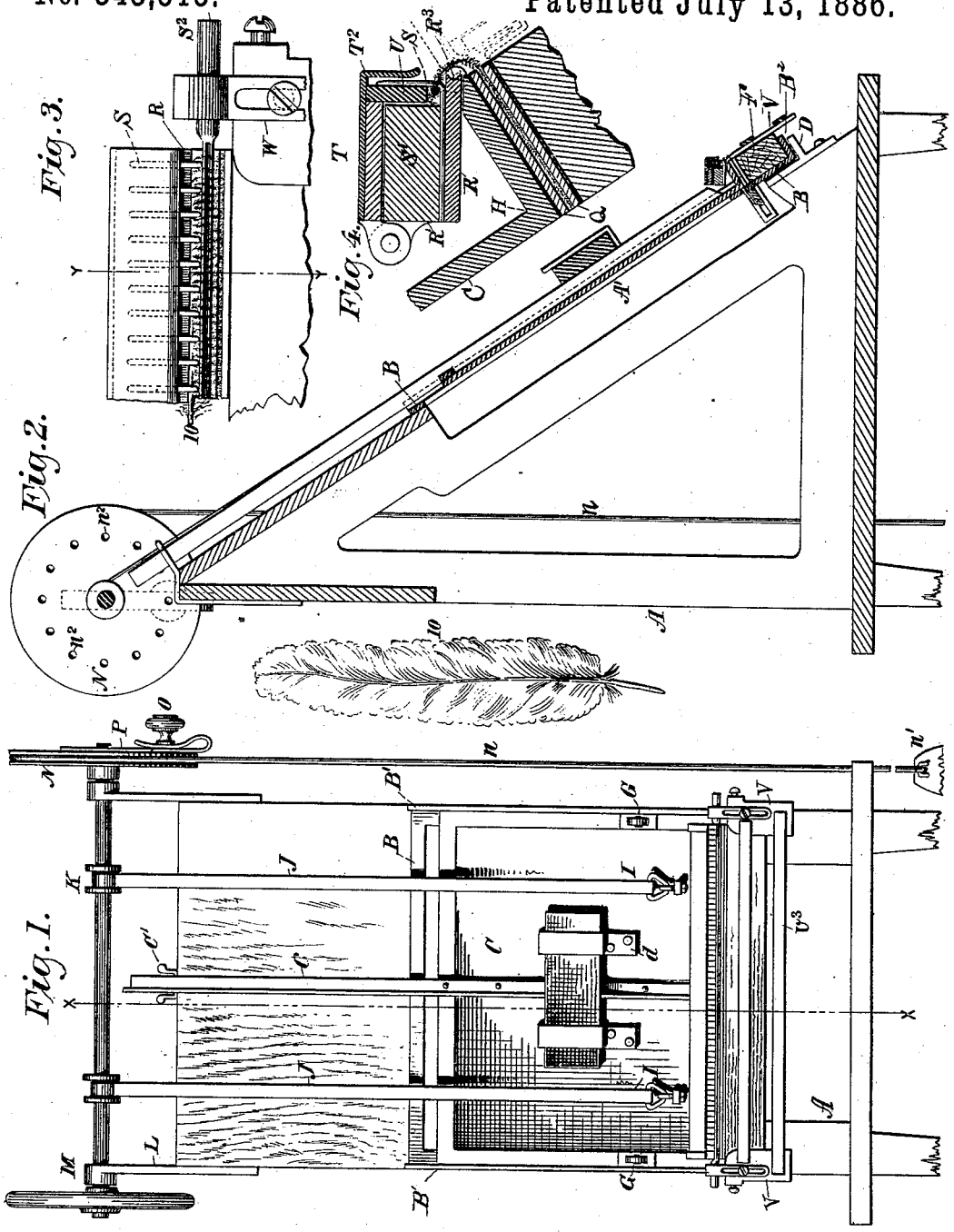
(No Model.) 2 Sheets—Sheet 1.

C. LACHNER.

MACHINE FOR CUTTING THE DOWN FROM FEATHERS.

No. 345,515. Patented July 13, 1886.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 5.

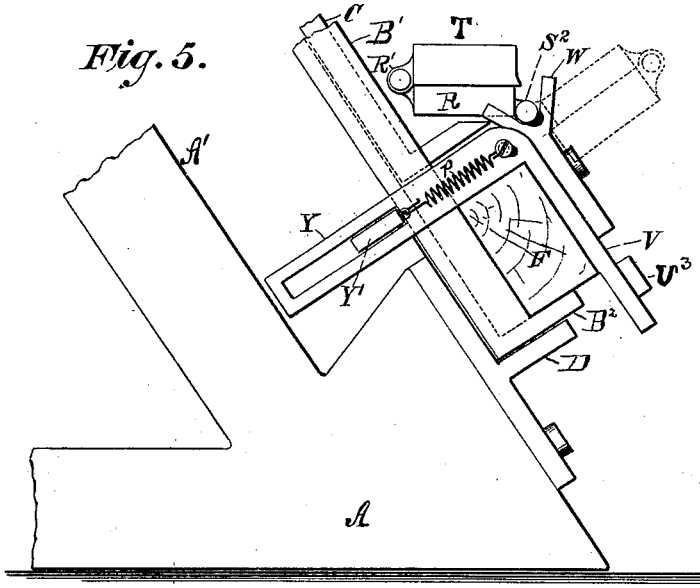

Fig. 7.

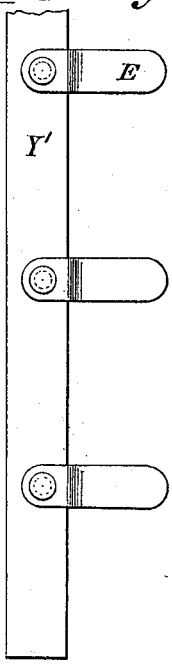

Fig. 6.

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UNITED STATES PATENT OFFICE.

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MACHINE FOR CUTTING THE DOWN FROM FEATHERS.

SPECIFICATION forming part of Letters Patent No. 345,515, dated July 13, 1886.

Application filed September 22, 1885. Serial No. 177,876. (No model.)

To all whom it may concern:

Be it known that I, CONRAD LACHNER, a subject of the Emperor of Germany, and a resident of the city, county, and State of New York, have invented a new and Improved Machine for Cutting the Down from Feathers, of which the following is a specification.

My invention relates to a machine for cutting the down or vanes from the shafts or stems of feathers, and has for its object, first, to lay the down and then cut it from the shafts or stems, in such a manner that it can readily be handled and afterward applied to a suitable backing, such as is employed in the manufacture of feather trimmings.

In the accompanying drawings, which illustrate my invention, similar letters of reference indicate like parts.

Figure 1 is a front elevation of my improved machine. Fig. 2 is a vertical section of the same, taken through the line *x x* of Fig. 1. Fig. 3 is a longitudinal elevation of a portion of the feather-holder and its support. Fig. 4 is a sectional view of the same, taken through the line *y y* of Fig. 3. Fig. 5 is an enlarged side view of the feather-holder and its support, and shows the relation of the different parts. Fig. 6 is a section, also enlarged, of the same, taken on the line *x x* of Fig. 1. Fig. 7 is a plan view of the beam and the fingers thereon, which serve to hold the feather-cards in place.

In the drawings, A indicates the main frame, which may be of wood or iron, and be given preferably the triangular form shown. The front of the frame is inclined at an angle of approximately fifty degrees for greater convenience in working, and the side pieces of the frame are recessed in front for a portion of their length, as shown at A′, and for the purpose to be hereinafter described.

Arranged on and over the inclined portion of the frame, and in size sufficient to cover the recess therein, is a rectangular metal frame, B, the bottom and sides of which are turned up to form flanges B′, the latter of which act as guides for a sliding pressure-plate, C. The frame B is supported in position upon the main frame by means of the shoes D, arranged on either side of the frame, and the upper portion of the frame B rests on the wooden covering of the main frame just above the recess. The web or bottom portion, B^2, of the main frame is made slightly wider than the top portion of the frame, and is perforated or cut through in one or more places to allow passage of the fingers E.

Arranged across the bottom of the frame B is a rectangular beam of wood, F, suitably secured in any manner to the frame, and which acts as a support for the feather-cards.

Over the plate B, and arranged to slide therein, is the presser-plate C, preferably formed of iron and provided with small friction-rollers G on each side. The bottom of this plate is turned outward at a rectangle, as shown at H in the enlarged view, Fig. 4.

On the front of the plate D are suitably arranged two ring-staples, I I, and connected to the staples are the leather straps J J, which are carried upward and secured to the shaft K, which is supported in bearings L L, arranged on each side of the main frame. On one end of the shaft is a fly or balance wheel, M, and on the other end of the shaft and adapted to work loosely is a disk-wheel, N, having a grooved periphery and perforated through its body with a number of holes or openings arranged circumferentially and at an equal distance apart, and adapted to receive the spring-pin O, fastened in the end of the arm P, which is fixedly attached to the shaft K.

Fastened to the wheel N is a strap or cord, *n*, and connected at the other end to a foot-pedal, *n′*, whereby by the depression of the pedal the shaft K is caused to rotate, the pin O having been previously inserted into one of the openings n^2 of the wheel, and thus the straps J are wound over the shaft K, thereby lifting the sliding plate C, as hereinafter will be more fully explained. By withdrawing the pin O and moving the arm forward, so that the pin O will engage in the next hole forward, the straps J will be wound around the shaft K and the sliding plate C progressively lifted.

Upon the plate C suitable weights may be arranged and supported, as at *d*, for the purpose of increasing the weight of the pressure-plate.

The drawings, Figs. 3 and 4, illustrate the feather-holder, which consists of a narrow oblong box, R, provided with a cover, T, which

is hinged thereto, as shown at R′. The bottom of the box consists of a plate of wood or metal, R^2, having a groove, R^3, on its outer edge. On the long face of the box, and on its lower and outer edge, I arrange a number of metallic teeth, S, formed of round wire and pointing upward. These teeth can be secured in position by being fastened into a plate of metal or driven into a plate of wood, S′. It will be observed that there is a space between the front of the block S′ and the teeth, and in this space are longitudinally laid the feathers 10, in the manner shown in Fig. 3—that is, with the stem behind the teeth and the vanes or down of one side of the feather projecting outward through the teeth. The cover T is formed of a plate of wood or metal, over which is a metallic cap, T^2, and depending from the metallic cap and so as to lie between the portion S′ and the teeth S is a plate or body of rubber, leather, or other elastic material, U, sufficiently long to press upon the stem of the feather, and which serves to hold it in place, and so that it will not be pulled out as the knife passes over it.

Referring to Figs. 5 and 6, the frame or guide for the feather-holders is shown, and which consists of a pair of arms, V, arranged on each side of the frame B, and bent at a right angle, so as to lie over the beam F in the lower part of the frame. On the front of the arms are located forked supports W, slotted so as to be vertically adjustable. The ends of the shaft S^2 of the feather-holder lie in these forks. The back portion of the arms are slotted, as shown at Y, and in the slots and adapted to be horizontally movable therein is a beam or plate of wood or metal, Y′, on which are arranged a number of fingers, E. This beam lies in the recess A′ of the main frame, and can be moved upward along the recess on a level with the new cards as they are inserted in the machine.

In the ends of the plate Y′ are arranged small staples or other fastening device, to which are connected one end of the helical springs *p*, the other end being connected to a screw at or about the angle of the arms V. By this arrangement the beam Y′ can be pushed backward, to allow the insertion of a new card, the springs serving to bring the beam back and retain it in its proper position.

The arms V V are connected together by the strips v^3, Fig. 1, passing across the front of the machine.

I wish it understood that neither the arms V nor the supports for the feather-holder are in any wise connected to the frame B, or to the beam F, and are free to be moved upward in the frame B as new cards are inserted.

Q Q indicate strips of card-board or other similar material, over and between which the down is laid and pressed.

The operation of the device will be readily understood. A feather or feathers, 10, are first inserted in the feather-holder, which is then arranged in its guide on the machine, and at first occupies the position shown in the dotted lines in Fig. 5. The foot is now placed upon the treadle and the sliding presser-plate C moved upward. A card, as Q, is then inserted over the beam F, and the downy or feathery portions of the feathers in the feather-holder laid over this card. A second card is then introduced, so that the feathers lie between the two cards, the fingers E on the plate Y holding them together. The presser-plate C is now allowed to descend, pressing the cards in close contact, and compressing the feathers between them, thereby putting them into a good condition to be subsequently attached to the backing to form the trimming. The feather box or holder is now given a half-revolution upward, to occupy the position shown in Fig. 6. The operator then takes a sharp knife and runs it along the groove R^3 in the bottom of the box R. The feather-holder is now removed, the position of the feathers therein reversed, so that the downy portion on the other side of the feather is brought out. The holder is again put in the guide and the lever depressed, as before, the finger-plate being pushed backward, so as to allow the insertion of new cards. This operation is repeated, the arms V and the guides being progressively moved upward, so as to bring the edge of the feather-holder on a level with the top of the cards, until the frame B is full of cards with the cut feathers between them. The guide-arms are then removed from the frame, the frame B removed from the main frame, and a new frame inserted.

I wish it understood that I do not limit myself to the particular form of frame, nor to the detail of mechanism shown and described, as it will be evident that many changes can be made in the mechanism, whereby the downy portion or vanes of feathers can be inserted between boards, and, while clamped therein, cut from the shafts or stems, and thus, while presenting slight differences in construction, fully comply with the intent of my invention.

I claim as my invention—

1. In a machine for cutting the down from feathers, and in combination with the feather-cards, a frame for holding said cards, and a sliding beam and the fingers thereon for holding the cards in position.

2. In a machine for cutting the down from feathers, and in combination with the feather-cards, a frame for holding said cards, and a sliding pressure-plate for making pressure thereon, substantially as described.

3. In a machine for cutting the down from feathers, and in combination with the feather-cards, a frame for holding the same, a sliding pressure-plate, and the means for raising and lowering said plate, substantially as described.

4. In a machine for cutting the down from feathers, and in combination with the feather-cards, a frame for supporting the same, a sliding pressure-plate, and a feather-holding device, substantially as described.

5. In a machine for cutting the down from

feathers, and in combination with the feather-cards, a frame for supporting the same, a sliding pressure-plate, a feather-holding device, and an adjustable frame for supporting said feather-holding device, substantially as described.

6. In a machine for cutting the down from feathers, and in combination with the main frame, the card-frame, the cards, the sliding pressure-plate, the beam and fingers, the feather-holder, and the adjustable frame therefor, substantially as described.

7. In a machine for cutting the down from feathers, and in combination with the sliding pressure-plate, the straps, the shaft, the arm and pin, the grooved and perforated loose pulley, and the means for actuating said pulley and shaft, substantially as described.

8. In a machine for cutting the down from feathers, and in combination with the feather-holder, an adjustable supporting-frame therefor, provided with adjustable bearings on said frame for said feather-holder, substantially as described.

9. In a machine for cutting the down from feathers, and in combination with the adjustable supporting-frame for the feather-holder, the adjustable bearings thereon, the adjustable beam and fingers thereon, and the retracting-springs, substantially as described.

10. In a machine for cutting the down from feathers, the combination, with the feather-holder therefor, of the bottom plate grooved on its outer edge, the upwardly-projecting teeth, the hinged cover of said holder, and the portion of flexible material depending from said cover, substantially as described.

11. In a machine for cutting the down from feathers, the combination of the main frame, the card-frame, the cards, the sliding pressure-plate, the beam and fingers, the feather-holder, the adjustable frame therefor, and a cutting-knife, substantially as described.

12. In a machine for cutting the down from feathers, the combination of the feather cards, the feather-holder provided with a groove on its outer edge, and a cutting-knife, substantially as described.

In testimony whereof I have hereunto subscribed my name this 29th day of June, A. D. 1885.

CONRAD LACHNER.

Witnesses:
GEO. H. BENJAMIN,
A. E. SEXTON.