

UNITED STATES PATENT OFFICE.

FRANK W. PRENTICE, OF NELSON, OHIO, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO CYRUS L. PRENTICE, OF SAME PLACE.

PROCESS OF AND COMPOSITION FOR CLEANING STONE.

SPECIFICATION forming part of Letters Patent No. 620,178, dated February 28, 1899.

Application filed April 6, 1895. Serial No. 544,802. (No specimens.)

To all whom it may concern:

Be it known that I, FRANK W. PRENTICE, of Nelson, in the county of Portage and State of Ohio, have invented certain new and useful Improvements in Compositions of Matter for Cleaning Stones, &c.; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a new composition for and method of working, cleaning, dressing, polishing, and preserving the surface of stone, marble, and the like.

The object that I have in view is, without the use of acids, to work and dress the surface of new stone and to cleanse old stone from all accumulations of dirt, weather-stains, and other objectionable disfiguring obstructions on the surface and to impart a polished and indurated finish to the surface, filling the interstices or pores in the stone surface, so as to obviate the subsequent lodgment of dirt and other objectionable disfigurements, as well as to prevent the formation of fungus growths.

I attain the objects of my invention by the employment of a detergent composition followed by a finishing dressing, which fills the interstices and pores in the stone, the whole making a clean indurated surface and a perfect protection and finish on the stone.

The detergent compound which I use for softening a thin layer or strata of the stone surface, as well as accumulations of dirt and other disfiguring matters and the removal thereof from the stone, does not contain any acid; and it consists of the following ingredients in the proportions which may be reduced in strength with soft water, to wit: ether, six (6) parts; chloroform, eight (8) parts; cologne spirits, two (2) parts, and aqua-ammonia, sixteen (16) parts; or the detergent compound herein described may be varied somewhat both in the ingredients and in the proportions thereof—as, for example, it may consist, first, of ether, fourteen parts, and aqua-ammonia, sixteen parts, or, secondly, chloroform, fourteen parts, and aqua-ammonia, sixteen parts. It is not essential that the cologne

spirits be used; but I prefer to employ as the detergent composition the ether, chloroform, and ammonia in the proportions specified. These ingredients are thoroughly mixed together, and they produce a new composition possessing detergent properties and which operates very efficiently to soften the surface of the stone, as well as the accumulations of dirt and refuse thereon. In connection with this detergent and solvent composition I prefer to employ a metallic brush, which serves to thoroughly remove the accumulations from the surface of the stone. This brush is particularly serviceable when it is desired to clean ornamental and lettered surfaces of the stone, because the brush may be manipulated to reach the angles, corners, curves, and other close or intricate parts of the ornamented or lettered surface in order to thoroughly cleanse the same and effectually remove all the impurities and accumulations.

The described composition acts both as a solvent and as a detergent to soften the surface and facilitate the removal of the impurities, and after the stone surface has been treated by the application of the composition and by the abrasive or rubbing action of the metallic brush or other means I remove the detergent compound, dirt, and other impurities and thoroughly and cleanly wipe off the surface with a cloth or other means.

The application of the solvent to the stone and the rubbing thereof by the brush, or, in the ordinary manner, by a grit or hone, as practiced in the art of dressing stone, leaves the surface thereof in a cleaned, glossy, and indurated condition. In my composition the ammonia acts as the detergent in softening the stone surface and the accumulations thereon, and the ether and chloroform in addition to their detergent properties also act to impart the glossy or polished surface to the stone. The function of the cologne spirits is merely to make the use of the compound more agreeable to smell. Subsequent to the treatment of the stone and working off the material removed therefrom by mechanical abrasion the stone is finally dressed or finished by applying thereto another composition, which

leaves the stone in a finished condition nearly, if not quite, equal to the original dressing of the stone. This filling composition fills the interstices and depressions in the surface of the stone, which composition serves to catch and retain the dirt and refuse that lodges on the stone, so as to permit the rain to wash off the dirt, and it overcomes the formation of fungus growths on the polished and indurated surface of the stone when the latter is treated in accordance with my invention.

I now proceed to impart the finish to the cleaned or worked and dressed surface of the stone, which finishing step leaves the surface possessing the advantageous feature of having the interstices or depressions in the stone filled and the surface hardened, which prevents lodgment and accumulation of dirt and overcomes the formation of fungus growths on the polished and indurated surface when treated in accordance with my invention.

For the finishing dressing I use a composition of alcohol and precipitated chalk in the proportions of one (1) pint of alcohol to two (2) ounces of precipitated chalk.

After the detergent composition has been applied and the stone surface softened and cleaned as above mentioned the finishing dressing is applied and the stone rubbed to polish the surface and fill the interstices or cavities therein, said alcohol and precipitated chalk being allowed to dry out and harden in order to produce filled, finished, and indurated surface to the stone, leaving the stone clean and hard and perfectly filled and finished.

I have found that my detergent and solvent composition serves to quickly and thoroughly soften the surfaces and accumulations and refuse on the surface and that it acts to the best advantage when combined in the proportions herein stated.

The best results in the treatment of the stone are attained by the employment of strong concentrated aqua-ammonia, preferably of the character known to the art as "twenty-six-per-cent." ammonia. One of the important advantages secured by this strong ammonia resides in treating marble or granite which has previously been subjected to the acid process for finishing and dressing the same, and practical experience has shown that the strong ammonia which I employ destroys the effects of the acid or neutralizes the action of the acid on the stone. The composition which I employ not only softens the surface of the stone and the refuse thereon, but it neutralizes the action of any acid previously applied to the stone, and it also tends to indurate and preserve the stone from

rapid accumulation of refuse, such as the carbon in smoke.

In my practical experiments with the compositions, using them in the order herein recited, it has been demonstrated that the surface of granite, as well as other stones, can be softened, worked, cleaned, polished, and indurated very quickly and economically.

In my invention the compositions are prepared so as to be wholly free from acids of any kind. The use of acids is practiced largely in the art of dressing stone in order to give to the stone a polished or glossy surface; but the use of acids is highly objectionable, because they eat into the stone, cause it to disintegrate, and expose it to the weather. I overcome these objections and provide a means and method by which the surface of stones may be worked, cleaned, polished, and indurated in less time at less expense, impart a finish which will stand the effects of the weather for a long time, and wholly avoid the formation of fungus growths.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. A detergent and solvent composition for use in working or cleaning, dressing and polishing the surface of stones, which consists of: ether, six parts; chloroform, eight parts; and aqua-ammonia, sixteen parts, substantially as described.

2. A finishing and hardening composition for imparting a glossy and indurated surface to stones, which consists of alcohol and precipitated chalk, in the proportions specified, substantially as described.

3. The method described of cleaning, glossing and indurating the surfaces of stone which consists, first, in softening the surface of the stone and accumulations of refuse thereon by applying to the stone a non-acidulated solvent consisting of ammonia, ether and chloroform; then wiping off the solvent and refuse due to the rubbing or abrasion of the stone; and finally applying a filler that closes the interstices or depressions in the surface of the stone, substantially as described.

4. A detergent composition for cleaning the surfaces of stone which consists of ether, chloroform, ammonia, and cologne spirits, in substantially the proportions specified.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

FRANK W. PRENTICE.

Witnesses:

CYRUS L. PRENTICE,
GEO. W. UPTON.