April 3, 1962 J. E. CLEMENTS ETAL 3,028,000

DOUBLE CHANNEL PLASTIC PACKAGE

Filed Aug. 7, 1959

Fig. 1.

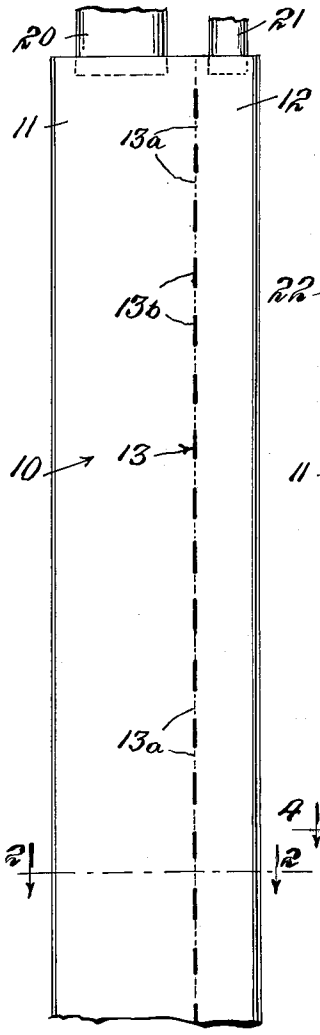


Fig. 3.

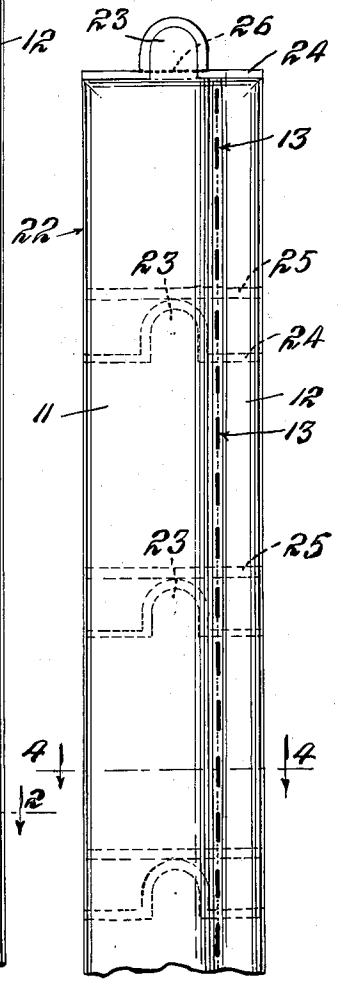


Fig. 5.

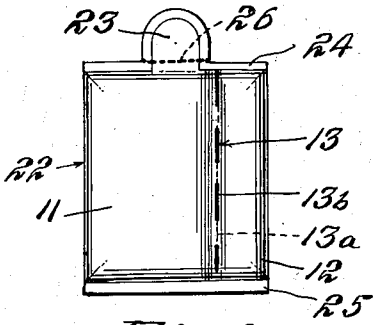


Fig. 6.

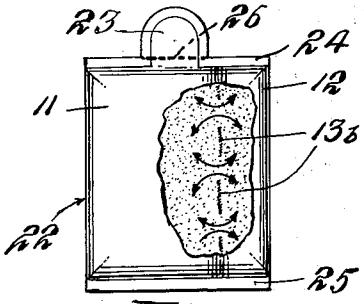


Fig. 7.

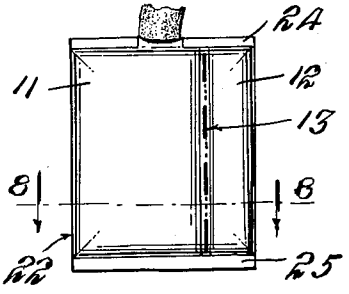


Fig. 2.



Fig. 4.

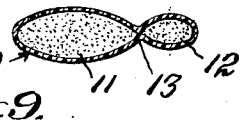


Fig. 8.

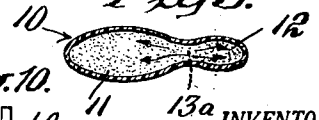


Fig. 9.

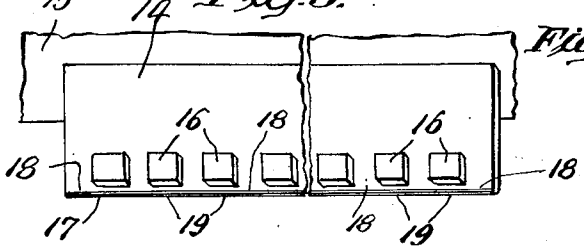
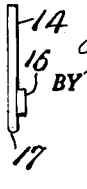


Fig. 10.



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3,028,000

DOUBLE CHANNEL PLASTIC PACKAGE

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2 Claims. (Cl. 206—47)

This invention relates to packages and more particularly to a composite package for two or more different substances which are maintained separate until the time of usage when they may be intermixed.

There are various instances where a medicament or other ingredient is mixed with a second ingredient which may be a carrier. However, very often the medicament should be maintained separate from the carrier until the time of actual usage as otherwise the medicament may lose its efficacy.

Purely as an example, let us assume that vitamin A is to be incorporated in a cosmetic cream. It has been found that should the two be mixed together, the vitamin A ingredient will gradually lose its potency. Accordingly, it is considered desirable to admix the two only at the time of usage whereupon the mixture will be a fresh one with full potency.

With the foregoing in mind, we have devised a simple, composite package which can effect the foregoing purpose. The composite package is of essentially one-piece form. It is fabricated of plastic material and is divided into integral, parallel tubes or channels for housing the separate materials or ingredients. At the time of usage, the user may cause the two ingredients to be mixed by simply kneading the package whereby the ingredients from the two tubes intermix. We have further devised a special form of interconnection of the two channels for effecting this result.

The invention will be further understood from the following description and drawings in which:

FIGURE 1 is a plan view of a strip of plastic tubing showing the initial formation thereof into two continuous channels and the filling of each channel with its liquid or creamy substance;

FIGURE 2 is a cross-sectional view as taken along the line 2—2 of FIGURE 1;

FIGURE 3 is a plan view illustrating the filled tubing being formed into a number of continuously connected individual packages each having an integral dispensing nozzle;

FIGURE 4 is a cross-sectional view along the line 4—4 of FIGURE 3;

FIGURE 5 is a plan view of an individual completed package;

FIGURE 6 is a view similar to FIGURE 5 but showing the admixture of the respective ingredients;

FIGURE 7 shows the dispensing of the mixed ingredients;

FIGURE 8 is a cross-sectional view as taken along the line 8—8 of FIGURE 7;

FIGURE 9 is a perspective view of the die or sealing rod which produces the channels illustrated in FIGURE 1; and

FIGURE 10 is an end view of the die of FIGURE 9.

Referring now to FIGURE 1, **10** is a tube formed of film plastic material such as polyvinylidene chloride or such as "Saran." Of course, other plastics may be used.

In forming the continuous line or succession of packages of the instant invention, we first divide the tube **10** into two elongated sections or channels **11** and **12**. It will be observed that channel **12** is considerably narrower than channel **11**, it being intended that the vitamin A substance or other ingredient be injected into channel **12** while the relatively bulkier carrier is injected into channel **11**.

Line **13** which produces the two channels is of special formation for purposes which will hereinafter appear. Line **13** takes the form of a linear fused section through both opposing walls and along the complete length of the tube. The fusion may be produced by conventional heat sealing or high frequency means as will be evident to those skilled in the art. However, line **13** is not uniform along its length since it has relatively and intermittently disposed weaker spots **13***a*, the stronger fused spots being designated **13***b*.

As an example of material which is used for tube **10**, the above mentioned thermo-plastic material of a thickness of about .004"–.015" is usable. As is well understood, the linear die which forms line **13** may be heated either by ohmic current or by high frequency apparatus.

We provide weaker fused spots sections in line **13** in order to form passageways when the liquid in channel **11** is forced therethrough into channel **12** and vice versa. Accordingly, normally the line **13** forms a complete division between channels **11** and **12**. However, the line of fusion is designed to rupture along substantially predetermined sections upon sufficient pressure from the contained liquids as will be hereinafter described.

The die for producing line of fusion **13** is shown in FIGURES 9 and 10. Die **14** is a bar connected to structure **15** which is the movable jaw of a sealing machine such as of the heat sealing type. As is well known, heat for the sealing of such plastics is transmitted to bar **14** which is then pressed against the plastic so as to partly liquefy and fuse its walls together.

In order to produce the relatively weakened fusion sections, we secure metallic pieces **16** spacedly along bar **14**. Such pieces **16** may be welded or otherwise secured to the bar **14** but they are somewhat elevated in respect to the sealing edge **17** in order to avoid interference with the sealing function.

The function of metal pieces **16** is to dissipate some of the heat which is in the immediate area of the pieces **16**. In other words, the edge **17** will have alternate areas of higher and lower degrees of heat. For example, the length of metal pieces **16** may be about 3/16", the spaces between them being likewise 3/16". Pieces **16** may be about as thick as the bar **14** and may be formed of steel or may be of the same electrical resistance material as is bar **14**. The entire bar **14** will produce fusion but the heat at the portions **18** will be greater than that at portions **19** which, being diminished, will produce lesser or weaker fusion. Accordingly, there will be formed alternately strong and weak spots of fusion along line **13**.

Referring now to FIGURE 1, tube **10** is now filled with the desired substances, the nozzle **20** injecting the carrier into channel **11** while the nozzle **21** injects the medicament into channel **12**. This is continued until the channels are filled to the desired extent, the excess substance emerging from the remote end of tube **10**.

The filled tube **10** is now formed into a connected series of pillow-like packages or envelopes as illustrated in FIGURE 3. As will be well understood, this is produced by a sealing die which bears down upon the filled tube **10** and forms the pillow-like package **22** with the integral head **23**. The die also forms the sealed marginal portions **24** and **25**. If desired, at the same time as the marginal portions **24** and **25** are formed the packages may be cut away by cutting elements on the die or may be scored by the die to produce a tearing edge such as described in United States Patent No. 2,631,646. The result is a number of individual packages **22** such as shown in FIGURE 5. As an example, the package **22** may be about 1½" x 1".

When the contents are ready to be used, the user will

manually squeeze the sections or channels 11 and 12 and it will be observed that the weakened areas 13*a* will rupture or unfuse by virtue of the force of the squeezed liquid so as to form predetermined passageways. The two substances can then be intermixed into a more or less homogeneous mixture. Preferably, the two substances will be of two different colors so that the user will see that a satisfactory mixture has been accomplished.

It will be understood that the sealed marginal portions or edges 24 and 25 are fused so as to be of a strength at least equal to the stronger fused spots 13*b*. This is, of course, to avoid rupturing said marginal portions during said manually mixing of the two substances.

In dispensing the mixed substance the user may simply tear off the head 23 to form a dispensing outlet. If desired, the portion of the rim 24 at the base of head 23 may be scored at 26 as conventional in order to facilitate tearing. The mixed substance may then be dispensed by squeezing the pillow-like package.

There has been shown what is now considered a preferred embodiment of the invention but it is obvious that numerous changes and omissions may be made without departing from its spirit.

What is claimed is:

1. A package fabricated of a flexible plastic and comprising opposing walls formed into two completely closed, hollow sections each containing a different liquid material, a continuously fused separation line defining and separating said two sections, said fused line having both stronger and weaker aligned fused spots of substantially equal length whereby manual pressure exerted upon either of said sections will rupture said weaker fused spots so as to force material from one of said sections into the other section.

2. A package fabricated of a flexible plastic material and comprising opposing walls formed into two completely closed, hollow chambers lying side by side and each containing a different liquid material, a continuously fused separation line defining and separating said two chambers, said fused line having both stronger and weaker aligned fused spots along the length of each chamber whereby manual pressure exerted upon either of said chambers will rupture said weaker fused spots so as to force material from one of said chambers into the other chamber.

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