Aug. 21, 1928. 1,681,919

F. W. HORSTMANN

MACHINE FOR CUTTING DESIGNS IN FURS

Filed March 25, 1926

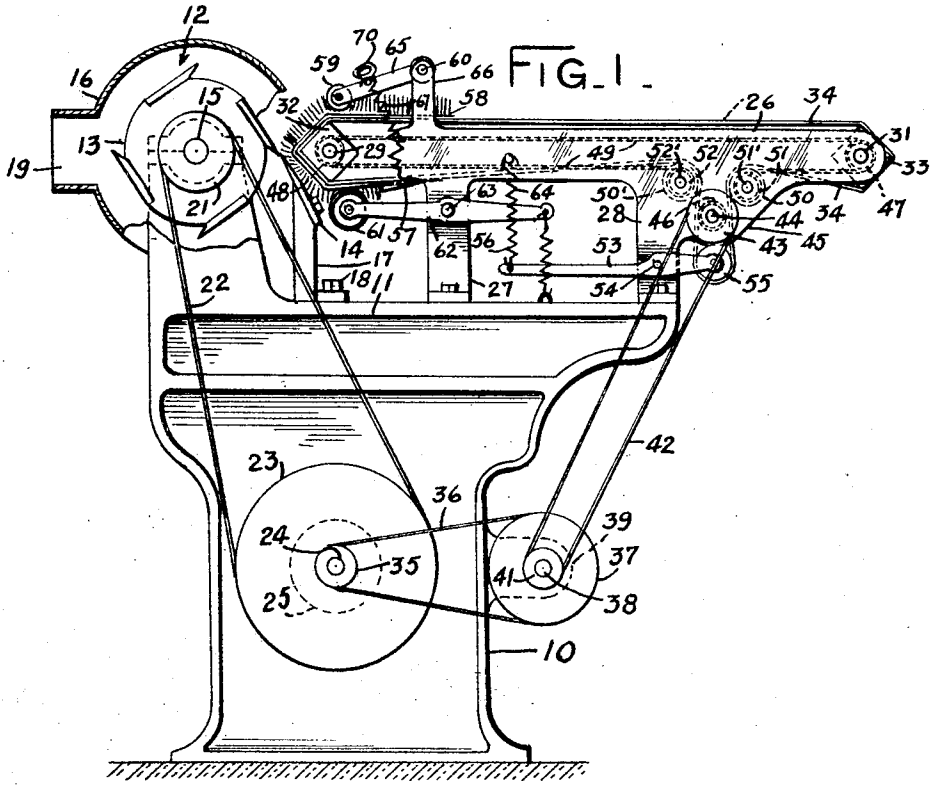


FIG. 1.

FIG. 2.

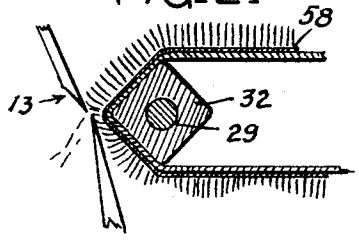


FIG. 3.

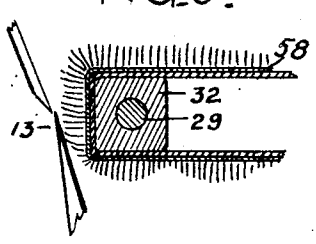


FIG. 4.

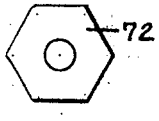
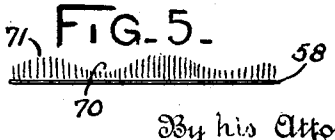


FIG. 5.



Inventor
F. W. HORSTMANN

By his Attorneys
Dunbower & Reges

Patented Aug. 21, 1928. 1,681,919

UNITED STATES PATENT OFFICE.

FREDERICK W. HORSTMANN, OF MAPLEWOOD, NEW JERSEY.

MACHINE FOR CUTTING DESIGNS IN FURS.

Application filed March 25, 1926. Serial No. 97,182.

This invention relates to a machine for producing ornamental patterns or designs upon the fur surface of pelts or the like and relates more particularly to a machine of the character shown and described in my copending application Serial Number 57,824, filed September 22, 1925.

Considerable effort has been made during the development of the fur industry to produce new and startling effects in furs. To this end pelts have been dyed and pressed in various ways to change the character of the fur and make it more striking in design and more pleasing in appearance.

In addition to dyeing or pressing the fur, it has been the practise to make up a garment of skins of different shades or colors to produce a pattern upon a garment.

The present invention provides a machine for producing a new and desirable pattern upon a pelt but in a manner entirely different from that employed previously in the production of other patterns.

A machine for practising my invention accomplishes its result, that is, produces a pattern on a pelt, by removing portions of the fur to give the same a wavy or undulatory surface thus changing the formation of the surface of a pelt and, in the case of pelts having the fur near the roots of a different color than that near the surface, not only produces a wavy form but in addition gives thereto a pleasing variation in color which graduates in tone from the crest to the trough of each wave.

An object of the present invention is, therefore, to produce ornamental designs or patterns upon fur surfaces in a convenient and expeditious manner.

Another object of the invention is to provide a fur-cutting machine having a rotary member for applying the fur on a skin intermittently to a cutter or shearing mechanism.

A further object of the invention is to provide a fur shearing machine having a conveyor capable of a continuous movement and which at the same time applies a fur intermittently to a cutter.

A further object of the invention is to guide a pelt through a continuous path to and from a shearing mechanism.

A further object of the invention is to cause a fur to travel through a continuous path gradually toward and from a cutting mechanism so that progressively increasing and decreasing lengths of fur may be cut from the surface of a pelt.

Other objects and advantages of the invention will be apparent from the following description.

The present embodiment of the invention may comprise an apron or endless belt conveyor, the belt being tensionally held for movement over driving members to feed skins or pelts to a rotary cutter to shear the fur. In the present invention the rotary or driving members of the conveyor instead of being of the usual cylindrical form are of a different configuration than circular in transverse cross-section.

When a fur or pelt is applied to an apron in accordance with the present invention it is fed in such manner that a series of troughs may be formed in the fur by a continuous movement of the apron without causing a reciprocation of the apron as a whole in the manner set forth in the copending application referred to above. Although a reciprocation of the apron or conveyor provides a practical means of reforming a fur surface, I have found that such reciprocation may be eliminated by constructing the feed rollers of the conveyor as set forth herein.

In carrying out the present invention I prefer to make the rotary members or feed rollers of the conveyor of rectangular form in transverse cross-section. Thus when a skin is fed to the cutters, the fur will be gradually and alternately advanced and retracted. The result is a series of troughs or waves having a rounded crest which may be produced in a rapid and effective manner.

The invention will be more clearly understood by reference to the accompanying drawing in which

Fig. 1 is a side view in elevation of a machine embodying the present invention.

Fig. 2 is an enlarged sectional view of the feed roller showing the fur presented to the cutting device.

Fig. 3 is a view similar to Fig. 2 but showing the feed roller in position to remove the fur from the cutting device.

Fig. 4 is an example of another shape of feed roller, and

Fig. 5 is a sectional view of a pelt with the fur sheared by the present machine.

The machine illustrated for practising my invention may comprise a suitable support-

ing frame 10 upon which the various movable elements are mounted. At one side of the top or table 11 of the frame may be positioned a fur-shearing mechanism 12 comprising a rotary cutter 13 and a bed-knife 14. The rotary cutter may be mounted on a shaft 15 journaled in suitable bearings integral with the frame 10 and disposed at opposite sides of a housing 16 in which the cutter is enclosed. The bed-knife 14 may be adjustably secured to a post 17 in the usual manner, the post having a foot which is secured by a tap bolt 18 to the table 11. The housing 16 may be provided with an outlet passage 19 through which the sheared fur may be drawn by means of a vacuum created by any suitable means, as for example a rotary blower (not shown).

The shaft 15 may be provided with a pulley 21 connected by an endless belt 22 with a pulley 23 secured to and rotatable with a driving shaft 24 journaled in suitable bearings in the frame 10.

The driving shaft may be provided with a driving pulley 25 driven by any desired source of energy, as by an electric motor (not shown).

In the present invention the conveyor or apron for feeding the pelts to the cutters may be supported by a super-structure comprising side plates 26 integral with standards 27 and 28 secured to the table top 11 by suitable bolts. Shafts 29 and 31 may be journaled at opposite ends of the plates 26 and as shown in the drawing rotary members 32 and 33 of rectangular configuration in transverse cross-section may be mounted on the shafts 29 and 31, respectively, and rotatable therewith.

The rotary member 32 may be termed the "feed member" since it is effective for guiding a pelt directly to the cutters. An endless belt 34 of canvas or other suitable material may be movable about the members 32 and 33. By reason of the form of the members 32 and 33, the belt is given an angular form or whatever form the rotary members may have. The rotary members are made of similar shape and are driven simultaneously by means of a system of belts and pulleys including a pulley 35 on the shaft 24 which is connected by a belt 36 to a pulley 37 rotatable with a shaft 38 mounted in a bearing 39 integral with the frame 10. The shaft 38 is provided with a pulley 41 connected by a belt 42 to a pulley 43 mounted on a stub shaft 44 mounted to rotate in a bearing on an extended portion 45 of plate 26. Motion is translated through the above-mentioned belts and pulleys to the shaft 44 from the main driving shaft 24. The shaft 44 is provided with a sprocket wheel 46 and the shafts 31 and 32 of the conveyor are provided with similar sprocket wheels 47 and 48. An endless chain 49 leads over the above-mentioned sprockets and the rotary members 32 and 33 are thus driven in unison to give a steady and non-slip drive to the belt 34.

The chain 49 is held taut by a pair of idler sprockets 51 and 52 which may be mounted on ends of shafts 51′ and 52′ which shafts extend between and are journaled in side plates 26. Rollers 50 and 50′ are loosely mounted on the shafts 51′ and 52″ as guide members for the belt 34 which passes over the last-mentioned rollers and around a tension roller 55 journaled at ends of lever members 53 pivoted on a trunnion 54. This tension roller is maintained in tensional engagement with the belt 34 by reason of springs 56 secured to ends of the lever members 53 and to the plates 26.

The belt 34 of the conveyor may have a series of pockets 57 into which an end of a pelt 58 may be inserted to maintain it in position during movement with the belt. Upper and lower retainer rollers 59 and 61 may be provided to hold the pelt or skin in place in contact with the belt. The lower roller 59 may be pivoted at one end of levers 62 rockable about a pin 63 on the standard 27 and a spring 64 may be provided to move said roller 61 toward the belt or in contact with a skin. The upper roller 59 may be rotatable upon a shaft at the end of arms 65, the opposite ends of the arms being pivoted at 60 on posts 66 integral with plates 26 at opposite sides of the belt 34. The arms 65 may be urged downwardly by a spring 67, the said spring having one end secured to plate 26 and the other end provided with a hook to engage with a pin on the arm 65. The spring 67 is provided with a finger ring 70 to facilitate a release of the spring from the arm 65 so that the roller 59 may be lifted to permit the entrance of a skin between the roller and the belt.

The mechanism above-described constitutes a practical machine for carrying out my invention which primarily consists in the intermittent application of a skin to the cutters.

By reason of the novel manner in which a fur 58 is fed to the cutters a series of concave trenches 70 separated by convex ridges 71 are produced, as shown in Fig. 5.

By presenting the fur to the cutters while stretched over the angular edge of the member 32 it is only possible to shear along a restricted path since the remaining portion of the fur recedes from the knives. When the member 32 rotates a quarter turn it causes the fur immediately adjacent to the ridge to be sheared but the shearing takes place while the fur is backing away from the cutters so that as the flat surface of the member faces the cutter the fur is removed from shearing relation with the knives. As the next corner or angular portion of the member advances to the knives the fur begins to come into shearing range of the rapidly rotating knives and the fur is gradually sheared deeper and deeper until an angular portion of the mem-

ber 32 is opposite to the knives and the deepest cut is made. A continued rotation of the member 32 or an actuation of the machine to operate the conveyor results in a repetition of the above-described operations to produce a serrated or undulatory surface on the fur of a pelt.

It will be appreciated that although a rotary member of rectangular transverse cross-section is shown, it is obvious that other shapes may be employed. For example, a roller 72 of polygonal form, as shown in Figure 4, may be employed, or a member of other configuration may be used.

It may be desirable to provide a rotary member which will advance the fur to cutting relation to the knives a lesser number of times during a rotation of the member, in which case the rotary member may be oval or elliptical in transverse cross-section. All such modifications fall within the scope of my invention which contemplates the continuous advancement of a pelt through a predetermined path alternately to and from a shearing mechanism.

Although a preferred embodiment of a machine for carrying out my invention is shown and described herein, it is to be understood that structural variations may be made with a rearrangement of parts or a modification thereof without departing from the spirit of the invention as set forth in the appended claims.

What I claim is:

1. In a fur cutting machine, the combination of a fur shearing device, a conveyor for feeding a fur past said device, and means for moving one end of said conveyor toward and from said device while a fur is being fed past said device whereby the fur will be cut in a predetermined design.

2. In a fur cutting machine, the combination of a fur shearing device, a conveyor for feeding a fur past said device, and a feed roller of non-circular transverse cross-section adjacent said device and over which said conveyor is threaded, and means for rotating said roller.

3. In a fur cutting machine, the combination of cutting mechanism, a non-cylindrical feed roller, conveying means threaded over said roller, and means for rotating the roller to cause the fur to travel to and from the cutting mechanism.

4. In a fur cutting machine, the combination of a fur shearing device, a feed roller of angular transverse cross-section disposed adjacent to said device, conveying means threaded over said roller, and means for rotating the roller to feed the fur to said device.

5. In a fur cutting machine, a shearing device, a feed roller of non-circular transverse cross-section, and means for rotating said roller.

6. In a fur cutting machine, a shearing device, a feed roller having the surface thereof eccentric to the axial line of the roller, and means for rotating said roller.

7. In a fur cutting machine, a shearing device, a feed roller having its transverse cross-section of angular form, and means for rotating said roller.

8. A machine for cutting furrows or depressions in the hair or fur of skins comprising a frame, a cylindrical cutter mounted in said frame, a stationary blade operatively coacting with said cylindrical cutter, an endless belt for supporting and carrying the fur skins, a pair of rollers mounted in said frame over which the said belt operates, one of said pair of rollers being non-circular in cross section and operating to bring the skins carried by the belt into cutting relationship with the said cylindrical cutter and stationary blade and means for driving one of said pair of rollers and for rotating said cylindrical cutter.

9. A machine for cutting furrows or depressions in the hair or fur of skins comprising a frame, a cutter rotatably mounted in said frame, a stationary blade operatively coacting with said cutter, an endless belt for supporting and carrying the fur skins, a pair of rollers revolvably mounted in said frame over which the said belt operates, one of said pairs of rollers being of polygonal form in cross section, and operating to bring the skins carried by the belt into cutting relationship with the said cutter and stationary blade and means for driving one of said pair of rollers and for rotating said cutter.

10. In a machine for producing furrows or depressions in the hair or fur of skins in combination with a frame, a cutting instrumentality arranged in said frame for cutting the hair or fur of skins, means for conveying the skins past the cutting instrumentalities comprising an endless belt to which the skins are secured, and a pair of spaced rollers over which the belt operates, one of said pair of rollers being triangular shaped in cross section to successively move the skins toward and away from the cutting instrumentalities in its movement past the same, and into and out of cutting relationship therewith and means for driving said belt and one of said cutting instrumentalities.

In testimony whereof I affix my signature.

FREDERICK W. HORSTMANN.