Oct. 3, 1939. A. G. SETTEL 2,174,603

FUR CUTTING

Filed Oct. 6, 1937 2 Sheets-Sheet 1

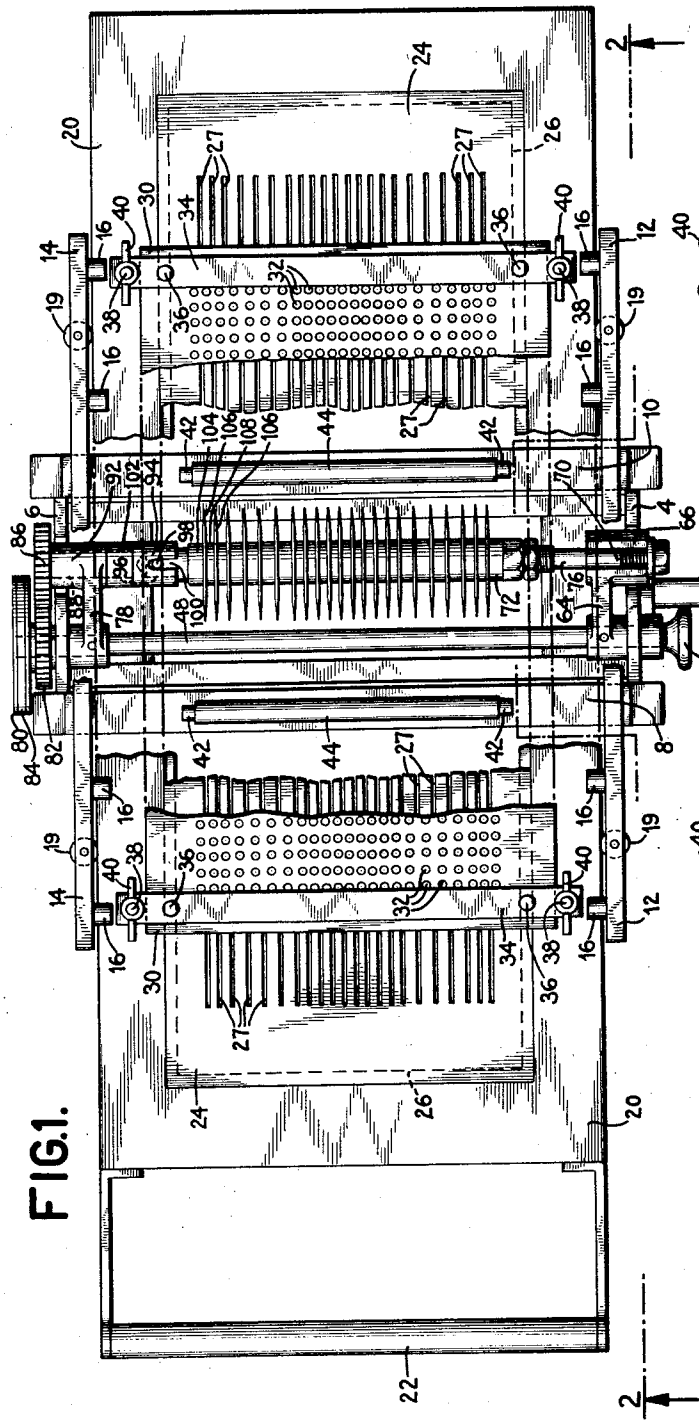


FIG. 1.

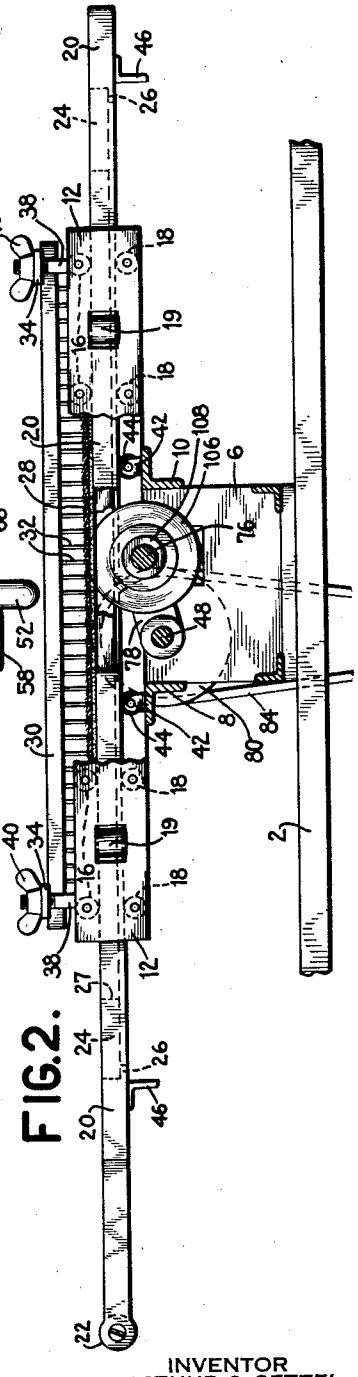


FIG. 2.

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Oct. 3, 1939. A. G. SETTEL 2,174,603

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Filed Oct. 6, 1937 2 Sheets-Sheet 2

FIG. 4.

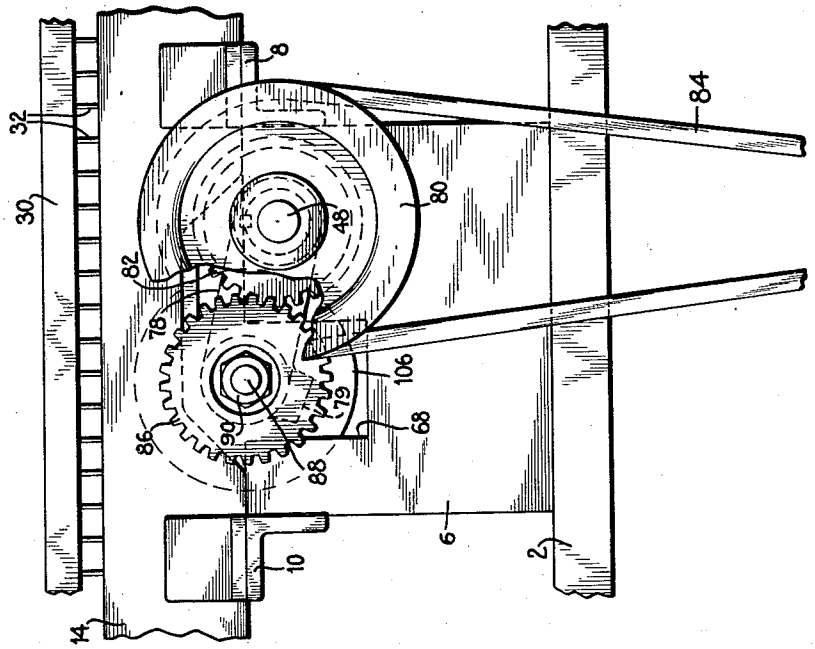
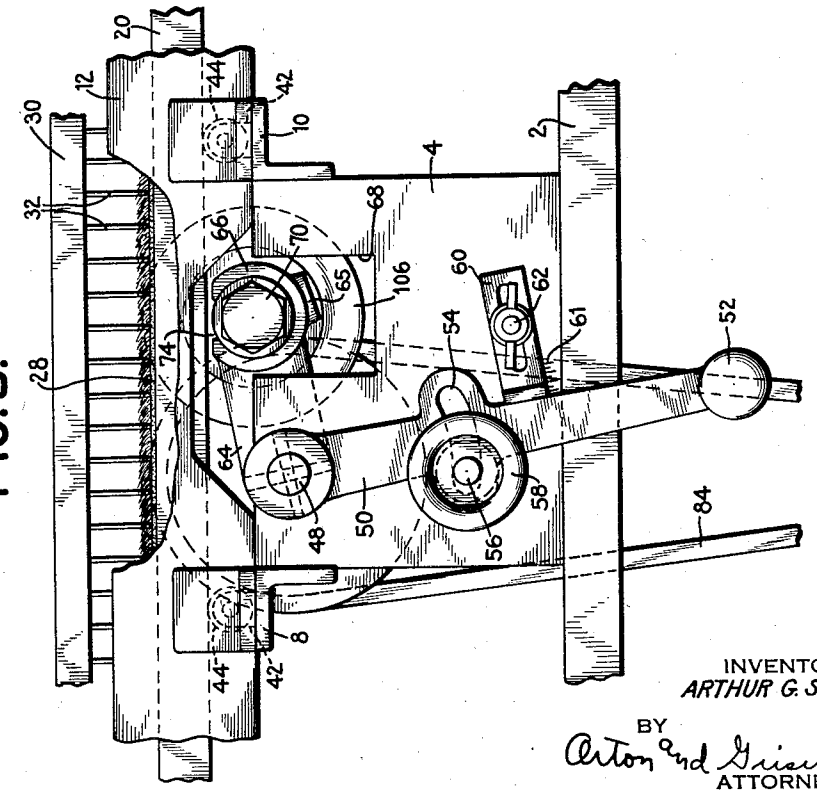


FIG. 3.



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FUR CUTTING

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Application October 6, 1937, Serial No. 167,485

19 Claims. (Cl. 164—60)

This invention relates to a method and a machine useful in working up fur bearing pelts and particularly for cutting skins into strips which can be sewed together to produce variations in the size and appearance of the finished skins and make them acceptable for incorporation into scarfs, boas, muffs, capes, coats and other fur articles.

In working skins to produce fur articles, it frequently happens that a particular skin is of the wrong dimension, i. e., it is usually wide, for example, and to produce a scarf from such a fur would make it entirely too bulky. It has heretofore been proposed that such skins be cut into narrow longitudinal strips and alternate strips sewed together to form two complete furs which are of the same length but, of course, approximately half as wide. Likewise a skin may be lengthened by cutting it diagonally from the center line and offsetting the strips as they are sewed together. The forming of strips has been accomplished with various cutting tools in the hands of an operator who, in most instances, was not able to produce uniform strips that could be combined to make two substantially identical furs. Another drawback was the excessive cutting of the hair which reduced the value of the skins.

This invention provides a method and machine whereby it is possible to cut up skins to make them smaller or in effect to produce two furs from a single skin and in another modification to increase the length of furs, i. e., to make a single skin considerably longer than the original skin from which it was prepared.

In some instances, it may be desired to remove one or more strips from a skin instead of remaking it entirely and this too can be accomplished with the device of my invention.

To obtain these and other related objects, this invention provides an apparatus by means of which all types of skins may be cut up into individual strips of uniform width and any desired dimensions so that they can be sewed together to form acceptable skins useful for the various purposes to which skins are applied.

The invention may be embodied in a number of different forms but is illustrated herein by reference to a preferred embodiment and in the drawings:

Figure 1 is a view in plan, with parts cut away, of the machine for cutting the fur up into strips;

Figure 2 is a view in elevation of the machine of Figure 1 with portions cut away in sections substantially along the line 2—2 of Figure 1;

Figure 3 is a view in elevation of a detail of one side of the machine of Figure 1; and

Figure 4 is a view in detail of the opposite side of the machine of Figure 1 from that illustrated in Figure 3.

The principal portion of the machine is mounted on a suitable base 2 that may be either a permanent support or one that is mounted for movement about the shop. In any event, the base 2 must be associated with a motor to drive the mechanism in the manner hereinafter to be described. Supported on the base 2 are two side plates 4 and 6, respectively (see Figures 3 and 4), which carry connecting angle irons 8 and 10.

These transverse angle irons 8 and 10 provide support for the side bars 12 and 14. Each of the side bars 12 and 14 carry three sets of rollers, an upper set 16 and a lower set 18, rotatable on horizontal shafts extending inwardly at right angles to each of the two bars and spaced sufficiently to receive therebetween and guide a bed plate 20 in a horizontal plane, cooperating with inset rollers 19 on vertical shafts to provide clearance between the bed plate and the side bars.

The bed plate 20 is a rectangular member provided at one end with a handle 22 and has the greater portion of its center cut away to receive a slotted plate 24 which it receives in a manner similar to a picture frame receiving a glass. A flange 26 in the bed plate 20 supports the slotted plate 24.

Extending longitudinally of the slotted plate 24 are the spaced slots 27 which may be separated an equal distance all the way across the plate or may be variably spaced, as indicated in Figure 1, and for the reasons which will hereinafter be discussed. The slotted plate 24 is adapted to receive on its upper surface a skin 28 which may be placed thereon with the leather side down and the hair side up away from the slots. When the skin is laid in proper position on the slotted plate it is held there during the cutting operation by placing above it a large rectangular member substantially coextensive with the slotted plate and having projecting therefrom a plurality of pins 32 which are mounted close together along straight lines in the pinboard 30, which straight lines correspond to the center point between the corresponding slots 27 in the slotted plate below. The pinboard 30 is held in position with the pins passing through the hair and engaging the leather of the fur 28 by means of cross-pieces 34 which may be loose on the pinboard or fastened thereto as by rivets 36. Pressure is exerted on the cross pieces 34 by means of threaded studs 38

rising from the bed plate 20 and provided with wing nuts 40. By tightening down on the wing nuts 40, it is possible to exert uniform pressure across the entire surface of the fur resting on the slotted plate 24 as the ends of the pins 32 form individual contact points with the leather of the fur and hold it in position. The pins have blunt ends to avoid piercing the leather.

Also mounted on the angle irons 8 and 10 are bosses 42 which serve as bearings for the rollers 44 to support the bed plate 20 across its entire width near the center of the machine.

The apparatus thus far described comprises the movable bed plate 20 supporting the slotted plate 24 on which can be placed the skin which is held in position by the pinboard 30. By actuating the handle 22, the entire bed plate and accessories are movable between side bars 12 and 14 along a horizontal path controlled by the rollers 16, 18 and 44. The angle irons 46 adjacent each end of the bed plate are adapted to limit movement of the bed plate 20 by engaging the other transverse angle irons 8 and 10.

Journalled in the side plates 4 and 6 is a transverse shaft 48 which projects slightly beyond the respective plates at each end. At the near end, as viewed in Figure 1 and as shown in detail in Figure 3, is keyed to the shaft 48 a lever arm 50, the free end of which is provided with a handle 52. At a midportion of the lever arm 50 is an arcuate slot 54 through which projects a threaded member 56 having a circular handle 58 which when rotated in one direction locks the lever 50 in position and when rotated in the opposite direction releases it for movement under the control of the handle 52. Adjacent one side of the lever 50 is a slotted member 60 mounted on and against the side plate 4 and held in position by a threaded member 62 passing through the slot in the slotted member 60 and adapted to hold it in various positions to which the slotted member may be adjusted and thereby limit the movement of the lever arm 50 in one direction. If desired, calibrations 61 may be associated with the adjustable slotted member 60 to assist in rapid accurate setting of the knives, as will be apparent.

Just inside the plate 4 and also keyed to the shaft 48 is a lever arm 64 having an enlarged portion 66 which extends through a cut-away portion 68 in the side plate 4. The enlarged portion 66 is adapted to receive a threaded bearing member 70 which also serves as a thrust bearing for the mandrel 72. The top of the enlarged portion 66 is open as at 74 in order that when the bearing is removed by withdrawing it from the end of the enlarged portion 66 the shaft 76 of the mandrel 72 may be raised therethrough.

At the other end of the shaft 48 near the plate 6 and on the inside thereof is mounted another lever arm 78 likewise keyed to the shaft 48. At the extreme end of the shaft 48 and outside of the side plate 6 is rotatably mounted a pulley 80 and a gear wheel 82 keyed to each other and driven by a belt 84 which is connected with an electric motor or other source of power either closely adjacent to the pulley 80 or mounted beneath the base 2.

Gear wheel 82 meshes with a gear 86 keyed to a shaft 88 and held in place by a nut 90. The shaft 88 is journalled in an enlarged end 92 on the lever arm 78 and has at its opposite end an enlarged portion 94 provided with a hole 96 to receive the other end of the mandrel shaft 76. A key 98 in the shaft 76 cooperates with a slotted keyway 100 to rotate the mandrel 72 when the shaft 88 is rotated through the gear 86 meshing with the gear 82 which in turn is driven by the belt 84 on the pulley 80. A spacer ring 102 on the shaft 88 between the enlarged portion thereof 94 and enlarged portion 92 on the arm 78 may be provided to prevent any longitudinal movement of the shaft.

The mandrel 72 is on the shaft 76 and comprises a keyed end ring 104. Adjacent the end ring 104 is a circular cutting blade 106 held in proper position by a spacer ring 108 followed by another circular cutting blade 106 until the mandrel has been completely filled with properly spaced circular cutting blades along its entire length. Each of the cutting blades 106 is properly spaced with spacer rings 108 of appropriate size in order that they may cooperate with the slots 27 in the slotted plate 24. In the illustrated modification, the slots 27 are of varying distances apart and accordingly the blades will be so spaced. When the slots 27 are equally spaced apart the corresponding circular knife blades will likewise be equally spaced and the spacer rings will have to be of uniform size.

In Figure 1, it will be noted that the slots 27 are rather closely spaced near the center, then quite far apart and finally closer together. This arrangement is useful for making two narrow skins from a single wide one where the more significant markings are along the back of the animal. With some types of skins best results are obtained with more closely spaced slots and blades. Commercially, twenty-three strips, thirty-one strips and forty-one strips have been very successful for dividing or lengthening skins. When a skin has been cut up into longitudinal strips, every other one may be sewed together to make two skins half as wide as the original. To lengthen a skin it is first cut into two halves down the center. Each half is then cut into strips running diagonally from the center cut. When these diagonal strips are sewed together, each one is slightly offset longitudinally of the one adjacent to it, thereby lengthening the skin an amount equal to the number of strips times the length of the offset. Finally the two halves, which have been treated independently, are sewed together.

The shaft 48, the lever arms 64 and 78 and the mandrel 72 are all normally disposed in a plane beneath that of the bed plate 20, the downward movement of the mandrel 72 being limited by ears 65 and 79 contacting with the bottom of the openings 68. It will be evident that as the handle 52 is moved to rotate the shaft 48, the lever arms 64 and 78 will likewise be moved. As this handle 52 is moved toward the right (see Figure 3) the mandrel 72 shall be raised and the rotary knife blades 106 will be passed into the slots 27 and through the slotted plate 24 until the blades are brought into contact with the leather of the skin 28.

It is vital in cutting skins that the blade be applied only on the leather side and project through the leather a minimum distance in order that the hair itself will not be cut since any cutting of the hair, as occurred in the prior art constructions, reduces the value of the skin. By the arrangement shown in Figure 3, very close calibrated adjustments can be obtained and with the general construction herein shown it is possible to cleanly cut through the leather of the skin without cutting any of the hair.

In operation the bed plate 20 is moved to one

or the other of its extreme positions and a skin laid thereon over the slots 27 in the position desired. To divide a skin, it is centered and laid longitudinally of the slotted plate 24, while lengthening a skin requires laying a half skin diagonally across the slots which in the latter case would preferably be equally spaced. The pinboard 30 is then placed over the skin with the pins 32 extending through the fur and pressing against the leather. Wing nuts 40 are tightened until a uniform pressure is applied over the entire surface of the skin.

The motor is now set in operation to rotate the pulley 80 by means of the belt 84 and the position of the circular cutting knives 106 adjusted by releasing the lever 50 from the control of the handle 58 and moving it with the handle 52 to a position such that the blades will just go through the leather of the skin at the position which the leather will assume when the knives are cutting. The blades are now locked in the proper position by rotating the handle 58 to anchor the lever 50. The adjustable slotted member 60 can be set for any particular type of fur and, if desired, calibrated so that adjustment will be substantially automatic for a given group of skins. As the knives rotate, preferably in a direction against that of the movement of the bed plate, the bed plate is moved by the operator until the knife blades have passed the entire length of the skin and it will be cut into a plurality of strips of constant although not uniform width where the slots are varying distances apart.

After removal of the pinboard the strips of cut skins can be removed and selected strips joined together in a manner well known in the art to build up the desired final furs.

In order that the relative position of the strips will not be disturbed when the pinboard is removed, it has been found advantageous to lay across the furs and in engagement with the hair only, a plurality of strips of material having an adhesive on one side which will attach itself to the hair. Another modification of this procedure resides in coating a sheet of pasteboard with an adhesive and laying it over the fur after the pinboard has been removed. In either case, the fur can then be removed after it has been cut up into strips and the strips will be held in their original relative position permitting ready selection of those strips which are to go into the fur or furs to be prepared therefrom.

The slotted plate 24 may be of varying construction. In one machine, it was constructed of ply wood which resists warping. Alternatively, it may be constructed of various metals and might be made unitary with the bed plate 20 but the separable arrangement is desirable since then one machine can accommodate many kinds of skins by simply changing the slotted plate and substituting a corresponding mandrel and pinboard.

As illustrated in Figure 2, the pinboard is held in proper position by studs 38 and wing nuts 40 which project above the top surface of the pinboard. Other fastening means will suggest themselves including some arranged entirely at the sides with which construction a pair of rollers complementary to rollers 44—44 may be supplied to apply pressure to the pinboard at those portions near the knives 106.

Instead of using the pinboard, a plurality of large pin wheels, one between each slot 27, could be mounted directly above the knives to hold the skin in place during its momentary contact with the knives. A further way of holding the skin involves the application of a vacuum to the underside. By making the strips between the slots 27 hollow, providing perforations at the top and connecting the strips to a suction device, the skin may be held in place during the cutting operation. However, care must be taken to close all perforations not closed by a particular skin.

While the invention has been described as to certain preferred embodiments thereof, it will be evident that many changes may be made therein without departing from the spirit and scope of the invention which is defined in the following claims:

What is claimed is:

1. A machine for cutting fur bearing skins comprising a slotted plate for supporting the leather side of a fur bearing skin, opposed means penetrating the hair for holding a skin against the plate at spaced points and cutting elements projecting through the slots into contact with the leather side of a fur bearing skin for longitudinal movement relative thereto.

2. A machine for cutting fur bearing skins comprising a plurality of spaced renitent strips providing slots between the strips and forming a support for a fur bearing skin, means penetrating the hair at spaced points along a strip for holding a skin against the strips and cutting elements projecting through the slots for longitudinal movement relative thereto.

3. A machine for cutting fur bearing skins comprising a plurality of spaced renitent strips providing slots between the strips and forming a support for the leather side of a fur bearing skin, cutting elements projecting through the slots toward the leather side of a fur bearing skin for longitudinal movement relative thereto and means penetrating the hair at spaced points along a strip for holding a skin against the strips adjacent to the cutting elements.

4. A machine for cutting fur bearing skins comprising a plurality of spaced strips providing slots between the strips and forming a support for a fur bearing skin, cutting elements projecting through the slots for longitudinal movement relative thereto and means for holding a skin against the strips at spaced points longitudinally of the slots adjacent to the cutting elements.

5. A machine for cutting fur bearing skins comprising a plurality of spaced strips providing slots between the strips and forming a support for a fur bearing skin, cutting elements projecting through the slots for longitudinal movement relative thereto and a plurality of pointed elements to hold a skin against the strips at spaced points along the strips adjacent the cutting elements.

6. A machine for cutting fur bearing skins comprising a slotted plate for supporting the leather side of a fur bearing skin, means penetrating the hair at spaced points on the plate along the slots for holding a skin against the plate and rotary cutting elements projecting through the slots toward the leather side of a fur bearing skin.

7. A machine for cutting fur bearing skins comprising a plurality of spaced renitent strips providing slots between the strips and forming a support for a fur bearing skin, means penetrating the hair at spaced points along a strip for holding a skin against the strips and rotary cutting elements projecting through the slots.

8. A machine for cutting fur bearing skins com-

prising a plurality of spaced renitent strips providing slots between the strips and forming a support for the leather side of a fur bearing skin, rotary cutting elements projecting through the slots toward the leather side of a fur bearing skin and means penetrating the hair at spaced points along a strip for holding a skin against the strips adjacent to the rotary cutting elements.

9. A machine for cutting fur bearing skins comprising a plurality of spaced strips providing slots between the strips and forming a support for a fur bearing skin, rotary cutting elements projecting through the slots and a plurality of pointed elements to hold a skin against the strips at spaced points along the strips adjacent the rotary cutting elements.

10. A machine for cutting fur bearing skins comprising a bed plate, a plurality of spaced renitent strips providing slots between the strips mounted on said bed plate and forming a support for the leather side of a fur bearing skin, rotary cutting elements projecting through said slots, means for moving the bed plate relative to the rotary cutting elements to cause them to move along the slots, and means to hold a skin against each strip at longitudinally spaced points adjacent the rotary cutting elements.

11. A machine for cutting fur bearing skins comprising a bed plate, a plurality of spaced renitent strips providing slots between the strips mounted on said bed plate and forming a support for the leather side of a fur bearing skin, rotary cutting elements projecting through said slots, means for moving the bed plate relative to the rotary cutting elements to cause them to move along the slots and means spaced along the strips to hold a skin against the strips adjacent the rotary cutting elements.

12. A machine for cutting fur bearing skins comprising a bed plate, a plurality of spaced renitent strips providing slots between the strips mounted on said bed plate and forming a support for the leather side of a fur bearing skin, rotary cutting elements projecting through said slots, means for moving the bed plate relative to the rotary cutting elements to cause them to move along the slots and a member cooperating with and having a plurality of spaced projections extending toward each strip to hold a skin firmly in place against the strip.

13. A machine for cutting fur bearing skins comprising a bed plate, a plurality of spaced strips providing slots between the strips mounted on said bed plate and forming a support for a fur bearing skin, rotary cutting elements projecting through said slots, means for moving the bed plate relative to the rotary cutting elements to cause them to move along the slots and a plurality of pointed elements arranged in a row along but extending toward said strip to hold a skin firmly in place against the strip.

14. A machine for cutting fur bearing skins comprising a bed plate, a plurality of spaced strips providing slots between the strips mounted on said bed plate and forming a support for a fur bearing skin, rotary cutting elements projecting through said slots, guiding means for said bed plate, means for moving said bed plate, and means to hold a skin against the strips at longitudinally spaced points adjacent the rotary cutting elements.

15. A machine for cutting fur bearing skins comprising a bed plate, a plurality of spaced strips providing slots between the strips mounted on said bed plate and forming a support for a fur bearing skin, rotary cutting elements projecting through said slots, means for moving said rotary cutting elements into and out of said slots, guiding means for said bed plate, means for moving said bed plate and means to hold a skin against the strips at spaced points adjacent the rotary cutting elements.

16. A machine for cutting fur bearing skins comprising a bed plate, a plurality of spaced strips providing slots between the strips mounted on said bed plate and forming a support for a fur bearing skin, rotary cutting elements projecting through said slots, means for moving said rotary cutting elements into and out of said slots, means for adjusting the position of the rotary cutting elements when projecting through the slots, guiding means for said bed plate, means for moving said bed plate and means to hold a skin against the strips at spaced points adjacent the rotary cutting elements.

17. A machine for cutting fur bearing skins into narrow strips comprising a movable horizontally guided bed plate, a slotted plate mounted on said bed plate for movement therewith, said slotted plate comprising a plurality of strips forming a support for a skin, a rotatable mandrel beneath said bed plate, a plurality of cutting blades on said mandrel spaced according to the width of the various strips, means for rotating the mandrel and the cutting blades, a board-like element mounted above and substantially parallel to the bed plate, and a plurality of rows of sharp members projecting from the board-like element corresponding to the said strips to hold a skin firmly against the strips.

18. A machine for cuting fur bearing skins into narrow strips comprising a movable horizontally guided bed plate, a slotted plate mounted on said bed plate for movement therewith, said slotted plate comprising a plurality of strips forming a support for a skin, a rotatable mandrel beneath said bed plate, a plurality of cutting blades on said mandrel spaced according to the width of the various strips, means for rotating the mandrel and the cutting blades, means for raising and lowering the mandrel to insert the cutting elements into the slots, means for holding the mandrel in selected raised position, a board-like element mounted above and substantially parallel to the bed plate, and a plurality of rows of sharp members projecting from the board-like element corresponding to the said strips to hold a skin firmly against the strips.

19. In a device for holding furs while cutting, a plate for supporting the leather side of a fur bearing skin having a plurality of adjacent slots and opposed means penetrating the hair at spaced points on the plate along the slots through which a cutting element may project to hold a skin against the plate with the leather side exposed to the cutting element through the slots along which the cutting element may be moved.

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