Oct. 31, 1961 O. E. PREIDEL 3,006,508

METHOD OF EXTRACTING SUBSTANCES FROM COLLAPSIBLE TUBES

Filed Sept. 17, 1958

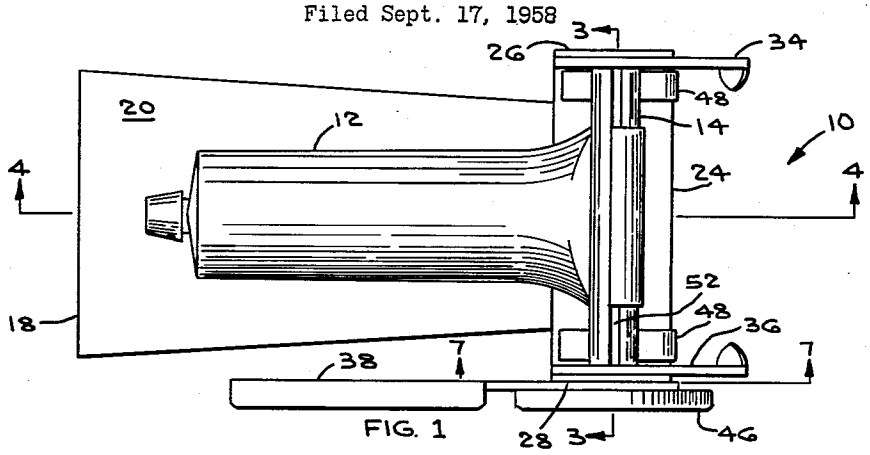


FIG. 1

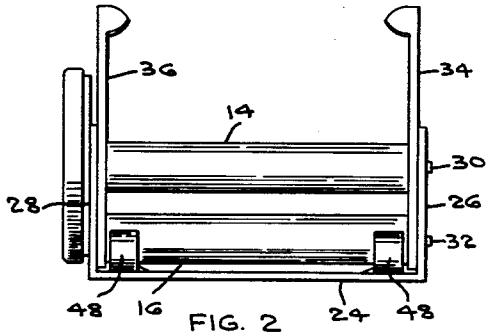


FIG. 2

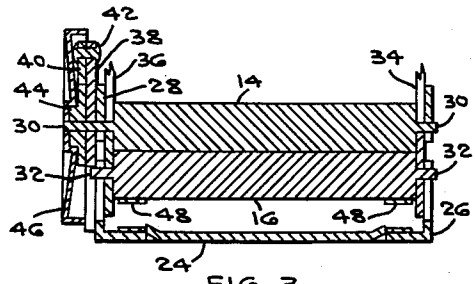


FIG. 3

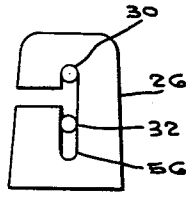


FIG. 6

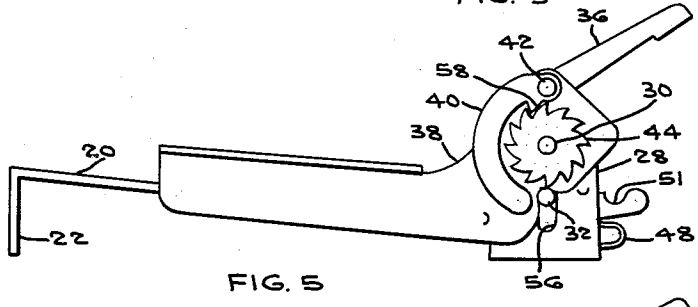


FIG. 5

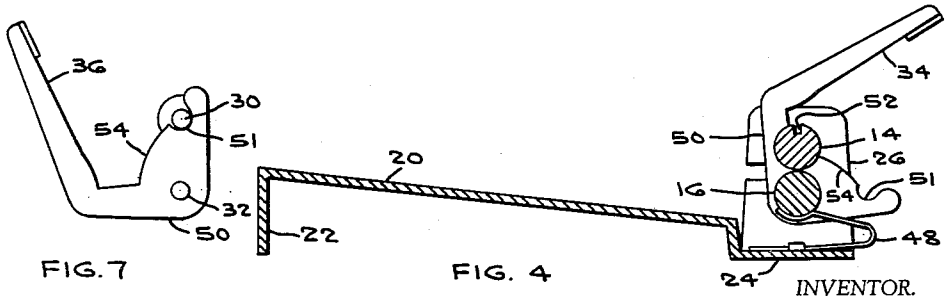


FIG. 7

FIG. 4

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METHOD OF EXTRACTING SUBSTANCES FROM COLLAPSIBLE TUBES

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This invention relates generally to tooth paste squeezers and more specifically to a mechanical tooth paste squeezing apparatus which rolls the tooth-paste tube between a set of rollers to facilitate squeezing the tooth paste from the tube.

The principal object of my invention is to provide a device for holding and squeezing collapsible containers carrying a substance which it is desired to discharge through an opening therein.

A further object of the invention is to provide a device which may be attached to the wall or other surface as desired.

The third object of my invention is to provide a dispensing device which is simple in design, economical to produce, and easily operated.

These and further objects of the invention will be set forth in the following specifications, reference being had to accompanying drawings, and the novel means by which said objects are effectuated will be definitely pointed out in the claims.

In the drawing:

FIG. 1 is a top view of my tooth paste squeezing apparatus with the tooth paste tube in operative position;

FIG. 2 is a rear elevation view of my apparatus with the rollers opened in order to receive the tooth paste tube;

FIG. 3 is a partial section view on line 3—3 of FIG. 1 with the tooth paste tube removed;

FIG. 4 is a section view on line 4—4 of FIG. 1 with the rollers shown in closed position;

FIG. 5 is a side elevation view of my apparatus with the wheel removed to show the operating mechanism;

FIG. 6 is an end view of one of the roller side supports showing the roller shafts when the rollers are in the operative position; and

FIG. 7 is a section view on line 7—7 of FIG. 1 showing the rollers open in order to receive the tooth paste tube.

Referring to the drawing, **10** represents the tooth paste squeezing apparatus with a tooth paste tube **12** supported between rollers **14** and **16** and laying on the apparatus frame **18**. Frame **18** consists of a body **20** with spacing flange **22** to elevate the apparatus **10** and a roller base plate **24** with roller support side plates **26** and **28** integrally formed. It should be noted that frame **18** may be made from sheet metal with the frame **18** being stamped out of a large sheet and flange **22**, base **24**, and side plates **26** and **28** formed therefrom. The method of making the apparatus set forth above is merely illustrative and does not form part of my invention.

The rollers **14** and **16** are supported in the side plates **26** and **28** by means of shafts **30** and **32** integrally formed with rollers **14** and **16** respectively. Located between the rollers **14** and **16** and side plates **26** and **28** are elevating arms **34** and **36** for roller **16** rotatably secured on shaft **32**.

Looking at FIG. 3 it can be seen that roller shaft **30** is extended beyond side plate **28**. Mounted on this shaft extension is a roller operating arm **38** with pawl **40** pivoted thereto at **42**, and an operating wheel **46**.

In operation looking first at FIG. 2, the roller **16** is held in the down position against the spring tension of spring **48** removably secured to base plate **24** by any suitable means. Elevating arms **34** and **36** are thrust

forward towards body **20** with the flat surfaces **50** of the arms **34** flush with base **24** and with notches **51** engaging shaft **30** to hold the roller **16** against the tension of springs **48**. The tooth paste tube **12** is then inserted between the rollers **14** and **16** and the closed end of the tube is inserted in slot **52** in roller **14**. Wheel **46** is then turned to start the tooth paste tube **12** winding on the roller **14**. Elevating arms **34** and **36** are then thrust forward towards the rollers disengaging notches **51** from shaft **30** and allowing roller **16** to ride upward as the cam surface **54** of arms **34** and **36** rolls against roller **30** to guide roller shaft **32** in groove **56** of side plates **26** and **28** until the limit of the cam surface **54** is reached thereby securing tube **12** between rollers **14** and **16**. Springs **48** hold roller **16** against roller **14** in order to secure tube **12** therebetween.

When tooth paste from tube **12** is desired operating arm **38** is raised and pawl **40** attached thereto is rotated about gear **44**. Then operating arm **38** is lowered and projection **58** on pawl **40** engages gear **44** thereby rotating roller **14**. As roller **14** is rotated tube **12** is rolled between rollers **14** and **16** upon roller **14** and tooth paste is squeezed from the open end of the tooth paste tube **12**.

When the tooth paste tube **12** is empty the elevating arms are pulled toward the body **20** forcing the roller **16** downward in the groove **56** until notch **51** again engages the roller shaft **30**. The tube **12** is then unrolled from the roller **14** by means of the wheel **46**, disengaged from the slot **52** and thrown away.

Obviously I have provided a new and novel tooth paste dispenser which is economical to produce and easy to operate.

Having thus described my invention I desire to be limited only by the scope of the claims.

I claim:

1. A tube squeezer comprising a frame, a base integral with said frame, side plates substantially perpendicular to said base, vertical grooves in said side plates, a first roller rotatably supported in said grooves, a second roller rotatably supported in said grooves below said first roller, spring means secured to said base member biasing said second roller against said first roller, a plurality of arms rotatably secured on said second roller, said plurality of arms having a cam surface engaging said first roller, and a notch at one end of said cam surface whereby said second roller may be forced downwardly from said first roller against the bias of said spring means and said notch will engage said first roller to secure said second roller in the down position.

2. A tube squeezer comprising a frame, a base integral with said frame, side plates substantially perpendicular to said base, vertical grooves in said side plates, a first roller rotatably supported in said grooves, a second roller rotatably supported in said grooves below said first roller, spring means secured to said base member biasing said second roller against said first roller, and a plurality of arms with a cam surface engaging said first roller and rotatably secured to said second roller whereby said second roller may be forced downwardly from said first roller against the bias of said spring means upon rotation of said arms.

3. A tube squeezer comprising a frame, a base integral with said frame, side plates substantially perpendicular to said base, vertical grooves in said side plates, a first roller rotatably supported in said grooves, a second roller rotatably supported in said grooves below said first roller, spring means secured to said base member biasing said second roller against said first roller, a plurality of arms rotatably secured on one of said rollers and having a cam surface engaging the other of said rollers, and a notch at one end of said cam surface whereby said sec-

ond roller may be forced downwardly from said first roller against the bias of said spring means and said notch will engage said first roller to secure said second roller in the down position.

4. A tube squeezer comprising a frame, a base integral with said frame, side plates substantially perpendicular to said base, vertical grooves in said side plates, a first roller rotatably supported in said grooves, a second roller rotatably supported in said grooves below said first roller, spring means secured to said base member biasing said second roller against said first roller, an arm rotatably secured on said second roller, said arm having a cam surface engaging said first roller, and a notch at one end of said cam surface whereby said second roller may be forced downwardly from said first roller and said notch will engage said first roller to secure said second roller in the down position.

5. A tube squeezer comprising a frame, a base integral with said frame, side plates substantially perpendicular to said base, vertical grooves in said side plates, a first roller rotatably supported in said grooves, a second roller rotatably supported in said grooves below said first roller, spring means secured to said base member biasing said second roller against said first roller, and an arm rotatably secured on one of said rollers and having a cam surface engaging the other of said rollers whereby said second roller may be forced downwardly from said first roller against the bias of said spring means upon rotation of said arms.

6. A tube squeezer comprising a frame, a base integral with said frame, side plates substantially perpendicular to said base, vertical grooves in said side plates, a first roller rotatably supported in said grooves by shafts integral with said roller, a second roller rotatably supported in said grooves below said first roller by shafts integral with said second roller, a slot in said first roller, spring means biasing said second roller against said first roller, one side of the shaft of said first roller projecting through said side plate, an operating arm secured to said shaft projection, a pawl pivotally secured to said operating arm, a gear fixed to said shaft extension below said pawl and adapted to be engaged by said pawl when said operating arm is rotated to roll a tube member on said first roller, a plurality of arms rotatably secured on said second roller, said plurality of arms having a cam surface engaging said first roller, and a notch at one end of said cam surface whereby said second roller may be forced downwardly from said first roller against the bias of said spring means and said notch will engage said first roller to secure second roller in the down position.

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