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(54) Stirring and dispensing device.

(57) A stirring and dispensing device is disclosed by means of which powdered or granular material (5) can be dispensed and stirred into a liquid. The device comprises a tubular member (1) which is filled with a predetermined amount of the powdered or granular material (5), the tubular member (1) being closed at each end by a moisture proof seal (3), at least one of the end seals (3) being such that by gripping the end of the tubular member (1) and squeezing the tube at right angles to the length of the tube and in the plane of the seal (3), the seal (3) will pop open to release the product (5) which can then be stirred into the liquid by the opened tubular member (1). Various different seal constructions are disclosed.

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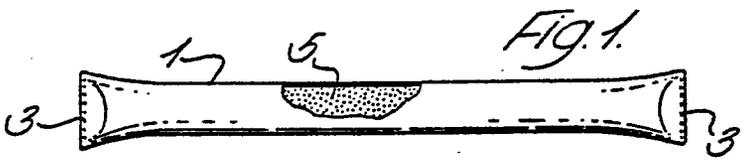

Fig. 1.

This invention relates to a stirring and dispensing device for stirring granular material such as sugar into a liquid. The device is also used as a container for the granular material and is particularly aimed at the "fast food" trade.

At the moment, in many of the cheaper cafeterias and restaurants, sugar for sweetening drinks is supplied either in granular form in a paper sachet or as one or more wrapped cubes, and the sugar is stirred into a drink using a plastics spoon. The plastics spoons are thrown away because of the cost of washing up and of course there is also the wrapping for the sugar to be disposed of. The present invention has been devised so that instead of having two items to dispose of there is only one.

According to the present invention, there is provided a stirring and dispensing device comprising a tubular member filled with a predetermined amount of product to be dispensed and stirred into a liquid, the tubular member being closed at each end by a moisture proof seal, and wherein one of said seals is such that by gripping the end of the tubular member and squeezing the tube at right angles to the length of the tube, and in the plane of the seal, the seal will pop open to release the product.

Preferably, the tubular member is formed of virgin extrudable grade polypropylene and said one seal is performed by a mechanical pressing or cutting operation which may also sever the end of the tubular member. Heat may also be applied, to give a measure of heat sealing. Preferably, the other end of the tubular member is permanently sealed, e.g. with a heat seal.

Preferably, at least said one end of the tubular member is given a special shape, rather than a straight end. This could be pointed

(arrowhead), of inverted V-shape, curved (either convex or concave), serrated, or just simply be of flared construction. This shape can then identify said one end for opening purposes. Of course, if the closing or sealing operation is also used to sever the tubular member from an adjacent one, then the other end of each tubular member would also have a special shape.

The tubular member need not necessarily be formed of polypropylene but it must be of a rigid or semi-rigid material. It is envisaged that coated paper or a paper plastic laminate could be used. The coating could perhaps be wax or silicone but it must be heat resistant and the internal surface layers must be acceptable to the food and drugs trade as a packaging material. Both the internal and external surface layers must be heat and moisture resistant because once the contents of the tubular member have been dispensed, the tubular member has to be used to stir the contents into hot or cold liquids.

It is envisaged that if the contents of the tbular member is sugar, the predetermined amount would be one teaspoonful. There is no reason, however, why the tubular member could not contain, for example, two teaspoonsful.

It is envisaged that the stirring and dispensing device could alternatively contain powdered milk, a drug, for example headache powder, a soft drink flavouring, such as lemonade powder, pigment in granular form soluble in liquid to produce paint or for that matter any other pulverulent material. What is more, the contents of the tubular member could be in the form of a paste or it is envisaged that it could be a powdered or granular material temporarily formed into a rod-like solid, for example, it could be a stick of sugar formed in the same manner as a cube of sugar is formed.

It is envisaged that the length of the tubular member would normally be somewhere between 2½" and 7" but this, together with its cross-sectional area and configuration, would depend on the quantity of content. Normally, the tubular member would be generally of round cross-section but other cross-sections are envisaged, for example, oval cross-sections might be more satisfactory for stirring purposes.

It is envisaged that the tubular member may contain two separate doses of contents separated by a releasable seal.

Normally the tubular member would be filled and closed largely automatically with a permanent closure at one end, for example a heat seal, and a semi-permanent seal at the other stirring end. This semi-permanent seal can, if the tubular member is formed of virgin extrusion grade polypropylene, be formed by a mechanical pressing or cutting operation, if necessary with the aid of heat. This operation can also be used to cut off the tubular member at the seal and in practice it has been found that a semi-permanent seal can be formed merely by cutting the tubular member with a pair of scissors or the like. The seal must be sufficiently permanent to prevent inadvertent opening, but it must be possible to release the seal by a simply squeezing operation, pressure being applied to the ends of the seal in a direction at right angles to the longitudinal axis of the tubular member and in the plane of the seal. This can be done by squeezing the seal between thumb and finger so that the seal will "pop" open audibly.

It is not essential for one end of the tubular member to be permanently sealed and if desired, both ends could be semi-permanently sealed. This is because in some instances it may be advantageous, on dispensing the contents of the tubular member, to open both ends to ensure full discharge of the contents. Furthermore, capillarity may be avoided during stirring if both ends are open.

In the simplest form of the invention, each end of the tubular member would be closed off by a seal extending at right angles to the longitudinal axis of the tubular member. However, in some instances it may be desirable specially to shape one or both ends of the tubular member. Of course, a simple inclined seal could be provided or there could be a seal in the form of a V or arrowhead. Alternatively, the seal could be in the form of a crown, i.e. a special serrated seal, or it could be of curved construction, either concave or convex, or of inverted V-shape giving a fish-tail effect. It will of course

be appreciated that all seals across the end of a generally round tubular member will flatten the tubular member at the end, thereby increasing the stirring effectiveness of the tubular member after discharge of its contents.

If, during the sealing operation, the tubular member is severed from an adjacent tubular member then the shape of the seal will of course affect the shape of the other end of the next tubular member. While it is envisaged that both ends of the tubular members may have a specially shaped seal, this is normally not preferred because the specially shaped end can then be used to identify the semi-permanent seal which is to be opened for discharge of the contents.

If desired, different shaped seals can be used for tubular members containing specific contents.

An advantage of pointed or multiple pointed seals is that the end of the tubular member, once it has been opened and is used for stirring purposes it is less likely to draw in liquid. This can of course be a distinct advantage when the used tubular member is to be disposed of, for example in a special container or even in an ash-tray.

It is envisaged that different coloured tubular members could be used for various different contents.

Also according to the present invention, we provide a package containing a plurality of stirring and dispensing devices as described above. These devices can be located within the package by quick-release means or in any other known manner. While it is envisaged that one package would normally contain a plurality of stirring and dispensing devices each filled with the same product, it is envisaged that several different products could be provided within the same package. For example, there could be occasions when a package filled with stirring and dispensing devices containing sugar, powdered milk, headache powder and perhaps one or two other substances might be useful. Care would have to be taken of course clearly to identify the contents of each device.

Several embodiments of stirring and dispensing device are now described by way of example with reference to the accompanying drawings, in which:-

FIGURE 1 is a plan view of a first preferred embodiment with part cut away to show the contents;

FIGURE 2 is a side elevation of the embodiment of Figure 1;

FIGURE 3 is a perspective view of the embodiment of Figures 1 and 2, and

FIGURES 4-8 are plan views of four alternative embodiments.

Referring to the drawings, the stirring and dispensing devices are formed from a tube 1 having a diameter of about 10 mm, the tube being formed of a plastics material. One end of the tube is closed off by a heat seal or mechanical pressing/severing operation to give the desired shape. e.g. a straight line seal 3 as shown in Figures 4 and 5, the seal being formed at the same time the tube is severed from a supply. The tube 1 is then filled with a product, e.g. sugar 5, and the other end is then closed off, e.g. with a further straight line seal 3, or with a special shaped seal, e.g. a crown, serrated or castellated seal 7 or 9, a V seal 11, an inverted V seal 13, or a round seal, i.e. a convex seal 15 or a concave seal 17.

It will be appreciated that any type of seal may be provided at each end of the tube 1. However, if the seals at each end are compatible, i.e. two straight seals 3, a concave and a convex seal 17 and 15, or V shaped and inverted V shaped seals 11 and 13, then the second end of one tube and the first end of another tube can be formed in known manner at the same time by a combined sever/heat seal pressing operation.

If desired, a long length of tube could be filled with product and the ends of eachindividual tube formed/sealed subsequently.

As shown in Figure 7, the seal at one end of the tube may be arranged in a different plane from that at the other end.

The tube material should be one which will not melt at

normal "hot beverage" temperature, and must be such as not to "taste" the product. Preferably, the plastics used is semi-stiff.

To use the tube, one end of the tube is "popped" open by squeezing the two ends of a seal at one end, to cause the seal to spring apart, the product, or a part of it, is poured into a beverage or other liquid, and the tube is then used to stir the product into the liquid. Alternatively one end of the tube may be removed in some other way, e.g. it may be cut off, prior to dispensing the product.

CLAIMS:

1. A stirring and dispensing device comprising a tubular member filled with a predetermined amount of product to be dispensed and stirred into a liquid, the tubular member being closed at each end by a moisture proof seal, and wherein one of said seals is such that by gripping the end of the tubular member and squeezing the tube at right angles to the length of the tube and in the plane of the seal, the seal will pop open to release the product.

2. A device according to claim 1 wherein the tubular member is formed of virgin extrudable grade polypropylene.

3. A device according to claim 1 or 2 wherein said one seal is perfomed by a mechanical pressing or cutting operation.

4. A device according to claim 3 wherein said operation also severs the end of the tubular member.

5. A device according to claim 3 or 4 wherein heat is also applied during said operation to give a measure of heat sealing.

6. A device according to claim 1 or 2 wherein said one end is formed by a heat sealing/severing operation.

7. A device according to any one or claims 1-6 wherein the other end of the tubular member is permanently sealed.

8. A device according to any one of the preceding claims wherein at least one end of said tubular member is given a special shape, rather than a straight end.

9. A device according to claim 8 wherein said one end is pointed, or of inverted V-shape, or is convex, or is concave, or is serrated, or is of flared construction, or wherein both ends of each tubular member are of a special non-straight shape.

10. A device according to any one of the preceding claims wherein the contents of the tubular member is a teaspoonful of sugar.

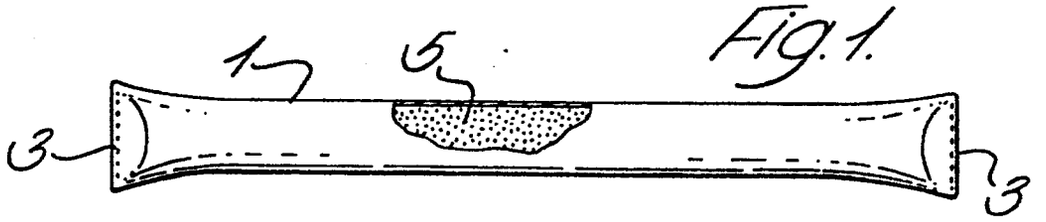

Fig.1.

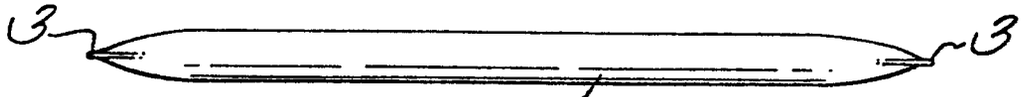

Fig.2.

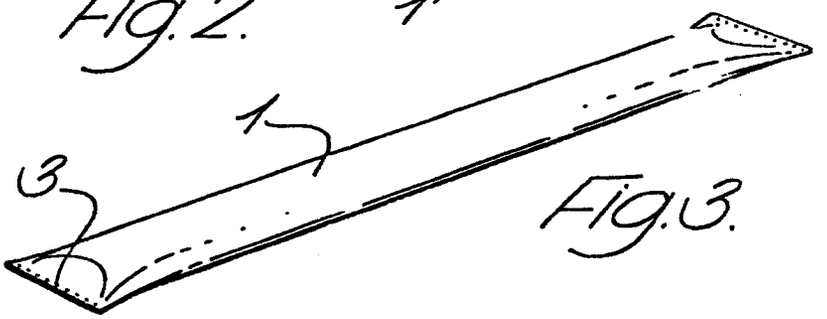

Fig.3.

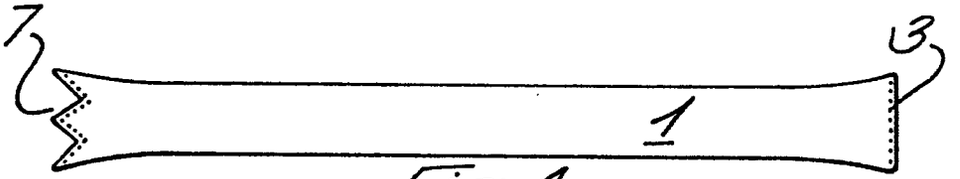

Fig.4.

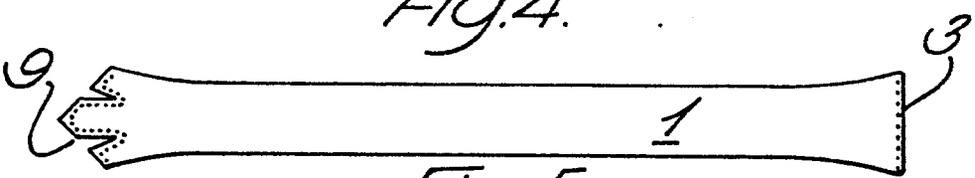

Fig.5.

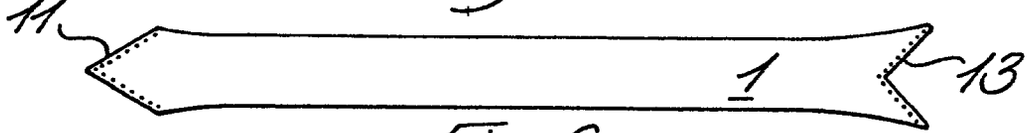

Fig.6.

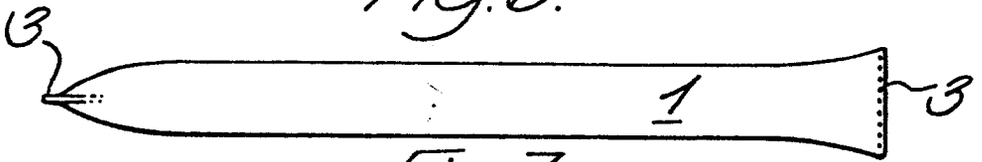

Fig.7

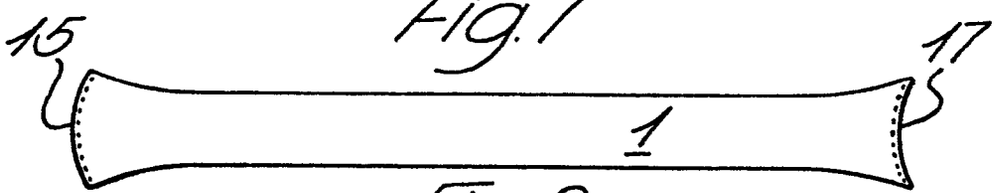

Fig.8.

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EUROPEAN SEARCH REPORT

0003390
Application number
EP 79 30 0011

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
	US - A - 3 601 252 (SAGER) * The whole document * --	1,2,7
	GB - A - 1 180 787 (HYGIENEX IND. LTD.) * The whole document * --	1,2,3, 5
	FR - A - 1 404 322 (DROOGENBROEK) * The whole document * --	8,9
A	BE - A - 749 765 (PAQUE) * Page 1, lines 1-8; page 2, lines 15-20 * ----	1,10

CLASSIFICATION OF THE APPLICATION (Int. Cl.³)

B 65 D 81/36

TECHNICAL FIELDS SEARCHED (Int.Cl.³)

B 65 D
A 47 G
A 23 P

CATEGORY OF CITED DOCUMENTS

X: particularly relevant
A: technological background
O: non-written disclosure
P: intermediate document
T: theory or principle underlying the invention
E: conflicting application
D: document cited in the application
L: citation for other reasons

&: member of the same patent family, corresponding document

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	04-04-1979	BAERT

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