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AUTOMATIC TOOTHPASTE DISPENSER

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1 Claim. (Cl. 222-93)

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The present invention relates to automatic toothpaste dispensers or appliances primarily for home use provided with means for expressing toothpaste from collapsible tubes onto toothbrushes in desired quantities and for automatically sealing the tube outlet between use as well as providing supporting means and dust protectors for toothbrushes when not in use utilizing for protective purposes the usual bathroom glass whose internal faces are simultaneously protected from dust and dirt.

Principal objects and features of this invention are the provision of structures effective for the purposes described which are simple in construction and which may be manufactured and assembled cheaply and quickly from a minimum of working parts.

Other objects and features of the invention will become apparent from the following specification and accompanying drawings wherein:

Fig. 1 is a longitudinal section of the appliance;

Fig. 2 is a perspective view of the appliance partially broken away to illustrate internal details;

Fig. 3 is a longitudinal fragmentary section on an enlarged scale of the feeder outlet of the appliance; and

Fig. 4 is a fragmentary longitudinal section illustrating modified expressing mechanism for the appliance.

Referring to the drawings, the appliance comprises as components a suitably shaped casing *a* of metal, plastic or other desired material provided with a top wall 1, a rear wall 2*a* and side walls 2 defining a toothbrush handle receiving compartment A. The forward edges of the side walls 2 are bent substantially at right angles to the side walls to provide parallel flanges 3 to act as slides for purposes presently to be described.

The rear wall 2*a* is provided with conventional openings 2*b* for attachment to a wall.

A brush and glass holder *b* is positioned in the top 1. This holder *b* extends upwardly of the outer surface of the top 1 to define an annular rim of slightly smaller diameter than the internal diameter of a conventional glass *g* so that in inverted position of the latter the holder *b* will project into the mouth of the glass to position it on said top 1. A dividing diametrically extending partition 4 separates the parallel partitions 5 upstanding from the holder *b* to provide separate stalls or compartments for individual toothbrushes T whose handles are insertable through openings in the holder *b* to extend

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into the compartment A of casing 1. The level of holder *b* is higher on one side of partition 4 than the other to facilitate selection of the desired one of the toothbrushes T.

The top wall 1 and side walls 2 of the casing *a* are projected forwardly near its top to provide a compartment B for expressing rollers 6 and 7. These rollers are supported on shafts 6' and 7'. Meshing gears 8 are keyed to the shafts and a manipulating knob 9 is attached to one of the shafts, e. g., shaft 7', externally of the casing *a* to effect rotation thereof. The two shafts 6' and 7' are spring-pressed toward each other by a spring 10. One of the rollers 7 has a longitudinal slot 11 to receive the flat bottom edge of the toothpaste tube P.

A feeder outlet *c* for dispensing the paste from the tube P is slidable along the front face of container *a*. This outlet comprises a slotted plate 12 secured to a bracket arm 13. The slots of plate 12 are dimensioned to slide guidedly on the flanges 3. A tubular member 14 defining a feeder chamber is secured to the bracket arm 13 and is internally threaded at 14*a* to permit the threaded tube neck Pa to be screwed into it. The member 14 has a restricted outlet 14*b* at its lower end. An automatic stopper 15 is fulcrumed at 15*a* to sides of the tubular member 14 for closing off the outlet 14*b*. This stopper 15 is four-sided and open at its front for purposes to be described. A lip or flange 15*b* on stopper 15 engages a spring 16 secured to the bracket arm 13 so that the spring 16 acts to bias the top 15*c* of the stopper 15 normally into closing and sealing relationship under the restricted outlet 14*b*. The fulcrum support 15*a* of stopper 15 permits the latter to be swung out of closing relationship with the opening 14*b* against the resistance of the biasing spring 16.

Use and operation

In use and operation of the appliance described, toothbrushes T are inserted in the holder *b* and the glass *g* inverted over the rim of holder *b* to provide dust protection for the bristles of the brushes T and the inside of the glass *g*.

The usual cap of the tube P is removed and the tube's threaded neck Pa screwed into the threaded portion 14*a* of member 14. The flat end of the tube P is inserted into slot 11 of roller 7, spring 10 permitting sufficient separation of rollers 6 and 7 for this purpose. The user of the dispenser then need only remove the glass *g*, lift a toothbrush T from the casing and insert its head into the open front of stopper 15. This

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positions the bristles below the outlet 14b. The knob 9 is then rotated to turn the rollers 6 and 7 through gears 8 to cause the spring-pressed rollers to squeeze paste from the tube through outlet 14b in any desired quantity. The brush is then removed from the open front of stopper 15 and is ready for use. The spring 16 automatically moves stopper 15 to close off the outlet 14b upon such removal sealing the contents of tube P. As the tube's contents are used up, the outlet member c rides upwardly on slide guides 3 toward rollers 6 and 7. After the tube P has been emptied, it is removed by drawing feeder c downwardly, unwinding the tube P from roller 7, and after removal of its flat end from groove 11 and unscrewing of its neck Pa from threaded portion 14a it is discarded and replaced by a fresh tube P.

A modified structure of the rollers is shown in Fig. 4. In this modification, the surfaces of the rollers 6a and 7a are serrated and intermesh, eliminating the necessity for the gears 8 and slot 11. The spring 17 presses against the shaft of roller 6a to bias it towards roller 7a and an adjusting screw 18 serves to regulate the biasing pressure of said spring 17. All other structure remains the same and operation of the modified form of appliance is substantially like that of the first form described. The external shape of the casing a of the appliance may be modified as desired to conform with geometrical patterns of the room in which it is utilized.

While specific embodiments of the invention have been shown and disclosed, variations in structural detail within the scope of the claim are possible and are contemplated. There is no intention, therefore, of restriction to the exact details shown and described.

What is claimed is:

A dispensing appliance for collapsible tooth-paste tubes or the like comprising a casing defining a pair of compartments, said casing having a top provided with openings communicating with one of said compartments, partitions on said top

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about said openings defining stalls for individual tooth brushes whereby the latter may be carried by said top with their handles protectively disposed in one of said compartments of said casing, said casing being open at its front and having flanges on its side walls turned inwardly along the open front of the casing to define slide guides, a pair of expressing rollers rotatively supported within the other of the compartments of said casing and being protected thereby, shafts for said rollers, spring means also within the last named of the compartments for biasing the rollers toward each other, intermeshing gears also within the last named of the compartments on said shafts, a knob on one of said shafts externally of the casing for rotating said rollers, a feed slide slidably supported on said slide guide flanges for movement along the open front of the casing, an internally threaded tubular receiver supported from the feed slide to receive the threaded neck of a tube and having a restricted feed outlet, a stopper for said outlet fulcrumed from the tubular receiver, and spring means for biasing said stopper normally into closing relationship with said feed outlet.

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