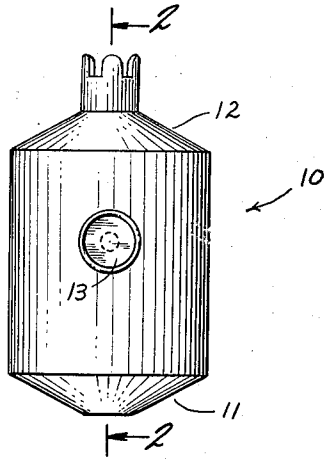
Feb. 23, 1960 J. J. SPERO 2,925,939

STRIPING DEVICE

Filed Jan. 3, 1958

FIG. 1.



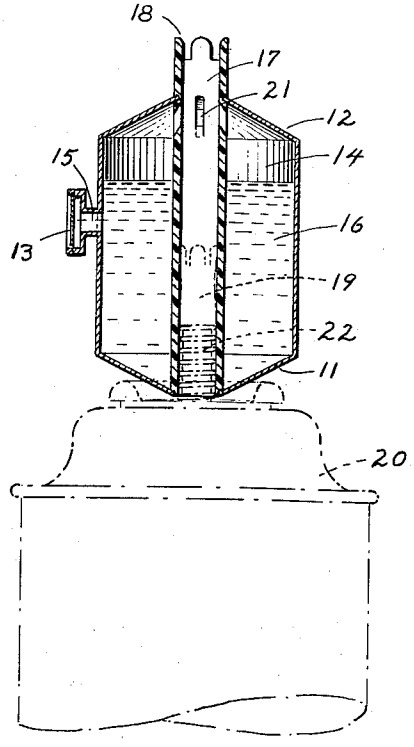


FIG. 2.

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STRIPING DEVICE

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4 Claims. (Cl. 222—145)

This invention relates to apparatus for combining a plurality of fluent materials and, more particularly, to apparatus for combining automatically fluent materials as they are dispensed.

It is desirable in certain instances to provide a means for supplementing material dispensed from, for example, pressurized containers to form an unusual and decorative appearance, to produce a desired flavor, or combine another material. Where a decorative value is desired, a dispensed base material may be provided with one or more stripes of a color different from the color of the base material. Also, it may be desired to add a chemically reactive material to the base material to be dispensed, in situations where the reactive material can be combined with the base material only for a limited period prior to use.

Accordingly, it is an object of this invention to provide a supplemental dispensing apparatus to be operably connected with a supply of fluent material to be dispensed.

It is also an object of the invention to provide an apparatus for combining, automatically, one fluent material with another fluent material.

A further object of the invention is to provide an apparatus for combining a measured quantity of one fluent material with another fluent material to produce a material having a desired characteristic.

Generally, an apparatus constructed in accordance with the present invention provides a container of one fluent material to be disposed in operable relationship with a container of another fluent material such that the operation of the apparatus will produce a product having a predetermined characteristic. For example, where it is desired to produce a striped product such as whipped cream, shaving lather, shampoo, toothpaste, or the like, the base material of the product is dispensed through a channel into which is injected at least one, and preferably a plurality, of spaced apart streams of a striping material in such a manner that the two materials are combined to form a striped product.

On the other hand, an apparatus constructed according to the principles of the invention provides a means for supplementing a base material dispensed from a pressurized container by automatically injecting a metered quantity of a desired fluent material into a stream of the base material as it is dispensed.

Other objects of the invention will be pointed out in the following description and claims and illustrated in the accompanying drawing, which discloses, by way of example, the principle of the invention and the best mode which has been contemplated of applying that principle.

In the drawing:

Figure 1 shows a view in elevation of an apparatus constructed in accordance with the principles of the invention; and

Figure 2 is a sectional view taken along the line 2—2 in Figure 1.

Referring now to an illustrative embodiment of the invention with particular reference to Figures 1 and 2 of the drawing, the numeral 10 refers generally to a container which, in its preferred form, is round although the invention is not limited to this configuration. Opposite ends 11 and 12 of the container 10 are inclined in a funnel-shaped fashion to form openings of reduced diameter from that of the overall container.

Disposed axially through the vertical center of the container 10 is a channel or tube 17, which is sealed from an inner chamber 14 at the reduced openings of the funnel-like end members 11 and 12. The discharge end 18 of this channel 17 may have any desired configuration, that shown in the drawing being merely for one illustrative embodiment thereof.

The opposite end of the channel 17 from the discharge end 18 terminates at approximately the point of reduced diameter of the funnel-like end member 11 and may have within the channel 17 a plurality of threads or, alternatively, the channel 17 may be smooth for attachment to a nozzle 19 of a conventional pressurized container, shown in phantom lines 20 in Figure 2. Thus, the container 10 may be attached to the nozzle 19 either by press-fitting or by threads, as desired. Under certain circumstances, an alternative arrangement may permit attaching the container 10 directly to one or more turns of the spring members 22 which are in spiral form and thus provide suitable threads for this purpose. It may be seen in Figure 2 that the inclined, funnel-shaped end portion 11 permits the tilting of the container 10 during operation.

Positioned at any desired location about the container 10 is a resilient button-like diaphragm portion 13 of sufficient diameter to permit application of pressure by, for example, a person's thumb or finger. The principal purpose of having a flexible portion 13 of this diameter is to designate a spot to be pressed. Actually, for successful operation of the device, the entire container 10 may be of flexible material. In the instance of the construction shown in the drawing, the inner surface of the diaphragm 13 is communicated with the inner chamber 14 of the container 10 by means of a channel 15 in such manner that pressure applied to the diaphragm 13 is communicated through the channel 15 to a striping material 16 contained in the chamber 14.

Adjacent the discharge end 18 of the channel 17 is at least one and preferably a plurality of apertures 21 spaced apart circumferentially about the channel 17 to communicate the chamber 14 with the channel 17.

In operation, the apparatus 10 is attached by any suitable means directly to the nozzle 19 of a conventional aerosol or other pressurized container 20 of fluent, base material. The container 10 encloses within its chamber 14 a desired fluent material 16 to be applied in, for example, stripes on the base product to be dispensed from the pressurized container 20. By the application of pressure to the diaphragm 13 with, for example, the thumb, a small quantity of the striping material 16 is forced through the apertures 21 in communication with the channel 17. Also, the pressure on the diaphragm 13 tilts the container 10 and the nozzle 19 of the pressurized container 20 to send a stream of base material under pressure along the channel 17. The venturi effect of the base material being discharged along the channel 17 results in a continuous flow of the striping material 16 through the apertures 21 such that the product emerging from the discharge end 18 will be the combined materials from the pressurized container 20 and from the container 10. In this instance, the result will be in the form of a striped product.

It should be understood that the invention is not limited to a striping action but may be used equally well in

the instance where it is desired to mix two fluent materials just before using and thus maintain them in separation during storage. Also, it may be desirable to contain a flavoring material in the container **10** to be added to the base material dispensed from the pressurized container **20**. As previously described, the apparatus of the present invention may be attached to a conventional aerosol container to provide a fluent material for supplementing the material dispensed under pressure. Thus, it is possible to change the containers **10** to supplement the pressurized stream of base material with different materials, or to provide different flavors, or to provide different colors, or for any other desired purpose.

It is, therefore, to be understood that the above-described arrangements are simply illustrative of the application of the principles of the invention. Numerous other arrangements may be readily devised by those skilled in the art which will embody the principles of the invention and fall within the spirit and scope thereof.

I claim:

1. An apparatus for operation with a source of fluent base material to be dispensed under pressure, which apparatus comprises a container, tubular means disposed substantially axially through said container, opposite ends of said container being fixedly attached to said tubular means to form a substantially enclosed chamber for containing a fluent material, said tubular means having a plurality of spaced apart apertures adjacent one end thereof for communicating said chamber with said channel, and a plurality of threads on the inside of said channel at the end opposite from the end containing said plurality of apertures for attachment to a source of fluent base material to be dispensed under pressure.

2. An apparatus for operation with a source of fluent base material to be dispensed under pressure, which apparatus comprises a container defining a chamber for enclosing a fluent material, a first tubular means for defining a first channel through said chamber, end members at opposite ends of said container to seal said container to said first tubular means, said first tubular means containing an aperture adjacent one end thereof for communicating said chamber with said first channel, a second tubular means for defining a second channel extending externally from one side of said chamber, and diaphragm means to seal the end of said second channel opposite from the end in communication with said chamber.

3. An apparatus for operation with a source of fluent base material under pressure from a container having a valve, which apparatus comprises an enclosure defining a chamber for containing a fluent material, said enclosure being substantially rigid except for a predetermined area of resilient material, a tubular means for defining a channel completely through said chamber, said tubular means having an aperture adjacent one end thereof for communicating said chamber with said channel, and means for attaching the end of said channel furthermost from the end having said aperture to said valve on said container of base material whereby an externally applied force on said area of resilient material will transmit pressure to said fluent material and also will actuate said valve to release said base material under pressure.

4. An apparatus for operation with a source of fluent material to be dispensed under pressure from a container having a valve, which apparatus comprises a chamber for containing a fluent material, means defining a channel through said chamber which channel opens at opposite ends externally of said chamber, said channel defining means being in communication with said chamber adjacent one end of said chamber, a flexible diaphragm to transmit pressure to said fluent material within said chamber from an externally applied force, said force also actuating said valve for releasing the fluent material from said source, and means to connect one side of said diaphragm in communication with said chamber.

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