

UNITED STATES PATENT OFFICE.

JULIUS G. POHLÉ, OF GEORGETOWN, COLORADO.

STOVE-POLISH.

SPECIFICATION forming part of Letters Patent No. 501,845, dated July 18, 1893.

Application filed April 8, 1886. Serial No. 198,267. (Specimens.)

To all whom it may concern:

Be it known that I, JULIUS G. POHLÉ, of Georgetown, in the county of Clear Creek, and in the State of Colorado, have invented certain new and useful Improvements in Stove-Polish; and I do hereby declare that the following is a full, clear, and exact description thereof.

The object of my invention is to provide an improved polish for stoves, ranges and other metal work, and to this end my invention consists in the polish and method of preparing the same, as hereinafter specified.

In my pending application, Serial No. 177,089, I have described and claimed broadly a stove polish containing plumbago and phosphoric acid, preferably the mono-hydrated acid.

While a polish consisting simply of plumbago and the phosphoric acid is a good one, far outlasting the ordinary stove polishes, and while, unlike such polishes, it can be put on the stove when the latter is hot or cold and will take a good polish, still I have found it desirable to make certain changes in its composition to better suit it for use and to neutralize the ill effects of alkaline earthy, or other impurities in the plumbago used.

It has been found that the plumbago of commerce contains alkaline earths, earthy substances and metallic oxides as impurities, and that such impurities absorb and chemically combine with a portion of the free phosphoric acid present in my polish, as described and covered in my other application referred to, and thus proportionately diminish the non-combustible quality given to the plumbago by the phosphoric acid. To neutralize such impurities and thus prevent them entering into chemical union with the phosphoric acid, I add, either before or after the phosphoric acid has been mixed with the plumbago, a small quantity of sulphuric or hydrochloric acid. I prefer, however, to add such acid in conjunction with the phosphoric acid in solution, as follows:—To the phosphoric acid in aqueous solution I add a small quantity of sulphuric or hydrochloric acid, and then add this mixed solution to the requisite quantity of plumbago, and incorporate the whole to the consistence of a stiff dough, adding sufficient water for this purpose, in case the solution of

phosphoric acid with its admixture of other acid, was not sufficient to produce this doughy consistence. The alkaline earths, earthy impurities and metallic oxides are thus neutralized by the sulphuric or hydrochloric acid, either of which acids has a greater affinity for them than the phosphoric acid, and the pure plumbago is left to the full and free action of the uncombined phosphoric acid which, as set forth in my pending application referred to, renders the particles of carbon forming the plumbago incombustible. I prefer to use sulphuric acid for thus neutralizing the impurities, but do not intend to limit myself to such acid.

The action of the phosphoric acid and its advantages in composition with the plumbago, need not be set forth herein at length, as they are fully described in my other said application.

Instead of using the mono-hydrated or glacial phosphoric acid, the chemical symbol of which is $\text{PO}^{\text{H}}\text{HO}$, I contemplate using other kinds of phosphoric acid, as set forth in said application, such as the anhydrous, bi or trihydrate, or some salt or compound capable of yielding free phosphoric acid during the use of the polish, such, for instance, as phosphate of ammonia.

The relative proportions of the phosphoric acid and plumbago which I use are, as set forth in my said other application,—that is, the amount of each acid used is from five to twenty per cent. of the amount of plumbago. The proportion of acid which gives the best result, is about fifteen per cent. Of the impurities found to exist in commercial plumbago, the alkaline earths referred to hereinbefore consist essentially of the carbonates of lime and magnesia, and the earthy substances are chiefly alumina, silica, and sulphate of lime together with ferruginous compounds.

To neutralize the objectionable ingredients existing as impurities in plumbago, I have found that one per cent. of the weight of the plumbago, of ordinary commercial sulphuric acid will be sufficient. Should, however, the impurities exceed ten per cent. a proportionate increase in the amount of the sulphuric acid should be made.

The point especially desired to be reached

is the neutralization of the salifiable bases, viz: the carbonates of lime, magnesia, alumina and oxide of iron, and one per cent. of sulphuric acid added to or mixed with good commercial plumbago is enough to form with these impurities, chemical compounds known as sulphates of lime, magnesia, iron and alumina. When the less desirable hydrochloric acid is used as the impurity neutralizing agent, the compounds then formed of such impurities are the chlorides of calcium, magnesium, iron, and aluminum. Sulphuric acid is the best for this neutralizing action, but I contemplate, if desired, using either hydrochloric or acetic acid instead.

Stove polish made of plumbago and phosphoric and sulphuric acid, as hereinbefore set forth, I have found will last many times longer than the polishing substances, as heretofore made by others and now in the market, will take a good polish whether the stove is hot or cold when it is applied, will retain such polish in spite of great and continued heat, and will not spot as other polishes do when water is dropped on the surface.

On account of the "tacky" nature of phosphoric acid when the cake of compound of plumbago with phosphoric and sulphuric acids is broken up, it assumes a granular form without dust. In such form it is most convenient for use, as it is always loose in the package and, therefore, free to be poured out as desired, and when used forms no dust to be lost and scattered, and makes no dirt.

While the compound as already set forth at length herein makes a good stove polish and is easily made into thin paste with water when desired for use, I prefer to add to it a little saccharine matter to aid and hasten the disintegration of the particles forming the granules when the latter are poured into water just before use of the polish by the consumer. Such saccharine matter I prefer to introduce

by adding it to the solution of phosphoric acid and sulphuric acid before such solution is mixed with the plumbago in the manner set forth hereinbefore. The amount of saccharine matter best to be used is about three per cent. of the weight of the plumbago. Good brown sugar is I have found the most desirable kind of such matter, but instead of it honey, molasses, grape sugar, and various kinds of glucose can be used for the same purpose. This saccharine matter is not used for a gloss but to render the polish capable of being readily and quickly reduced to a thin paste upon the addition of water.

On account of their hygrometric nature, a small per cent. of either chloride of calcium or magnesium might be used instead of saccharine matter, but neither of them would be as good or desirable as the latter for various reasons.

As indicated, the saccharine or other hygrometric substance is not a necessary ingredient in my stove polish, but can be dispensed with or left out without affecting or lessening the special good qualities of the polish, that is, the ability to receive readily a good gloss, whether the surface to which it is applied is hot or cold, and to retain such gloss for a great length of time unchanged by heat or by liquids dropped on it.

Having thus described my invention, what I claim is—

A stove polish containing plumbago, phosphoric acid, and a hygrometric substance, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 5th day of April, A. D. 1886.

JULIUS G. POHLÉ.

Witnesses:

THEO. T. POHLÉ,

FRANK W. POHLÉ.