



US 20060071020A1

(19) **United States**

(12) **Patent Application Publication**
Wiesner et al.

(10) **Pub. No.: US 2006/0071020 A1**

(43) **Pub. Date: Apr. 6, 2006**

(54) **PRODUCT DISPENSER**

(52) **U.S. Cl. 222/95**

(75) Inventors: **Douglas A. Wiesner**, Cincinnati, OH
(US); **Chester S. Richardson**,
Northbend, OH (US)

(57) **ABSTRACT**

Correspondence Address:
WOOD, HERRON & EVANS, LLP
2700 CAREW TOWER
441 VINE STREET
CINCINNATI, OH 45202 (US)

A product dispenser is used for compelling a flowable product from a package. The package is positioned within a container that may be coupled to a base member that slides in and out of a housing so that the container may function as a drawer. An extruder member compresses the package against the bottom wall to compel product therefrom. A retention device secures an end of the package in the container and prevents the package from becoming bunched up within the container. By doing so, the retention device helps ensure that the maximum amount of product is compelled from the package by the time the extruder member reaches its terminal position.

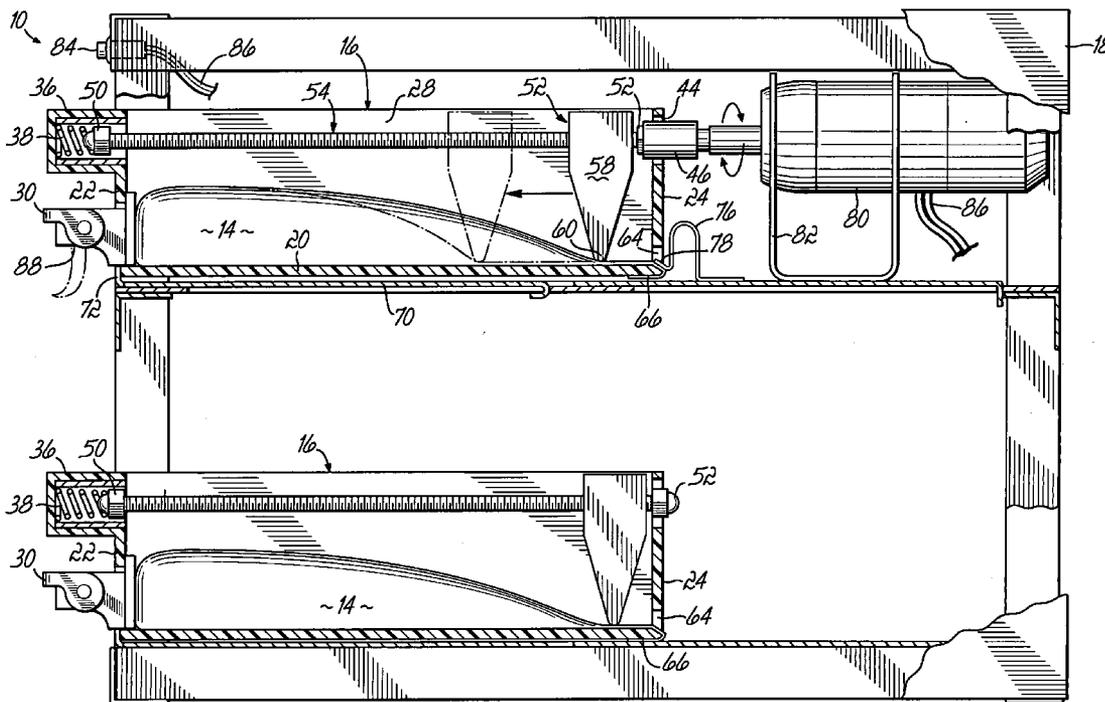
(73) Assignee: **Turnout Products, Inc.**, Cincinnati, OH

(21) Appl. No.: **10/951,486**

(22) Filed: **Sep. 28, 2004**

Publication Classification

(51) **Int. Cl.**
B65D 35/28 (2006.01)



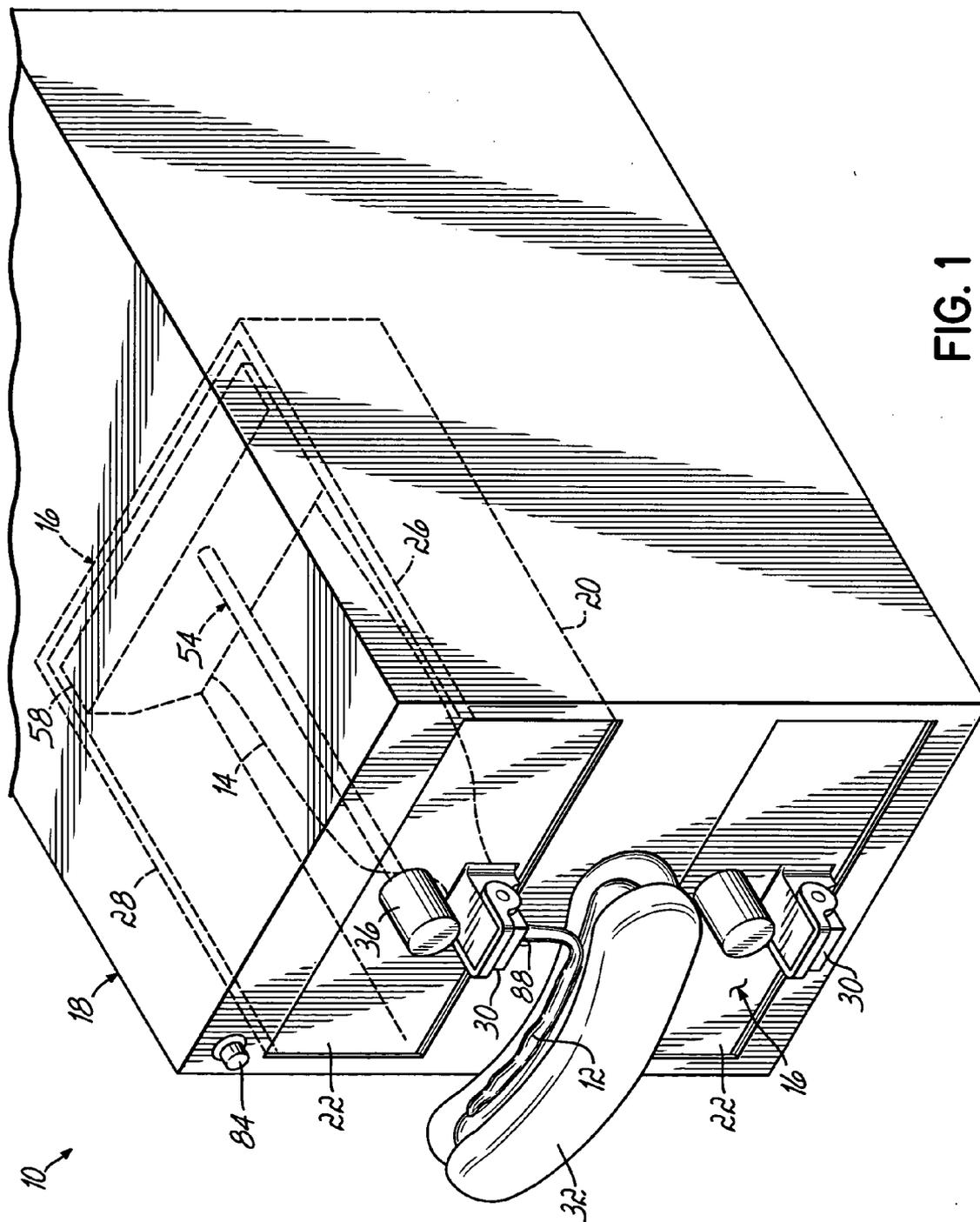


FIG. 1

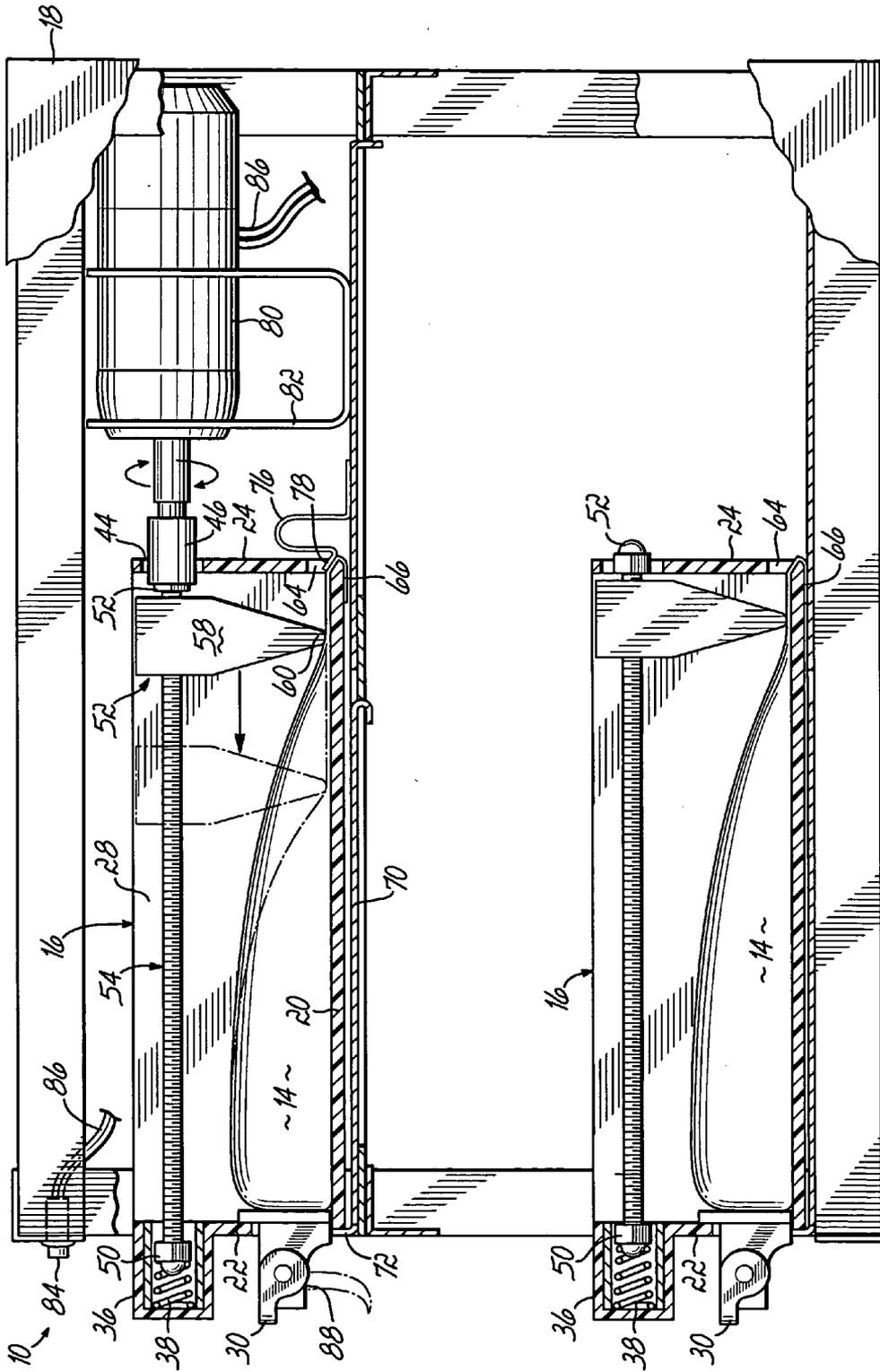


FIG. 2

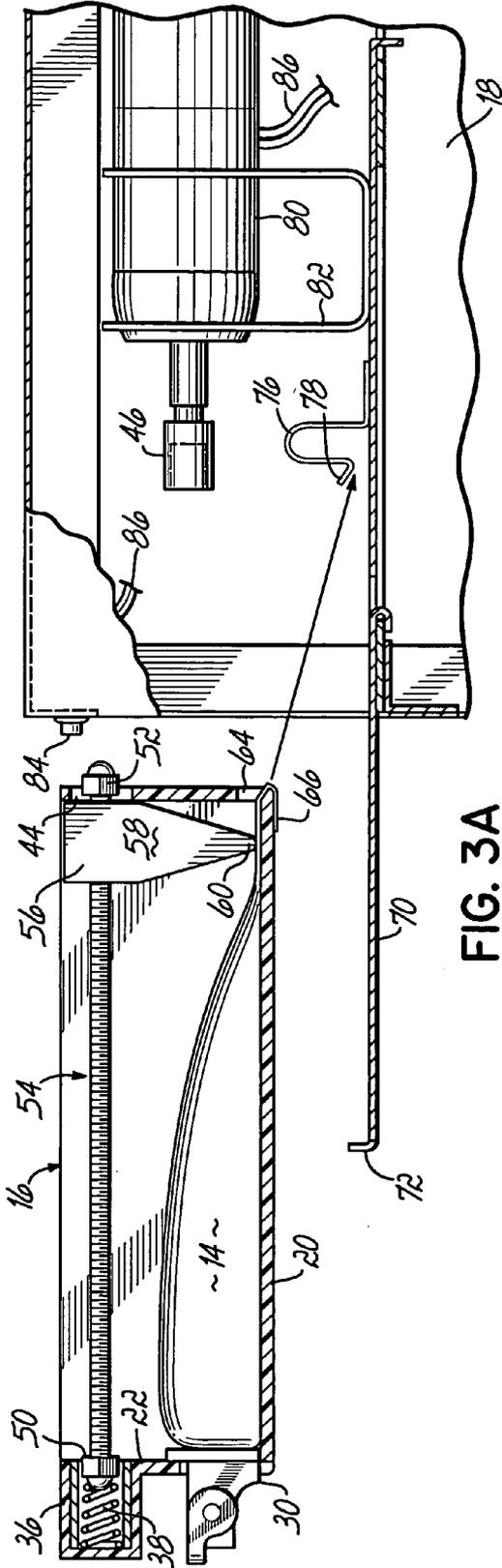


FIG. 3A

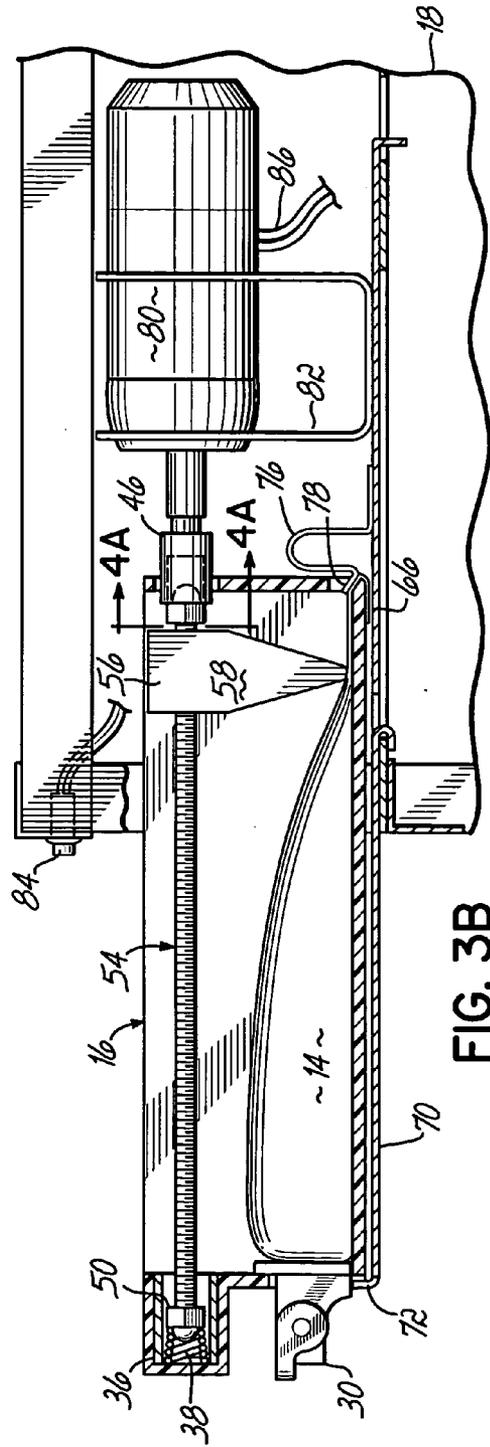


FIG. 3B

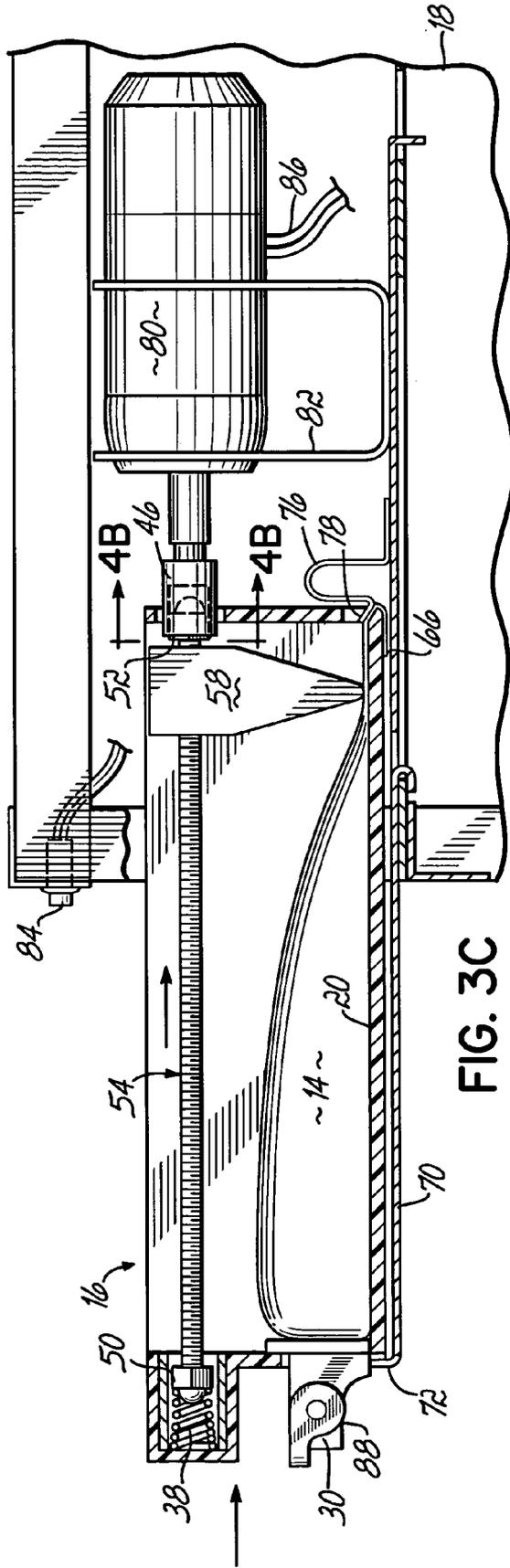


FIG. 3C

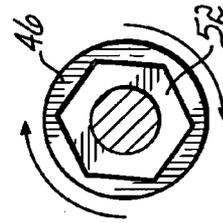


FIG. 4B

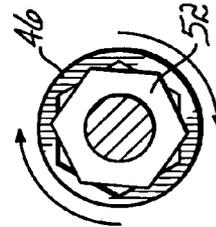
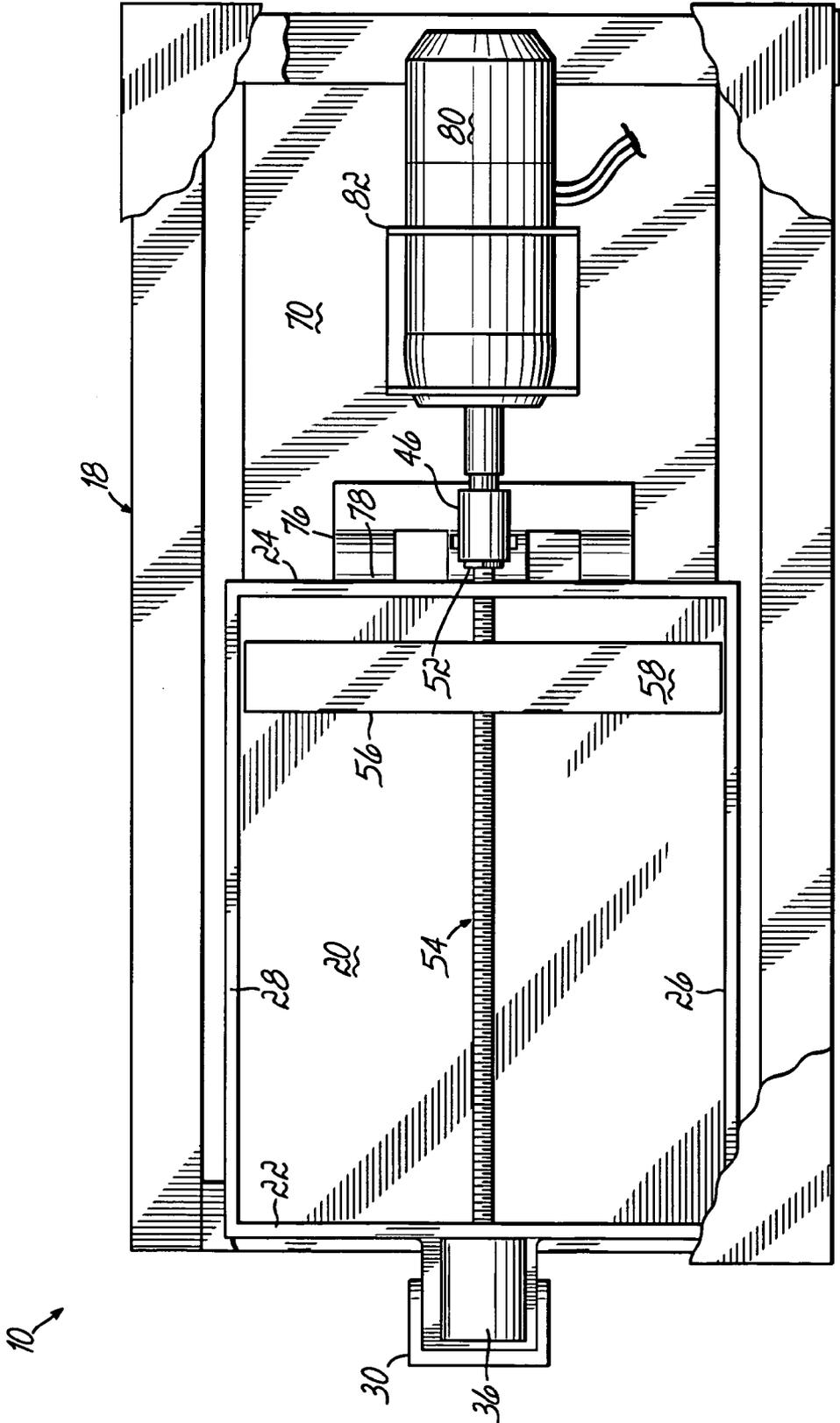


FIG. 4A



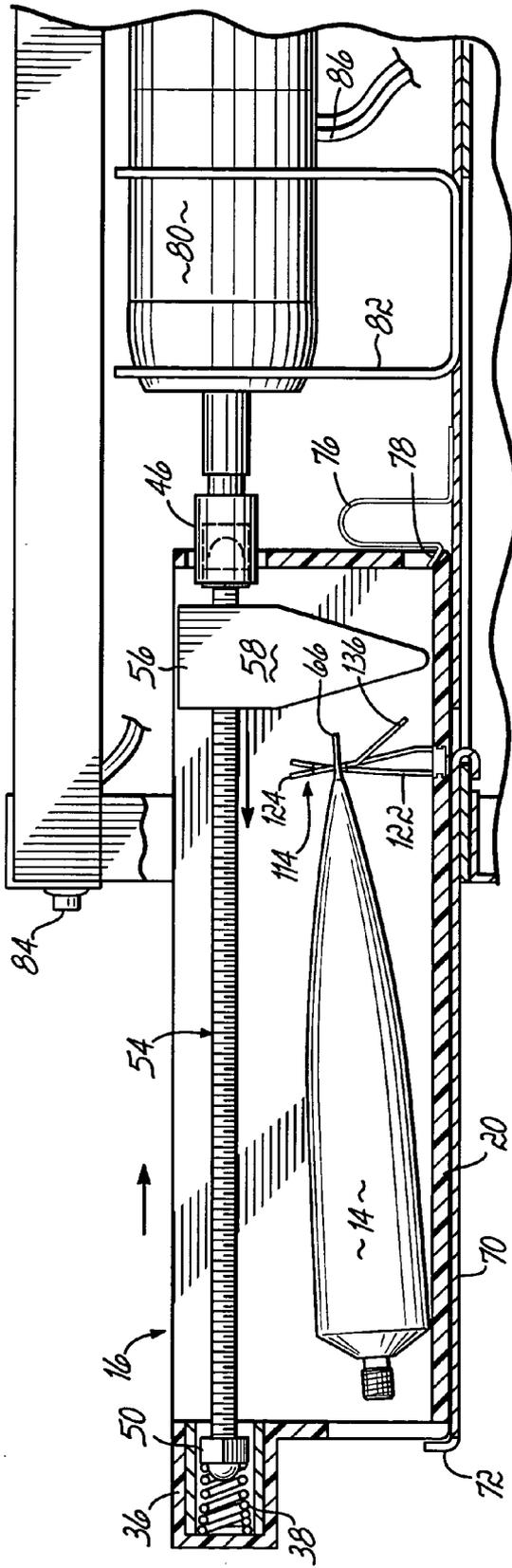


FIG. 6A

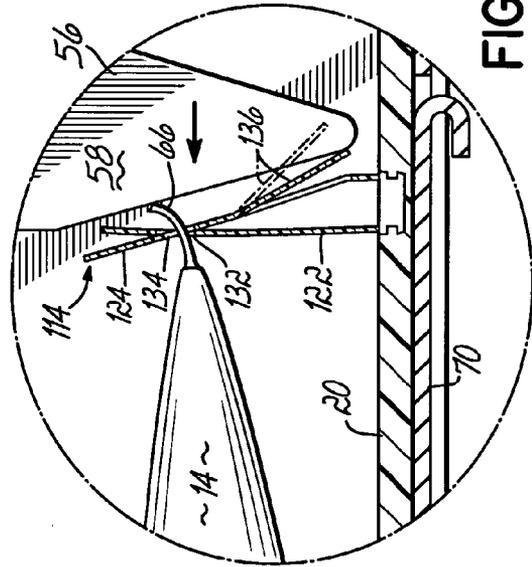


FIG. 6B

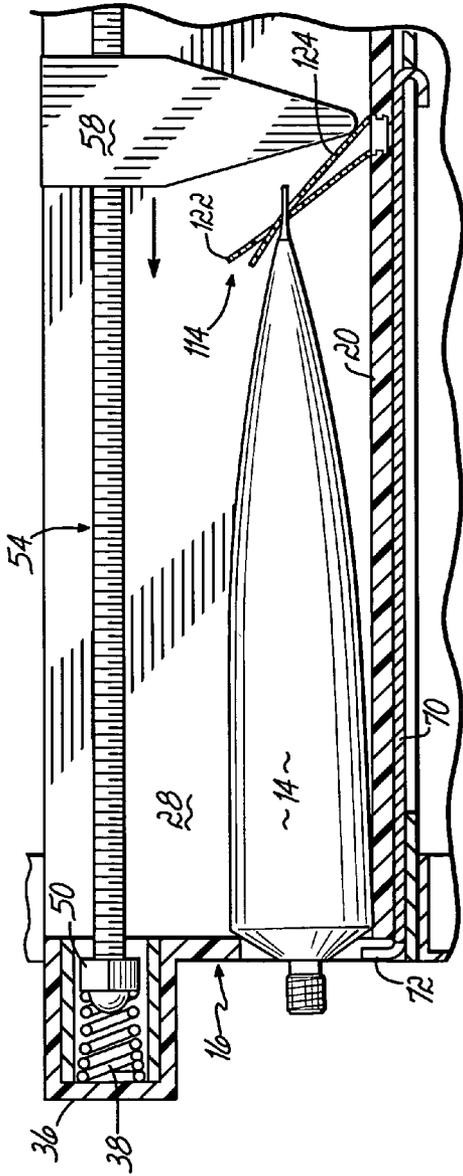


FIG. 6C

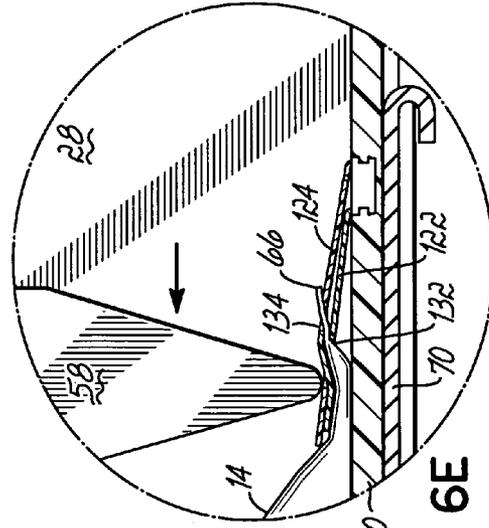


FIG. 6D

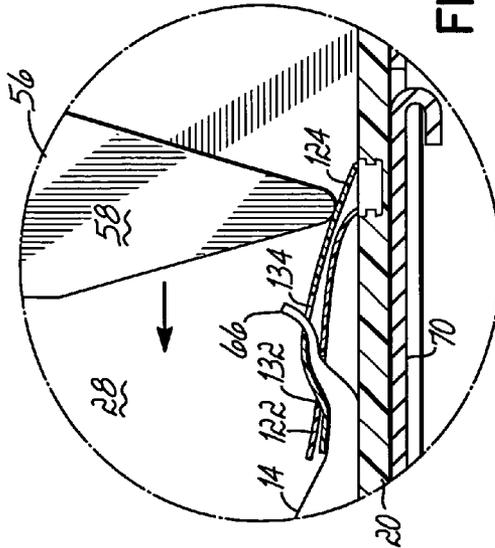


FIG. 6E

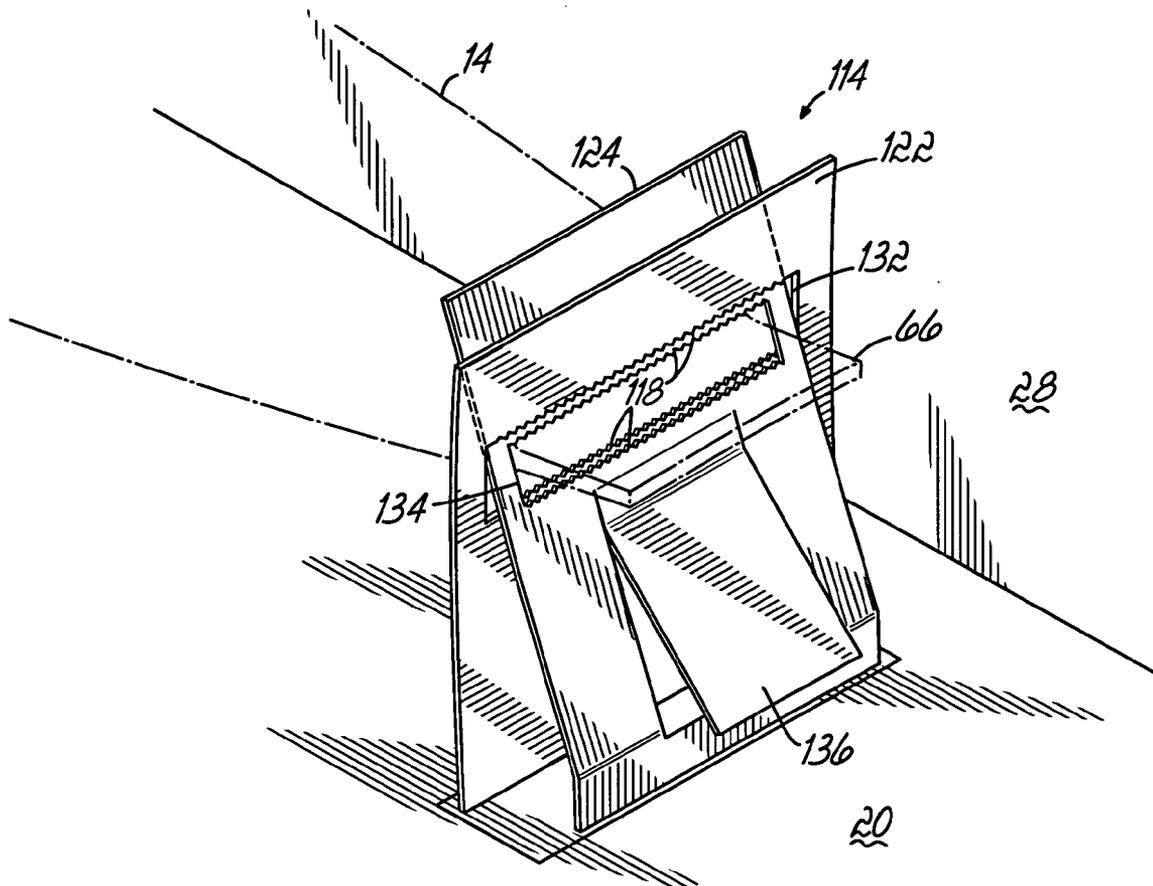


FIG. 7

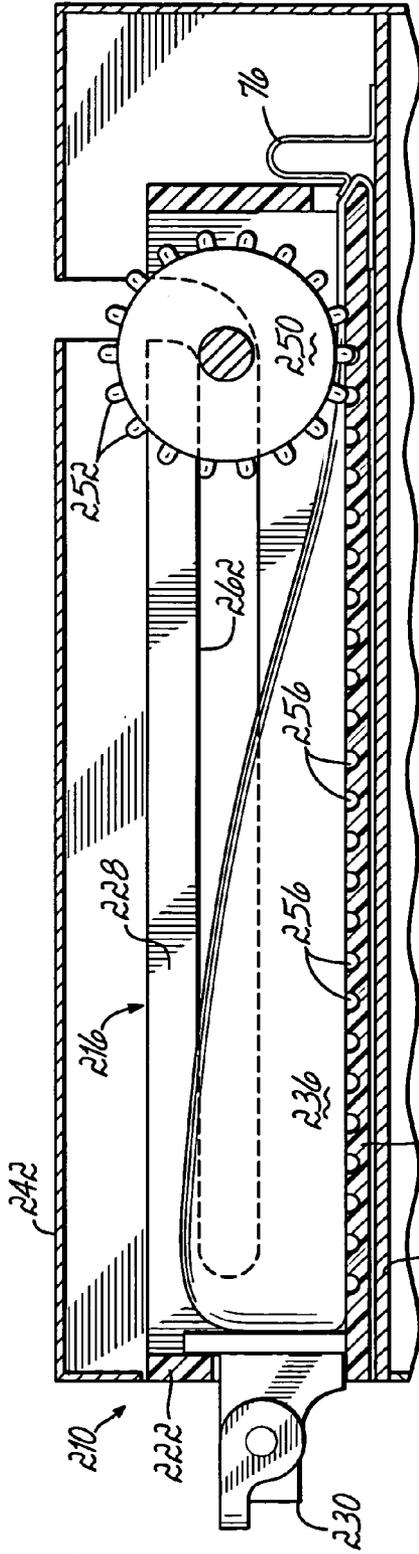


FIG. 8

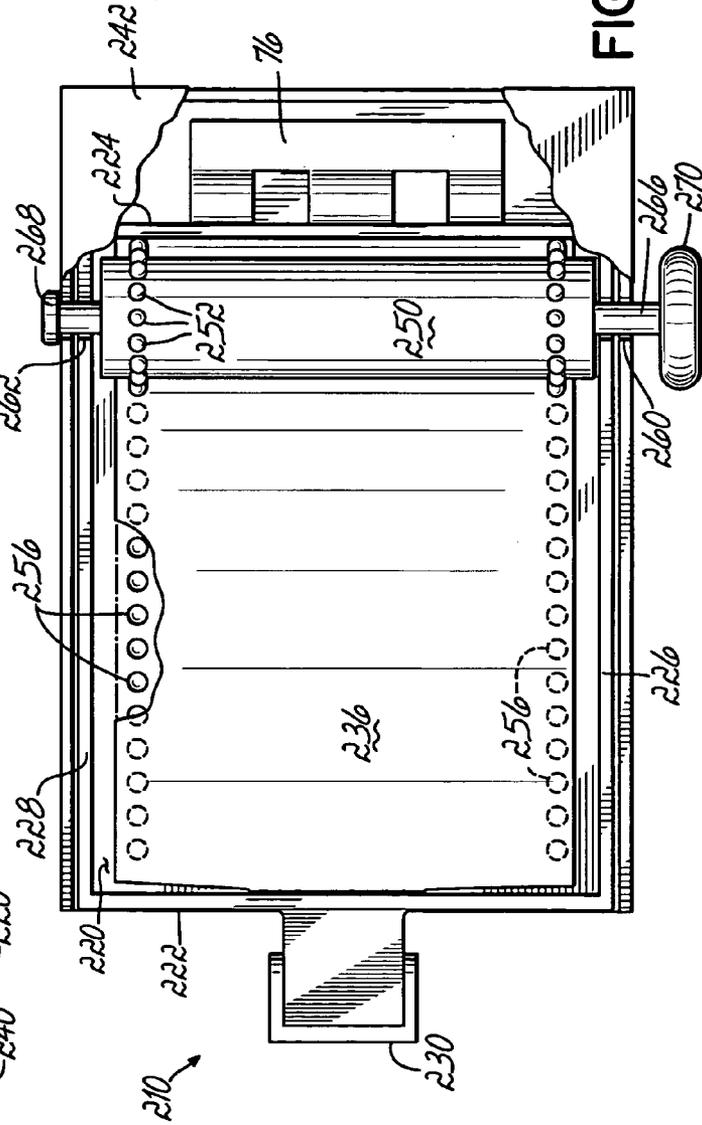


FIG. 9

PRODUCT DISPENSER

FIELD OF THE INVENTION

[0001] The present invention relates generally to product dispensers, and more particularly, to a product dispenser for compelling product from a container.

BACKGROUND OF THE INVENTION

[0002] Product dispensers for compelling a flowable product from a container are used in a wide variety of applications, such as the dispensing of condiments, toothpaste, adhesives, lotions, lubricants, and so on. These types of product dispensers typically include a container having a screw or worm gear positioned along its length, a package of flowable product received within the container, and an extruder member received upon the screw. As the extruder member travels from a second end of the screw to a first end of the screw, the package is compressed and its contents are extruded out of a spout located at an end of the package. By the time the extruder member reaches the first end of the screw, the spout will have dispensed almost all of the package's contents. The empty packages may then be removed from the container and the product dispenser may be refilled with a new package. These types of product dispensers offer a convenient and safe means of product handling that reduces the cost otherwise associated with complex product packaging.

[0003] The packages used in flowable product dispensers may be in the form of a tube, packet, or any other type of deformable bag suitable for storing viscous commercial or industrial materials. Typically the package will be formed from a flexible material having one end closed and the other end joined to the spout or a neck supporting the spout. Although the spout may be received in a dispensing hole or some other sort of aperture at one end of the container, the closed end of the package is often left unsecured. Such an arrangement may present challenges when dispensing the product from the package. For example, rather than being flattened as the extruder member travels towards the first end of the screw, the package may shift towards the first end as well. This may cause the package to become "bunched up" within the container and ultimately annoy a user by dispensing unpredictable amounts of product. The bunching up of the package may also create waste by causing more product to be left in the package by the time the extruder member reaches a terminal position proximate the first end of the screw.

[0004] Another occasional challenge associated with flowable product dispensers is that the extruder member may require many rotations of the screw or worm gear to travel a relatively short distance. To avoid unproductive time and fatigue on the part of the user, some manufacturers have produced electrically operated product dispensers. However, electrically operated product dispensers may have many moving parts and are typically not economical to manufacture or easy to repair.

[0005] Therefore, a need exists for an improved product dispenser that uniformly compresses a package of product material. A need also exists for an improved product dispenser that is manually operated and inexpensive to make.

SUMMARY OF THE INVENTION

[0006] The present invention provides a product dispenser for compelling a flowable product from a package. The

package is positioned within a container that has a bottom wall, opposed first and second end walls, and opposed first and second side walls. The container may be coupled to a base member that slides in and out of a housing so that the container may function as a drawer.

[0007] In one embodiment, extruder member travels from the second end wall to the first end wall to compress the package against the bottom wall and compel product therefrom. The product then exits the container through a dispensing tab positioned in the first end wall. The extruder member is driven by a drive member, which is releasably engaged in first and second axially aligned sockets that are associated with the first and second end walls, respectively. Once the extruder member reaches a terminal position proximate the dispensing tab and first end wall, the user may remove the drive member from the container and replace the deformed package. The drive member may then be re-engaged with the sockets so that the extruder member is once again positioned proximate to the second end wall. Thus, reverse travel of the extruder member may not be necessary.

[0008] As the extruder member travels towards the first end wall, a retention device is used to secure the end of the package. The retention device prevents the package from being forced towards the first end wall and becoming bunched up within the container. By doing so, the retention device helps ensure that the maximum amount of product is compelled from the package by the time the extruder member reaches its terminal position. The retention device also helps maintain a more uniform flow of product from the package throughout the extrusion process.

[0009] The present invention also contemplates a product dispenser that uses a manually operated roller to compress the package in the container. In one embodiment, the roller includes first and second guide members extending through slots that are positioned in the first and second side walls. The roller may also include a plurality of tips extending outwardly from the roller in a radial direction. To compel product from the package, a user rotates a handle that is coupled to one of the guide members. As the roller travels from the second end wall towards the first end wall, the tips are received in notches that are located on the bottom wall. In addition to keeping the roller aligned, the cooperation between the tips and notches helps limit movement of the package within the container. Like the retention device discussed above, this aspect of the invention helps ensure that the maximum amount of product is compelled from the package.

[0010] These and other objects and advantages of the present invention shall be made apparent from the accompanying drawings and the descriptions thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and, together with a general description of the invention given above, and the detailed description given below, serve to explain the invention.

[0012] **FIG. 1** is a perspective view of a product dispenser in accordance with a first embodiment of the present invention;

[0013] **FIG. 2** is a side view, partially in cross-section, of the product dispenser of **FIG. 1**;

[0014] FIGS. 3A through 3C are side views similar to FIG. 2, showing how the product dispenser of FIG. 1 includes a removable container that slides in and out of a housing;

[0015] FIG. 4A is a cross-sectional view taken along line 4A-4A of FIG. 3B;

[0016] FIG. 4B is a cross-sectional view taken along line 4B-4B of FIG. 3C;

[0017] FIG. 5 is a top view, partially in cross-section, of the product dispenser of FIG. 1;

[0018] FIGS. 6A through 6E are side sequential views illustrating the operation of a product dispenser having a retention device in accordance with a second embodiment of the present invention;

[0019] FIG. 7 is a perspective view of the retention device of FIGS. 6A through 6E;

[0020] FIG. 8 is a side view, partially in cross-section, of a product dispenser in accordance with a third embodiment of the present invention; and

[0021] FIG. 9 is a top view, partially in cross-section, of the product dispenser of FIG. 8.

DETAILED DESCRIPTION

[0022] With reference to FIG. 1, a product dispenser 10 in accordance with a first embodiment of the present invention is shown. Although the product dispenser 10 may be used to dispense condiments 12 from a plastic package 14, those having ordinary skill in the art will recognize that the present invention may be used to dispense any other type of flowable product from a deformable package.

[0023] The product dispenser 10 includes a container 16 that may be positioned within a housing 18. Multiple dispensers 10 may be arranged in the housing 18, but only one of the dispensers 10 will be described and shown in detail herein for simplicity. The container has a bottom wall 20, opposed first and second end walls 22, 24, and opposed first and second side walls 26, 28. The end walls 22, 24 and side walls 26, 28 are preferably perpendicular to the bottom wall 20 and define a cavity in which the package 14 is held. The first end wall 22 may include a dispensing tab 30 in which an end of the package 14 is positioned to dispense condiments 12 on an item of food, such as a hot dog 32.

[0024] As shown in FIG. 2, the first end wall 22 includes a first socket 36 that has a biasing member, such as a spring 38, positioned therein, while the second end wall 24 includes an aperture 44 that receives a second socket 46. The first and second sockets 36, 46 are axially aligned in order to receive one of the first and second ends 50, 52 of an elongated drive member 54, which is preferably a screw or worm-type gear having threads. An extruder member 56 coupled to the drive member 54 generally extends across the width of the container 16 and is used to compress the package 14 against the bottom wall 20, as will be discussed in more detail below. Although the extruder member 56 shown in FIG. 2 is configured as a block 58 that tapers to a rounded edge 60 slightly above the bottom wall 20, it is appreciated that the present invention may equally apply to other types of extruder members.

[0025] In the embodiment shown in FIG. 2, the second end wall 24 is configured to provide an aperture 64 slightly above the bottom wall 20. More specifically, the second end wall 24 is preferably integral with the first and second side walls 26, 28 such that the second end wall 24 need not be supported by the bottom wall 20 and the aperture 64 may extend across a substantial portion of the second end wall 24. When the package 14 is placed in the container 16, a closed end 66 of the package 14 is received in the aperture 64 and wrapped below a portion of the bottom wall 20.

[0026] As shown in FIGS. 3A through 3C, the container 16 may be removably supported by a base member 70 that slides in and out of the housing 18. The base member 70 is typically a flat sheet of material having at least one lip 72 to prevent the container 16 from sliding off the base member 70 whenever the container 16 is pulled out of the housing 18. Thus, the lip 72 may be flush with the first end wall 22 when the container 16 is properly positioned. In order to prevent the container 16 from sliding too far into the housing 18, a retention device 76 may be coupled to the base member 70 closely adjacent to the second end wall 24. The retention device 76 shown in FIGS. 3A through 3C is a curved piece of metal having an end portion 78 that is configured to pass through the aperture 64 and contact the bottom wall 20. A motor 80 that drives the second socket 46 is also coupled to the base member 70. More specifically, the motor 80 is supported by a motor mount 82 that is directly connected to the base member 72. FIG. 5 helps illustrate the arrangement of the elements within the housing 18.

[0027] In use, the package 14 is placed into the container 16 so that the closed end 66 extends through the aperture 64 in the second end wall 24 and wraps around a portion of the bottom wall 20. When the container 16 is positioned on the base member 70, the retention device 76 may serve a dual purpose. First, the retention device 76 may be used to prevent the second end wall 24 from sliding relative to the base member 70. Second, the end portion 78 of the retention device 76 may be received in the aperture 64 to press the closed end 66 of the package 14 against the bottom wall 20 and thereby secure the package 14 in the container 16.

[0028] Meanwhile, the positioning of the container 16 also entails the second end 52 of the drive member 54 coming into contact with the second socket 46. If the geometries of the second end 52 and second socket 46 are not aligned (FIG. 4A), the first end 50 of the drive member 54 compresses the spring 38 in the first socket 36 to permit the proper positioning of the container 16 regardless of the mismatch in geometries, as best shown in FIGS. 3B & 4A. When a user places an item of food below the dispensing tab 30 and presses a switch 84, the motor 80 is activated via wires 86 to rotate the second socket 46 within the aperture 44 of the second end wall 24. Because of the force exerted on the drive member 54 by the spring 38, the second end 52 will be forced into the second socket 46 as soon as their geometries become aligned with one another. Such an arrangement rotatably couples the drive member 54 to the second socket 46, as shown in FIGS. 3C & 4B.

[0029] As the drive member 54 rotates, the extruder member 56 travels along the drive member 54 towards the first end wall 22. Because there is little space between the extruder member 56 and bottom wall 20, the package 14 is deformed and condiments 12 are compelled through a

dispensing outlet **88** in the container via the dispensing tab **30**. Once the extruder member **56** reaches a terminal position proximate the first end wall **22**, the user may slide the container **16** out of the housing **18**, disengage the drive member **54** from the first socket **36**, and remove the empty package **14**. A second package may then be positioned within the container **16** to compel more condiment, and the drive member **54** may be re-engaged so that the second end **52** is received in the first socket **36**. Thus, the extruder member **56** is advantageously repositioned from its location upon the drive member **54** proximate the first end wall **22** to a position proximate the second end wall **24** without any reverse motion of the motor **80** to move the extruder member **56** in a reverse direction. Another example of the drive member **54** and its operation is shown in the present inventor's U.S. Pat. No. 6,318,596, which is hereby incorporated by reference in its entirety.

[0030] With reference to **FIG. 6A**, a product dispenser **110** in accordance with a second embodiment of the present invention is shown. Like reference numbers are used to indicate like elements from the first embodiment discussed above. Thus, the product dispenser **110** is substantially identical to the product dispenser **10**, except for the retention device **114**. The retention device **114** is coupled to the base member **70** and positioned within the container **16**. As shown in **FIG. 7**, the retention device **114** has a plurality of teeth **118** disposed about openings **132**, **134**. More specifically, the retention device **114** includes first and second flexible tabs **122**, **124**, each having a plurality of teeth **118** disposed about respective openings **132**, **134**. Although the first and second tabs **122**, **124** are spaced apart from each other at the bottom wall **20**, the second tab **124** is angled towards the first tab **122** so that it extends through the opening **132**. The opening **134** of the second tab **124** is generally positioned so that the closed end **66** of the package **14** may be easily received in both openings **132**, **134**. Furthermore, the second tab **124** includes a flap **136** beneath the opening **134** that is angled towards the second end wall **24**. The retention device **114** is particularly suited for use with a standard tube of toothpaste **14** or the like, although a wide variety of packages **14** are compatible with this invention.

[0031] The operation of the retention device **114** is sequentially illustrated in **FIGS. 6A through 6E**. As the extruder member **56** travels towards the first end wall **22**, it contacts the flap **136** and causes the first and second tabs **122**, **124** to shift so that the closed end **66** of the package **14** is "crimped" between the openings **132**, **134**. This crimping action, along with the teeth **118** in the openings **132**, **134**, secures the closed end **66** of the package **14** as the extruder member **56** continues to travel towards the first end wall **22**. Thus, the crimp is maintained as the first and second tabs **122**, **124** are pushed towards the bottom wall **20** by the extruder member **56**. By using the retention device **114** to retain the closed end **66** of the package **14**, the product dispenser **110** prevents the package **14** from being forced towards the first end wall **22** by the extruder member **56** and helps provide a more uniform compression of the package **14**.

[0032] With reference to **FIGS. 8 and 9**, a product dispenser **210** in accordance with a third embodiment of the present invention is shown. Like reference numbers are used to indicate like elements from the first embodiment dis-

cussed above. Like the other embodiments discussed above, the product dispenser **210** includes a container **216** that has a bottom wall **220**, opposed first and second end walls **222**, **224**, and opposed first and second side walls **226**, **228**. The first end wall **222** may include a dispensing tab **230** in which an end of a package **236** is positioned to dispense product therefrom. Moreover, the product dispenser **210** may even include a base member **240**, housing **242**, and retention device **246** that operate under the same general principles that were discussed in connection with the other embodiments.

[0033] However, instead of using a drive member and extruder member to compress the package **236** against the bottom wall **220**, the product dispenser **210** further includes a cylindrical roller **250** that has a plurality of tips **252** projecting outwardly in a radial direction. In the embodiment shown in **FIGS. 7 and 8**, the tips **252** extend outwardly from the roller **250** at two locations along its length. The bottom wall **220** is configured to provide two rows of notches **256** to accommodate the tips as the roller **250** travels towards the first end wall **222**. Also, the first and second side walls **226**, **228** are configured to provide respective first and second slots **260**, **262** to receive guide members **266**, **268** that extend outwardly from the ends of the roller **250**.

[0034] To compel product from the package **236**, a handle **270** connected to the guide member **266** is manually rotated. As the rotation of the handle **270** causes the roller **250** to travel towards the first end wall **222**, the tips **252** are received within the notches **256** to keep the roller **250** properly aligned within the container **216** and to secure portions of the package **236** within the container **216**. Because the guide members **266**, **268** and slots **260**, **262** maintain the roller **250** only slightly above the bottom wall **220**, the package **236** is compressed and its contents are forced out of the dispensing tab **230** as the roller **250** travels. Once the roller **250** reaches a terminal position proximate the first end wall **222**, the user may slide the container **216** out of the housing **242**, manually retract the roller **250** and remove it from the container **216**, and replace the empty package **236** with a second package. The guide members **266**, **268** are then re-engaged with the first and second slots **260**, **262** to reposition the roller **250** in the container **216**.

[0035] While the present invention has been illustrated by the description of one or more embodiments thereof, and while the embodiments have been described in considerable detail, they are not intended to restrict or in any way limit the scope of the appended claims to such detail. Additional advantages and modifications will readily appear to those skilled in the art. The invention in its broader aspects is therefore not limited to the specific details, representative apparatus and method and illustrative examples shown and described. Accordingly, departures may be made from such details without departing from the scope or spirit of the general inventive concept.

Having described the invention, I claim:

1. A product dispenser for compelling a product from a package, comprising:

- a container adapted to receive the package therein;
- first and second axially aligned sockets mounted in said container;
- a biasing member positioned within said first socket;

an elongated drive member having first and second ends, said first end cooperating with said biasing member to press said second end within said second socket so that said second end is releasably and rotatably coupled thereto; and

an extruder member coupled to said drive member and adapted to compress the package by traveling relative to said drive member between said sockets to compel the product therefrom.

2. The product dispenser of claim 1, further comprising:

a motor coupled to said second socket to rotate said drive member so that said extruder member travels between said sockets to compel the product from the package.

3. The product dispenser of claim 1, further comprising:

a housing; and

a base member having said container positioned thereon, said base member being slidably coupled to said housing for movement from a closed position to an open position, wherein the package may be accessed.

4. The product dispenser of claim 3, wherein said container further comprises:

opposed first and second end walls, each of said sockets being mounted in one of said end walls;

opposed first and second side walls; and

a bottom wall, said walls combining to define a drawer.

5. The product dispenser of claim 1, further comprising:

a dispenser outlet in said container through which the product flows from the package.

6. The product dispenser of claim 5, wherein after the product is compelled from the package, said first and second ends of said drive member are disengaged from said first and second sockets and re-engaged with said second and first sockets, respectively, so that said extruder member can be driven again between said sockets to compel product through said dispenser outlet.

7. A product dispenser for compelling a product from a package having first and second ends, comprising:

a container adapted to receive the package therein;

a retention device mounted relative to said container and adapted to retain the second end of the package, thereby limiting movement of the package within said container;

an elongated drive member having first and second ends and mounted within said container; and

an extruder member coupled to said drive member and adapted to compress the package by traveling from proximate the second end of the package toward the first end to compel the product therefrom.

8. The product dispenser of claim 7, further comprising:

a housing; and

a base member having said container and said retention device positioned thereon, said base member being slidably coupled within said housing for movement from a closed position to an open position, wherein the package may be accessed.

9. The product dispenser of claim 8, wherein said container includes a dispenser outlet adapted to receive the first

end of the package, and wherein said retention device is coupled to said base member and spaced from said dispenser outlet so that said retention device engages the second end of the package to limit movement of the package in said container.

10. The product dispenser of claim 7, wherein said retention device is positioned within said container, said retention device further comprising a plurality of teeth disposed about an opening so that the second end of the package is securely retained within said opening to limit movement of the package within said container.

11. The product dispenser of claim 7, wherein said retention device further comprises first and second tabs that have respective first and second openings, said second tab being angled towards said first tab and extending through said first opening so that the second end of the package may be received in said first and said second openings.

12. The product dispenser of claim 11, wherein said second tab further includes a flap that is angled away from said first tab and adapted to contact said extruder member so that said first tab and said second tab cooperate to retain the second end of the package as the extruder member travels towards the first end of the package.

13. The product dispenser of claim 7, wherein said retention device deflects relative to said container to retain the second end of the package.

14. The product dispenser of claim 7, further comprising:

first and second axially aligned sockets, said first socket having a biasing member located therein, said first end of said drive member cooperating with said biasing member to press said second end within said second socket so that said second end is releasably and rotatably coupled thereto.

15. The product dispenser of claim 14, further comprising:

a motor coupled to said second socket to rotate said drive member so that said extruder member travels from said second end of said drive member to said first end to compel the product from the package.

16. A product dispenser for compelling a product from a package, comprising:

a container adapted to receive the package therein, said container having a first wall with a plurality of notches aligned in an axial direction; and

a roller positioned relative to said first wall to receive the package there between, said roller having a plurality of tips projecting outwardly in a radial direction, said tips being adapted to fit within said notches to securely retain the package within said container as said roller travels within said container along said notches to compel the product from the package.

17. The product dispenser of claim 16, wherein said first wall includes first and second spaced rows of said notches and wherein said plurality of tips are adapted to fit securely within said first and second rows of said notches.

18. The product dispenser of claim 16, wherein said roller further includes a rotatable handle projecting from said container and accessible to a user for moving said roller.

19. The product dispenser of claim 16, further comprising:

a housing; and

a base member having said container positioned thereon, said base member being slidably coupled to said housing for movement from a closed position to an open position, wherein the package may be accessed.

20. The product dispenser of claim 19, further including a retention device coupled to said base member and being configured to engage the package received in said container to limit movement of the package in said container.

21. A product dispenser for compelling a product from a package having first and second ends, comprising:

a container adapted to receive the package therein, said container having a first wall with a plurality of notches aligned in an axial direction;

a retention device mounted relative to said container and adapted to retain the second end of the package, thereby limiting movement of the package within said container;

first and second axially aligned sockets mounted in said container;

a biasing member positioned within said first socket;

an elongated drive member having first and second ends, said first end cooperating with said biasing member to press said second end within said second socket so that said second end is releasably and rotatably coupled thereto; and

a roller coupled to said drive member, said roller having a plurality of tips projecting outwardly in a radial direction, said tips being adapted to fit within said notches to securely retain the package within said container as said roller travels relative to said drive member to compel the product from the package.

* * * * *