

Oct. 13, 1925.

1,556,576

C. J. ATKINSON

SOAP TABLET AND PROCESS OF MAKING THE SAME

Filed April 26, 1922

FIG. 1.



FIG. 2.

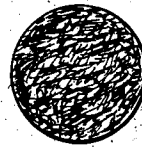


FIG. 3.



FIG. 4.



INVENTOR.

BY *Cyril J. Atkinson*
Erwin M. Mueler & Woodard
ATTORNEYS.

Patented Oct. 13, 1925.

1,556,576

UNITED STATES PATENT OFFICE.

CYRIL J. ATKINSON, OF MILWAUKEE, WISCONSIN.

SOAP TABLET AND PROCESS OF MAKING THE SAME.

Application filed April 26, 1922. Serial No. 556,675.

To all whom it may concern:

Be it known that I, CYRIL J. ATKINSON, a citizen of Great Britain, residing at Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Soap Tablets and Processes of Making the Same, of which the following is a specification.

My invention relates to improvements in grease removing detergents, and processes of manufacturing the same.

The object of my invention is to provide means whereby workmen and others whose hands are exposed to grease or grime may be supplied with individual tablets of cleansing material such, for example, as compositions containing soap, bran, sawdust, oatmeal, linseed meal, and other materials capable of being combined with soap in dry form and of expanding immediately when wet to disintegrate the tablet and make all portions thereof available for immediate use.

Heretofore attempts have been made to provide cakes of soap containing quantities of sawdust, bran, or similar materials combined in such a manner that the soap cakes could be used as ordinary cakes of soap are used, portions of the material being washed from the exterior surface of the cake or rubbed away by contact with the hands or with a wet cloth. The cake of soap was successively used, however, and therefore, became soiled or impregnated with grease and grime, and in some cases became a vehicle for the transmission of disease. It was also found that vegetable or organic material such as sawdust, bran, etc. is subject to rapid decay under such conditions and quickly becomes a much more active agent in the transmission of disease than the ingredients of ordinary soap or of soap containing mineral abrasive materials such as powdered pumice stone.

For the above reasons, the use of organic materials in cakes of soap has been largely abandoned although it has been continued in liquid and semi-liquid soaps into which the workmen dip their fingers preparatory to washing their hands or during the washing process. These liquid and semi-liquid soaps are also objectionable for the reason that the organic material interferes with the discharge of the liquid through a nozzle and where the ordinary practice is followed of dipping the fingers into the liquid

or paste, fouling of the contents of the receptacle is inevitable and decay of the organic material occurs. The use of such soaps has been continued, however, for the reason that the fouling is neither so rapid nor so manifest as it is where solid cakes of soap are used and for the further reason that quantities of the organic detergent are made immediately effective, whereas in a cake of soap, they tend to adhere to the cake, leaving only the dissolved soap upon the hands.

I have discovered that by making soap cakes or tablets of a size for individual, single use and providing means whereby each tablet will instantly disintegrate when brought into contact with water, it is possible to avoid or overcome all of the above mentioned objections to the use of such soaps as heretofore prepared, and I secure the added advantage of enabling the workman to maintain an individual supply of soap tablets and to carry one or more of them with him into the washroom to be used and destroyed in use, nothing being left to be returned to the locker.

In the drawings:

Fig. 1 is a view of one of my improved soap tablets in commercial form.

Fig. 2 is a top view of the same.

Figs. 3 and 4 are side and top views of a partially disintegrated tablet.

In the manufacture of my improved tablets, I take a quantity of moisture absorbing detergent in a form capable of rapid expansion when wet, such, for example, as bran, oatmeal, linseed meal, or sawdust in dry form and mix this material, or any desired combination of such materials, with a small quantity of granular soap. Any ordinary soap may be employed. I use sufficient soap to bind the flaky or granular organic material into the form of a cake or tablet when the mixture is subjected to compression. I then mold quantities of said mixture into tablet form, preferably within a press, or for the sake of economy in the cost of production, I may force the mixture through a tube, thereby compressing it into cylindrical form to be subsequently cut transversely into tablets of the desired size for individual use and complete consumption in a single use.

The process of manufacture is therefore very simple although quite different from that of manufacturing either the liquid soap

or the cakes of soap above referred to, and the product is also essentially different in character, in the following particulars.

The flaky or granular materials, as heretofore used, are mixed with soap while the latter is in liquid form and where cakes of soap are to be formed the liquid is evaporated and the resulting mass cut or molded into the desired form. Therefore the granular materials are coated with soap and embedded in the mass of soap which hardens and not only retains considerable moisture in the absorbent material but retains such material as a part of the mass instead of freely yielding it to be rubbed upon the hands, whether liquid or solid, the material auxiliary to the soap is incapable of further expansion for the performance of any useful function.

In the practice of my improved process I first prepare flakes or granules of soap, the particles of which are preferably of about the same size as the flakes or grains of the auxiliary non-soluble detergent, sawdust, bran, etc. I then mix the soap flakes or granules with the other material or materials in proportions, by volume, of one part of soap to four parts of such other materials without adding any water or other solvent. The flaky or granular mixture is then subjected to a pressure of about 2000 pounds to the square inch of surface. This may be done in individual tablet forms prepared for the purpose, or by forcing the mass through a die or tube to produce a cylinder of a diameter equal to that of the desired tablets and then cutting it into tablet form, or by compressing the mass into the form of a sheet having the thickness of the desired tablets and then cutting tablets therefrom by suitable cutters. By drying soap chips until they are sufficiently brittle to be readily ground into a powder, it will be found that the soap is sufficiently dried for the purposes above described. The soap chips are preferably exposed to warm air having a low degree of humidity until the moisture has been evaporated from soap substantially to the full extent that such air is capable of absorbing it. By drying the soap, as above described, it will be found that under a pressure of 2,000 lbs. to the square inch the soap will have sufficient adhesion to prevent disintegration of the tablet under any ordinary atmospheric conditions. In the ordinary practice of my process, I similarly dry the sawdust or other materials, but any convenient means for drying these materials may be employed. Substantially all moisture must be eliminated from the table disintegrating materials in order to obtain the desired instant disintegration of the tablet when wet.

The resulting product is highly porous, and the particles of sawdust or other ab-

sorbent material are merely held together by the adhesion of the soap granules or flakes at the points and surfaces of actual contact. Moisture being absent or substantially so, the adhesion is not very tenacious and not sufficiently extensive to exclude water from the interior of the tablet, nor from contact with the particles or at least, a large percentage of them.

Exact proportions of the ingredients are not essential but the quantity of expansible material should be large enough to promote the rapid disintegration of the tablet when exposed to water, and I find that excellent results are attained by employing approximately 25% by volume of soap granules, and 75% of dry sawdust, bran, or other moisture absorbing or moisture expanded materials.

The quantity of soap used may also be varied with variations in quality or hardness. In any case it should be sufficient to constitute a binder for the other materials without filling the interstices or producing a non-permeable solid. That is to say, the proportion of soap should in any event, be small enough to leave the cake in a porous or permeable condition after the compressing or tablet forming operation, whereby, when water is applied the moisture will readily penetrate and disintegrate the tablet.

By having the moisture absorbing material, dry, I avoid any tendency to decay and the tablets may therefore be kept throughout long periods of time without deterioration. When water is applied, these tablets immediately expand to two or three times their normal size. This brakes the adhesions of the soapy binding material and causes the granular material or flaky material to fall apart, whereupon the mass may be rubbed over the surface of the skin in accordance with the established practice when using liquid soap or paste containing such materials.

I claim:

1. As a new article of manufacture a porous soap tablet of a size for individual single use, permeated throughout with a dry moisture absorbent material in comminuted form, the particles of said material being held together by the soap in a manner to allow water to promptly permeate the entire mass, said material when wet being adapted to instantly expand and being in sufficient proportion to disintegrate the tablet by such expansion.

2. As a new article of manufacture a porous soap tablet of a size for individual single use, permeated throughout with a dry moisture absorbent material in comminuted form, the particles of said material being held together by the soap in a manner to allow water to promptly permeate the entire mass, said material when wet be-

ing adapted to instantly expand and dis-
integrate the tablet, said soap and ma-
terial being in the approximate relative pro-
portions, by volume, of one part and four
5 parts, respectively.

3. The process of making soap tablets
consisting in preparing soap in dry com-
minuted form, mixing therewith a quantity
of dry particles of a detergent material
capable of rapidly absorbing moisture and 10
adapted to instantly expand when wet and
then sub-dividing the mixture and compress-
ing the sub-divided portions into tablet
form under sufficient pressure to cause the
soap to act as a binder for the particles of 15
moisture absorbing detergent.

CYRIL J. ATKINSON.