Nov. 1, 1932. A. RICKENBACHER 1,885,291

CONTAINER HANDLING DEVICE

Filed March 30, 1931

Fig. 1.

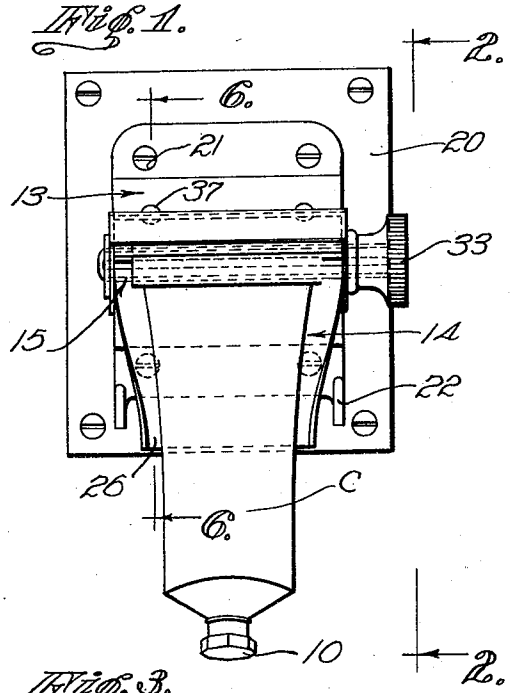


Fig. 2.

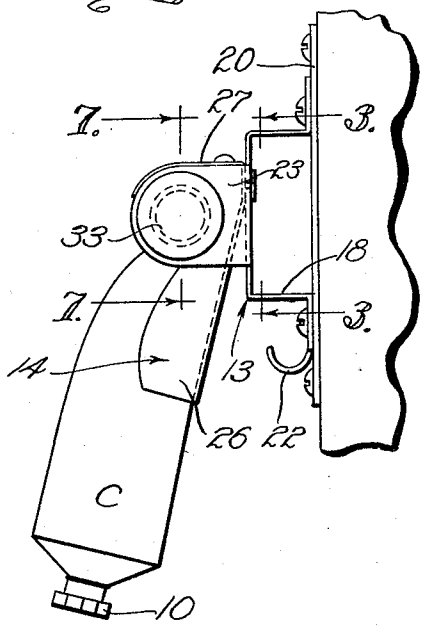


Fig. 3.

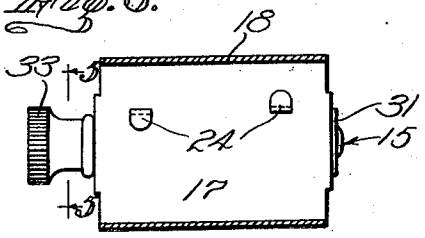


Fig. 4.



Fig. 5.

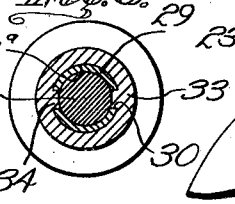


Fig. 6.

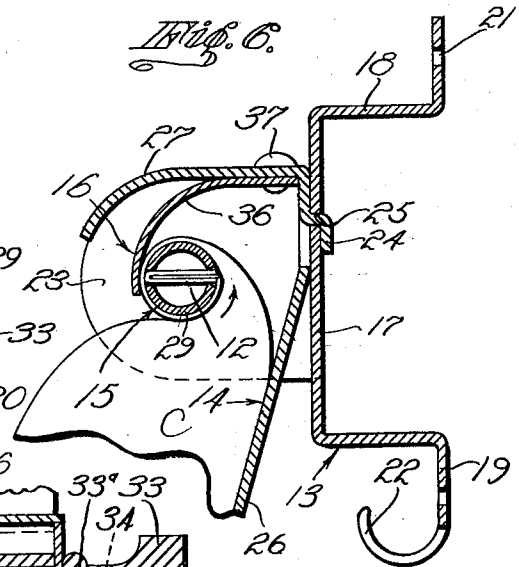
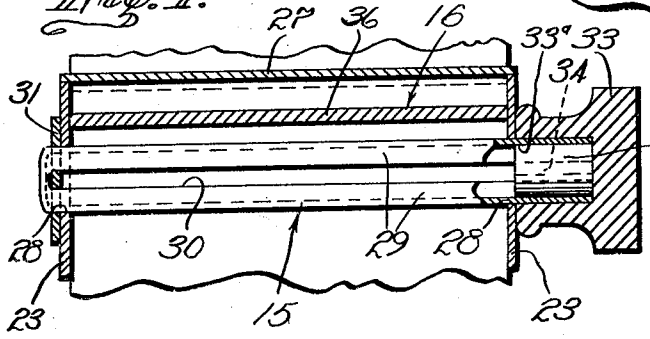


Fig. 7.



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UNITED STATES PATENT OFFICE

ADOLPH RICKENBACHER, OF LOS ANGELES, CALIFORNIA

CONTAINER-HANDLING DEVICE

Application filed March 30, 1931. Serial No. 526,402.

This invention relates to a container-handling device and relates more particularly to a device for holding and for discharging or emptying collapsible tube containers of the type commonly employed to hold tooth pastes, creams, paints, etc. It is a general object of the invention to provide a simple, practical, and effective device for holding and dispensing the contents of collapsible tube containers.

Another object of the invention is to provide a device of the character mentioned that is operable to wrap the closed end part of a collapsible container upon itself to cause the contents to be discharged.

Another object of the invention is to provide a device of the character mentioned that is operable to support the tube or container in a position where its discharge end or opening is conveniently accessible.

It is another object of the invention to provide a tube container handling device of the character mentioned that is operable to press or discharge all or practically all of the contents from the tube.

It is another object of the invention to provide a device of the character mentioned that is such that the container or tube may be easily and quickly arranged in the device and may be easily removed when emptied.

Another object of the invention is to provide a container tube handling device of the character mentioned that is sightly in appearance and that may be readily mounted in any desired position or location.

It is a further object of the invention to provide a device of the character mentioned that is particularly simple and inexpensive of manufacture and that embodies a minimum number of parts.

Other objects and features of my invention will be best and more fully understood from the following detailed description of a typical form and application of the invention, throughout which description reference is had to the accompanying drawing, in which:

Fig. 1 is a front elevation of the device, illustrating it mounted on a vertical support. Fig. 2 is a side elevation of the device, being a view taken substantially as indicated by line 2—2 on Fig. 1. Fig. 3 is a vertical detailed sectional view, being a view taken substantially as indicated by line 3—3 on Fig. 2. Fig. 4 is an enlarged plan view or elevation of the washer included in the device. Fig. 5 is enlarged transverse detailed sectional view, taken as indicated by line 5—5 on Fig. 3. Fig. 6 is an enlarged transverse detailed sectional view taken as indicated by line 6—6 on Fig 1, and Fig. 7 is an enlarged vertical detailed sectional view taken as indicated by line 7—7 on Fig. 2.

The device provided by my present invention is intended to handle containers of the type that are adapted to be pressed and collapsed to force out or dispense their contents, for example, collapsible tube containers for holding dentifrice in a paste form, cold cream, paints, etc. It will be apparent that the invention is capable of embodiment in forms for handling collapsible tube containers holding various articles and for handling containers of this character varying somewhat in size and shape. Throughout the drawings, I have illustrated a typical tube container C arranged in or carried by the device provided by this invention. In accordance with the common practice, the container C is provided with a reduced discharge end having an opening closed by a cap 10. The closed or outer end of the container C is flattened and comparatively thin. A typical end clip 12 is provided on the flattened closed end of the container.

The device provided by the present invention includes, generally, a bracket or base 13, a carrier or guide 14 for the container tube C, a rotatable stem or shaft 15 for releasably connecting with the reduced flattened end of the container C and operable to wrap the container upon itself to discharge its contents, and means 16 for pressurally engaging the tube or container C to aid in discharging its contents.

The base or bracket 13 is provided to carry or support the guide 14 and shaft 15 and may be varied considerably in construction without departing from the spirit of the invention. In the particular form of the invention illustrated in the drawing, the base 13 is

adapted to be mounted on either a flat, vertical member, as illustrated in the drawing, or a horizontal part, as desired. The particular bracket or base 13 illustrated in the drawing is substantially U-shaped in cross sectional configuration, having a central or main portion 17 and spaced flanges 18. Suitable mounting flanges or feet 19 project outwardly in opposite directions from the spaced flanges 18. In Figs. 1 and 2 of the drawing, the base 13 is shown mounted on a plate 20. Openings 21 may be provided in the mounting feet 19 to pass screws, or the like, for attaching the base 13 to the plate 20 or other part on which the device is arranged. If desired, spaced hooks 22 may be provided on the lower foot or mounting flange 19 to carry tooth brushes, or the like. In accordance with the invention, sides 23 project outwardly from the opposite ends of the main portion 17. The sides 23 are preferably substantially normal to the main portion 17 and are, accordingly, substantially parallel. The outer ends of the sides 23 may be rounded, as illustrated throughout the drawing. The bracket or base 13 may be a simple integral part formed of sheet metal, or the like.

The carrier or guide 14 is provided to hold and guide the container tube C. The guide 14 may be formed of sheet metal and is mounted on the main portion 17 of the base between the projecting sides 23. In accordance with the broader aspects of the invention, the guide 14 may be attached to the base 13 in any suitable manner. In the case illustrated in the drawing, cleats or lugs 24 project from the guide 14 and pass through openings 25 in the main portion 17 of the base. The lugs 24 are bent back or clinched over to engage the under side of the portion 17 to securely attach the guide 14 to the base. In the drawing, the spaced lugs 24 are shown bent or clinched over in opposite directions. The guide 14 extends outwardly and downwardly from the main portion 17 of the base, and the projecting portion 26 of the guide may be transversely curved to effectively pass and guide the container tube C. An outwardly projecting back 27 is provided on the upper end of the guide 14. The back 27 extends between and engages the upper edges of the spaced sides 23. The outer end portion of the back 27 may be curved to engage against the curved outer ends of the sides 23.

The stem or shaft 15 extends between and is rotatably carried by the spaced sides 23 of the base. The shaft 15 receives or connects with the flattened closed end of the container C and is in the nature of a rotatable drum on which the collapsed portion of the container C is wound as its contents are dispensed or used. The opposite end portions of the shaft 15 are rotatably supported in transverse openings 28 in the sides 23. The openings 28 are preferably spaced a considerable distance outwardly from the guide 14 so that there is a space between the shaft 15 and the guide 14 for passing the tube or container C. In accordance with the preferred form of the invention, the upper ends of the sides 23 and the bent or curved upper portion of the back 27 are curved about or have their centers of curvature at the centers of the openings 28. In accordance with the preferred embodiment of the invention, the shaft 15 is constructed of an elongated piece of stock of curved cross section bent back upon itself to have spaced parallel parts 29. The shaft 15 is round in its general cross sectional configuration and has a longitudinal slot 30 between its spaced parts 29. The slot 30 is provided to receive the flattened end part and the clip 12 of the container C.

The shaft 15 extends completely through the openings 28 to have its opposite end portions projecting outwardly from the spaced sides 23. The closed end of the shaft 15, i. e., the end where the spaced parts 29 are connected or joined, preferably projects only a short distance from the side 23. A washer 31 is mounted on the closed projecting end of the shaft. The washer 31 is provided to engage the side 23 to hold the stem or shaft 15 against displacement from the opening 28. The washer 31 is illustrated in elevation in Fig. 4 of the drawing. Spaced elongated openings or slots 32 are provided in the washer 31 to pass the spaced portions 29 of the shaft. The openings 32 in the washer 31 may be of substantially the same cross sectional shape as the parts 29 and slidably pass the parts 29. The washer 31 is held between the closed end of the shaft 15 and the side 23, so that the shaft 15 is held against longitudinal movement inwardly through the opening 28.

An operating knob or handle 33 is provided on the open end portion of the shaft 15 projecting beyond the side 23. The knob or handle construction operates to engage the side 23 to hold the shaft 15 against longitudinal movement in one direction. The mounting of the handle 33 on the shaft 15 is an important feature of the invention. The knob or handle 33 is mounted on and surrounds the projecting end of the shaft. The knob or handle 33 may be formed of hard rubber, bakelite, metal, or the like. Diametrically opposite keys 34 are provided in the opening 33^a of the handle to fit into the slot 30. The keys 34 operate to definitely space the parts 29 of the shaft and to hold the handle against rotation on the shaft. A block or plug 35 is force-fitted into the end portion of the hollow shaft 15 to expand it outwardly to tightly and permanently lock the handle 33 on the shaft. The fit of the parts is such that the forcing of the plug 35 into place

tightly and positively locks the handle on the shaft 15.

In assembling the shaft 15 in the device, the washer 31 is first slid to the closed end of the shaft, and the shaft is then arranged in position by inserting it in the opening 28. The plug 35 is then passed into the open end of the shaft 15 and slid to a point intermediate its ends. The knob 33 may then be placed on the projecting open end of the shaft, so that its keys fit the slot 30. The plug 35 is then wedged or forced into position in the end part of the shaft by passing a suitable tool into or through the slot 30 to engage the plug and drive or force the plug into place where it expands the end of the split shaft to effectively lock the handle in position. It will be apparent that when the shaft 15 is assembled, in the manner just described, it is permanently held against longitudinal movement and displacement from the opening 28 and is free to rotate.

The means 16 for aiding in pressing or forcing the contents from the container C is in the nature of a spring means that pressurally engages the container to aid in dispensing its contents. The container C is initially positioned on the guide 14, and its closed flattened end and its clip 12 are passed into the slot 30. The shaft 15 is then partially rotated or turned in the direction indicated by the arrow in Fig. 6 of the drawing to bend the end portion of the container around the shaft. the means 16 is provided to engage or press against the bent portion of the container C and includes a leaf spring 36 on the inner side of the back 27 for engaging the container C. The spring 36 may have its inner end attached to the back 27 by rivets 37, or the like. The spring 36 is preferably made wide to engage the container C throughout its width or a substantial portion of its width. The spring 36 normally projects outwardly from the back 27 toward the shaft 15. In the preferred form of the invention, the outer end portion of the leaf spring 36 is curved as illustrated throughout the drawing. The spring 36 is preferably of substantially the same curvature as the back 27, so as to be adapted to lie flush against the back upon being forced outwardly by several windings or wrappings of the container C on the shaft when the container is empty or nearly empty.

It is believed that the utility and operation of the device provided by my invention will be readily apparent from the foregoing detailed description. The device may be either mounted in a vertical position, as illustrated throughout the drawing, or in a horizontal position. When mounted in a vertical position, the guide 14 projects downwardly and outwardly to support and guide the depending container C. To arrange the container in the device, its flattened closed end is inserted in the slot 30 and the shaft 15 is turned in the direction indicated by the arrow in Fig. 6 of the drawing. Bending of the end part of the container by turning the shaft 15 in this manner connects the container with the shaft 15 so that it is carried by the shaft and depends, as shown throughout the drawing. When it is desired to force or press some of the contents from the container C, the shaft 15 is further turned in the direction indicated by the arrow, so that the container is further wrapped about the shaft and so that the spring 36 presses against the container to force out its contents. The spring 36 is effective in compressing the end portion of the container C against the shaft 15 so that the contents in the reduced end part of the container are effectively pressed out before that part of the container is wrapped upon the shaft. The discharge end of the container C is free and readily accessible, so that its contents, upon being discharged, may be readily received. It will be apparent how the contents of the tube C may be dispensed from the tube as desired and how the emptied or collapsed portions of the tube will become wrapped about the shaft 15. As the greater portion of the tube becomes wrapped on the shaft 15, the spring 36 becomes pressed back toward or against the back 27. The guide 14 and its back 27 are spaced from and related to the shaft 15 so that the container C is compressed or squeezed between the shaft 15 and the guide and back as it is drawn onto the shaft. The spring 36 and the outer portion of the back 27, being curved about the axis of rotation of the shaft, are effective in causing the compression and collapsing of the container C as it is wrapped on the shaft so that its contents are fully pressed from it.

When the container C has been emptied of its contents, it may be removed from the device by rotating the shaft 15 in the direction the reverse of that indicated by the arrow in Fig. 6 of the drawing and by drawing out the emptied container. A container may be replaced in the device in the manner described above. It is to be noted that the present invention provides a device for discharging a collapsible tube container that is simple and attractive in construction and that is inexpensive of manufacture. The construction and mounting of the shaft 15 is a feature of the invention, as the shaft is mounted so as to be positively held against displacement. The shaft 15 is inexpensive of construction, being formed of a single length of material, and is retained in position without the use of screw-threaded parts, or the like. The spring 36 operates to effectively cause the discharge of the contents from the reduced flattened end part of the container C and normally exerts a pressure on the container to ensure the proper discharge of its contents.

Having described only a typical preferred form of my invention, I do not wish to limit

myself to the specific details set forth, but wish to reserve to myself any changes or variations that may appear to those skilled in the art or fall within the scope of the following claims:

Having described my invention, I claim:

1. A device for dispensing the contents of a collapsible tube container which includes a base having spaced sides, a shaft extending between the sides and rotatably carried in openings therein, a transversely curved guide for slidably guiding the container to the shaft and supported on the base, a back on the guide extending between the sides and spaced from the shaft the outer end of the back being curved about the axis of rotation of the shaft, the shaft having a slot for receiving the closed end of the container and being operable to wrap the container upon itself and to pass it between the shaft and the back to press the contents therefrom, and spring means between the back and shaft for engaging the container.

2. A device for dispensing the contents of a collapsible tube container which includes a base having spaced sides, a shaft extending between the sides and rotatably carried in openings therein, a guide for the container supported on the base, a back on the guide extending between the sides and spaced from the shaft, the shaft having a slot for receiving the closed end of the container and being operable to wrap the container upon itself and to pass it between the shaft and the back to press the contents therefrom, and a leaf spring between the back and the shaft for engaging the container and shaped to lie against the back when the greater proportion of the container is wrapped on the shaft.

3. A device for dispensing the contents of a collapsible tube container which includes a base having spaced sides, a shaft extending between the sides and rotatably carried in openings therein, a guide for the container supported on the base, a back on the guide extending between the sides and spaced from the shaft, the outer portion of the back being curved about the axis of rotation of the shaft, the shaft having a slot for receiving the closed end of the container and being operable to wrap the container upon itself and to pass it between the shaft and the back to press the contents therefrom, and a curved leaf spring carried by the back for engaging the container and shaped so as to lie against the back when the greater proportion of the container is wound on the shaft.

4. A device for dispensing the contents from a collapsible tube container which includes, a rotatable shaft having a slot for receiving the closed end of the container, the shaft being operable to wrap the container upon itself, means for rotatably supporting the shaft, a guide for the container spaced from the shaft, a back on the guide spaced from the shaft and having its outer part curved, and a spring between the back and shaft adapted to engage the container and shaped so as to lie against the back as the greater proportion of the container is wound on the shaft.

5. In a device of the character described for handling a collapsible tube container, a base having spaced sides, a shaft rotatable in openings in the sides and projecting outwardly from the sides, the shaft being tubular and having a longitudinal slot for receiving the flattened closed end of the container, one end of the shaft being closed, and means for holding the shaft against longitudinal displacement from the openings including a washer on the projecting closed end part of the shaft for engaging a side, the washer having an opening passing the shaft and a web extending through the slot.

6. In a device of the character described for handling a collapsible tube container, a base having spaced sides, a shaft rotatable in openings in the sides and projecting outwardly from the sides, the shaft being tubular and having a longitudinal slot for receiving the flattened closed end of the container, one end of the shaft being closed, and means for holding the shaft against longitudinal displacement from the openings including a washer on the projecting closed end part of the shaft for engaging one of said sides, a handle on the other end part of the shaft for engaging the other side, and means for holding the handle on the shaft.

7. In a device of the character described for handling a collapsible tube container, a base having spaced sides, a shaft rotatable in openings in the sides and projecting outwardly from the sides, the shaft being tubular and having a longitudinal slot for receiving the flattened closed end of the container, one end of the shaft being closed, and means for holding the shaft against longitudinal displacement from the openings including a washer on the projecting closed end part of the shaft for engaging one of said sides, a handle on the other end part of the shaft for engaging the other side, and a pin fitted into the shaft to expand it to grip the handle and hold it on the shaft.

8. In a device of the character described for handling a collapsible tube container, a base having spaced sides, a shaft rotatable in openings in the sides and projecting outwardly from the sides, the shaft being tubular and having a longitudinal slot for receiving the flattened closed end of the container, one end of the shaft being closed, and means for holding the shaft against longitudinal displacement from the openings including a washer on the projecting closed end part of the shaft for engaging one of said sides,

a handle on the other end part of the shaft for engaging the other side, a key on the handle co-operating with the slot, and a pin force-fitted into the shaft to expand it to grip the handle.

9. A device for handling a collapsible tube container which includes, a base, spaced sides on the base, a rotatable shaft extending through openings in the sides, the shaft having a longitudinal slot for receiving the flattened end of a container, the shaft being tubular and having a closed end, a washer on the shaft to engage one of said sides, the washer having a web extending through said slot, a handle on the shaft for engaging the other side, and a key on the handle fitting the slot.

In witness that I claim the foregoing I have hereunto subscribed my name this 14th day of March, 1931.

ADOLPH RICKENBACHER.