

(No Model.)

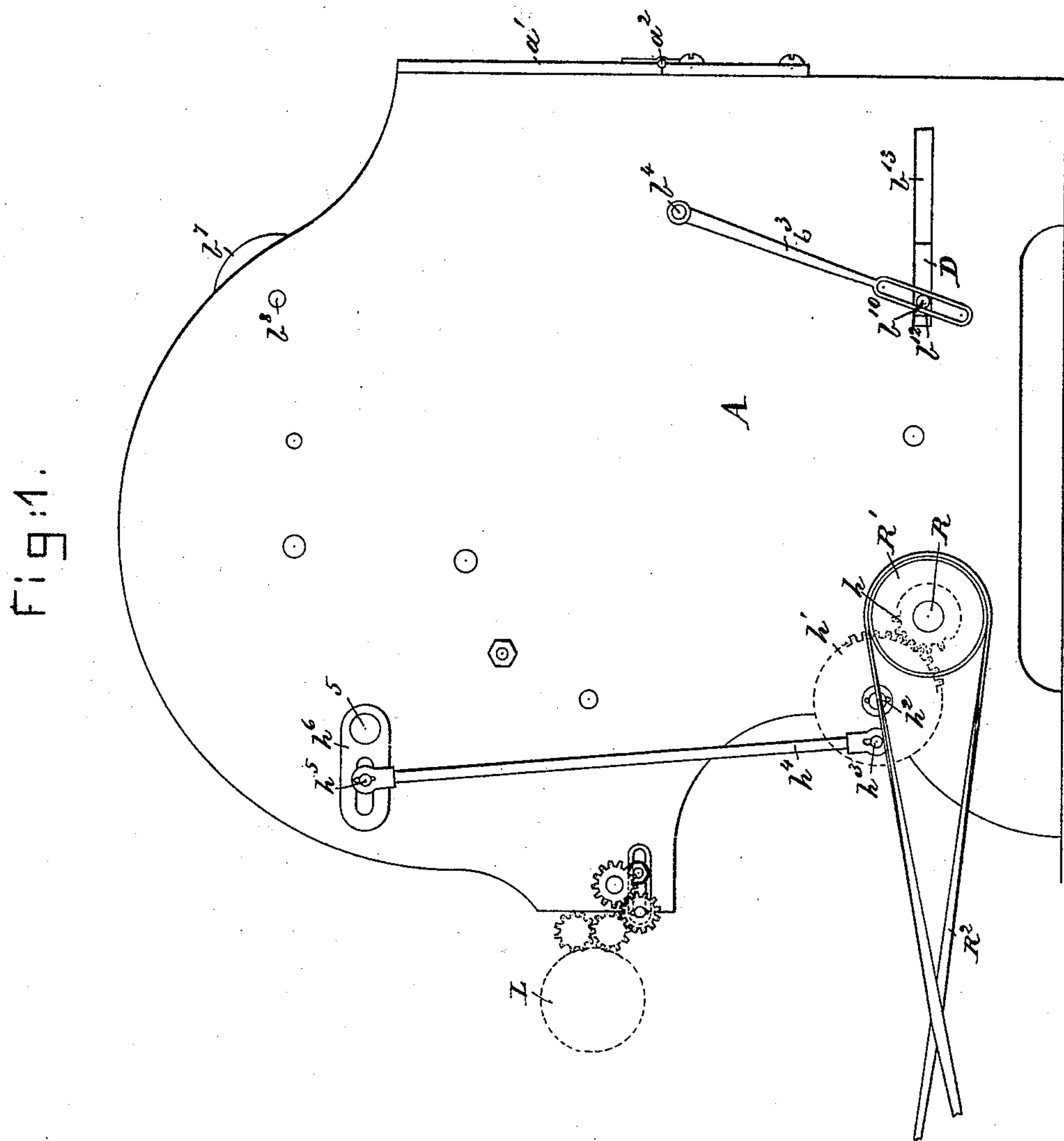
2 Sheets—Sheet 1.

W. C. BRAMWELL.

FEEDING MECHANISM FOR MACHINES FOR TREATING WOOL.

No. 411,090.

Patented Sept. 17, 1889.



Witnesses.

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Inventor.

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

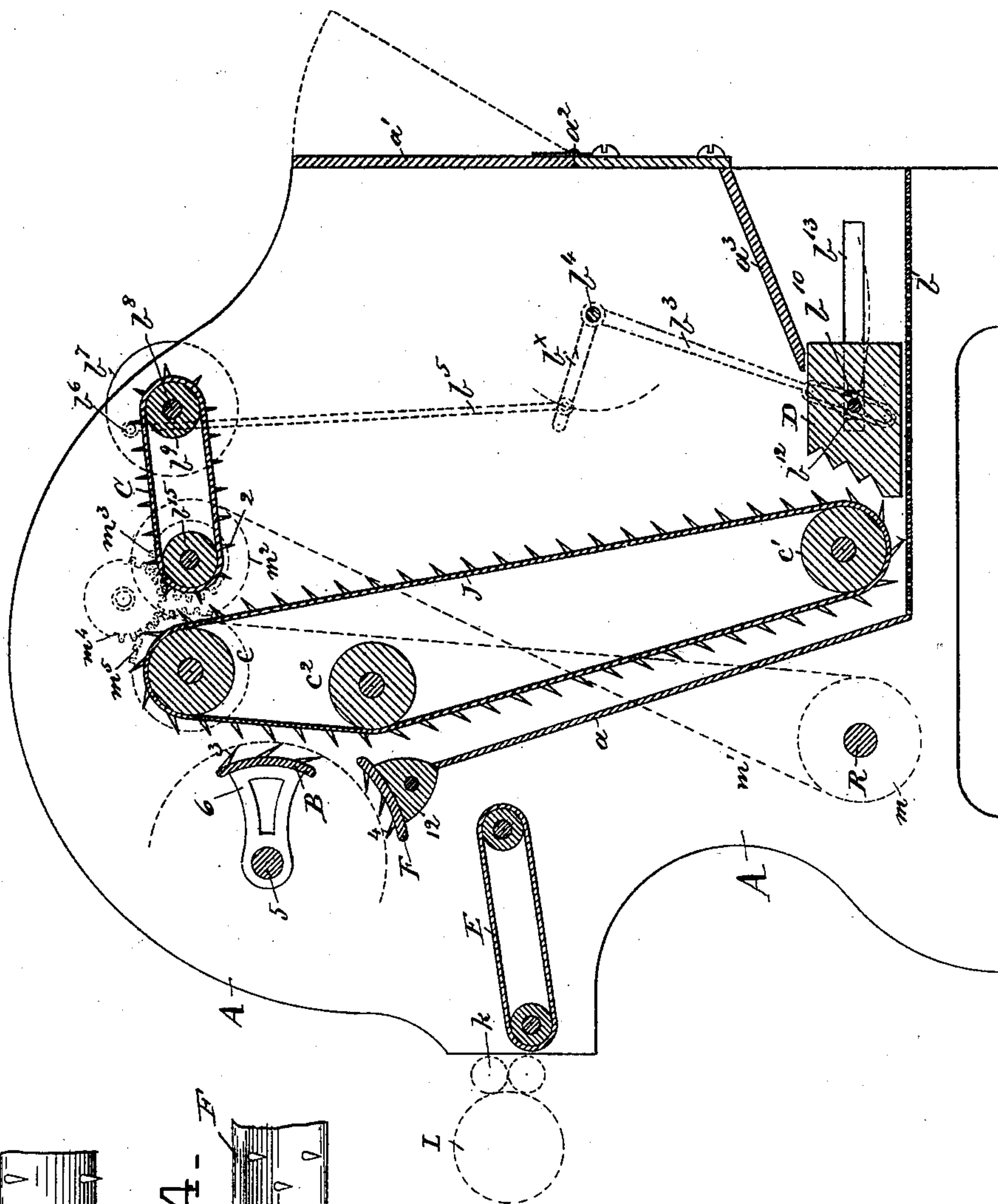


Fig. 3.

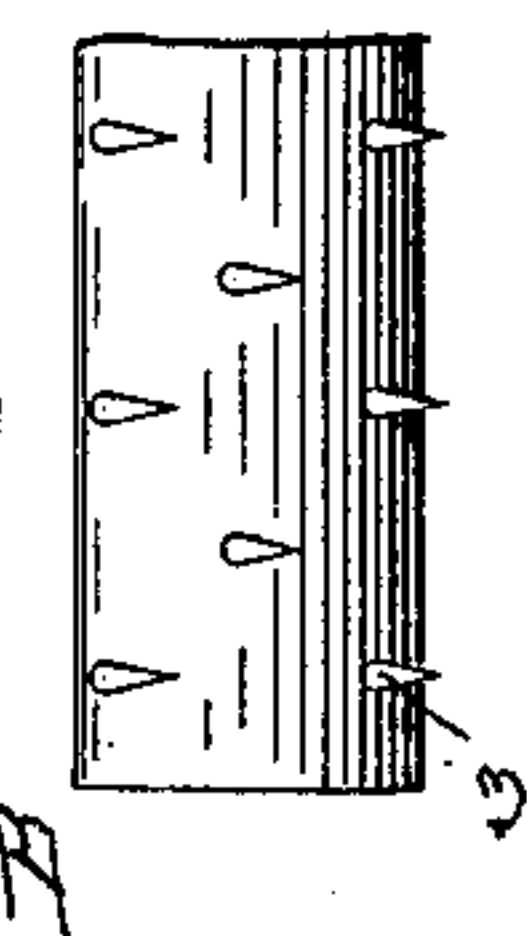
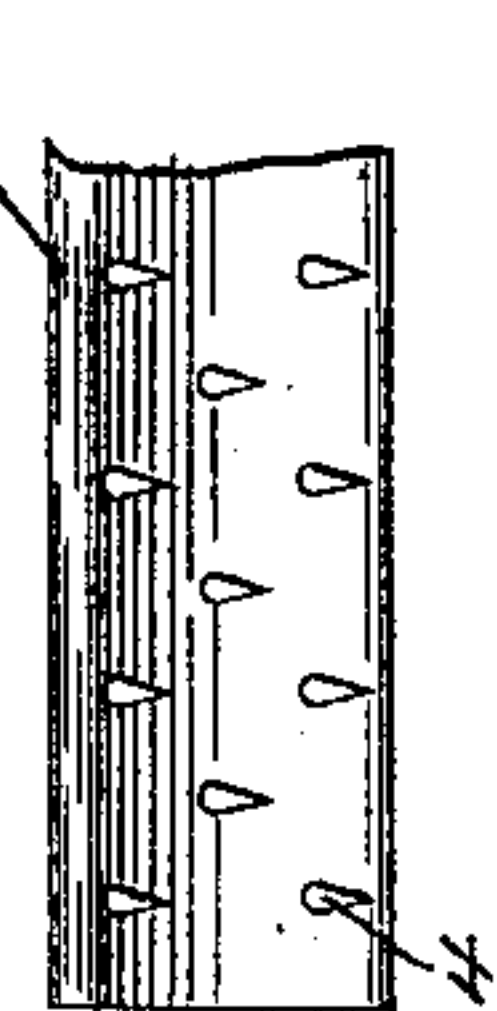


Fig. 4.



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WILLIAM C. BRAMWELL, OF HYDE PARK, MASSACHUSETTS.

FEEDING MECHANISM FOR MACHINES FOR TREATING WOOL.

SPECIFICATION forming part of Letters Patent No. 411,090, dated September 17, 1889.

Application filed June 28, 1887. Serial No. 242,706. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. BRAMWELL, of Hyde Park, county of Norfolk, and State of Massachusetts, have invented an Improvement in Feeding Mechanism for Machines for Treating Wool, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention has for its object the production of improved apparatus for feeding long-fibered wool into machines for treating wool—such, for instance, as wool washers and driers.

15 My improved apparatus includes an endless toothed elevating-apron to take the wool from a mass of wool in the feed box or receptacle, the said elevating-apron having combined with it at its rear or delivery side not only a vibrating clearer or stripper having two or 20 more rows of needle-pointed teeth, but also a stationary toothed holder having two or more rows of needle-pointed teeth, the extent of movement of the said clearer or stripper being such with relation to the teeth of the elevating-apron opposite which it travels and 25 with relation to the teeth of the said holder that the said clearer or stripper acts to clear the wool not only from the teeth of the apron, 30 but also from the teeth of the holder, the latter acting in turn to detach the wool from the stripper on the return-stroke of the latter.

In the machine to be herein described the wool, placed in a receptacle or feed-box in a 35 mass, is acted upon intermittently by a horizontally-reciprocating pusher, which impales the wool upon the teeth of the said apron at the bottom of the said receptacle. I have shown an apron-like comb or evenner to co- 40 operate with the front or receiving side of the said elevating-apron to detach from it any knots or large particles of wool and prevent the same from being carried over to the rear or delivery side of the elevating-apron within 45 the range of the stripper.

Figure 1 is a side elevation of a sufficient portion of a wool-feeding apparatus to enable my invention to be understood; Fig. 2, a vertical section thereof, parts of the apparatus 50 at the farther side of the frame-work being shown by dotted lines; and Figs. 3 and 4, respectively, show portions of the acting face

of the stripper and of the holder, they having their teeth set dodging.

The frame-work A, of suitable shape to sustain the working parts, is provided with an inclined cross-partition *a* and a bottom plate *b*, preferably perforated or reticulated, as shown, for the escape of dirt, sand, &c. The front of the frame has a door *a'*, hinged at *a*², 55 and below the door the frame has an inclined bottom board *a*³, upon which the wool or other fiber drops and down which it slides, the sides of the frame, its end provided with the door, and the partition *a* and bottom *b* forming a 60 box or receptacle for wool or other fiber. Below the bottom board *a*³, and between it and the bottom plate *b* and opposite the lowest part of the elevating-apron J, is arranged a horizontally-movable pusher D, it being re- 65 ciprocated by means of arms *b*³ of a rock-shaft *b*⁴, having a third arm *b*^x, actuated by a link *b*⁵, connected to a crank-pin *b*⁶ on a pulley *b*⁷, secured to the shaft *b*⁸, carrying the roll *b*⁹, the lower end of each of the said 70 arms being slotted to embrace a stud *b*¹⁰ of the pusher, the said studs, one at each end thereof, having preferably square bearing-blocks *b*¹², which slide in slots *b*¹³ of the frame. The toothed elevating or lifting surface J is 75 made in the form of an endless apron, the said apron being passed about rollers *c c'*, a third roll *c*² being preferably employed to deflect the toothed surface outward at its rear or delivery side. The toothed surface J re- 80 ceives upon the points of its straight needle-pointed teeth the wool to be elevated by it, the wool being impaled upon the points of the teeth by the pusher D. The wool taken up by teeth of the toothed elevating-surface 90 is acted upon by the teeth of an evenner or comber C, herein shown as an endless apron having a series of teeth 2, the said apron being passed over rolls *b*⁹ and *b*¹⁵, the teeth of the evenner or comber acting to comb out and 95 throw back from the toothed elevating-surface any knots or large particles of wool thereon in excess of the quantity desired. At the rear side of the toothed elevating-surface I have located a detacher or stripper B, 100 it being shown as a segmental plate provided with two or more rows of teeth 3, set dodging, as best shown in Fig. 3, the segmental plate being attached to suitable arms 6 (one of

which is shown in Fig. 2) of a rock-shaft 5, the stripper at each vibration clearing off from the teeth of the toothed elevating-apron substantially all the fiber left thereon after passing the evener or comber C, the said stripper being moved enough to pass fully beyond or past the needle-pointed teeth 4 of the holder F, it having two or more rows of teeth, dodged as shown in Fig. 4. The stripper in its downward movement, as described, acts to discharge the wool previously supplied to the holder, and as the stripper returns the wool last taken by it from the elevating-apron is discharged upon the teeth 4 of the said holder, the teeth 4 being so located with relation to the teeth 3 that the teeth 4 in the ascent of the stripper take the wool from it, the stripper at its next descent pushing the wool out from between the teeth of the holder, from which it drops either upon a traveling lattice, as E, or into a suitable box or receptacle. The wool deposited upon the lattice E will be carried forward, and will be taken from the lattice by usual feed-roll h and cylinder L of a picker or other machine into which the wool is to be fed.

When my invention is applied to a wool-washing machine, the lattice may be dispensed with, the wool falling directly into the bowl of the washing-machine.

The holder F is shown as attached to a girt 12, it in practice extending from one to the opposite side of the frame-work.

R represents the main shaft of the feeding attachment shown in the drawings, and in practice its pulley R' will be driven by a belt R^2 from the main cylinder or other shaft of the picker or machine to which the wool is to be fed. The shaft R has on it near the pulley R' a pinion h , which engages a toothed wheel h' on a stud h^2 , the said toothed wheel having a crank-pin h^3 , which by link h^4 , connected to a stud h^5 of the arm h^6 of the rock-shaft, gives motion to the stripper B. At its opposite end the shaft R has a pulley m , (see dotted lines, Fig. 2,) which drives a belt m' , extended over a belt-pulley m^2 on the end of the shaft of the roll b^{15} , the said shaft having a pinion m^3 , which, through an intermediate m^4 , engages the pinion m^5 on and rotates the roll c to drive the belt J.

The feed-rolls and lattice will be actuated by suitable gears, all as usual.

The machine herein described is specially designed to feed long-fibered wool in fleece form, or after the wool has been once washed, and to feed this class of wool it would be practically impossible to employ a toothed cylinder to take the place of the elevating-apron; and so, also, it would be practically impossible to feed this class of wool if the clearer or stripper at the rear side of the said elevating-apron had but a single row of teeth or if said teeth were curved or hooked. If the clearer or stripper had but one row of teeth, the said teeth could not be placed sufficiently close together to clear the wool at each stroke

from the teeth at that part of the apron past which the clearer or stripper moves, because to practically detach this class of wool from the elevating-apron the teeth of the vibrating stripper and also of the holder must be set in two or more rows, and the teeth in one row must dodge the teeth in the next row, thereby enabling the individual teeth to be set at a sufficient distance apart to prevent the wool from clogging, and at the same time the teeth in the succeeding rows—the teeth of the clearer and stripper being dodged, as described—are enabled to travel one after the other in close paths of motion. If the teeth of the stripper were made as notched plates, they would cut the long fibers of the wool, which would result in the production of noil or waste rather than of top wool; but by the employment of needles set in two or more rows, as shown, the fiber of the wool is not broken.

I am aware that card-feeders have had cylinders provided with hooked teeth to take the wool from a receptacle and that the wool or fiber taken up by the teeth of the cylinder has been removed from the teeth of the cylinder by means of a stripper having a single row of teeth, the said stripper acting to take the wool from said cylinder intermittingly and carry it to a stationary comb, the said stationary comb having co-operating with it another rising and falling stripper-comb; but in my invention herein contained this third stripper-comb is not needed, for the motion of the stripper B is such that it strips the holder F as well as the elevating-apron, and the stripper B is in turn stripped by the said holder.

I am aware that an elevating-apron has had combined with it a horizontally-arranged endless chain and an endless apron, between which have been placed removable boards to form pockets in which a determined or measured quantity of wool and fibers may be placed, the said chain and apron in movement causing the wool or fibers in front of the said boards to be gradually pushed forward against and so as to be taken from said pockets one after another by the teeth of the elevating-apron, the said boards being removed from time to time from between the chain and apron as the boards are brought up to the elevating-apron. Prior to my invention I am not, however, advised nor am I aware that a toothed elevating-apron located in a feed box or receptacle has had combined with it a horizontally-reciprocating pusher to act intermittingly upon the mass of wool in the said receptacle, be the same more or less, and at a point opposite the bottom run of the said elevating-apron, to thereby impale the wool thereon by repeated blows of the pusher.

I claim—

1. The feed box or receptacle for the fiber to be fed and the toothed elevating-apron therein, combined with a horizontally-reciprocating pusher located at the bottom of the

said feed box or receptacle, and with means for actuating the said pusher to cause it to act upon the said fiber at the bottom of the said receptacle and impale it upon the teeth
5 of the said elevating-apron, substantially as set forth.

2. A receptacle for the wool or other fiber to be fed, a toothed elevating-surface therein, and a reciprocating pusher, combined with a
10 comber or evener composed of a toothed apron to co-operate with the said elevating-surface, substantially as described.

3. A receptacle for the wool or other fiber to be fed, a toothed lifting-surface therein, a
15 reciprocating pusher, and an apron comber or evener, substantially as described, combined with a segmental clearer or stripper located at the rear side of the toothed elevating-surface, and with a fixed holder, to op-
20 erate substantially as described.

4. A receptacle for fiber and an elevating-apron therein having needle-pointed teeth, and the vibrating stripper located at the rear side of the said elevating-apron and having
25 two or more rows of substantially straight needle-pointed teeth, substantially as described, set dodging, combined with a holder also located at the rear side of the said elevating-apron and having two or more rows of
30 needle-pointed teeth, the motion of said stripper being of such extent, substantially as de-

scribed, as to enable the stripper to strip the teeth of the elevating-apron and of the said holder, and to be in turn cleared by the holder, substantially as set forth. 35

5. A receptacle for the fiber and an elevating-apron therein having needle-pointed teeth, and a vibrating stripper located at the rear side of the said elevating-apron and having two or more rows of needle-pointed teeth 40 set dodging, combined with a holder also located at the rear side of the said elevating-apron and having two or more rows of needle-pointed teeth, the motion of the stripper being of such extent, substantially as de- 45 scribed, as to enable it to clear the teeth in the elevating-apron and the teeth in the holder, the teeth of the said stripper being in turn cleared by the holder, and with a reciprocating pusher, and means to move it intermit- 50 tingly to impale the fiber at the bottom of the mass in the said receptacle upon the teeth of the said elevating-apron, substantially as set forth.

In testimony whereof I have signed my name 55 to this specification in the presence of two subscribing witnesses.

WILLIAM C. BRAMWELL.

Witnesses:

GEO. W. GREGORY,
C. M. CONE.