Aug. 3, 1965 T. B. DUNNING 3,198,389

TOOTH PASTE DISPENSING CABINET

Filed Dec. 18, 1963 2 Sheets-Sheet 1

Fig. 1

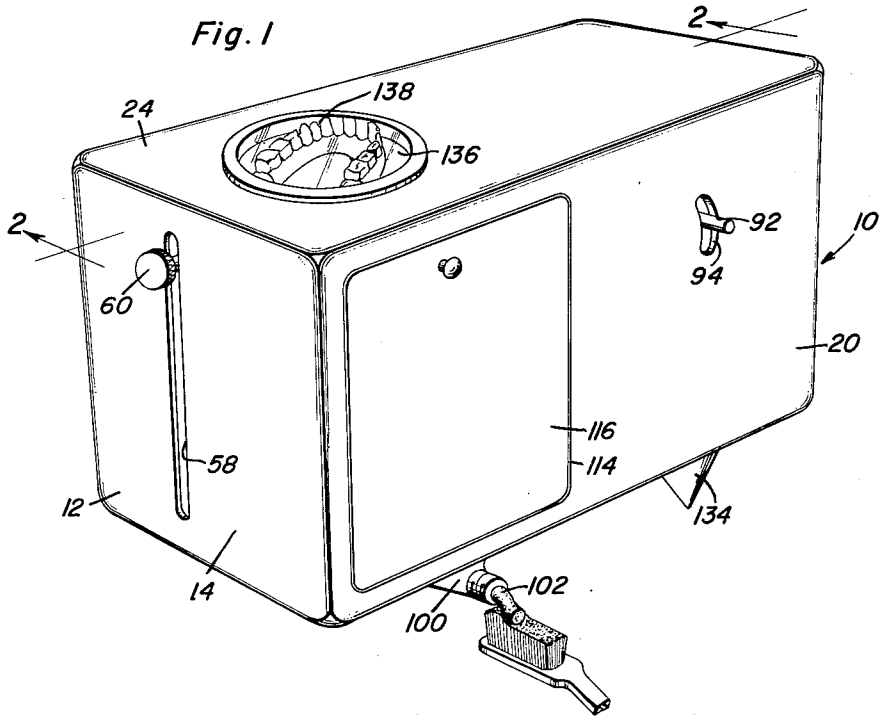


Fig. 4

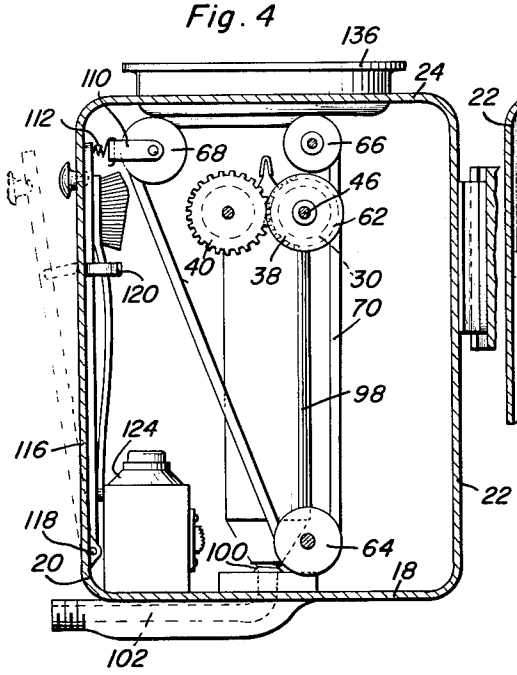
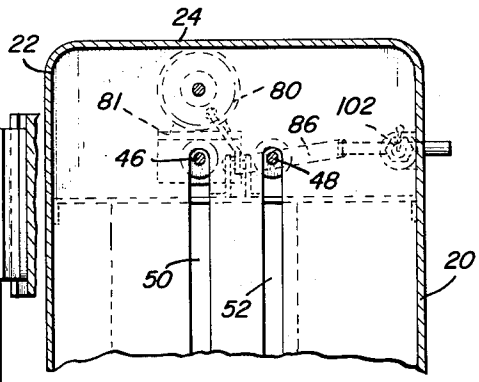


Fig. 5



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TOOTH PASTE DISPENSING CABINET

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Fig. 2

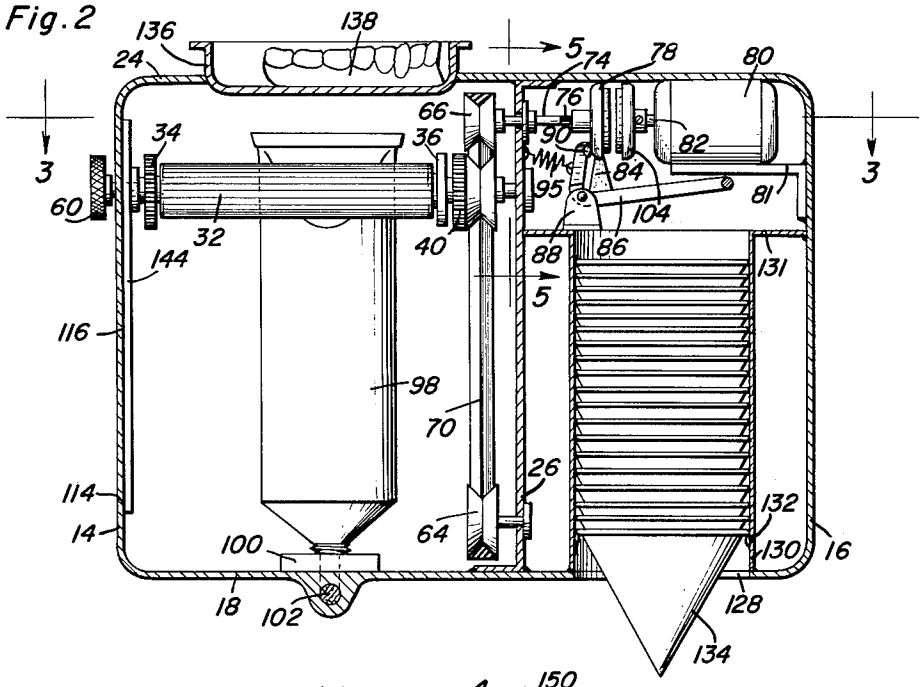
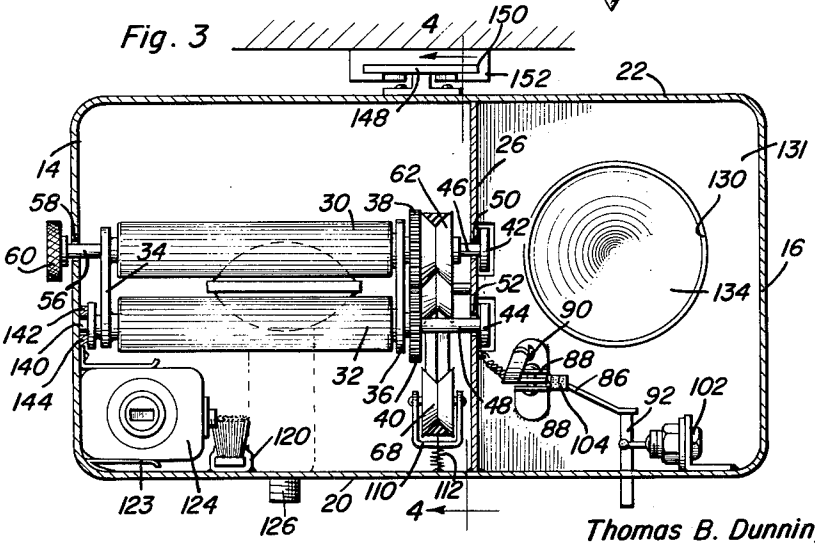


Fig. 3



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3,198,389

TOOTH PASTE DISPENSING CABINET

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8 Claims. (Cl. 222—93)

This invention relates to a novel and useful tooth paste dispensing cabinet and more specifically to a housing adapted to be mounted in a bathroom and utilized for supporting a collapsible tube of tooth paste and dispensing tooth paste therefrom.

Further, the housing of the instant invention includes a paper cup dispenser, a tray for supporting false teeth plates or the like and an access opening having a closure therefor through which an empty tube of tooth paste may be removed and a new tube of tooth paste may be inserted. In addition, the interior of the housing is provided with suitable support means adapted to support various toilet articles such as tooth brushes and recharging units for electric tooth brushes and the like.

The tooth paste dispensing cabinet of the instant invention includes a pair of opposite side walls and an end wall interconnecting one pair of corresponding ends of the side walls with a pair of parallel rollers journaled in said housing, disposed in a plane extending between the side walls and also mounted for simultaneous guided movement toward and away from the end wall independently of rotation of the rollers relative to the housing. The rollers are spaced apart and adapted to rollingly compress a collapsible tube of tooth paste disposed therebetween and the end wall toward which the rollers are movable includes outlet means adapted to have the outlet neck of a collapsible tube of tooth paste communicated therewith and attached thereto in order that the rollers, when simultaneously rotated and disposed in rollingly compressive engagement with a collapsible tube, will run the length of the collapsible tube toward the outlet neck thereof and squeeze the tooth paste within the tube outwardly of the outlet end thereof.

The tooth paste dispensing cabinet includes electric motor means which is operatively drivingly connected to the rollers by means of suitable drive means, which drive means includes a releasable clutch mechanism for selectively drivingly coupling the electric motor to the rollers.

The main object of this invention is to provide a tooth paste dispensing cabinet including means by which the tooth paste in the collapsible tube of tooth paste supported from the cabinet may be dispensed therefrom.

Still another object of the present invention, in accordance with the preceding object, is to provide a tooth paste dispensing cabinet constructed in a manner whereby substantially all of the tooth paste within a collapsible tube acted upon by the compression rollers of the cabinet will be discharged therefrom.

Yet another object of this invention is to provide a tooth paste dispensing cabinet constructed in accordance with the preceding objects and which includes means disposed interiorly thereof for supporting various toilet articles and for supporting and dispensing therefrom a plurality of nested cups.

A further object of this invention is to provide a tooth paste dispensing cabinet in accordance with the preceding objects which will have a pleasing appearance.

A final object of this invention to be specifically enumerated herein is to provide a tooth paste dispensing cabinet which will conform to conventional forms of manufacture, be of simple construction and easy to use so as to provide a device that will be economically feasible, long lasting and relatively troublefree in operation.

These together with 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 drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view of the tooth paste dispensing cabinet of the instant invention;

FIGURE 2 is a longitudinal vertical sectional view taken substantially upon the plane indicated by the section line 2—2 of FIGURE 1;

FIGURE 3 is a top plan view of the cabinet taken substantially upon a plane indicated by the section line 3—3 of FIGURE 2;

FIGURE 4 is a vertical transverse sectional view taken substantially upon the plane indicated by the section line 4—4 of FIGURE 3; and

FIGURE 5 is a fragmentary transverse vertical sectional view taken substantially upon the plane indicated by the section line 5—5 of FIGURE 2.

Referring now more specifically to the drawings the numeral 10 generally designates the tooth paste dispensing cabinet of the instant invention. The dispenser 10 comprises a housing 12 including a pair of opposite end walls 14 and 16 and a lower end wall 18 which interconnects the lower ends of the upstanding end walls 14 and 16. In addition, the housing 12 also includes front and rear side walls 20 and 22 which interconnect corresponding sides of the upstanding end walls 14 and 16 and also a top end wall 24. The walls 14, 16, 18, 20, 22 and 24 define a closed housing and the latter is further provided with an upstanding partition wall 26 which extends between the bottom and top end walls 18 and 24 and the front and rear side walls 20 and 22. Further, the partition wall 26 generally parallels the opposite end walls 14 and 16.

A pair of rollers 30 and 32 are supported from each other by means of a pair of opposite end mounting plates 34 and 36 which extend between and rotatably journal corresponding ends of the rollers 30 and 32. The rollers 30 and 32 include gear wheels 38 and 40 which are meshed with each other and thereby drivingly interconnect the rollers for simultaneous and opposite rotation relative to each other. One pair of corresponding ends of the rollers 30 and 32 project beyond the gear wheels 38 and 40 and are provided with diametrically enlarged head portions 42 and 44, the adjacent shank portions 46 and 48 of the rollers 30 and 32 respectively being slidably received through a pair of slots 50 and 52 formed in the partition wall 26. The outer end of the roller 30 also includes a diametrically reduced shank portion 56 and the free end portion thereof is slidingly received in a slot 58 formed in the side wall 14. The terminal end portion of the shank portion 56 which projects outwardly of the housing 12 is provided with a knurled knob 60 for the purpose of manually turning the rollers 30 and 32.

From FIGURES 2 and 3 of the drawings it may be seen that the roller 30 also includes a V-pulley 62 and that the partition wall 26 rotatably mounts a pair of idler pulleys 64 and 66, a third idler pulley 68 being yieldably mounted from the front wall 20 and comprising a tension pulley. An endless V-belt 70 is trained about the pulleys 64, 66 and 68 and is engaged with the periphery of the pulley 62 mounted on the shank portion 46 of the roller 30.

The idler pulley 66 also comprises a drive pulley and is mounted on one end of a shaft 74 which projects through the partition wall 66 and is splined as at 76 on its other end portion. A friction disk 78 is splined on the end of the shaft 74 remote from the drive pulley 66 and is rotatable with but shiftable axially of the shaft 74.

An electric motor 80 is supported within the housing 12 by means of a suitable bracket 81 and includes an output shaft 82 on which a drive disk 84 is mounted. An

actuating bellcrank 86 is pivotally supported from the housing 12 between a pair of upstanding mounting ears 88 and has one end thereof provided with a rubbing block 90 for engagement with the surface of the disk 78 remote from the disk 84. The other end of the bellcrank 86 includes a laterally directed handle portion 92 which projects through an arcuate slot 94 formed in the front side wall 20. Accordingly, the laterally directed portion or handle 92 may be urged downwardly against the tension of the expansion spring 95 secured between the partition wall 26 and the end of the bellcrank 86 supporting the rubbing block 90 in order to urge the rubbing block 90 into contact with the face of the disk 78 remote from the disk 84 and to move the disk 78 axially of the shaft 74 toward engagement with the disk 84. Upon engagement of the disk 78 with the rotating disk 84, the endless V-belt 78 will be caused to move about its closed path of movement and this will in turn effect rotation of rollers 30 and 32 and their movement, effected by their rolling compressive engagement with the collapsible tube 98 disposed therebetween, downwardly of the inverted tube 98 toward the neck end thereof which is threadedly engaged in an internally threaded outlet fitting 100 including a passage passing through the bottom wall 18 of the housing 12 and terminating at a horizontally disposed portion 102 opening forwardly of and immediately below the lower end of the front side wall 20 of the housing 12.

Suitable switch means 102 may be provided and operatively electrically connected to a suitable source of electrical potential and the electric motor 80 for effecting operation of the latter and the handle 92 of the bellcrank 86 may be utilized to drivingly connect the disk 78 to the disk 84.

It may be seen from FIGURE 2 of the drawings that the bellcrank 86 includes a rubbing block 104 adapted for engagement with the periphery of the disk 78 when the bellcrank 86 is in its rest position. Therefore, upon disengagement of the disk 78 of the disk 84, the rubbing or braking block 104 will engage the periphery of the disk 78 and immediately stop rotation of the latter and thus movement of the rollers 30 and 32 downwardly along the collapsible tube 98.

The idler pulley 68 is supported from a U-shaped mount 110 suspended from the front wall 20 by means of an expansion spring 112. The front wall or side 20 has an access opening 114 formed therein and a closure panel 116 is hinged as at 118 for movement between an open position and a closed position closing the access opening 114. The interior of the housing 12 includes a support bracket 120 for supporting a conventional tooth brush and clamp-type bracket 123 for supporting another toilet article such as a retractible base 124 for an electric tooth bush.

From FIGURES 3 and 4 of the drawings it may be seen that the outlet end of the fitting 100 externally threaded as at 126 for the securement of a closure cap (not shown) thereto and it may be seen from FIGURE 2 of the drawings that an outlet opening 128 is formed in the lower end wall 18 and that a generally cylindrical magazine 130 is secured between the lower end wall 18 and the horizontal partition 131 which is secured between the partition 126, the front and rear walls 20 and 22 and the side wall 16. The cylindrical magazine 130 includes a radially inwardly projecting ridge adjacent its lower end which extends circumferentially thereabout and is designated by the reference numeral 132. The dispenser sleeve or cylinder 130 is adapted to receive a plurality of nested cone-shaped paper cups 134 and the ridge 132 retains the cups 134 within the dispenser 130 with the lower end of the lowermost cup 134 projecting outwardly of the opening 128 so as to be capable of being grasped and pulled past the ridge 132 and outwardly of the dispenser 130.

The top wall 24 of the housing 12 has an upwardly opening shallow cup 136 recessed therein and the cup

136 may be utilized to support a denture plate 138 or the like.

In operation, the rollers 30 and 32 are first urged to their uppermost position illustrated in FIGURES 1–5 of the drawings and the tube of tooth paste then has its closed end welded between the rollers 30 and 32 after the outlet neck thereof has been threadedly engaged with the fitting 100. Then, when it is desired to dispense tooth paste from the dispenser 10, the electric motor 80 is actuated and the handle portion 92 of the bellcrank 86 may be manipulated to selectively drivingly connect the electric motor to the rollers 30 and 32. In this manner, the rollers 30 and 32 will be rotated so as to rollingly compress the upper end of the inverted tube 98 therebetween and to dispense tooth paste from the tube 98. When it is desired to remove an empty tooth paste tube after the rollers 30 and 32 have been moved to the bottom of the housing 12, the hand knob 60 may be manipulated to return the rollers 30 and 32 to the top of the housing after which the empty tube of tooth paste may be removed and replaced with a full tube.

The mounting plates 34 and 36 maintain the rollers 30 and 32 in their proper spaced relation relative to each other and the slots 50, 52 and 58 slidingly guide the opposite ends of the roller 30 and one end of the roller 32. The other end of the roller 32 includes a shank portion 140 which is slidingly received between a pair of guides 142 and 144 secured to the inner surface of the side wall 14 defining a groove or slot therebetween in which the shank portion 140 is slidingly received.

As can best be seen from FIGURE 3 of the drawings, the rear side wall 22 has a T-shaped element 148 secured thereto whose enlarged head portion is slidingly and seatingly received in the channed 150 defined in the V-shaped channel member 152. The channel member 152 may be secured to any suitable supporting surface such as a wall in any convenient manner and it is to be noted that the T-shaped member or element 148 has its head portion seatingly and removably and seatingly disposed in the channel member 152.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A tooth paste dispensing cabinet including a hollow housing having opposite side walls and an end wall interconnecting one pair of corresponding ends of said side walls, a pair of rollers, means journaling said rollers in said housing with said rollers paralleling each other and disposed in a plane extending between said side walls, said means also mounting said rollers for simultaneous guided movement toward said end wall independently of rotation of said rollers relative to said housing, said rollers being spaced apart and adapted to rollingly compress a collapsible tube of tooth paste disposed therebetween, said end wall defining outlet means in alignment with a plane disposed between and generally paralleling the paths of movement of said rollers and adapted to have the outlet neck of a collapsible tube communicated therewith and attached thereto, coacting means carried by said rollers and drivingly connecting one of said rollers to the other for equal and simultaneous rotation of said rollers, and actuating means carried by said housing and operatively drivingly connected to said one roller for effecting rotation of said rollers in said housing and guided movement of said rollers toward and from said end wall in response to said rotation when a collapsible tube is compressively engaged between said rollers, said actuating means comprising an endless flexible member entrained about aligned wheels journaled in said housing and in-

cluding one run paralleling the line of movement of said rollers toward said end wall, said one roller having a wheel mounted thereon drivingly engaged with said one run of said endless member.

2. The combination of claim 1 wherein one of said aligned wheels comprises a drive wheel mounted on a drive shaft journaled in said housing, and an electric motor in said housing including an output shaft drivingly coupled to said drive shaft.

3. The combination of claim 2 including coacting clutch means carried by said shafts releasably drivingly coupling said output shaft to said drive shaft.

4. The combination of claim 3 wherein said coacting clutch means include actuator means operatively connected thereto and operable from the exterior of said housing.

5. A tooth paste dispensing cabinet defining a support structure including a pair of interconnected opposite side walls, a pair of rollers, means journaling said rollers from said structure with said rollers paralleling each other and disposed in a plane extending between said side walls, said means also mounting said rollers for simultaneous guided movement along a path disposed generally normal to said plane independently of rotation of said rollers relative to said side walls, said rollers being spaced apart and adapted to rollingly compress a collapsible tube of tooth paste disposed therebetween, coacting means carried by said rollers and drivingly connecting one of said rollers to the other for equal and simultaneous rotation of said rollers, actuating means carried by said support structure and operatively drivingly connected to said one pair of rollers for effecting rotation of said rollers relative to said side walls and guided movement of said rollers along said path in response to said rotation when an elongated collapsible tube extending along said path is compressively engaged between said rollers, said

actuating means comprising an endless flexible member entrained about aligned wheels journaled from said side walls and including one run paralleling said path of movement of said rollers, said one roller having a wheel mounted thereon drivingly engaged with said one run of said endless member.

6. The combination of claim 5 wherein said housing includes additional interconnected end and side walls coacting with the first mentioned end and side walls to form a closed housing, one of said side walls having an access door opening formed therein, a closure door for said access opening.

7. The combination of claim six wherein said support structure defines a substantially closed housing including support means on the inside thereof adapted to support various toilet articles.

8. The combination of claim 5 including an end wall interconnecting said side walls at one pair of corresponding ends thereof, said end wall having a discharge opening formed therein, a tubular member in said housing having one end secured to said end wall about said opening and adapted to receive a stack of nested cups for dispensing said cup one at a time from said housing through said opening.

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