the longitudinal axis of said inner member in response to the relative slidable movement of said inner member to said outer member for bringing their dispensing openings into registry, the deflected free end of said strip being then in a position to engage the bottom of said stack of articles to support the same while the bottommost article is being dispensed.

2. An article dispensing device comprising a pair of telescopically, slidably related tubular members, the inner member being adapted to carry a stack of articles to be dispensed and including abutment means at one end thereof for supporting a stack of articles therein, said inner member being formed with a dispensing opening adjacent said abutment means, the outer member being formed with a dispensing opening, the members being normally longitudinally displaced to dispose the dispensing openings thereof in offset relation, spring means for maintaining said members in said displaced relation with one end of the inner member projecting beyond one end of the outer member, said inner member being displacable relative to said outer member against the bias of said spring means to bring the dispensing openings of said members into registry, whereby the lowermost article of said stack of articles will pass outwardly through the registering dispensing openings, means for supporting said stack of articles while said lowermost article is being dispensed, said supporting means comprising a thin, flat strip of material having stiffness such that one end of said strip may be deflected from the plane of the strip but will return to said plane when unrestrained, said supporting strip being disposed within said outer member and anchored at one end thereof to said outer member, said inner member including a slotted portion for receiving the free end of said supporting strip in a planar condition thereof and in its entirety when said inner member is in its normally displaced relation to said outer member, said inner member further including guide means for engaging the side edges of said strip and deflecting the free end of said supporting strip as said inner member is moved relative to said outer member whereby the outer end of said strip is projected from the slotted portion of said inner member and the deflected free end of said supporting strip is brought into engagement with the bottom of said stack of articles while the lowermost article is being dispensed.

3. An article dispensing device as in claim 2 wherein said inner member comprises an elongated bar of substantially rectangular cross section, said bar being formed with an elongated article carrying recess defined by one side wall, a back wall and a front wall, and said abutment means at the lower end thereof, the dispensing opening of said inner member being in the front wall thereof, said strip guide means comprising an arcuate slot formed in the side wall thereof, said arcuate slot extending from said slotted portion of the inner member toward the front wall thereof.

4. An article dispensing device as in claim 2 wherein said inner member comprises opposed side walls, a front

wall and a back wall, the dispensing opening of said inner member being in the front wall thereof, said strip guide means comprising a pair of laterally aligned, curved grooves formed in the respective side walls of said inner member for receiving the opposite edges of said supporting strip.

5. An article dispensing device as in claim 2 wherein said outer member is of channel shaped cross section with a front wall and a pair of side walls, a back wall member slidably mounted on said side walls, said inner member comprising a front wall, a back wall and at least one side wall, the dispensing opening of said inner member being formed in the front wall thereof, a filling opening being formed in the back wall of said inner member, said filling opening being exposed upon slidable movement of the back wall member of said outer member to allow said inner member to be filled with articles by way of said filling opening.

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