

# UNITED STATES PATENT OFFICE.

WILLIAM N. LE PAGE, OF GLOUCESTER, MASSACHUSETTS.

## PROCESS OF MAKING FISH-GLUE.

SPECIFICATION forming part of Letters Patent No. 351,607, dated October 26, 1886.

Application filed September 11, 1886. Serial No. 213,331. (No specimens.)

*To all whom it may concern:*

Be it known that I, WILLIAM N. LE PAGE, of Gloucester, in the county of Essex and State of Massachusetts, have invented a new, useful, and Improved Process of Making Liquid Fish-Glue, of which the following is a specification.

The object of this invention is to provide an improved article of liquid glue by means of a new method or process of treating fish skins and scales, whereby a stronger, clearer, and better-preserved article is obtained in less time and with less labor and expense than has hitherto been required.

By my peculiar treatment the salted fish-skins, with the scales upon them, are desalted, cleaned, and bleached by agitating them in a strong solution of bisulphite of soda, then treating them in a solution of sal-soda to remove all traces of salt, which has been the great obstacle to complete success heretofore, then boiling them in water strongly impregnated with borax, after which the glue is drawn off or expressed, then filtered and the surplus water evaporated, as hereinafter stated. By my process of treating the skins and scales together I secure a material advantage in retaining in the glue all the useful properties of the scales, which render the glue more insoluble and stronger than is the case when the skins are first descaled. In desalting, cleaning, and bleaching I agitate the stock in capacious and powerful washing-machines, so that all portions are uniformly and sufficiently acted upon.

In the boiling I add to every twenty gallons of water a pound or more of pulverized borax, in order to secure its valuable deodorizing and antiseptic qualities, as well as for rendering the glue more adhesive. I accomplish a most thorough incorporation of the borax with the other elements of the glue by having them intermixed during the boiling operation, which insures against taint or souring during the manufacture and subsequently. The boiling is continued until the stock is thoroughly softened and dissolved, after which it is filtered through clean sand, which permits the clear glue to percolate through it, leaving all im-

purities behind. The residuum is subsequently subjected to very great pressure to express all the desirable qualities from both the scales and the skins. I then evaporate the glue or extract the surplus water from it by passing it through a vacuum-coil subjected externally, by preference, to steam heat at a moderate temperature, whereby the liquid is only exposed to the heat for a few minutes, as compared with several hours' time and higher heat formerly required without the vacuum.

The saving of time due to this vacuum treatment is important, because of facilitating the manufacture and giving the product a better color, while avoidance of high heat renders the glue more tenacious. The vacuum treatment for evaporating I find to be equally valuable in cases where I descale the skins before proceeding with the other steps herein described.

I claim as my invention—

1. The described process of making liquid fish-glue, consisting in first desalting the skins with the scales thereon by chemical treatment in a solution of bisulphite of soda, subsequently treating them in a solution of sal-soda to remove all traces of salt, then boiling in a solution of borax for softening, deodorizing, and preserving purposes, then extracting and filtering the glue and evaporating it to suitable consistence, substantially as set forth.

2. The described improvement in the method of making liquid fish-glue, consisting in chemically desalting, cleaning, and bleaching fish stock in solutions of soda salts, as described, then boiling it in water impregnated with borax, then expressing and filtering the glue, and afterward evaporating it through a vacuum-coil, substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 28th day of August, A. D. 1886.

WM. N. LE PAGE.

Witnesses:

A. H. SPENCER,  
J. C. KENNEDY.