March 20, 1934. G. FROMMER 1,951,827

PROCESS AND MACHINE FOR COMBING AND IRONING OF SKINS

Filed June 14, 1933

Fig. 1.

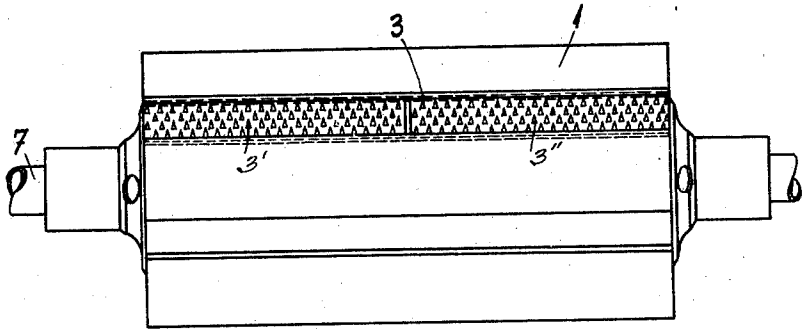


Fig. 4.

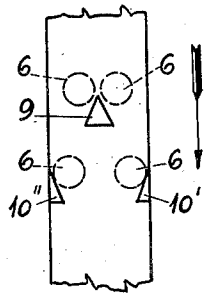


Fig. 2.

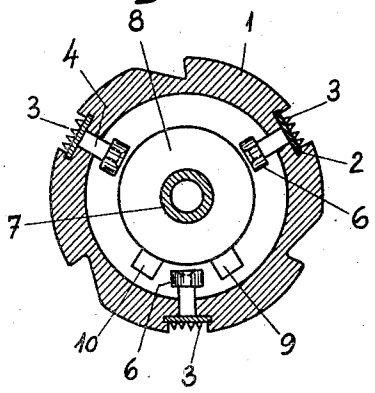
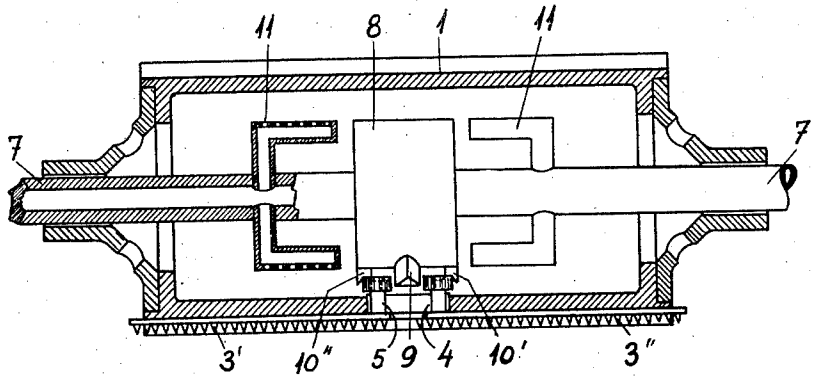


Fig. 3.



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PROCESS AND MACHINE FOR COMBING AND IRONING OF SKINS

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12 Claims. (Cl. 149—24)

This invention relates to processes and machines for combing and ironing of skins and particularly to a process and a machine for combing and ironing of skins in a single process of work.

The process consists, substantially in that the skin is, prior to ironing, combed in a direction forming any desired angle with the direction of ironing. As ironing is effected in the direction of the natural position of the hairs, the latter will, when the skin is after being combed ironed, again occupy their natural position. This is rendered possible by the fact that the ironing roller takes hold of the hairs which have been combed out of their original (natural) position and forces them to share its own motion. In consequence hereof, however, the process of combing extends to the whole length of the hairs and combing is much more effective than in the case of the well-known process in which the hairs are combed on a special machine serving this purpose only and following this ironed on another special machine different from the former. In the last-named case the hairs will partly overlap, only the ends of the hairs will be lying on the surface and accordingly only these free ends will be combed.

The drawing illustrates an embodiment, shown by way of example, of the machine serving for carrying into effect the process according to the invention. On the drawing

Fig. 1 illustrates a front view of the ironing and combing roller,

Fig. 2 a cross-section of the same, and

Fig. 3 a longitudinal section of the same, whilst

Fig. 4 shows the surface of a cylindrical part of the machine developed into a plane.

The machine consists of the rotatable ironing roller 1, in the guide grooves 2, Fig. 2, of which the combs 3 are moved. Instead of the grooves shown on the drawing grooves of any other shape, for instance dove-tail grooves may also be provided. In each groove there are preferably arranged two comb-members 3′ and 3″, which when moving away from each other, effect the combing-out of the hairs. It is, however, also possible to employ combs having more than two parts. The combs or respectively groups of combs, of which any desired number may be employed, consist, for instance, of ledges, on one side of which there are provided nails, furrows, granulations, or, in general, some kind of surface configuration ensuring a sufficient amount of friction in contact with the skins. This uneven surface of the combs may either be arranged so as to be flush with the outside cylinder surface of roller 1 or may project from this surface.

In the embodiment shown, the mutual motion, and the motion relatively to the roller 1, of the combs is effected in the following manner:

The comb-members 3′ and 3″ are, on their mutually facing sides, carrying pins 4, Fig. 3, which latter project through longitudinal slots 5 provided in the wall of the drum 1 into the interior of the drum, and carry, on their free ends, rolls 6 capable of rotating around the pins as pivots. Roller 1 is carried on a fixed shaft 7, which carries a cylinder 8, co-axial with the roller 1, wedges 9, 10′ and 10″ being provided on the cylindrical surface of the said cylinder. Of these wedges, wedge 9 is arranged in such a position, that when the roller 1 rotates each of the rolls 6 of the comb-members 3′ and 3″ which have not yet been pushed away from each other will hit against a lateral face of the wedge, so that when the rotation of the drum 1 is continued, the rolls 6 and with them the comb-members 3′ and 3″ will be pushed away from each other. The roller 1 continues its rotation, whereupon one of the rolls 6 will hit against a lateral face of the wedge 10′ and the other roll 6 will hit against a lateral face of the wedge 10″. The wedges 10′ and 10″ are arranged in such a manner, that they will cause the rolls 6,—and therewith the comb-members 3′ and 3″—to approach each other. On Fig. 4 that part of the cylinder surface 8 which carries the wedges is shown developed into a plane. The circles traced in broken lines show the position of the rolls 6 relatively to the wedges 9, 10′ and 10″, the position shown being, notably, that which exists prior to the rolls having come into contact with the wedges. The arrow illustrates the direction of movement of the rolls, or, respectively, the direction of rotation of the roller 1.

The wedges 9, 10′ and 10″ may be arranged so as to enable their being removed and replaced by wedges of a different length and width. Different parts of the cylinder 8 may be designed so as to be suitable for being fitted with different wedges. At the occasion of the replacement of wedges the cylinder 8 is suitably turned. Finally the machine may be fitted, in a known manner with a heating device 11.

The way in which the machine operates is the following:

The wedge 9 begins to push the comb-members 3′ and 3″ away from each other as soon as the latter have reached the skin to be treated. This movement of mutual displacement of the comb

parts 3' and 3'' will continue as long as these comb parts are in contact with the skin, whereby the hairs are "parted". As soon as the comb has left the skin, the latter is immediately ironed by that part of the roller 1 which follows the skin. The combing of the skin is effected at right angles to, or at any other desired angle to, the direction of ironing and as ironing is usually effected in accordance with the natural position of the hairs, the hairs also will be combed in a direction forming any desired angle with their natural position. That part of the roller 1 which follows behind the comb 3 will guide the hairs back into their original position and in doing so will iron them along their whole length. By means of this combined parting, combing and ironing process a very effective treatment of the skins is obtained.

The machine described can be modified in various ways. Those parts of the roller which do not carry any combs may be smooth, ribbed or grooved (it is the last-named form of construction that is shown on Fig. 2). The ribs or grooves may alternate with smooth parts, and may be of either straight or curved shape. Likewise, the combs also may either be straight (extending in the direction of the generatrix) or they may be made of curved (spiral) shape. All or any of the wedges 9, 10' and 10'' may be replaced by cams or the like. It is also possible to employ, instead of the combs, other means for parting the hairs or respectively laying them over into a position different from their original position. For moving the combs, devices differing from those shown may be used, notably also devices situated outside the roller 1.

What I claim is:

1. A process for combing and ironing of skins consisting in combing the hairs, prior to ironing, in a direction forming an angle with the direction of ironing and ironing the hairs in the same operation of work.

2. A process for combing and ironing of skins consisting in laying over the hairs, prior to ironing, in a direction forming an angle with the direction of ironing and ironing the hairs in the same operation of work.

3. In a machine for combing and ironing of skins an ironing member, means arranged on the said ironing member showing a sufficient amount of friction in contact with the skins to produce a combing effect, and means for moving the last named frictional means in a direction forming a desired angle with the direction of ironing.

4. In a machine for combing and ironing of skins an ironing member, combs arranged on the said ironing member and means for moving the said combs in a direction forming a desired angle with the direction of ironing.

5. In a machine for combing and ironing of skins an ironing member, means arranged on the said ironing member showing a sufficient amount of friction in contact with the skins to produce a combing effect, means for moving the last named frictional means in a direction forming a desired angle with the direction of ironing, the said means for moving the frictional means consisting of fixed stops.

6. In a machine for combing and ironing of skins an ironing member, means arranged on the ironing member showing a sufficient amount of friction in contact with the skins to produce a combing effect, means for moving the last named frictional means in a direction forming a desired angle with the direction of ironing, the said means for moving the frictional means consisting of fixed stops, arranged in the interior of the ironing member.

7. In a machine for combing and ironing of skins an ironing member, means arranged on the said ironing member showing a sufficient amount of friction in contact with the skins to produce a combing effect, means for moving the last named frictional means in a direction forming a desired angle with the direction of ironing, the said means for moving the frictional means consisting of wedges arranged in the interior of the ironing member.

8. In a machine for combing and ironing of skins an ironing member, straight combs arranged on the said ironing member and means for moving the said combs in a direction forming a desired angle with the direction of ironing.

9. In a machine for combing and ironing of skins an ironing member, curved combs arranged on the said ironing member and means for moving the said combs in a direction forming a desired angle with the direction of ironing.

10. In a machine for combing and ironing of skins an ironing member, means arranged on the said ironing member showing a sufficient amount of friction in contact with the skins to produce a combing effect, means for moving the last named frictional means in a direction forming a desired angle with the direction of ironing, the said means for moving the frictional means consisting of interchangeable stops.

11. In a machine for combing and ironing of skins an ironing member, means arranged on the said ironing member showing a sufficient amount of friction in contact with the skins to produce a combing effect, means for moving the last named frictional means in a direction forming a desired angle with the direction of ironing, the said means for moving the frictional means consisting of stops carried by a fixed member arranged in the interior of the ironing member.

12. In a machine for combing and ironing of skins an ironing member, means arranged on the said ironing member showing a sufficient amount of friction in contact with the skins to produce a combing effect, means for moving the last named frictional means in a direction forming a desired angle with the direction of ironing, the said means for moving the frictional means being arranged outside the ironing member.

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