



M. E. RYAN,  
CUTTING MACHINE.  
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2 SHEETS—SHEET 2.

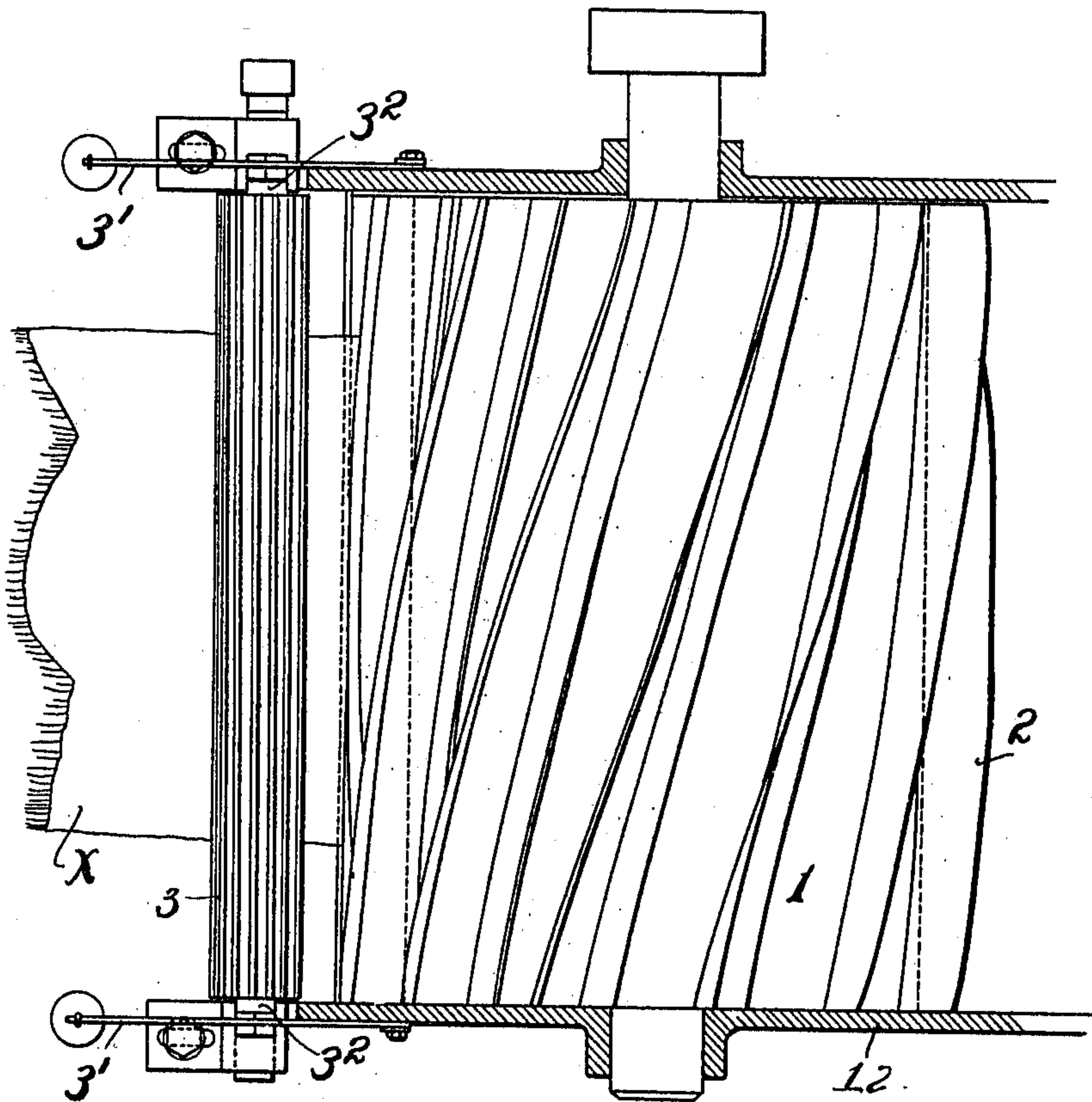


FIG. 3.

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# UNITED STATES PATENT OFFICE.

MICHAEL EMMET RYAN, OF FALL RIVER, MASSACHUSETTS.

## CUTTING-MACHINE.

978,217.

Specification of Letters Patent.

Patented Dec. 13, 1910.

Application filed April 22, 1909. Serial No. 491,461.

*To all whom it may concern:*

Be it known that I, MICHAEL EMMET RYAN, a citizen of the United States, residing at Fall River, county of Bristol, State of Massachusetts, have invented certain new and useful Improvements in Cutting-Machines, of which the following is a specification.

This invention relates to cutting machines and particularly to a machine for cutting the skin of pelts to release the fibers thereof. In work of this sort it is of the greatest importance that the skin be cut into exceedingly narrow strips and it is therefore a matter of great concern that the travel of the parts be maintained uniform and regular as inequalities tend to distort and mangle, at the cost of increased waste. It is also a difficult matter in treatment of material of the nature of animal fiber to prevent waste by drafts, currents and general diffusion, particularly in the presence of rapidly revolving parts of machinery.

To the end, therefore, of preserving uniformity and completeness of action and to prevent loss and waste I have devised my present invention which I will more fully describe in the specification which follows.

By way of illustration of the principles of my invention and in order to make them more clear to those skilled in the art I have shown in the drawings and described in the specification a form of device embodying the points of my invention.

In these drawings:—Figure 1 is a side sectional view of a machine involving my invention, Fig. 2 is an enlarged sectional detail of the feed rolls and stationary blade indicating the extent of the cut, and Fig. 3 is a plan view of the knife cylinder and feed.

1 is a cylinder mounted on a frame 12 and on the cylinder 1 are located spirally disposed knives 2 all adapted to be rotated in the direction of the arrow.

8 is a stationary knife blade which may be mounted in any suitable manner so that it will be presented in working contact with the knives 2. The blade is vertically adjustable on a support 11 by a screw 8<sup>1</sup>. The support 11 is hinged to the bed of the frame 15 and adjustably held by a screw 8<sup>2</sup>.

3 are a pair of feed rolls having corrugations 4 and adapted to advance between

themselves a pelt or skin, fur side down, as indicated in the drawings, in which the pelt is indicated by (*x*).

5 is a general casing for the knife cylinder and 6 is an exhaust casing terminating in a mouth 7 which lies just below the line of passage of the pelt (*x*) between the rolls 3 and the knife blade 8. Below the mouth 7 of the casing 6 is a slide 9 movable so as to admit air when desired below the mouth 7. The casing 5 is provided with an opening 12 just above the upper feed rolls 3, and 13 is a slide for throttling or opening this passage 12.

10 is a fan connected with the exhaust casing 6 and 14 is a chamber provided with a screen 11<sup>1</sup> for trapping the released fibers. The cylinder 1 is driven by any suitable means, as by the belt 1<sup>1</sup> indicated, and the rolls 3 are similarly driven by a belt 3<sup>2</sup> indicated in dotted lines in Fig. 1. The upper roll 3 is held down on the lower roll by a weighted lever 3<sup>1</sup> which bears on its shaft 3<sup>2</sup>.

In operation my device acts as follows:—The cylinder 1 is rotated to move the knives 2 past the fixed blade 8 and a skin is inserted, fur side down, between the rolls 3. The corrugated rolls have a tendency upon skins, and particularly upon stiff and dry skins, to cause the free end which has passed through the rolls to vibrate, due to the unequal pressure which the corrugations bring to bear upon opposite sides of the skin. As soon, however, as the forward end of the skin (*x*) has reached the fixed knife 8 it will be held down evenly against said knife by the exhaust of the casing 6 and will be thereby prevented from fluttering or vibrating, but will be held firmly against the knife blade. These blades are so timed with the feed of the rolls 3 that the skin will be advanced and be cut by the knife blades 2 against the knife blade 8 along a series of lines indicated by (*y*) in Fig. 3.

A consideration of this Fig. 2 will show how fatal to uniform and satisfactory results would be any vibration or fluttering which would tend to make that end of the skin (*x*) deviate from its true path. If the end of the skin (*x*) arose out of the reach of the next approaching knife blade 2 when it fell it would present an increased length



of feed and the next cut would be of such great length as to clip off a portion of the hair which grew nearest the extreme forward edge of the skin. In this way, if repeated, a considerable amount of fiber would be cut off and passed through the machine with the waste scrap.

As skins vary in thickness and stiffness I have found it desirable to regulate the openings 7 or 12 or both and consequently control the air pressure on the skin ( $\alpha$ ) acted on by the exhausting power of the casing 6. The slide 13 controls the intake of the opening 12, thus permitting a current of air to pass directly down upon the pelt while the slide 9 regulates the exhaust below the pelt. Referring to Fig. 3, it will be seen that the pelt is never broad enough to completely cover the mouth of the exhaust 6. This is to allow full chance to catch the loose fibers at the edge of the pelt. There is, therefore, always less tendency toward a vacuum at the ends of the pelt than at its middle, hence the necessity of regulating the intake of air both above and below to keep the skin from bulging at its center. As the skin passes over the fixed knife 8, and as it is clipped off, the fiber which is thereby released is held in the exhaust 6 and is quickly carried down out of the reach of the suction of the knives 2. In this way I am able to secure practically all of the fibers released and avoid the loss and waste which has heretofore been common in this class of machine, due to the escape of the fibers from the machine with the waste. The mouth of the exhaust may be of any shape, but it should extend slightly beyond the full width of the pelt, as stated above, so as to catch those fibers which are released by the edge of the pelt and which fall with considerable irregularity due to the irregularity of the contour of the edges of the skin. The fibers released will, therefore, be carried down through the fan 10 into the casing 14 or against the screen 14<sup>1</sup>. They can be removed from the casing by any suitable arrangement, as by the door 14<sup>2</sup>.

Various modifications may, of course, be made in the means for holding down the edge of the skin during cutting and for carrying off the released fibers and in the various means and mechanisms for securing these and the other functions of the machine, all within the limits of the appended claims.

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

1. In a machine for cutting skins, a knife cylinder, a spiral cutting blade disposed thereabout, a stationary knife in cutting position adjacent to the edge of said blade, a pair of feed rolls adjacent to said stationary knife for feeding a skin across the edge thereof, and an exhaust device having a mouth between said rolls and said stationary knife blade and below the line of feed thereto.

2. In a machine for cutting skins a knife cylinder, a plurality of spiral cutting blades disposed thereabout, a stationary knife in cutting position adjacent to the edges of said blades, a pair of corrugated feed rolls adjacent to said stationary knife for feeding the skin across the edge thereof, and an exhaust device having a mouth between said rolls and said stationary knife blade and below the line of feed thereto.

3. In a machine for cutting skins a knife cylinder, a plurality of spiral cutting blades disposed thereabout, a stationary knife in cutting position adjacent to the edges of said blades, a pair of corrugated feed rolls adjacent to said stationary knife for feeding a skin across the edge thereof, an exhaust device having a mouth between said rolls and said stationary knife blade and below the line of feed thereto, and a casing for said knife cylinder, said casing having an opening above said rolls.

4. In a machine for cutting skins a stationary knife, a knife adapted to be moved past the same, a pair of feed rolls adjacent to said stationary knife, and means disposed between said rolls and said knife for holding down a skin against said stationary knife.

5. In a machine for cutting skins a stationary knife, a knife adapted to be moved past the same, a pair of corrugated feed rolls adjacent to said stationary knife, and an exhaust device disposed between said rolls and said stationary knife.

In testimony whereof I affix my signature in presence of two witnesses.

MICHAEL EMMET RYAN.

Witnesses:

EDWARD F. HANIFY,  
THOMAS F. HIGGINS.