

Oct. 29, 1968

C. FIQUET ET AL

3,407,968

DISTRIBUTOR DEVICE FOR PASTY OR LIQUID PRODUCTS

Filed Oct. 28, 1966

3 Sheets-Sheet 1

Fig. 1

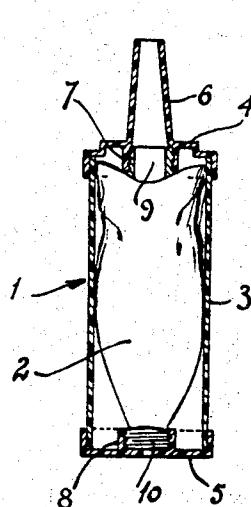


Fig. 2

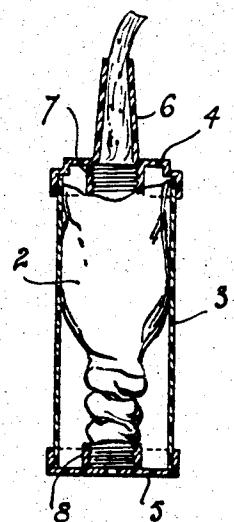


Fig. 3

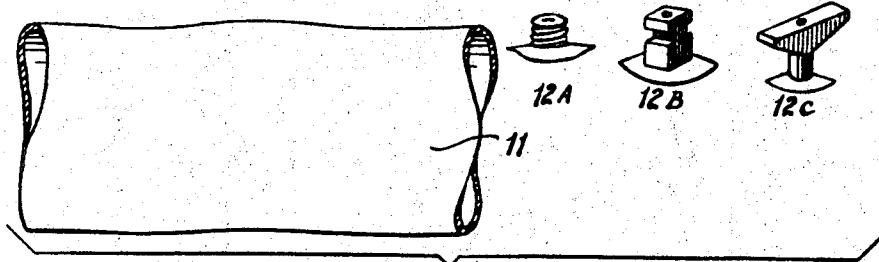
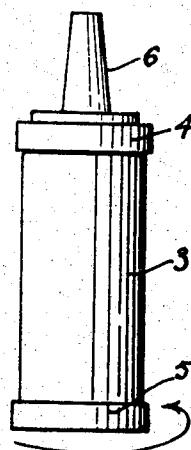


Fig. 4

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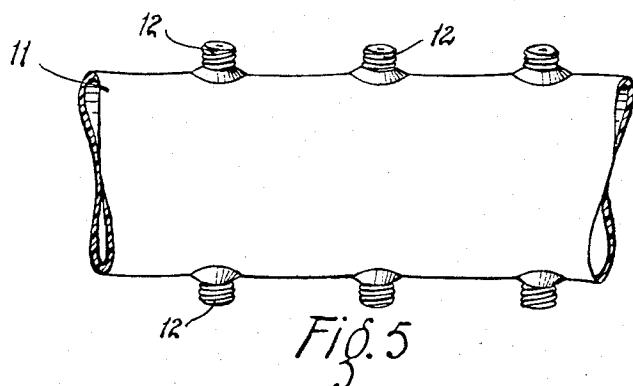


Fig. 5

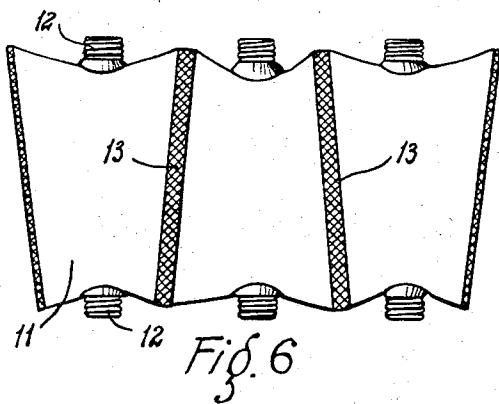


Fig. 6

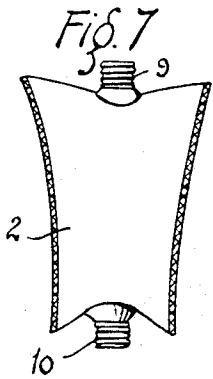


Fig. 7

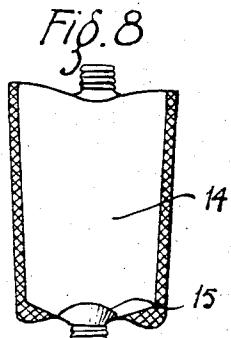


Fig. 8

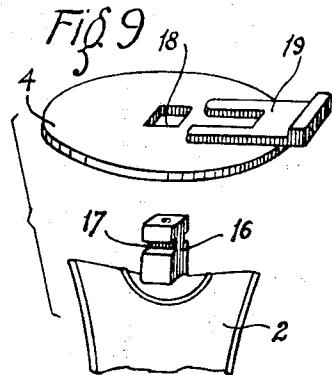


Fig. 9

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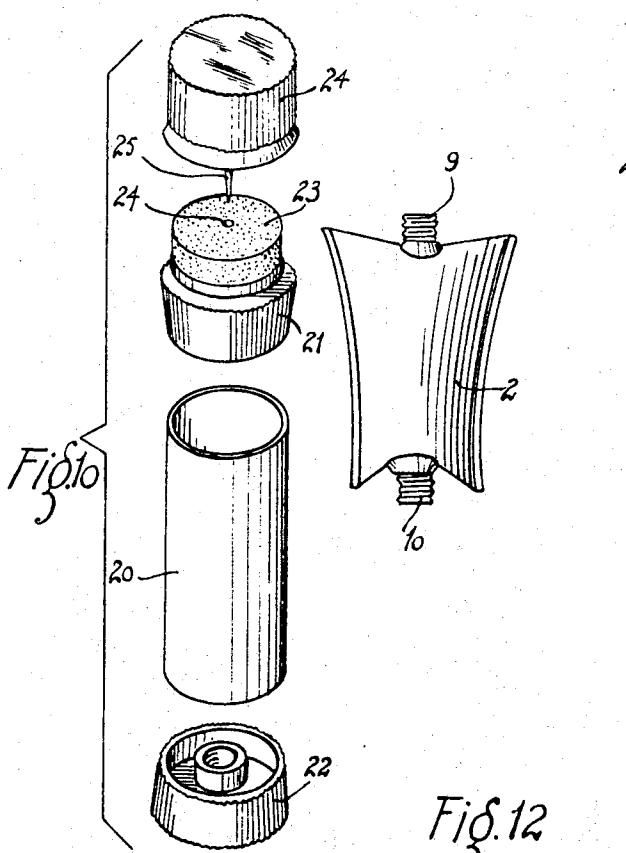


Fig.11

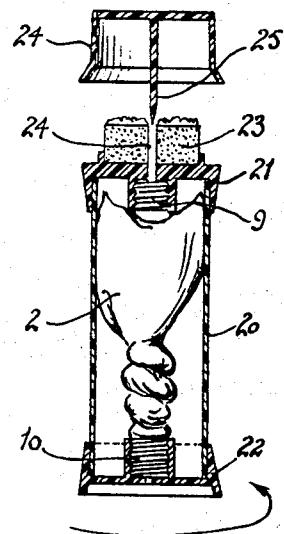
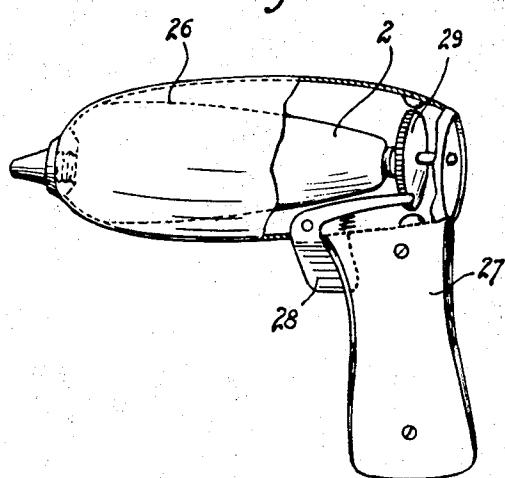


Fig.12



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3,407,968
Patented Oct. 29, 1968

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DISTRIBUTOR DEVICE FOR PASTY OR LIQUID PRODUCTS

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Filed Oct. 28, 1966, Ser. No. 590,363

Claims priority, application France, Nov. 9, 1965,
37,731; Sept. 28, 1966, 77,954
1 Claim. (Cl. 222—104)

ABSTRACT OF THE DISCLOSURE

A collapsible wall dispenser of the twisting type comprises a rigid casing and two end pieces closing opposite ends of the casing. One of the end pieces is rotatable on and relative to the casing. An elongated bag of extensible elastomer material in the casing contains the product and has an outlet orifice at one end and a torsion initiation zone at the other end and is detachably connected at opposite ends to the end pieces. The bag in its untwisted condition is in longitudinal tension between the end pieces so that upon rotation of the rotatable end piece relative to the casing, the bag begins to twist at the end opposite the outlet orifice and thus progressively ejects its contents.

The present invention has for its object a distributor device for pasty or liquid products.

In order to distribute pasty or liquid products, instead of the usual kinds of metallic tubes with which the expulsion of the product is obtained by compression of the tube, devices have been proposed in which a flexible bag containing the product to be distributed is placed in a rigid casing designed in such manner that its rotation permits the expulsion of the product by twisting the flexible bag.

The advantage of devices of this kind is that they permit an expulsion of the product in a progressive, regular and complete manner, at the same time retaining the external container in its initial aspect.

In spite of these advantages, the torsion distributor devices have not achieved any commercial development due to certain disadvantages which have not been eliminated by various solutions proposed.

One of these solutions consists in hooking each of the extremities of a flexible bag between two end-plates held apart by a rigid casing forming a receptacle. One of the end-plates serves as the bottom and can rotate about its own axis, while the other comprises an outlet nozzle which communicates with the interior of the bag.

During use, it is only necessary to rotate the end-plate which serves as the bottom, this movement twisting the bag and causing the extrusion of the product which it contains through the extremity which comprises the outlet nozzle.

There is however a point of major importance for which no practical solution has as yet been given. In fact, the twisting or torsion effect results in a shortening of the length of the bag and this shortening may amount to 35% of its initial length, depending on the shape of the bag. In order to obtain complete and uniform torsion of the bag without risk of tearing, there must therefore be provided between the two extremities of fixation of the bag a separation distance which is not equal to the length of the bag, but to the length which this bag will have after it has been completely twisted.

Thus, if it is desired that the bag should be completely twisted without incident, it will be slack before utilization, between its two points of fixation. Now, even if this is effected, it is not only more than risky to hope

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for uniform torsion, but it is also impossible to predict the exact point where the beginning of this torsion will take place. Now, in order to obtain complete expulsion of the product, it is essential that the torsion should begin, as a necessity, at the extremity opposite to its outlet orifice.

In order to obviate these drawbacks, it is known to provide that one of the end-plates on which the extremities of the bag are fixed can slide inside the rigid casing, or alternatively that one of the extremities of the bag is fixed by means of a spring for the purpose of compensating the shortening of the bag while retaining sufficient tension on the bag to permit uniform torsion. These arrangements result in more complicated manufacture of such distributors which limits their commercial exploitation. Other disadvantages are higher production cost, are an awkward fixing operation for the bag; and also interchangeability is impossible and freedom from interference is uncertain.

Other distributors are designed in such manner as to prevent the bag from untwisting and thus admitting air to the interior of the said bag.

All the solutions proposed utilize bags which are obtained one by one, and filled one by one, and which thus have slow production and high cost.

The present invention has for its object to remedy simultaneously all these disadvantages, namely:

To eliminate any shortening-compensation and anti-return system;

30 To prevent any entry of air into the bag;
To obtain a uniform, progressive and complete expulsion of the contents;

To produce bags by large scale production which are interchangeable, free from interference and are easy and rapid to put into service;

To be able to fit, as and when required by the user, all accessories such as paint brushes, brushes, sponges, nozzles, these being removable, washable and interchangeable.

These distributor devices, comprising a rigid casing with at least one rotating portion, are characterized in that the extensible, flexible bag is made of elastomer capable of compensating by its extensibility for the shortening due to torsion, and has a shape which necessarily ensures that the torsion begins on the side opposite to the outlet orifice for the product and that the progression of this torsion is uniform up to the total expulsion of the product.

The bags are produced by a continuous process from a casing or sheath of elastomer with a coefficient of elongation sufficient to permit the torsion and complete expulsion of the substance, such as super-polyamide, plasticized polyvinyl chloride, polyethylene, and their compounds, together with the multi-layer casings obtained from such materials.

The accompanying drawings represent by way of examples, forms of construction of the distributor according to the invention. In these drawings:

FIG. 1 is a longitudinal section showing the distributor charged with a full bag;

FIG. 2 is a longitudinal section showing the bag during extrusion;

FIG. 3 is a view in elevation of the whole of the distributor;

FIG. 4 shows the elements of which the series of bags are constituted;

FIG. 5 shows the mounting of the end-pieces;

FIG. 6 shows the general layout of a series of bags;

FIG. 7 shows the bag detached from the series of FIG. 6;

FIG. 8 illustrates an alternative form of construction;

FIG. 9 is an exploded assembly view of a fixing for a bag;

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FIG. 10 shows an exploded view of a distributor;
FIG. 11 is a view in longitudinal section of the distributor shown in FIG. 10;

FIG. 12 shows an alternative form of the distributor.

The distributor device is composed of a casing 1 and a bag 2. The casing 1, which may be of wood, metal, cardboard, synthetic resin or any other stiff material, is constituted by a cylindrical body 3 and two end-pieces 4 and 5. At least one of the end-pieces, 5 for example, can rotate on the body 3. The end-piece 4 comprises the distribution nozzle 6 together with a threaded orifice 7, while the end-piece 5 has a threaded lug 8. These parts 7 and 8 serve to receive the threaded neck portions 9 and 10 of the bag 2.

The bag 2 is of elastomer material with a coefficient of elongation sufficient to permit the torsion and total expulsion of the substance, such as plastified polyvinyl chloride, polyethylene, super-polyamide, their compounds or the like.

The bag 2 is cut-out from a chain or series, as shown in FIG. 6, in which the bags of conical or trapezoidal shape are arranged head to foot alongside each other.

This chain of bags 2 is obtained from a casing 11 (FIG. 4) on which there are welded by any appropriate means, such as heat, high frequency, or adhesive, neck portions 12 which may be of the screwed type (12A), with grooves (12B), or with bayonet joint (12C). Two necks 12 are welded symmetrically on the casing 11 on each side of the longitudinal axis.

The casing 11 with the necks 12 thus formed is filled with the substance to be distributed, and the casing is welded between the necks 12 along oblique lines 13, as shown in FIG. 6, the obliquity of successive lines being in the opposite sense.

After cutting out from the chain thus formed, the bag 2 of trapezoidal or conical shape is mounted by screwing its necks 9 and 10 (FIG. 7) into the end-pieces 4 and 5 of the distributor casing 1. It is removable, interchangeable and fluid-tight.

An alternative form shown in FIG. 8 consists of a bag 14 of substantially rectangular shape in which a zone 15 of reduced strength is formed in order to ensure the controlled development of the torsion.

When the bag is thus in position, the orifice of the upper neck portion 9 having been pierced, it can be seen that it is only necessary to give a rotation to the base 5, such as that shown by the arrow in FIG. 3, to produce the torsion effect. This results in a winding movement of the base of the bag, accompanied by the extrusion of the product contained in the bag through the nozzle 6.

Instead of its fixing by threaded necks, the bag 2 (FIG. 9) may be fixed to the end-pieces 4 and 5 of the distributor by a square or polygonal nipple 16 (in conformity with 12B of FIG. 4), having a groove 17. This nipple passes through the orifice 18 of the end-piece 4 (or 5) and a device 19 completes the fixing by being inserted into the grooves 17.

Whether the bag is fixed by threaded necks by grooved necks or by any other means, it is placed in position with

an initial tension. This tension, combined with the shape of the bag (FIGS. 7 and 8) ensures the controlled progression of the torsion effect.

In the form of embodiment shown in FIGS. 10 and 11, the device comprises a casing closed by a body 20, end-pieces 21 and 22 being able to rotate with respect to the body 20, the device being arranged as described above so as to receive the threaded necks 9 and 10 of the bag 2. The end-piece 21 is provided with a pad 23 of porous material, a synthetic sponge for example. This pad is provided at its centre with a longitudinal hole 24 permitting the flow of the product extruded from the bag 2.

The assembly of the end-piece 21 and the pad 23 is covered by a cap 24 fitted with a perforating rod 25, which effects the piercing of the neck 9 of the bag 2 during putting into service and subsequently ensures the closure of the said bag 2 during the periods when the device is not in use.

The arrangements which have been described may be applied in any appropriate manner to the product distributed and to the use of this product. Apart from the current device with nozzles (FIGS. 1 to 3) or with an absorbent pad (FIGS. 10 and 11), the distributor casing may be equipped with a shading brush of which it forms the handle, or alternatively it may be arranged as a support for a tooth-brush. In an alternative form, the casing is arranged in the form of a pistol 26 (FIG. 12) with a grip handle 27, and the extrusion of the product is obtained by acting on a trigger 28 driving a ratchet wheel 29 which produces the torsion of the bag 2.

What we claim is:

1. A dispenser for pasty and liquid products, comprising a rigid casing, two end pieces closing opposite ends of the casing, one of said end pieces being rotatable on and relative to the casing, an elongated bag of extensible elastomer material in the casing to contain the product, the bag having an outlet orifice at one end and a torsion initiation zone at the other end, means detachably connecting opposite ends of the bag one to each of said end pieces, the bag in its untwisted condition being in longitudinal tension between said end pieces so that upon rotation of said one end piece relative to the casing the bag begins to twist at said other end of the bag opposite said outlet orifice.

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