

UNITED STATES PATENT OFFICE.

CHARLES PICHARD, OF PARIS, FRANCE, ASSIGNOR TO LA SOCIETE PICHARD FRERES,
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PROCESS FOR CARROTING HAIRS.

1,419,754.

Specification of Letters Patent. Patented June 13, 1922.

No Drawing.

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To all whom it may concern:

Be it known that I, CHARLES PICHARD, citizen of the Republic of France, and resident of Paris, France (post-office address 80 Avenue Philippe Auguste), have invented a new and useful Process for Carroting Hairs, which improvements are fully set forth in the following specification.

The object of the present invention is a process for carroting hairs intended to be used in the manufacture of felt, by means of cold. The skins "in the hair" are brushed with pure water or water to which an antiseptic (formaldehyde) has been added to preserve the hair from the action of mites.

They are placed in heaps, hair against hair for several hours to allow the liquid to penetrate the cells and into the medullary ducts of the hair.

The hide is then submitted to the action of sufficient cold to freeze the water which has penetrated the cells and the medullary ducts of the hair.

As the hair is not supported externally by a strong coating of ice, the action of the ice formed in the interior of the hairs causes the latter to burst in certain parts and thus improves their felting properties.

The cold may be produced by any suitable means, for example the hides may be immersed for some seconds in liquid air, nitrogen or oxygen.

The hides are first dried in the air and subsequently stove dried.

It should be well understood that this treatment can be applied not only to hairs which still adhere to the hides or skins but equally well to hairs which have been removed therefrom.

What I claim and desire to secure by Letters Patent is:

1. The process for carroting hairs intended to be used in the manufacture of felt which comprises causing liquid which will expand upon freezing to penetrate the cells and medullary ducts of the hair and freezing said liquid.

2. The process for carroting hairs intended to be used in the manufacture of felt which comprises causing liquid which will expand upon freezing to penetrate the cells and medullary ducts of the hair and freezing said liquid by the action of a liquid obtained in the liquefaction of air.

3. The process for carroting hairs intended to be used in the manufacture of felt which comprises causing water to penetrate the cells and medullary ducts of the hair and freezing said water.

4. The process for carroting hairs intended to be used in the manufacture of felt consisting in brushing skins "in the hair" with water, causing said water to penetrate the cells and medullary ducts of the hairs and freezing said water.

5. The process for carroting hairs intended to be used in the manufacture of felt consisting in brushing skins "in the hair" with a liquid, which will expand upon freezing, causing said liquid to penetrate the cells and medullary ducts of the hairs and freezing said liquid.

6. The process for carroting hairs intended to be used in the manufacture of felt consisting in brushing skins "in the hair" with a liquid containing an antiseptic, which will expand upon freezing causing said liquid to penetrate the cells and medullary ducts of the hairs and freezing said liquid.

7. The process for carroting hairs intended to be used in the manufacture of felt consisting in brushing skins "in the hair" with a liquid, which will expand upon freezing causing said liquid to penetrate the cells and medullary ducts of the hairs and steeping said skins in a liquid obtained in the liquefaction of air.

8. The process of carroting hairs intended to be used in the manufacture of felt consisting in brushing the hairs of skins with a liquid which will expand upon freezing and freezing the liquid with which the hair has been brushed.

9. The process of carroting hairs intended to be used in the manufacture of felt consisting in, brushing the hair of skins with a liquid which will expand upon freezing, piling the skins in heaps, allowing said heaps to stand until the liquid has penetrated to the interiors of the hairs, and then freezing the liquid.

10. As preliminary steps in the process of carroting hairs intended to be used in the manufacture of felt, brushing the hair of skins with a liquid which will expand upon freezing, piling said skins in heaps with the hair side of each against the hair side of another, and allowing the heaps to stand un-

til the liquid has penetrated to the interiors of the hairs to be ready to expand on freezing.

5 11. Hair intended to be used in the manufacture of felt, having its walls burst to improve its felting properties.

12. Hair intended to be used in the manufacture of felt produced by causing liquid which will expand upon freezing to penetrate the cells and medullary ducts of the
10 hair and freezing said liquid.

13. Hair intended to be used in the manufacture of felt produced by causing liquid

which will expand upon freezing to penetrate the cells and medullary ducts of the
15 hair and freezing said liquid by the action of a liquid obtained in the liquefaction of air.

In testimony whereof I have signed this specification in the presence of two subscrib-
20 ing witnesses.

CHARLES PICHARD.

Witnesses:

CHARLES LÉON LOISEL,
PIERRE MAURAND.