

UNITED STATES PATENT OFFICE.

BENJAMIN F. WRIGHT, OF WINCHESTER, ASSIGNOR TO CHARLES H. DREW, OF BROOKLINE, AND FRANCIS T. MORTON, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN PROCESSES OF TREATING RAWHIDE.

Specification forming part of Letters Patent No. 122,142, dated December 26, 1871.

I, BENJAMIN F. WRIGHT, of Winchester, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Process for the Treatment of Rawhide, so as to adapt it to a variety of new uses, of which the following is a specification:

The object of my invention relates to so preparing rawhide that it may be perfectly elastic, so that when a strip of it prepared according to my process is bent it will, when the force which bent it is removed, at once return to its former condition; and also be water-proof, so as to be adapted for a variety of uses in which it would be exposed to the action of water, and particularly form a good substitute for whalebone for many uses to which that article is put.

The most important feature of my invention consists in filling the pores of the piece of rawhide to be operated on with ironized glue, as I call it, which it should imbibe freely until it will take up no more. This ironized glue should be prepared as follows: Ordinary glue should be reduced to a liquid state in water, the water being cold, or not much warmer than tepid—say at a temperature of from 50° to 70° Fahrenheit. About three pounds of glue to about four quarts of water will make a solution of proper consistence. It is best to use the best quality of glue which can be procured. The glue being dissolved, the solution should then be heated nearly up to the boiling-point—say up to 150° Fahrenheit. A small quantity of sulphate of iron should then be put into the solution. It is somewhat difficult to prescribe the exact amount of sulphate of iron which should be used, as the quantity will depend somewhat upon the character of the glue used, less being necessary when the glue is good than when it is bad or of an indifferent quality. When the solution presents a somewhat curdled appearance in adding the sulphate of iron, enough has been used. Generally about one troy ounce will be sufficient for the mixture above described, when the glue is of the best quality. The object to be attained by adding the sulphate of iron is to harden the glue or prevent it from easily dissolving. The sulphate of iron may be omitted, and the rawhide operated on will then be quite elastic, but will not resist the action of water so well as with the former added to the glue.

The mixture may then want proper elasticity,

which can only be determined by testing it with a small piece of rawhide—that is, immersing the rawhide in it; and if it is found not to be elastic—that is, will not bend so readily and spring back so easily as desired—the difficulty may be overcome by adding a small quantity of linseed or some other lubricating oil. Not more than a troy ounce will be sufficient for the mixture above described. The pieces of rawhide which are to be operated on should then be immersed in the mixture for from thirty to sixty minutes. Great care must be taken that the mixture, when the strips are immersed in it, is not too hot, as it would seriously impair the texture of the strip and make it brittle. A temperature of from 80° to 160° Fahrenheit will produce the proper results.

The strips must then be taken out, the superfluous glue on the outside should be removed, and they should then be dried. After the strips have become thoroughly dried they should be immersed in a mixture made of one part of gum-copal, dissolved by heat in oil, and two parts of crude caoutchouc, dissolved in two parts of naphtha or turpentine.

All of the above parts are by weight, and may be slightly varied in quantity without materially affecting the quality of the mixture. The strips should be immersed in this mixture about five minutes. Care must be exercised not to keep the strips immersed too long. They should then be taken out and dried, and the “rims” or thick places on the surface should be removed either by passing the strips through soft brushes or in some other suitable way. Some other gum may be substituted for the copal, but I think that the best for my purpose. The above process converts the strip of rawhide operated on into a water-proof substance, and one capable of receiving a considerable degree of polish, and which is at the same time elastic.

For some uses the first part only of the process—that is, omitting the immersion in the copal and caoutchouc mixture—may be employed; and for some other uses the last part of the process above described may be advantageously used alone, the hide being subjected to the action of the mixture of gum-copal and caoutchouc above described so long by immersion therein that the pores of the hide shall be completely filled with

the mixture. This last process makes the rawhide operated on flexible and water-proof, but not elastic.

For some uses it is desirable that the strip when finished should possess a permanent black color. This may be imparted by subjecting the strips to the action of oxide of iron (or iron-rust) dissolved in vinegar, and added to an infusion of logwood before they are subjected to the action of the glue.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The process of coloring and making elastic and water-proof rawhide by the action of coloring-matter, ironized glue, and caoutchouc dissolved in naphtha or some other suitable substance, and combined with a solution of gum-copal, successively and in combination, substantially as above described.

2. The process of making rawhide elastic and water-proof by the action of ironized glue and a solution of caoutchouc dissolved in naphtha or some other suitable substance, and combined with a solution of gum-copal, successively and in combination, substantially as above described.

3. The process of subjecting rawhide to the action of glue or any equivalent substance so

so that the glue shall be absorbed into the substance of the hide, substantially in the way and for the purpose above described.

4. The process of rendering rawhide water-proof and flexible when dry by immersing it in a solution of caoutchouc dissolved in naphtha or some equivalent solvent, and combined with a solution of gum-copal, substantially as above described.

5. As a new article of manufacture, the article produced by the subjecting rawhide to the action of glue, either with or without iron in combination with it, and coated or covered with a solution made of caoutchouc dissolved in naphtha or some suitable solvent, and combined with a solution of gum-copal or some equivalent, substantially as above described.

6. As a new article of manufacture, rawhide subjected to the action of caoutchouc dissolved in some suitable solvent, and combined with a solution of gum-copal, so that the caoutchouc and copal shall be absorbed into the substance of the rawhide, substantially as above described.

BENJ. F. WRIGHT.

Witnesses:

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