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3,105,615

LID MEANS INCLUDING A MIXING CHAMBER FOR
A CONTAINER WITH PLURAL SPACED OUTLETS

Filed July 10, 1961

2 Sheets-Sheet 1

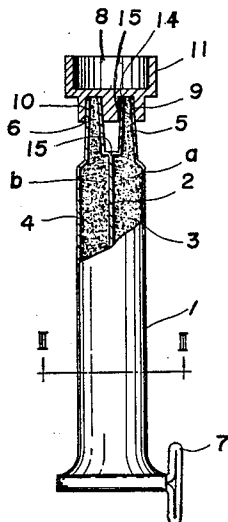


Fig. 1

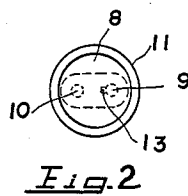


Fig. 2

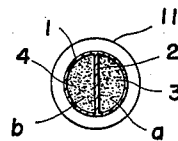


Fig. 3

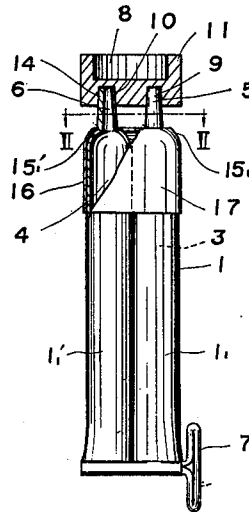


Fig. 4

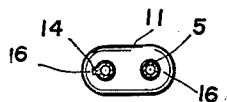


Fig. 5

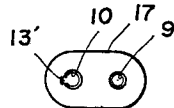


Fig. 6

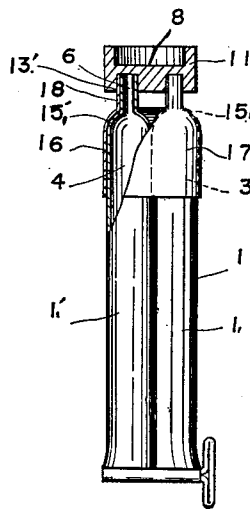


Fig. 7

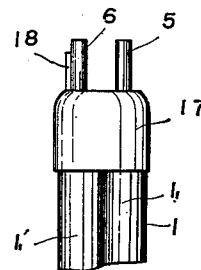


Fig. 8

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2 Sheets-Sheet 2

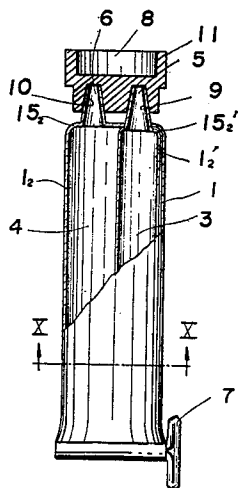


Fig. 9

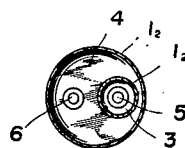


Fig. 10

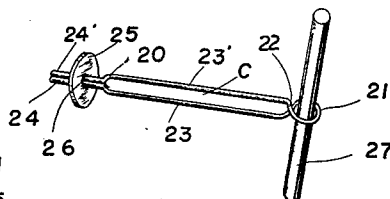


Fig. 12

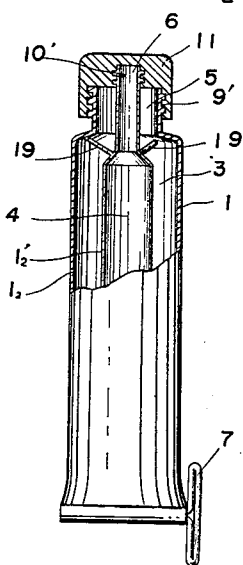


Fig. 11

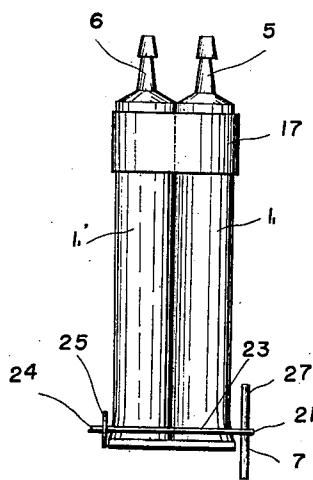


Fig. 13

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LID MEANS INCLUDING A MIXING CHAMBER FOR A CONTAINER WITH PLURAL SPACED OUTLETS

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4 Claims. (Cl. 222-94)

The present invention relates to tubes for liquid or viscous liquid, and more particularly to a tube for more than two kinds of liquids or viscous liquids which should be mixed together as occasion demands.

As liquids or viscous liquids of the above nature, a binding agent, chemicals, food stuffs can be illustrated. But such liquids or viscous liquids are inclined to change their chemical or physical properties if they are kept under mixed conditions. It therefore is required to mix them in times of use and also to mix them in the proper mixed proportion. But weighing liquids or viscous liquids on a scale or some other weighing instruments might leave unpleasant consequences. Thus, much trouble has been experienced in operation.

It has now been invented a tube for two or more kinds of liquids or viscous liquids eliminating the above mentioned deficiency.

One of the objects of the invention is to provide a tube comprising two partitioned sub-tubes which respectively have an outlet on the top and which are provided with a squeeze handle at the bottom portion thereof. Thus, simple operation of rolling up the tube by means of the squeeze handle a proper quantity of liquids or viscous liquids can be obtained. In operation, due to spaced provision of two outlets the deficiency of unexpected mixing of liquids or viscous liquids can be eliminated.

Another object of the invention is to provide a lid which has two blind holes on its bottom face into which said outlets are fitted and a groove indented in one of said holes, which is fitted into by a ridge mounted on the neck portion of one of said outlets. On the upper face of the lid is provided a pan-shaped receptacle which is used for mixing liquids or viscous liquids. Since the outlet with the ridge fits only into the hole which has the groove, there is no fear for undesirable mixing of liquids or viscous liquids within the holes.

A further object of the invention is to provide a tube comprising two independent sub-tubes whose upper portions are connected together by a fixing belt and whose lower portions by a squeeze handle.

A further object of the invention is to provide a fixing belt which has a ridge on its neck portion, thus enabling said belt to function as well as a hole having the ridge.

A further object of the invention is to provide a tube having a sub-tube therein whose neck portion projects outwardly through the upper wall of said tube, a squeeze handle being provided at the bottom portion of said tube. Thus, solidly constructed tubes can be obtained.

The invention also contemplates providing a tube having a sub-tube therein whose outlet is mounted through and on the outlet of said tube, the bottom portion of said tube being provided with a squeeze handle, thus preventing liquids or viscous liquids from mixing with each other about the outlets.

The invention also contemplates providing a squeeze handle which makes it possible to roll up a tube without looseness, thus effecting to produce handy tubes.

Other objects will be apparent from the following description of the invention taken in connection with the accompanying drawings, in which

FIG. 1 is an elevational view, partly in a longitudinal section;

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FIG. 2 is a horizontal view of FIG. 1;

FIG. 3 is a horizontal view taken on the line III—III of FIG. 1;

FIG. 4 is an elevational view, partly in a longitudinal section of a tube illustrative of another embodiment of the invention;

FIG. 5 is a horizontal view taken on the line VI—VI of FIG. 4;

FIG. 6 is a view taken from the bottom face of a lid shown in FIG. 4;

FIG. 7 is an elevational view, partly in a longitudinal section of a tube illustrative of another embodiment of the invention;

FIG. 8 is an enlarged sectional view showing the upper portion of a tube shown in FIG. 7;

FIG. 9 is an elevational view, partly in a longitudinal section of a tube illustrative of another embodiment of the invention;

FIG. 10 is a horizontal view taken on the line X—X of FIG. 9;

FIG. 11 is an elevational view, partly in a longitudinal section of a tube illustrative of another embodiment of the invention;

FIG. 12 is an enlarged perspective view of a squeeze handle; and

FIG. 13 is an elevational view of a tube provided with a squeeze handle shown in FIG. 12.

Referring now to the drawings, in FIGS. 1 to 3 inclusive the numeral 1 indicates a main tube which can be made of conventional material such as flexible synthetic resin or soft and thin metal and which is partitioned into two sub-tubes 3, 4 by a partition wall 2 whose both ends are respectively connected with the lower and the upper wall 15 of said tube. Said partition wall 2 may be made of the same material as said tube. On the center of the upper wall 15 of said sub-tubes 3, 4 are provided two projecting outlets 5, 6 which are so tapered that they would smoothly fit into holes 9, 10 of a lid 11. A ridge 14 is mounted on the neck portion of the outlet 5 and a T-shaped squeeze handle 7 is provided at the bottom of the tube 1 at right angles to the partition wall 2. The lid 11, to cover the outlets 5, 6 has two blind holes 9, 10 at the bottom thereof and a pan-shaped receptacle 8 on its top, a groove 13 being vertically indented in the hole 9 into which the ridge 14 mounted on the neck portion of the outlet 5 is fitted.

It is required that the sub-tubes 3, 4 should be filled with liquids or viscous liquids before the squeeze handle 7 has been provided thereto. Thus, by adjusting the partition wall 2 in order that the proportion of a sectional area of the tube 1 and the desired mixed proportion will be equal with each other, liquids or viscous liquids squeezed out will be in adjusted proportions arranged beforehand in accordance with the desired mixed proportion. Such liquids or viscous liquids are squeezed out into the receptacle 8 scooped out on the top of the lid 11 and thus mixed together thereupon. In case of putting back the lid 11 on the outlets 5, 6, the hole 10 and the outlet 5 will not fit each other owing to provision of the ridge 14. Thus undesirable mixing of liquids or viscous liquids can be avoided within the holes 9, 10.

It will be noted that the walls of the receptacle 8 extend beyond the spouts 5 and 6. This provides sufficient space in the receptacle so that both spouts 5 and 6 may simultaneously discharge into said receptacle, and also provides a substantial volume wherein proper mixing of a substantial amount of substances can be performed.

In the modified form of the invention shown in FIGS. 4 to 6 inclusive, sub-tubes 3, 4, a squeeze handle 7 and outlets 5, 6 are provided in the same manner as hereinabove described. Although means of forming a tube differs from that of the foregoing description of a tube

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in one point. A main tube 1 comprises two sub-tubes 1₁, 1₁', which are connected together at their shoulder portion 16 by means of a fixing belt 17, through which upper wall project outlets 5, 6, one of said outlets being provided with a ridge 14 mounted on its neck portion. Said sub-tubes 1₁, 1₁' are also connected together at the bottom portion by a squeeze handle 7.

Referring to FIGS. 7 and 8, instead of providing a ridge on the neck portion of one of outlets 5, 6, a fixing band 17 is provided with a projection 18 which projects upwardly therefrom, said projection 18 being arranged to touch the neck portion of the outlet 6. Consequently, said projection 18 would perform the same function as said ridge.

In FIGS. 9 and 10, an outer sub-tube 1₂ comprises an inner sub-tube 1₂' therein whose outlet projects outwardly through the upper wall of the outer sub-tube 1₂, said outlet 5 being spaced away from an outlet 6 of the outer sub-tube 1₂. The upper wall of the inner sub-tube 1₂' touches the inside of the upper wall of the outer sub-tube 1₂, at the bottom portion of which is provided a squeeze handle 7. One of the outlets 5, 6 is provided with a ridge (not shown) as before. A lid 11 is formed in the same manner as before.

In FIG. 11, an outer sub-tube also comprises an inner sub-tube therein as shown in FIGS. 9 and 10. And an outlet 6 of the inner sub-tube 4 projects upwardly through an outlet 5 of the outer sub-tube 3. Therefore a lid properly fit for the outlets 5, 6 should be one that has a screwed-up hole 9 on its bottom face, said hole 9 having another small screwed-up hole 10' scooped out in the bottom of said hole 10. 19 designates supporting plates which enable liquids or viscous liquids to pass smoothly to the outlets. A squeeze handle is provided at the bottom portion of said sub-tubes 3, 4.

In FIGS. 12 and 13, there is shown the ideal formation of a squeeze handle, which is made of a resilient wire. A piece of wire is bent in the middle to form two parallel portions 23, 23' with a space of C. Said wire is then twisted at a bent of it to form a ring portion 21, into which an operation pole 27 is inserted. Both ends 24, 24' of said wire are got together and passed through an eyelet hole 26 bored through a circular plate 25. A squeeze handle thus made is fastened to the bottom portion of a tube. Finally, both ends 24, 24' of the wire are bent outside to hold the circular plate 25 in position. Space C is fully

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adjustable by removing the circular plate 25. Therefore the squeeze handle made in the above described manner can be applied to any kind of tubes.

The foregoing description of the invention has been directed to a tube for two kinds of liquids or viscous liquids. But the present invention may be embodied in other specific forms without departing from the spirit thereof. It is therefore desired that the present embodiments be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to foregoing description to indicate the scope of the invention.

What is claimed is:

1. A container for at least two viscous substances which are to be mixed at the time of use, comprising in combination,
 - first and second adjacent tubes each for holding one viscous substance;
 - spout means on said tubes, the outlets of said spout means being substantially spaced and,
 - lid means for the container including separate closure means engaging each spout means and said lid means further including a mixing chamber, the walls thereof extending beyond the spacing of said spouts.
2. A device as claimed in claim 1 wherein one tube surrounds the other.
3. A device as claimed in claim 1 wherein one tube is disposed alongside the other.
4. A device as claimed in claim 1 including one wall common to said tubes.

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