(No Model.) 3 Sheets—Sheet 1.

E. SCHROEDER.

MACHINE FOR PULLING HAIR FROM SKINS OF FUR ANIMALS.

No. 382,736. Patented May 15, 1888.

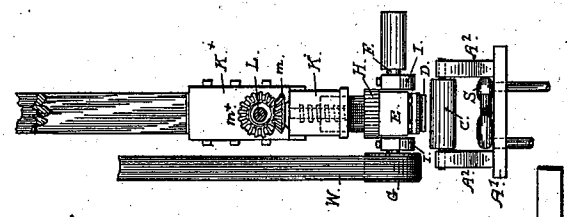


Fig. 2.

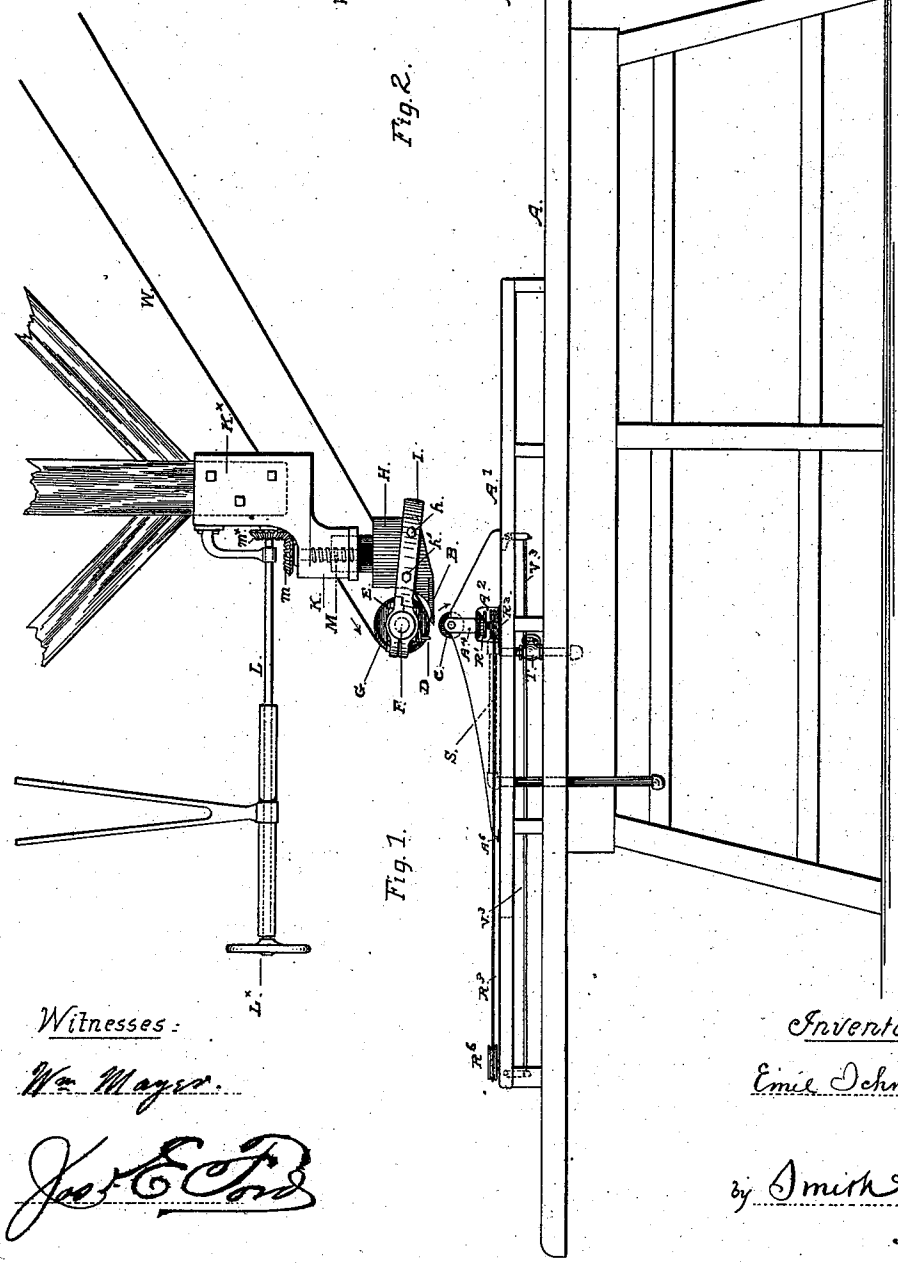


Fig. 1.

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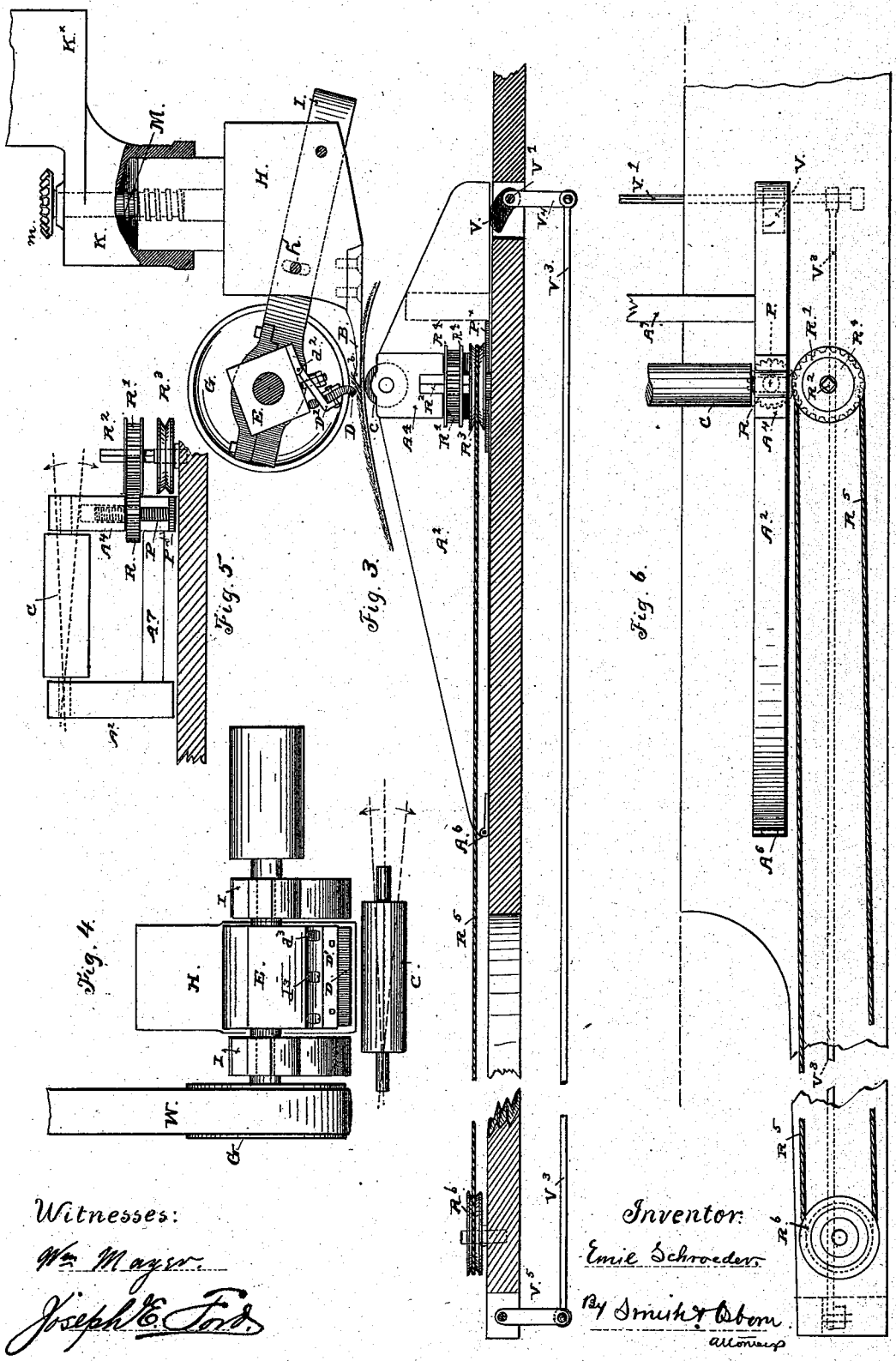
N. PETERS, Photo-Lithographer, Washington, D. C.

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E. SCHROEDER.

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(No Model.) 3 Sheets—Sheet 3.

E. SCHROEDER.

MACHINE FOR PULLING HAIR FROM SKINS OF FUR ANIMALS.

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Fig. 7.

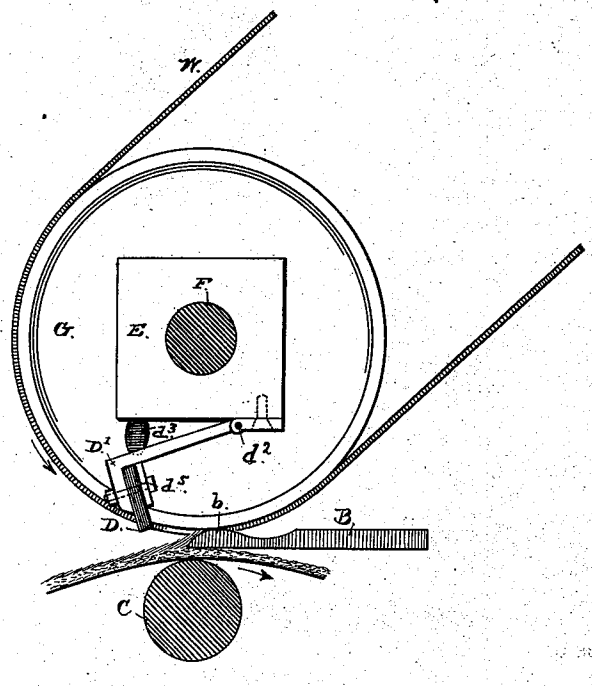
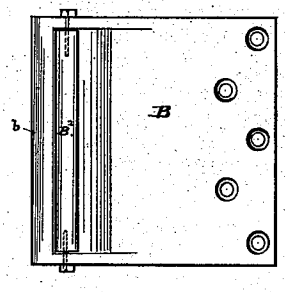


Fig. 8



Fig. 9



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UNITED STATES PATENT OFFICE.

EMIL SCHROEDER, OF SAN FRANCISCO, CALIFORNIA.

MACHINE FOR PULLING HAIR FROM SKINS OF FUR ANIMALS.

SPECIFICATION forming part of Letters Patent No. 382,736, dated May 15, 1888.

Application filed August 27, 1887. Serial No. 248,099. (No model.)

To all whom it may concern:

Be it known that I, EMIL SCHROEDER, a citizen of the United States, residing in the city and county of San Francisco, and State of California, have invented certain new and useful Improvements in Machines for Pulling Hairs from Skins of Fur Animals; and I do hereby declare that the following is a full, clear, and exact description of my said invention, reference being had to the drawings that accompany and form a part of this specification.

My invention has for its object to provide a machine for pulling hairs from skins of fur animals—such as the fur-seal, otter, and bear; and it consists in certain novel construction of stripping and pulling mechanism, and in the construction and combination of mechanism for regulating and adjusting the same to the work, the whole producing a machine to take the place of hand-labor in that part of the art or process of dressing and preparing skins for the furrier in which the upper or coarse coat of hair is removed from the fur.

The following description explains the nature of my said invention and the manner in which I proceed to construct a machine in accordance therewith, the accompanying drawings being referred to by figures and letters.

Figure 1 is a side elevation of my improved machine. Fig. 2 is a front view of the mechanism, taken from the left-hand side of Fig. 1. Fig. 3 is a side view of the mechanism on a larger scale, the table-top and the revolving stripper above the bed-roller being shown in section. Fig. 4 is a front view of the revolving stripper and the roller. Fig. 5 shows details of mechanism for elevating and depressing the bed-roller at one end. Fig. 6 is a one-half plan of the table-bed roller and its supporting-frame, showing the mechanism in Fig. 5 in plan. Fig. 7 is a detail view, on a larger scale, of the revolving stripper and bed-roller. Figs. 8 and 9 show a construction sometimes used of the fixed plate or non-revolving part of the pulling mechanism, Fig. 8 being a longitudinal section and Fig. 9 a top view.

The principal and controlling features of my said invention consist of a revolving stripping pad or finger on a revolving shaft, having rapid movement in a circular path, a fixed plate with a beveled or rounded edge or nose, above which the revolving stripper is set in close relation and a roller mounted beneath the plate to turn free on its bearings.

The roller forms a revolving rest or support for the skin, which is introduced between its top surface and the fixed plate, and the latter constitutes a means for turning up the ends of the hairs into position to be seized by the revolving stripper and for presenting them to this part.

The skin is introduced under the edge of the fixed plate, between it and the roller, with the hair side uppermost, and, being drawn forward, the coarse hairs are turned up over the front edge of the plate and their ends separated from the fur beneath. The revolving stripper then seizes and pulls the hairs by impinging against the edge of the plate without catching the fur beneath. In connection with these parts there is provided means for regulating the distance between the roller and the pulling mechanism, and also means whereby the roller can be set at an angle from the horizontal or with respect to the edge of the fixed plate to stand at an angle instead of parallel therewith.

The object of providing vertical movement of the roller toward and away from the fixed plate is to regulate the space between these two parts through which the skin is drawn, as this space requires to be varied according to the conditions of the work—such as the hairs and the thickness of the fur; and I provide for such adjustment either by having the roller mounted in vertically-adjustable bearings or by providing vertical adjustment of the plate and revolving stripper, so that they can be set to or from the roller.

The object of varying the position of the roller from the horizontal is to set the mechanism to seize and pull the short as well as the long hairs at the same time, such adjustment being desirable at times, as in operating on those portions of a skin near the short hairs and where the hairs are of irregular lengths and vary from short to long.

The acting edge of the revolving stripper is formed of some flexible or suitably-elastic material—such as rubber or leather—that has sufficient stiffness also to return to shape each time after passing over the edge of the plate in the revolutions of the stripper. In con-

nection with these parts there is provided a heating device—such as a steam-coil—placed under the roller, for keeping the skin moist and the coarse hairs loose to pull easily.

A is a bench or table, of suitable height, with a narrow platform or elevated portion, A′, standing in the middle, on which is mounted the blocks A^2 to carry the roller. The blocks are attached at the rear end by hinges, and are connected by cross strips A^7, the forward end being free to move up and down. The roller C is set in boxes in the side pieces of this frame, and over it is fixed the plate B, with its edge rounded or beveled to form the nose *b*. It is fixed by screws *t t* to the bottom of a head-block, H, with its edge standing about over the center of the roller C and parallel with its axis. The revolving stripper D, set over the fixed plate, has a flexible edge, formed of rubber or leather or some like material, having suitable degree of elasticity or springing quality to return to shape after passing over the nose *b* of the plate. For general purposes I recommend leather as giving the best results; but vulcanized rubber will work well on some kinds of skins and can be used to advantage on skins that do not pull readily. The flexible edge D is clamped in the hinged jaw or piece D′, and this part is attached by a hinge, d^2, to the block E. Between the face of the block and the back of the hinged plate are set cushion-springs d^3, and the block E is fixed on the shaft F, the bearings of which are situated in arms I I, projecting from the sides of the head-block. These arms are secured to the head-block by bolts and nuts *h h′*, and provision is made for setting the outer ends of the arms up or down to adjust the contact of the edge D with the fixed plate and thereby regulate the grip or degree of pressure exerted by the stripper against the fixed plate. This adjustment is obtained by setting the front bolt, *h′*, through a slot in the head-block.

In practice it will be found that the stiffness of the stripping-edge requires to be greater for skins that pull hard, and to vary such quality or property of the stripping-edge in action either the edge itself is taken out and one of another character substituted or the springs are changed. The flexible stripping-edge is clamped between the bent end of the hinged jaw D′ and a plate set behind it by screws d^5, and its flexibility can be regulated not only by substituting one kind of material for another, as rubber for leather, but also by regulating the length of the stripping-edge projecting beyond the clamps.

The contact and degree of pressure exerted by the stripper against the plate B is regulated, as before described, by setting the shaft E up or down, and thus when the flexible edge of the stripper is lengthened or shortened or reduced through wear, the position of the shaft is changed accordingly, to set the flexible edge properly to the nose or edge of the plate beneath.

In some cases I find it desirable to employ a fixed plate, B, having a small roller, B^2, set in its top surface just back of the nose, so that the top face of the roller forms the under one of the two gripping-surfaces. Such plate operates well with the revolving stripper, and is particularly effective in working on skins that pull hard.

The parts B D are mounted on the head-block H, the shank of which is fitted to slide in the casting K K*. A screw-shaft, M, works through the top of the part K, into the shank, and is furnished with a hand-wheel on the upper end or is geared into a hand-shaft, L, by miter-gears *m m′* for setting the head-block up or down. The object of this vertical movement of the head-block is to adjust the position of the stripping device with respect to the bed-roller C, as the space between the plate and the bed-roller is regulated to the requirements of the work, such as the length of the hairs and the thickness of the skin and fur. Such adjustment can be effected, also, by setting the bed-roller to or from the plate, instead of moving the head-block; and to such end I have made the frame A^2 separate from the table and attached it at one end by hinges A^6 to the table, so that by elevating or dropping the outer end of the frame the roller will be set up to or moved away from the fixed plate.

The cams V, fixed on the rock-shaft V′, under the free end of the roller-frame, are the means for setting the frame, and the rock-shaft being connected by the rod V^3, with a pivoted arm, V^5, at the front end of the table, or where the workman can conveniently reach and move it, the rock-shaft is readily turned to raise or lower the frame as the bed-roller requires to be moved toward or from the stripping device from time to time, as the character of the skin calls for.

In addition to this feature of adjustability in the bed-roller I provide for setting it out of the horizontal, so that the top surface of the roller shall be inclined with respect to the plane of the fixed plate standing over it, as I find it is of advantage to present the work to the plate on an incline in pulling some parts of a skin, and particularly along the edge and belly portions, for by such means the ends of both short and long hairs are turned up and caused to stand at about the same height over the nose *b*, and the short hairs are therefore caught and pulled equally well with the long ones. The bed-roller is elevated or depressed at one end to stand at an angle above or below the horizontal by the mechanism shown in Figs. 3, 5, and 6. The journal on the end of the roller is mounted in the box A^4, that is movable in the guide-slot in the side of the frame A^2, and a traveling nut on the fixed screw-threaded rod P sets against the bottom of the box. This nut is the hub of a pinion, R, which takes in a spur-gear, R′, and the rotation of the one produces vertical movement of the other on the screw. The gear is fixed on the upright shaft R^2, having a small sheave, R^3, fast on it, the gear being free to slide on the square por-

tion of the shaft to engage always with the pinion, and the two being kept in gear by the disks R^4, that lap over the pinion. This construction keeps the parts also in gear under all movements of the roller-frame in a vertical arc, when the adjustment of the roller to the fixed plate is effected by moving the frame from the hinged end. The endless cord R^5, carried around the sheave R^2 and to a sheave, R^6, beneath the table, forms a means for operating this box-setting mechanism from the front or that side of the table most convenient to the workman.

In operating the machine the skin is introduced, with the hair side uppermost, between the roller-bed and the plate B, sufficient space being obtained by raising the head-block or by dropping the roller away from the nose, when such adjustment is provided in the construction, and these parts are then brought together to set the nose of the plate into the hair with suitable pressure, at the same time giving sufficient space for the fur to pass under the plate. The nose *b* is thus presented against the lay of the hair; and it will be seen that as the skin is drawn along over the roller the ends of the coarse hairs are separated from the fur and caused to stand up over the plate in position to be seized by the revolving stripper. At each pull the stripper draws out the coarse hairs without catching the fur, and at the same time causes the skin to move forward on the bed-roller a suitable distance to bring another portion up to the nose, and in this manner a skin is run through the machine from tail to head as many times as the width of the skin calls for. Before it is introduced into the machine the skin is made ready by being stretched in a frame, and is also softened and the coarse hairs properly loosened or opened up from the fur in the usual manner. The steam-coil S is placed within the frame beneath the roller, and is connected with a supply of steam from a boiler or other source by a pipe having a globe-valve, T, for regulating the same. The sides of the frame inclosing this heater form a chamber or space, within which the heat is confined when the skin is stretched over the roller and the frame, and a suitable degree of moisture is secured by laying a wet cloth over the coil. This keeps the skin in a soft condition to pull easily. The addition of this heater renders it unnecessary to remove the skin from the machine after it is once introduced.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A machine for pulling hair from skins, consisting, essentially, of a fixed plate presenting a nose or beak for turning up and separating the ends of the hairs from the fur, a revolving stripper with a flexible gripping-edge adapted to impinge and run over the nose of the fixed plate, and a bed-roller for supporting and presenting the skin to the stripping device arranged beneath the fixed plate, substantially as described, for operation as set forth.

2. In a machine for pulling hairs from skins, the combination of the fixed plate presenting a nose or beak for turning up the ends of the hairs, a revolving stripper with a flexible gripping-edge, and a bed-roller capable of vertical adjustment toward and from the fixed plate.

3. In a machine for pulling hairs from skins, the combination, with the bed-roller, of the fixed plate and the revolving stripper mounted on the vertically-adjustable head-block, which is movable in the part K, and the screw *d*, as a means for setting up the head-block, up or down, to regulate the position of these parts with respect to the bed-roller, as and for the purpose set forth.

4. In a machine for pulling hairs from skins, the combination, with a bed-roller or support for the skin, of a stripping device operating above said roller and a heater below said roller, substantially as described, for operation as set forth.

5. The combination, with the fixed plate presenting a nose or beak to turn the ends of the hairs from the fur, of the revolving stripper having a flexible gripping-edge.

6. The combination of the fixed plate having a roller which forms a lower grip and the revolving stripper having a flexible gripping-edge set to impinge against said roller, for operation as set forth.

7. In a machine for pulling hairs from skins, the combination, with the stripping-plate, of the bed-roller mounted beneath said plate and capable of being set at an angle with respect to the said plate, as described, to operate as set forth.

8. In a machine for pulling hairs from skins, a revolving stripper having a flexible edge and mounted over a stationary stripping plate or surface, with a rounded nose or edge, substantially as described, for operation as set forth.

9. In a machine for pulling hairs from skins, a revolving stripper consisting of a stripper-block mounted on a revolving shaft and a yielding jaw carrying a flexible stripping-edge, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

EMIL SCHROEDER. [L. S.]

Witnesses:
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C. W. M. SMITH.