

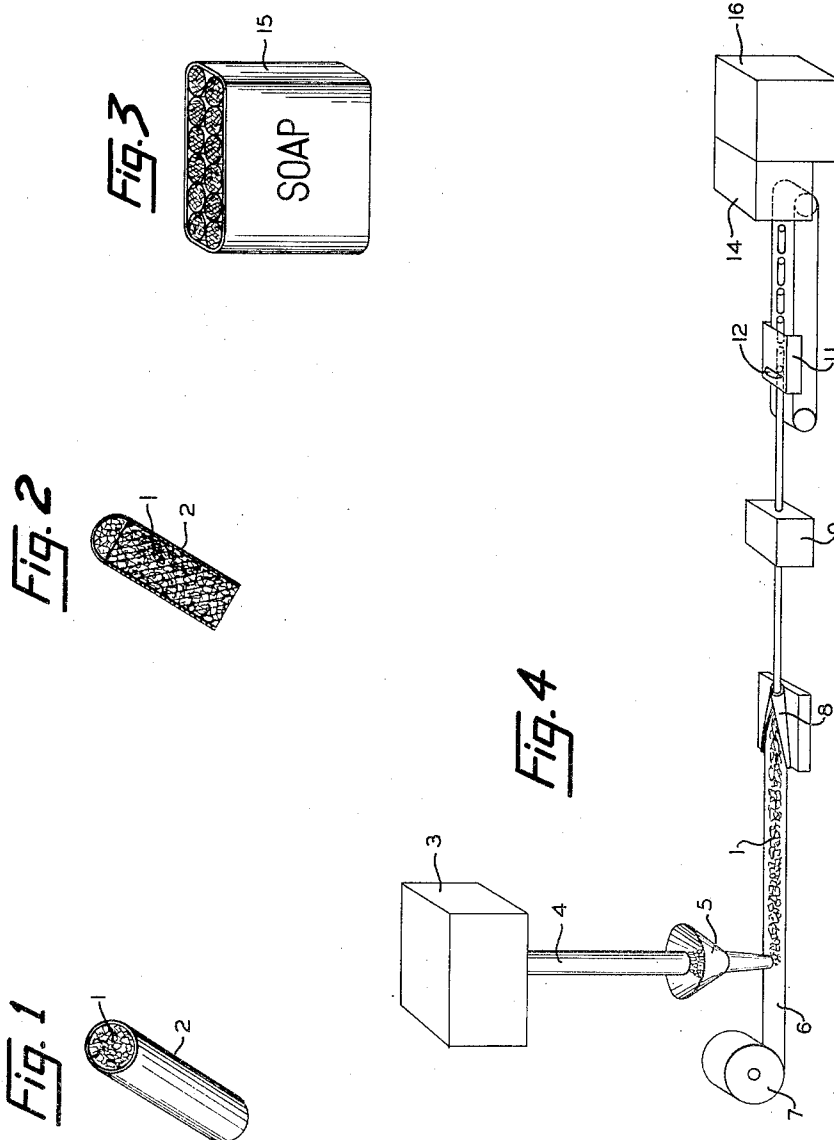
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M. S. BANKS

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WATER DISINTEGRATABLE SOAP PACKAGE

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INVENTOR
MILLARD S. BANKS

BY *Harris D. Hines*
ATTORNEY

UNITED STATES PATENT OFFICE

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WATER DISINTEGRABLE SOAP
PACKAGE

Millard S. Banks, New York, N. Y.

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This invention relates to detergent methods; relates particularly to special packages of detergents; and relates especially to soap packages containing only sufficient amounts of soap as soap flakes for single washing operations, put up in water-dispersive wrappers.

Soap has been prepared in many shapes and types of packages of which the most common perhaps is the ordinary cake, and the next most common is the package of flakes or the container full of liquid soap. These packages serve excellently for household service, but none is convenient for the traveler or the casual user of soap, since the cake is bulky and awkward to carry, especially when it has just been used, and the soap flakes, because of their fragile nature are awkward to use for hand washing and such purposes; while liquid soap, because of the requirement for a container is even more difficult to dispense satisfactorily.

The present invention provides soap in optimum condition for a casual bathing of hands or face in a package which is convenient to carry, convenient to dispense and suitable for widespread distribution in places where the casual user, needing just enough soap for a single washing, can obtain it. According to the present invention, an amount of soap sufficient for one washing of a user's hands, or face, or both, in the form of flakes, is packaged in a light paper tube of such character that the paper disintegrates immediately upon the application of water, leaving available a wet body of soap flakes which form an instant lather in satisfactory amount; the package being small and compact, and particularly suitable for dispensing in automatic machinery, much as cigarettes are dispensed.

Thus the invention packages soap flakes in a paper tube, the length and diameter being such as to contain a convenient amount of soap suitable for one washing operation, by the use of automatic paper tube forming, charging and cutting operation, much like the packaging of tobacco in paper tubes for cigarettes, to yield a compact cylindrical bundle of soap flakes in readily pulpable paper of sufficient strength to withstand dispensing in automatic machinery, but subject to immediate disintegration upon the application of water in the hands of a user. Other objects and details of the invention will be apparent from the following description when read in connection with the accompanying drawing, wherein

Figure 1 is a view in perspective of a soap package according to the present invention;

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Figure 2 is a view in section of the soap package according to the invention;

Figure 3 is a view in elevation of a carton of soap packages according to the present invention; and

Figure 4 is a diagrammatic view of packaging machinery for the preparation of the soap package according to the present invention.

According to the invention, the soap package consists of a bundle of soap flakes 1, wrapped in a paper tube 2. The soap flakes preferably are produced from a high-grade hand soap by any convenient flaking device such as a set of shaving knives working upon a solid cake, or by a shaving operation upon a drum upon which liquid or molten soap is coated and then scraped off by appropriate scrapers, or by other means well known to those skilled in the art of making soap flakes. The flakes are then incorporated into a paper tube. For the paper, any convenient type of paper may be used, according to the particular service and the amount of handling which the soap flake paper is to receive. For most purposes, a thin, light, readily disintegratable paper is preferred; paper of the type of cigarette paper or Japanese tissue, or light toilet paper being preferred because of the very rapid disintegration or pulping which occurs when such paper is wetted. Other types of paper such as typical newspaper stock may also be used, and for a very few specific uses where the package will receive extra rough handling, a harder, tougher paper may be used, depending upon the amount of handling before use and the availability of more time for the pulping of the paper or for the removal of the soap flakes from the wrapper.

In the preparation of the package, the device diagrammatically illustrated in Figure 4 may be used. According to this device, the soap flakes are prepared in a flaker 3 and delivered through a measuring conveyor 4, to a distributor 5, which may take the form of a funnel or other device for discharging the soap flakes onto a moving strip of paper 6 which is conveniently drawn from a roll 7. The paper 6 with the soap flakes 1 upon it is passed through a guide 8 which forms the strip of paper into a tube, the edges of which are pasted by a paster 9. The paper tube is then cut to convenient lengths by a cutter 11 which may conveniently contain a rotating disc knife 12 which severs the paper tube into appropriate lengths. The cut lengths are then passed to a holder 14 in which they are bundled in an appropriate number varying from 10 to about 25 and

wrapped in a wrapper 15 by the use of a wrapping device 18 which incorporates a suitable paster for closing the package. Packages so prepared are particularly suitable for dispensing in automatic coin-operated machinery in much the same way that cigarettes are dispensed. Alternatively, the cut lengths may be packaged in relatively long packages of several hundred, suitable for direct insertion into an automatic machine adapted to dispensing the tubes one at a time, the latter form being particularly suitable in such locations as filling stations, railroad stations, garages, public wash rooms, and the like, where sufficient soap for only one pair of hands or face is needed. Such dispensing machines are well known and these soap packages are dispensed by them just as conveniently and just as readily as are cigarettes or packaged candy.

Thus the product of the invention is readily prepared in a machine having some points of analogy to the well-known cigarette machine. That is, a narrow ribbon of paper having a width of approximately one inch is drawn from a large roll through the packaging machine; first, if desired, passing over a printing roller for marking thereon appropriate identifying marks, trademarks, advertising material, names, and the like. The strip of paper is drawn under a metal chute for the delivery of the soap flakes thereto.

The soap flakes are prepared in any convenient way and preferably are from 1 to 4 or 5 thousandths inch thick, from $\frac{3}{8}$ to $\frac{5}{8}$ inch long and roughly $\frac{1}{8}$ inch wide. These flakes are preferably oriented and arranged by the use of revolving drums with small curved teeth which throw the soap flakes onto metal combs from which the soap flakes are drawn by small cylinders with teeth which pick the flakes from the teeth of the combs and deliver them more or less well oriented onto a moving belt. From the belt the flakes are delivered into a hopper and deposited on the strip of paper. The strip is then drawn into a funnel-shaped guide or shaper which curves up the edges of the strip and brings them together into a tube. After emergence from the shaper, one edge of the strip is given a light coating of paste and brought down onto the other edge to make a pasted closure which is compacted by appropriate guides and rolls. The soap-flake filled tube is then passed to a cutter in which an oscillating knife cuts the tube into appropriate lengths and delivers the lengths into a receiving hopper. From the hopper the cut tubes are then delivered onto metal tracks which deliver appropriate numbers of the filled tubes into selector compartments to form a package unit. The package units are then taken to wrappers by which a paper wrapping is formed around the unit of filled tubes and the ends closed and pasted.

For the making of the soap flakes, a supply of hot liquid soap of suitable character is delivered to a traveling metal belt on which it is spread out into a thin film. It is desirable that the amount of glycerine in the soap be adjusted according to the particular type of machinery used so that the soap flakes are slightly hygroscopic, sufficiently so to adhere slightly so as to hold shape and position in the machine, but not enough to deliquesce. A roller having cutting edges arranged so as to define an appropriate length and width of soap flake bears on the traveling metal belt and cuts nearly through the film of soap carried thereon. The soap is then removed in flake form by a scraper blade bearing upon the travel-

ing metal belt. From the scraper blade the soap flakes drop to another conveyor belt and are carried to a cooling tower where they are cooled by a stream of cold air. Thereafter they are delivered to the packaging machine.

The soap flakes are directly useable in the packaging machine as delivered from the flaker, if desired, but for particularly high-grade packages, it is sometimes desirable to remove the small amounts of broken flakes which are unavoidably produced; and the characteristics of the soap flakes may be adjusted to obtain the greatest ease of packaging by the use of humidified air for the cooling operation, but ordinarily this is not necessary since the flakes as delivered from the flaker are usually in sufficiently good condition to be used directly.

It may be noted that in the finished package, there is sufficient adhesion of the soap flakes to each other and to the paper tube both by virtue of traces of residual moisture from the flaker and the packaging pressure to hold them rather firmly in place. The soap flakes tend to lie parallel to the axis of the tube, giving an interlocking effect which also holds them in place, and there is no perceptible tendency for the soap flakes to drop out from the ends of the tube, making it unnecessary to close or seal the ends of the tube.

For use, a single tube with its contained soap flakes may be removed from a package or obtained from a dispensing machine which delivers a single tube, and placed in the palm of the user's hand. A small amount of water, either hot or cold, as desired, is then placed in the same palm. This water is very rapidly absorbed into the tube of soap flakes; and the paper tube pulps and disintegrates immediately, leaving the soap flakes moistened and dissolving. A small amount of working by the user's other hand develops an immediate, excellent lather and the small amount of paper pulp disappears, being broken into small particles which may be fairly widespread over the user's hands. The resulting suds show the customary detergent action and the user may work up as much lather as he desires until the maximum of available lather from the package is reached. If the user has unusually large hands or is a stickler for large quantities of lather, two tubes may be used either simultaneously or successively to obtain the desired excess lather. The lather may then be rinsed off in the usual way, the rinsing taking with it all traces of paper pulp from the tube, whereafter the user may wipe his hands as usual either on a cloth towel or upon a disposable paper towel, as is most convenient.

It may be noted that the paper wrapper should for most services disintegrate with considerable speed. Standard cigarette paper or standard toilet tissue both disintegrate with satisfactory speed and either are entirely suitable for the packaging material. However, both of these materials have even higher strength than is necessary, and, if desired, a paper of still shorter fiber and softer type may be used; or a very short fiber with a light sizing may be used.

It may be noted that the amount of pulp is so small and it disintegrates into such small particles that there is no clogging hazard in any drain pipes through which it may pass but it goes on through just as readily as the standard toilet paper.

It may be noted that this package is superior to paper or cloth charged with soap both by reason of the much lower cost, the greater amount of soap per package and the much greater ease

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of disposability of the carrier. The package of the present invention is far superior to small envelopes of flakes since it does not have to be opened. The package of this invention is convenient in a different order of magnitude to miniature soap bars, in which the small surface area causes the sudsing to be unduly slow and to require an undue amount of labor on the part of the user as well as the usual inability to use all of the soap from such a miniature cake. The package of this invention also is far superior to liquid soaps since soap of any grade can be used rather than the rather harsh soaps which must be used for liquid dispensing; and also all danger of spillage and dripping is avoided.

The most convenient size of package for one washing of the ordinary user's hands has a diameter slightly under $\frac{1}{4}$ inch, just a little smaller than the ordinary cigarette, and a length of about an inch and a quarter, just about half the length of the ordinary cigarette. These dimensions are such as to bring all of the soap close to the center of the user's hands, making it possible to avoid spillage, avoid the sides of the palm, as is unavoidable with liquid soap or with flakes delivered from an ordinary package, and at the same time, the initial lathering begins in the center of the user's palm, in the same way that it begins with a cake of soap with the consequence that the procedures and habits used with cake soap apply directly to the present package, thereby avoiding any requirement on the part of the user for different habits or use, as is unavoidable with liquid soap, and unavoidable with soap flakes delivered from a large package.

It may be noted that the essence of the present invention is the production of a unitary amount of a water-dispersible material packaged in a water disintegratable wrapper; the above embodiment being soap flakes in a soft, short-fibre paper wrapper. Many other embodiments of the basic invention are however possible. For instance, the components of a gelatin pudding may be packaged in a flexibilized strip of gelatin which is used in place of the paper of the above embodiment, the necessary components being delivered onto the strip which is then rolled, the edges pasted, cut to length, and, if desired, the ends sealed by a light coating of liquid gelatin on each end. Such packages may contain just enough for the making of one cup of gelatin pudding; it being merely necessary to drop the single package into hot water, allow it to dissolve, stir, and then set in the ice-box to cool. Alternatively, a similar procedure for concentrated soup may be used in which a sheet of flour paste with small amounts of starch or other suitable material is formed in a strip and used in place of the paper or flexibilized sheet of the above embodiments. In this embodiment, the components of the soup are dropped on the sheet of flour paste, which may be partly baked or not, as desired, or may be merely extruded material much like macaroni, with the ends sealed, if desired, by an appropriate amount of flour paste or other material. By this means also, an amount of concentrated soup which is sufficient for one cup in readily prepared in such condition that it need merely be dropped in the cup, covered with an appropriate amount of boiling water and stirred, whereupon a complete cup of soup is ready for immediate use.

Thus the invention provides a water-dispersible material in a container composed of a water-disintegratable material suitable for the immediate treatment with water for instant use.

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While there are above disclosed but a limited number of embodiments of the process and product of the invention, it is possible to produce still other embodiments without departing from the inventive concept herein disclosed, and it is therefore desired that only such limitations be imposed on the appended claims as are stated therein or required by the prior art.

The invention claimed is:

1. A soap package comprising an open-ended tube of short-fibred tissue paper of low strength and small bulk, a water soluble sealing means holding the edges of the paper together in tubular form, and a filler filling said tube in an amount sufficient for one washing operation comprising a plurality of lightly adherent soap flakes.

2. A soap package comprising a body of soap particles lightly adhesively held together in an amount sufficient for one washing operation, having therearound a tubular open-ended paper wrapper characterized by a thin body, and immediately disintegratable by the presence of water and light friction into discrete fibres which disappear into suds produced from said soap by the presence of water.

3. A soap package comprising a body of soap particles in an amount sufficient for one washing operation, lightly adhesively held together, a tubular open-ended paper wrapper therearound, the said wrapper being characterized by a light, thin, sheet texture, and the property of immediate disintegration into discrete fibres upon the application of water and friction such that the fibres disappear into suds produced from the soap by water and friction.

4. A soap package comprising a body of soap particles having a small, adjusted amount of glycerine as a component to impart slight hygroscopic properties to the soap particles in an amount sufficient for one washing operation, lightly adhesively held together by surface adhesion of the soap particles, a tubular open-ended paper wrapper therearound, the said wrapper being characterized by a light, thin, sheet texture, and the property of immediate disintegration into discrete fibres upon the application of water and friction such that the fibres disappear into suds produced from the soap by water and friction.

5. A soap package comprising a body of soap particles in an amount sufficient for one washing operation, lightly adhesively held together by surface adhesion of the soap particles, a tubular open-ended paper wrapper therearound, the said wrapper being characterized by a light, thin, sheet texture of the type of Japanese rice paper, and the property of immediate disintegration into discrete fibres upon the application of water and friction such that the fibres disappear into suds produced from the soap by water and friction.

6. A soap package comprising a body of soap particles in an amount sufficient for one washing operation, lightly adhesively held together by surface adhesion of the soap particles and a water soluble sealing means applied to the ends of the tube, a tubular open-ended paper wrapper therearound, the said wrapper being characterized by a light, thin, sheet texture, and the property of immediate disintegration into discrete fibres upon the application of water and friction such that the fibres disappear into suds produced from the soap by water and friction.

7. A soap package suitable for direct lavatory

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use, comprising a body of soap particles in an amount suitable for one washing operation, containing therein an adjusted amount of glycerine sufficient to produce a slight surface adhesiveness without the production of significant hygroscopicity, and a tubular, open-ended paper wrapper therearound, the said paper wrapper being composed of short-fibered paper in thin body weight, and characterized by the property of immediate disintegration upon the application of water and friction into small separated fibres which disappear into suds produced by water from said soap particle.

3. A soap package suitable for direct lavatory use, comprising a lightly coherent crushable body of soap flakes in an amount sufficient for one washing operation, and a tubular, open-ended rice paper wrapper therearound.

9. A soap package suitable for direct lavatory use, comprising a lightly coherent crushable body of soap flakes in an amount sufficient for one washing operation, and a tubular, open-ended cigarette paper wrapper therearound.

10. A soap package suitable for direct lavatory use, comprising a lightly coherent crushable body of soap flakes in an amount sufficient for one washing operation, and a tubular, open-ended toilet-tissue paper wrapper therearound.

11. A soap package comprising a body of soap particles in an amount sufficient for one washing operation, and a tubular wrapper therearound, the said soap particles being lightly adhesively held within said wrapper, the said wrapper having the property of immediate disintegration upon the application of water and light rubbing, into particles, which disappear into the suds produced from said soap particles.

12. A soap package comprising a body of soap particles in an amount sufficient for one washing operation and a tubular wrapper therearound

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having the property of immediate disintegration upon the application of water and light rubbing, into particles which disappear into the suds produced from said soap particles, the soap particles being lightly adhesively held within said wrapper, the ends of said wrapper being closed by a water dispersible sealing means.

13. A soap package comprising a body of soap particles in an amount sufficient for one washing operation and a tubular wrapper therearound having a size suitable for holding in a user's palm of approximately one quarter inch in diameter, and one and one quarter inch in length and having the property of immediate disintegration upon the application of water and light rubbing, into particles which disappear into the suds produced from said soap particles, the soap particles being lightly adhesively held within said wrapper.

MILLARD S. BANKS.

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