

UNITED STATES PATENT OFFICE.

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DETERGENT AND PROCESS OF MAKING SAME.

SPECIFICATION forming part of Letters Patent No. 690,458, dated January 7, 1902.

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To all whom it may concern:

Be it known that we, FREDERIC N. PEASE and MILTON E. McDONNELL, of Altoona, Pennsylvania, have invented certain new and useful Improvements in Cleaning Preparations, of which the following is a specification.

The object of this invention is to produce a fluid or semifluid cleaning preparation that may be used on painted, oiled, varnished, or glass surfaces, but is in no way restricted to such use.

The use of acids to clean painted, oiled, varnished, glass, or other surfaces has long been known. Muriatic, sulfuric, oxalic, and acetic acids have been in use for this purpose and have given fairly satisfactory results. While the use of acids by themselves in a more or less concentrated form has been in some respects satisfactory, such acid cleaners have been found to have certain considerably objectionable qualities. If an acid cleaner is used which is non-volatile at ordinary atmospheric temperature, it must be absolutely completely removed by washing. Otherwise if any residue remains it will corrode and eat its way into the cracks or other irregularities in the surface and may thus have a deleterious effect upon the structure cleaned. It is of course desirable that the cleaner used should act as promptly and thoroughly as possible. Therefore an acid must be used in a comparatively concentrated form; but, as is well known, muriatic, sulfuric, oxalic, or acetic acid is more or less liable to injure the hands or the brush or the other means by which it is applied, which of course makes the use of a concentrated acid by itself objectionable. The use of a volatile acid by itself for a cleaner is also further objectionable in that the acid volatilizes before it loosens the hold of the dirt on the surface to be cleaned. Furthermore, no acid by itself nor any of the acid cleaners on the market will lie on an oily place. Consequently such oily places, if any there be on the surface to be cleaned, escape the action of the cleaner, and finally when the surface to be cleaned is vertical, as commonly happens in railroad-cars, windows, &c., the acids alone run off too easily to be used with success.

This invention is designed to avoid as far

as possible the above-enumerated and other difficulties. By the use of this invention a cleaner is obtained which when a volatile acid is used is free from injurious action on the article to be cleaned, even though any should chance to remain after the surface is washed. It can be applied without injury to the hands, will lie quietly on an oily surface and loosen the dirt underneath the oily layer, and be held in contact with the surface long enough for it to completely loosen the dirt and make it easy to remove both dirt and cleaner by a subsequent washing.

In making the cleaner a vegetable or animal nitrogenous substance which contains not less than fifteen per cent. of raw proteids or not less than 2.4 per cent. of nitrogen is mixed with any acid that will react satisfactorily with such a nitrogenous material. A volatile or non-volatile acid may be used. Muriatic, acetic, citric, tartaric, oxalic, and sulfuric acids have been employed with good effect; but this invention is not restricted to the use of these acids. In case a non-volatile acid is used it is of course essential to remove the mixture completely from the surface by subsequent washing. This mixture is allowed to stand a sufficient length of time to allow such chemical reaction as takes place to occur, which is evidenced by the mixture becoming viscid and spreading more or less smoothly upon any non-absorbent surface. The time required for the reaction to take place depends upon the strength of the acid used and the temperature of the mixture, the stronger the acid and the higher the temperature the shorter the time. Many nitrogenous vegetable or animal substances may be used—as linseed or cotton-seed oil cake or gluten-meal, bean-meal, pea-meal, or the meal from any leguminous plant after substantially all the oily matter has been abstracted from them. The whites and yolks of eggs may also be used. In carrying out this process it is advisable that the nitrogenous material be stirred into the acid.

As an actual working formula for a cleaning preparation which we have found by practice to be successful the following may be used: linseed or cotton-seed meal, 2.3 pounds; commercial muriatic acid 1.16 specific grav-

ity, four and one-third pints. When eggs are used in place of the meal in the preparation of this cleaning compound, one part of egg, by volume, to one and one-fourth parts of the acid are taken, which mixture is diluted with one-half part of water. The meal and acid are thoroughly mixed and allowed to stand at a temperature not below 70° Fahrenheit for from twelve to sixteen hours or until the spreading test above described shows the material to have the proper consistency. The mixture is then diluted with water to make one gallon. To secure a rapid and complete admixture of the ingredients, it is preferable to have the nitrogenous substance in a state of fine division or in a fluid or semifluid state and to keep the mixture while the reaction is taking place at a temperature of 70° Fahrenheit or, if possible, higher.

In the practical use of the cleaner it is spread by means of a brush or in any other suitable manner upon the surface to be cleaned and allowed to stand not less than three to five minutes and, if possible, longer. The surface is then gone over with a stiff brush or a cloth or sponge which has been dipped in the cleaner or moistened with water, the object being to detach the dirt which has become loosened by the acid and mix it with the cleaner. The dirt and cleaner are then removed from the surface by means of a hose or in any other convenient way.

The dilution of the cleaner with water is in no way limited to the proportions above stated, but may be carried so far as to make two or even three gallons out of one of the original mixture, depending on the condition of the surface to be cleaned and the length of time the cleaner is allowed to act.

What we claim as the novel and character-

istic features of our invention are the following:

1. In a process of manufacturing a cleaning preparation, the improvement which consists in mixing an acid with a nitrogenous proteid-containing substance and allowing reaction to occur until after the mixture becomes viscous and then diluting the product, substantially as set forth.

2. A cleaning preparation consisting essentially of the complex products arising and existing after a nitrogenous proteid substance is mixed with an acid, substantially as set forth.

3. A cleaning preparation consisting essentially of the complex products arising and existing after a nitrogenous proteid substance is mixed with one of the following acids: muriatic, acetic, citric, tartaric, oxalic, and sulfuric, substantially as set forth.

4. A cleaning preparation consisting essentially of the complex products arising and existing after a nitrogenous proteid substance is mixed with a volatile acid, substantially as set forth.

5. In a process of manufacturing a cleaning preparation, the improvement which consists in mixing an acid with a nitrogenous proteid-containing substance and allowing reaction to occur until after the mixture becomes viscous and then diluting the product with water, substantially as set forth.

Signed this 4th day of June, 1901, at Altoona, Pennsylvania.

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Witnesses:

CHAS. B. DUDLEY,
C. W. BILLIN.