May 19, 1953 A. S. DURHAM 2,639,059

MEANS, INCLUDING A WINDING SHAFT AND A ROLLER FOR MOUNTING AND COLLAPSING TUBULAR CONTAINERS

Filed June 19, 1951

Fig. 1.

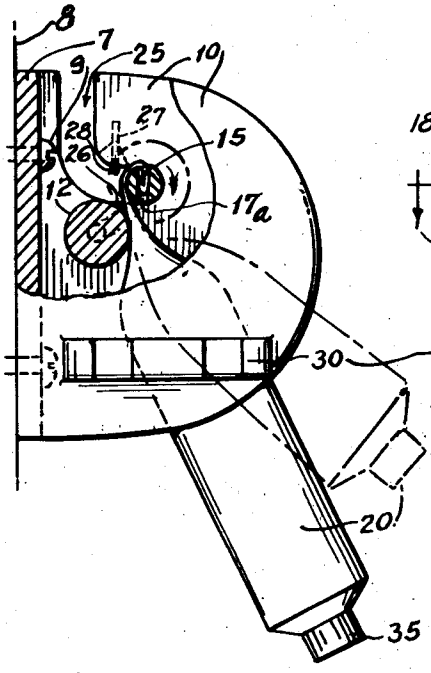


Fig. 2.

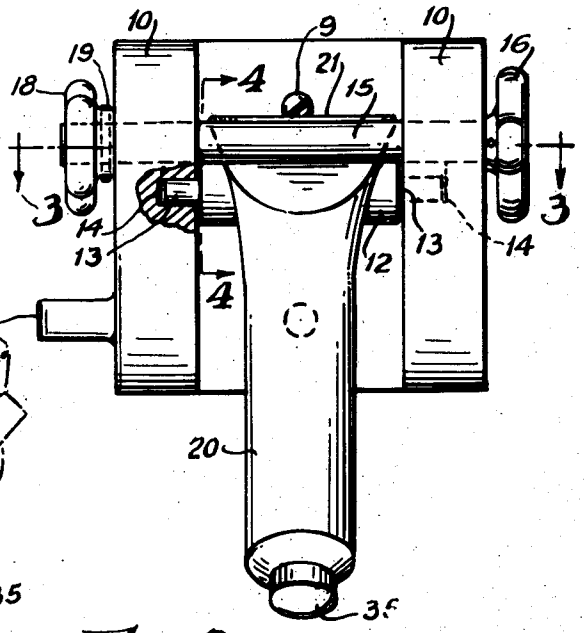


Fig. 4.

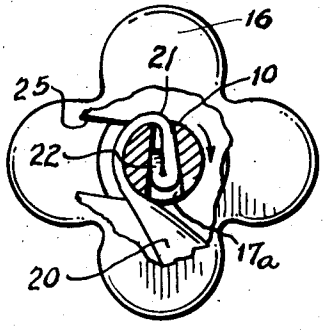


Fig. 3.

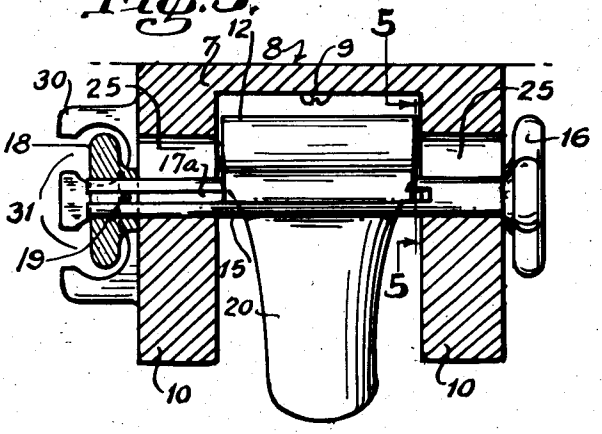


Fig. 5.

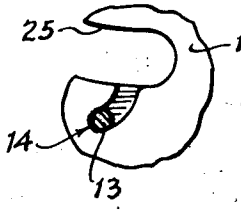
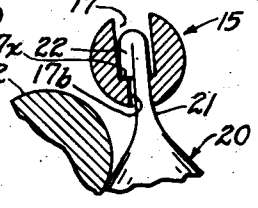


Fig. 6.



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MEANS INCLUDING A WINDING SHAFT AND A ROLLER FOR MOUNTING AND COLLAPSING TUBULAR CONTAINERS

Arthur S. Durham, Pico, Calif.

Application June 19, 1951, Serial No. 232,291

6 Claims. (Cl. 222—98)

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Means including a winding shaft and a roller for mounting and collapsing tubular containers.

This invention relates to a simple, inexpensive device whereby a collapsible tubular container may be mounted in a position for being conveniently used and whereby said container may be progressively collapsed in a manner completely to discharge its contents.

It is not broadly new to provide a device of the above stated kind, but it is an object of the present invention to improve upon such devices by simplifying their structure, and making them more sturdy and more durable.

Another object is to provide a structure that can be completely constructed either of plastic, or a resilient hard material such as synthetic rubber, or by a woodworker, and when so constructed will be more easily manually operated completely to eject all the paste out of the tube with which it is connected.

Additional objects are to provide, in combination with a shaft on which the tube being collapsed is windable, an antifriction roller to cooperate with said shaft in collapsing the tube which will lessen the operating force required and will minimize wear; and to provide an improved means to latch the aforesaid shaft in its operative position.

Other objects, advantages and features of invention will hereinafter appear.

Referring to the accompanying drawing, illustrative of a preferred, reduced to practice embodiment of the invention,

Fig. 1 is a view mainly in side elevation, showing the device mounted upon a wall and having connected to it a collapsible tube, full lines showing said tube as it appears at the beginning of the collapsible operation and dotted lines showing the appearance thereof after some of its contents has been discharged. A part of the structure is broken away and parts are shown in section so as to disclose interior structure more clearly.

Fig. 2 is an elevation, except for a small sectioned part, the observer looking from right to left at Fig. 1.

Fig. 3 is a section on line 3—3 of Fig. 2.

Fig. 4 is a fragmentary detail, partly in section and partly in elevation, the sectioned portion being on line 4—4 of Fig. 2. This view illustrates a modification.

Fig. 5 is a fragmentary sectional detail on line 5—5 of Fig. 3.

Fig. 6 is a fragmentary sectional detail of the preferred construction of the tube engaging parts of the device.

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Referring in detail to the drawing, in Fig. 1 a base 7 is shown attached to a wall 8 by means of screws 9. Twin mounting members 10 are shown, both of which project from the same face of said base. These mounting members are shown as thick, arcuate parallel plates, one of them extending integrally from one side edge portion of said base and the other from the opposite side edge portion thereof.

A roller 12 is rotatably supported by and spans the space between said plates, said roller having trunnions 13 in bearing recesses 14 provided for them in the inner faces of the aforesaid side plates 10. Between and upon said side plates is also turnably supported a shaft 15 which at one end carries a knob 16 for its manual operation. Said shaft is of a bifurcated character, being provided with a diametrical, longitudinal slot 17 (preferred form) or 17*a*, said shaft having applied to the end thereof opposite to said knob 16 a ferrule or auxiliary knob 18 which may be friction tight on said shaft. A pin 19 passes through the shank portion of said knob 18 and through said slot 17 (or 17*a*).

As shown in Fig. 6, along one side the slot 17 is narrowed from each side as indicated at 17*b*. The tube 20 is shown having a collapsed or flattened end portion 21 with a double over or folded attaching extreme end portion 22. In Fig. 6 this doubled over or folded part is shown abutting one of the shoulders 17*x* that result from narrowing one side portion of the slot 17, said shoulder preventing the doubled over or folded end tube portion from being transversely pulled through the narrowed slot portion 17*b*.

In the modified slot 17*a* shown in Fig. 4 the slot is transversely tapered so that its lower side as seen in this view is considerably wider than its opposite side, and there is transversely wedged into the slot the aforesaid folded tube end portion 22, which is too thick to be transversely pulled through the narrow side portion of said slot.

Viewing the device in its mounted position shown in Fig. 1 a slot 25 is seen to extend downwardly from the rear part of the upper edge portion of one of the aforesaid side plates 10, shown in said view, it being understood that both of said side plates are thus slotted. The intermediate portion of each of the two slots is arcuately and forwardly deflected so that each slot ends in a substantially horizontal lower portion 26 rounded at its extremity to adapt it to form a bearing for the aforesaid turnable shaft 15.

As shown in detail in Fig. 5 the recess 14 for the trunnions 13 of the roller 12 are short, as

arcuate, slots that lead laterally from the inner end portion of said slot portions **26**. The slots **25** and **14** are contoured and positioned as shown to aid in keeping in place the parts for which their inner end portions form bearings. Also, in order to guard the end portions of the shaft **15** against lateral displacement, each plate **10** is provided with a wedge shaped recess **27** having its wide end directed downwardly and opening out at the upper side of the aforesaid horizontal slot **27** in the plate, and each said recess **27** contains a resilient pin **28** the lower end portion of which projects slightly below the widened mouth of said recess so that the pin ends may swing sufficiently to admit the shaft **15** and will only yieldingly oppose its removal.

A toothbrush holding bracket **30** is shown in Figs. 2 and 3, this bracket projecting from the outer side of one of the plates **10** and having twin recesses **31** to receive toothbrushes with their bristle carrying ends directed upwardly and too large to pass downwardly through said recesses.

A desirable way to make the slotted shaft **15** is to cut the slot **17** deeply into that end of the shaft which is opposite to the knob **16** and then close the otherwise open end of the slot by attaching the aforesaid auxiliary knob **18** to the shaft.

It is to be observed that when the device is attached to the wall **8** the inner end portions of the slots **25** and **14** are both directed downwardly so that gravity aids in keeping in place in them the parts for which they form bearings.

The conventional type of collapsible tubular container shown in the drawing has a flattened end portion **21** which is sufficiently long to project into the narrow side of the slot **17** of the shaft **15** after being fed transversely into said slot. Hence, after being thus applied to the slot its projecting end portion may be rolled over as indicated at **22** (Fig. 4), and then it will wedge itself forcibly back into or against the narrow portion of the slot so as securely to hold the folded end portion **22** of the tube in said shaft. Then the user, after removing the cap **35** from the delivery end of the tube, can, by manually turning the shaft **15** in the proper direction, pull an additional length of the tube between the shaft and roller **12**, thus additionally collapsing the tube and dispensing from its delivery end the desired quantity of its contents.

In using the form of slots shown it will be necessary to feed the doubled over or folded tube-end into the slot in an endwise manner in relation to the latter.

By preference and as shown the knob **16** and auxiliary knob **18** are formed with grippable quadrants which afford a better handhold for the operator.

I claim:

1. A combined holder and dispenser for collapsible tubes, comprising a base, two mounting members both projecting from the same face of said base, one of said members projecting from one side edge portion of said base and the other of said members projecting from the opposite side edge portion thereof, said members consisting of parallel plates, a roller rotatably supported by said plates and spanning the space between them, and a manually rotatable shaft supported by and between said plates in an adjacent, parallel relation to said roller, said shaft being diametrically slotted to receive the thin end portion of a conventional collapsible tube, there being a slot cut into an edge portion of each of said parallel plates, the inner end portions of said slots forming bearings for said shaft, and recess forming bearing means forming lateral extensions leading from said slots, said roller carrying trunnions which have their bearings in the recesses formed by said lateral extensions.

2. The structure set forth in claim 1, and means attaching the device to a wall in a position wherein said slots lead downwardly from upper edge portions of said plates.

3. The subject matter of claim 1, and said recesses also being slots the inner end portions of which are positioned to form bearings for said shaft and trunnions when the device is in its mounted position.

4. A combined holder and dispenser for collapsible tubes, comprising a base, two mounting members both projecting from the same face of said base, one of said members projecting from said base and the other of said members projecting from an opposite portion thereof, said members consisting of parallel arms, a roller supported by said arms and spanning the space between them, and a manually rotatable shaft supported by and between said arms in an adjacent, parallel relation to said roller, said shaft being diametrically slotted to receive the thin end portion of a conventional collapsible tube, there being an open ended slot formed in a portion of said parallel members, the inner end portion of said slot forming a bearing for said shaft, and recesses forming bearing means for said roller carrying trunnions having their bearings in the recess formed adjacent to said slot.

5. The structure set forth in claim 4, and means attaching the device to a wall in a position wherein said slots lead along the edge portions of said arms.

6. The subject matter of claim 4, and said recesses also being slots forming lateral extensions leading from larger shaft slots the inner end portions of which are positioned to form bearings for said shaft and trunnions when the device is in its mounted position.

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