(No Model.) 5 Sheets—Sheet 1.

C. MOSER & C. SCHIRMER.

MACHINE FOR DEHAIRING FUR SKINS.

No. 490,976. Patented Jan. 31, 1893.

Fig. 1.

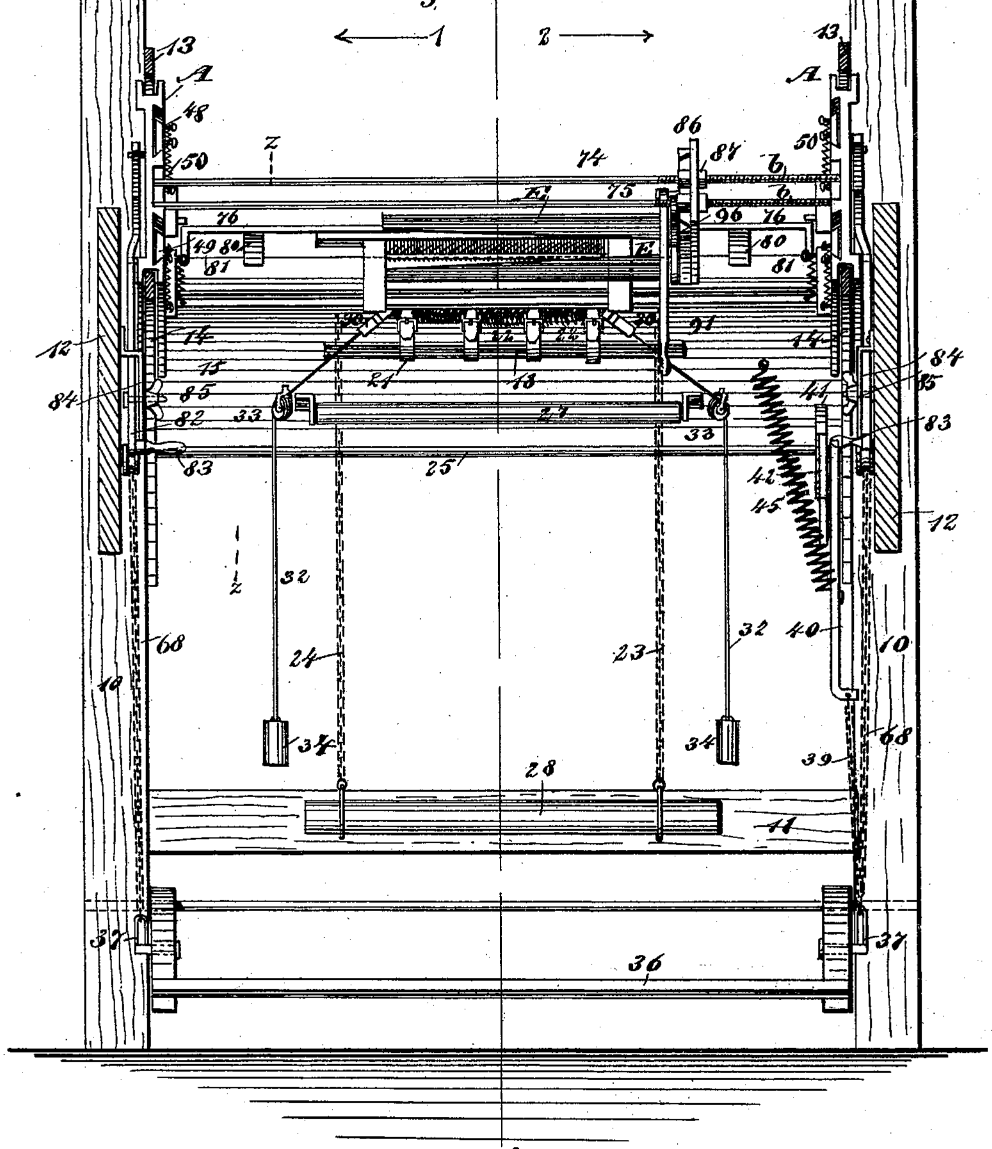


Fig. 8.

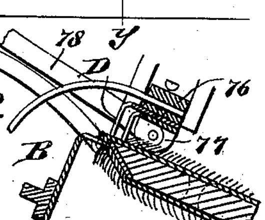
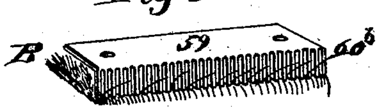


Fig 9



WITNESSES:

F. McArdle.

C. Sedgwick

INVENTORS:

C. Moser

C. Schirmer

BY Munn & Co

ATTORNEYS

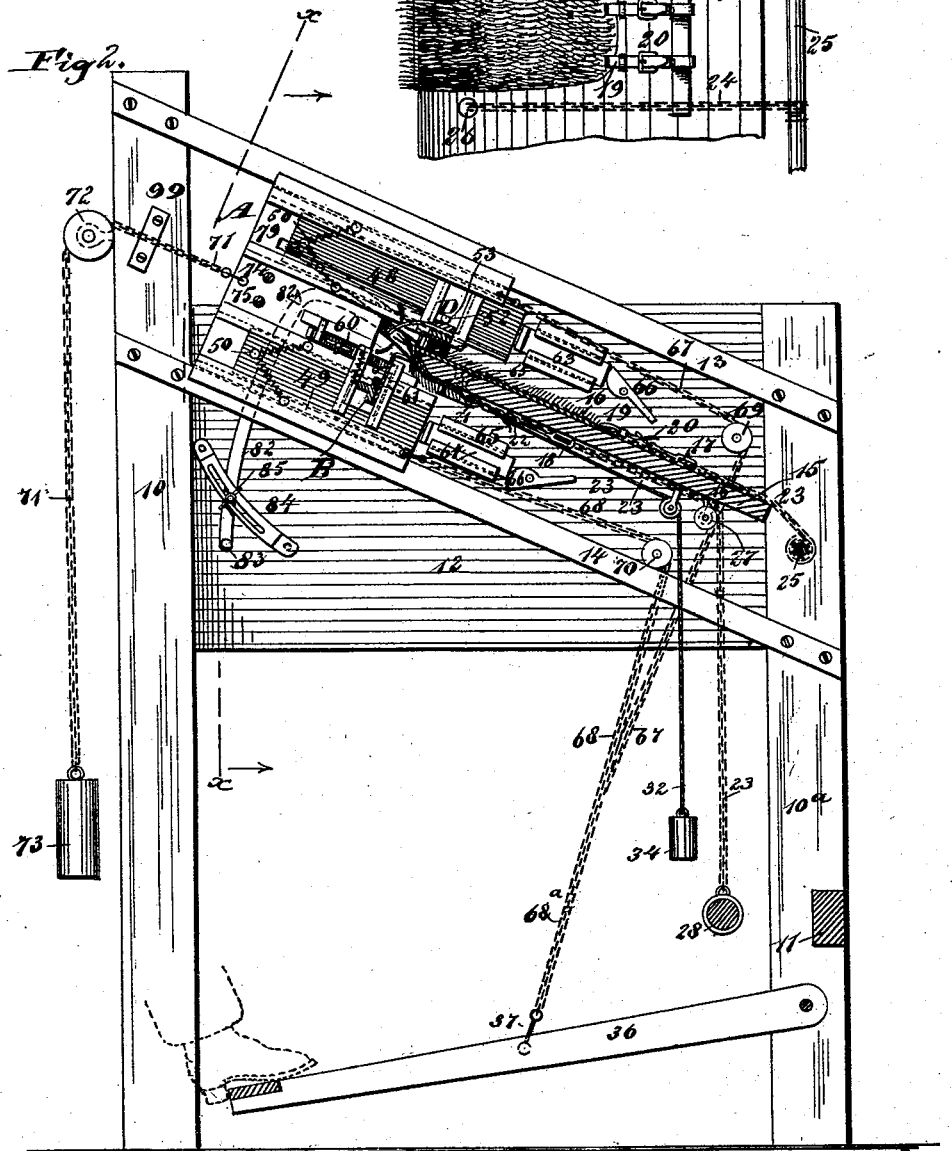
(No Model.) 5 Sheets—Sheet 2.

C. MOSER & C. SCHIRMER.

MACHINE FOR DEHAIRING FUR SKINS.

No. 490,976. Patented Jan. 31, 1893.

Fig 1.



WITNESSES:

F. McArdle.

C. Sedgwick

INVENTORS:

C. Moser

C. Schirmer

BY Munn & Co

ATTORNEYS

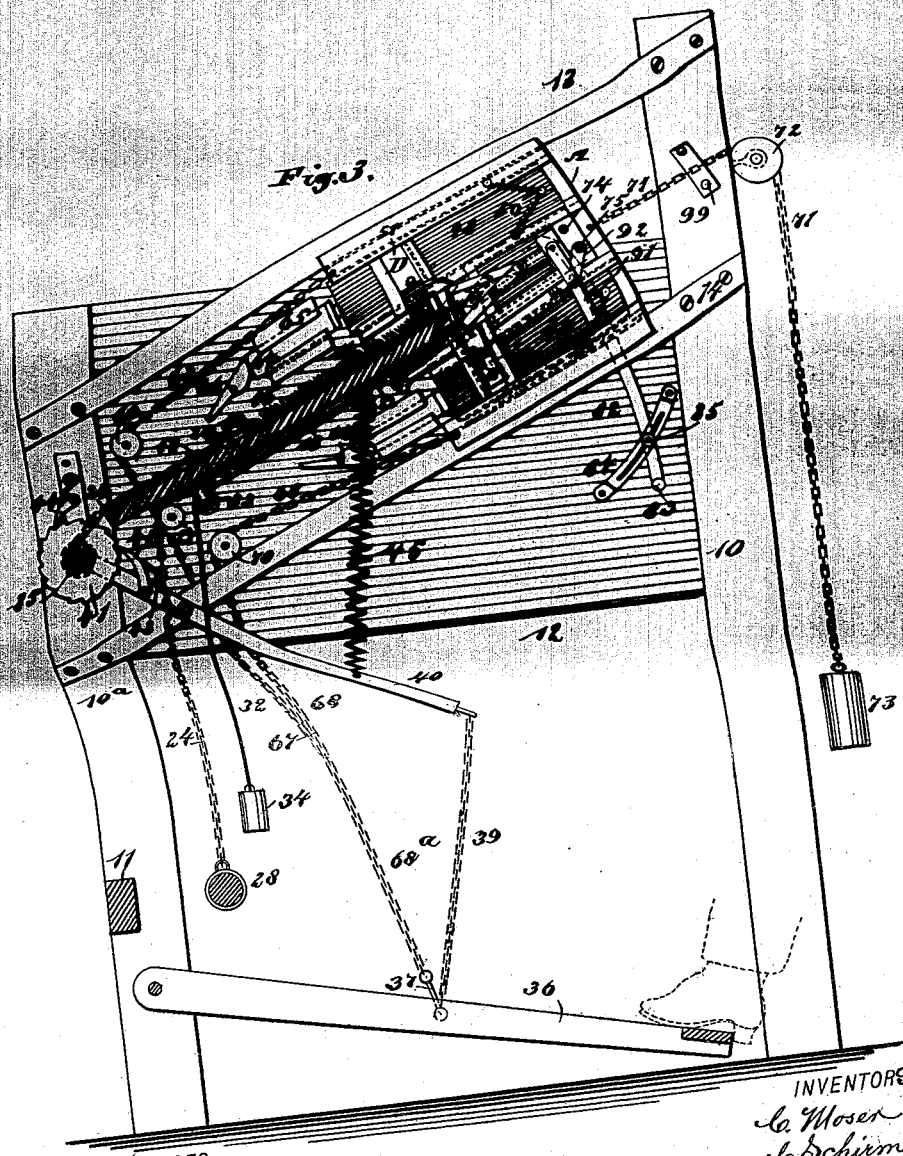
(No Model.) 5 Sheets—Sheet 3.

C. MOSER & C. SCHIRMER.

MACHINE FOR DEHAIRING FOR SKINS.

No. 490,976. Patented Jan. 31, 1893.

Fig. 3.



WITNESSES:

INVENTORS:
C. Moser
C. Schirmer
BY Munn & Co

(No Model.) 5 Sheets—Sheet 5.

C. MOSER & C. SCHIRMER.

MACHINE FOR DEHAIRING FUR SKINS.

No. 490,976. Patented Jan. 31, 1893.

Fig. 6.

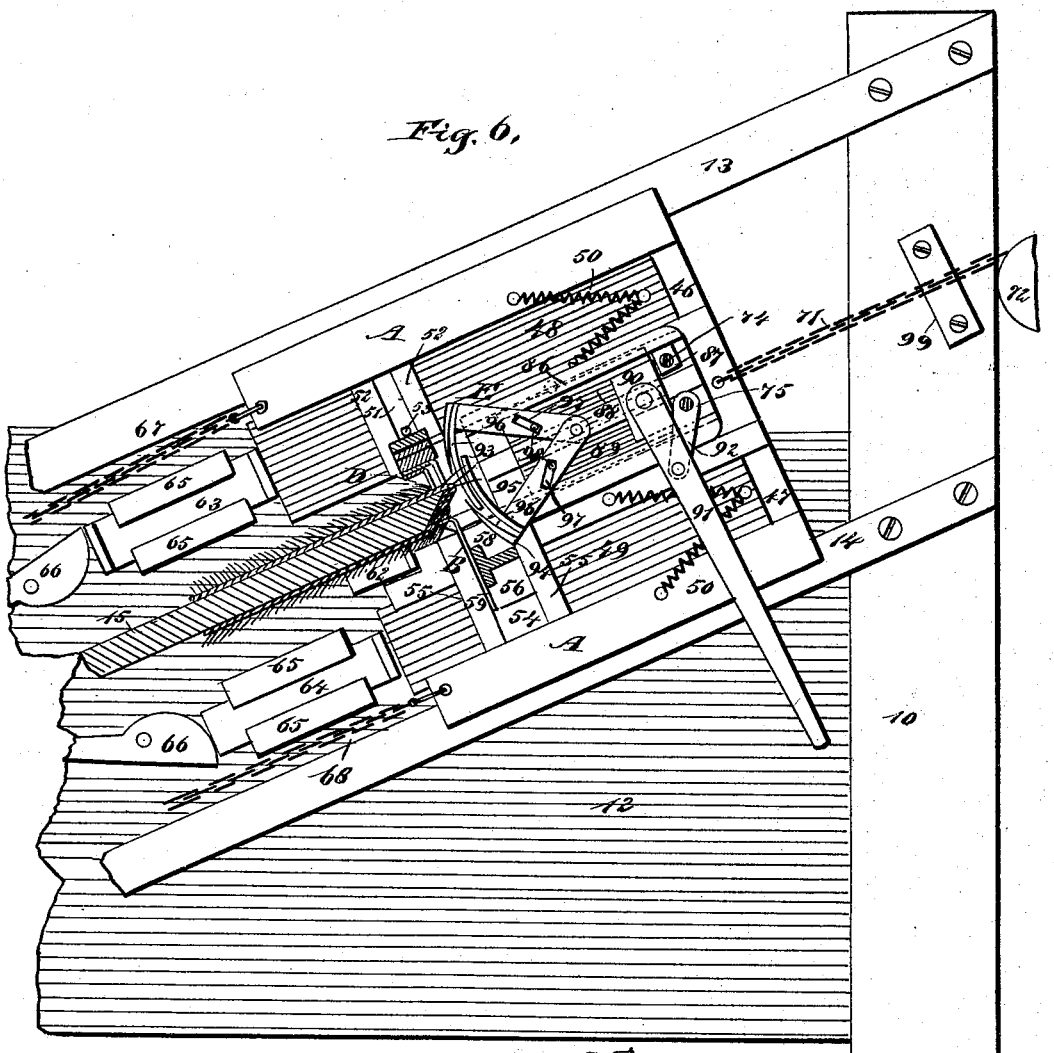
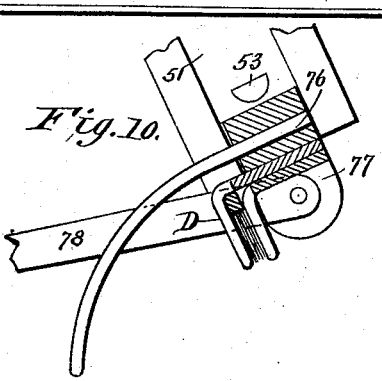


Fig. 10.



WITNESSES:

F. McArdle

C. Sedgwick

INVENTORS:

C. Moser

C. Schirmer

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES MOSER AND CONRAD SCHIRMER, OF BROOKLYN, NEW YORK.

MACHINE FOR DEHAIRING FUR-SKINS.

SPECIFICATION forming part of Letters Patent No. 490,976, dated January 31, 1893.

Application filed February 19, 1892. Serial No. 422,144. (No model.)

To all whom it may concern.

Be it known that we, CHARLES MOSER and CONRAD SCHIRMER, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Machine for Dehairing Fur-Skins, of which the following is a full, clear, and exact description.

Our invention relates to an improvement in machines adapted for dehairing fur skins, especially cony and like skins, and has for its object to provide a machine of exceedingly simple, durable and economic construction capable of maintaining a skin upon a fixed table or horse, and by the operation of a treadle or its equivalent, whereby the fur of the skin will be laid in opposite directions, and the hairs in the skin will be brought in position to be cut, which operation is effected through the medium of shears manipulated in front of the depressed fur.

Another object of the invention is to depress the fur through the medium of an apparatus, or apparatuses, approximating in structure that of a rake, and to provide a mechanism whereby when two rakes are employed they will simultaneously operate to press the fur at a given point in opposite directions, and further to provide a means whereby the fur skin when stretched will be automatically shifted upon the table or horse and carried forward at each manipulation of the machine a sufficient distance only to present a new surface to the rakes and the shears.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a partial front elevation of the machine and a partial vertical section, the section being taken practically on the line *x*—*x* of Fig. 2; Fig. 2 is a vertical section through the machine, taken practically on the line *y*—*y* of Fig. 1, looking in direction of the arrow 1; Fig. 3 is a section similar to that shown in Fig. 2, but the view is taken in the direction of the arrow 2 in Fig. 1; Fig. 4 is a plan view of the machine; Fig. 5 is an enlarged section, illustrating the main slides of the machine in their upper position, the section being taken essentially on the line *z*—*z* of Fig. 1; Fig. 6 is a detail section taken vertically through the machine at one side of the knives, which section illustrates the main and auxiliary slides in their lowermost position and the shears in a position to clip hair from the skin; Fig. 7 is a partial plan view of the table or horse, illustrating the manner in which the skin is held upon the upper surface thereof; Fig. 8 is a detail sectional view through a portion of the table and through the upper and lower rakes, illustrating them in position to separate the fur; and Fig. 9 is a detail perspective view of one of the rakes. Fig. 10 is a detail view illustrating the location of the bristles between the teeth of the rakes.

In constructing the machine four corner posts are employed, the front posts 10 being much higher than the rear posts 10^a, and these pieces are connected by suitable braces 11 near the bottom and at the sides by wide strips of siding 12. The front and rear posts are further connected by rails 13 and 14, which may be either of wood or metal, the said rails being parallel, spaced some distance apart and diagonally located with respect to the frame. These rails are situated at the upper portion of the frame and are the same upon both sides.

Between the rails 13 and 14 a table or horse 15, is placed in a stationary manner, the table extending from one siding 12 to the other, and it is secured to said sides in any suitable or approved manner. The table is of sufficient width or transverse length to extend from a point at or near the center of the space between the front and rear posts and between the rear posts, as shown in Figs. 2 and 3. The front surface of the table is beveled downward from the top and rearward, forming thereby a sharp upper front edge, as illustrated in all of the sectional views. This table is adapted to receive and carry the skin 16 to be treated. The skin is first placed upon the upper surface of the table, and is then carried downward over the front sharp edge thereof and beneath the bottom face. It is necessary that the skin should be brought

of the two carriages may be and are connected preferably by a T-iron 58, and upon the head of this iron, at the central portion thereof, a rake B, is located. This rake is constructed substantially as shown in Fig. 9, consisting of a vertical body 59, which is attached to a beam, and teeth 60^b, extending rearwardly from the body at right angles thereto, or practically so, and these teeth are adapted to comb the fur from the upper forward edge of the table downward away from said edge.

When the slides 56 on the main slides of the carriages are in their upper position, and a carriage is taken in the direction of the sharp edge of the table, the teeth of the rake B, will engage with the fur at that edge, and when so engaged, the beam 58 to which the rake is attached will be carried downward while the carriage is yet traveling rearward, and as the rake is attached to the beam the teeth of the rake will be forced downward over the beveled surface of the table, at the same time combing or carrying the fur downward and holding it in that position. This downward movement of the lower rake B, when the carriage has properly approached the table, is effected through the medium of a sliding plate 60, adjustably secured at or near the central portion of each of the carriages just above their lower slides 49. The rear end of this plate is beveled, as illustrated at 60^a in Fig. 5, and is adapted to engage with a pin 61, upon the outer face of the slides 56 carrying the lower teeth. The plate 60 is brought into action only when the lower slide 49, has been stopped and the carriage continued rearward, which action occurs when combing of the fur is to take place; and it is obvious that when the slide 49, is at rest and the carriage is moved downward, the beveled end of the plate 60, will ride over the pin 61, and thereby force the rakes, through the medium of their attached slides, downward, and that the rakes will be held in this lower position as long as the plate 60 continues over the pin 61.

Before describing the upper set of rake teeth that is provided for action upon the fur, we will describe the manner in which the carriages are operated and stopped. In the downward path of the carriage a stop block 62, is attached to each side of the machine, adapted to receive and support the carriages when they are in their lowermost position, which is that shown in Fig. 6; and in the path of each of the carriage slides 48 and 49 a sliding stop is located, the upper stop being designated as 63 and the lower one as 64. These stops have movement in guides 65, secured to the sides of the machine, and may be carried in direction of or away from the carriage slides so as to cause the teeth to be brought into operation whenever desired through the medium of cams 66, pivoted upon the sides of the machine in such position as to be brought in engagement with the lower ends of the sliding stops 63 and 64. This cam usually consists of a semi-circular plate, eccentrically pivoted and provided with an attached handle whereby the cam may be operated.

The carriages are brought downward to their working position through the medium of chains, two of which are connected with each slide, an upper chain 67 and a lower chain 68. These chains are attached to the lower edges of the carriages, and are carried rearward over friction pulleys 69 and 70, journaled upon the side of the machine, as shown in Fig. 3, and below the lower rail 14 upon which the carriage moves, the two chains 67 and 68, are united, and a single chain 68^a, connects them with the treadle 36 at the sides of the latter, the connection being made by means of the treadle links heretofore referred to. It will thus be observed that by pressing the treadle downward the carriages are drawn in the same direction. When pressure is released from the treadle the carriages are drawn upward to their normal position, which is shown in Fig. 5, through the medium of chains 71, connected to their front central portions, which chains pass over pulleys 72, located upon the front faces of the machine, and the lower ends of these chains are provided with weights 73.

The carriages are preferably connected by means of two bolts 74 and 75, shown in section in the sectional views, and in the front elevation and plan, Figs. 1 and 4. The right-hand portion of these rods or bolts 74 and 75, is preferably threaded, as illustrated at *b* in Fig. 1. These rods are adapted to carry the supports for the shears, and the shears and supports therefor will be described later on.

We will now describe the construction of the upper set of rake teeth D, and the manner in which said teeth are actuated by the carriages A. A flat or T-iron bar or beam 76, is made to extend practically from side to side of the frame, and this beam or bar is provided at its extremities with ears 77, as illustrated in Figs. 5 and 8. At the central portion of this bar, upon its under surface, the rake D, is secured. This rake consists of two sets of teeth, one back of the other, the teeth of the rakes being vertical or practically so, and their body portions, which are attached to the beam or bar 76, horizontal; and the rear set of the upper rakes D, is preferably given a slight rearward inclination and the teeth of the rake are located one back of the other.

The bar or beam 76 to which the upper rakes D, are secured is pivotally attached to the lower or rear ends of levers 78 through the medium of its ears 77. One of these levers 78 is located at each end of the machine, and the lower end or foot to which the rake bar is attached is preferably slightly upwardly inclined or curved. The upper or front ends of the levers are pivotally con-

nected with the outer faces of the upper carriage slides 48, and the pivot pin of the levers extend outward through slots 79, produced in the upper slide-ways of the carriages.

In order to guide and steady the upper rakes when in operation, downwardly-curved fingers 80, are attached to each side piece of the machine, as is best shown in Fig. 5, the said fingers being attached directly to blocks 81, which are connected to the sides, or the fingers may be otherwise supported so as to be brought under the rake bar 76.

In the operation of the machine with reference to the upper rake teeth, they are brought into operation simultaneously with the lower rake B. When the carriage is traveling rearward, the levers 78, are forced in the same direction and turn the upper rake bar 76 so that it is guided upon the fingers 80, and when the carriage has reached its lowermost position the bar will have assumed a horizontal position and the teeth of the rake a vertical position immediately over the upper portion of the sharp edge of the table 15, which position is shown in Fig. 6; and at that time the upper slides of the carriages will have assumed a position which will bring their channels 51 over the top of the upper rake bar 76, and said bar will thereupon engage, when carried to its uppermost position, with the stop 53 in that channel, as is likewise shown in Fig. 6, and this stop prevents further movement on the part of the rakes and the bar carrying them.

It is necessary that there should be some support for the levers 78, and that that support should also serve as a guide. Therefore, to each side of the machine a curved rail 82, is pivoted at its upper end, preferably just in front of the sharp edge of the table and in alignment with that edge. These curved rails are carried downward below the lower rails 14, upon which the carriage travels, and at their lower ends are provided with handles 83. The said rails 82, however, are made to pass beneath a slotted bracket 84, as shown best in Fig. 2, which bracket is usually made segmental; and an adjustment of the rails 82, is effected by passing a set screw 85 through the slots of the brackets and into the rails. This adjustment of the rails is provided for in order that the upper portion of the rail may be elevated so as to throw the bar 76 carrying the upper rakes upward or downward as desired, so as to bring the teeth of these rakes in more or less positive engagement with the skin to be treated; and it is evident that such an adjustment can be made, as when the rails 82, are elevated at their upper ends, the shoes of the levers 78 in which the bars 76 carrying the rakes are pivoted, will be raised also, and when the rails are lowered the shoes of the levers 78 will also be lowered.

The shears E, by means of which the cutting of the hairs from the fur is effected, are mounted upon a block 86, and this block is capable of adjustment to and from the skin by utilizing the brace rods 74 and 75 as supports for the block. The block is loosely mounted upon the threaded portions of the rods, but is adjusted and held vertically by lock nuts 87, which nuts are screwed upon the rods against opposite sides of the block.

The block has two slide-ways formed thereon, receiving two slides 88 and 89. These slides at the forward end of the block are connected by a tie plate 90, pivotally secured to one end of a lever 91, which lever is fulcrumed upon a link 92, secured to the lower rod 75, as shown best in Fig. 6. The shear blades 93 and 94, are semi-circular in shape, and are adapted to act as scissors, the sharp edge of one blade coming in engagement with and sliding by the sharp edge of the next. The blades are arranged one over the other, and each is provided with a semi-circular guide 95, which compels them to move properly with respect to each other. The guides and blades are secured to the rear ends of links 96, and these links are both pivoted to the block 86 between the slides 88 and 89. Each link is provided with a slot 97, produced diagonally therein, and the slots receive pins 98, attached to the slides. Thus as the rods 74 and 75 supporting the block carrying the shears, are attached to the carriages A the shears move with the carriages; and when the lever 91, is carried in direction of the front of the machine, the blades of the shears close to a cutting position and are opened when the lever is carried in the opposite direction. The operation of the shears is entirely independent of the operation of the other portions of the machine. All the other parts are operated from the treadle 36, but the shears are operated by hand whenever the operator may desire.

In the operation of the machine, when the treadle 36, is pressed downward the carriages are carried rearward. The moment that the carriage slides 48 and 49 engage with the sliding stops 63 and 64, their rearward and downward movement is stopped. At that time the lower rake D will be in engagement with the upper portion of the fur and the upper rakes will be about to be acted upon by the levers 78. The carriages, however, when their slides 48 and 49, are stopped, continue to move downward until stopped by the blocks 62, and as the carriages move independently of their slides the upper rakes are brought to an engagement with the top of the fur just above the sharp edge of the table in the manner heretofore described, and slightly back, holding the fur down from this edge, and at the same time the lower rake is carried downward and rearward forcing the fur in the same direction from the edge of the table and exposing the hairs in the fur at the edge of the table, as shown in Fig. 6. While the foot of the operator is still upon the treadle, the lever 91 operating the shears is grasped, and as

the shears, when the carriage reaches its lowermost position are immediately in front of the sharpened edge of the table and the hairs extend between the blades of the shears, and by bringing the blades together the hairs are cut thus freeing the fur from them. The treadle is then relieved from pressure, the carriage goes back to its normal or upward forward position, and the dog 42 acts upon the ratchet wheel 41 to turn the shaft 25 and wind the chains 23 and 24 thereon sufficiently to carry the cut portion of the fur up over the edge of the table and present another surface to be operated upon. The upward, forward movement of the carriage is limited by stops 99 located upon the inner faces of the front posts 10.

In the treatment of some varieties of skin, it is very desirable and preferable that bristles either of wire, hair, or the equivalents, should be placed in the interstices between the teeth of the rakes, so that in addition to the action of the teeth upon the fur a brush-like action is also obtained. This construction is shown in Fig. 10.

Having thus described our invention, we claim as new and desire to secure by Letters Patent,—

1. In a machine for dehairing fur, the combination, with a table located at an inclination and having its upper forward edge beveled downward, the said edge being adapted to receive the skin to be treated, clamping devices adapted for engagement with the skin, and tension devices connected with the clamping devices, of rakes, one located above the table near its beveled end and the other located in front of the table at the beveled end, and carriages having sliding movement in direction of the table, the said rakes being operated from the said carriages, substantially as and for the purpose specified.

2. In a machine for dehairing fur skins, the combination, with a table having one of its edges beveled downward, of rakes, the teeth of which are adapted to engage with the sharpened edge of the table, one at the top and the other at its beveled surface, a carriage having movement to and from the table and connected with the rakes, and a trip mechanism located upon the carriage and acting upon the rakes, whereby one rake is carried away from the edge over the table and the other downward in engagement with the beveled surface of the edge, substantially as and for the purpose specified.

3. In a machine for dehairing fur skins, the combination, with a table, one edge of which is beveled downward, a shaft located at one end of the table, a treadle, and an actuating mechanism between the treadle and the shaft, of chains attached to the shaft at one end and passing over the table and beneath it, the lower ends of the chains being weighted, bars connecting the chains at top and bottom, and clamps carried by the bars and adapted to receive and hold the ends of the skin to be treated when said skin is passed over the beveled surface of the table, as and for the purpose set forth.

4. In a machine for dehairing fur skins, the combination, with a table placed at an inclination and the upper edge whereof is beveled downward, and a winding mechanism located near the lower end of the table, of weighted chains attached to a shaft and passing over and beneath the table, clamps carried by the chains and adapted to receive the edges of the skin under treatment, and auxiliary clamps located at the bottom of the table and adapted for engagement with the corners of the skin, the said clamps having weights attached thereto, as and for the purpose set forth.

5. In a machine for dehairing fur skins, the combination, with a table over which the skin is to be stretched, of shear blades extending practically parallel with one edge of the table, one above the other, links connected with the blades and pivoted together at one end, slides connected with the links, and a lever operating the slides, substantially as shown and described.

6. In a machine for dehairing fur skins, the combination, with a table located at an inclination, the upper edge whereof is beveled and adapted to receive the skin to be treated, of shear blades extending essentially parallel with the beveled edge of the table, one above the other, guards located at one side of the blades, the guards of the blades being adapted for interlocking connection, a lever, and a connection between the lever and the shear blades and their guards, whereby through the medium of the lever the blades and guards are simultaneously operated, as and for the purpose specified.

7. In a machine for dehairing fur skins, the combination, with a frame having inclined tracks, a table located at an inclination between the tracks, the upper edge being a beveled edge, of carriages held to travel upon the tracks, weights attached to one end of the carriages, a treadle connected with the opposite ends of the carriages, slides held to move in the carriages, rakes carried by the carriages and operated from the slides, one rake being located above and the other substantially below the table, one engaging with the table at its beveled edge and the other with the beveled edge, and a shifting mechanism connected with the table and adapted for engagement with the skin to be treated, as and for the purpose specified.

8. In a machine for dehairing fur skins, the combination with a frame, tracks diagonally secured to the frame, a table diagonally located between the tracks its upper edge being a beveled edge, and a shifting mechanism connected with the table and adapted to receive and hold upon said table the skin to be treated, of carriages held to travel upon the track, the forward ends of the carriages being weighted, a treadle connected with the lower ends of the carriages, slides having limited move-

ment in the carriages, rakes connected with the carriages and operated from the slides, one rake being located above and the other practically beneath the table, the upper one engaging with the upper surface of the table at its upper edge and the other with the beveled surface of said table, and an adjusting mechanism whereby the upper rake may be carried in direction of or away from the table, as and for the purpose specified.

CHARLES MOSER.
CONRAD SCHIRMER.

Witnesses:
JAMES F. WHITE,
JAMES H. WHITE.

(No Model.)

T. L. McKEEN.

BUFFER FOR RAILWAY CARS.

No. 490,977. Patented Jan. 31, 1893.

Fig. 1.

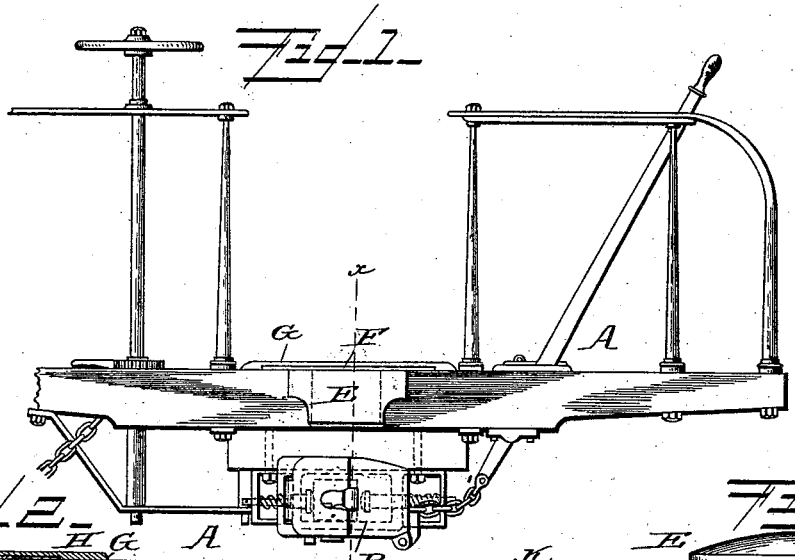


Fig. 2.

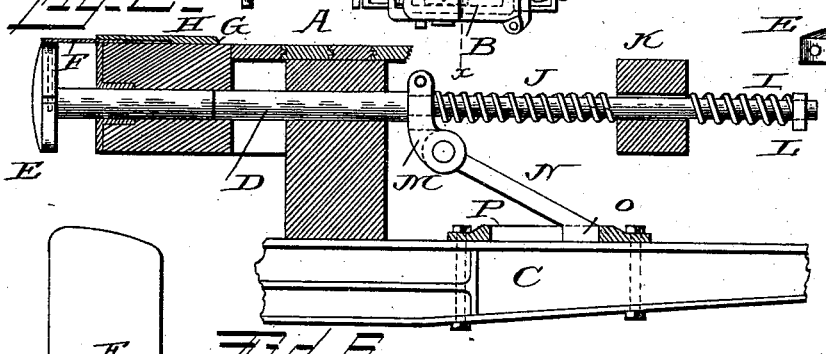


Fig. 3.

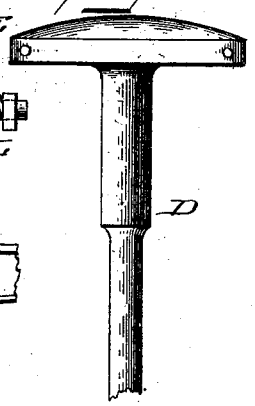


Fig. 4.

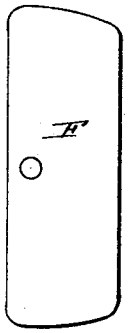


Fig. 6.

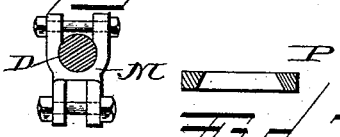


Fig. 7.

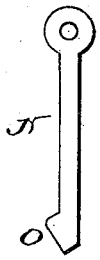


Fig. 5.

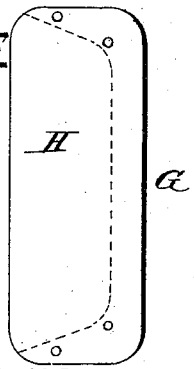


Fig. 8.

WITNESSES:

F. L. Ourand

W. D. Coombs

INVENTOR:

Thomas L. McKeen,

by Laws Dagger & Co

Attorneys.