Patented Sept. 8, 1936 2,053,613

UNITED STATES PATENT OFFICE

2,053,613

DETERGENT AND POLISHING COMPOUND

Fred Grant Hunt, Jr., Denver, Colo.

No Drawing. Application February 19, 1935, Serial No. 7,221

6 Claims. (Cl. 51—280)

This invention relates to a composition of matter, and more particularly to a material or composition of matter adapted for use as a detergent, polishing and mildly abrasive agent, and has as an object to provide a novel and improved compound of the character set forth.

A further object of the invention is to provide an improved compound or composition of matter particularly adapted to function as an efficient agent in the cleaning and polishing of hard, smooth surfaces.

A further object of the invention is to provide an improved combination of ingredients in a composition of matter adapted to be employed in the cleaning and polishing of hard, smooth surfaces.

A further object of the invention is to provide an improved composition of matter so compounded and conditioned as to be highly efficient in the cleaning and polishing of hard, smooth surfaces without scratching of or damage to such surfaces.

A further object of the invention is to provide an improved composition of matter efficiently usable in the cleaning and polishing of surfaces of metal ware, glass, porcelain, glazed ware, enamel, varnish, and the like, without damage to or destruction of such surfaces.

A further object of the invention is to provide an improved detergent and polishing compound formed of ingredients having properties and characteristics advantageously combinable for high efficiency in the use of such compounds.

A further object of the invention is to provide an improved detergent and polishing compound formed of common, inexpensive and readily procurable ingredients, which is positive and efficient to the ends sought, readily adaptable to a wide variety of specific uses, and free from deleterious or injurious effects in use.

My invention consists in the combination of ingredients, in the approximate arrangement and relative proportion recited, as hereinafter set forth and pointed out in my claims.

The improved composition of matter comprising the instant invention is preferably a suitably conditioned and proportioned admixture of natural materials which may be readily and inexpensively obtained, which materials have certain definite physical and chemical characteristics cooperable in the admixture to a high degree of cleaning and polishing efficiency not readily obtainable through the use of the same materials uncombined. While the materials to be employed in the compound are preferably utilized in their natural state, it is of course possible and within the contemplation of the invention that substantially the same or equivalent material resulting from artificial processes or modifications could be substituted for the natural materials herebelow described.

The principal ingredient of the improved composition of matter is preferably a normally insoluble, very mildly abrasive material, such as is most readily found in nature occurring as silica or in the group of silicates. When reduced to powder form, substantially minus 200 mesh, the natural silicas and silicates divide to form particles having few if any acute angles and sharp corners and hence produce a powder which is but mildly abrasive in character, readily suspensible in water and normally insoluble in use. The silica or silicate powder conditioned as above set forth has a mild abrasive action when rubbed on smooth, hard surfaces, but the character of the particles is such as to permit them to roll freely on the surface to be cleaned and hence such powder in itself is not the efficient agent sought. It has been determined that the natural metallic sulfides, when comminute to minus 200 mesh divide to form particles of generally cubical form, which particles thus present substantially flat surfaces bounded by fairly sharp, straight edges susceptible of efficient operation as scraping agents on and relative to a surface to be cleaned. The metallic sulfide particles, when used alone, tend to group and mass in such manner as to present their sharp edges in scratching relation with the surface to be cleaned or in such manner as to nullify the desired scraping effect of their sharp edges, but when combined in proper proportion with the silica and silicate particles, which latter roll about readily, the sulfide particles quickly adjust themselves with their flat surfaces coplanar with the surface to be cleaned and their sharp edges in the desired scraping relation with said surface. The specific sulfide employed may be any one of the metallic sulfides which divides to form substantially cubical particles, iron sulfide, commonly and generally available, having been found highly satisfactory for the purpose set forth. It has been determined that while the proportion of silica or silicate particles to the metallic sulfide particles may vary somewhat without material disadvantage, a proportion of substantially seven parts of the silica and silicate material to one part of sulfide material is productive of best results. The quantitative relation of metal to sulphur in a given sulfide will nat-

urally vary somewhat when natural combinations are employed, but a proportion which has been found highly satisfactory in practice consists in three parts of the metal combined with two parts of the sulphur, by weight. Expressing the quantitative relation of the three principal ingredients in a more readily usable manner, a preferred admixture of such ingredients comprises substantially thirty-five parts of silica and silicates, three parts of a metal and two parts of sulphur, by weight, the latter two ingredients combining or being combined to form a sulfide with the metal present.

When ingredients in their natural state are employed in compounding the improved composition of matter, such materials will normally be found associated with relatively minute quantities of other salts and metals, calcium, magnesium and potassium being commonly so found in such association and alumina, naturally, being frequently present when the silicate kaolin comprises a portion of the silica and silicate group employed. Such other salts, metals and oxides as may be present contribute to a normal alkaline reaction for the admixture in the presence of water, which alkaline reaction is highly desirable and is to be considered an essential characteristic of the improved compound even though in specific instances, especially when non-natural materials are employed it might be necessary to add those other ingredients required to produce the desired alkalinity.

It may well be that the improved composition of matter compounded as above described is productive of a slight chemical, as well as physical, reaction with the surfaces to be cleaned, since it would appear to be within the range of acceptable theory to assume that the sulphur present in the compound might combine to some degree with the materials of certain surfaces, or with the staining, discoloring or other oxides and surface deposits to be removed to form sulphates therewith which are more readily removable than the objectionable deposits originally found. Without unduly emphasizing the above suggestion, it has been found that the improved compound can be very gently spread wet on nickel or silver plated surfaces, permitted to dry thereon, and then be lightly brushed therefrom to leave a high-polish finish on such surfaces without the application of abrasive friction.

The improved composition of matter, compounded as described, is preferably suitably packaged in a dry, powder condition, in which form it is immediately available for use by the simple addition of water to the degree desired, as is commonly the practice with conventional powdered detergent and polishing materials. However, to meet the requirements of certain uses and users, it may be found expedient to present the improved compound in the form of a paste, cream or grease, in which event the compound as above prepared may be readily combined with any suitable vehicle, such as petroleum jelly, or the like, which is chemically inert with respect to ingredients of the compound at normal temperatures and pressures.

Since the improved compound is susceptible of composition with a variety of specific ingredients having the requisite characteristics, and since the proportions of ingredients herein set forth are not essentially critical, I wish to be understood as being limited solely by the scope of the appended claims rather than by any details of the foregoing description.

I claim as my invention—

1. A detergent and polishing compound comprising a finely comminuted admixture of siliceous materials and normally insoluble metallic sulfides in substantially the proportion of seven parts of the siliceous material to one part of the metallic sulfide, by weight.

2. A detergent and polishing compound comprising a finely comminuted admixture of normally insoluble siliceous particles in substantially globular form with a lesser amount of normally insoluble metallic sulfide particles in substantially cubical form.

3. A detergent and polishing compound comprising a finely comminuted admixture of seven parts, by weight, of normally insoluble siliceous particles in substantially globular form with one part of normally insoluble metallic sulfide particles in substantially cubical form, whereby an excess of globular particles sufficient to prevent packing and massing of the cubical particles is provided.

4. A detergent and polishing compound comprising a normally alkaline, finely comminuted admixture of siliceous material and a normally insoluble metallic sulfide.

5. A detergent and polishing compound comprising a normally alkaline, finely comminuted admixture approximately seven parts, by weight, of siliceous material in particles of substantially globular form with one part of a normally insoluble metallic sulfide in particles of substantially cubical form, whereby an excess of globular particles sufficient to prevent packing and massing of the cubical particles is provided.

6. In a detergent and polishing compound, a normally alkaline, finely comminuted admixture of approximately seven parts, by weight, of siliceous material in particles of substantially globular form with one part of a normally insoluble metallic sulfide in particles of substantially cubical form, whereby an excess of globular particles sufficient to prevent packing and massing of the cubical particles is provided.

FRED GRANT HUNT, JR.