

March 26, 1940.

J. BAMBER

2,194,882

TUBE COMPRESSOR

Filed June 16, 1939

2 Sheets-Sheet 1

Fig. 1.

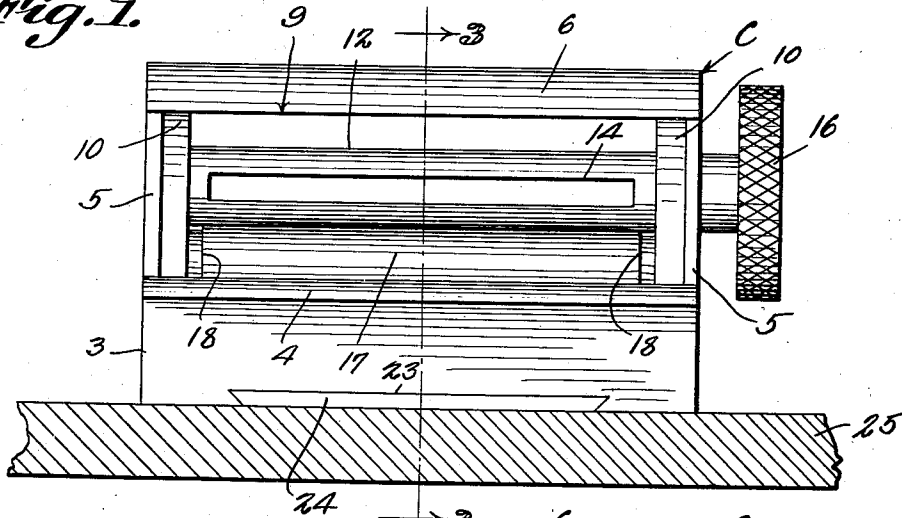


Fig. 2.

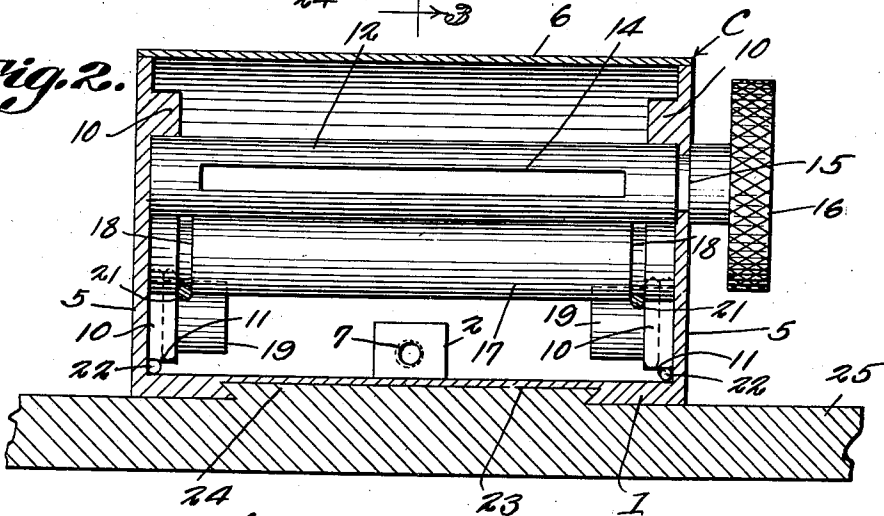
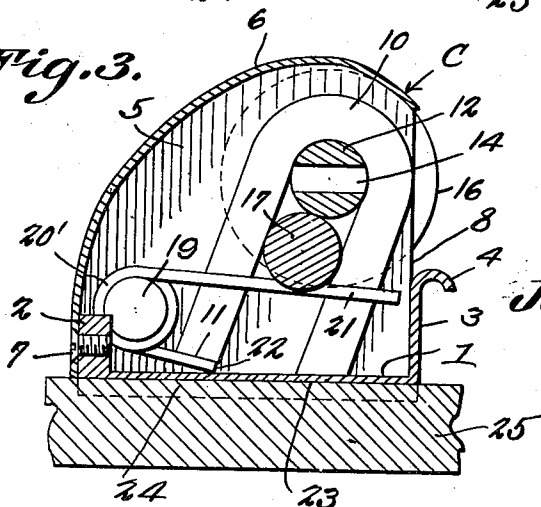


Fig. 3.



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Fig. 4.

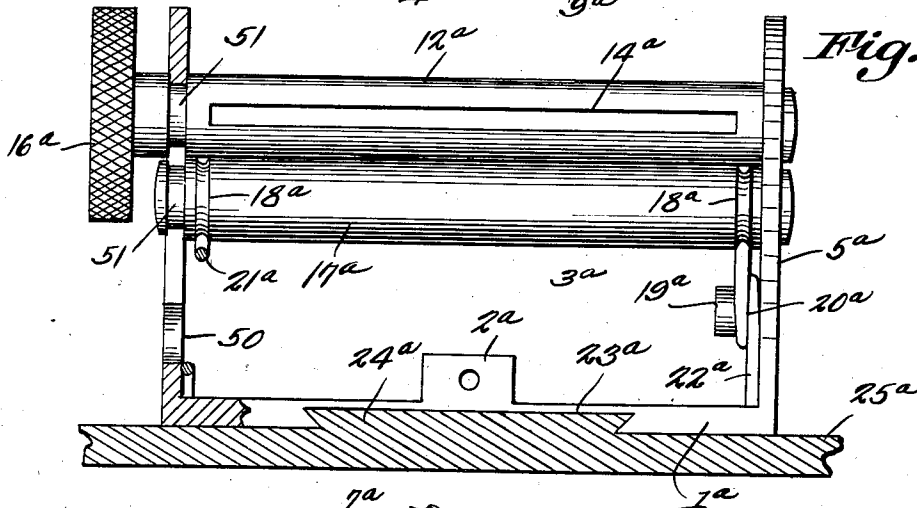
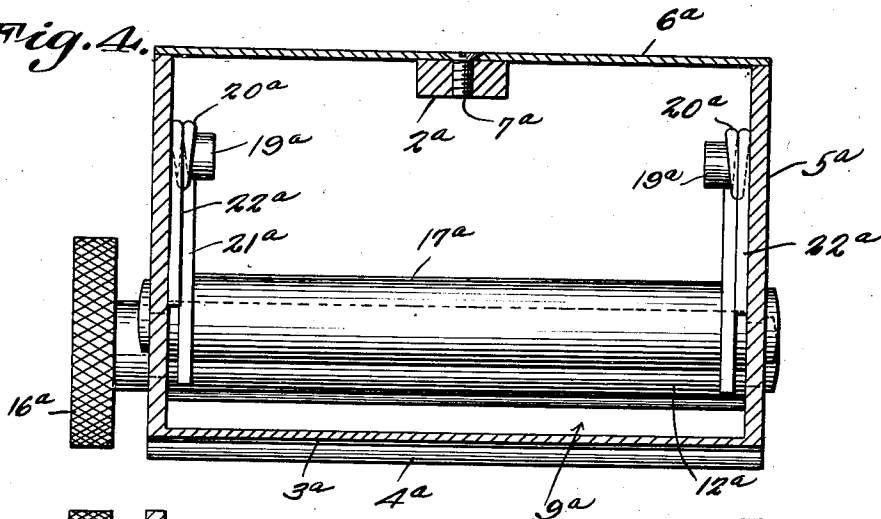


Fig. 5.

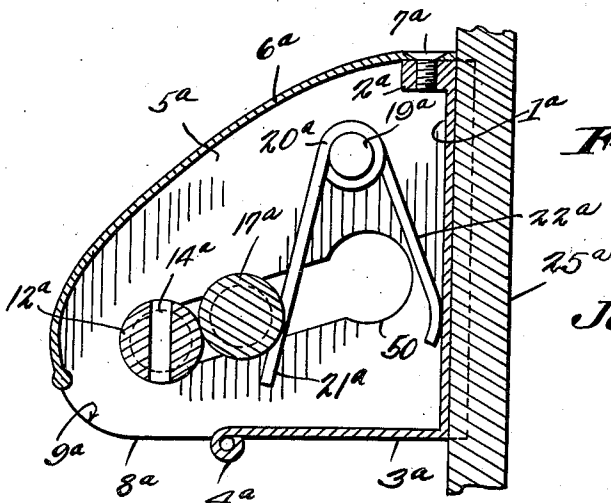


Fig. 6.

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UNITED STATES PATENT OFFICE

2,194,882

TUBE COMPRESSOR

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Application June 16, 1939, Serial No. 279,538

3 Claims. (Cl. 221—60)

This invention aims to provide novel means for squeezing paste, such as tooth paste or shaving cream, out of a collapsible tube. The squeezing is brought about by cooperating rollers, and one object of the invention is to provide novel means for mounting the rollers for rotation, and to provide a spring means mounted in a novel way, to cause the rollers to coact. The invention aims, further, to supply a device of the class described which, owing to its particular construction, can be manufactured cheaply and sold at small cost.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the present invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings:

Fig. 1 shows in front elevation, a device constructed in accordance with the invention;

Fig. 2 is a longitudinal section, parts remaining in elevation;

Fig. 3 is a section on the line 3—3 of Fig. 1, parts appearing in elevation;

Fig. 4 is a horizontal section showing a modification;

Fig. 5 is a vertical section of the modification;

Fig. 6 is a vertical transverse section of the modification.

The device forming the subject matter of this application may be made of any desired material, metal being preferred. It includes a casing, which, as a whole, is marked by the letter C. The casing C includes a base 1, provided on its rear edge and intermediate its ends with an upstanding lug 2. At its forward edge, the base 1 has an upstanding front wall 3 provided with a forwardly curved lip 4, constituting a rest on which the tube (not shown) may ride, during the squeezing operation, without danger that the tube will be torn open.

Upstanding parallel end walls 5 are secured to the base 1. A curved cover 6 extends over the end walls 5, and downwardly to the base 1, the cover 6 being attached to the lug 2 on the base 1 by a securing element 7, such as a screw.

The forward edges of the end walls 5 are straight and vertical, as shown at 8, and the forward edge of the cover 6 is aligned vertically with the edges 8, the forward edge of the cover 6 cooperating with the rest 4 to form an opening 9, through which the tube to be compressed may be introduced into the field of operation of the tube compressing means.

Forwardly inclined, U-shaped guides 10 are secured to the end walls 5. The forward arms of the guides 10 extend downwardly to the base 1, but the lower ends of the rear arms of the guides are spaced from the base, to define shoulders 11.

A first roller 12 is journaled for rotation in the crowns of the guides 10 and is provided with a tube holding means, which may be an elongated slot 14. The first roller 12 is supplied with a circumscribing groove 15, which, receiving a portion of one end wall 5, retains the roller in the casing C, and in the guides 10, for rotation. The roller 12 projects outwardly beyond the said end wall 5. Any suitable means may be provided for rotating the roller 12, for instance a turning disk 16 mounted on the exposed end of the roller.

A second or lower roller 17 rotates in contact with the first or upper roller 12. The ends of the second roller 17 are received for rotation within the guides 10, and the end walls 5 of the casing C prevent the roller 17 from moving endwise. Adjacent to its ends, the roller 17 is supplied with circumferential grooves 18.

Studs or supports 19 project inwardly from the end walls 5, adjacent to the base 1 of the casing C. About the studs 19 are engaged helical springs 20, each comprising a long upper arm 21, and a short lower arm 22. The arms 21 of the springs 20 are received in the grooves 18 of the roller 17, and press that roller upwardly into operative relation to the roller 12. Because the arms 21 of the springs 20 are received in the grooves 18, the arms 21 cannot move inwardly or become displaced from the roller 17. The short lower arms 22 of the springs 20 are engaged beneath the shoulders 11. It may here be noted that the guides 10 have a double function, in that they mount the rollers 12 and 17 for rotation, and also afford the shoulders 11 wherewith the short arms 22 of the springs 20 are engaged.

The device may be mounted in any desired way. For instance, the base 1 may be provided with a dovetail groove 23, extending through the front wall 3, and adapted to cooperate, slidably, with a correspondingly shaped rib 24 on a support 25.

Little need be said about the operation of the

device. One end of a collapsible tube is inserted into the slot 14 of the roller 12, the tube is wound around the roller 12 when that roller is rotated by means of the disk 16. The tube is squeezed between the rollers 12 and 17, and the contents of the tube is expelled in an obvious manner.

In Fig. 4, 5 and 6, parts hereinbefore described have been designated by numerals already used, with the suffix *a*. In this form of the invention, the support 25*a* is vertical instead of horizontal, and the opening 9*a* is at the bottom of the casing. In place of the guides 10*a*, there are keyhole slots 50 in the end walls 5*a*. The rollers 12*a* and 17*a* have circumscribing grooves 51. The rollers 12*a* and 17*a* can be inserted endwise into the enlarged parts of the keyhole slots 50, and then moved crosswise until the end walls 5*a*, at the reduced portions of the keyhole slots 50 are received in grooves 51. The spring 20*a*—21*a*—22*a* holds the rollers for rotation, in the position depicted in Fig. 6. It is obvious that the support 25*a* may be disposed horizontally, that being a mere user's option, and when the support is so located, the structural similarity between the form of Fig. 6 and the form of Fig. 3 will be the more plainly manifest.

Having thus described the invention, what is claimed is:

1. In a device for expelling material from a collapsible tube, a casing comprising a base and end walls, inverted U-shaped guides secured to the end walls, the guides comprising rear arms spaced from the base to define shoulders, a first roller journaled in the crowns of the guides, a second roller cooperating with the first roller and having its ends received rotatably and slidably

in the guides, a supporting means carried by the end walls, helical springs mounted on the supporting means, each spring comprising an arm exerting pressure on the second roller, to urge it toward the first roller, and another arm engaged with one of the shoulders; and means for rotating one of the rollers.

2. In a device for compressing a collapsible tube to expel the contents thereof, a casing comprising end walls, and a base provided at its rear edge with an upstanding anchorage element, the casing comprising an upstanding front wall having a rounded rest for the tube to become pressed, a cover extended along the upper portions of the end walls and downwardly to the base, the forward edge of the cover being spaced from the rest, to define a tube receiving opening, cooperating pressure rollers located to the rear of the opening, means for mounting the rollers for rotation on the end walls, and fastening means connecting the cover with the anchorage element.

3. In a device for expelling material from a collapsible tube, a casing comprising a base and end walls, the end walls being provided with keyhole slots, first and second cooperating rollers insertible into the casing by way of the enlarged portions of the keyhole slots, the rollers being ledged for rotation in the restricted portions of the keyhole slots and having circumferential grooves receiving the end walls, a supporting means carried by the end walls, helical springs mounted on the supporting means, each spring comprising an arm exerting pressure on the second roller, to urge it toward the first roller, and another arm engaged with the base: and means for rotating one of the rollers.

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