

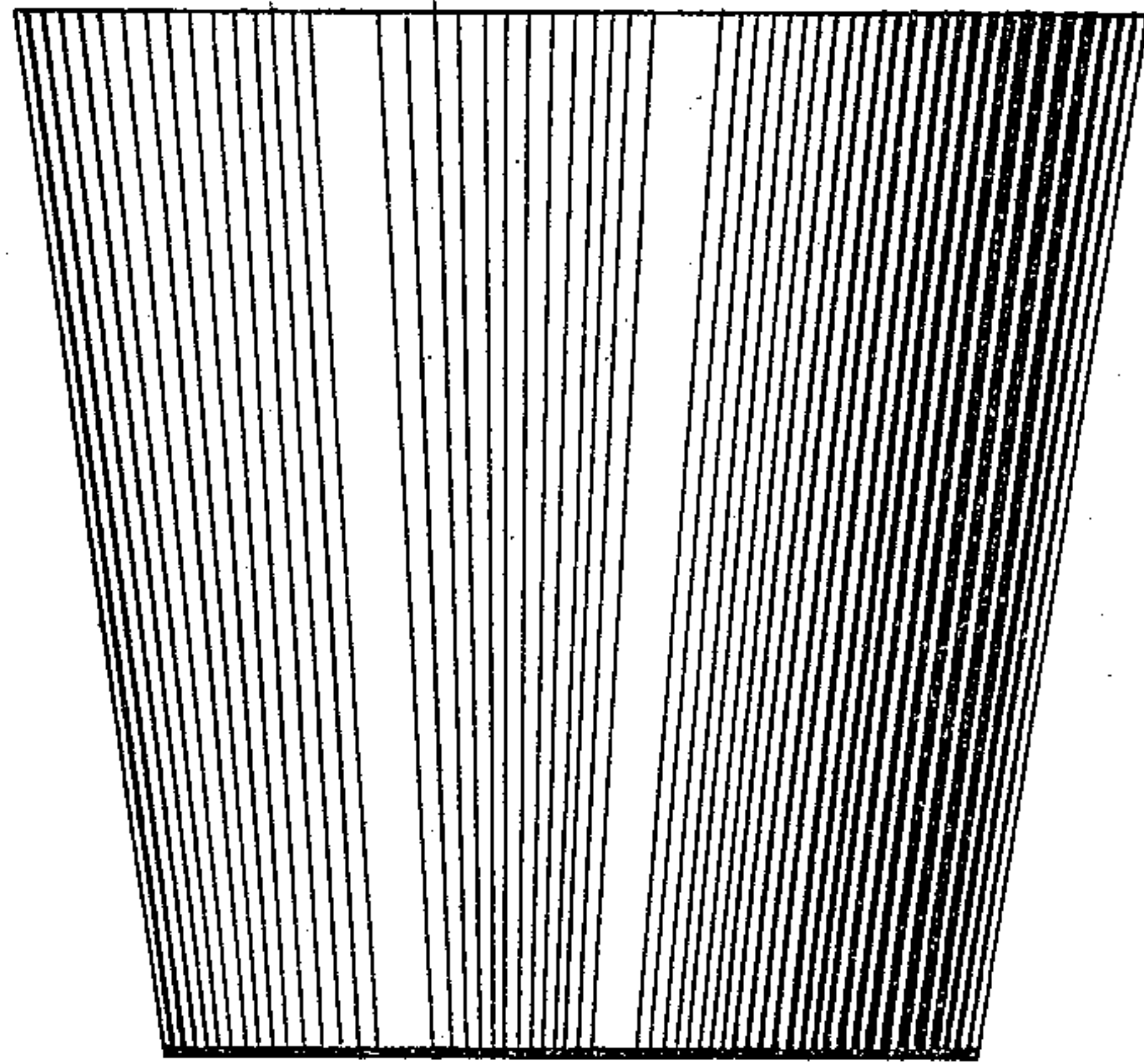
(Specimens.)

F. F. PHILLIPS.

METHOD OF TREATING PULP OR FIBROUS MATERIAL AND THE
RESULTING MATERIAL.

No. 355,789.

Patented Jan. 11, 1887.



Witnesses.

Jas. J. Maloney.
Chas. A. Whitney.

Inventor.

Franklin F. Phillips.
by Jos. P. Livermore
Att'y.

UNITED STATES PATENT OFFICE.

FRANKLIN F. PHILLIPS, OF SOMERVILLE, MASSACHUSETTS, ASSIGNOR TO
THE P. C. CHENEY COMPANY, OF MANCHESTER, NEW HAMPSHIRE.

METHOD OF TREATING PULP OR FIBROUS MATERIAL AND THE RESULTING MATERIAL.

SPECIFICATION forming part of Letters Patent No. 355,789, dated January 11, 1887.

Application filed June 5, 1886. Serial No. 204,236. (Specimens.)

To all whom it may concern:

Be it known that I, FRANKLIN F. PHILLIPS, of Somerville, county of Middlesex, State of Massachusetts, have invented an Improvement in Methods of Treating Pulp or Fibrous Material and the Resulting Material, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

My invention relates to the treatment of fibrous material—such as articles made from wood, straw, or other pulp—for the production of a hard, tough, impervious material.

The invention consists, essentially, in saturating the fibrous material, which may be an article made of molded pulp composed of wood or other fiber, with melted wax or other analogous substance that hardens at ordinary temperature, the saturation being effected by immersing the fibrous material in the wax when in a melted condition. The hardening wax which I have found to give the best result, and to be the best for this use on account of its natural properties, as well as because a sufficient supply can be obtained at moderate cost, is composed mainly of the residues of paraffines or petroleum products, commercially known as "wax tailings;" and for the most perfect product a small proportion of palm-wax is added to the wax tailings.

In practicing the invention a sufficient quantity of wax tailings preferably with a small amount, usually about five per cent., by weight, of palm-wax, is melted in a suitable receptacle, the temperature required being somewhat above that of boiling water, and the pulp articles to be treated, after having been thoroughly dried, are immersed in the melted wax and allowed to remain a sufficient length of time for the wax to partially or entirely saturate the pulp. The time of immersion will vary in accordance with the thickness of the pulp material. For an article like a pail, for example, about one-quarter of an inch thick, the time required is from five to ten minutes. The saturated article is then removed and permitted to cool, when it will be found to have great

hardness and toughness and to be thoroughly impermeable to water, hot or cold, and to most other liquids.

If desired, the surface of the article may be finished by rubbing down or polishing, and the finished material will be homogeneous and of very great strength.

By the herein-described process the articles of molded pulp or other fibrous material may be hardened and rendered impervious in a very short time and at far less expense both for labor and material than when treated by the processes now employed—such, for instance, as by saturation in linseed or other hardening or drying oils or analogous compounds, and subsequent baking and finishing of the article.

The drawing shows in side elevation a pail made of molded pulp hardened and rendered impervious by a saturation in melted wax in accordance with this invention.

I claim—

1. The herein-described process of treating pulp or fibrous articles for the purpose of hardening the same and rendering them impervious, which consists in saturating said articles in melted wax tailings or analogous substance, substantially as described.

2. The herein-described process of treating pulp or fibrous articles for the purpose of hardening the same and rendering them impervious, which consists in saturating said articles in melted wax tailings and palm-wax, substantially as described.

3. The herein-described material, consisting of pulp or fibrous material having its pores filled with hardened wax, substantially as described.

4. The herein-described material, consisting of pulp or fibrous material that has been hardened in melted wax, substantially as described.

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

FRANKLIN F. PHILLIPS.

Witnesses:

JOS. P. LIVERMORE,
JAS. J. MALONEY.