

UNITED STATES PATENT OFFICE.

OSCAR S. FOLLETT, OF MONT CLAIR, NEW JERSEY.

IMPROVEMENT IN THE MANUFACTURE OF GLUE.

Specification forming part of Letters Patent No. **137,835**, dated April 15, 1873; applica'tion filed March 31, 1873.

To all whom it may concern:

Be it known that I, OSCAR S. FOLLETT, of Mont Clair, in the county of Essex and State of New Jersey, have made a new and useful Improvement in the Manufacture of Glue; and I hereby declare the following to be a full and exact description of the same.

In the manufacture of glue the great difficulty is to remove the water from the jelly and reduce it to a solid state. This is usually accomplished by placing slices or cakes of glue in the jellied condition in which it is removed from the coolers upon netting and exposing it to the drying action of the air; sometimes a blast of air, either hot or cold, and sometimes artificially dried, has been blown over and among and through the netting holding the glue.

When glue is dried by the natural air it is often spoiled by the change of temperature; if the air is too much confined and warm it will decompose; if the weather is too warm the glue will lose all shape, unite with the nets, or melt and drop through the nets upon the floor; fog will mold it; a too brisk wind will harden it so rapidly as to make it unsightly and unmarketable, and frost will crack and disfigure it, making remelting necessary. Owing to these difficulties, and the length of time required for properly drying glue, it cannot be made at all with any certainty, except at certain seasons of the year.

When air has been dried, heated, or cooled, and then driven over or through the nettings holding the glue, the expense of preparing so large a quantity of air has rendered the process impracticable, so the methods used for centuries are generally those still employed.

My invention is based upon the following principle, viz: that if two solids containing water are placed near each other the water will spontaneously leave that for which it has least affinity. The application of this principle to the drying of glue constitutes the main feature of my invention.

When the jellied glue is placed upon the nets to be dried it contains from three to six times its weight of water, or thereabout, but the water is not retained by a very strong affinity. There is a class of hygrometric substances, such as chloride of calcium, which

absorb water and hold it with great avidity. To carry out my invention it is only necessary that the glue be placed in a close chamber containing the water-absorbent material, the chamber being provided with such devices for regulating the temperature when required as will not permit it to fall to the freezing-point of water, or go above the degree at which the glue would not retain its jellied form.

Apparatus or devices for securing these features being well known need not be particularly described.

Instead of using chloride of calcium as the water-absorbent material, other water-absorbent materials may be used, such as chloride of magnesium, sulphuric acid, or any of the known hygroscopic materials which may be found described in works relating to chemistry and physics.

After the water-absorbent material has become saturated it may be revived and re-used. Chloride of calcium is easily restored by simply evaporating the moisture it contains after using it, and thoroughly drying it or fusing it by means of heat. I generally add water to dissolve it, then filter it and dry it down thoroughly or fuse it.

To assist in eliminating the water from the glue I sometimes form the glue-cakes with numerous perforations by placing sticks or wires in the cooling boxes or tanks. By having the wires or pins attached to a board they can be readily withdrawn from the glue after it has "set," thus leaving perforations where desired, and upon cutting the glue into slices in the usual way each slice or cake has perforations. This process hastens the drying of the glue very perceptibly, and makes a perforated glue, which for some purposes in the arts is preferred. This method of assisting the elimination of water from glue, in the course of drying, by means of perforations, is of great advantage in drying glue by any of the methods in use, as well as with my special improvement by means of water-absorbents. By placing the perforations in regular lines the glue may be easily broken up for use or for the manufacture of comminuted glue.

It is obvious that my invention is applicable to the drying of fish-glue, isinglass, or gelatine, as well as to ordinary glue.

I have not described the size of the room, nor the method of forming the jelly, nor the netting-frames used for holding the glue while it is under the drying treatment, since these are no part of my invention, and are already known. The essential parts are a closed chamber, which may be a box or series of boxes, or an ordinary room properly closed, with devices for holding the glue, and for holding the chloride of calcium or other absorbent ingredients in position that the water in the glue may pass as freely as possible from the glue to the chloride of calcium.

A convenient arrangement is to place trays containing chloride of calcium between alternate frames containing the glue, or shallow trays containing the water-absorbent material may be placed around the room or at intervals with the nets holding the glue interspersed between. By placing the frames containing the glue alternating with trays containing chloride of calcium or other water-absorbent material with a packing of rubber or thin material between, an ordinary room may be employed; the top frame should be closed with a cover. In a few days the water in the glue will be found to have passed from the glue and to have been taken up by the chloride of calcium.

From the nature of the apparatus, supposing the temperature to have been properly regulated, there can be no change of weather inside the chamber, and therefore that fruitful source of loss to the glue manufacturer is entirely avoided, and the business may be carried on at all seasons of the year regardless of the weather or temperature out of doors.

If desired, the chamber may have the air entirely removed from it; but as that would involve additional expense I prefer not to use it. The glue made by my process, being free from all fermentation during the drying, is a superior article of manufacture readily recognized by experts.

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

1. The process herein described for drying glue, the same consisting in inclosing it in a chamber with a water-absorbent material, substantially such as herein described.

2. The apparatus herein described for removing water from glue, consisting of a closed chamber, a series of removable frames for supporting the glue-cakes, and a series of boxes or trays for containing chloride of calcium or other hygrometric substance.

3. The method herein described for aiding in eliminating the water by forming perforations in the cakes of glue, as set forth.

4. The combination of a closed chamber, provided with frames for supporting the glue and trays or boxes for containing a water-absorbent material, with device for either heating or cooling the interior of the chamber so as to maintain a regulated temperature in the chamber, as set forth.

5. The improved article of glue in plain or perforated sheets.

OSCAR S. FOLLETT.

Witnesses:

JOHN C. DOREMUS,
WILLIAM L. DOREMUS.