# UNITED STATES PATENT OFFICE.

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## DETERGENT.

965,908. Specification of Letters Patent. **Patented Aug. 2, 1910.**

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*To all whom it may concern:*

Be it known that I, EDWIN E. JOHNSON, residing at the city of San Martin, in the county of Santa Clara and State of California, have invented certain new and useful Improvements in Detergents, of which the following is a specification.

This invention relates to detergent compounds, especially those designed for toilet purposes, such as cleaning and washing the hands, the bath, and shampooing the hair.

One of my objects has been to provide an article that will have the advantage of being in powdered form, and at the same time be composed of such ingredients that its use will not injure the skin, so that it may be used in cases where the ordinary strong washing powders would, for any reason, be harmful or their use undesirable. It has also been my desire to produce a washing powder having marked antiseptic properties, and, with this end in view, I have introduced substances adapted to decompose at the proper time and which, in the process of decomposition, yield free oxygen.

Nascent oxygen possesses marked antiseptic, healing, and other beneficial properties, so that its liberation in connection with a washing powder will be attended with good results.

In the manufacture of my improved compound, I make use of the following ingredients, in approximately the proportions named opposite each:

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| Comminuted maize | 150 lbs. |
| Powdered soap | 50 " |
| Irish moss (carrageen) | 4 ozs. |
| Paraffin wax | 8 " |
| An oxygen-liberating substance, as, for example, perborate of sodium ($NaBO_3$) or zinc peroxid ($ZnO_2$) | 4 " |
| Perfuming substance | ½ oz. |

It is not necessary that the ingredients above named be used in the exact proportions stated, but considerable variation in the proportion of any one of the ingredients may be permitted, and in some cases will be found desirable. For example, the strength and quality of the soap obtainable will probably vary from time to time, and the proportion to be used will have to be altered to accord with the changes in the grade of the soap used. Then, the prospective use of the article may, also, cause a change in proportions of some of the ingredients used, as where the article is designed especially for coal miners, in which case the proportion of the abrasive maize needed would be greater than that required in the nursery. A number of different grades of the manufactured article, selling at different prices, can also be provided by increasing or decreasing the proportion of the more expensive ingredients. In some cases, the perfuming substance might be omitted entirely, as many persons prefer an unscented article.

In order properly to compound the ingredients above specified, I proceed as follows: The Irish moss is placed in a suitable receptacle composed of reticulated material, as, for instance, a bag made of cheese cloth, and is then boiled in about a quart of water. This causes the moss to dissolve and assume a thick mucilaginous or paste-like form. I prefer to boil it in a cloth bag, as the bag can be squeezed from time to time and the mucilaginous mass forced out into any convenient receptacle. It is not necessary to dissolve all of the moss, but if three-quarters thereof is exhausted, that will be sufficient. The mucilage thus prepared by dissolving the moss is allowed to cool, after which it is gradually and thoroughly mixed with about 10 lbs. of the comminuted maize, the whole being kept in powdered form and not allowed to cake or become lumpy. This powder is then spread out in shallow trays, and allowed to dry in the sun or in a warm room, due care being taken to prevent its being baked, after which it is sifted to remove any cakes or lumps that may have formed. The paraffin wax is melted, and about 10 pounds of the comminuted maize are gradually mixed in with it while in said molten condition, an ordinary druggist's pestle being used thoroughly to mix the two substances. The perborate of sodium, peroxid of zinc, or other oxygen-yielding substance, whatever may be selected, and the perfume, if any be used, are then mechanically mixed together with about one pound of the comminuted maize, after which the mixture is sifted.

The products resulting from the three steps taken as above described are then thor-

oughly mixed with the rest of the comminuted maize and the powdered soap. This last mixing is merely a mechanical agitation, and any of the well-known mixing machines of which there are a number on the market are adapted for that purpose. After being thus mixed, the compound is given a final sifting, and is then ready to be packed and shipped.

When it is desired to use my compound, the hands or other parts to be cleansed should be wet and a small quantity of the powder, drawn from any suitable soap receptacle, placed or sprinkled thereon. The water acts on the soap in the usual manner, and a large part of the cleansing operation is performed thereby. The Irish moss serves as a kind of a binder or adhesive to hold the different ingredients together, and, also, together with the paraffin, serves as a mechanical collector of dirt, and as a lubricant. A further reason for the use of the paraffin is that, while a fatty compound is desirable in any soap, the use of animal fats should be avoided, for, when they come into contact with the skin in the presence of zinc peroxid, as hereinafter described, there is a tendency to form zinc oleate, zinc stearate, and other zinc salts which may irritate the skin. The comminuted maize, having absorptive properties, will absorb any moisture to which the compound may be exposed when standing near a washstand, and thus keep the powder dry and tend to prevent caking. Further, as it is insoluble in water, it will not be dissolved like the other ingredients, but will be softened to a slight degree. As the hands are rubbed, it serves as a mild, but efficient, abrasive, and one that will penetrate into the cracks of the skin, helping to remove both dirt and waste cuticle, but as it is not sharp, hard, or rough, like most abrasives, especially those of a mineral origin, it will not scratch or injure the skin, and, as it is chemically innocuous, no harm can result even if small particles of it should enter breaks or cuts in the skin. The article which is herein designated as comminuted maize is known to the trade as "cones", and is merely finely pulverized maize or Indian corn. It is more suitable for this purpose than any other vegetable abrasive, not only on account of its comparatively low cost, but, also, by reason of the fact that it is wanting in gluten and albuminous matter, which would tend to make the whole compound sticky when wet. The sodium perborate is a combined antiseptic and cleansing agent. On coming into contact with water and with the secretions of the skin, it breaks up into free oxygen, hydrogen peroxid, and sodium biborate or borax. The hydrogen peroxid thus obtained bleaches and whitens the skin, being assisted in so doing by the nascent oxygen, which also serves as a disinfectant and a deodorizer. The borax is both a cleansing and an antiseptic agent. The sodium perborate has the advantage of being a relatively stable salt, and one that will not give up its oxygen until brought into contact with water, so that the mixture will not deteriorate on standing.

While the use of sodium perborate as the oxygen-liberating agent does, in many respects, produce the best results, success has also attended the use of zinc peroxid. This antiseptic agent is decomposed into zinc monoxid and free oxygen. It has been found, however, that the zinc peroxid is not easily soluble in water, and will not, therefore, liberate its oxygen as rapidly as the sodium perborate, but to obviate this defect, a small quantity of one of the weaker organic acids (tartaric, for example) may be incorporated into the mixture to assist in the decomposition of the peroxid. Instead of using an acid, however, sodium perborate may be added to the composition for a like purpose and with like results, as it, also, serves to promote the decomposition of the zinc peroxid. Where sodium perborate is thus used, the mixture should contain approximately equal proportions of sodium perborate and zinc peroxid, and it has been found that a mixture containing, in addition to the other ingredients, equal quantities of sodium perborate and zinc peroxid, is entirely satisfactory.

Obviously, I do not intend to be restricted to the use of either of the above-mentioned oxygen-liberating compounds, but any other substance that will decompose and give off free oxygen may be used. The ones specified are herein recommended because they are well and favorably known, are reasonably quick to give up their oxygen, and their cost is low enough to make their use commercially practicable.

Having thus described my said invention, what I claim and desire to secure by Letters-Patent is:

1. A detergent composed of one hundred and fifty parts comminuted maize, fifty parts powdered soap, one-fourth part Irish moss, one-fourth part perborate of sodium, one-half part paraffin wax, and one-thirty-second part of a perfuming substance.

2. A detergent composed of sodium perborate, powdered soap, Irish moss, paraffin, and comminuted maize substantially in the proportions stated, but not chemically combined.

3. A detergent consisting of an abrasive, a cleansing ingredient, sodium perborate, and zinc peroxid.

4. A detergent composed of one hundred and fifty parts comminuted maize, fifty parts powdered soap, one-fourth part Irish moss, one-half part paraffin wax, one-fourth part

zinc peroxid, one fourth part sodium perborate, and one-thirty-second part of a perfuming substance.

5. A detergent composed of an abrasive, a cleansing ingredient, zinc peroxid, and an ingredient adapted to assist in the decomposition of said peroxid.

6. A detergent composed of an abrasive, a cleansing ingredient, Irish moss, and zinc peroxid, and an ingredient adapted to assist in the decomposition of said peroxid.

7. A detergent composed of comminuted maize, powdered soap, and zinc peroxid, said ingredients being mechanically mixed, but not chemically combined.

In testimony whereof I have affixed my signature in presence of two witnesses.

EDWIN E. JOHNSON.

Witnesses:
J. P. HINES,
ALONZO J. FOX.