UNITED STATES PATENT OFFICE.

REUBEN BROOKS, OF ROCKPORT, MASSACHUSETTS.

GELATINE PREPARED IN THE FORM OF DRIED FOAM.

SPECIFICATION forming part of Letters Patent No. 243,685, dated July 5, 1881.

Application filed March 28, 1881. (No specimens.)

To all whom it may concern:

Be it known that I, REUBEN BROOKS, of Rockport, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Gelatine Prepared in the Form of Dried Foam; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it.

My invention relates to a new article of manufacture; and it consists in gelatine prepared in the form of dried foam, the objects of such preparation being to dehydrate it, and thus insure its unaltered preservation for the longest possible period; to simplify and also to enable the process of dehydration to be prosecuted without regard to the varying temperatures and hygroscopic conditions of the atmosphere, and without the application of heat; to prepare it either for dietetic use or for use in the arts in a state of physical and chemical purity, and to give it a character adapted to be readily dissolved when desired for use, and to be conveniently packed for transportation.

The process of preparing gelatine in the form of dried foam consists in two essential steps: first, in subjecting a solution of gelatine in water to violent agitation, or to the action of air-currents under pressure, whereby air is mingled with the solution and it becomes foamy; and, second, in evaporating the water from or dehydrating the foam produced as aforesaid by subjecting it to the action of cold dry air. The procedure attendant upon the accomplishment of either of these two essential steps is not confined to the employment of any peculiar mechanical devices.

The first step, consisting in the introduction of air in a finely-comminuted state into a liquid solution of gelatine, may be accomplished in many ways. The solution may be subjected to stirring, beating, or any violent agitation which will mingle air with it and cause it to foam—a result due to its increased bulk, owing to the presence in physical combination of an infinite number of minute air-globules. In lieu of stirring, beating, or other agitation, the solution of gelatine may be subjected to the action of air-currents passed through it under pressure.

The second essential step of the process consists in subjecting the foam resulting from the treatment of the solution during the first step to the evaporating or dehydrating action of currents of cold dry air, whereby the water combined with the gelatine in solution is completely eliminated therefrom, leaving the pure gelatine in a very finely-divided state. In this condition it may be compressed and packed for transportation as the necessities of the trade may demand.

In subjecting the gelatine foam to the action of dry air care should be taken not to burst or break the bubbles until the film of gelatine which incloses each minute subdivision of air is dehydrated and hardened. Therefore it will not do to allow air-currents of much strength to strike the foam, as they would cause it to collapse and resume its liquid form. The temperature of the air to the action of which the foam is subjected should be only low enough to chill the gelatine film of each bubble and assist it in retaining its shape until dehydrated.

It is obvious that by simply subjecting the foam to still dry air the desired results would be effected, only more slowly than when the air is in motion.

Dried foam of gelatine thus prepared dissolves with great readiness in water.

At the completion of the process the gelatine is so completely dehydrated that it may be preserved unaltered for an indefinite period.

The presence of water in gelatine, as is well known, is always attended with danger, as it is then more readily decomposed, and chemical treatment to avoid such consequences renders it unfit for dietetic uses and greatly impairs its value in the arts.

One of the greatest difficulties in evaporating or dehydrating gelatine solutions lies in the fact that the gelatine is very sensitive to the changes in the temperature and hygroscopic condition of the atmosphere, and often large quantities are rendered valueless by such sudden and uncontrollable changes. My process of dehydration is entirely independent of atmospheric conditions, and they in no wise affect its successful prosecution.

The chemical purity of the product has already been adverted to. Of its physical purity it is only necessary to state that, as the process

is very rapidly carried on, and as the solution is not exposed to such an extent as it is when the old methods of evaporation are employed, there is no opportunity for dust and foreign substances to become incorporated with the gelatine product.

While my process is adapted to be used in dehydrating all gelatine solutions, from whatever source they may be derived, it is peculiarly fitted to be employed in preparing for the market gelatine or ichthyocolla obtained from fish-skins, salted or fresh, and also from other fish-tissues.

In instance of using salted fish-skins in obtaining the gelatine solution from which to prepare dried foam the skins must be first passed through a desalting process, not necessary to be here described.

I am aware that hot size has been poured into a vessel having a perforated partition, through which the size rains into a lower compartment, meeting in the passage an upward current of air, which converts the divided streams into a most tenacious glue of pasty consistency; and hence I make no claim to such a product or process.

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

1. As a new article of manufacture, gelatine prepared in the form of dried foam, substantially as set forth.

2. The process of preparing gelatine in the form of dried foam, consisting in two essential steps: first, in mingling air with a gelatinous solution to render it foamy, and, second, in subjecting the said foam to currents of dry air to dehydrate it, substantially as set forth.

3. The process of preparing gelatine in the form of dried foam, consisting in two essential steps: first, in mingling air with a gelatinous solution to render it foamy, and, second, in subjecting the said foam to the action of dry air to dehydrate it, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand.

REUBEN BROOKS.

Witnesses:
ALFRED PARSONS,
LEVI CLEAVES.