UNITED STATES PATENT OFFICE.

C. ELTON BUCK, OF WILMINGTON, DELAWARE, ASSIGNOR TO WALTON WHANN & CO., OF SAME PLACE.

BAG OR SACK FOR STORING OR TRANSPORTING FERTILIZERS.

SPECIFICATION forming part of Letters Patent No. 252,072, dated January 10, 1882.

Application filed October 6, 1881. (No specimens.)

To all whom it may concern:

Be it known that I, C. ELTON BUCK, of Wilmington, county of New Castle, State of Delaware, have invented a new and useful article of manufacture, a bag, sack, or kindred covering, envelope, casing, or integument made of burlaps, gunny-baggings, or other textile or fibrous material coated or impregnated with soluble silicate, to be employed to contain and incase for storage and transportation superphosphates, guanos, or other fertilizers, of which the following is a specification.

Heretofore manufacturers, dealers, and consumers of artificial fertilizers have experienced constant losses by reason of the rotting of the sacks in which said fertilizers have been incased and shipped, the decay being frequently rapid and the sacks falling to pieces in a comparatively short time. Many expedients against this result have been unsuccessfully resorted to, no practical method of prevention being at this date known.

After special study, investigation, and experimentation I have devised a method of treatment which has proved practically and successfully a preventive of the evil.

I have discovered that by saturating, coating, or otherwise treating burlaps, gunny-baggings, or other textile or fibrous materials suitable, *per se*, for the purpose, either in the thread or fiber, prior to weaving, in the woven or fibrous piece, or in the form of manufactured bags or sacks, with a silicate solution—such, for instance, as a solution of silicate of soda, or of silicate of potassa, (otherwise known as "soluble glass" or "liquid quartz,") or of an admixture of the two—the material treated is rendered proof against the destructive action under consideration.

In the application of the discovery named my invention resides.

For the better comprehension of my invention I will proceed to describe a convenient method by which it can be carried into practice, although I may premise that many other and perhaps equally practical applications of the discovery may be made.

I employ the silicate solution, preferably of a strength of 24° to 26° Baumé, although this is not a restrictive limit. The thread, burlaps, or finished bags are first immersed in the solution for from four to five minutes, and are then compressed or wrung between rubber rolls, so as to express the excess of the solution. The bath is then repeated for a second period equal to the first, in order to insure thorough saturation, the saturated material again passed through the rolls, and after the excess has been thus again squeezed out, dried. When dry the material, if thread or fiber, is manufactured into bagging, or if burlaps, bagging, or other fibrous or textile fabric, into bags. When manufactured bags or sacks have been treated they are, when dry, ready for use.

By the treatment by saturation and pressure above described, in addition to thorough permeation, there results or is left upon the fiber when dry a film of solid silicate, which forms a protective covering to the entire interior surface of the fibrous fabric of the bags or sacks, capable of resisting all corrosive or disintegrating action incident to contact with fertilizing material.

When material is treated as above in the piece it is obvious that the twine or thread employed to unite or sew said material into bag form must likewise be treated to render it equally acid-proof.

Instead of resorting to saturation as a means of applying the silicate, I can manifestly make the application by coating, painting, or otherwise superficially applying the solution upon the material to be rendered proof, not so readily, however, to the thread or fiber as to the fabric or completely formed bag.

It will be also comprehended that the purposes of my invention will be attained by the treatment of any fit material to be applied as an inner lining or integument to the sacks or bags, the latter not being directly treated.

The gist of the invention lies in the application of soluble silicate or chemically-equivalent solutions, without restriction as to specific character or mode or vehicle of application to finished material suitable for making into bags, or to manufactured bags, whereby the latter are rendered proof against the direct corrosive action or the fumes of superphosphates, guanos, or other fertilizers.

Having thus described my invention, I claim and desire to secure by Letters Patent—

As a new article of manufacture, a textile or fibrous sack or inclosing integument for inclosing phosphates, guanos, and fertilizers, the threads, fibers, or substance of which is coated, saturated, or impregnated with a soluble silicate.

In testimony whereof I have hereunto signed my name this 28th day of September, 1881.

C. ELTON BUCK.

In presence of—
LEVI A. BERTOLETTE,
WM. W. PRITCHETT.