

April 14, 1936.

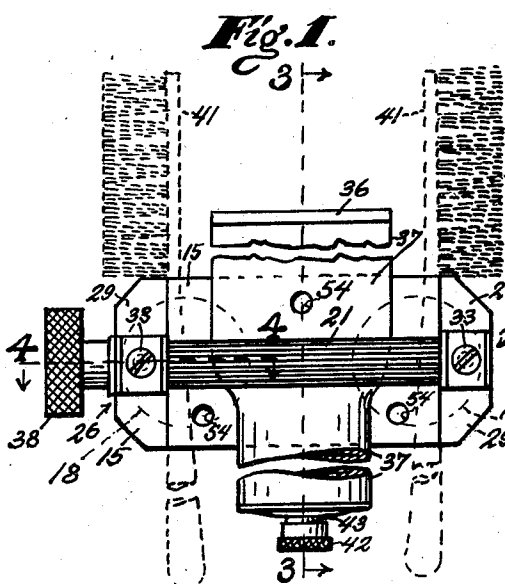
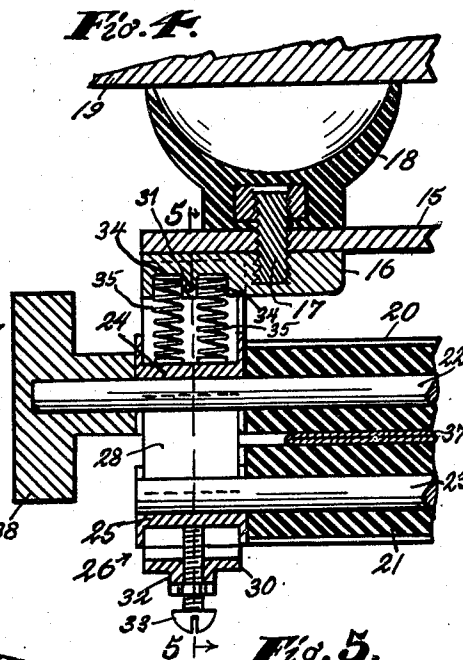
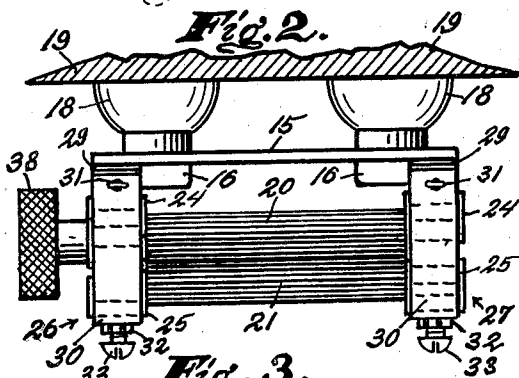
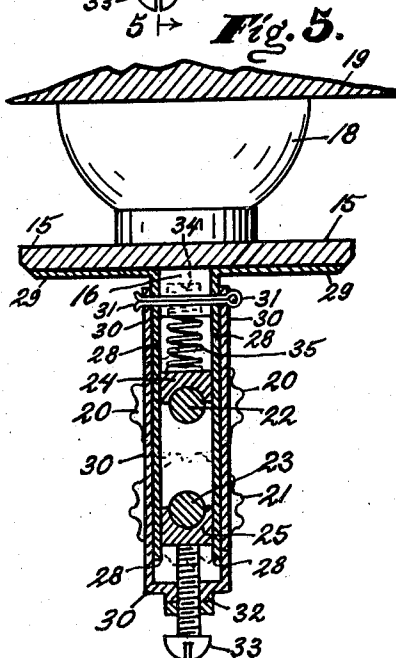
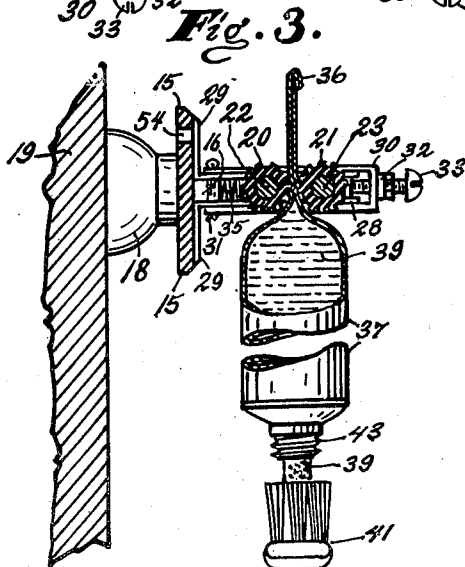
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2,037,138

APPARATUS FOR COLLAPSING FLEXIBLE CONTAINERS

Filed Sept. 25, 1935

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 6.

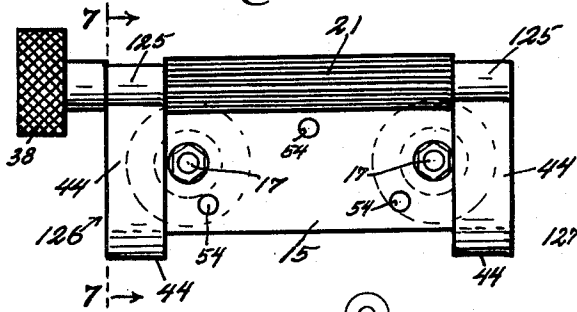


Fig. 7.

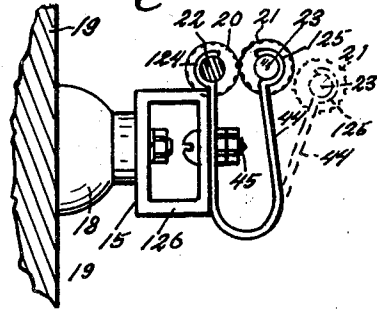


Fig. 9.

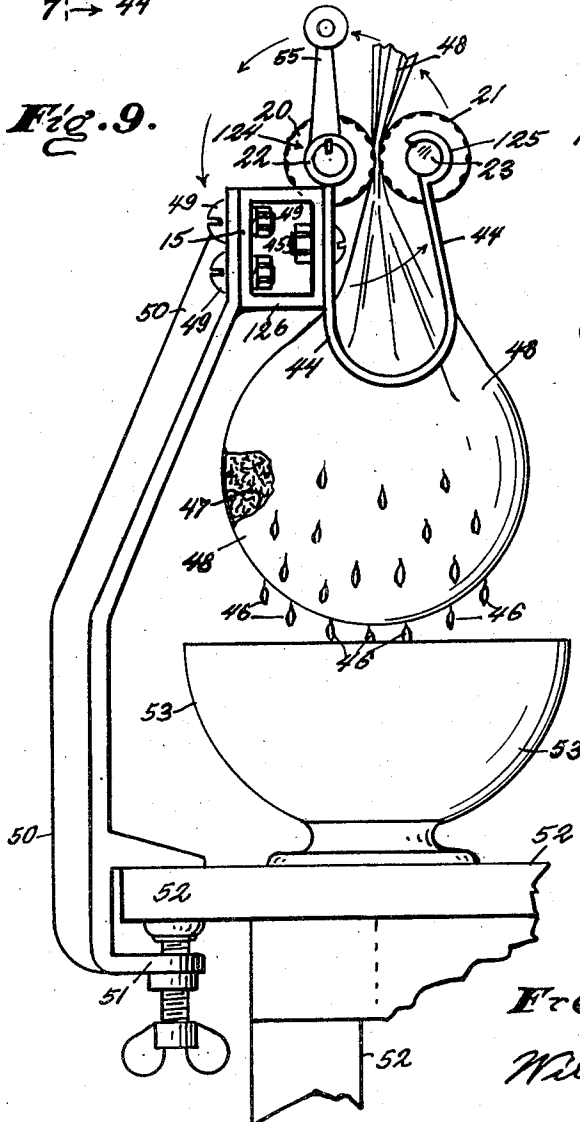


Fig. 8.

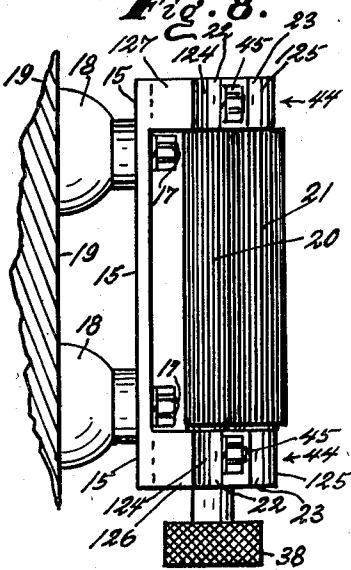
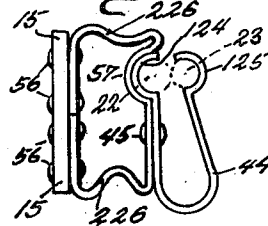


Fig. 10.



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UNITED STATES PATENT OFFICE

2,037,138

APPARATUS FOR COLLAPSING FLEXIBLE
CONTAINERS

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Application September 25, 1935, Serial No. 42,075

2 Claims. (Cl. 221—60)

This invention relates to a means for discharging the contents of flexible containers such as collapsible tubes and the like, and the principal object is to provide an apparatus of neat and pleasing appearance that can be detachably connected to the casing of a table, toilet cabinet or support of a surgical operating table and operated to discharge suitable amounts of the contents of the containers onto the brushes, bandages, or rubbing massaging appliances without the operator's hand coming into contact with them or their contents.

To that end I provide an apparatus with a pair of rubber suction cups that are arranged to support it handy to an operator so that after a container is attached it can be sterilized before being opened to discharge its contents, after which it need not be touched again until all of its contents is discharged, thereby minimizing the danger of infection when patients are being treated for infectious ailments.

This apparatus is especially adapted for use of surgeons, doctors and nurses while treating major cases of scaldings and burns in which the entire contents of several collapsible tubes of pain allaying and antiseptic material are to be discharged onto the bandages before applying to a patient; and it is obvious that the contents of the tubes can be discharged with great speed and without contamination.

It is obvious that my apparatus can also be of great use by beauty parlor operators, barbers and individuals, as well as for domestic use in squeezing the juice from the pulp of fruit when in flexible containers.

A feature of invention is shown in the construction and mounting of the bearings for the pressure rollers, whereby a battery of springs is arranged adjacent the ends of the roller shafts to hold the pressure rollers under tension, which tension can be easily increased or decreased by adjusting screws; with the parts constructed and arranged so they can be easily and quickly assembled and also dismounted for cleaning and sterilizing when necessary.

Another feature of invention is shown in providing an apparatus that can be held by a pair of suction cups detachably connected to a support handy to an operator; and also provided with a small plate having screw holes through it so the suction cups can be disconnected and the apparatus permanently secured by screws to the casing of a toilet cabinet or other suitable support.

Other objects, advantages and features of in-

vention may appear from the accompanying drawings and detailed description thereof.

The accompanying drawings illustrate my invention, in which:

Figure 1 is a front elevation of an apparatus constructed in accordance with this invention; fragmentally showing a collapsible tube therein and also showing by dotted lines toothbrushes supported by the apparatus.

Fig. 2 is a plan view of the apparatus showing the two suction cups for detachably attaching it to a support such as the casing of a toilet cabinet.

Fig. 3 is a central vertical section on line 3—3, Fig. 1, showing fragmentally a collapsible tube in position to discharge part of its contents on a tooth-brush.

Fig. 4 is an enlarged fragmental section on line 4—4 Fig. 1 showing the detailed construction of one of the bearings for supporting the pressure rollers.

Fig. 5 is a cross section on line 5—5, Fig. 4, showing further details of the bearings for supporting the pressure rollers.

Fig. 6 is a front view of a modified form of apparatus.

Fig. 7 is a cross section on line 7—7, Fig. 6, showing my apparatus detachably connected by suction cups to a support such as a wall or the casing of a toilet cabinet.

Fig. 8 is a plan view of the apparatus.

Fig. 9 is an end view analogous to Fig. 7 showing my apparatus employed in domestic use for squeezing the juice out of fruit pulp in a flexible container in which instance the apparatus is constructed on a much larger scale than when used for collapsing tubes and the like.

Fig. 10 is a modified end view of the right hand portion of Fig. 7, parts omitted.

The apparatus shown in Figs. 1 to 5, inclusive, includes a plate 15 to which a pair of spaced end blocks 16 is secured, as by soldering, and extending through the plate 15 and into these blocks are the threaded anchor screws 17 to which the pair of rubber suction cups 18 is secured, as best shown in Figs. 2 and 4.

The cups 18 are secured to the plate 15 so that when they are placed against a support 19, such as the casing of a toilet cabinet or surgical operating table indicated fragmentally in the drawings, and the air exhausted from the cups by pressure, they will effectively support the apparatus until the suction is released.

A pair of pressure rollers 20, 21, that are preferably formed of corrugated hard rubber, is se-

cured on the respective shafts 22, 23, so that the ends of these shafts are extended through the sets of sliding split bearings 24 and 25 in the posts 26, 27, there being a post at each end of the plate 15; but for the sake of brevity only the post 26 is shown in complete detail in Fig. 4; both posts being constructed alike.

The posts 26, 27 are formed of the spaced inner pair of plates 28 that are arranged on opposite sides of the blocks 16 and have flanges 29 that are preferably welded to the plate 15, so they extend out from the plate on a side opposite to that on which the suction cups are secured.

Telescoping over the pairs of plates 28 are the yoke plates 30 that preferably have their inner ends secured by the cotter pins 31 to the plates 28 and blocks 16, as best shown in Figs. 4 and 5.

The outer ends of the yoke plates 30 have threaded bosses 32 through which the screws 33 are extended so their inner ends contact with the split bearing blocks 25.

The blocks 16 are provided with socket seats 34 for the inner ends of the parts of springs 35 that have their other ends engaged with the sliding split bearing 24; the screws 33 and pairs of springs are arranged so that any suitable amount of pressure can be applied to normally hold the pressure rollers 20, 21 engaged and so they can yield sufficiently so the sealed end 35 of a collapsible tube 37 can be inserted between them, and with the pressure on the rollers sufficient to cause the complete collapse of the tubes when they are passed upwardly between the pressure rollers.

The shaft 22 is extended at one end to receive the knurled knob 38 by which it can be rotated to draw a collapsible tube up between the rollers, as illustrated in the drawings.

It is obvious that when a tube 37 is placed in the apparatus to have its contents 39 discharged onto any object, such as a tooth-brush 41, as illustrated in Fig. 3, the usual cap 42 of the tube will be removed from the discharge stem 43; also it is obvious that instead of a tooth brush 41 the contents can be discharged on a surgical bandage or any other like object, as hereinbefore stated.

In the apparatus shown in Figs. 6 to 9, inclusive, the construction is greatly simplified by forming the sets of split bearings 124 and 125 integral with the ends of a pair of hair spring supports 44 that are secured by bolts 45 to boxes 126 and 127 that are at the ends of the plate 15 and integral therewith and on the front side thereof opposite to the side on which the pair of suction cups 18 are secured.

When the shafts 22, 23 are to be placed in the split bearings 124, 125, the front arms of the pair of springs 44 are drawn forward as shown by dotted lines in Fig. 7 so they can be easily inserted; and after they are in place the tension of the springs will hold the shafts in place with the pressure rollers normally engaged.

It is obvious that the pressure rollers will separate when a flexible container is forced upward between them by actuating the knurled knob 38.

In Fig. 9 I show my apparatus constructed for domestic use such as squeezing the juice 46 out of hot fruit pulp 47 in a flexible bag 48 indicated semi-diagrammatically in the drawings. When so constructed the suction cups 18 are omitted and

in their place the plate 15 is secured by bolts 49 to the top end of a bracket 50 that at its lower end terminates in a clamp 51 adapted to be detachably secured to the ledge of a table 52 so it suspends my apparatus or supports it in an elevated position a sufficient distance above the table to form a clearance between a bowl 53 and the bag 48.

The plate 15 is provided with the bolt holes 54 for the bolts 49.

When so constructed I preferably provide the shaft 22 with a crank 55 so that greater pressure can be applied for squeezing the fruit juice out of the fruit pulp; and the crank is turned in the direction of the arrows when applying pressure to the pulp in the bag.

The bag 48 is preferably formed of strong canvas that is sufficiently porous to permit the juices to easily escape and fall into the bowl.

The bag 48 and many of the parts in Fig. 9 are shown semi-diagrammatically, it being understood that the bag can be formed of any suitable material.

The apparatus is used as hereinbefore fully described.

In Fig. 10 a slightly modified form of box 226 is shown for supporting the hair pin spring support 44; and as seen therein the boxes are separate from the plate 15 and are secured thereto by rivets 56 and also the box 226 is provided with a false bearing 57 to reinforce the bearing 124. For the sake of brevity only a single box 226 is shown, it being understood that there are two of these boxes arranged at opposite ends of the plate 15.

I claim as my invention:

1. In an apparatus of the class described the combination of, a plate, a pair of rubber suction cups secured to one side of said plate for detachably connecting it to a support, a pair of posts secured to the other side of said plate at the ends thereof, sets of sliding bearings in said posts, shafts in said bearings, corrugated hard rubber rollers on said shafts, springs in said posts for engaging one set of said bearings to normally hold said rollers engaged and to apply pressure thereto when separated, adjusting screws in the ends of said posts for engaging the other set of bearings to increase or decrease the tension on said sets of springs, and means for actuating said rollers to discharge the contents of flexible containers as they are passed upward between said rollers.

2. In an apparatus of the class described the combination of a plate, a pair of rubber suction cups secured to one side of said plate for detachably connecting it to a support, a pair of posts secured to the other side of said plate at the ends thereof, sets of sliding bearings in said posts, shafts in said bearings, corrugated hard rubber rollers on said shafts, springs in said posts for engaging one set of said bearings to normally hold said rollers engaged and to apply pressure thereto when separated, adjusting screws in the ends of said posts for engaging the other set of bearings to increase or decrease the tension on said sets of springs, an extension to one of said rollers, and a knurled knob on said extension for rotating said shaft to actuate said rollers for the purpose specified.

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