

[54] **METHOD OF PRODUCING FUR PRODUCTS AND A DEVICE FOR CARRYING OUT THE METHOD**

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[56]

**References Cited**

**UNITED STATES PATENTS**

2,786,791	3/1957	Vandeweghe.....	156/265 X
3,575,751	4/1971	Mizell.....	156/68
3,081,614	3/1963	Salick.....	69/22 X
1,284,013	11/1918	Winkler.....	69/21.5

**FOREIGN PATENTS OR APPLICATIONS**

820,279	9/1959	Great Britain.....	156/88
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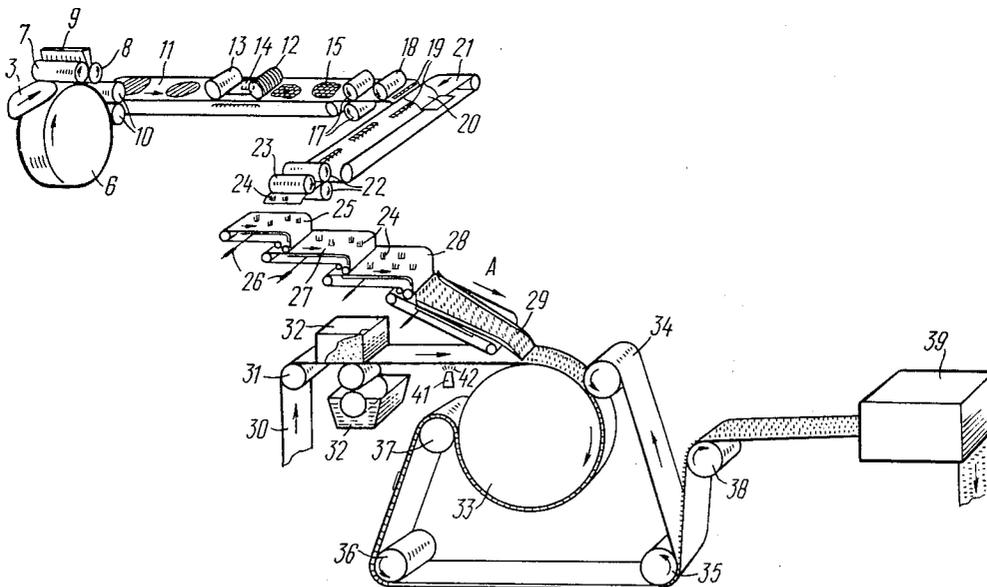
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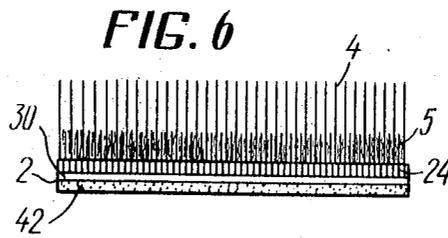
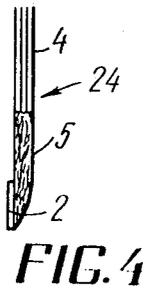
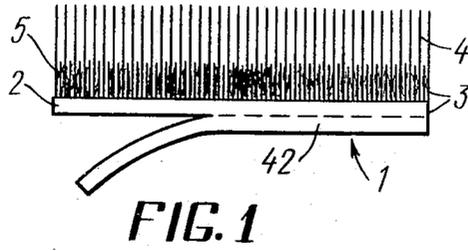
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**ABSTRACT**

The production of fur materials in which the hair covering is cut off along with the skin base to make a split, then the skin base of the thus-obtained split is cut both longitudinally and transversely into individual pieces which are then separated into individual elements, each of which elements consists of the skin base and the hair covering. Thereupon, these elements are oriented in an electrostatic field with the hair covering upwards and cemented to the face of an artificial base.

**4 Claims, 6 Drawing Figures**





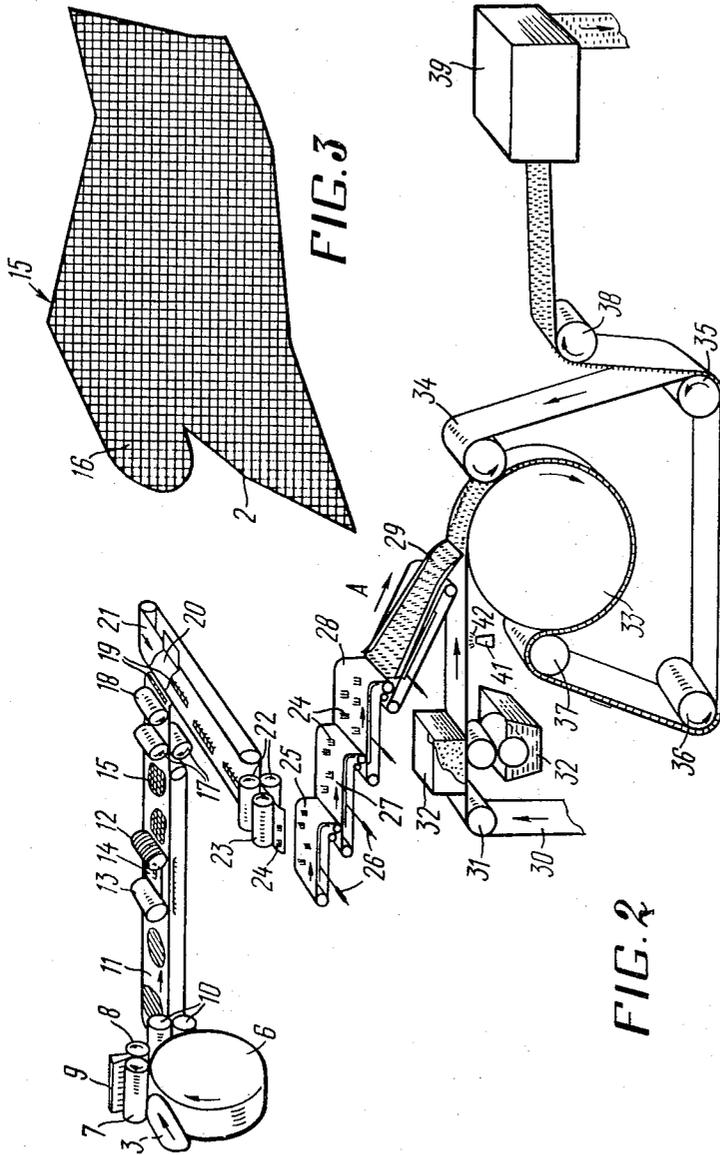


FIG. 3

FIG. 2

## METHOD OF PRODUCING FUR PRODUCTS AND A DEVICE FOR CARRYING OUT THE METHOD

### BACKGROUND OF THE INVENTION

The present invention relates generally to the sphere of natural fur processing and has particular reference to methods of producing fur materials from wastage of natural fur and arrangements for carrying such methods into effect.

The present invention can find most utility when used for producing rolled fur materials from discardable fur scraps, i.e., from interpattern and marginal cuttings resulting from cutting natural fur skin. In addition, the invention is equally applicable for producing a wider-assortment fur materials which is due to the combination of fur pieces resulting from wastage of a diversity of kinds and types of natural fur. e.g. combination of fur pieces obtained from fur wastage of long-hair rabbit and of goatskin, imitates the natural fur of silver fox, so that the hair covering of long-hair rabbit simulates the underhair, while that of goatskin simulates the top hair of a foxskin.

### PRIOR ART

In the present-day fur-processing practice are known some methods and devices for producing fur materials by way of the multiple cutting off of hair covering from skins and compacting it on a vibrating guide board, followed by cementing or pasting of the hair covering to the fabric which serves as an artificial skin (cf., e.g., USSR Author's certificate Pat. No. 203.145, C1.28,b, 28/20). According to said methods, the skin after having been pretreated in a usual way, is placed on a conveyer which feeds it to the band splitting knife; the latter cuts off the hair covering which slides along the vibrating board and, under a compressing force, is drawn unilaterally (i.e., becomes compacted) and at the same time forms the transition zone at which hair is attached to the fabric preliminarily coated with an adhesive or cement. The hair covering and the cement-coated fabric having met each other within the transition zone, the hair slips down onto the fabric and is tightly cemented with the cut surface. After the thus-obtained artificial fur has been dried, the entire cycle may be repeated.

However, the afore-described device suffers from inevitable losses of the hair covering when the latter is compacted on a vibrating board. Besides, said device practically fails to be able to produce a fur material from the wastage of a variety of types and kinds of natural furskin, since the device is devoid of a means capable of mixing and redistributing of the hair covering of the different kinds of furskin before compacting it on a vibrating board, nor is said device able to produce rolled fur featuring its natural thickness remaining unaffected, since close to the joints of the different furskins bald spots are apt to form and the hair covering of the fur becomes thinned.

Such adverse affect may be eliminated due to a rounding of a furskin (i.e., preliminarily cutting off shoulders, flanks and rump thereof) which is not provided by the method.

The device under discussion is of low efficiency in that it depends upon the width of the natural furskin which is evidently limited.

Known in the fur-processing industry are also methods of manufacturing fur materials from the wastage of

natural furskin by way of a manual selection or matching of discardable fur scraps, sewing them together into sheets on fur-skin sewing machines, with or without flattening the seams and with or without doubling the backside of the skin; such methods, however, feature but extremely low efficiency, considerable losses of the raw material during evening-up, i.e., manual matching of natural-fur cuttings, and permit the production of fur materials matched of only one kind of fur.

### OBJECTS AND SUMMARY OF THE INVENTION

It is an object of the present invention to eliminate the disadvantages mentioned above.

It is another object of the present invention to provide improvements in the operation of cutting-off the hair covering, its compacting and orienting.

It is a further important object of the present invention to provide a method and an arrangement for carrying such method into effect, so that both the method and the arrangement permits the manufacture of fur material in rolls of a predetermined width from discardable fur scraps, featuring either natural texture and thickness of the hair covering or those modified as desired.

The above and other objects are achieved due to the fact that in a method of producing fur materials, residing in cutting off the hair covering from a fur-bearing raw stock having a natural underskin, and in a subsequent compacting and cementing of the hair covering to an artificial base, according to the invention, the hair covering is cut along with part of the underskin of a required thickness to make a split, then the skin of the thus-obtained split is cut into pieces which are interlocked through the hair covering, with a subsequent separation of said pieces into individual independent elements each of which consists of the underskin and the hair covering, and thereafter a system of electrostatic fields is established to orient the elements with the hair covering upwards, followed by their compacting and cementing to the face of an artificial base.

In an arrangement for carrying such method into effect, according to the invention past the skin splitter device provision is made for a system of knives adapted to cut the leather base of a split into lengthwise strips interlocked through the hair covering, after which said strips are fed to a conveyer mounted at an angle to said system of knives and carrying a bank of rotary circular knives adapted to cut the skin base of said lengthwise strips into pieces fed by said conveyer into a system of shafts or rolls one of which is provided with a fluted and rubber-coated periphery to effect piecewise separation of the strips.

The arrangement is provided with another conveyer mounted at a preset angle to said first conveyer; carrying a catcher of the separated strips and adapted to transfer the latter to another system of separating shafts; moreover, the present arrangement has a number of consecutively mounted conveyers arranged in a cascade manner one above another and provided with the elements featuring unlike electrostatic charges to establish electrostatic fields which orient the thus-obtained furskin elements with the hair covering upwards, while the compacting device has a trough which is in fact an extension of the system of said conveyers carrying the electrostatic cells, with the trough being narrowed, and its width being controlled at the end

thereof to suit the required width of a fabric serving as an artificial base.

All of the foregoing makes it possible to produce fur material in rolls of a predetermined width from discardable fur scraps due to disjoining the latter into separate elements which are then oriented in an electrostatic field and compacted in a trough of a controlled width to suit the required width of the fabric serving as an artificial base. The thus-obtained roll is in fact the natural fur fixed to an artificial base and featuring either a natural texture and the thickness of the hair covering or those modified as desired with a predetermined ratio of the top hair and underhair of a diversity of kinds and types of the natural fur and possessing hygienic and heat-storage properties closely resembling those of the natural fur, as well as increased physico-mechanical characteristics.

It is expedient that according to the present method, disintegrated skin fibers taken from the split of another part of the skin base be applied to the back (flesh) side of the artificial skin base preliminarily coated with an adhesive. To this end, provision is made for a device for spray-spreading of a preliminarily disintegrated remainder part of the split, with said device being located within the zone of location of the device for applying an adhesive which is adapted for simultaneously applying the latter to both sides of a fabric which serves as an artificial base, while said spray-spreading device applies the split disintegrated particles only to the backside of said fabric, thus simulating the flesh side of the natural furskin. This makes it possible to form the face of the artificial base (fabric) so as to simulate the true flesh side of the natural furskin. Fur material obtained by the above-described method is applicable for manufacturing garments, shoes, toys, upholstery for a variety of car seats, upholstered furniture, and the like.

In the following, the nature of the present invention is made more evident due to the consideration of a specific exemplary embodiment thereof to be taken in conjunction with the accompanying drawings, wherein:

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates diagrammatically the operation of cutting-off the fur-skin hair covering to make a split;

FIG. 2 is a schematic view of an arrangement for carrying into effect the method of producing fur materials from a split, according to the invention;

FIG. 3 is a fragmentary view of a piece of a discardable fur scrap showing its underskin cut into pieces;

FIG. 4 is a fragmentary view showing an individual furskin element or constituent, consisting of the skin base and hair covering;

FIG. 5 is an elevational view showing the obtained fur material as wound in a roll; and

FIG. 6 is a sectional view of the obtained fur material.

#### DETAILED DESCRIPTION OF THE INVENTION

The essence of the present method resides in that the underskin of discardable fur scraps is first made equal in thickness to obtain a split having its underskin of a strictly preset thickness and featuring a natural hair covering remaining unaffected. Then the skin base of the thus-obtained split is cut both longitudinally and transversely to obtain particles interlocked through the hair covering, whereby the integrity of the hair covering of every particular piece of fur scrap remains undisturbed.

Further, the hair covering of a piece of fur scrap is separated into individual independent elements along the lines of cut of the skin base thereof. The thus-obtained elements each of which consists of the skin base and hair covering, is exposed to the effect of a system of electrostatic fields which orient said elements with their hair covering upwards, after which the thus-oriented elements are compacted and cemented to the face of a fabric serving as an artificial base.

To simulate the flesh side of the natural furskin, to the backside of the artificial base is applied, the preliminarily disintegrated split of another part of the skin base remaining after its having been made equal in thickness.

Fur material is produced in the following way.

A discardable fur scrap 1 (FIG. 1) is subjected to an evening, i.e., making its skin base 2 equal in thickness which results in a split 3 consisting of a skin base evened in thickness and a hair covering composed of top hair 4 and underhair 5.

The thus-obtained split 3 is fed, with the hair covering down, onto a receiving drum 6 (FIG. 2) which, while rotating, feeds the split under shafts or rolls 7 and 8 which execute a forced movement of the latter. A minimum gap is left between said shafts to accommodate a system of knives 9 which cut the skin base of the split into lengthwise strips during the split positive motion. The strips are interlocked through the hair covering due to the curliness and ring-shaped texture of the underhair.

The split dissected into strips, is fed by carrier shafts or rolls 10 onto a conveyer 11 mounted at a preset angle to the system of knives 9. Such angle is necessary for a subsequent cutting of the skin base of the lengthwise strips into pieces. This is carried out by a bank of rotary circular knives 12 located on the conveyer 11; while being cut the strips are pressed by a shaft or roll 13 and a spring-actuated bar 14 to cause the strips to travel in the required direction.

As a result the cutting, a fur scrap 15 is obtained whose skin base 2 is cut into pieces 16 interlocked through the hair covering.

A fur scrap having such a structure is fed by the conveyer 11 (FIG. 1) onto a system of shafts or rolls 17 and 18 of which the shaft 18 has a fluted and rubber-coated periphery to effect piecewise separation of strips 19 each of which consists of a continuous hair covering and the skin base cut into pieces. The strips 19 are fed into a catcher or receives 20 located on a conveyer 21 which is mounted at a preset angle to the conveyer 11. Such angle is necessary for the strips 19 to be turned in the direction normal that of their travelling by the conveyer 11. The conveyer 21 transfers the separated strips 19 to another system of shafts or rolls 22 and 23 of which the shaft 23 is similar in design to the shaft 13 and is adapted to separate the strips into independent elements 24 (FIG 4) consisting of the skin base 2, top hair 4 and underhair 5. The elements 24 drop down onto a conveyer 25 (FIG. 2) at the same time turning with the hair covering upwards under their own weight.

The conveyer 25 is provided with a member defined by a plate 26 connected to an electrostatic machine. Conveyers 27 and 28 are located beneath the conveyer 25 are arranged in a cascade fashion with respect to each and each of said conveyers is likewise provided with members defined by plates 26 connected to the unlike poles of electrostatic machines. Thus, a system

of electrostatic fields is established to orient the fur elements 24 with the hair covering upwards.

The conveyers 25, 27 and 28 have different variable speeds, whereby the fur elements are guaranteed to be compacted lengthwise and the roll into which the fur material is wound is thus obtained. Due to the provision of a system of electrostatic fields, the fur elements maintain their position, are set, supported, conveyed and compacted in a strictly vertical position, i.e., with the skin base downwards and with the top hair and underhair upwards.

From the conveyer 28, the oriented fur elements are fed into a trough 29 which is in fact an extension of the system of conveyers 25, 27 and 28 and is likewise provided with the plate 26 connected to a pole of an electrostatic machine unlike that of the conveyer 28.

The trough 29 has its cross-sectional area reduced towards the movement of the fur elements 24, with such movement being conventionally shown by the arrow A.

A longer effect of electrostatic field and a reduced cross-sectional area of the trough contribute to an additional, final compacting of the fur elements both breadthwise and lengthwise of the roll of fur material which will be wound from the fur elements. Fed under the trough 29 is a fabric 30 which serves as an artificial base for the fur material obtained. The fabric moves over a guide roller 31 and passes into a device 32 for applying an adhesive to the face thereof. Use may be made as an artificial base, of networks, completed warp threads, polymer films or some other materials suitable for obtaining fur material featuring physico-mechanical and hygienic properties closely resembling those of the natural furskin.

The width of the trough 29 can be varied to suit the width of the fabric 30. Upon leaving the device 32, the fabric 30 is fed to a cementing device which comprises a heated cylinder 33 and a conveyer belt 34 enveloping at least a part of the periphery the cylinder 33 and passing over guide rollers 35, 36 and 37. The elements 24 coming from the trough and the fabric 30 with its face coated by an adhesive, meet each other.

The fur elements slip down onto the fabric and along with the fabric 30 are forced by the conveyer belt 34 against the heated cylinder 33, with the result that the fur elements become cemented with their skin base to the artificial base.

Then the semifinished product of fur material, having passed over a roller 38, is fed into a drying device 39 having different-temperature zones.

The thus-obtained fur material having the natural fur-skin hair covering, is wound into a roll 40 (FIG. 5).

To simulate the flesh side of the natural furskin, provision is made in the present arrangement for a device 41 (FIG. 2) located within the zone of the device 32 and adapted for spray-spreading of a preliminarily disintegrated remainder part 42 of the split 3 (FIG. 1) over the backside of the fabric 30 (FIG. 2) which has preliminarily been coated with an adhesive by means of the device 32.

Then the fabric with the particles of the disintegrated split applied thereto is fed into the zone at which the fur elements 24 emerge from the trough 29.

Further, the process of formation of the semifinished product and turning it into the finished fur material occurs in a way similar to that described above. In this case, the fur material obtained fully simulates the natu-

ral furskin both on the face and backside thereof, consisting of the artificial base 30 (FIG. 6), to which on one side are cemented with their skin base 2, the fur elements 24 having the natural top hair 4 and underhair 5 and on the other side, a layer of the disintegrated remainder part 42 of the skin base of the split 3.

The method and the arrangement disclosed hereinabove are capable of producing fur material by a simultaneous mixing of fur elements resulting from the discardable fur scraps of a variety of kinds and types of the natural furskins.

This is made possible due to the provision of a system of electrostatic fields which ensure mixing, orienting and compacting of said fur elements.

The thus-obtained fur material is fully identical with the natural furskin both on its face and back sides, possesses hygienic and heat-retaining properties very closely resembling those of the natural furskin, as well as increased physico-mechanical characteristics, thus enabling a considerable extension of the assortment of fur material obtained.

What we claim is:

1. A method of producing fur material from a fur-bearing raw stock having an underskin and hair covering, comprising the steps of cutting off the hair covering from the fur-bearing raw stock along with part of the underskin of a preset thickness to make a split; cutting the skin of the thus-obtained split into pieces interlocked through the hair covering; subsequently separating said pieces into individual independent elements, each of which elements consists of the skin base and hair covering; providing electrostatic fields to orient the elements fed thereto with the hair covering upwards; feeding an artificial base having a face preliminarily coated with a cementing agent or adhesive; and subsequently compacting and cementing the oriented elements to the coated face of the artificial base.

2. (A) The method as claimed in claim 1, in which to the backside of the artificial base having the preliminarily coated face, there are applied disintegrated skin fibers taken from the split of another part of the underskin.

3. An arrangement for producing fur materials from a fur-bearing raw stock having an underskin and hair covering, comprising the following components arranged consecutively according to the production flow-sheet of fur materials: a device for cutting off the hair covering from the fur-bearing raw stock, along with the underskin of a preset thickness to make a split; a system of knives located past said device for cutting the skin base of the thus-obtained split into lengthwise strips interlocked through the hair covering; a conveyer mounted at a preset angle to said system of knives for receiving said lengthwise strips; a bank of rotary circular knives mounted on said conveyer for cutting into pieces the skin base of the lengthwise strips; a system of shafts located at an end of said conveyer to receive said strips; one of said shafts having a fluted and rubber-coated periphery to provide piecewise separation of the strips; a further conveyer mounted at a preset angle to the first conveyer for turning said separated strips at 90°; a catcher for the separated strips mounted on said further conveyer; a further system of shafts mounted at the end of the further conveyer for separating a strip into individual independent elements each of which elements consists of the skin and hair covering; a number of consecutive conveyers arranged in a cas-

cade manner one above another and carrying elements providing unlike electrostatic charges to establish a system of electrostatic fields for orienting the thus-obtained fur elements with the hair covering upwards; a trough which is essentially an extension of said number of conveyers carrying electrostatic elements, said trough having its cross-sectional area reduced in the direction of movement of the fur elements therealong, with its width being controlled to suit the required width of a fabric serving as an artificial base; a feeding device for the fabric serving as an artificial base; a means to apply an adhesive to the face of the artificial base; and a drying device having different-temperature

zones.

4. The arrangement as claimed in claim 3, including a device for spray-spreading of the preliminarily disintegrated remainder part of the split, said device being located within the zone of the means for applying an adhesive, said means serving for a simultaneous application of said adhesive to both sides of the fabric serving as an artificial base, said disintegrated parts of the split are applied only to the backside of said fabric by said spray-spreading device to simulate the flesh side of the natural furskin.

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