

No. 655,031.

Patented July 31, 1900.

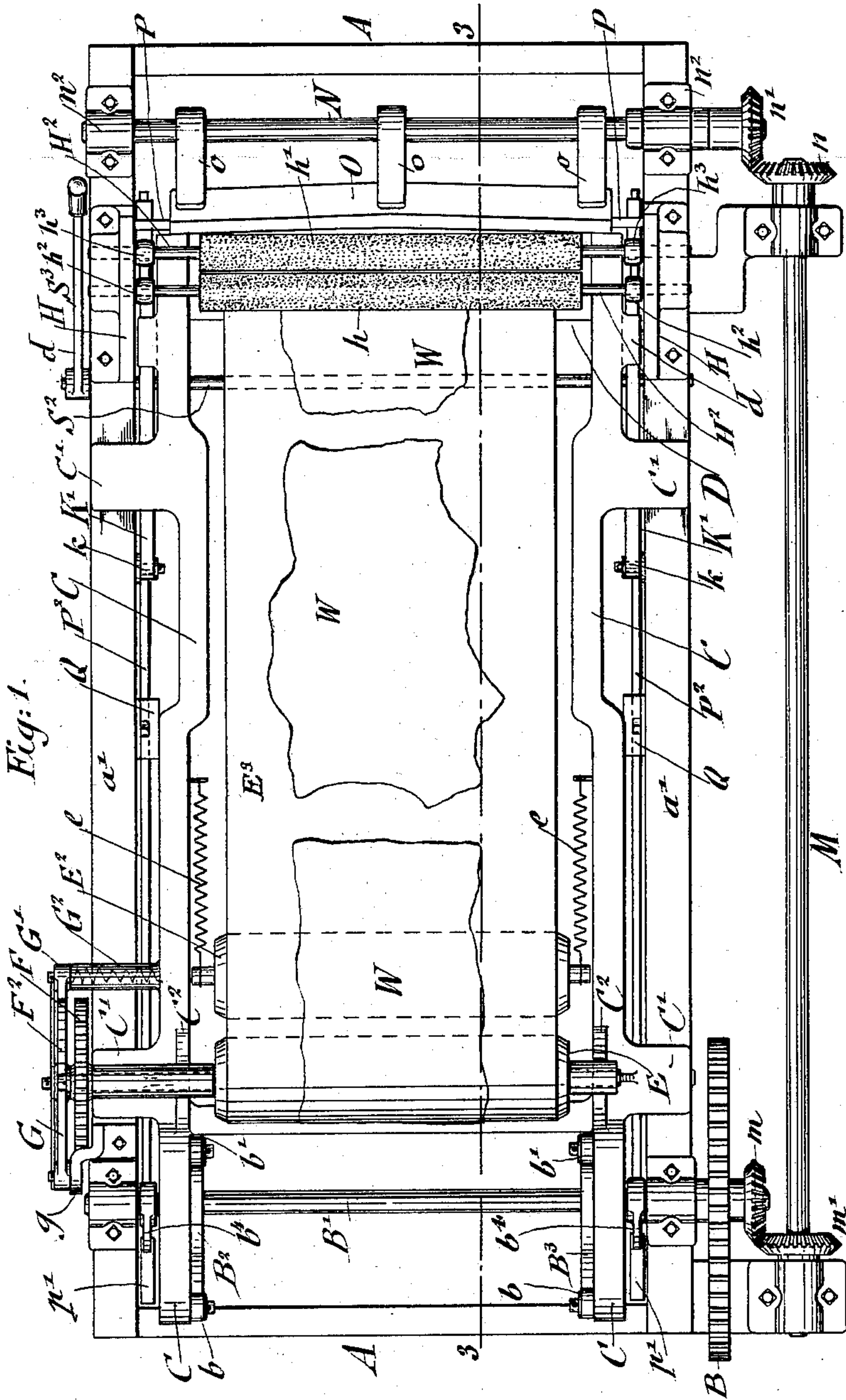
J. W. SUTTON.

MACHINE FOR PLUCKING PELTS.

(Application filed Mar. 4, 1899. Renewed June 26, 1900.)

(No Model.)

4 Sheets—Sheet 1.



WITNESSES:

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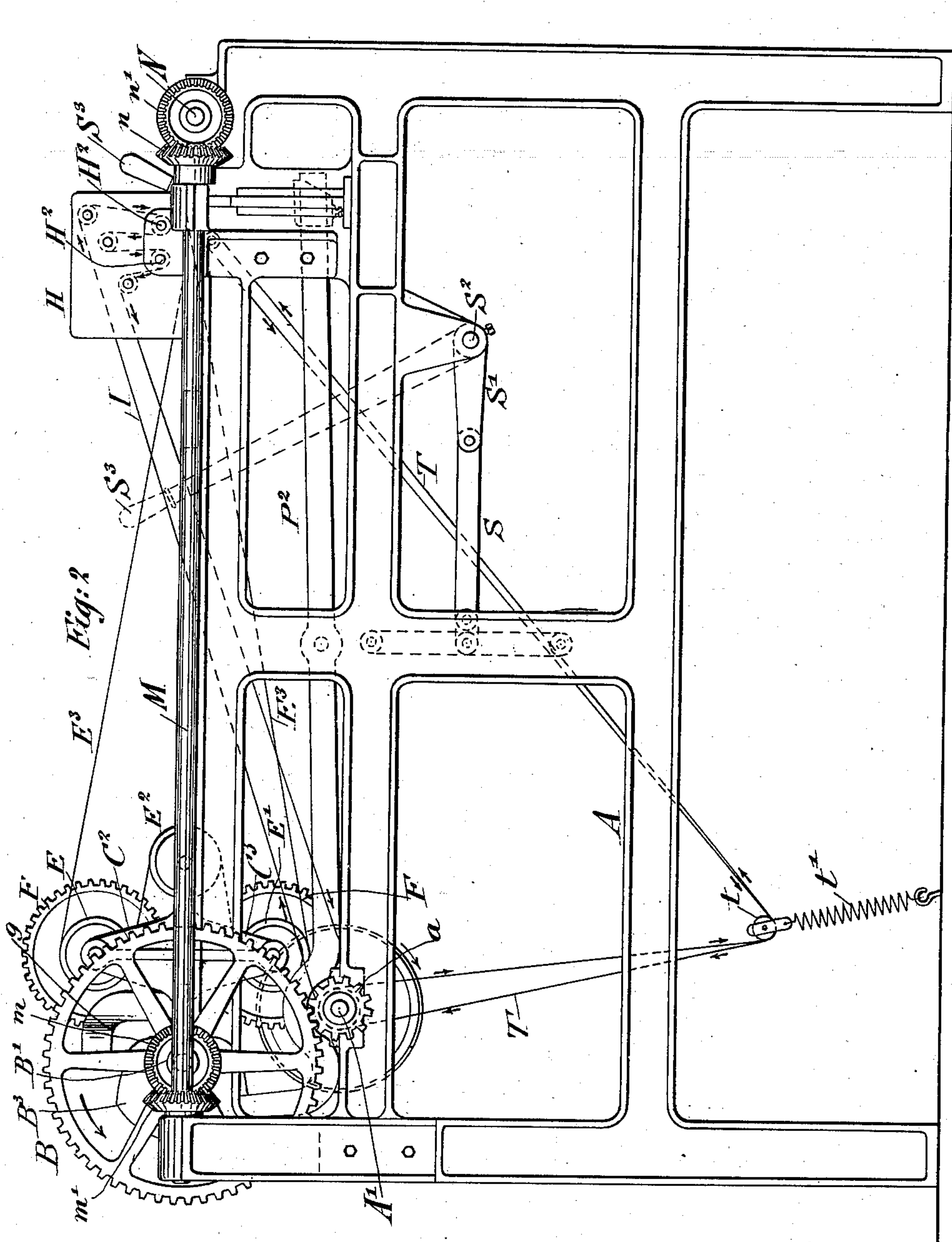
**J. W. SUTTON.**

## MACHINE FOR PLUCKING PELTS.

(Application filed Mar. 4, 1899. Renewed June 26, 1900.)

(No Model.)

**4 Sheets—Sheet 2.**



**WITNESSES:**

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No. 655,031.

Patented July 31, 1900.

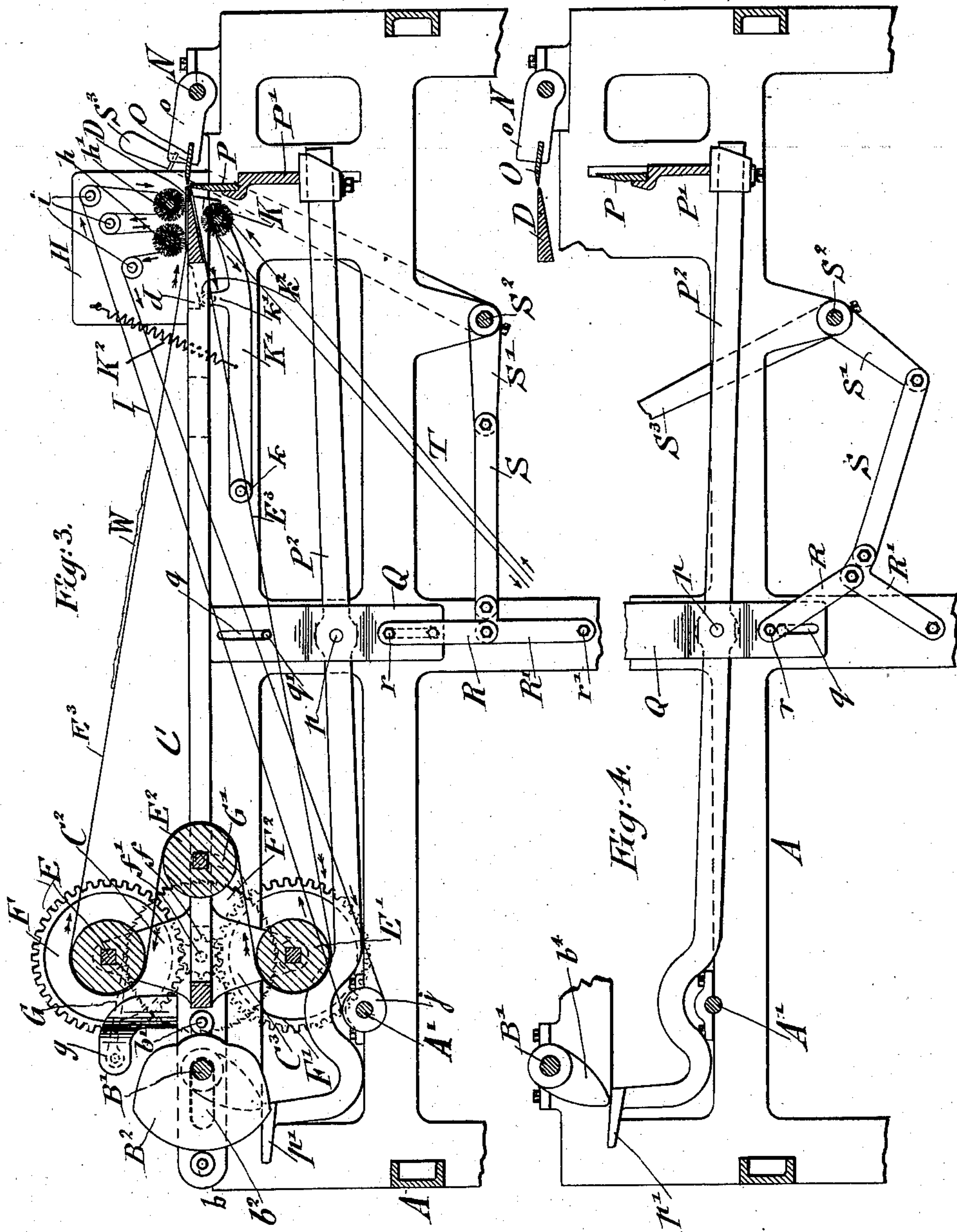
J. W. SUTTON.

MACHINE FOR PLUCKING PELTS.

(Application filed Mar. 4, 1899. Renewed June 26, 1900.)

(No Model.)

4 Sheets—Sheet 3.



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No. 655,031.

Patented July 31, 1900.

J. W. SUTTON.

MACHINE FOR PLUCKING PELTS.

(Application filed Mar. 4, 1899. Renewed June 28, 1900.)

(No Model.)

4 Sheets—Sheet 4.

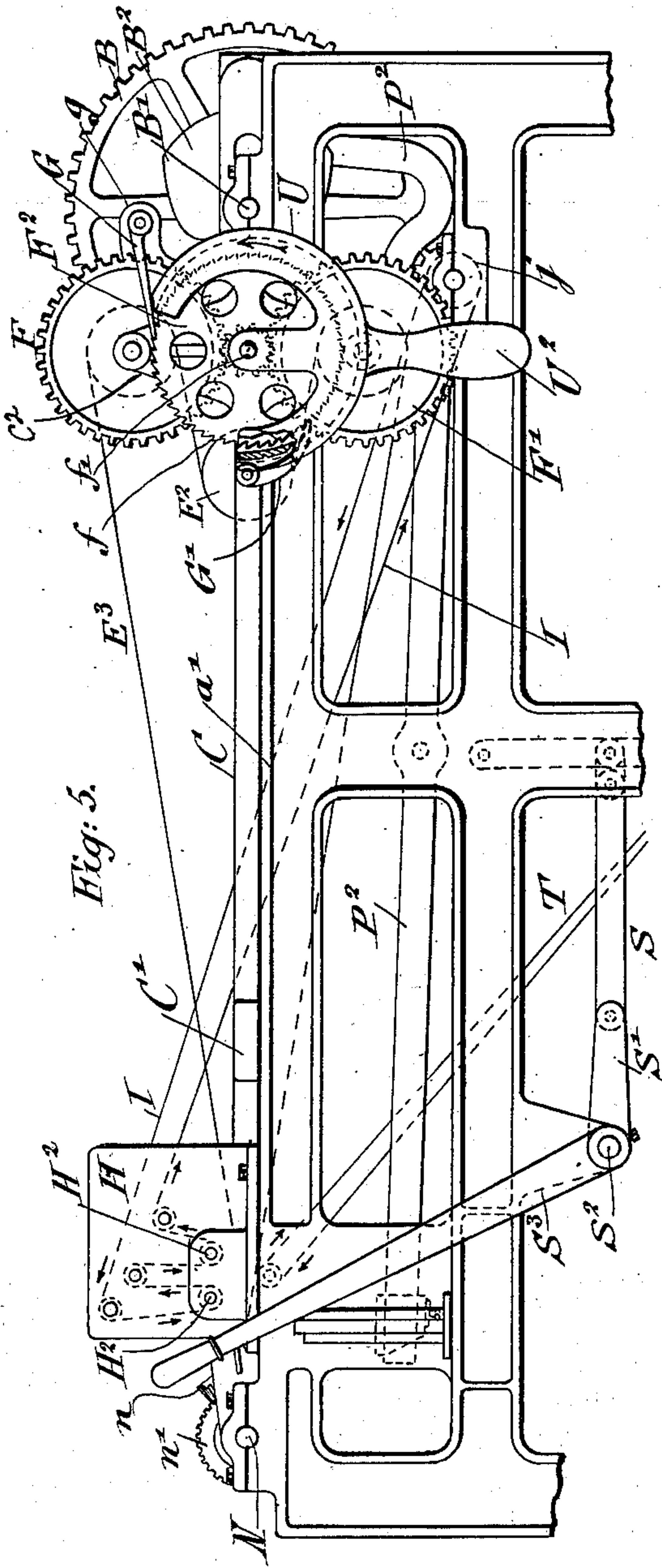


Fig. 5.

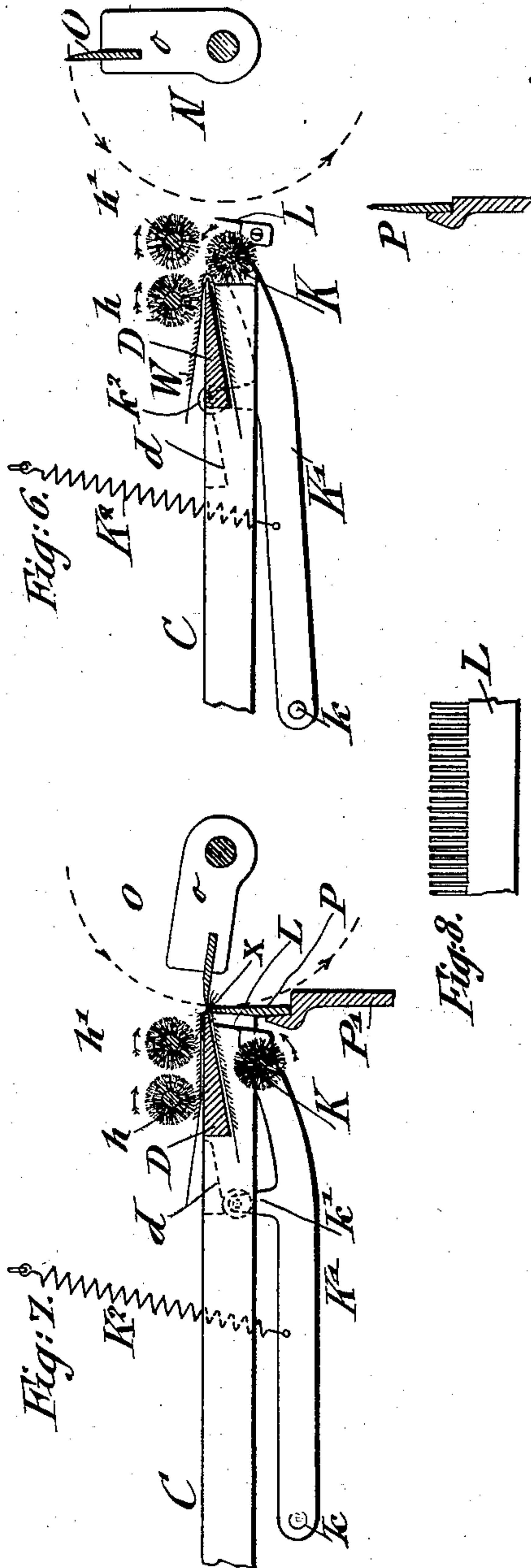


Fig. 6.

Fig. 7.

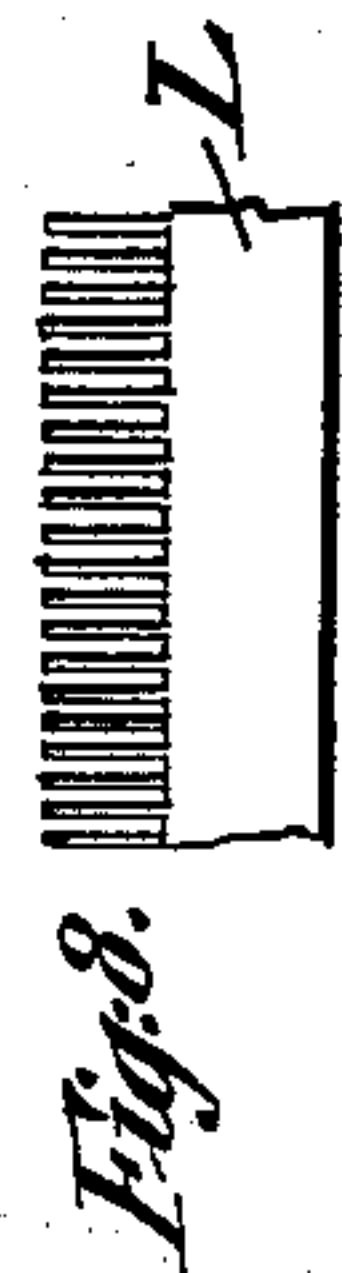


Fig. 8.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

JOHN W. SUTTON, OF NEW YORK, N. Y.

## MACHINE FOR PLUCKING PELTS.

SPECIFICATION forming part of Letters Patent No. 655,031, dated July 31, 1900.

Application filed March 4, 1899. Renewed June 26, 1900. Serial No. 21,683. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN WASHBURN SUTTON, a citizen of the United States, residing at New York, borough of Manhattan, State of New York, have invented certain new and useful Improvements in Machines for Plucking Pelts, of which the following is a specification.

This invention relates to a machine for plucking pelts, and more particularly to improvements over the invention covered by Letters Patent granted to me April 2, 1895, No. 536,742, the improvement residing in certain improvements whereby the means for making a "parting" in the fur to cause the stiff hairs to stand out is enabled to make a more decided and regular parting, thus avoiding the danger of some of the fur being cut off with the stiff hairs.

The invention consists of certain details of construction and combinations of parts to be hereinafter described and then particularly claimed.

In the accompanying drawings, Figure 1 is a plan view of my improved machine for plucking pelts. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical longitudinal section on the line 3 3 of Fig. 1. Fig. 4 is a vertical longitudinal section similar to Fig. 3, but being only a fragment thereof, inasmuch as the stretcher-bar mechanism and separating mechanism are omitted. Fig. 5 is a side elevation of the upper part of the machine looking toward the opposite side of Fig. 2. Fig. 6 is an enlarged detail view of the main working parts of the pelt-plucking machine, showing the same in their inoperative position, the movable rotary separating-brush being, however, at work. Fig. 7 is a similar view of the same parts, showing them in action, the movable rotary separating-brush being out of action; and Fig. 8 is a detail elevation of the guard-comb.

Similar letters of reference indicate corresponding parts.

A indicates the frame of the machine, and A' the main driving-shaft, which is journaled in suitable bearings and is driven from any suitable source of power in the well-known manner.

a is a pinion mounted on one end of the driving-shaft A' and meshing with a large

gear-wheel B, that is in turn mounted on a shaft B', said shaft carrying two cams B<sup>2</sup> and B<sup>3</sup> of suitable conformation, which are adapted to reciprocate a carriage C, which is guided along suitable ways a', provided at the upper part of the frame of the machine. For guiding the carriage C the same is preferably provided with laterally-projecting guide-pieces C', that slide upon the guideways a'. The cams B<sup>2</sup> and B<sup>3</sup> work between two antifriction-rollers b b', which turn on short shafts supported by the carriage, so that as the faces of the cams B<sup>2</sup> and B<sup>3</sup> work against these rollers b b' during the rotation of the shaft B' the carriage will be reciprocated back and forth. The carriage C is provided with a slot b<sup>2</sup> at each side, (see dotted lines; Fig. 3,) through which the shaft B' passes, thus permitting the reciprocatory movement of the carriage by the cams B<sup>2</sup> and B<sup>3</sup> without interference by the shaft. The forward end of the carriage supports the knife-edged stretcher-bar D. The pelt-carrying apron is intermittently actuated by a suitable pawl-and-ratchet mechanism, so as to move the pelt over the edge of the stretcher-bar, said pawl-and-ratchet mechanism being supported on the rear part of the carriage.

C<sup>2</sup> C<sup>3</sup> are brackets mounted on the rear end of the carriage C, which project, respectively, upwardly and downwardly and are provided with journals for the axles of belt or apron carrying and guiding rollers E E', while the axle of a third roller E<sup>2</sup> is supported in bearings of the carriage-frame in front of the rollers E' E<sup>2</sup>, so that the rollers are arranged at points corresponding to the apices of the angles of a triangle, the roller E<sup>2</sup> being nearer the stretcher-bar than the others. The pelt-carrying apron E<sup>3</sup> is guided over these rollers E-E' E<sup>2</sup> and moves in the direction indicated by the arrows and passes over the stretcher-bar D. Roller E<sup>2</sup> is supported by helical springs e. The shafts or axles of the rollers E' respectively carry gear-wheels F F', the teeth of which mesh with an intermediate pinion f, mounted on a short shaft f' on the frame of the carriage. On the shaft f' is also mounted a large ratchet-wheel F<sup>2</sup>, the teeth of which are engaged by a driving-pawl G and check-pawl G', one applied to a bracket of the supporting-frame of the machine, the



other to a box  $G^2$ , mounted on the side rail of the carriage C. The check-pawl  $G'$  is directed downwardly and inwardly toward the teeth of the ratchet-wheel by means of a suitable tension-spring coiled inside of box  $G^2$ , while the pawl  $G$  is a gravitating one, being pivoted to the arm or bracket  $g$ , extending upwardly from the frame of the machine, said pawl engaging with the upper part of the ratchet-wheel, so that it will be held in contact with the same by its own weight. These pawls are held out of engagement with the teeth of the ratchet-wheel by means of a curved frame  $U$ , which is hung on the shaft  $f'$  and is provided with notched flanges  $U'$ , by which when said frame is oscillated by means of its handle  $U^2$  in the direction indicated by the arrow the said pawls  $G \cdot G'$  will be held out of engagement with the ratchet-wheel, so that the pelts which are basted to the apron or belt  $E^3$  can be shifted with the belt to the desired position upon the edge of the stretcher-bar. When the machine is in operation, however, the frame  $U$  hangs in the position shown in Fig. 5, so that the pawls  $G \cdot G'$  will engage the succeeding teeth of the ratchet-wheel at each backward reciprocation of the carriage.

The endless apron  $E^3$  is tightly stretched around the guide-rollers and stretcher-bar, and the pelts  $W$  are attached one after the other to the upper lap of the said apron and then moved with the apron toward and passed successively over the same and then moved over the rollers  $E' E^2 E$ . This permits the replacing of the plucked pelt on the upper lap of the apron by a new pelt, so that there need be no interruption in the working of the machine.

$H \cdot H$  indicate brackets or side plates at opposite sides of the frame  $A$  of the machine, said brackets being provided with suitable bearings for the shafts  $H^2$  of a pair of rotary brushes  $h \cdot h'$ . These rotary brushes are mounted in stationary bearings near together and are provided with pulleys  $h^2 h^3$ , over which passes an endless belt  $I$ , guided over a series of pulleys  $i$ , mounted on the side plates or brackets  $H \cdot H$  and being driven from the rear end of the machine by means of a pelt-pulley  $j$ , mounted on the driving-shaft  $A'$ , before referred to, so that a continuous rotary motion is imparted to these stationarily-mounted brushes  $h \cdot h'$ . The brushes  $h \cdot h'$  are mounted approximately in the same plane at one side, which in the machine shown in the drawings is the upper side of the stretcher-bar, so as to act upon the pelt as it passes the knife-edge of the stretcher-bar  $D$ . The brush  $h$  acts continuously on the pelt, while the brush  $h'$  acts intermittently thereon at each forward movement of the stretcher-bar  $D$ . These movements will be described more in detail hereinafter. Arranged at the opposite side of the stretcher-bar  $D$  is a movable rotary separating-brush  $K$ , the shaft of which is journaled in suitable bearings in the ends of an oscil-

lating frame (or arms)  $K'$ , which is pivoted to the frame of the machine at  $k$ . The arms  $K'$  are each provided with a lug  $k'$ , which carries an antifriction-roller  $k^2$ , which is adapted to be engaged by the lug or cam  $d$ , arranged behind the stretcher-bar upon the carriage C, the inclined face of this lug or cam bearing upon the antifriction-roller  $k^2$  at each forward reciprocation of the carriage, so that the arms  $K'$  are oscillated and the brush moved away from the stretcher-bar, a spring  $K^2$ , connected with the arms  $K'$  and with a suitable part of the frame of the machine—as, for instance, the plate  $H$ —tending to move the brush  $K$  toward the stretcher-bar as the same is moved inwardly. The brush  $K$  is moved in contact with the receding portion of the pelt and is arranged to act thereon when the stretcher-bar itself has receded, a stationary guard-comb  $L$  being fixed transversely to the frame of the machine beyond the rotary brush  $K$ , so as to act on the pelt when the stretcher-bar is moved forward.

The shaft  $B'$ , before referred to, carries at one end a bevel-pinion  $m$ , which meshes with another bevel-pinion  $m'$ , arranged on the longitudinal shaft  $M$ , journaled in suitable bearings at one side of the frame of the machine and supporting at its opposite end a bevel-pinion  $n$ , which meshes with a bevel-pinion  $n'$ , mounted on a transverse shaft  $N$ , journaled in suitable bearings  $n^2$  of the frame of the machine and supporting radiating arms  $o$ , which support a knife  $O$ , this knife describing a circle during rotation. The cutting edge of the rotary knife  $O$  coöperates so as to produce a shearing action with reciprocating knife  $P$ , which is mounted on a suitable holder  $P'$ , supported by an oscillating frame  $P^2$ , that is pivoted at  $p$  to movable supports  $Q$ . The rear ends of the side bars of the swinging frame  $P^2$  are provided with heels  $p'$ , which are adapted to be struck by tappets  $b^4$ , mounted upon the shaft  $B'$ , so that as the tappets are moved toward the oscillating frame in contact with said heels the frame is oscillated and the reciprocating knife  $P$  moved away from the stretcher-bar. The knives  $O$  and  $P$  are so mounted and relatively arranged as that when the stretcher-bar is in forward position and the fur has been brushed back by the brushing medium and the stiff hairs are caused to project from the parting the cutting edges of said knives will remove the projecting stiff hairs. The supports  $Q$  for the swinging frame  $P^2$  are provided with slots  $q$ , which receive guide-pins  $q'$ , projecting from the frame of the machine, so that the said supports may be guided up and down for the purpose of moving the reciprocating knife  $P$  into operative position or into inoperative position. When the supports  $Q$  are lowered, the oscillating frame  $P^2$  will not be acted upon by tappets  $b^4$ . Toggle-links  $R \cdot R'$  are pivoted at  $r$  to the movable supports  $Q$  and at  $r'$  to the frame of the machine, the joints of the toggles being connected, by means of links  $S$ ,



with the rock-arms  $S'$  of a rock-shaft  $S^2$ , which is journaled in suitable bearings in the frame of the machine and is adapted to be oscillated by means of a hand-lever  $S^3$ , arranged in a convenient position to be actuated by the operator or attendant of the machine.

As in my prior patent, the movable rotary separating-brush  $K$  is continuously rotated through the medium of the belt  $T$ , which passes over a pulley on the shaft of the brush  $K$  to a pulley on the driving-shaft  $A'$ , the same being passed over an idler  $t$ , which by medium of a spring  $t'$  places the belt  $T$  under tension and takes up the slack thereof.

The machine operates as follows: The driving-shaft  $A'$  imparts through the medium of the belt transmission continuous rotation to the rotary brushes  $h$ ,  $h'$ , and  $K$ . The cams  $B^2$ , which are rotated through the gearing connected with the driving-shaft  $A'$ , reciprocate the carriage  $C$ , which supports the stretcher-bar  $D$ , backwardly and forwardly. At each backward movement of the carriage the ratchet-wheel  $F^2$  is rotated for the distance of one tooth by means of the pawls  $G$   $G'$ , against which the ratchet-teeth are caused to strike, thereby imparting an intermittent or step-by-step motion to the apron and the pelts  $W$ , which are supported thereon. It will be observed from Figs. 3, 6, and 7 that the pelt  $W$  being plucked is always subjected to the action of the stationary rotatable brush  $h$ , so that the fur and hairs are always stirred up, no matter what may be the position of the stretcher-bar. As the stretcher-bar moves inwardly the fur and stiff hairs are vigorously stirred up by the rotary brush  $h$ , and as the stretcher-bar moves outwardly the said brush  $h$  assists the brush  $h'$  in drawing back the fur. Just before and when the stretcher-bar  $D$  has reached its forward position the rotary brush  $h'$  exerts a pulling or matting action on the soft fur; but this action is insufficient to overcome the tendency of the stiff hairs  $c$ , which rise at the parting at the edge of the stretcher-bar, the formation of which parting is facilitated by the backward-pulling action on the fur caused by the action of the rotary brush  $h'$ . By the conjoint use of the continuously-acting rotary brush  $h$  and of the intermittently-acting brush  $h'$  the fur is subjected to a thorough cleansing or loosening action and is placed in the best condition for being held back away from the part formed by the rotary separating-brush  $h$ . It will also be seen that during the forward movement of the stretcher-bar and just before the pelt has been acted upon by the rotary brush  $h'$  the other brush  $h$  will have exerted a brushing action on the fur, tending to pull it away from the edge of the stretcher-bar, and this pulling action is perfected by the action of the brush  $h'$  when the pelt arrives in contact therewith. While the carriage  $C$ , which supports the stretcher-bar  $D$ , moves forward to the position shown in Fig. 7, the cam  $d$  acts by its inclined face

upon the antifriction-roller  $k^2$ , so as to oscillate the brush  $K$  at the opposite side of the stretcher-bar away from the same against the tendency of the tension-spring  $K^2$ . Before this movement takes place and when the parts are in the position shown in Fig. 6 the brush  $K$  will be in such position as that it will act upon the fur at the opposite side of the stretcher-bar from the brushes  $h$   $h'$  and pull the fur with the water or stiff hairs back, the latter springing forward by their own stiffness. The forward end of the cam  $d$  is blunt, so that a certain "dwell" is produced at the commencement of and just before the forward movement of the stretcher-bar, giving the brush  $K$  sufficient time to perform its function. When moving backward, the spring  $K^2$  holds the antifriction-roller  $k^2$  against the cam  $d$  and raises the rotary brush  $K$ . In this manner by the conjoint action of the brushes  $h$ ,  $h'$ , and  $K$  a parting is formed in the pelt at the edge of the stretcher-bar and the fur is held back, while the stiff or water hairs are caused to project. The movable rotary separating-brush  $K$  acts upon the pelt when the stretcher-bar is in its advanced position and is behind the edge of the stretcher-bar when the stiff or water hairs are being removed. In the extreme outward position of the stretcher-bar the soft fur which has been brushed back by the rotary brush  $K$  is retained by the stationary guard-comb  $L$ , through which any stiff or water hairs which may be retained will spring into the parting formed at the angle of the pelt formed by bending it over the edge of the stretcher-bar. It is evident that the pelt is not in motion when the carriage is moving forward with the stretcher-bar, and consequently when the stretcher-bar arrives at its advanced position the stiff or water hairs which are projecting from the parting formed at the angle of the pelt can be removed by the reciprocating knife  $P$ , which coöperates with the rotary knife  $O$ , as shown in Fig. 7. When the row of projecting stiff or water hairs has been removed, the stretcher-bar recedes, and just as the carriage arrives in its rearward position the pawl-and-ratchet mechanism imparts another intermittent movement to the endless apron and the pelt supported thereby, so that by means of the separating-brushes another row of water or stiff hairs can be caused to project from the parting formed by said brushes.

I do not limit myself to the precise means for removing water or stiff hairs from pelts nor to the precise means for holding the fur away from the angle of the pelt at the edge of the stretcher-bar, as any other well-known or equivalent means may be used in place thereof.

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

1. In a machine for plucking pelts, the combination, with a stretcher-bar, and guide-roll-



ers disposed triangularly, of a taut endless apron guided over said rollers and stretcher-bar, mechanism for transmitting motion to said rollers and apron, and means for removing the hairs projecting at the parting, in front of the edge of the stretcher-bar, substantially as set forth.

2. In a machine for plucking pelts, the combination, with a reciprocating carriage, a stretcher-bar thereon, guide-rollers, a taut endless apron guided over said rollers, mechanism for reciprocating said carriage and stretcher-bar, and mechanism for transmitting motion to said rollers and apron, of means for making a parting in the fur, at the edge of the stretcher-bar such means comprising a rotary brush arranged at the leading side of the stretcher-bar corresponding with the ingoing portion of the pelt, and means for removing the hairs projecting at the parting in front of the edge of the stretcher-bar, substantially as set forth.

3. In a machine for plucking pelts, the combination, with a movable stretcher-bar over which the pelt is passed, of a pair of brushes arranged both on the same side of the stretcher-bar, one of said brushes continuously acting on the pelt and the other intermittently on the same, and the intermittently-acting brush being located in front of the continuously-acting brush, and means for rotating said brushes, substantially as set forth.

4. In a machine for plucking pelts, the combination, with a movable stretcher-bar, of a movable rotary separating-brush, and means in connection with said stretcher-bar and brush for producing the movement of said

brush simultaneously with the stretcher-bar to and away from said stretcher-bar, substantially as set forth.

5. In a machine for plucking pelts, the combination, with a movable stretcher-bar over which the pelt passes, of a brush at one side of the stretcher-bar, and a movable rotary separating-brush at the opposite side of the stretcher-bar, substantially as set forth.

6. In a machine for plucking pelts, the combination, with a movable stretcher-bar over which the pelt passes, of a rotary brush mounted in stationary bearings at one side of the stretcher-bar, a movable rotary separating-brush arranged at the opposite side of the stretcher-bar, means in connection with the stretcher-bar for producing the simultaneous movement of the movable rotatable separating-brush, and means for removing the stiff or water hairs caused to project by said brushes, substantially as set forth.

7. In a machine for plucking pelts, the combination, with a movable stretcher-bar over which the pelt passes, of means for brushing back the fur, a movable rotary separating-brush and a stationary guard-comb arranged in advance of the knife-edge of the stretcher-bar at the receding side of the same, said brush being arranged between the stretcher-bar and guard-comb substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JOHN W. SUTTON.

Witnesses:

PAUL GOEPEL,  
M. HENRY WURTZEL.