Patented Apr. 1, 1952

2,591,481

UNITED STATES PATENT OFFICE

2,591,481

SPONGIOUS CLEANING DEVICE

Paul F. Webster, Mars, Pa., assignor, by mesne assignments, to Treesdale Laboratories and Textile Processing Company, a corporation of Pennsylvania

No Drawing. Application August 29, 1946, Serial No. 693,813

2 Claims. (Cl. 15—244)

1

The present invention relates to a cleaning device particularly adapted for the removal of spots and stains from articles of clothing.

One object of my invention is to provide a cleaning device which has a self-contained supply of a suitable detergent.

A second object of the invention is the provision of a cleaning device which is made ready for use simply by moistening with water.

Other objects and advantages of this invention will be readily apparent from the following detailed description of certain preferred embodiments thereof.

Small, unsightly and very obvious spots appear frequently on clothing despite every precaution of the average orderly wearer. Generally, the spots are not of sufficient size to warrant subjecting the entire garment to dry cleaning or the spotting occurs when complete cleaning is not convenient. For example, a coat may brush against a grimy wall or car fender. Again, in rainy weather, water spatters the hosiery of women pedestrians. Thus, a small, pocket-size spot remover is a desideratum. To be most serviceable, such a cleaning device should carry a reasonable supply of cleaning medium in a secure manner obviating risk of spillage. The cleaning device should be compact and of light weight.

Briefly stated, my invention contemplates the impregnation of a spongious body with a substantially anhydrous synthetic detergent, which, upon the addition of water, will be activated to provide a highly efficient cleansing medium.

The spongious body can be either a portion of a natural sponge or a section of a regenerated cellulose or cellulated rubber sponge. I particularly favor the synthetic sponge material, for the communicating cell structure thereof is more uniform than can ever be found in a natural sponge and in addition the synthetic material lends itself more favorably to the formation of small, regular sections most suitable for packaging and handling.

It is preferred that the detergent employed in the cleaning device be selected from those which when contacted with water and aerated develop a heavy froth of bubbles or suds. One group of synthetic detergents possessing this property is that consisting of sodium lauryl sulphate and its higher homologues including sodium cetyl sulphate together with the oleic and stearic acid esters. Similarly, a mixture of the esters formed from the higher acids produced by the oxidation of petroleum fractions can be included with-

2

in this group. Sodium alkyl benzene sulfonate and other analogous organic sulfonates are further examples of desirable detergents. This class of detergents is also marked by its freedom from curd-forming characteristics. They do not combine with the calcium and magnesium salt content of hard water to form insoluble deposits. In addition many of these detergents are normally in solid form and are readily soluble in water. Accordingly, they will be activated by the addition of a small quantity of water and, furthermore, evaporation thereof will restore them quickly to their solid form.

The spongious body of any desired size and shape is impregnated with the synthetic detergent by immersion in a water solution thereof, accompanied by repeated compression of the spongious medium, and is thereafter dried. The amount of detergent remaining within the cellulated structure will, of course, depend upon the concentration of the detergent solution used for impregnation. For most purposes a solution containing from 2–12% of detergent will permit the absorption of sufficient liquid to leave from 5–10% by weight of solids within the spongious body. However, as little as 1% by weight of solids or as much as 15% by weight of solids will yield serviceable cleaners. Considerations of weight and cost are really the only limiting factors in determining the amount of detergent to be added to the spongious body.

In addition to the synthetic detergent employed in the cleaner, it is often beneficial to include therewith a detergent aid or water softener. For example, a sodium phosphate such as sodium metaphosphate or tetra sodium pyrophosphate, will assist in the cleaning action. A large amount of the phosphate additive is not necessary. I have found that from ½ to 3% of the phosphate is sufficient for most purposes.

In service the treated sponge is moistened with water and flexed several times to develop a dense froth or foam of small bubbles upon its surface. The bubbles are applied to the soiled area of the textile and brushed thereover until they disappear. The bubbles lift the dirt from the textile and transfer it to the cleaner. The damp sponge may be allowed to dry and in any case is immediately ready for the next cleaning task. Where it is intended to be carried in a pocket or purse, a waterproof envelope may be provided into which container the damp sponge may be placed immediately after use.

A cleaning device as contemplated by this in-

vention can be used repeatedly before the detergent supply is exhausted. For example, a regenerated cellulose sponge approximately 3'' x 1'' x 1'' was impregnated with a solution containing four per cent by weight of technical sodium lauryl sulphate, one per cent of tetrasodium pyrophosphate and ninety-five per cent of water. The treated sponge was air dried and upon being weighed was found to have increased in weight by ten per cent. This sponge was moistened, worked to form a froth and subsequently allowed to dry 500 successive times before the detergent was exhausted.

Although I prefer to employ as the detergent media, compositions which dry to the solid form, thus precluding possible damage while the cleaning device is being carried, it is obvious that a normally liquid detergent can be used to impregnate the spongious body. In such case, a moisture proof envelope or container for the cleaning device is essential.

What I claim is:

1. A cleaning device consisting of a spongious body impregnated with a substantially anhydrous, synthetic, organic, non-saponaceous detergent.

2. A cleaning device consisting of a spongious body having deposited upon the cell walls thereof a layer of a substantially anhydrous, synthetic, organic, non-saponaceous detergent.

PAUL F. WEBSTER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
678,971	Nettlich	July 23, 1901
1,614,019	Pratt	Jan. 11, 1927
2,257,911	Kraft	Oct. 7, 1941
2,382,164	MacMahon	Aug. 14, 1945
2,382,165	MacMahon	Aug. 14, 1945