

UNITED STATES PATENT OFFICE.

CARLETON ELLIS, OF LARCHMONT, NEW YORK, ASSIGNOR TO FULTON CHEMICAL COMPANY, A CORPORATION OF NEW YORK.

LINEN-SMOOTHER.

956,693.

Specification of Letters Patent.

Patented May 3, 1910.

No Drawing.

Application filed April 9, 1909. Serial No. 488,955.

To all whom it may concern:

Be it known that I, CARLETON ELLIS, a citizen of the United States, residing at Larchmont, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Linen-Smothers, of which the following is a specification.

This invention relates to linen smoothers; and it comprises a body of a more or less fluent, waxy nature, suitably colored and of such hardness and character that when rubbed against linen it will leave a smooth and clean permanent film of a waxy nature, the material of such body containing an acid-neutralizing waxy body and a mild antiseptic; all as more fully hereinafter set forth and as claimed.

After repeated use and laundering, as is well known, linen articles of body wear, such as shirts, collars, cuffs, wristbands, neckbands, etc., become more or less frayed on the edges, folds and surfaces so that they not only lose their good appearance but are irritating to the skin of the wearer because of mechanical abrasion by such frayed edges, such abrasion being particularly irritating to a sweaty and inflamed skin. While starching the linen in laundering in part does away with the mechanical abrasion, it does not do so altogether and on a hot day when the perspiration or sweat softens the starch, it is little effective in this direction. Furthermore, the frayed portions of the linen, especially when the linen becomes softened by sweat, tend to pick up dirt and become soiled, the frayed portions affording a good lodgment for dirt.

Normal perspiration or sweat is a bland, innocuous fluid having no irritating action upon the skin. The skin and the hairs thereof, however, are invariably contaminated with bacteria and other organisms which have the power of acting upon sweat to make it acid and to generate other more or less irritating and odorous products. While the skin may be washed substantially free of these organisms, this is difficult without the use of positive antiseptics, and in the case of organisms clinging to the hair or downy hairs, it is practically impossible. The surface of the hair is more or less rough and in these roughnesses bacteria find a good nidus whence they cannot well be dislodged

or removed by simple washing, with or without soap. There are always enough organisms left to start a vigorous growth upon a proper supply of nutritive fluid. Soap left on the skin after ablution rather aids in this growth than diminishes it, since soap is feebly alkaline and feebly alkaline media offer the best conditions of growth for most bacteria. To produce complete asepsis of the skin and its hair or down, a positive antiseptic is generally necessary. And as stated, in cleaning skin and the hair thereof by ordinary ablution some bacteria are inevitably left so that when a new flow of perspiration occurs, these bacteria grow and propagate in such a manner as to make the sweat acid and irritating, and, frequently, odorous. The roughened places in frayed linen also offer a good nidus for micro-organisms. On a hot day, an acid sweat in combination with the mechanical abrasion of frayed linen, tends to produce intense irritation to the skin.

By rubbing a suitable waxy composition upon frayed linen, if the hardness and other characters of the wax be correctly selected, the linen may be left covered with a thin clinging film of wax which will largely obviate mechanical abrasion due to such frayed portions. The waxy composition must be soft or fluent enough to leave a clinging film upon the linen, but must be hard enough to resist removal of this film by subsequent rubbing against the skin. The wax should contain a suitable coloring agent to make its color harmonize with that of the linen. Since linen is generally white, this coloring matter should usually be white also. Talc is a useful agent as an addition to these waxy compositions since it is so soft in its nature that it is not irritating to the skin. A comparatively large amount of talc may frequently be used. But since, as stated, the irritation of the skin is a compound effect resulting partly from the abrasion and partly from the irritating fluids formed by the fermentation of sweat, such a composition as stated is not altogether satisfactory for the present purposes. With a frayed collar on a hot day, when the collar becomes limp by the softening of the starch and the sweat is acid, no amount of mechanical lubricant will altogether obviate irritation. While such a waxy composition will cover frayed

and sharp edges, it does not altogether do away with their roughness, and rough surfaces rubbing on a skin covered with acid sweat, will still irritate the same. For the best results therefore, the composition should contain both a body capable of neutralizing the acidity of the sweat and in itself not irritating nor developing irritating bodies in such neutralization, and a body capable of preventing the development of more acid, etc.

Strongly alkaline bodies cannot well be used in the composition since they are hardly practicable for use with a tender skin nor is a saline body which will liberate irritating acids upon contact with the acid of the sweat. The soaps of the higher fatty acids with the oxids of the heavy metals are, however, suitable for this purpose, since they are not irritating while the contained oxid will neutralize the sweat acids; and the fatty acids liberated thereby are not irritating. Palmitates and stearates of zinc, lead, barium, strontium, magnesium, etc., are all more or less suitable for this purpose. These soaps are of a hard and waxy nature and are adapted for the present purposes, their hardness being of about the proper degree, while they have no irritating effect upon the skin. The soaps of these bases are insoluble in water and hence are not irritating and are devoid of sensible alkalinity. In contact with the sweat acids they neutralize the latter without developing other irritating bodies in their lieu. In and of themselves, however, these soaps are very little antiseptic, and, in fact, like ordinary soap often tend rather to promote the growth of bacteria. And not all the irritating fermentation products of sweat are acid in their nature. In the preferred form of my composition therefore, I combine with the stated bodies a mild but positive antiseptic having no irritating action upon the skin. As particularly suitable for this purpose I regard boric acid. The acid properties of boric acid are so feeble that it does not decompose the stated soaps and it is not irritating to the skin. At the same time, it is a positive antiseptic. While other innocuous antiseptics may be used in lieu of boric acid, they present no advantage thereover. Boric acid has the further advantages for the present purposes that it blends readily with fatty and waxy compositions and is odorless. In the embodiment of my invention at present preferred, therefore, I produce a compound body of waxy material of such a hardness that it will leave a film of wax on being rubbed over linen, which will not be removed by the skin at the ordinary skin temperatures. The composition may advantageously contain talc, which may form a large part of the mixture. For colored linens, the composition may contain suitably

colored anilin or other dyes dissolved in the composition. Anilin dyes which are soluble in fats and waxes may now be procured in commerce, of any desired color or tint. As another part of the composition I use one or more of the stated soaps of heavy metal oxids. A zinc soap is eminently suitable. Stearate of zinc for example is a waxy body of about the right hardness for the present purposes. I furthermore incorporate in the composition an innocuous antiseptic, preferably, as stated, boric acid. The composition may be formed into blocks, cakes or other form suitable for the present purpose.

One article embodying the present invention may be made by melting together, say 4 parts of hard paraffin wax, and 2 parts of stearate of zinc. With this mixture may be incorporated 9 parts of talc. The stearate of zinc may be made by heating double pressed stearic acid with about one-third of its weight of zinc oxid to a temperature of 140° to 150° C. By using a little more zinc oxid than corresponds to the stearic acid, the excess of zinc oxid gives a whitening effect which is desirable, and especially with some grades of commercial talc and stearic acid. The excess of oxid of zinc further reinforces the acid neutralizing action of the soap. With the composition made as stated, may be incorporated 1 or 2 per cent of boric acid, the boric acid being stirred into the molten mass. To secure a good incorporation the boric acid may be previously dehydrated. Another composition of like nature may be made by melting together 3 parts of white vegetable wax, 3 parts stearic acid, 10 parts talc and 2 parts zinc oxid. To secure a combination of the stearic acid and zinc oxid the whole mixture may be heated to 140-150° C. To this composition a per cent or so of boric acid is added. A large excess of zinc oxid does no harm and is often advantageous, zinc oxid being colorless, neutralizing sweat acids and being non-irritating.

If the article is to be used with colored linen suitable coloring fat and wax soluble coloring agents may be incorporated with the mass during the melting. For brown linen, for instance, a little wax soluble brown may be stirred in; for blue linen, a little of a wax soluble blue may be employed, etc. Anilin colors for wax which are of the nature of wax lakes, are now commercially available. They may be made by precipitating wax over a wax and water solution, such as with a soap of beeswax or Japan wax, in the presence of dissolved anilin colors. Or any of the well known commercial fat-soluble dyes may be employed. Mechanically admixed coloring matters are less suitable but may be employed.

Much of the commercial talc on incorporation with wax shows a grayish or

brownish tinge, and the use of an excess of zinc oxid aids materially in correcting this. This excess may be present as mechanically admixed zinc oxid or in the form of a basic soap, or and usually, in both forms.

The composition made as described may be formed into small cakes of an inch or so in length. This cake may if desired, be formed with a groove at one or both ends, though this is hardly necessary since in use the block quickly becomes grooved by being rubbed over the folds or tops of collars, etc.

In use the block is rubbed over the frayed portion of the collar or other linen article. Compositions of the nature of those stated are of such hardness that in rubbing over this frayed linen a thin layer of wax is left, filling up the depressions and covering the rough edges. The color of the composition being the same as that of the linen, this film is not noticeable. On wearing a collar or other article so treated with the stated waxy composition, this clinging film does not rub off. In such use, however, the soap component tends to neutralize the acidity of the sweat and thereby deprive it of much of its irritating qualities, while the boric acid at once stops locally the fermentation of the sweat producing acid and other irritating bodies.

What I claim is:—

1. A linen smoother comprising a comparatively hard body of waxy material containing an acid-neutralizing body of waxy nature and an antiseptic body said smoother being devoid of sensible alkalinity. 35

2. A linen smoother comprising a body of waxy material containing a heavy metal soap and an antiseptic body.

3. A linen smoother comprising a body of waxy material containing a zinc soap and an antiseptic body. 40

4. A linen smoother comprising a body of waxy material containing an acid-neutralizing body and boric acid. 45

5. A linen smoother comprising talc, a wax, an acid-neutralizing body and an antiseptic. 50

6. A linen smoother comprising talc, wax, a soap of a heavy metal and an antiseptic. 50

7. A linen smoother comprising talc, wax, a zinc soap and an antiseptic.

8. A linen smoother comprising wax, stearate of zinc and an antiseptic.

In testimony whereof, I affix my signature in the presence of witnesses. 55

CARLETON ELLIS.

Witnesses:

NATHANIEL L. FOSTER,
FRANCES I. NEWMAN.