

United States Patent Office.

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Letters Patent No. 110,189, dated December 20, 1870.

IMPROVEMENT IN PACKING CAUSTIC ALKALIES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM HENRY BALMAIN, of St. Helens, in the county of Lancaster, in the Kingdom of Great Britain and Ireland, have invented an Improvement in Packing Caustic Alkali; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention consists—

First, in the process of putting up caustic alkali by packing the same, in a granulated or pulverized state, in cases or packages, so that the latter may be simply and cheaply constructed without regard to the exclusion of air therefrom, and so that the contents may be in the best condition for ready use and action for soap-making and other purposes.

Secondly, my invention consists of a new article of manufacture, composed of a package of granulated or pulverized caustic alkali, protected from deterioration partly by a covering which holds the mass together, and partly by the absorbing action and by the carbonizing of the exterior of the said mass, as explained hereafter.

I will now proceed to describe the mode of carrying my invention into effect.

Heretofore, it has been the practice to pack caustic alkali, for family use or for transportation, in comparatively large lumps or in solid mass, into air-tight cases, or rather into cases supposed to be air-tight, for they are frequently in a leaky condition at the joints, owing to inferior workmanship, or become leaky, owing to the destructive action of the alkali.

I have discovered that secure packages of caustic alkali can be made without the case or wrapper being air-tight, by granulating or pulverizing the alkali, and packing it, while in this condition, in cases made of metal, or other material capable of withstanding the action of the contents, and sufficiently tight to prevent the escape of the powder without excluding the air.

In practically carrying out my invention, I take any caustic alkali (the stronger the better) in a dry condition, and pass it through a suitable crushing or grinding-mill, by which it is reduced to a powder, and, while yet in a dry state, this powder is packed in suitable vessels.

When the alkali is in large lumps the moisture condenses on the exterior surface, dissolves a portion

of the mass, and runs from the same, forming a most corrosive liquid, which attacks and destroys the vessel containing the material.

When, however, the alkali is in a powdered state, as before described, it absorbs the moisture until a carbonate forms on the exterior surface of each particle, constituting a protective coating, which effectually resists the further action of the atmosphere, so that the material retains its granular condition.

It will, therefore, be seen that, by thus putting up the alkali in a powdered state, there is no necessity for resorting to air-tight cases, the simpler and cheaper non-air-tight cases, for retaining the powder in mass, being amply sufficient to form a safe package.

Another important advantage of my invention is that of facilitating the use of the caustic alkali for soap-making and other purposes, its powdered condition rendering it more applicable for ready use and action than when it is in a solid mass or in large lumps.

If desired, the interior of the mass may be in comparatively large lumps, which, however, should be effectually inclosed and packed within the powdered alkali.

I am aware that alkali has been pulverized for the purpose of mixing it with other pulverized substances, and that lumps of alkali have been imbedded in absorbent material, but I am not aware that caustic alkali has ever been so prepared that, without the admixture of other material, it can be packed in cases not air-tight, and be stored or transported without injury—a result attained by my invention.

I claim as my invention and desire to secure by Letters Patent—

1. The process of putting up caustic alkali, by packing the same in a granulated or pulverized state, and without admixture with other materials, in cases or packages, as set forth, for the purpose specified.

2. Cases or packages of granulated or pulverized caustic alkali, prepared as described.

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

WILLIAM HENRY BALMAIN.

Witnesses:

I. SPIERS BAKER,
Notary Public, Liverpool.
E. H. B. WALLS,
Liverpool, Gentleman.