

UNITED STATES PATENT OFFICE.

THEODORE SCHUMANN AND C. G. FRASH, OF NEW YORK, N. Y.

IMPROVED COMPOSITION FOR MAKING BARRELS WATER AND OIL TIGHT.

Specification forming part of Letters Patent No. **43,433**, dated July 5, 1864; antedated June 21, 1864.

To all whom it may concern:

Be it known that we, THEODORE SCHUMANN, of the city, county, and State of New York, and CHRISTIAN G. FRASH, of Brooklyn, in the county of Kings, and State aforesaid, have invented a new and Improved Water-Tight Composition for the Protection of Wooden and other Articles; and we do hereby declare that the following is a full, clear, and exact description of the same.

This invention consists, in a composition of glue or gelatine mixed with or without a certain percentage of soap and with sulphate of iron or other salts, of protoperoxides of iron, of alumina, chrome, and manganese, whereby said glue or gelatine is rendered insoluble in water in such a manner that a lining for barrels or other vessels or a coating for other articles of wood or other material is obtained which is perfectly impervious to water, spirits, oils, and other liquids.

The invention consists, also, in a lining for barrels or other vessels or a coating for wooden or other articles, of an inner layer of unchanged glue and an outer stratum of insoluble glue, so that by the superior adhesiveness of the unchanged glue the lining is prevented from cracking or peeling off by the changes of temperature or by the severe handling to which said barrels or other articles may be exposed.

Our invention is particularly intended to produce a lining for coal-oil or petroleum barrels which is capable of protecting the staves against the liquids contained in the barrels and of preventing leakage, and which will adhere to the surface of the staves with such tenacity that it is not liable to come off by the changes of temperature or by the severe handling to which such barrels usually are exposed.

In applying our composition to a barrel we proceed as follows: A hot concentrated solution of glue is poured into the barrel and moved therein in such a manner that the inner surface of the barrel is completely covered with a uniform stratum of the same. After the surplus is drained off the barrel is left to cool, and then it is filled with a solution of persulphate of iron, of about 10° Baumé, and left to stand for about twenty-four hours, or for such length of time as may be required. By the action of the persulphate of iron on the glue the latter is rendered impervious to water,

and a layer of water-tight glue is formed on the surface of the lining in the barrel of more or less thickness, according to the length of time allowed for the action of the second solution.

Instead of sulphate of iron, all salts may be employed which contain the protoxide or peroxide of iron or the oxides of alumina, chrome, manganese, cobalt, or nickel; or combinations of two or more of these salts may be used with the same or similar effect.

In order to coat a piece of wood or other article with our solution, the solution of glue is first applied either by immersing the article in the solution or by spreading the solution on its surface by means of a brush, and then said article may either be immersed in a vessel containing the solution of the iron or other salt for such length of time as may be necessary to produce the desired effect, or this solution may be repeatedly applied with a brush until a stratum of insoluble glue has formed on the surface.

It will be observed that the lining or coating thus produced consists of two layers or strata, one next to the surface of the article to be protected being composed of unchanged glue and the other or outer stratum of glue rendered insoluble in water. If the lining or coating consists of a single layer of glue rendered insoluble in water, it is liable to crack or come off by the changes of temperature or by the severe handling to which the barrels or other articles are or may be exposed.

The unchanged glue which forms the inner layer of our lining or coating adheres with great tenacity to the surface on which it is spread, and by combining the two layers a durable lining or coating is produced which is not liable to crack or split off. By adding a quantity of soap—say from two to twenty-five per cent.—the adhesiveness and pliability of the lining are considerably improved without impairing its insolubility in water or other liquids with which it may come in contact.

What we claim as new, and desire to secure by Letters Patent, is—

1. The employment or use, for the purpose of lining barrels or other vessels or for coating wooden or other articles, of a composition made of the ingredients herein specified, and mixed together substantially in the manner set forth.

2. A lining for barrels or other vessels or a coating for wooden or other articles, composed of an inner stratum of unchanged glue and an outer stratum of glue which has been rendered insoluble in water, substantially as and for the purposes described.

3. The use of soap in combination with glue or gelatine and with either one of the salts

herein specified, or with a combination of two or more of the same, as and for the purpose set forth.

TH. SCHUMANN.
C. G. FRASH.

Witnesses:

HENRY KREWOLF,
A. DIECK.