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TARNISH PREVENTION OF SILVERWARE

John B. Rust, West Orange, N. J., assignor to Montclair Research Corporation, a corporation of New Jersey

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This invention relates to a method of retarding the tarnishing of silver, with particular reference to retarding the surface staining of silverware.

The ready tendency for surfaces of silver to tarnish and stain on exposure to ordinary atmospheric conditions presents a constant cleaning problem which is annoying and labor-consuming. A solution of this problem would be of definite benefit not only to stores having silverware on exhibit but also to households where such silverware as candlesticks, bonbon dishes, trays, etc., are usually left exposed on tables, sideboards, etc., and consequently need frequent cleaning.

It has been suggested to protect silverware by applying a thin coating of collodion. It has also been suggested to protect silverware by confining it in a restricted space exposed to the vapors of a volatile amine. While this might be accomplished under certain conditions in a store, it would be impractical in a home.

I have now found a practical solution for substantially retarding the formation of tarnish films and stain on the surfaces of silverware without any necessity whatsoever of confining the silverware to a restricted space.

It is known that the higher aliphatic amines such as stearyl amine which are water-insoluble become water-soluble when the corresponding lower aliphatic acid salt is formed, such as stearyl amine acetate.

I have now found that water-soluble salts of the higher aliphatic amines exert an excellent protective action on silverware.

In practising the invention it is merely necessary to coat the silverware with a dilute solution of a water-soluble salt of a higher aliphatic amine. A satisfactory method of accomplishing the above is to make a 1% to 5% (preferably a 2%) solution in water, impregnate with this solution a wad of cotton, then rub this wad lightly over clean silverware, making certain that a film is left on every part of the surface which is to be protected. The film is then allowed to dry and given a slight buffing. The solution can also be applied by dipping or spraying. Silverware so treated will remain untarnished for periods over a month when left in ordinary atmospheric conditions while an untreated piece will be badly stained and tarnished when left under similar conditions.

As higher aliphatic amines I can use lauryl amine, palmityl amine, stearyl amine, oleyl amine and other primary amines of from 12 to about 22 carbon atoms. As fatty acid I can use formic, acetic, propionic, butyric, that is, acids of from 1 to 4 carbon atoms. Considering cost and ease of use, I prefer to use acetic acid.

The description given in the following examples should not be construed as limiting, but only as illustrative since those skilled in the art may make variations in the process of this invention without departing from the scope and spirit thereof.

Example 1.—A 2% aqueous solution is made with stearyl amine acetate and applied to silverware by impregnating a cotton wad with the solution and rubbing this wad lightly over the clean silverware, allowing the film to dry and giving it then a slight buffing. After application and buffing the silverware has a bright appearance and remains bright even after a month's exposure to ordinary atmospheric conditions.

Example 2.—A 2% solution of palmitylamine acetate is applied to clean silverware surface as in Example 1. The surface remains tarnish-free.

Example 3.—Lauryl amine acetate in 2% aqueous solution applied to silverware as in Example 1 gives a surface which is still bright after a month when exposed to atmospheric conditions normally conducive to tarnishing.

I claim:

1. A process for protecting silverware from tarnishing which comprises depositing on the surface thereof a thin continuous film of a fatty acid salt of a primary aliphatic amine, the fatty acid containing from 1 to 4 carbon atoms and the primary amine from 12 to 22.

2. A process for protecting silverware from tarnishing which comprises applying to the surface thereof a dilute aqueous solution of a fatty acid salt of a primary aliphatic amine, the fatty acid containing from 1 to 4 carbon atoms and the primary amine from 12 to 22, removing the water therefrom, and buffing the surface.

3. A process for protecting silverware from tarnishing which comprises depositing on the surface a thin continuous film of stearylamine acetate.

4. A process for protecting silverware from tarnishing which comprises depositing on the surface a thin continuous film of palmitylamine acetate.

5. A process for protecting silverware from tarnishing which comprises depositing on the surface a thin continuous film of laurylamine acetate.

JOHN B. RUST.