

No. 612,524.

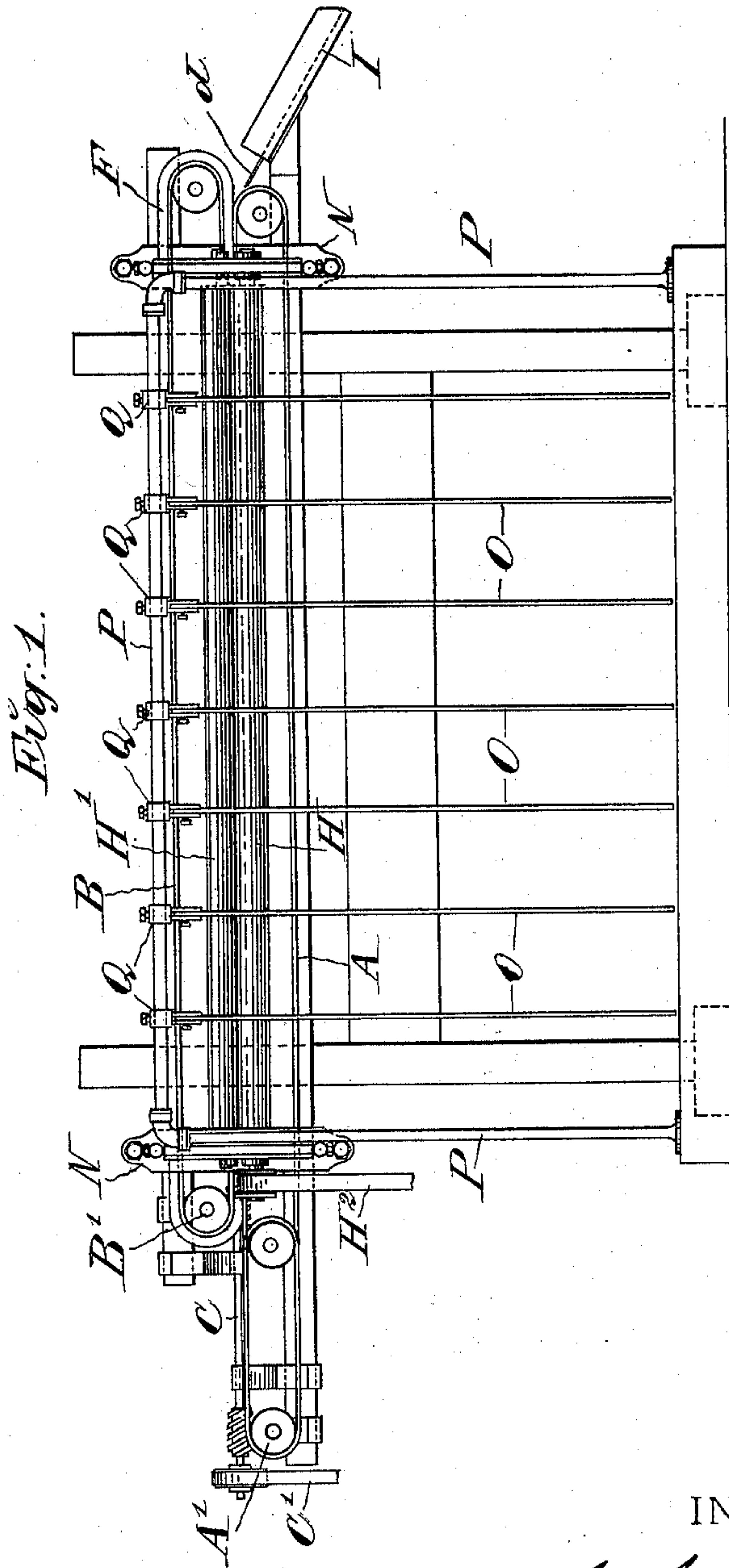
Patented Oct. 18, 1898.

A. S. MILES.
MACHINE FOR DRAGGING BRISTLES.

(Application filed Feb. 24, 1897.)

(No Model.)

3 Sheets—Sheet 1.



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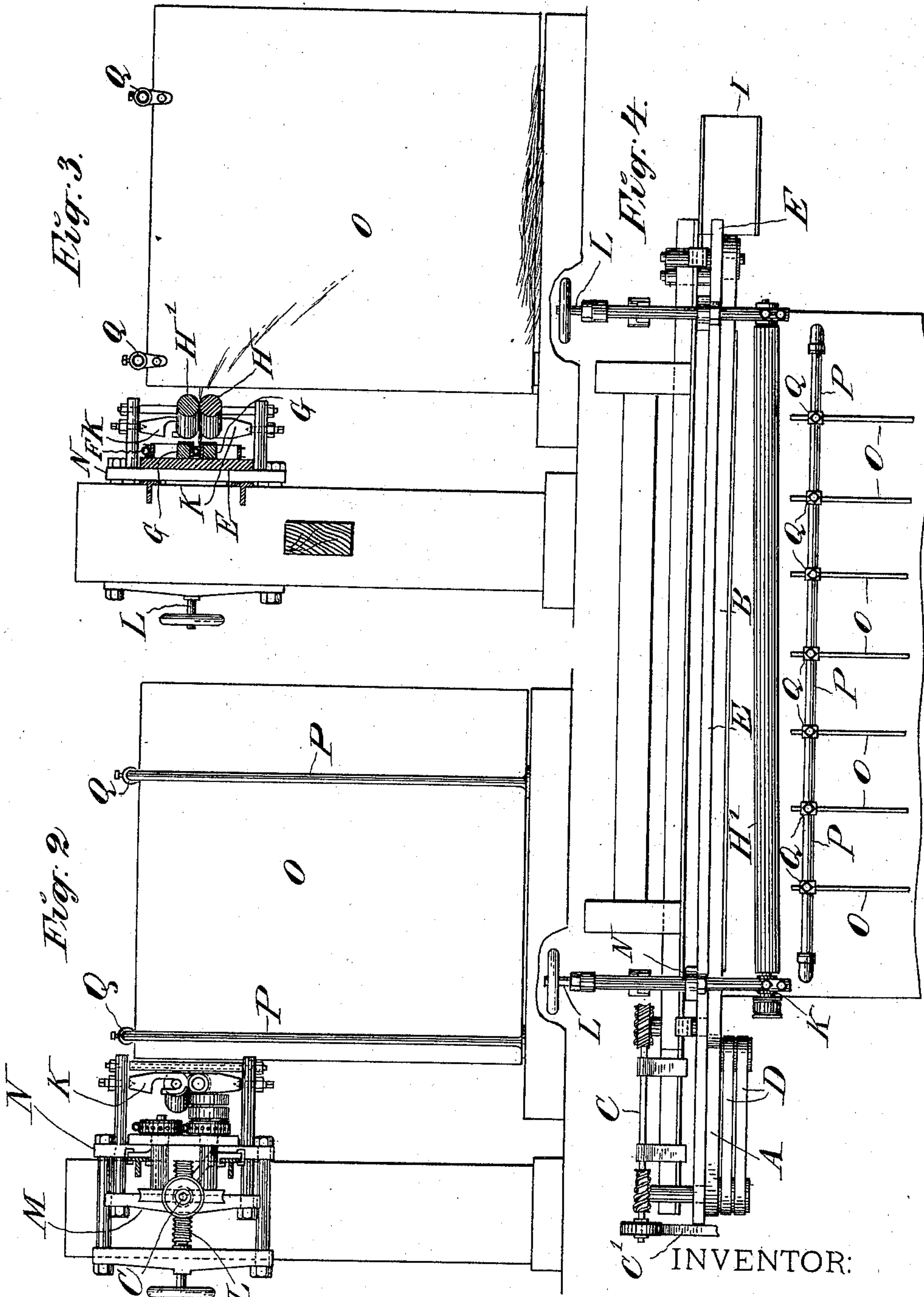
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Fig. 6.

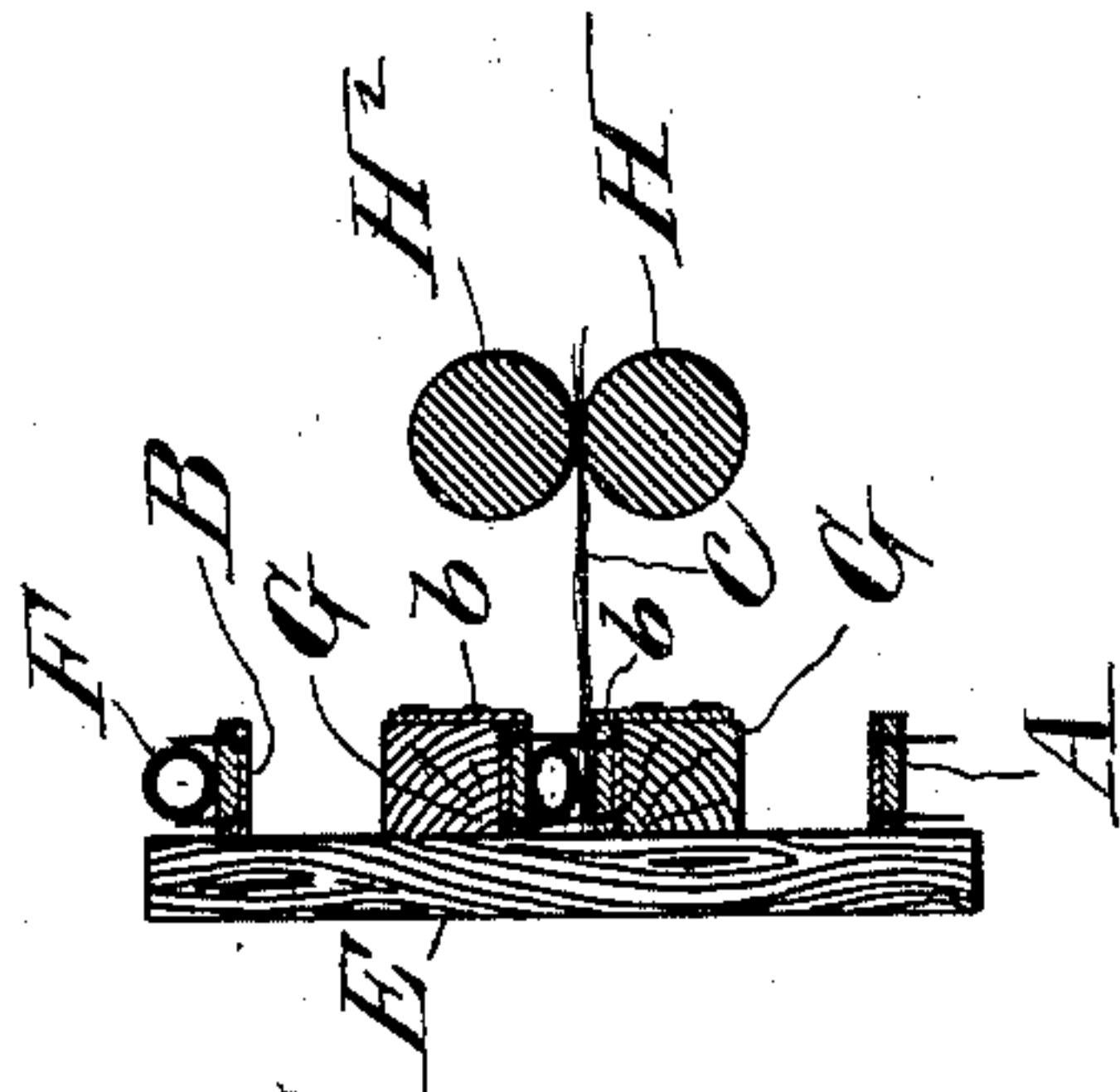


Fig. 5.

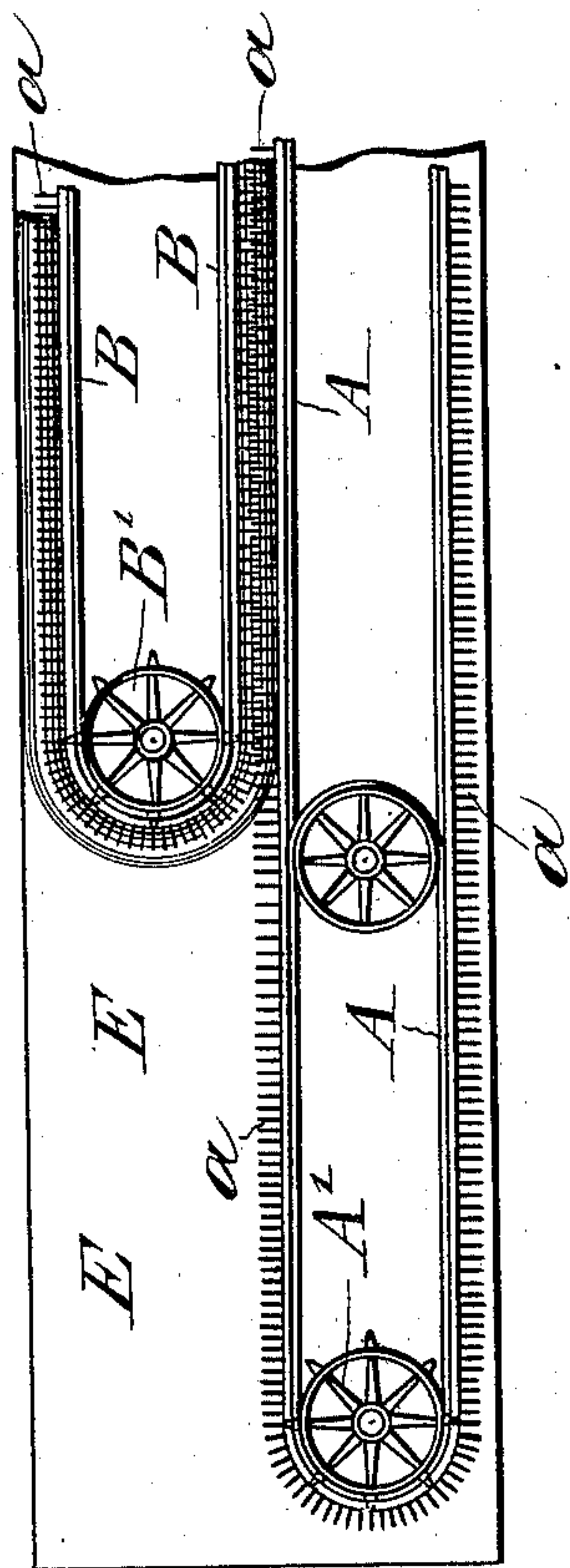


Fig. 8.

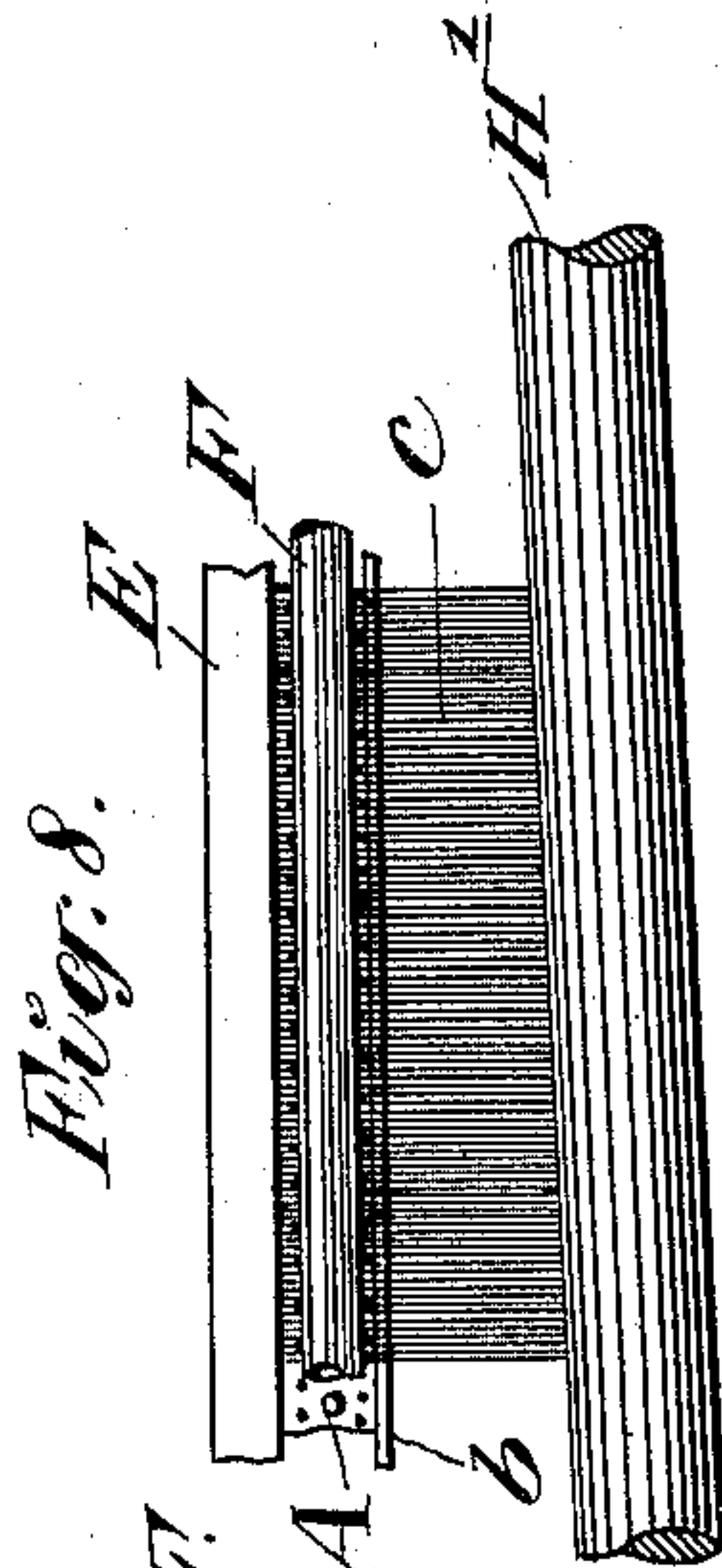
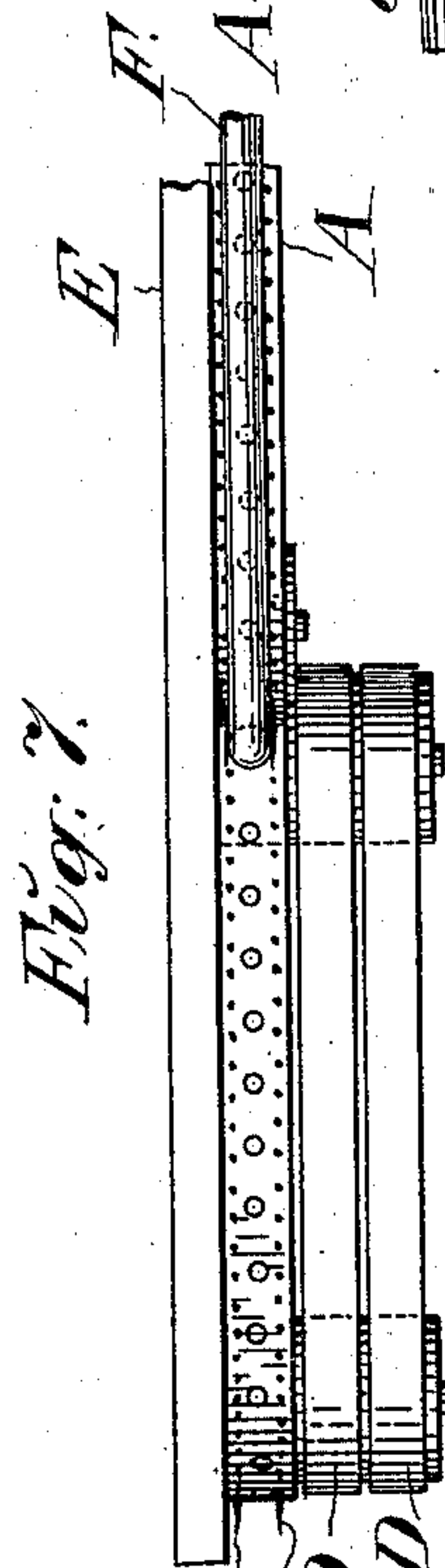


Fig. 7.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR DRAGGING BRISTLES.

SPECIFICATION forming part of Letters Patent No. 612,524, dated October 18, 1898.

Application filed February 24, 1897. Serial No. 624,879. (No model.)

To all whom it may concern:

Be it known that I, ALFRED S. MILES, a citizen of the United States, and a resident of New York, (Brooklyn,) in the county of Kings and State of New York, have invented certain new and useful Improvements in Machines for Dragging Bristles, of which the following is a specification.

My invention relates to machines for dragging bristles, and has for its object the production of a simple and efficient machine which will automatically accomplish the desired work with rapidity, certainty, and uniformity, superseding the hand process with advantages in the matters of convenience and economy and delivering the bristles of assorted lengths in separate piles.

In dragging bristles by hand process the operator holds a bunch in one hand against his body, the bristles having been previously arranged with flag ends in one direction and butt-ends in the other, and drags out with the other hand a few at a time, thumping the butts to keep them even and constantly combing and sizing the remaining bunch against a scale. The bunch is usually dragged down by this slow and tedious process about a quarter of an inch for each required length of bristles until the last couple of inches or so are reached. According to the length of bristles commenced with will the number of different sizes or lengths vary. The operation is not only irksome, but expensive, because of the time and skilled labor required to do the work properly. By use of my machine the operation is much shortened, and the work is accomplished much more perfectly than can be done by hand.

To accomplish the above-indicated objects and to secure other and further advantages in the matters of construction, operation, and use, my improvements involve certain novel and useful combinations or arrangements of parts and principles of operation, as will be herein first fully described and then pointed out in the claims.

In the accompanying drawings I have shown a machine constructed and arranged for operation in accordance with my invention and involving my improvements.

In the drawings, Figure 1 is a front elevation showing the entire machine ready for

operation. Fig. 2 is an end view illustrating more particularly the means employed for changing the inclination of the dragging-rolls. Fig. 3 is an elevation upon a plane cutting through between two of the partitions. Fig. 4 is a plan view corresponding with Fig. 1, a portion of the partitions being broken away. Fig. 5 is a side elevation of a fragment, showing the carrying-belts; and Fig. 6 is a cross-section indicating the manner in which the bristles are seized by the dragging-rolls. Fig. 7 is a top view corresponding with Fig. 5, and Fig. 8 is a top view of parts shown in Fig. 6. The last four figures are upon a scale considerably larger than the previous figures.

In all the figures like letters of reference, wherever they occur, indicate corresponding parts.

The bristles, first straightened and arranged with their flag ends in one direction and butt-ends in the other, are rapidly and easily delivered to the machine by placing them upon the feeding portion thereof, by which they are carried along between two belts, the projecting flag ends being seized by the dragging-rolls as soon as they reach the proper point in their travel. The carrier-belts are two in number, the under one, A, extending beyond the upper one, B, at the feeding end of the machine, and both provided with projecting studs or pins *a*, which compel the bristles to travel with the belts and to maintain positions substantially at right angles therewith. These two belts should be driven at the same rate of speed and positively, so that one cannot slip on the other, whereby the bristles would become inclined and thence escape the grasp of the dragging-rolls at the point of travel where they should be seized.

A' and B' are two pulleys for driving the belts, and these are provided with teeth which enter perforations in the belts, and thus compel them always to move as the pulleys are moved. The two pulleys are driven at the same rate of speed by worm-gears on a single shaft C, and the shaft is driven from any source of power, as through belt C'.

D D are feeding-belts driven by a pulley or pulleys on the same shaft that carries pulley A' and are the same size as that pulley, and these, together with the portion of belt

A beyond belt B, constitute the feeding end of the machine.

The bristles are placed upon the feeding end with their butts against the back piece or board E and spread more or less by the hand of the operator, that they may not enter between the carrier-belts in bunches. No especial skill is required for feeding or operating the machine.

The bristles, fed as above explained, travel with and between the carrier-belts. To prevent them from being too easily dragged from their traveling position, whereby they would be projected in bunches, they should be restrained by a slight pressure or resistance, such as a slight spring or weight pressure. The means shown for providing this resistance pressure is the simplest and best I have been able to devise. Upon the upper belt and between the teeth thereon is secured a rubber or other elastic tube F, and this, being slightly compressed between the two belts, affords the desired restraining power and operates in a very perfect manner. It presses upon the line of bristles uniformly and requires no attention or adjustment.

The carrier-belts travel between ways provided for them, as shown in Fig. 6, wherein G are strips having slightly-projecting faces b, which latter keep the belts in line, the under face affording a slight straight edge upon which the bristles are carried, so as to keep them in a substantially uniform projecting layer.

In Figs. 6 and 8 the bristles are represented at c.

H and H' are two dragging-rolls mounted in front of the path of the moving bristles, and these rolls are driven at a much higher rate of speed than the carrier-belts. The lower roll H is preferably made of rubber or faced with rubber, so as to provide a surface which will certainly drag the bristles. The upper roll may be made of metal and is preferably so mounted that it can bear always with its full weight upon the lower one or upon the layer of bristles between the two. The lower roll is driven as by a belt H², the upper one simply by frictional contact. The two rolls are inclined toward the carrying-belts, as indicated.

As the bristles are carried along the longest of them are first seized between the dragging-rolls and drawn out from among the remainder and rapidly projected forward, and so each bristle is dragged out as soon as it reaches a point in its travel where it projects between the rolls, the shortest bristles last of all. Those which are too short to reach between the rolls are discharged at the end of the machine, falling down any suitable chute which may be provided for them—as, for instance, at I. To prevent these from clinging to the belts, an arm or scraper d is mounted so as to enter between the pins on the lower belt A, and thus remove them from that belt. As soon as the belt B leaves the other belt on

its return movement the elastic tube F assumes its normal extension and forces the bristles out from between the teeth or studs on that belt. They then fall upon the scraper and are delivered in a manner readily understood.

The dragging-rolls are adjustable toward and from the carrier-belts at either or both ends to vary their inclination with respect to said belts, thus to adapt the machine for dragging bristles of any length and to regulate the gradations of the dragged bristles between the longest at one end and the shortest at the other. For accomplishing these adjustments the rolls are journaled at each end in yokes K, from which they may be dismounted whenever required. The yokes are pivoted at each end in a frame made adjustable back and forth through the medium of a hand-screw L, passing through the back piece M of the frame. The upper and lower members of the frame are guided in a suitable manner, as by passing through a stationary piece N, and either or both ends of the pair of rolls may be moved by simply turning the proper screw or screws. On adjusting the rolls the pivoted yokes automatically assume the proper position to prevent cramping of the journals.

The dragged bristles are projected into separate bins or compartments of number according to the extent of the assortment required. The greater the number the closer will the length of bristles in one correspond with that of those in the next compartment. The lengths in the different bins vary by quarter inches usually, but may be more or less.

The partitions are simple light boards or other material, (represented at O O.) These are sustained by simple frames P P, upon which are sliding clamps Q, adapted to receive the partitions. The clamps may be fixed in place by ordinary set-screws and they admit of the partitions being set at any desired point on the frames.

The bristles are gathered from the different bins and need to be again "arranged" or "butted," when they are ready for use.

The improved bristle-dragging machine is found to do the required work accurately, quickly, and economically and to answer all the purposes and objects of the invention previously alluded to.

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

1. The combination with revoluble dragging-rolls, of a bristle-carrier comprising two endless belts arranged to travel adjacent to each other at one side and provided with studs or pins and means for moving said carrier lengthwise of and adjacent to said rolls, whereby some of the bristles held by the carrier will be caught between said rolls and dragged from the carrier, substantially as described.

2. The combination with revoluble drag-

ging-rolls and driving connections whereby they are driven at a high speed, of a bristle-carrier upon which the bristles are frictionally held, and means for moving the carrier lengthwise of and adjacent to the dragging-rolls at a relatively low speed, whereby the bristles are each withdrawn from the carrier with a jerking movement, and without disturbing those of a shorter length adjacent thereto.

3. In a bristle-dragging machine, the combination with the bristle-carrying belts, of means substantially as described for producing a yielding pressure upon the bristles being carried, for the purposes set forth.

4. In a bristle-dragging machine, the combination with the bristle-carrying belts, of the elastic tube applied on one of said belts and arranged to operate substantially as explained.

5. In a bristle-dragging machine, the combination with the carrier-belts and means for producing a yielding pressure upon the bristles carried by them, of dragging-rolls located opposite the belts and made adjustable at either or both ends toward or from the belts, substantially in the manner and for the purpose set forth.

6. In a bristle-dragging machine, the drag-

ging-rolls, the carrier-belts, and means for producing a yielding pressure upon the bristles carried by said belts, the same combined with means for operating the rolls and belts, one of the rolls being driven by contact with the other and both adjustable toward and from the carrier-belts, substantially as explained.

7. In a bristle-dragging machine, the dragging-rolls combined with the bristle carrier-belts, said rolls being journaled in movable bearings at either end and the bearings mounted in adjustable frames, substantially as and for the purposes set forth.

8. In a bristle-dragging machine, the combination with the carrier-belts and means for producing a yielding pressure upon the bristles, of the revolving rolls for separating the bristles and projecting them from the carrier, and partitions arranged in front of the dragging-rolls to divide the bristles, substantially as and for the purposes set forth.

Signed at New York, in the county and State of New York, this 18th day of January, A. D. 1897.

ALFRED S. MILES.

Witnesses:

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