

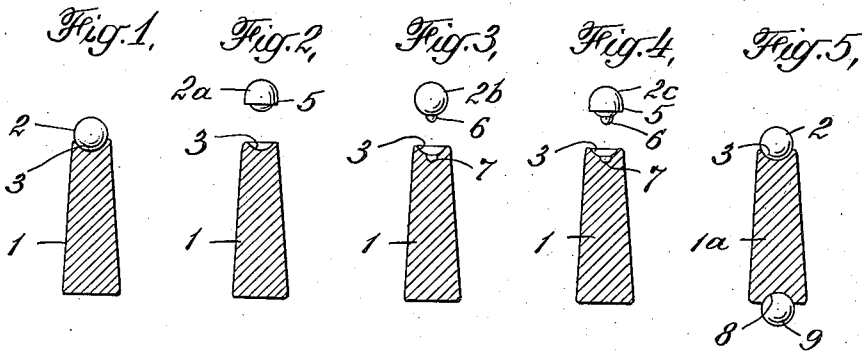
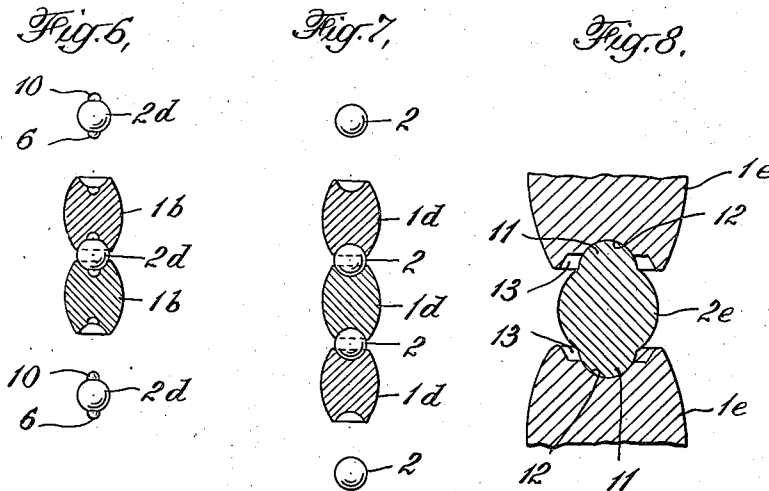
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SUPPOSITORY

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SUPPOSITORY

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This invention relates to suppositories.

There is need for a simple way of obtaining rectal medication or treatment by insertion into the rectum of small quantities of medicaments or other beneficial substances while in the liquid form.

The principal object of the invention is to provide a composite suppository by means of which liquid medication or treatment as well as solid medication may be effected in the rectum or other body passage into which the composite suppository is inserted.

Another object is to provide a composite suppository having an articulated series of sections capable of following irregularities and curves in the body passage when the composite suppository is inserted therein.

According to the invention one element or portion of the composite suppository is solid, and in composition may be like any of the usual suppositories, but it is so shaped as to provide at one or both ends a pocket or seat to receive a dissolvable capsule which constitutes another element or portion of the composite suppository. The capsule contains the liquid substance which is intended to produce the desired medication or other effect upon its liberation within the body when the capsule dissolves. When the solid portion of the composite suppository is inserted into the rectum or other body passage in the usual way, the capsule held at the upper end of the solid portion, is inserted a considerable distance into the body passage where the liquid substance when liberated can produce its intended effect. When both ends of the solid portion are shaped to receive a capsule, a second capsule may be retained at the lower end of the solid portion and also inserted into the body passage, or the second capsule may be followed by a second solid portion which when inserted will cause the first capsule to reach a still higher point in the body passage and when the capsules dissolve, the liquid substance will be liberated at a number of different points. Any desired number of solid portions and capsules may thus be inserted in a row into the body passage. The shape of the capsule, and the shape of the capsule-receiving end of each solid portion may be such that the capsules form with the ends of the solid portions joints of the ball-and-socket type whereby the composite suppository constitutes in effect an articulated series of sections capable of following curves and irregularities in the body passage. So far as this feature of the invention is concerned, bodies of solid suppository material

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may be used in place of the capsules so that all parts of the composite suppository will then be of solid material.

A number of different forms of the invention are illustrated in the accompanying drawings, in which:

Figure 1 shows the composite suppository in its simplest form, the solid portion being represented in vertical longitudinal section and the capsule portion in side elevation;

Fig. 2 is a view similar to Fig. 1 but shows a modified form of capsule. In this figure the capsule is shown separated from the solid portion;

Figs. 3 and 4 are views similar to Fig. 2 and show two other modified forms of capsule and a modified form of the solid portion adapted for use with them;

Fig. 5 is a view similar to Fig. 1 showing a modification of the invention in which both ends of the solid portion are adapted to receive a capsule;

Fig. 6 illustrates another modification of the invention in which a number of solid portions, shown in vertical longitudinal section, are used with a number of capsules, shown in side elevation, to form a composite suppository in which the capsules are held in place relative to the solid portions by the expedient illustrated in Fig. 3;

Fig. 7 is a view similar to Fig. 6 showing a further modification of the invention in which the composite suppository is made up of any desired number of universally jointed portions or sections; and

Fig. 8 is a vertical longitudinal section, drawn on an enlarged scale, showing a modified form of joint which may be used between the suppository sections of Fig. 7 to facilitate the universal movement between the sections.

The composite suppository shown in Fig. 1 comprises an element or portion 1 made of a solid substance, and a capsule portion 2 which contains a liquid substance. The solid portion 1 may be like the usual tapered or otherwise shaped suppository except that its upper end is provided with a cup-shaped recess or pocket, as shown at 3, to constitute a seat for the capsule 2. The exact composition of the solid portion 1 is unimportant so far as the invention is concerned and will depend upon the effect which it is desired to produce in the body passage by this portion of the composite suppository. For example, its composition may be the same as the usual medicated cocoa butter suppository, or it may be the same as the glycerin type of suppository, the glycerinated gelatine type, or any other type.

Likewise the kind of liquid substance in the capsule 2 will depend upon the effect which it is desired to produce in the body passage by it. It may be any curative or beneficial substance which it is desirable or necessary to have in liquid form, such as a medicament, fish liver oil, or vitamin concentrates in oil. The capsule itself is adapted to be dissolved in course of time after its insertion in the body passage to liberate its liquid contents.

The capsule may be retained in its seat 3 by applying a small quantity of glycerin, petrolatum, or the like, to the capsule or seat. If the parts of the composite suppository are separate when furnished to the user he may apply some petrolatum or the like to the capsule or seat himself and then place the capsule in the seat. This will cause sufficient adherence of the capsule to the solid portion 1 to prevent it from being accidentally displaced from its seat during insertion of the composite suppository.

The composite suppository is inserted, capsule end first, into the body passage, the solid portion 1 being used as a means of inserting the capsule. Thus the solid portion 1 serves as an applicator for the capsule and may also produce some desired effect in the body passage when its composition is appropriate for that purpose. The liquid substance in the capsule may be chosen to produce some different or related effect when liberated.

The composite suppository shown in Fig. 2 is the same as that shown in Fig. 1 except that the capsule, designated 2a in this figure, is provided with a skirt or flange 5 adapted to telescope over the upper edge portion of the solid portion 1 when the capsule is applied to its seat. This assists in retaining the capsule seated during insertion of the suppository into the body passage.

A similar result may be obtained, as shown in Fig. 3, by providing the capsule 2b with a teat or projection 6, and by providing a recess 7 at the bottom of the seat 3 on the portion 1 to receive the projection.

As shown in Fig. 4, the capsule designated 2c in this figure, may be provided with both the flange 5 of Fig. 2 and the projection 6 of Fig. 3, in which case the seat 3 on the solid portion 1 will be like that shown in Fig. 3, i. e., with a recess 7 at the bottom of the seat 3 to receive the projection 6 on the capsule.

If desired the solid portion of the composite suppository may have a capsule-receiving seat at both ends as shown in Fig. 5. Thus the solid portion, designated 1a in this figure, may have a seat 3 at its lower end to receive a second capsule 9, in addition to the seat 3 at its upper end to receive the capsule 2. The capsules may be held in place during insertion of the composite suppository either by the use of glycerin, petrolatum, or the like, as described in connection with Fig. 1, or the two seats and two capsules may be formed as shown in either Fig. 2, Fig. 3 or Fig. 4, in which case the use of glycerin or the like on the seat may not be needed but may be used if desired.

The composite suppository at the time of use may comprise a train of any desired number of solid portions and liquid-containing capsules. The one shown in Fig. 6 has two solid portions 1b with an intervening and two end capsules 2d although additional solid portions and additional capsules may be added to the train if desired. In the particular composite suppository illustrated in this figure each capsule has an upper

projection 10 as well as a lower one 6 of the kind shown in Fig. 3, and the seats on the solid portions are shaped as described in connection with Fig. 3. Therefore when a capsule is positioned between two solid portions it locks them in alignment. Each capsule may be provided with an upper and lower flange or skirt of the kind shown in Fig. 2 in place of the upper and lower projections, or such flanges may be used in combination with the projections.

Fig. 7 also shows a composite suppository comprising a number of solid portions 1d and a number of capsules 2. In this form of the invention the capsules have a smooth spherical surface as in Fig. 1 and the seats on the solid portions are as shown in that figure. Thus each capsule and the seats between which it is held form a ball-and-socket type of joint so that the entire series of suppository sections is articulated and is capable of following irregularities and curves in the body passage, as above mentioned. Here again, petrolatum or the like may be employed if necessary to retain the capsules seated during insertion of the composite suppository and to serve as a lubricant for the ball-and-socket joints.

So far as the articulation feature of the invention is concerned, the sections 2 of the composite suppository shown in Fig. 7, may be solid bodies instead of liquid-containing capsules, their composition being either the same as or different from the composition of the solid sections 1d. Such a solid body is shown at 2e in Fig. 8 between two solid sections 1e corresponding to the sections 1d of Fig. 7. Fig. 8 further illustrates a modified type of joint that may be used between the portions of the composite suppository to facilitate the relative angular movement between them when they follow irregularities and curves in the body passage. The spherical portion 2e has upper and lower semi-spherical knob-like projections 11 which engage in sockets 12 in the portions 1e. Clearances 13 are provided in the portions 1e to permit them to pivot on the knobs 11 and thereby change their angular relation. Petrolatum or a similar substance may be applied to the seats 12 as described in connection with the other figures.

It will now be seen that by the use of my composite suppository both solid and liquid medication or other treatment can be obtained. In those forms of the invention in which a number of capsules form a part of the composite suppository the liquid contents of the capsules is liberated at a number of spaced points in the body orifice when the capsules dissolve. The liquid substance may be the same in all of the capsules to produce the same medication or other effect at the spaced points, or the capsules may contain different liquid substances to produce different effects. Moreover, the liquid in the capsules may be chosen with due regard to the composition of the solid portions of the composite suppository so that the effect produced by the liquid will be in some way related to the effect produced by the solid substance. In some forms of the invention the capsule may be like those already available on the market containing vitamins, fish oils, medicinal substances and the like, and in that case the user may purchase the solid portions alone and a doctor may furnish or prescribe the proper type of capsule to be used with them.

I claim:

1. A composite suppository comprising an elongated solid portion of material that melts at body temperature having a cup shaped recess in at least one end thereof, and a dissolvable capsule

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adapted to be movably seated within said recess in close engagement with said solid portion, whereby said elongated portion acts both as an applicator for said capsule and as a functional meltable portion of the composite suppository which is isolated from the contents of the capsule prior to use.

2. A composite suppository comprising an elongated solid portion of material that melts at body temperature having a cup shaped recess in at least one end thereof, a rounded dissolvable liquid-containing capsule adapted to be movably seated within said recess in close engagement with said solid portion, and means for preventing displacement of said capsule from said recess after it is positioned therein, whereby said elongated portion acts both as an applicator for said capsule and as a functional meltable portion of the composite suppository which is isolated from the contents of the capsule prior to use.

3. A composite suppository comprising at least two solid portions formed of material that melts at body temperature, each of said portions having at least one rounded recess therein, and rounded dissolvable capsules movably seated respectively in said recesses of said respective solid portions and forming therewith movable ball and socket joints whereby the solid portions are articulated to permit the composite suppository to follow the curves and irregularities of body passages.

4. A composite suppository comprising a plurality of jointed sections, each comprising a solid

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portion of material that melts at body temperatures with cup shaped recesses of substantially spherical curvature therein and dissolvable liquid-containing capsules each having a substantially spherically curved surface movably seated, respectively in such recesses of adjacent sections whereby the successive sections are articulated by ball and socket joints formed by said recesses and capsules to permit the composite suppository to follow the curves and irregularities of body passages.

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