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IMPROVEMENT IN BOXES FOR PUTTING UP CAUSTIC ALKALI.

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SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, HENRY PEMBERTON, of Alleghany City, in the county of Alleghany, and State of Pennsylvania, have invented a new and useful Improvement in Boxes for Putting up Caustic Alkalies; and I do hereby declare the following to be a full, clear, and exact description thereof:

The object of my invention is to provide an enclosure or box for putting up and preserving caustic alkalies, aluminates of soda or potassa, and analogous substances, which shall effectually protect them from contact with the atmosphere, and at the same time have sufficient firmness and strength to prevent their being easily broken or injured.

Caustic alkalies, and the aluminates of soda and potassa, when put up in small packages in air-tight cases or enclosures, are largely used for domestic soap-making and other purposes. When packed in barrels or other large receptacles they cannot be so employed, owing to the fact that when exposed to the action of the atmosphere they absorb moisture and rapidly deliquesce; their caustic properties also render it necessary that they should be enclosed in some material capable of resisting their powerful action. Boxes or cases of iron, tin, glass, and earthenware have been used, but these are heavy, some of them are easily broken, and, with all, it is difficult to close the joints and the opening through which the caustic alkali is introduced, so as effectually to exclude the air. Paper, muslin, and pasteboard, coated with tar, rosin, beeswax, paraffine, and other resinous or fatty substances, have been used for this purpose with more or less success; but, as heretofore constructed or applied, such boxes or wrappings have been either too light and fragile to stand the wear and tear of handling, packing, &c., or have not been capable of resisting the caustic action of their contents.

The method of forming cases or wrappings for enclosing caustic alkalies, and similar articles, which I have invented, accomplishes the desired end, by securing the requisite firmness and strength for resisting mechanical injury, combined with the absolute exclusion of the external air.

To enable others skilled in the art to make use of my invention, I will proceed to explain fully its nature and mode of application.

I make use, in the construction of my improved cases, or boxes, of paper, thin pasteboard, muslin, or other similar material, which is wrapped or folded in layers, cemented together, and rendered impervious to air or moisture, by the use of a gelatinous, resinous, or other adhesive material, interposed between the layers, so as to cause them to adhere together.

The mode in which I prefer to make these cases is as follows:

I use a roller or former of wood, or other material, of cylindrical, square, or other polygonal shape, around which I wrap tightly a strip of pasteboard, paper, muslin, or other suitable fabric, long enough to surround the former or roller several times, and of suitable width to make a box or case, or several boxes or cases, of the desired height. Before wrapping the paper or other fabric used, it is covered with glue or paste, made of any suitable resinous or gelatinous material. For this purpose I prefer the use of a solution of silicate of soda, or of potassa, made of the consistence of a thick sirup; and, as a fabric for making the case, I prefer paper to any other article. When a sufficient number of thicknesses of paper have thus been wrapped around the roller or former, and pasted together, the cylinder thus formed, if longer than is required for one box or case, is cut into suitable lengths. A bottom piece is made for each box or case, of a circular disk of pasteboard, of such diameter as to fit into the cylinder, and a lid or cover may be made in like manner, to slip over the box or case, or to be inserted into it; or the case may be covered at top by a circular disk inserted like the bottom piece. These disks may be also coated with the silicate of soda, or potassa, or other glue, or paste. The joints of the bottom and top, and, if necessary, of the side, are covered closely by strips of paper pasted or cemented on with the same cement or glue, or silicate of soda or potassa. When the box or case is thus far made, it is dipped in a solution of the silicate of soda or potassa, or in varnish, glue, melted rosin, tar, beeswax, or other similar substance, or any of these articles may be thoroughly applied with a brush or otherwise, so as to fill all the seams, and effectually close all the apertures. When this coating is dry, the box or case is ready to receive its contents, whether caustic soda, caustic potash, or similar article, which is done by inserting it in lumps, or in coarse powder, or in one solid piece, cast of the proper shape and dimensions to fit the interior of the box or case as closely as possible, as may be preferred; after which the lid, prepared as before stated, is inserted or put on. The joint between the lid and box, or case, may be closed by pasting or cementing a strip of paper over it for greater security. The package is then dipped, for a short time, into melted pitch, boiled coal tar, or