May 3, 1966 C. L. KRAMER ETAL 3,249,258

DISPENSING GUN

Filed March 3, 1964

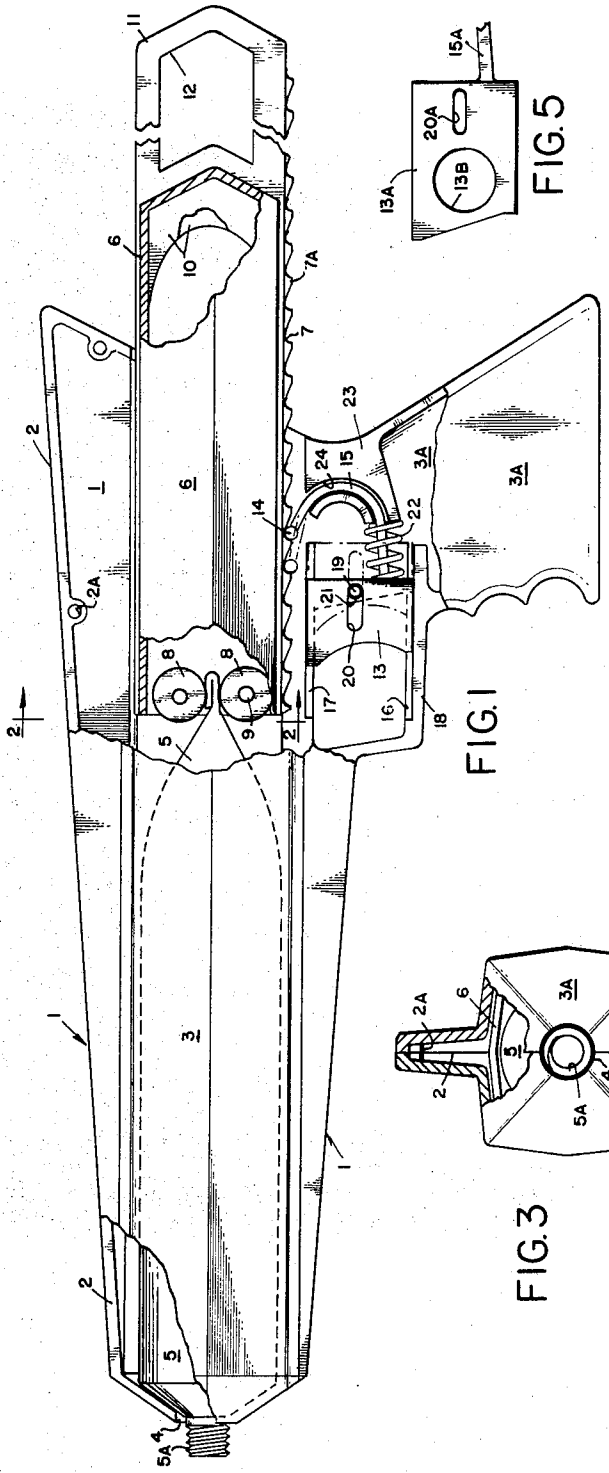


FIG. 1

FIG. 5

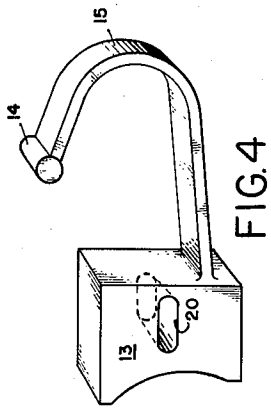


FIG. 4

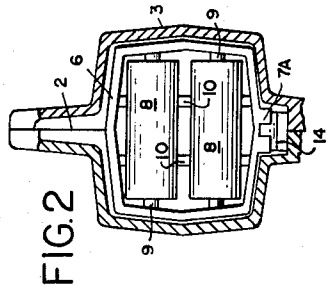


FIG. 2

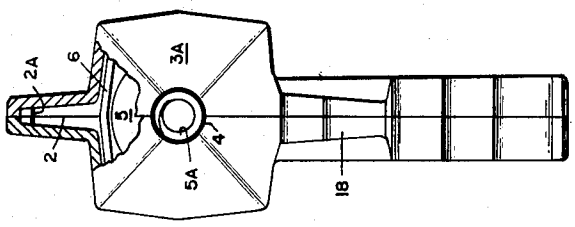


FIG. 3

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United States Patent Office 3,249,258 Patented May 3, 1966

3,249,258

DISPENSING GUN

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Filed Mar. 3, 1964, Ser. No. 348,946
3 Claims. (Cl. 222—102)

This invention relates to improvements in dispensing devices and particularly those devices used in conjunction with collapsible or deformable tube-like containers.

One of the principal objects of this invention is to provide a dispensing device of relatively few components of reliable and durable design resulting in an article having a low cost of manufacture.

A further object of this invention is the provision of novel means by which the tubular container is intermittently and progressively compressed to thereby eject a predetermined uniform amount of material commonly packaged in such containers (toothpaste, hair dressing, calking compound, etc.).

Another object of this invention is to provide a dispensing device from which an exhausted container may be conveniently withdrawn and replaced by another.

A still further object of this invention is to provide an article of this character whose over-all appearance simulates that of a hand gun which renders it attractive to children and an inducement for them to use it on occasions which are otherwise sometimes neglected.

The foregoing and other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawing forming a part hereof and in which:

FIGURE 1 is a side elevational view of a dispensing device made in accordance with the invention and with the fragments broken away for purposes of illustration.

FIGURE 2 is a fragmentary sectional end elevational view along the line 2—2 of FIGURE 1.

FIGURE 3 is a front elevational view of FIGURE 1 with fragments broken away for purposes of illustration.

FIGURE 4 is a perspective detail view of a trigger and a flexible trigger arm actuated thereby.

FIGURE 5 is a fragmentary side elevational detail view of a modified form of trigger.

With particular reference to FIGURE 1 in which an exterior housing indicated generally at **1** comprises two matching halves preferably though not restrictively made of durable, high impact plastic cemented or bonded together along their co-extensive edges **2**. Alignment or guide pins are provided as at **2A** for facilitating fabrication of the device. Both halves of the housing **1** are, for the greater part, of hollow construction as shown and provide a tube receiving magazine **3** when united. The forward end of the magazine **3** is provided with a central opening **4** for the reception of the neck **5A** of a typical collapsible tubular container **5**. Two matching halves of a hand-grip **3A** are formed integral with the halves of the magazine **3** to facilitate use of the device and to complete the simulation of a hand gun.

A tubular shaped housing indicated at **6** is slidably disposed lengthwise within the magazine **3** (FIGURE 2) but of the same configuration. The housing **6** is slidably supported along its bottom side by the corresponding side of the magazine **3**. Centrally disposed along the bottom side throughout the length of the movable housing **6** is a double row of downwardly opening ratchet teeth indicated at **7**. Each tooth thereof is defined by a semi-circular projection **7A** extending downwardly and rearwardly (FIGURES 1 and 2). On the interior of the housing **6**, we provide two parallel compression rollers **8** rotatably carried by shafts **9** secured within the housing **6** at the forward end thereof. These cooperating rollers **8** are

spaced apart sufficiently to engage the crimped end of the collapsible tubular container **5** to progressively flatten the tubular container as the rollers are advanced therealong. A pair of curved guides **10** are formed at the opposite interior end of the housing **6** to receive and turn back on itself the end portion of a partially used tube as the housing is advanced along the tube and hence provides a chamber for the accommodation of tubular containers of various lengths.

Exterior of the housing **6**, at the rearward end thereof, a ring-like finger grip **11** is formed having an opening **12** for suspending the device from a hook when not in use. The finger grip **11** is preferably long enough to permit it to be easily grasped when the housing **6** is in the full forward position.

The amount of material dispensed by each actuation of the trigger is, of course, determined by the travel of the rollers **8** over the tube **5** which in turn is dependent upon the forward travel of a detent indicated at **14** and its corresponding ratchet tooth. A trigger **13** is slidable along upper and lower tracks **16** and **17**, formed respectively in the underside of the magazine **3** and the innerside of a trigger guard **18**. Rearward movement of the trigger is limited by a pin **19** extending through a transverse slot **20** formed in the trigger. The ends of the pin **19** are retained in a secure manner in apertures **21** formed in the handgrip **3A**. Integral with the trigger **13** is a flexible trigger arm **15** which terminates in the detent **14**. A compression coil spring **22** is carried by the arm **15** and bears against the rear end of the trigger **13** and against a guide block **23**, formed in each half of the handgrip **3A** and which is provided with an upwardly curved guideway **24** for the operational movement of the arm **15**.

From this description it is evident that pulling the trigger **13** against the pin **19** will, through thhe medium of the detent **14**, advance the housing **6** a distance equal to the space between the ratchet teeth **7**. The flexible arm **15** is biased toward a straightened configuration and hence urges detent **14** into engagement with each successive tooth as the trigger **13** is returned to the forward or cocked position by means of the spring **22**. The modified form of trigger **13A** shown in FIGURE 5 with a flexible arm **15A** deletes the requirement for a coil spring as finger pressure in the opening **13B** may be used to return the trigger to its forward position as determined by the pin **19** coming in contact with the rear end of the slot **20A**.

Replacement of the depleted tubular container is conveniently made in the following manner. Pin **19** is dislodged from the handgrip **3A** permitting the trigger, trigger arm and detent to move forward and downwardly respectively with the latter being withdrawn below the bottom edge of the projection **7A**. The gun may then be tipped upright causing the housing **6** and the depleted tube therein to fall out of the magazine **3**. If desired, the user may extricate the housing, after withdrawing the pin and positioning the trigger as above, by simply grasping ring-like member **11** and exerting a backward pull thereon. A replacement tubular container is then inserted into the magazine **3** with its crimped transverse end in engagement with the rollers **8**.

Alignment of the slot **20** with the apertures **21** and reinsertion of the pin **19** completes the replacement and reassembly sequence.

From the above description it is apparent that the novel dispensing device disclosed is comprised of a minimum number of parts, each of simple design, resulting in a reliable, durable, and easily fabricated article of manufacture. Also apparent is the feasibility of the extensive use of plastic components resulting in both lower manufacturing costs per unit and a device which is substantially unaffected by accidental immersion.

While we have shown a particular form of embodiment of our invention, we are aware that many minor changes therein will readily suggest themselves to others skilled in the art without departing from the spirit and scope of the invention.

Having thus described our invention what we claim as new and desire to protect by Letters Patent is:

1. A device for dispensing the contents of an elongated, collapsible container, comprising in combination,

a first housing having a lengthwise magazine formed therein for holding said container while in a filled condition, and having a discharge opening at its forward end communicating with the dispensing end of said container,

a curved guideway provided on said housing,

a second housing provided with detent engaging means slidably supported within said magazine and open at its forward end and closed at its rearward end to form a chamber for the reception of the collapsed portion of the container,

means carried and operable by said second housing for progressively flattening the collapsible container to discharge the contents thereof through said discharge opening as said last mentioned housing is intermittently advanced,

a trigger associated with the first housing and actuated by movement in a rearward direction relative to said first housing, and

flexible means integral with the trigger carried within said guideway, and provided with a detent engageable with said second housing detent engaging means for moving the same in a direction opposite to said trigger movement for intermittently advancing said second housing lengthwise within said magazine.

2. A device for dispensing the contents of a deformable tubular container comprising in combination,

a first housing having a lengthwise magazine formed therein for holding said tubular container while in a filled condition and having a discharge opening at its forward end communicating with the dispensing end of said container,

a second housing slidably supported within said magazine open at its forward end and closed at its rearward end to form a chamber for the reception of the deformed or used portion of the container,

detent engaging means along one side of the second housing,

means carried by said second housing and operable by its advancement into said magazine for progressively collapsing said container,

a trigger, slidably carried by said first housing and actuated by movement in a rearward direction, relative to said first housing,

curved guide means on said first housing providing a guideway opening toward said trigger and toward said detent engaging means,

a flexible trigger arm slidably carried within said guide means and secured at one of its ends to the trigger, and

detent means carried by the opposite end of said arm for movement in an opposite direction to said trigger for intermittent engagement with said detent engaging means for progressively advancing said second housing into collapsing engagement with said tubular container.

3. A device for dispensing the contents of a deformable tubular container having a dispensing neck and comprising in combination,

a first housing having a magazine formed therein for holding said container while in a filled condition and having an opening at its forward end to receive the neck of said container,

a second housing slidably carried by said first mentioned housing and open at its forward end and closed at its rearward end to form a chamber for the reception of the collapsed or used portion of the container,

ratchet teeth provided along one side of said second housing,

roller means carried by said second housing at the forward end thereof,

a trigger slidably carried by said first mentioned housing and actuated by movement in a rearward direction relative to said first housing,

a curved flexible trigger arm integral with said trigger,

curved guide means for said trigger arm on said first mentioned housing providing a guideway for said trigger arm opening toward said trigger and toward said ratchet teeth, and

a detent carried by said trigger arm and movable into and out of engagement with said ratchet teeth to advance said second housing and roller means lengthwise of said tubular container in a forward direction opposite to the movement of said trigger to thereby flatten the container and discharge its contents.

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