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CAPSULE FOR STORING FLUIDS
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Fig. 1

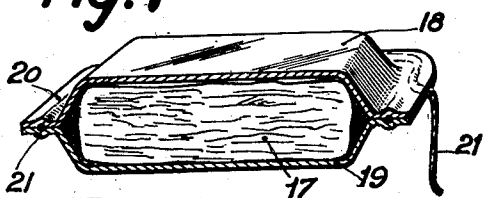
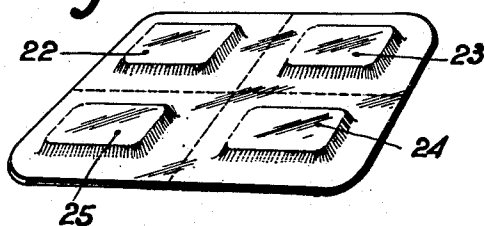


Fig. 2



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CAPSULE FOR STORING FLUIDS

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4 Claims. (Cl. 206—46)

The subject matter of the present invention is a novel capsule for storing fluids acting as a base for pharmaceutical and cosmetic products. It affords, in a general way, the possibility of using a novel method for cleaning the human skin and more especially the hands and face, which is vastly superior to the use of soap and water, namely, the adoption of a pad of wadding impregnated with a cleansing liquid. The object in view is to make it possible conveniently to use preferably an alcoholic liquid for dissolving fat, grease and sweaty secretions by friction with a pad of wadding, and to take up the dissolved matter by means of the pad of wadding. The solvent is not sufficient by itself as the pad of wadding plays here a most important part. In place of the pad of wadding, a pad of similar texture could naturally be employed, especially if it has similar capillary attraction.

The adoption of the aforesaid cleaning method has only heretofore been commonly proposed for definite purposes, for example, in surgery for cleaning the hands with an antiseptic, and in opulent households for the application of a cosmetic for cleaning the face. In such cases the method is applied without any regard to the cost of the face wash and more especially leads to the application of an unnecessary excess of the solvent. The object of the present invention is to so use the said method systematically and with due regard to economy, that it will not be more expensive, or at any rate not considerably dearer, than cleaning by means of soap, water and a hand towel, and that it will eventually become available for the great mass of the people and as a daily requirement.

I accomplish this object by providing a new article in the form of a compact unit or capsule comprising an absorbent, compressible pad in which a measured amount of a liquid cleaning substance is absorbed and a pliable frangible wall of material resistant to the liquid which fits snugly around the impregnated pad and is sealed to prevent the escape of liquid until the wall is destroyed.

The inventive idea resides in the fact that the user is given in a commercial form, for instant use, a ready-made pad impregnated with the liquid. In this way, it is possible, in the first place, to achieve a real economy by the regulation to minimum quantities of the amount of fluid contained in the pad of wadding and thereby effect an economy in the solvent, which is unattainable so long as the layman purchases separately a bottle of solvent and a packet of wadding,

and applies the same more or less unskillfully for making a moist pad of wadding as occasion requires.

In the second place, the present method is just as quickly and conveniently adaptable for use as a handy piece of soap; the carrying of a bottle and of some wadding as well as the tedious preparation of a moist pad of wadding is entirely dispensed with. An even greater advantage is the employment of a sterilized piece of wadding instead of an unsterilized piece removed from a broken packet.

Another feature of the invention is that it provides a new article of manufacture which embodies a special relationship between the liquid, pad and enclosure such that the shape and form of the enclosure are preserved by the impregnated pad, and liquid contents may be handled safely when enclosed within embracing walls that normally might not be rigid enough for entirely liquid contents because of the hydrostatic pressure of the liquid.

The practical application of the present inventive idea requires the further inventive solution of quite a number of technical difficulties, and the means evolved and the process adopted for manufacturing capsules for fluids have some general importance quite independently of the concrete aim of the present invention.

Other objects of the invention will be apparent from the following description and the accompanying drawing in which:

Fig. 1 is a section through a capsule embodying the invention; and

Fig. 2 is a perspective view of a form of the invention.

The capsule for storing fluids needed for carrying out the present inventive idea, comprises a pad of wadding or similar material impregnated with a fluid, and a gas-tight and water-tight wrapper, capable of preventing the evaporation of the fluid, adapted to receive and closely embrace the moist pad and to permit of its removal without exerting the slightest pressure upon the said pad, so as to permit the use of the fluid by the application of the pad for simultaneously spreading out the liquid by friction and for absorbing the greasy residue.

It has been found that the smallest amount of alcohol adequate for cleaning one's hands is 2.5 grammes, and that in order to absorb this amount of liquid by capillary attraction about .5 gramme of cotton-wool will be needed. The external measurements of the impregnated pad will thus be about 1 cm.×2 cm.×3 cm. or about the size

of a lump of sugar. Naturally the external measurements depend upon the selected preliminary formation of the strand. It is also recommended to use a little more than the aforesaid minimum of wadding. By making further trials, it will be possible to determine easily the most suitable absorbing material, the maximum external measurements and the maximum degree of absorption. For different liquids different ratios will apply.

As a separate capsule for a moist pad of wadding, the foil method of capsule packing according to the invention is particularly advantageous.

The manufacture of a serviceable individual capsule which will withstand the effects of a tropical climate, proved itself to be unusually difficult and led to a considerable number of experiments. These difficulties are particularly great when, as contemplated in the first place, the wadding to be dealt with is impregnated with an organic solvent, as the said organic solvent attacks ordinary organic foil, paper and glue. Metal foils are therefore recommended, particularly those made from aluminum and its alloys and those made of tin ("Stanniol") as well as from copper and its alloys. A sufficiently airtight closing of the edges of the casing made of two superimposed foils is produced, in the case of aluminum by crimping or by similar mechanical means, in the case of tin by soldering and in the case of copper by electrical welding. A coating of varnish can further improve the airtightness. In the case of non-metallic foils, it has been proved that a type of foil can be used to withstand alcohol and which can be described as "Bakelited paper", viz. a paper or a strip of cloth which is impregnated with Bakelite, carbamate pressed substances and similar materials which are applied in thin varnish-like layers. The necessary alcoholic resisting glue for pasting the edges together, consists of the same material as the impregnation.

A special capsule can be produced by the employment of India rubber. According to the invention, the capsule is first made ready with a dry pad of wadding and by puncturing the India rubber wall by means of a hollow needle, the required amount of fluid is then supplied to the pad of wadding. After the withdrawal of the needle no detrimental opening will be left behind in the India rubber wall. This process makes it possible to produce a simple sterilized capsule. Above all, the wadding can be run through a vulcanizing process, and thus an India rubber container closed on every side will be produced, the edges of which will be rendered perfectly gas-tight by the vulcanizing.

Use can also be made of a rubber dipping process for the production of capsules for storing fluids. In this case, the pad of wadding is first wrapped in paper or the like, and then dipped into a rubber solution.

A paraffin wrapper cannot be produced with the paraffinized papers usually found in commerce, as these papers cannot be pasted together. This difficulty has been overcome as follows:—The pad of wadding is first wrapped in paper, and the paper capsule is quickly dipped in hot paraffin. The process can also be carried out by first packing and dipping the dry wadding, and then proceeding with the filling by puncturing. The point of puncture is then smeared over with paraffin. This, however, results in quite a lot of rejected goods.

The practical manufacture of foil capsules has only been made possible by reason of the fact

that the enclosed fluid does not exert any hydrostatic pressure on the foil partitions but is held by capillary attraction in the wadding. More especially in the case of rapid movements, such as when the capsule is dropped or knocked about during transportation, this constitutes a safeguard against the tearing of the sheet foil partition. Thus foil capsules can be used quite well notwithstanding their mechanical weakness; on the other hand it is important for the removal of the pad of wadding for instant use, that the capsule can be torn open in one's hand without exerting much strength. For this purpose any of the customary means can be employed supplementarily, such as the insertion of a tearing thread between the edges to be pasted together.

A few particular features of the present capsule for storing fluids and more especially foil capsules are diagrammatically illustrated in Figs. 1 and 2, which also illustrate the preliminary formation of the foil.

Fig. 1 shows two preliminarily formed foils 18 and 19, which, when superimposed, by reason of their conformation leave a sufficiently large hollow space to receive the impregnated pad of wadding 17 in a closely fitting relationship. The two foils form the gas-tight edge closure 20 in which a tearing thread has been embedded, thus making it possible to rip open the edge 20.

Fig. 2 illustrates the possibility of combining a plurality of separate capsules of the type illustrated in Fig. 1 into a composite capsule. The capsule is divided into four separate sections 22, 23, 24, 25, the outer casing, however, consists of only two foils as shown in Fig. 1. These two foils exhibit a plurality of preliminarily formed recesses located opposite each other, any two recesses being adapted to receive a moist pad which is separated from the next pad by the separation walls formed by the two foils.

For the special purpose of the present invention, which is to provide a handy cleansing appliance for the face and hands, it has been proved that an excellent absorption fluid for the pad is an alcoholic salicylic acid solution, preferably in the weak concentration of 2% of salicylic acid. This cosmetic and hygienic solution is exceptionally well suited for the cleansing and care of the skin by means of a pad of wadding. It will be preserved, under the conditions of the aforesaid new method of capsuling fluids, for an unlimited period and will not have a detrimental effect upon the materials of which the capsule is made.

I claim:

1. A destructible mercantile unit comprising an absorbent pad, a pliable rupturable wall fitting closely around and sealing said pad, and a charge of cosmetic liquid for a single application within said wall and impregnated within the pad, said pad being of such material that when impregnated with said liquid it tends to expand against said wall and to hold said wall in expanded, pad-embracing condition whereby to render the wall resistant to deformation and breakage in handling.

2. A destructible mercantile unit comprising an absorbent pad, a pliable rupturable wall of thin rubber material fitting closely around and sealing said pad, and a charge of cosmetic liquid for a single application within said wall and impregnated within the pad, said pad being of such material that when impregnated with said liquid it tends to expand against said wall and to hold said wall in expanded, pad-embracing condition

whereby to render the wall resistant to deformation and breakage in handling.

3. A destructible mercantile unit comprising an absorbent pad, a pliable rupturable wall of metal foil fitting closely around and sealing said pad, and a charge of cosmetic liquid for a single application within said wall and impregnated within the pad, said pad being of such material that when impregnated with said liquid it tends to expand against said wall and to hold said wall in expanded, pad-embracing condition whereby to render the wall resistant to deformation and breakage in handling.

4. A destructible mercantile unit comprising an

absorbent pad containing cotton, a pliable rupturable alcohol-resistant wall fitting closely around and sealing said pad, and a charge of a solution containing alcohol and dilute salicylic acid in an amount suited for a single cosmetic application within said wall and impregnated within the pad, said pad being of such material that when impregnated with said liquid it tends to expand against said wall and to hold said wall in expanded, pad-embracing condition whereby to render the wall resistant to deformation and breakage in handling.

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