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PASTE COMPOSITION THEREIN

3,104,031

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2 Sheets-Sheet 1

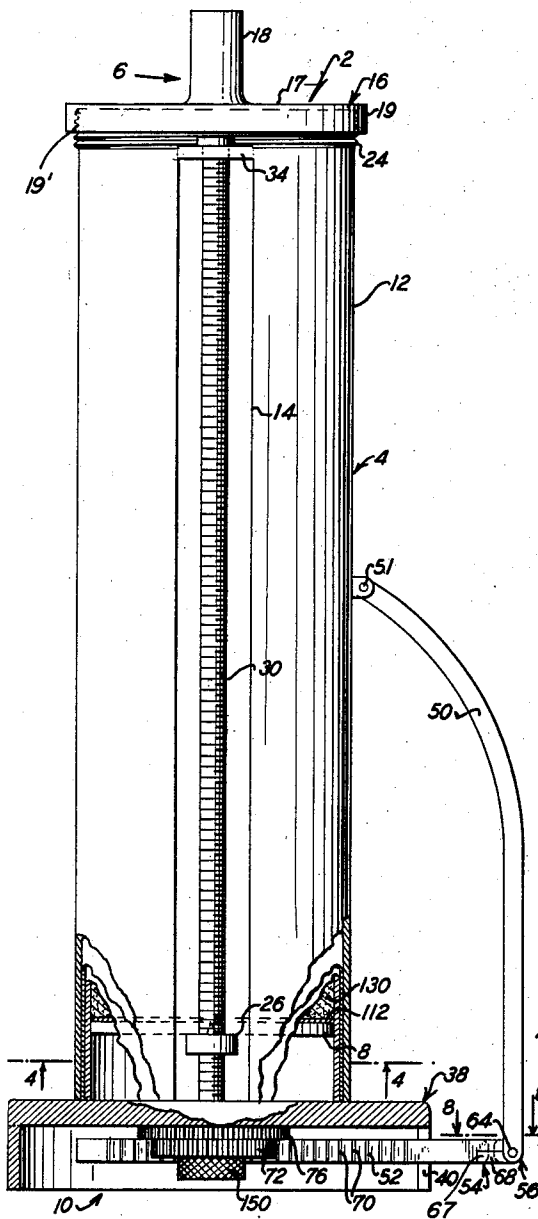


Fig. 2

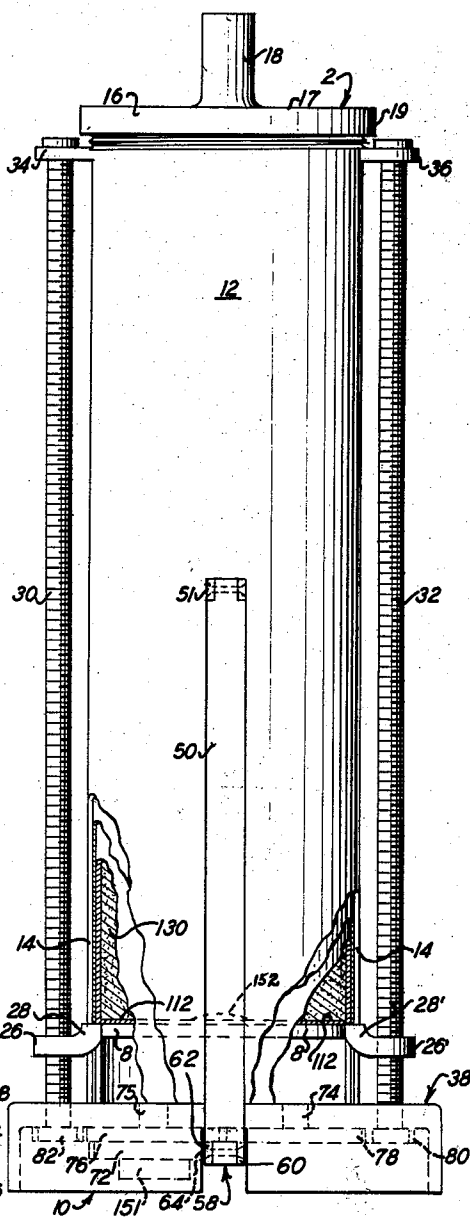


Fig. 1

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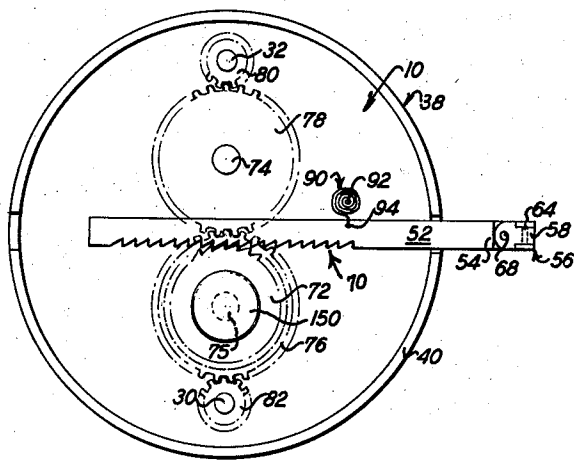
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DISPENSER WITH A CARTRIDGE HAVING A PASTE COMPOSITION THEREIN

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This invention relates to dispensers for paste-compositions, and to cartridges particularly adapted to contain such compositions, and useful within such dispensers.

Various types of dispensers for paste material are well-known. These range from the conventional collapsible tube-type structures, to more complicated mechanisms incorporating a frame or housing, a follower movable through the frame for forcing material therefrom, and means for moving the follower through the frame. The collapsible tube-type structures have their disadvantages in that the tube itself is somewhat expensive, and must be thrown away after each use. The more complicated structures heretofore suggested also have their disadvantages in that they utilize a centrally-supported follower, and/or a follower coupled with an activating shaft extending beyond the apparatus of the dispenser itself, whereby the construction is not suitable for use in a small apparatus adapted to be set on a table or the like, and operated automatically by pushing a handle.

Accordingly, one of the primary objects of the present invention is to provide a paste dispenser adapted to be set on an ordinary table or the like, which dispenser incorporates a handle which can be easily moved to expel a desired amount of paste within the dispenser from the dispenser.

A still further primary object of the present invention is to provide a new and improved type of cartridge adapted to carry and/or store paste material, and also adapted for use in the dispenser of the invention. Still further, in this connection, a primary object of the present invention is to provide a cartridge as prescribed, which cartridge is inexpensive in manufacture and accordingly which cartridge can be thrown away once emptied.

While one of the primary objects, as set forth, is to provide a cartridge which is adapted for use in the dispensing apparatus provided by the invention, it is to be understood that one of the important objects of the present invention is to provide a new type of cartridge providing desired support for any contents therein, and yet being readily cuttable along longitudinally extending portions thereof.

Still further, yet more specific objects of the present invention are:

(a) To provide a dispenser as prescribed, which comprises a frame means having elongated slots in opposed wall portions thereof, composition outlet means carried at one end of the frame means, platform means mounted for reciprocal movement within the frame means intermediate the outlet end of the frame means and the other end of the frame means, and means for moving the platform means within the frame means to expel material from a cartridge therein, wherein the platform means is provided with laterally projecting supports extending through the slots in the frame means, and the supports are adapted to slice through a cartridge within the frame means during movement of the platform means to expel material from the dispenser;

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(b) To provide such a dispenser wherein the means for moving the platform means comprises a series of gears carried at the base of the dispenser, and a pair of threaded shafts cooperating with the platform means and operated by the gears for moving the platform means;

(c) To provide such a dispenser which is trouble-free in operation and wherein a handle-type arm is incorporated for operating the gear means and thereby the threaded shafts which in turn causes movement of the platform means;

(d) To provide such a dispenser in combination with a cartridge which comprises an elongated body having readily-cuttable longitudinally-extending "seams" therein, past which seams the cutting portions of the platform support means pass;

(e) To provide a cartridge comprising two elongated bodies, each of which defines a portion of a cavity, and an overwrap or means for securing the bodies in position with the edges thereof disposed in spaced relation whereby the overwrap or other means for securing the bodies in position extends between such edges, so that the cartridge may be readily severed along the portion of the overwrap or other means extending between such edges; and

(f) To provide such a cartridge wherein the bodies may be formed of a stiff material such as cardboard and the overwrap may be formed of a flexible material such as paper.

The invention will be better understood, and objects other than those specifically set forth hereinabove will become apparent, when consideration is given to the following detailed description of the illustrative and preferred embodiments of the invention. The description refers to the annexed drawings, presenting such embodiments, and in the drawings:

FIGURE 1 is a rear view, partially broken away, and partially in section, of a dispenser constructed in accordance with the present invention, having a cartridge, also constructed in accordance with the present invention, disposed therein;

FIGURE 2 is a side view, partially broken away, and partially in section, of the dispenser shown in FIGURE 1;

FIGURE 3 is a bottom view of the dispenser shown in FIGURES 1 and 2, FIGURE 3 presenting in some detail the cooperating relationship between the handle means incorporated in the dispenser and the gear means incorporated in the dispenser for moving the platform means thereof to expel paste from the dispenser;

FIGURE 4 is a cross-sectional view taken on the line 4-4 of FIGURE 2, and showing the operational disposition of the dispenser frame means, a dispenser cartridge, and the platform means movable through the dispenser frame means for expelling paste from the cartridge and the dispenser;

FIGURE 5 is a perspective view of a cartridge constructed in accordance with the present invention;

FIGURE 6 is a fragmental detailed view presenting the preferred form of platform means used in the dispenser of the present invention;

FIGURE 7 is a fragmental detailed view taken on the line 7-7 of FIGURE 6 and showing the construction of one of the platform supports including the cutting edge or knife coupling which forms a part thereof; and

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FIGURE 8 is a fragmental detailed view of the preferred form of pivotal coupling used in accordance with the invention for coupling the handle or operating arm with the gear means of the dispenser.

In the drawings, the dispenser is generally designated by the numeral 2, and as shown, comprises a frame means generally designated by the numeral 4, a composition outlet means generally designated by the numeral 6, a platform means generally designated by the numeral 8, and means generally designated by the numeral 10 for moving the platform means within the frame means. The frame means 2 preferably comprises a housing 12 which is cylindrical in shape, and this housing is hollow and provided with slots such as those designated by the numeral 14 in opposed wall portions thereof. The composition outlet means 6 comprises a cap member 16 having an outlet nozzle 18 extending centrally from the crown portion 17 thereof, and a depending skirt 19 extending downwardly from the crown portion 17. The depending skirt 19 is provided with internal threads 19' adapted to cooperate with the external threads 24 carried at the top of the housing 12. Since the housing 12 is hollow, and since the cap member 16 is provided with the outlet nozzle 18 communicating with the hollow interior of the housing, any material within the housing can be forced through the outlet nozzle 18.

Platform means 8, which is best shown in FIGURE 6, comprises a generally circular body portion 20 adapted to fit within and adjacent the walls of the housing 12. From the body portion 20 project platform supports 22 and 23. Each of the supports preferably comprises a generally circular body 26, 26' coupled with the body portion 20 by means of the arms 28, 28'. The arms 28 and 28', as shown in FIGURE 7, have knife-edge upper ends. Moreover, the arms 28 and 28' of the platform supports 22 and 23 extend through the slots 14 of the housing 12 and the circular body portions 26, 26' of the supports are disposed exteriorly of the housing 12 as shown in FIGURE 4.

The means 10 for moving the platform means comprises a pair of threaded shafts 30 and 32 which are supported longitudinally of the frame means 4 or housing 12. The upper ends of the threaded shafts 30 and 32 are rotatably secured in position by the laterally-extending support flanges 34 and 36 which project from opposite sides of the housing 12 at the top of the slots 14. The bottom end of the threaded shafts 30 and 32 are rotatably supported within base member 38 of the frame means 4 or housing 12. This base member 38 as shown, has a skirt 40 depending therefrom whereby the dispenser can be rested on a table or the like and whereby the unsightly portion of the operating mechanism is hidden.

The shafts 30 and 32, as shown, pass through the circular body portions of supports 26 and 26', or more particularly, threaded bores 25, 25' in each of the supports, and rotation of the threaded shafts 30 and 32 causes movement of the platform up or down within the frame means 4 or housing 12, depending on the direction of rotation of the shafts 30 and 32.

While the threaded shafts 30 and 32 serve as part of the means provided for moving the platform means, the dispenser further includes the handle member or means 50 which is pivotally mounted with respect to the frame means 2 or housing 12, and gear means cooperating with the handle means 50 to cause rotation of the threaded shafts 30 and 32 and therefore movement of the platform means 8. The handle 50 is pivotally coupled with the frame means as at the pivot connection 51, which may be of any conventional design. The other end of the handle means 50 is linked with a rack gear 52 through a horizontal pivotal coupling 54 and a vertical pivotal coupling 56. If reference is made to FIGURE 8, as well as FIGURE 2, it will be noted that the vertical pivotal coupling 56 comprises a pair of opposed arms 60 and 62 carried at the base of handle member 50. These arms

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straddle the rearwardly disposed tongue portion 58a of the horizontal pivotal coupling member 58. A pivot bolt 64 traverses aligned apertures in the tongue portion 58a and arms 60 and 62. The rack gear 52 has a recessed end 53 adjacent the handle, and the coupling member 58 has a forward stepped portion 67 which fits under said recessed end 53 whereby the pivot bolt 64 can pass through aligned apertures in the forward stepped portion 67 and the recessed end 53 to pivotally secure the parts.

As best shown in FIGURE 3, the rack gear 52 is provided with ratchet teeth 70 on one side face thereof. These ratchet teeth cooperate with a ratchet gear 72 which is mounted on the shaft 75 and fixed for rotation with a drive sprocket 76. The drive sprocket 76 meshes with the drive sprocket 78, as well as with a sprocket gear 80 fixed to the lower end of the threaded shaft 32. The drive sprocket 78 meshes with the drive sprocket 76 as explained, and also meshes with the sprocket gear 82 carried at the lower end of the threaded shaft 30. By virtue of this construction, as the rack gear 52 is moved in the direction of the arrow of FIGURE 3, the ratchet gear 72 is rotated clockwise and the drive sprocket 76 fixed for rotation therewith, accordingly, also rotates clockwise. Thus the sprocket gear 80 carried at the lower end of the shaft 32 moves counterclockwise as a result of the driving movement through the drive sprocket 76, but the drive sprocket 78 moves clockwise as a result of the meshing relationship. The drive sprocket 78 rotating on the stub shaft 75 and meshing with the sprocket gear 82 carried at the lower end of the shaft 30 causes clockwise rotation of the sprocket gear 82. The shafts 30 and 32, as a result of inward movement of the rack gear 52, thus are rotated and these threaded shafts, as previously explained, pass through suitably threaded bores in the supports 26 and 26' whereby such rotation causes a raising of the supports and thereby the platform means 8 within the frame means or housing 12. The threads on the shafts 30 and 32 and within the bores 25 and 25' are, of course, suitably directed in accordance with conventional design to cause raising and lowering of the platform means.

After the rack gear 52 has been moved inwardly, which results from pressing inwardly on the handle 50, then a suitable coil spring such as that designated by the numeral 90 causes return of the components to their initial position. The coil spring 90 is secured to the base member 36 by having one end thereof fixed to the pin 92 which extends into the base member 38. The other end 94 of the coil spring 90 is secured to the rack gear 52 as shown, by any suitable means such as a weld, and as the rack gear 52 is moved inwardly, the coil spring "winds up." Simultaneously with this "winding up," however, the coil spring causes the ratchet teeth 70 to remain in engagement with the teeth on the ratchet gear 72. Once the handle has been moved inwardly, and the handle is released, then the spring "unwinds" restoring the ratchet gear to its initial position. The ratchet teeth on the rack gear are such, as in a conventional ratchet, that they will slide over the teeth of the ratchet gear 72. Accordingly, as the rack gear 52 returns to its original position, it pivots slightly horizontally in order to allow the teeth on the rack gear to slide past the teeth on the ratchet gear 72. From the foregoing discussion, it should be apparent that the spring 90 serves as a means to press the teeth 70 into engagement with the teeth of the ratchet gear 72 as well as a means to restore the rack gear 52 and also the handle 50 to their initial positions.

The shafts 74 and 75 merely comprise stub shafts, as shown in FIGURES 1 and 2, which are suitably secured within the base member 38 in any conventional manner.

Now as set forth above, as the platform means is moved upwardly within the frame means, it causes any material between the platform means and the outlet nozzle 18 to be expelled from the outlet nozzle. Pref-

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erably, as suggested also hereinabove, material contained within a cartridge is within the frame means.

The preferred form of cartridge comprises two semi-cylindrical bodies 100 and 102 (FIGURE 5), each defining a portion of a cavity between the longitudinal edges 104, 104' and 106, 106' thereof respectively. These bodies are maintained with such longitudinal edges, as shown in FIGURE 5, in spaced-apart relation, by any suitable means; however, preferably such means comprises an overwrap 110 which is flexible. According to the preferred embodiment of the invention, each of the bodies comprises cardboard, and the overwrap is paper. However, it will be understood other stiff materials can be used for the body 100-102 and other flexible materials can be used for the overwrap. The important point is to note that only the overwrap 110 exists between the spaced-apart longitudinal edges of the bodies 100 and 102. Thus, when this cartridge is disposed within the frame means, and the overwrap portion between the longitudinal edges is disposed in alignment with the cutting edges of the platform means, then such cutting edges can readily slice through the cartridge. Of course, this slicing occurs as the platform means moves upwardly within the frame means.

The cartridge, while comprising the bodies as aforesaid and preferably an overwrap, also includes, in accordance with the preferred embodiments of the invention, a wafer-like member 112 which forms a closure at the bottom end thereof and against which the platform means body 20 presses during the upward movement of the platform means within the frame means caused by operation of the handle as described hereinabove.

While I have shown the cartridge in FIGURE 5, and described the same particularly for use in connection with a paste dispenser, it will be understood that the cartridge may be used to store any material, and that it provides a readily-openable package, i.e., a package wherein the overwrap can be readily slit along the "seams" between the longitudinal edges of the stiff bodies forming part of the cartridge. Moreover, it will be understood that while the cartridge and the frame means have been shown as cylindrical, any suitable cooperating shapes can be used in the apparatus, and if the cartridge is not used in the apparatus, it still can comprise other shapes than that shown.

Now, as suggested, the cartridge contains a paste-like material or material having a paste-like consistency. This material is generally designated by the numeral 130 in FIGURES 1 and 2.

If reference is again made to FIGURE 4, it will be seen that the cartridge 110 fits within the housing 12, and that the body portion 20 of the platform means fits within the cartridge whereby the platform means is readily movable within the cartridge and the frame means to expel material from the frame means, or the cartridge disposed therein, through outlet nozzle 18. Similarly, it will be noted from FIGURE 4 that the knife edges 28 and 28' are disposed in alignment with the portion of the overwrap 110 which extends between the spaced-apart longitudinal edges of the bodies 100 and 102 of the cartridge.

After the platform means 8 has moved upwardly within the frame to expel all or substantially all of the composition within the cartridge, then the platform means is returned to its initial position by turning reset knob 150 secured to ratchet gear 72, as shown in FIGURE 3, in the proper direction, i.e., clockwise, whereby the shafts 30 and 32 rotate in a direction lowering platform means 8. Once the platform means is lowered, then the cap member is removed, the parts of the used cartridge removed, and a new cartridge is inserted. The rack gear 52, is, of course, laterally displaced so that the teeth thereon are out of engagement with the ratchet gear 72 when the reset knob is turned as aforesaid to restore the platform means to initial position.

After reading the foregoing detailed description of

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the preferred and illustrative embodiments of the present invention, it should be apparent that the objects set forth at the outset of this specification have been successfully achieved. It should also be apparent that, if desired, cartridge-aligning means can be incorporated. More specifically, the bottom 112 of the cartridge can be provided with a recess along the diameter extending between the opposed spaced edges of the cartridge bodies, and that the platform 20 can be provided with a cooperating projection extending upwardly from the top thereof. Such recess is shown in dotted lines in FIGURE 5 and designated by numeral 151, and such a projection is shown in dotted lines in FIGURE 1 and designated by numeral 152.

Various other modifications in addition to those specifically suggested may be made to the embodiments presented herein without departing from the scope and spirit of the invention.

Accordingly, what is claimed is:

1. A dispenser comprising an elongate cartridge having a composition of paste-like consistency therein, a frame means for supporting said cartridge therein, said frame means having elongate slots in opposed wall portions thereof; a composition outlet nozzle means forming part of and carried at one end of said frame means; said nozzle means and said frame means having cooperating securing means for removably securing said nozzle means to said frame means, platform means mounted for reciprocal movement within said frame means intermediate said one end and the other end of said frame means, said platform means having laterally-projecting supports extending through said slots, said supports having cutting edges adapted to slice said cartridge; and mechanical means for moving said platform means within said frame means intermediate said ends thereby pressing material in said cartridge toward said one end and through said outlet means; said cartridge comprising two elongate rigid bodies, each defining a portion of a cavity between the longitudinal edges thereof, and an overwrap secured to said bodies and maintaining said longitudinal edges in spaced-apart alignment whereby said bodies define a longitudinal cavity therebetween, said cavity being closed longitudinally adjacent said edges by said overwrap and being filled solely with said composition, said cartridge being disposed in said frame means whereby said supports slice said overwrap between said edges, and an arm pivotally mounted with respect to said frame means, said means for rotating said shafts comprising sprocket gear means cooperating with said shafts and rack gear means for operating said sprocket gear means; said rack gear means being coupled to said arm for movement in response to movement of said arm in one direction whereby movement of said arm in said one direction causes operation of said sprocket gear means through said rack gear means and in turn rotation of said shafts and movement of said platform; and means for urging said arm in a direction opposite said one direction, wherein said sprocket gear means comprises a sprocket carried by each of said threaded shafts, a pair of drive sprockets supported at other end of said frame means, said pair of drive sprockets meshing with each other, each of said drive sprockets meshing with one of said sprocket gears carried by said shafts, and a ratchet gear fixed for rotation with one of said drive sprockets; and wherein said rack gear means comprises a rack gear provided with ratchet teeth cooperating with said ratchet gear to rotate the same.

2. A dispenser, as defined in claim 1, further including spring means normally urging the teeth on said rack gear into engagement with said ratchet gear, and wherein said rack gear is pivotally movable with respect to said ratchet gear whereby movement of said rack gear in one direction causes rotation of said ratchet gear, said arm is movable to cause said movement of said rack gear in said one direction, and said spring means cooperates with said rack gear to automatically cause return of said handle and said

rack gear to their original positions, said rack gear undergoing pivotal displacement with respect to said ratchet gear during said return.

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