

F. LEONARD.

MACHINE FOR PICKING AND SEPARATING HOPS.

No. 356,323.

Patented Jan. 18, 1887.

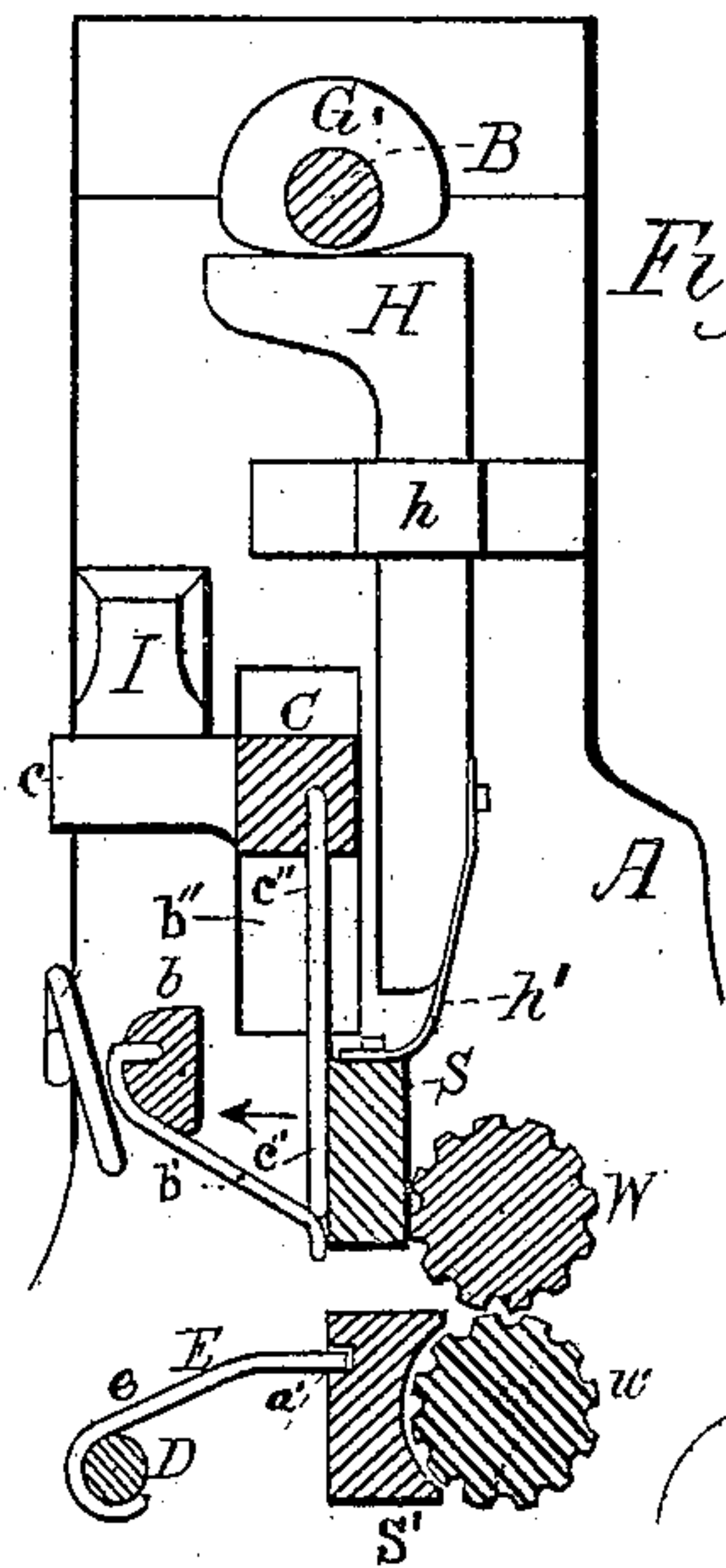


Fig. 3.

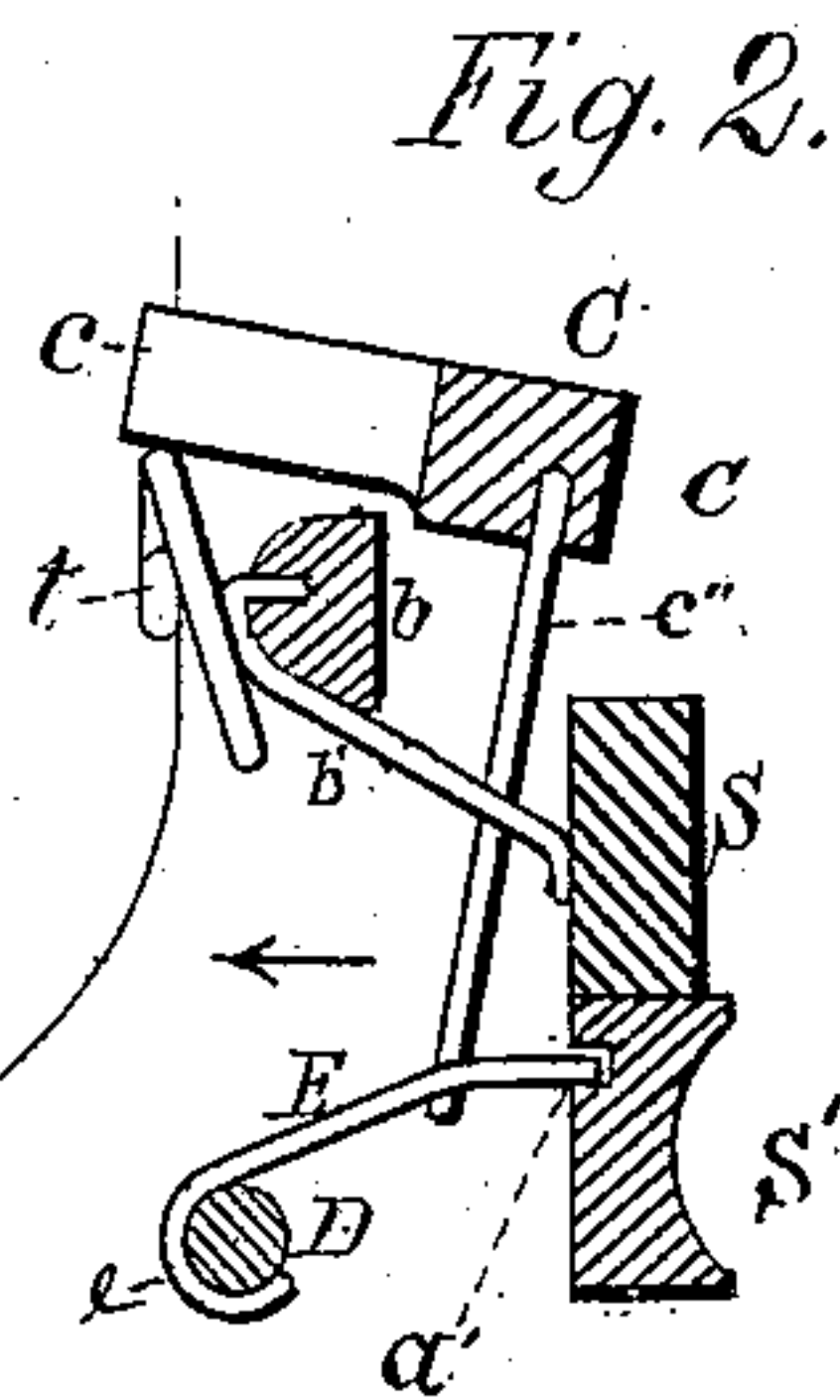


Fig. 2.

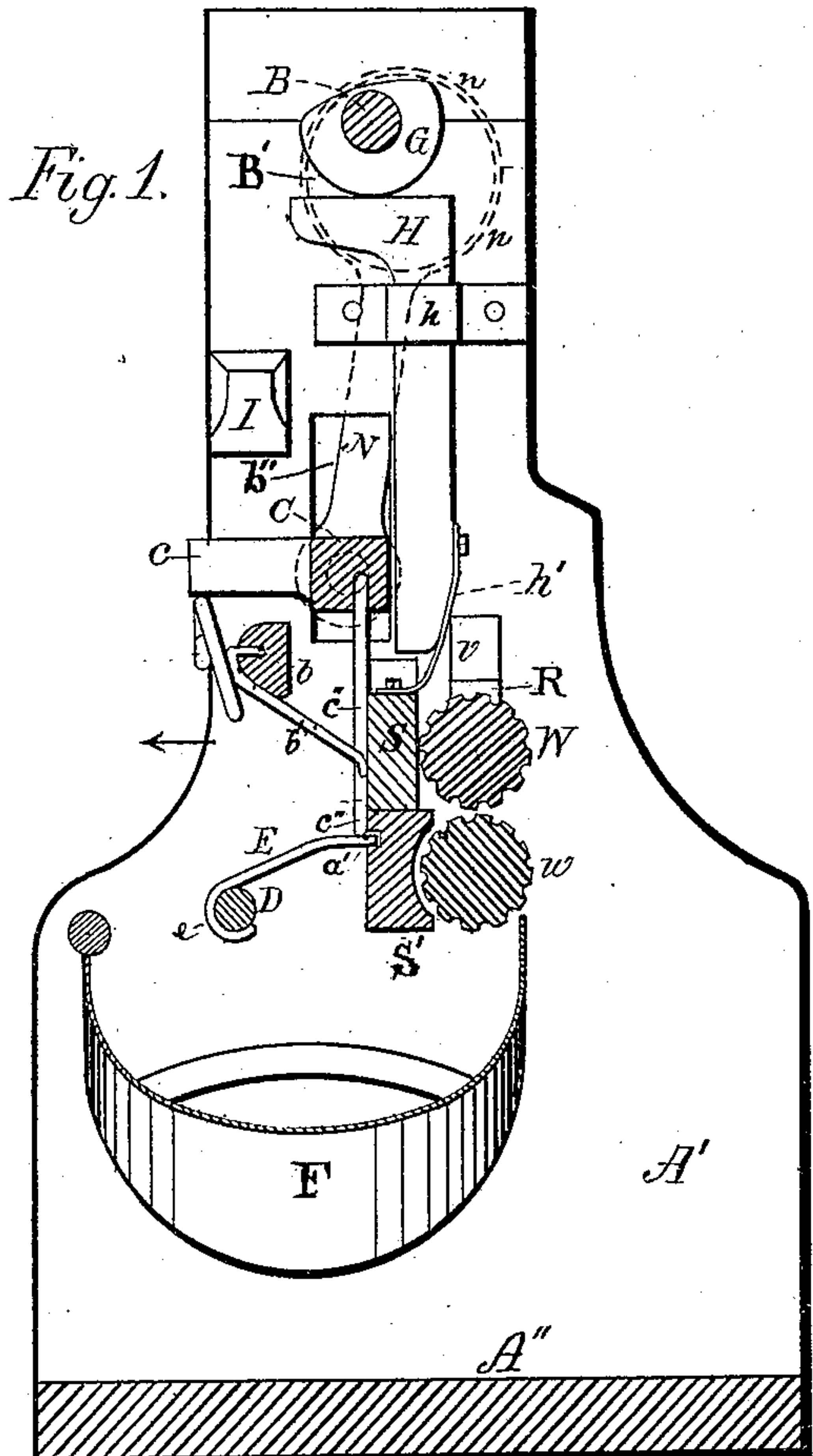


Fig. 1.

Fig. 4.

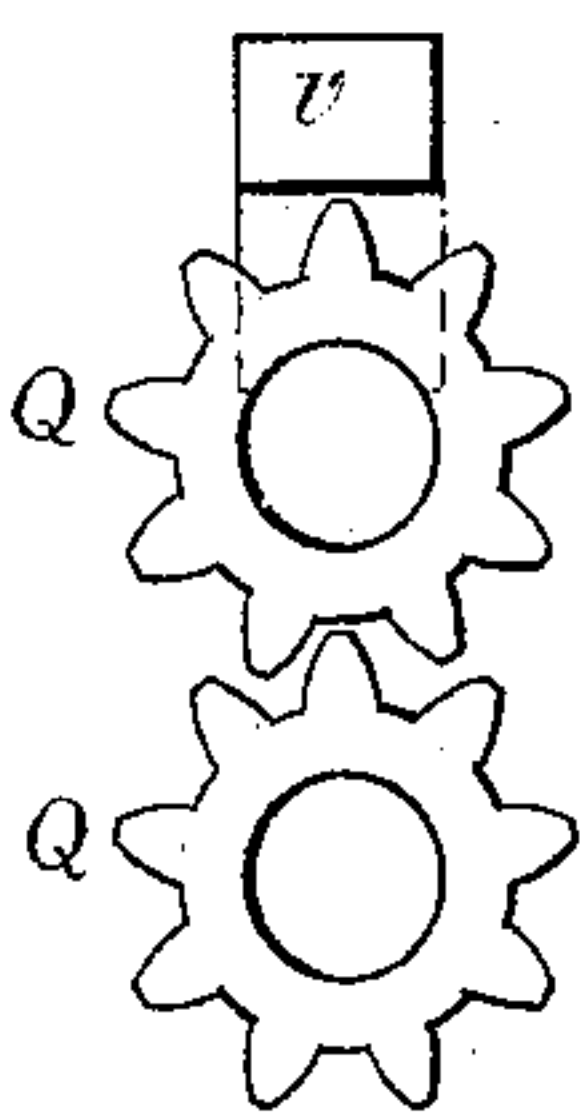


Fig. 5.

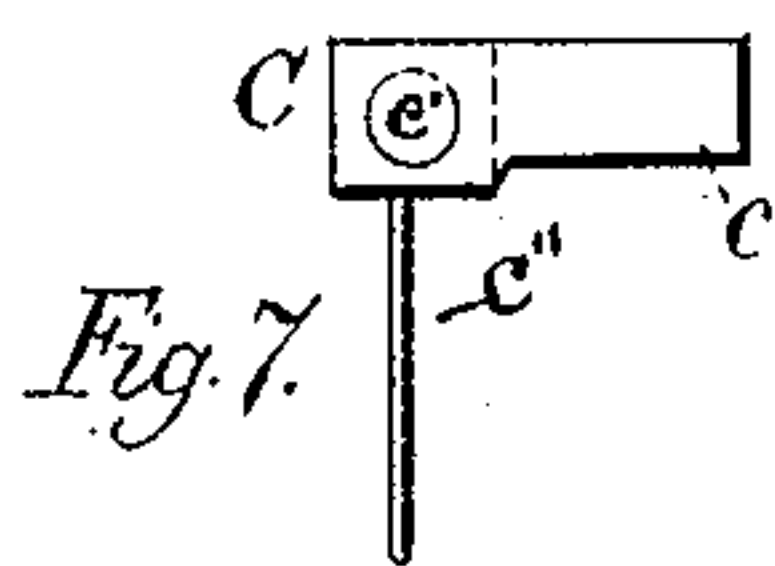
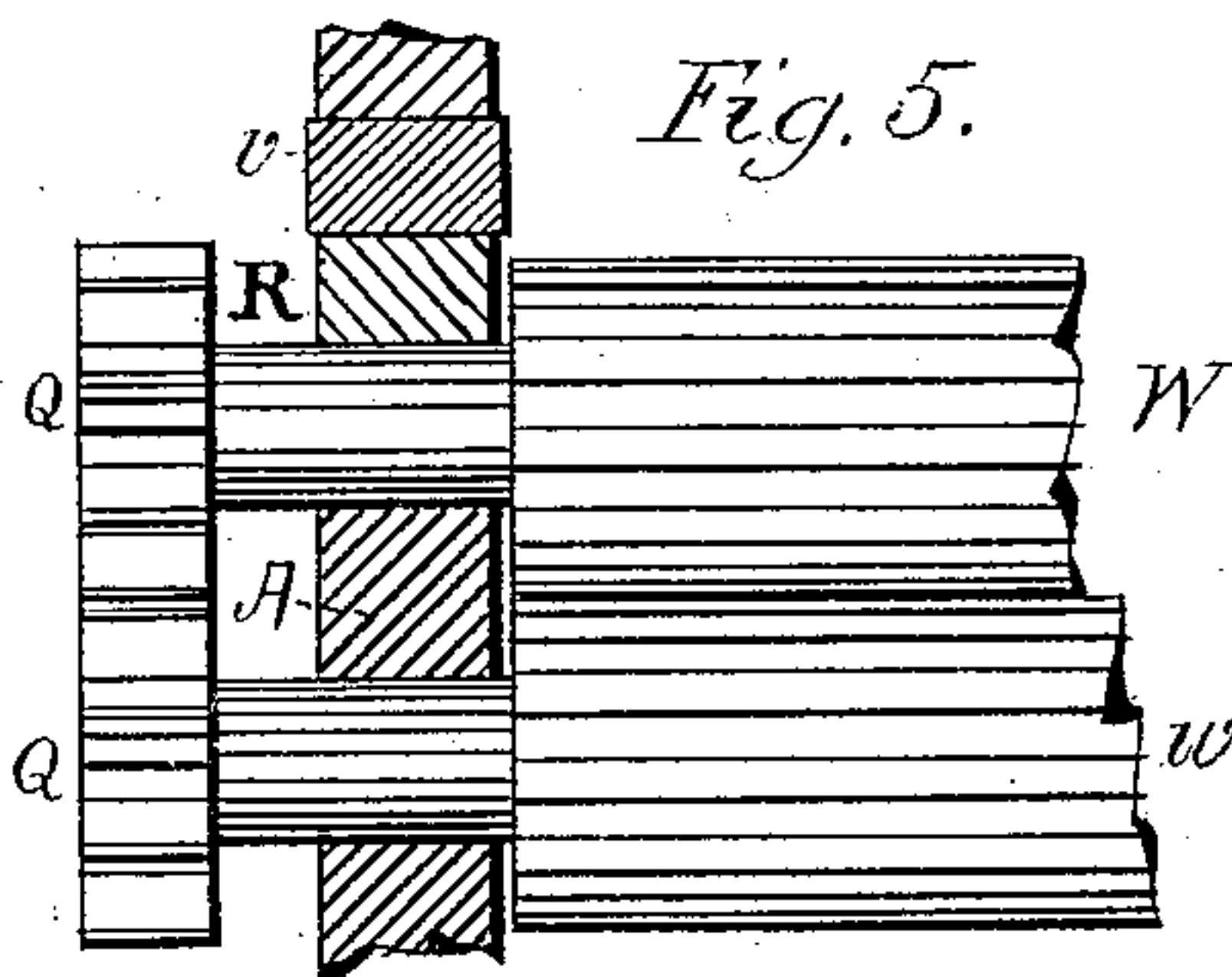


Fig. 7.

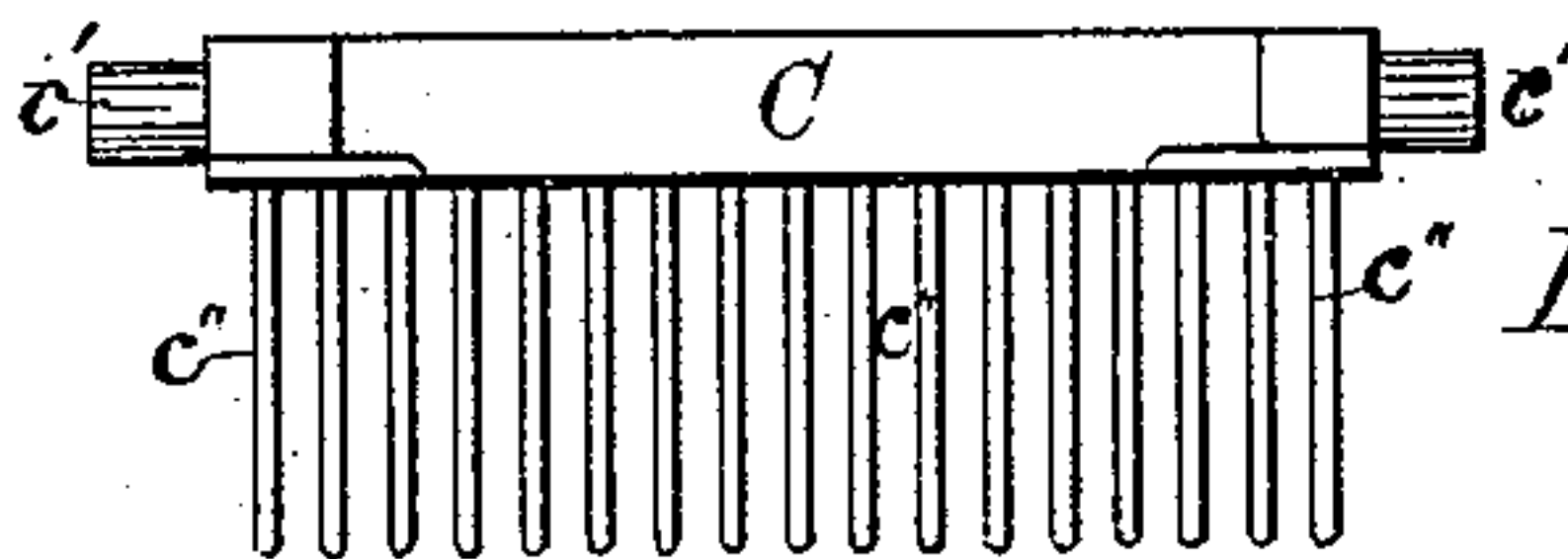
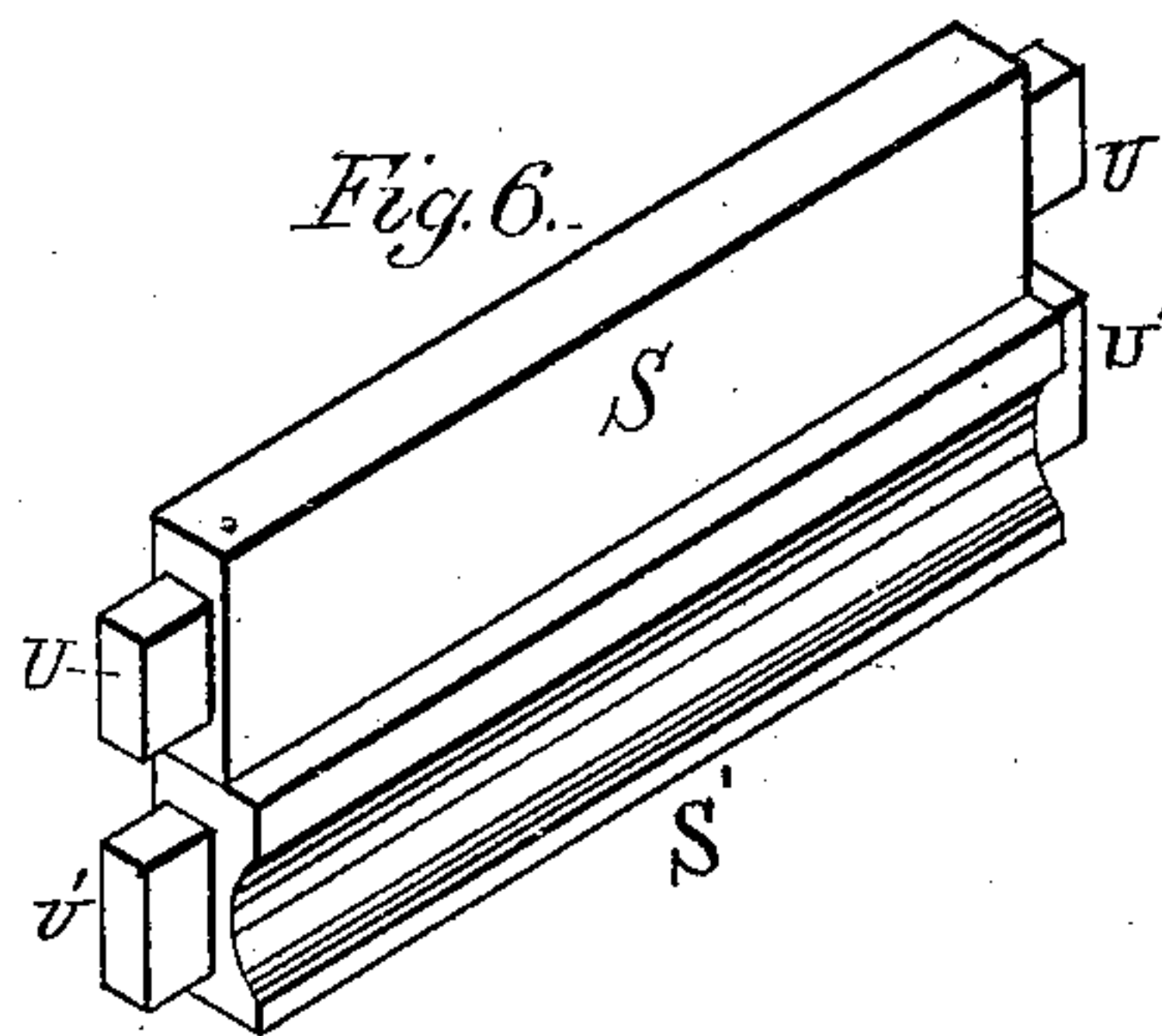


Fig. 8.

Fig. 6.



Witnesses:
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(No Model.)

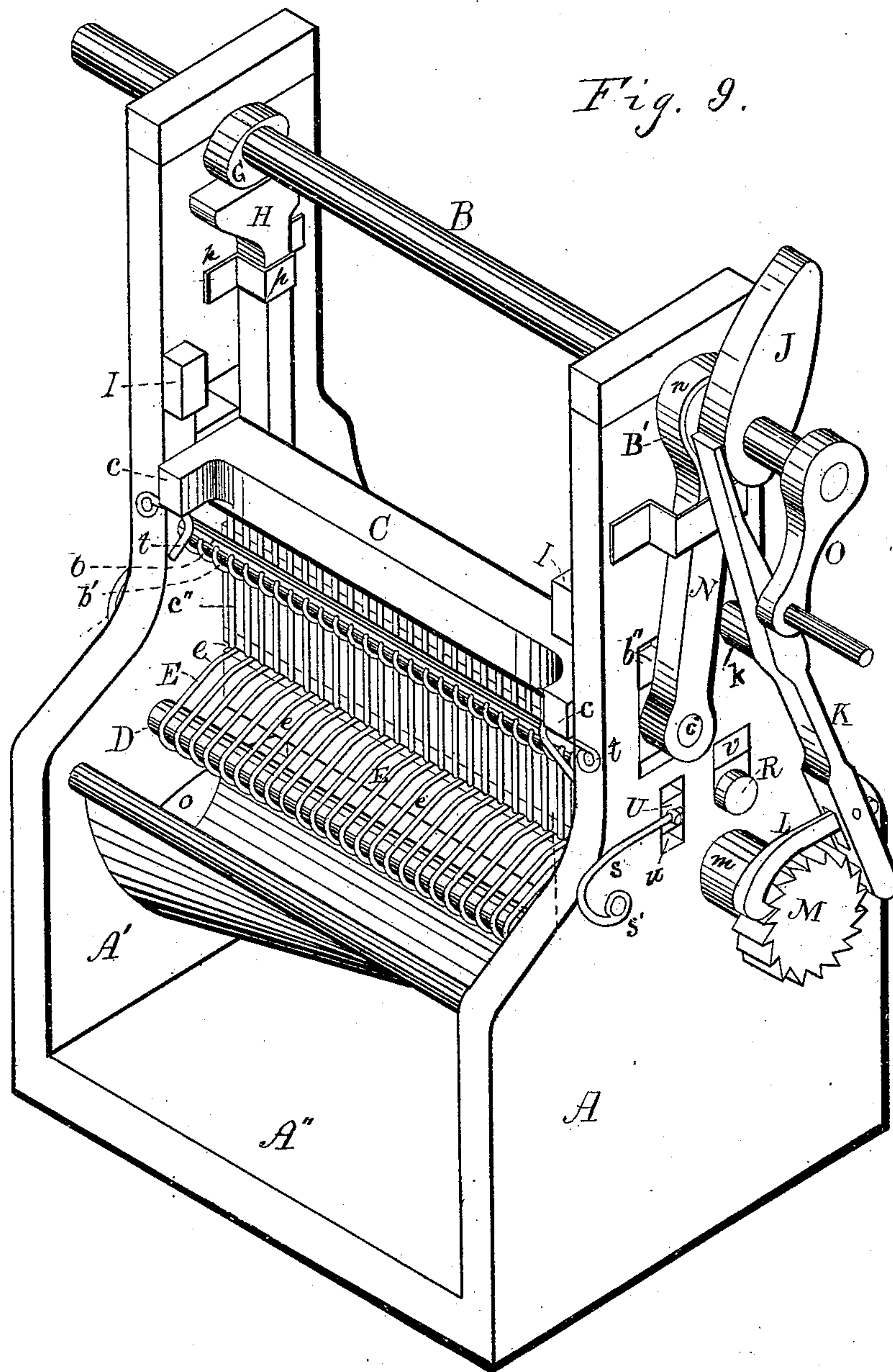
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MACHINE FOR PICKING AND SEPARATING HOPS.

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UNITED STATES PATENT OFFICE.

FRANKLIN LEONARD, OF BRIDGEWATER, ASSIGNOR OF ONE-HALF TO JOHN P. BATCHELDER, OF SCHENECTADY, NEW YORK.

MACHINE FOR PICKING AND SEPARATING HOPS.

SPECIFICATION forming part of Letters Patent No. 355,323, dated January 18, 1887.

Application filed February 24, 1886. Serial No. 192,993. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN LEONARD, of Bridgewater, in the county of Oneida and State of New York, have invented a certain new and Improved Machine for Picking and Separating Hops from the Vines; and I do hereby declare that the following is a full, clear, and complete description thereof.

The construction of the above-mentioned machine for the purpose specified and the operations of the same are substantially as set forth in the following specification and shown in the annexed drawings, making part thereof, and in which—

Figure 1 is a vertical transverse section of the machine. Fig. 2 is a transverse section, detached from Fig. 1 to show the same parts in a different position. Fig. 3 is a transverse section of the same parts as Fig. 2 in another relation to each other. Fig. 4 is an end view of the gearing of the rollers. Fig. 5 is a side view of the gearings of Fig. 4. Fig. 6 is a perspective of the clamp. Fig. 7 is an end view of the comb. Fig. 8 is a side view of the comb, and Fig. 9 is a perspective view of the machine.

A A' are two standards securely fastened to a base, A''.

B is a shaft journaled in the upper part of the standards A A'.

C is the stock of the comb, having at each end projections or arms *c c*. The stock C is supported by the connecting-rods N N, pivotally attached to its projecting ends *c' c'*.

c'' c'', &c., are the teeth which are inserted in the stock C.

D is a round rod, secured at each end in the standards A A'.

E is an apron, consisting of a series of wires, *e e*, &c., secured at their outer ends to the rod D, while the inner ends thereof are inserted loosely in a groove, *a'*, in the side of the lower or fixed jaw, S', of a clamping device, hereinafter described.

On the shaft B, at each end, is an eccentrically-mounted pulley, B', one of which is shown in Fig. 9, the other being indicated by dotted lines B' in Fig. 1. These pulleys B' are connected to the stock C of the comb by the bar N and its concentric strap *n*. The ends of the comb-stock C pass through the slots *b'' b''*

formed in the sides of the standards A A'. Said slots are of sufficient size to permit the vertical reciprocating movement imparted to the comb by the connecting-bars N as the shaft B is revolved.

On the shaft B, at each end, inside of the standards A A', are cams G G, and beneath each cam is a bar, H, working in proper guides, *h*. The lower end of each bar H is connected to the upper or movable jaw, S, of the clamping device, hereinbefore referred to, by spring-rod *h'*, to give elasticity to said jaw and act in conjunction with the springs *s* hereinafter described. Also, on shaft B, at one end and outside of the pulley B', is a cam, J, and a crank-handle, O, the latter for turning shaft B.

K is a lever, pivoted on a gudgeon, *k*, attached to the side of the standard A. The lower end of lever K has pivoted to it a pulling-pawl, L, which works over the ratchet-wheel M, attached to the outwardly-extended arm *m* of the lower roller, *w*. The upper end of lever K bears against and is operated upon by the cam J, whereby an intermittent motion is given to the ratchet-wheel M, and consequently to the roller *w*.

The clamping device consists of an upper or movable jaw, S, and a lower or fixed jaw, S'. The jaw S is rectangular, while the lower jaw, S', also rectangular, has on the side next to the roller *w* a space hollowed out concentric with said roller, whereby said roller is permitted to retain its relative position, while the upper face of said jaw is extended nearly to the bite of the rollers, and forms a platform for the support of the vines to that point. The ends of the jaw S are provided with tenons U, which extend through and work in the openings *u* in the sides of the standards A A'. The jaw S' is fixed to said standards by the tenons U'. The jaw S is supported in position by the springs *s*, attached to the ends thereof and to the sides of the standards at *s'*, as seen in Fig. 9. Said springs also serve, in conjunction with springs *h'*, to lift said jaw into its normal position when the pressure thereon by the action of the cams G is removed.

The rollers W and *w* are fluted, as shown in Figs. 4 and 5, and are journaled in the standards A A', immediately adjacent to the clamp-

ing device, as shown in Figs. 1 and 3. On their ends are the cogged wheels *Q*, working into each other.

vv are elastic blocks, of india rubber or similar material, placed over the bearings *R* of the upper roller, *W*, which serve by their elasticity to keep the upper roller in contact with the lower one, and yet permit their separation according to the varying size of the material as it passes between them. A series of wires, *b'*, are attached to the bar *b*, the loose ends of which project to the side of the upper or movable jaw, *S*, of the clamping device and between the teeth *c''* of the comb.

In Figs. 2 and 3 will be seen the different positions of the teeth of the comb and the movable jaw with reference to the series of wires *b'* and the fixed jaw *S'*.

tt are fixed wires in the standards *A A'*, for the purpose of arresting the downward movement of the outer ends of the arms *cc* of the comb-stock *C*, while the stock itself continues to descend, thus causing the comb to be tilted, as seen in Fig. 2, and thereby carrying the teeth *c* farther into the series of wires *b'*, and their ends downward and outward between the wires of the apron *E*. The stops *I*, located on the standards *A A'* above the comb-stock *C*, arrest the upward movement of the arms *c* and cause the comb, with the teeth *c''*, to return from the tilted position in Fig. 2 to that shown in Figs. 1 and 3.

F is the receptacle for the hops, and is placed immediately under the apron *E*, through which the hops drop after they are separated from the vines.

The operation of the machine is as follows: The hop-vines are fed over the apron *E* while the jaw *S* is raised and the rollers *W w* are in motion. The teeth of the comb are at the same time above the apron, so that the ends of the vines will pass under them to the jaws and rollers, when, during the intermittence of the movement of the rollers, the jaws will close and hold the vines. This clamping of the jaws is immediately followed by the downward and lateral movement of the comb and teeth, as seen in Fig. 2, the teeth passing through the vines directly in front of the hops and between the wires of the apron *E*. By observing the figures it will be seen that the movements of the clamp and comb are effected by the cams *G*, the eccentrically-mounted pulleys *B'*, and their respective attachments *H* and *N*. When the comb has descended so far as to pass the ends of the teeth *c''* through the vines and the apron *E*, the arms *cc* of the comb impinge upon the wires *tt*, which causes their stoppage, and as the stock *C* continues its downward movement the teeth *c''* are thrown quickly back in the direction of the arrow, whereby the hops are stripped from the vines, which are firmly held between the jaws *S S'*, and the hops, freed therefrom, fall into the receptacle *F* below. About this time the pulleys *B'* have revolved and lifted the comb, with

its teeth, from the apron and stripped vines. The cams *G* change position and allow the resilience of the springs *s* and *h'* to open the jaws, when the movement of the rollers *W w* again draws the vines just far enough to bring a fresh supply of the hops in front of the clamping device ready for the next action of the comb and teeth, as above described. The free ends of the wires in the apron *E*, which are made of steel, are loosely inserted in the groove *a'* of the lower jaw, *S'*, so that they are only free to move laterally as necessity may require. The teeth *c''* of the comb are also made of steel, and of such length as readily to spring sidewise and allow for the varying thickness of the vines. The wires *b'* are for detaching from the teeth *c''* of the comb any foreign substance that may adhere to them.

Having described the several parts of the machine and its operation, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination, with the standards *A A'*, of the shaft *B*, the comb *C*, connecting-rods *N*, eccentrically-mounted pulleys *B'*, the stops *I*, and wire stops *tt*, substantially as set forth.

2. The combination of the comb *C*, the clamping-jaws, the mechanism for actuating said comb, and the movable jaw and the apron *E*, substantially as and for the purpose described.

3. The combination, with the standards *A A'*, of the shaft *B*, cams *G*, bars *H*, springs *h'*, movable jaw *S*, and springs *ss*.

4. The combination of the comb, consisting of the stock *C*, arms *cc*, and teeth *c''*, the mechanism for actuating said comb, the bar *b*, and the wires *b'*, attached to said bar, as and for the purpose described.

5. The combination, with the comb *C*, provided with the teeth *c''* and the mechanism for actuating said comb, of the fixed jaw provided with a groove, *a'*, and the apron *E*, composed of the bar *D* and wires *e*, fixed at one end in said bar, the other ends being inserted loosely in said groove, as set forth.

6. The combination of the comb, the jaws *S S'*, rollers *W w*, the mechanism for operating said comb, movable jaw and rollers, and the apron *E*, as set forth.

7. The combination, with the standards *A A'* and the shaft *B* of the cam *J*, the lever *K*, the pawl *L*, the ratchet-wheel *M*, and the rollers *W* and *w*, substantially as described.

8. In a machine for picking and separating hops, a comb consisting of the stock *C*, projecting arms *cc*, and teeth *c''*, in combination with the operative mechanism and the stops *I*, substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

FRANKLIN LEONARD.

Witnesses:

OLIN S. LUFFMAN,
MICHAEL FOLEY.