

No. 699,470.

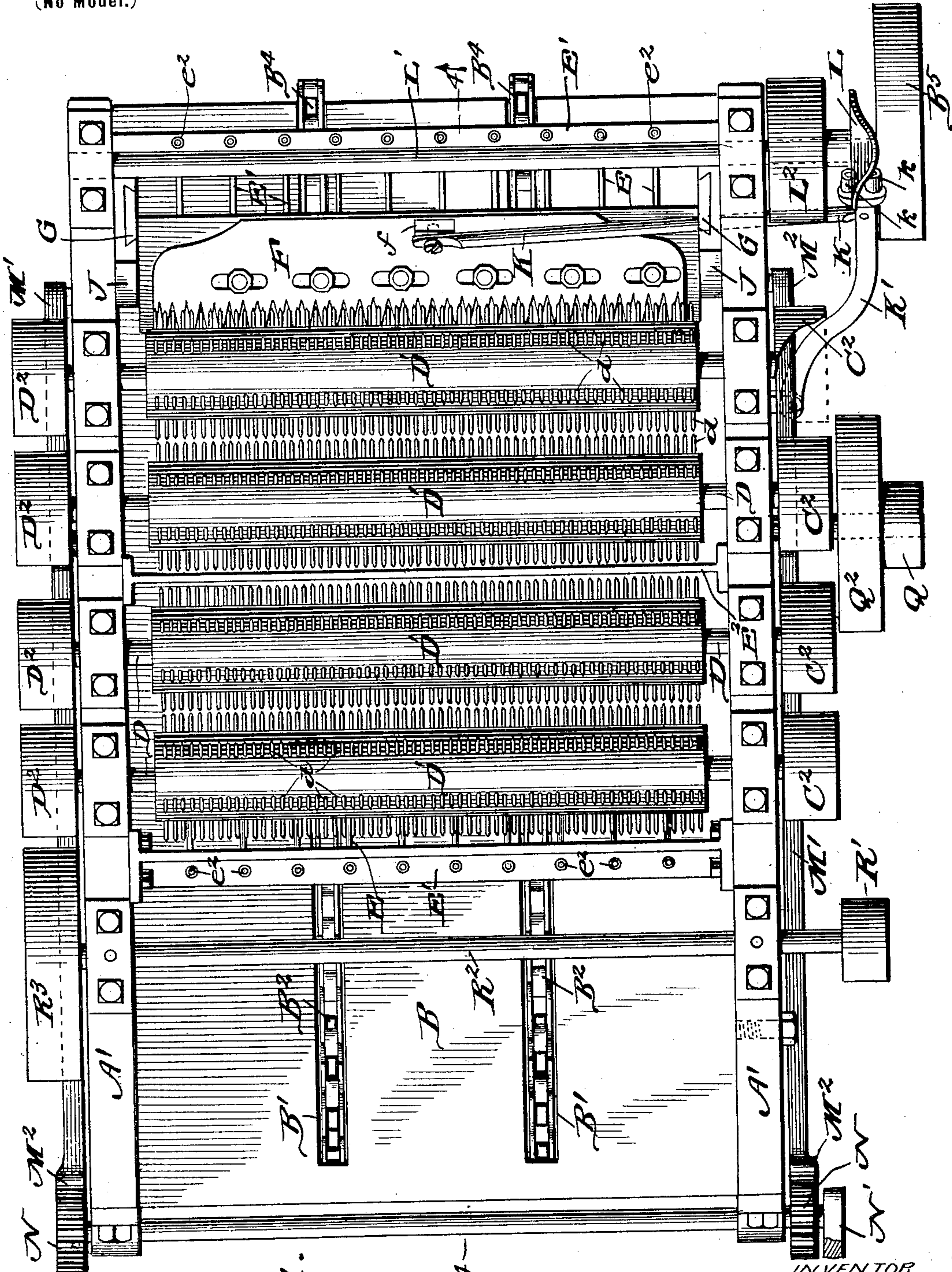
Patented May 6, 1902.

S. W. KAPLAN.
COMBINED COMBING AND SHEARING MACHINE.

(Application filed June 8, 1901.)

(No Model.)

5 Sheets—Sheet 1.



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Fig. 1.

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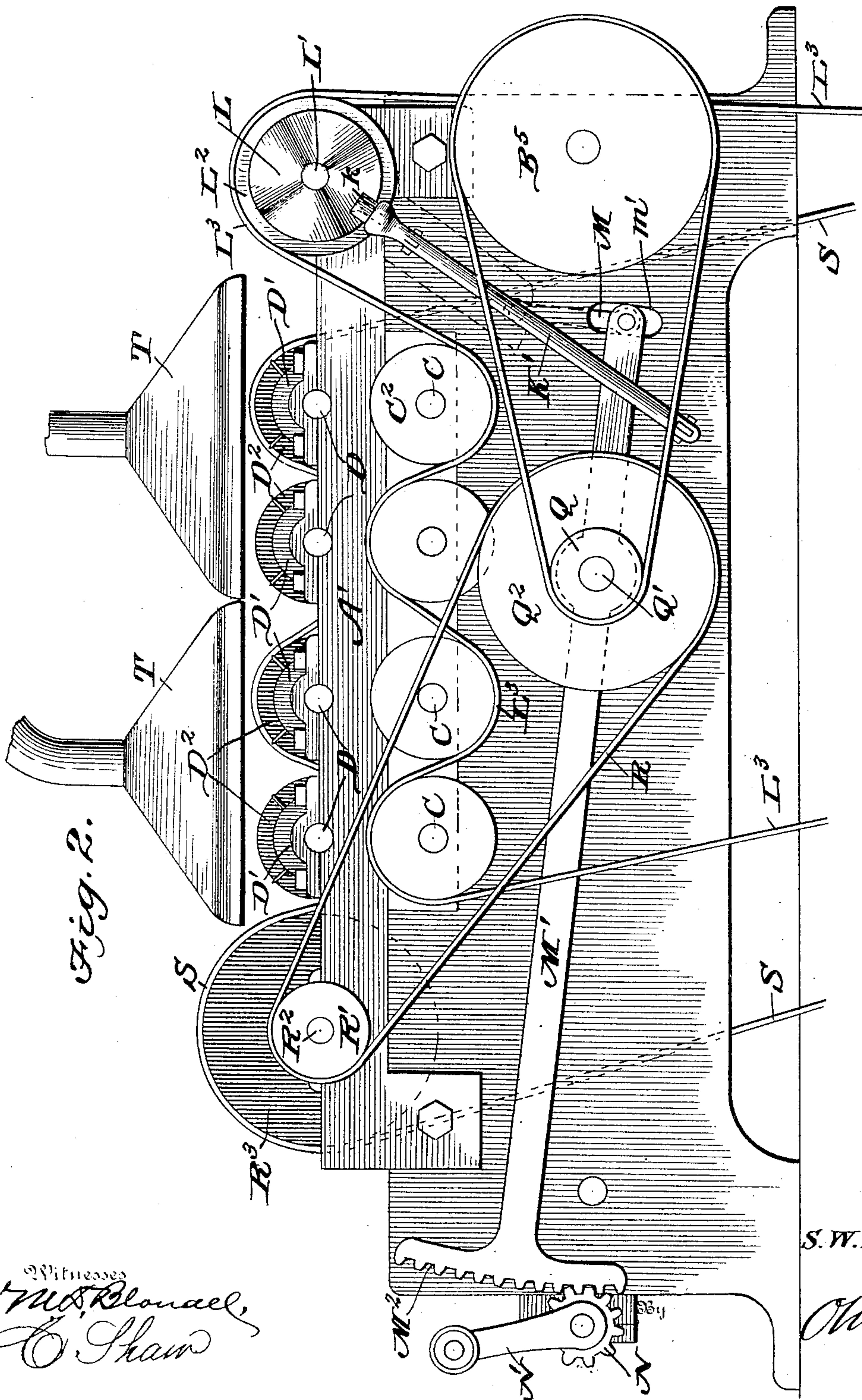


Fig. 2.

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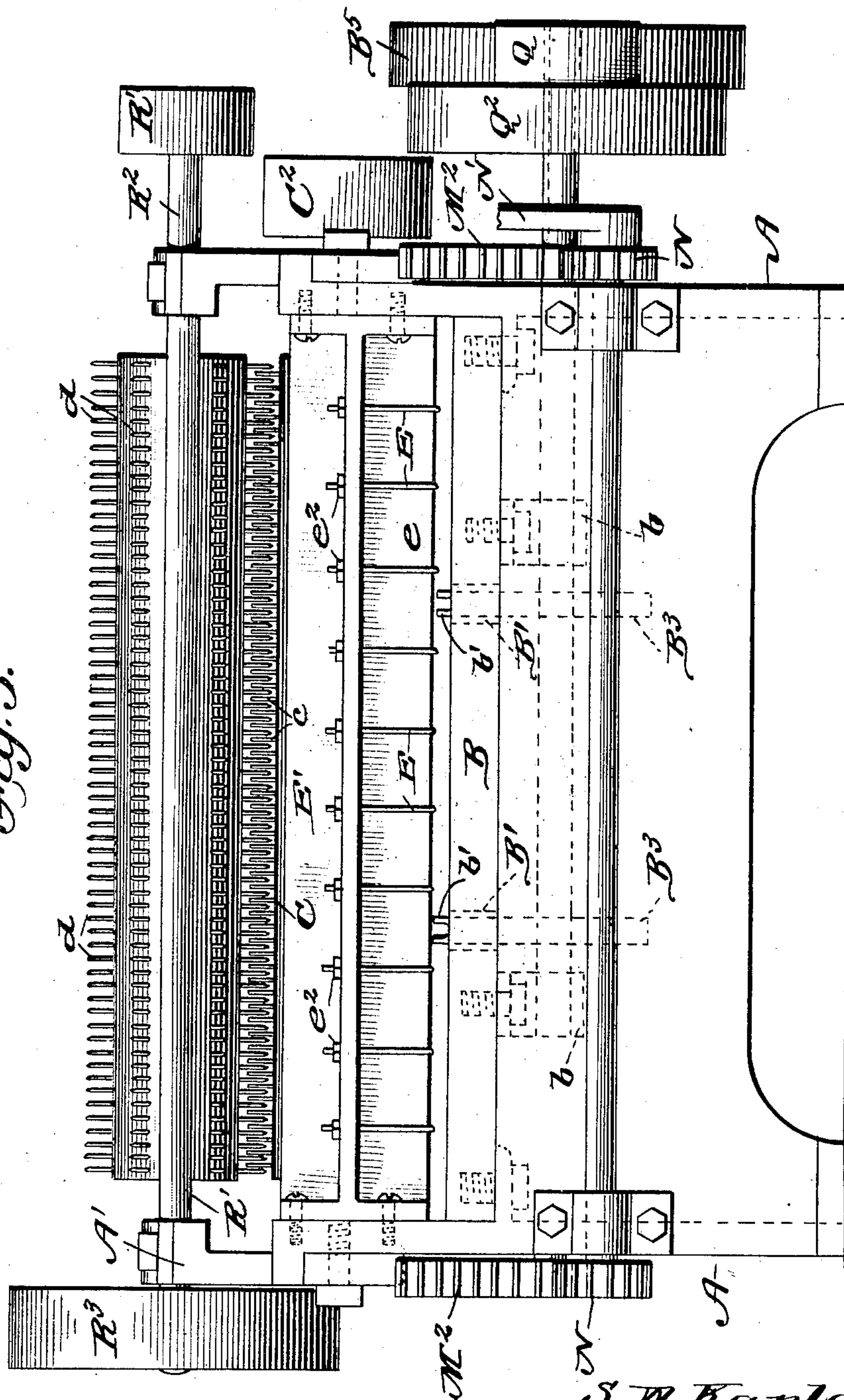
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Fig. 3.



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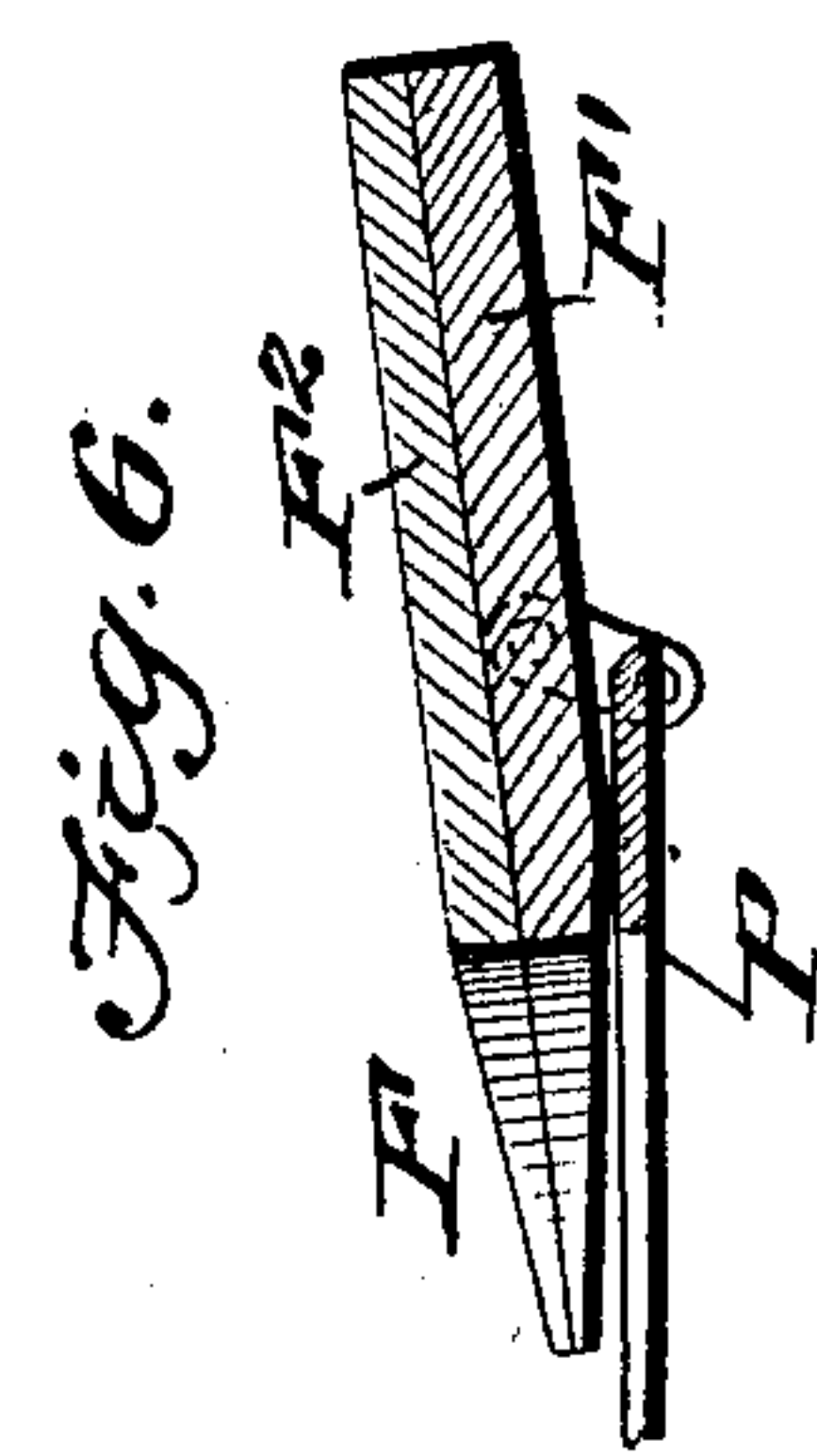
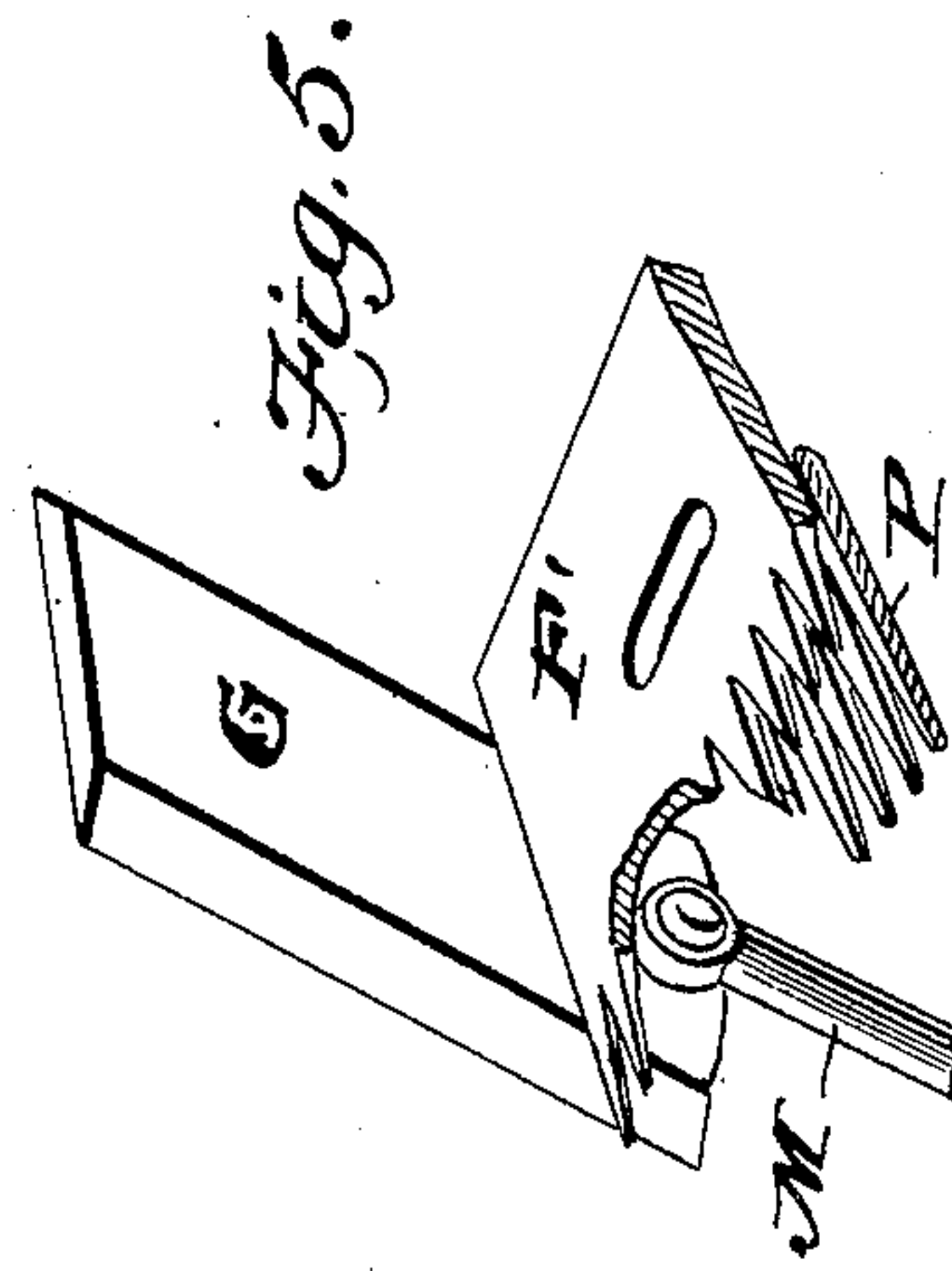
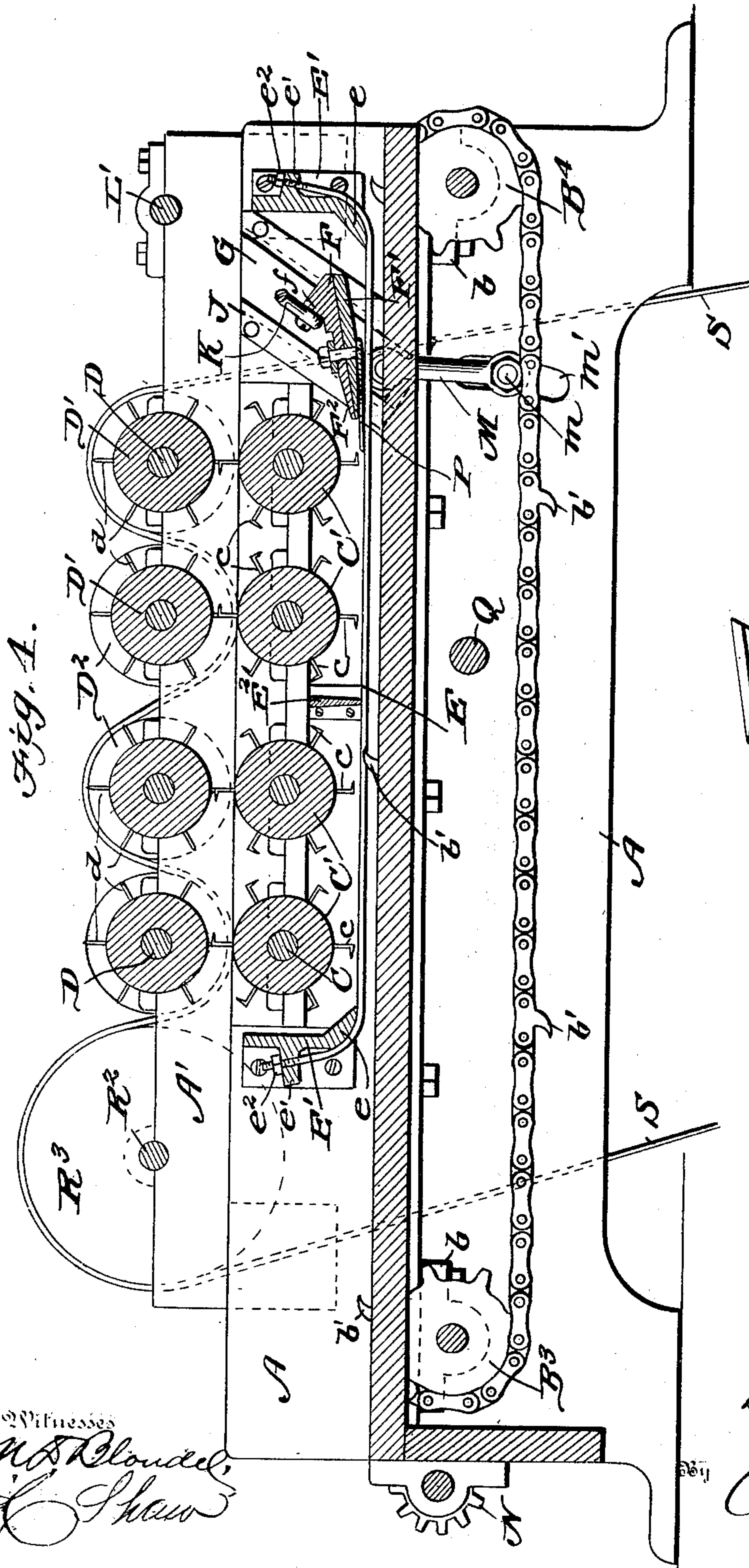
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5 Sheets—Sheet 4.



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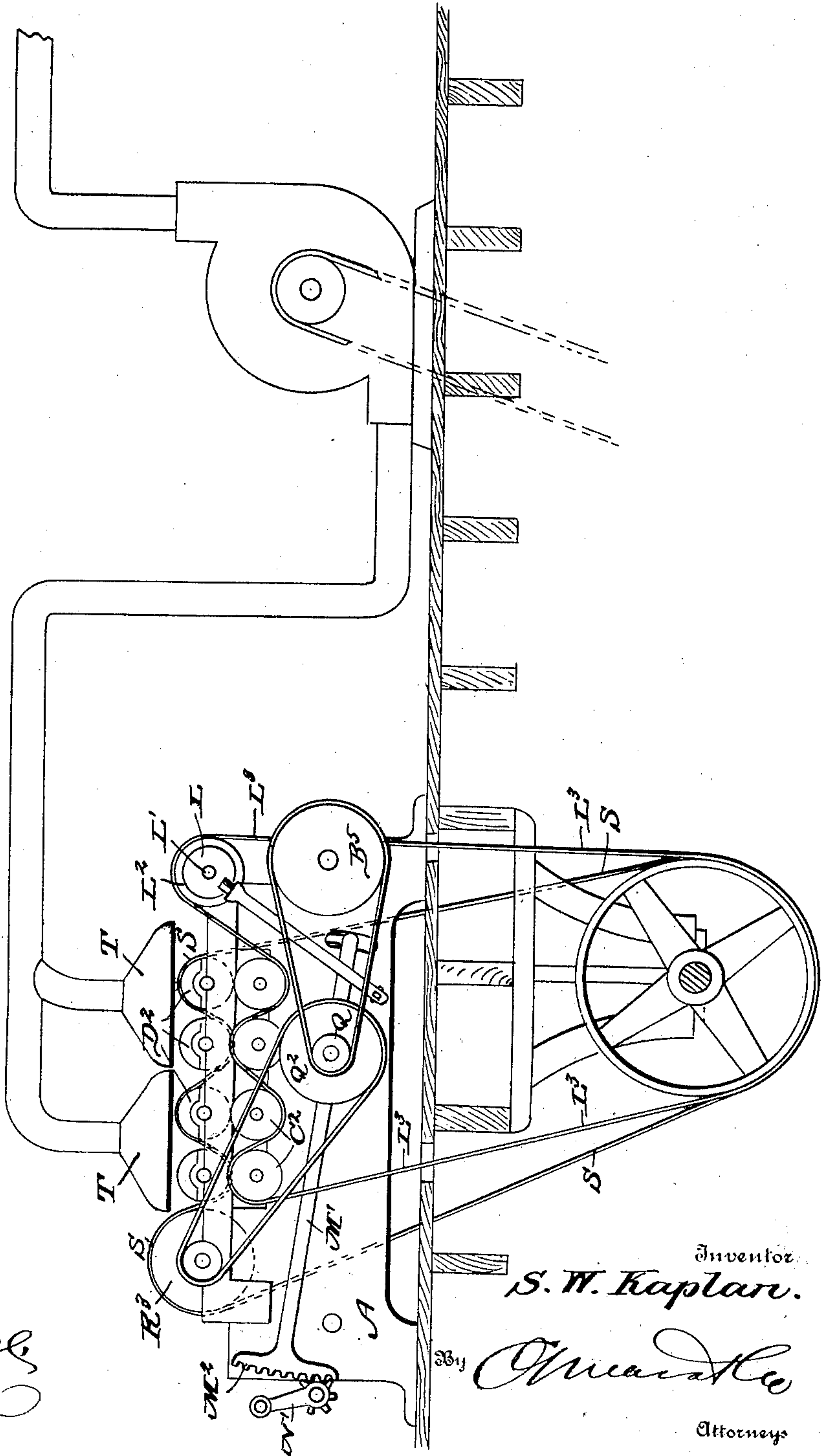


Fig. 1.

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UNITED STATES PATENT OFFICE.

SAMUEL W. KAPLAN, OF HARTFORD, CONNECTICUT.

COMBINED COMBING AND SHEARING MACHINE.

SPECIFICATION forming part of Letters Patent No. 699,470, dated May 6, 1902.

Application filed June 8, 1901. Serial No. 63,748. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL W. KAPLAN, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Combined Combing and Shearing Machine, of which the following is a specification.

My invention is a combined combing and shearing machine, and has for its object to provide a simple, compact, and inexpensive machine for combing and shearing wool from hides or soles. In order to obtain this object, I provide a framing having a series of combing and cleaning cylinders, arranged therein above a flooring, in which latter is arranged a series of feeding-belts that are designed to carry the material past the combing-cylinders into engagement with an automatically-operated cutter-bar or shearer.

A further object of my invention is to arrange a hood above the cylinders and cutter-bar that is connected to a suction-fan by which all loose and cut wool is withdrawn from the machine and deposited at any suitable place.

With these and other objects in view my invention will be particularly described in the following specification and pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of my improved machine, the dome being removed. Fig. 2 is a side view of the same with the hood in place. Fig. 3 is an end view of the machine, the view being taken from the front or feed end of the machine. Fig. 4 is a longitudinal section taken on about the line 4 4 of Fig. 1 looking in the direction of the arrows. Fig. 5 is a detail view illustrating the connection between the stationary member of the cutter-bar and the adjustable slide. Fig. 6 is a detail view illustrating the guard-plate, and Fig. 7 is a diagrammatic view.

In carrying out my invention I employ a suitable framing consisting of side sections A A and a flooring B, and in the sides above the floor I journal a series of shafts C, upon which are fixedly held combing-cylinders C', the ends of the shafts protruding beyond one side of the machine and provided with belt-pulleys C², by which the cylinders are revolved, as will be described later on.

The side members A A of the framing are provided with extensions or supplemental portions A', upon which and directly above the combing-cylinders are journaled a series of shafts D, carrying cleaner-cylinders D' and which are also provided with drive-pulleys D², the latter, however, being arranged upon the opposite side of the machine to the pulleys C², but are driven in practically the same manner, as will also be explained hereinafter.

The flooring B of the frame is provided with a series of slots B', in which are arranged to travel feed belts or chains B², mounted upon sprocket-wheels B³ and B⁴, held upon shafts arranged near the front and rear ends of the machine. The shafts of the pulleys are preferably journaled in boxing b, secured upon the lower side of the flooring, and one of the shafts, preferably the shaft upon which the sprocket B⁴ is mounted, protrudes through the side of the frame and is provided with a pulley B⁵, through the medium of which the feed-chains are driven. At suitable intervals upon the chain the links are provided with finger portions b', that project above the surface of the flooring and are designed to catch or engage the material and forcibly feed the same through the machine.

The lower or combing cylinders C' are provided with fingers c, whose ends are bent over at right angles to the stem portions and in the direction of the revolving movement of the cylinders, the purpose of which is to allow the bent portions to engage the wool and forcibly pull and comb the same out, and in order to keep these teeth clean I provide the cylinders D' with straight fingers d, that intermesh with the teeth c, as most clearly shown in Fig. 3 of the drawings.

In practice I make the straight teeth of fine steel wire; but they may be made of bristles or any suitable material, and I may also arrange the sets alternatively, as practice may necessitate.

In order to hold the skins or soles firmly to the floor and prevent them being drawn into engagement with cylinders, I arrange a series of guard-strips E, that are preferably made of stout steel wire, and that extend the entire distance from the first cylinders back past the cutter-bar and are held in place a slight distance above the floor by means of brack-

ets E', having depending foot portions *e*, under which the wires pass, and laterally-perforated portions *e'*, through which the ends of the wires pass and are held in place by means of nuts *e*², as shown. A bracket E² is arranged intermediate the brackets E', which strengthens the wires and prevents any swaying or upward movement thereof.

After the skins have been fed past the cylinders and the wool untangled and combed out straight it is brought into engagement with the cutter F, that is adjustably held to the rear end of the frame by means of sliding plates G, arranged to operate in dovetailed grooves formed in brackets J, that are connected to the inner sides of the frame. In practice I may form these brackets integral with the sides or make them of separate pieces held in place by screws, as shown.

To the adjustable plates G, I secure the lower or stationary member F' of the cutter-bar F, upon which slides the movable section F², held in place by bolts carried by the stationary plate and which protrude through slots formed in the movable section and held in position by bolts, as in the ordinary way. A shoulder *f* is formed on the movable section F², to which is connected a pitman K, whose opposite end is pivotally connected to a lever K', pivoted at its lower end to the side of the frame and having its upper end terminating in a head having studs upon which are journaled antifriction sleeves or rollers *k*, that work upon opposite sides of a waved cam-disk L, held upon a shaft L'. A belt-pulley L² is also arranged on the shaft L', over which passes a belt L³, which continues down and under the pulley C² upon the shaft of the rear combing-cylinder, thence up over the third pulley, and so on, and finally back to the power-pulley. (Shown in Fig. 7.)

It will thus be seen the manner of operating the cutter-bar is very simple and that I utilize the same belt for operating the combing-cylinders and cutter-bar, and in order to adjust the cutter-bar to accommodate the machine to different thicknesses of soles I connect a pitman M to the lower ends of the plates G, whose opposite ends are connected to studs *m*, formed integrally upon levers M', that are pivoted to the outer sides of the frame. The said studs project through slots *m'* in the frame and are fastened to the pitman in any suitable manner.

The opposite ends of the levers are provided with segmental rack-sections M², that are engaged by pinions N, carried upon a shaft that is held upon the front of the frame, and upon one end of the said shaft is held a crank-arm N', by which the shaft is revolved, and it will be readily understood that by a slight movement of the crank the forward end of the lever will be lowered, which elevates the rear end, and thus adjusts the cutter nearer the cylinder when the occasion requires.

In order to protect the skins when passing the cutter, I pivotally connect to the lower or

fixed member of the cutter a protector-plate P, whose outer or free end is slotted and adapted to lie upon the guard-wires E, as shown.

The belt upon the pulley B⁵ runs over a smaller pulley Q upon a shaft Q', which latter also carries a pulley Q² of larger dimensions than the pulley Q, over which passes a belt R from a small pulley R', held upon the main drive-shaft R². Upon the opposite end of the shaft R² is held a pulley R³, over which runs a belt S from the main driving-pulley. The belt after leaving the pulley R³ passes under the pulley D² of the first cleaning-cylinder and continues thence up over the pulley of the second cleaning-cylinder, under the third, over the fourth, and, finally, back to the driving power similar to the belt of the combing-cylinders.

It will be readily understood by the construction shown and described that the sets of cylinders are revolved in the opposite direction to each other and also in the reverse direction to the second pair, and so on throughout the entire sets, and by this arrangement I have found the best results, as the wool is combed out straighter and cleaner than by having the cylinders revolve in the same direction. It will also be noticed that the cleaning-cylinders operate in a reverse direction to the combing-cylinders directly below them, and in order to remove the loose wool adhering to the cleaners and, in fact, to remove all of the wool from the entire machine I arrange hoods T, that fit over the cylinders and cutter that are connected to a suction-fan which draws the wool from the machine and deposits it in any place desired.

From the foregoing the operation and advantages of my improvement will be readily apparent, and it will be seen that I provide a simple compact arrangement of parts that will effectively accomplish the results set forth.

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

1. The combination with a main frame having a slotted bottom, of an endless feed device moving in the said slots, the combing-cylinders arranged in the main frame above the feed device, the cleaning-cylinders arranged above the combing-cylinders, a shearing device arranged adjacent to one end of the feed device, and means for simultaneously operating the feed device, combing and cleaning cylinders and shearing device, substantially as described.

2. In a combined combing and shearing machine, the combination of a framing, a floor arranged therein, a shearing device arranged above the said floor, combing-cylinders journaled in the said framing and cleaning-cylinders journaled above each combing-cylinder, and means for revolving the cylinders and operating the shearing device, substantially as shown and described.

3. In a combined combing and shearing machine, the combination of a frame, a floor provided with slots held within the frame, feed-belts arranged to operate in the said slots, 5 combing and cleaning cylinders journaled in said frame, a reciprocating cutter-bar adjustably held in the said frame, and means for operating the said cylinders and cutter-bar, substantially as shown and described.

10 4. In a combined combing and shearing machine, the combination of a frame having a slotted floor arranged therein, feed-belts adapted to travel in the said slots, combing-cylinders journaled in the said frame, cleaner- 15 cylinders journaled above each combing-cylinder, and guards arranged between the said flooring and combing-cylinders, substantially as shown and described.

20 5. In a machine of the kind described, the combination of a frame, a floor held therein and provided with slots, feed-chains adapted to operate in the slots, combing-cylinders mounted in the said frame, cleaner-cylinders mounted above the said combing-cylinders, 25 a cutter held within the framing, a drive-shaft journaled in the said frame and carrying a cam-disk, a lever pivoted at one end to the side of the frame and having its opposite end provided with antifriction-rollers for engagement with the said disk, and a pitman connecting the said lever and cutter-bar, substantially as shown and described.

30 6. In a machine of the kind described, the combination of a frame having brackets held to the inner sides thereof, plates carrying cutter-bars adapted to operate in the brackets, levers journaled upon the sides of the frame, pitmen connecting one end of the said levers to the plates, segmental racks formed upon 40 the opposite ends of the levers, a shaft provided with pinions journaled in the front of the frame, the said pinions being held in engagement with the racks, and a crank for operating the said shaft, substantially as shown and described.

45 7. The combination with a main frame, of a series of horizontally-disposed combing-cylinders journaled therein, cleaning-cylinders journaled above each of the said combing-cylinders and operating in a reverse direction to

its respective combing-cylinder, a shearing device arranged in the said frame, and means for feeding the skins to the said combing-cylinders and shearing device, substantially as described.

55 8. The combination of a main frame having a slotted bottom arranged therein, an endless feed device adapted to operate in the said slots of the bottom, combing-cylinders arranged above the said feeding device, cleaning-cylinders arranged for engagement with the said 60 combing-cylinders, a shearing device arranged adjacent to one end of the feeding device and means for removing the sheared material from the cylinders and shearing device, 65 substantially as shown and described.

9. In a combined combing and shearing machine, the combination of a frame, shafts carrying combing-cylinders journaled therein, and having pulleys fixedly held upon one end 70 thereof, shafts carrying cleaner-cylinders journaled above the said combing-cylinders and having pulleys upon the ends thereof and arranged upon the opposite side of the machine to the pulleys of the combing-cylinders, 75 and belts arranged to travel over and under the said pulleys for revolving the combing and cleaner cylinders in opposite directions, substantially as shown and described.

10. In a machine of the kind described, the 80 combination of a frame having a flooring arranged therein, guide-brackets having dovetailed grooves held within the said frame, plates adapted to travel in the said grooves, a cutter-bar connected to the said plates, and 85 means for adjusting the said plates and cutter-bar and reciprocating the cutter-bar, substantially as shown and described.

11. In a machine of the kind described, the combination of a frame, a series of combing 90 and cleaner cylinders held in the said frame, a cutter-bar adjustably held within the frame, and hoods connected with a suction-fan held above the said cylinders and cutter-bar for removing the cut material from the machine, 95 substantially as shown and described.

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