

(No Model.)

2 Sheets—Sheet 1.

E. B. RICH.
SAW SWAGING MACHINE.

No. 438,861.

Patented Oct. 21, 1890.

Fig. 1.

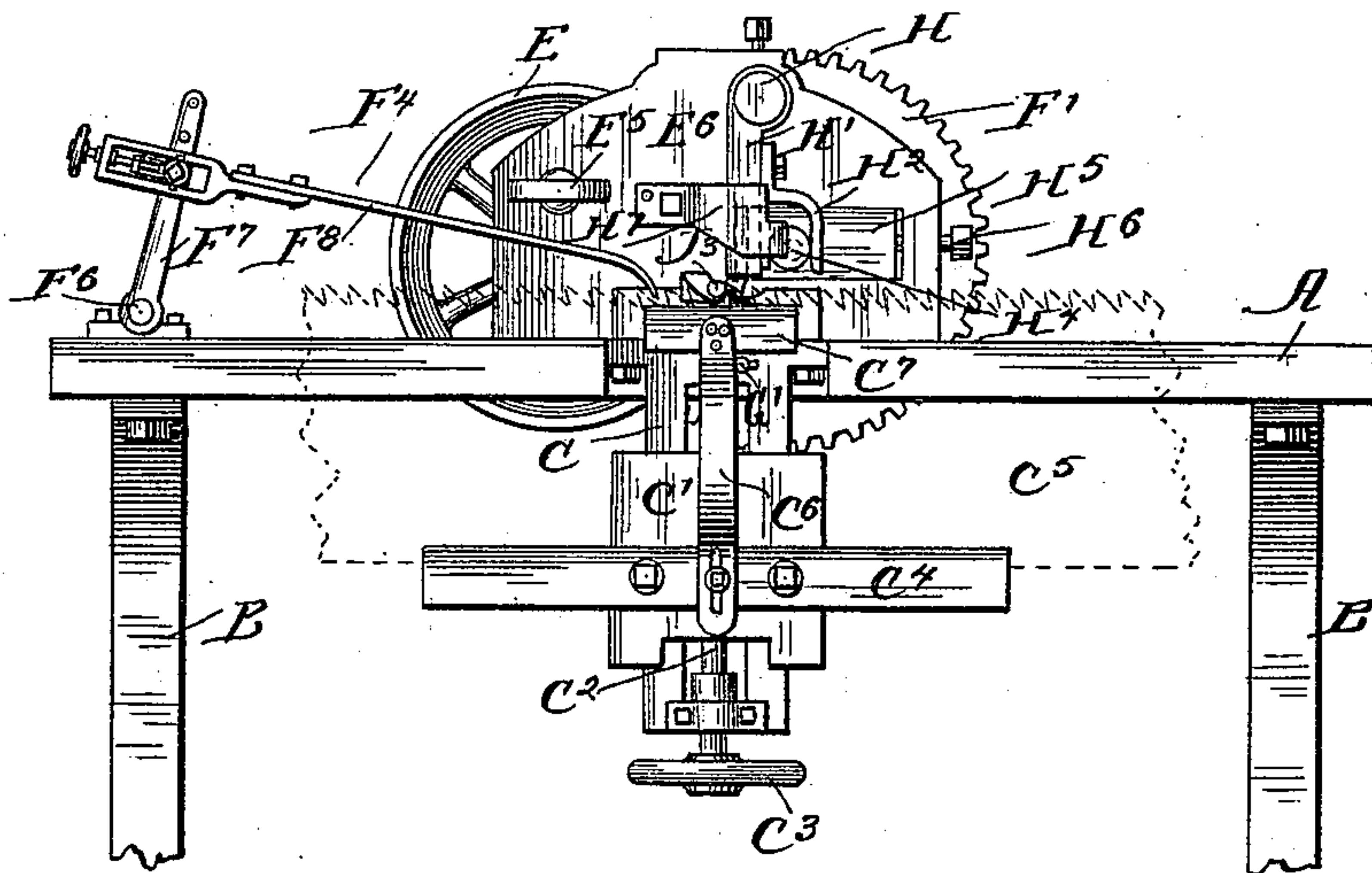
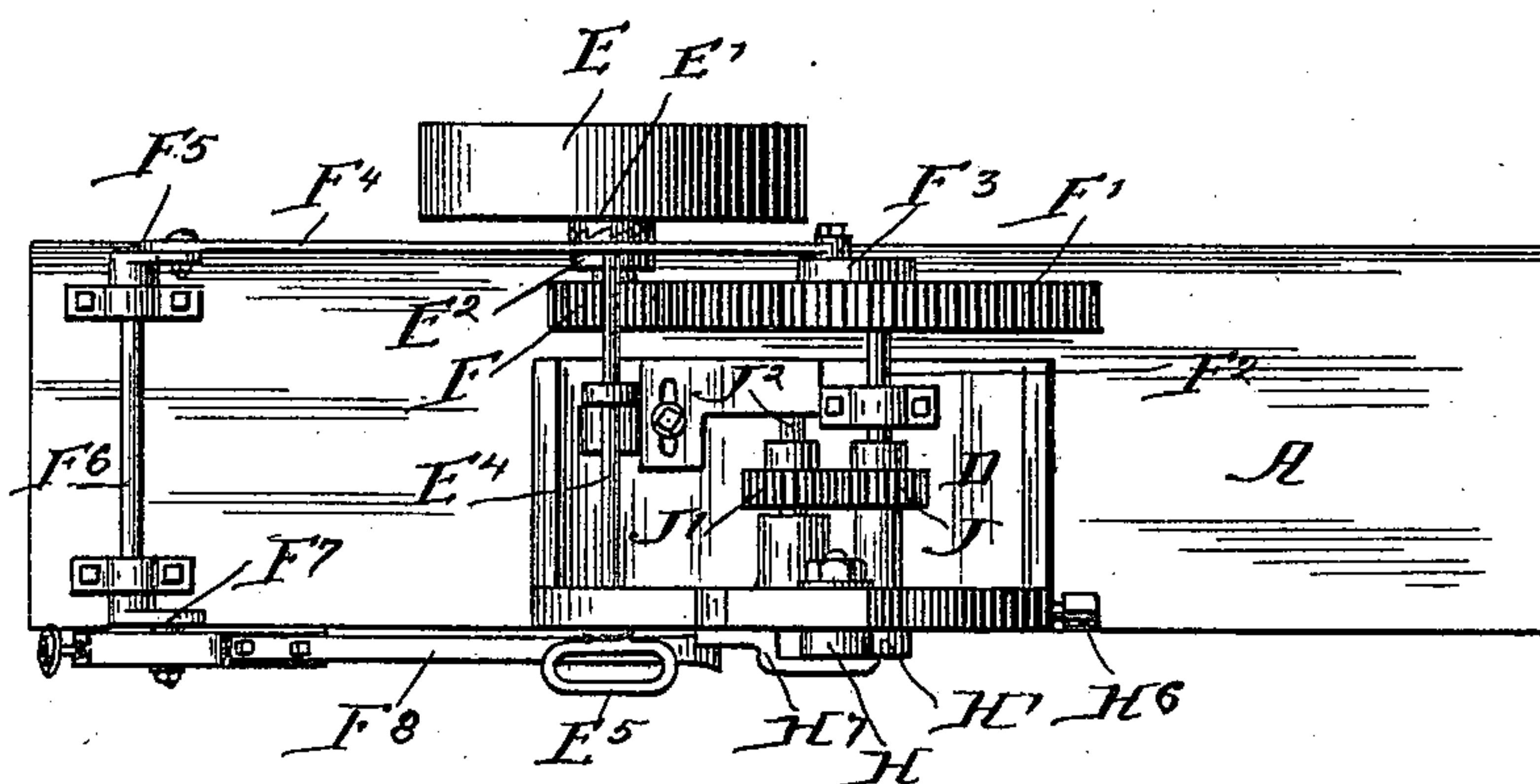


Fig. 2.



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2 Sheets—Sheet 2.

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Fig. 4.

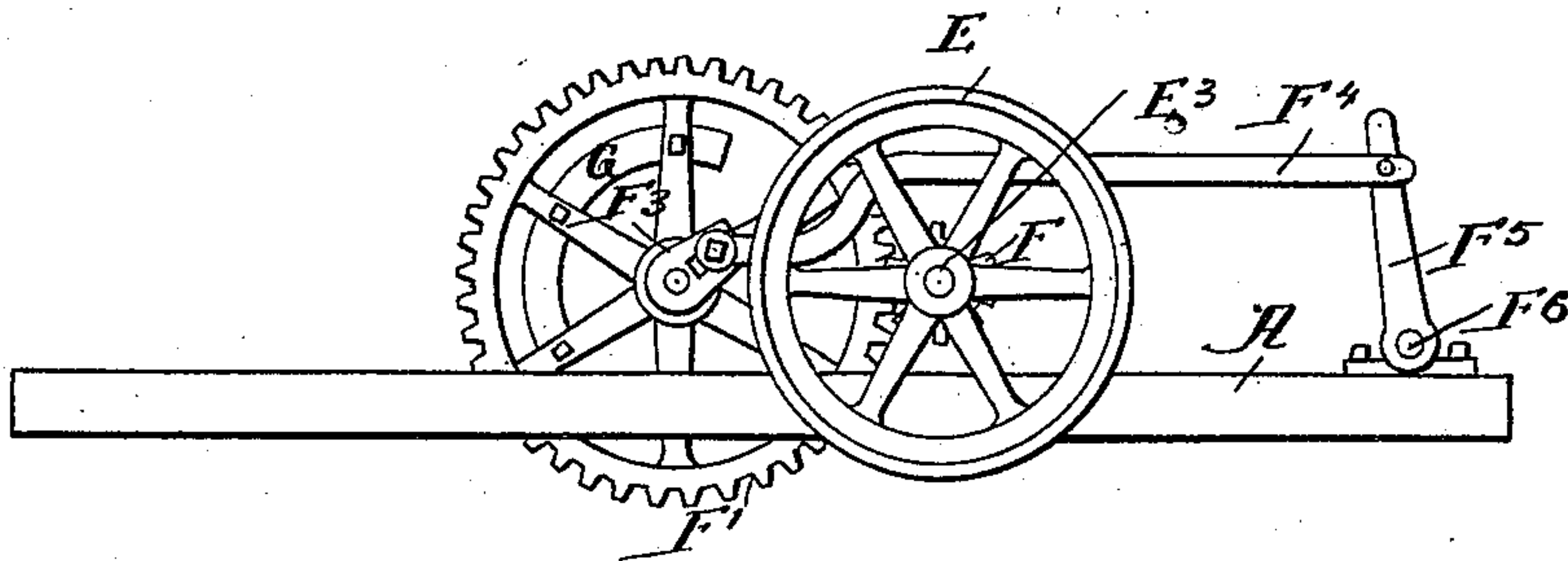


Fig. 3.

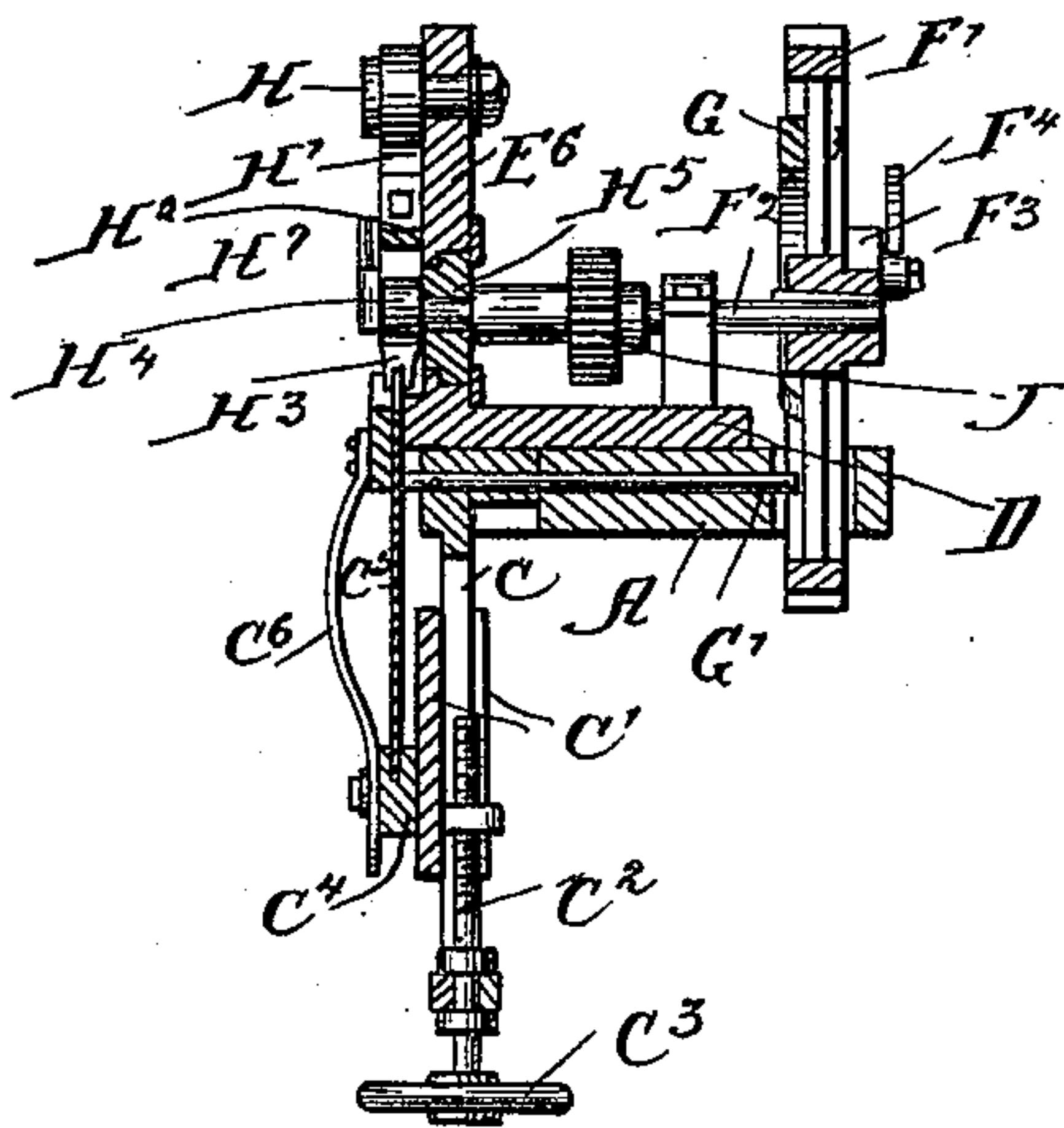


Fig. 7

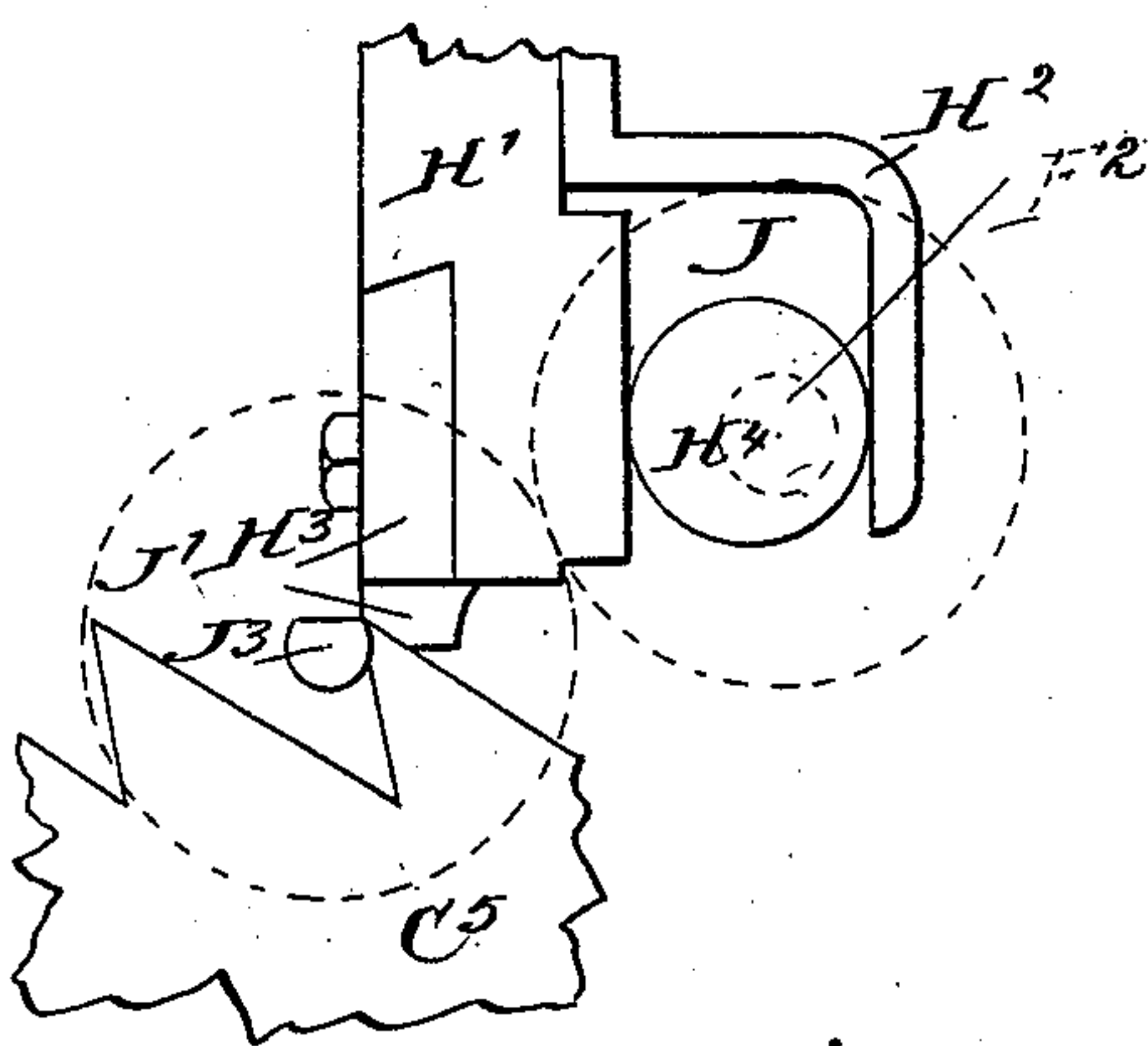


Fig. 5.

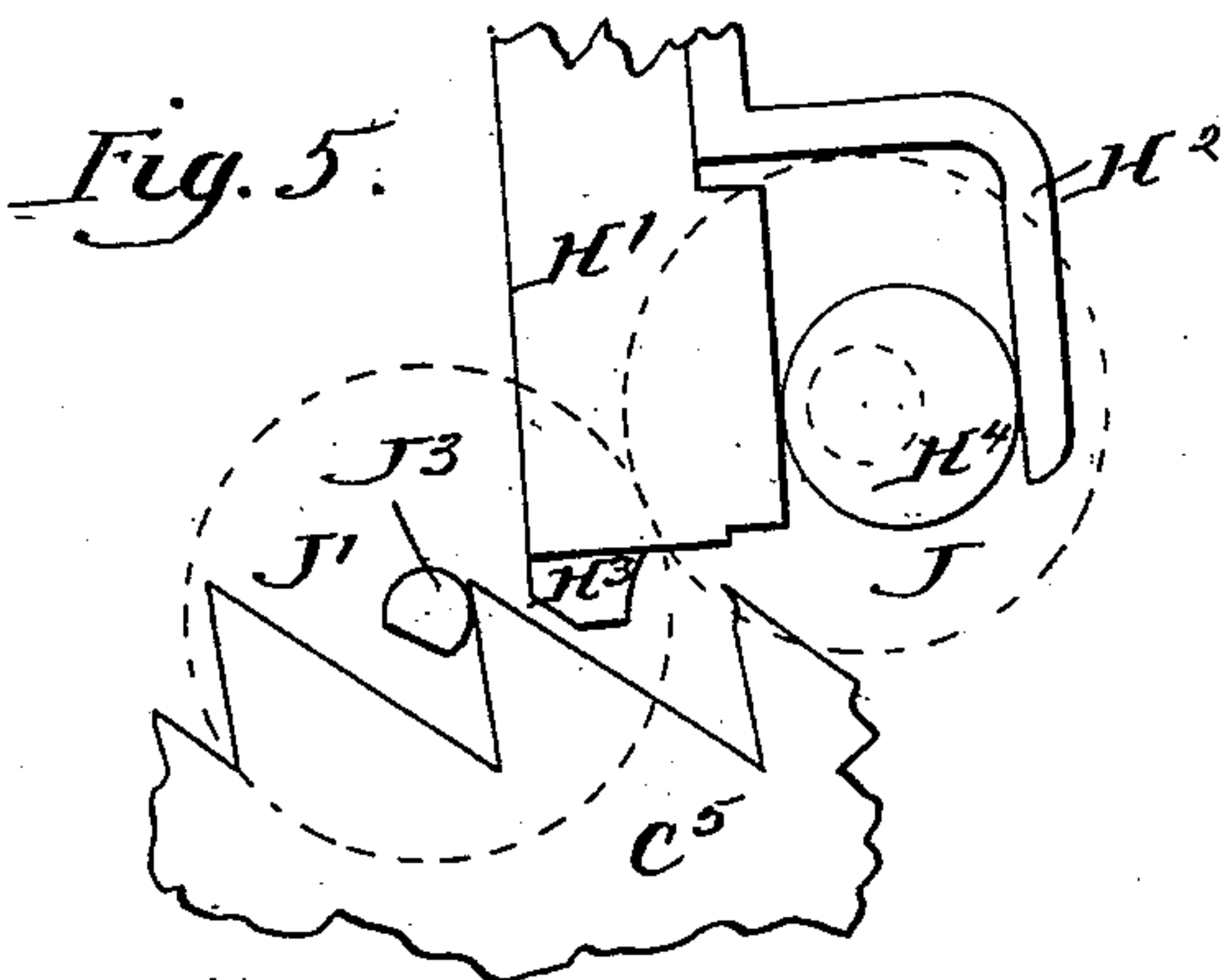
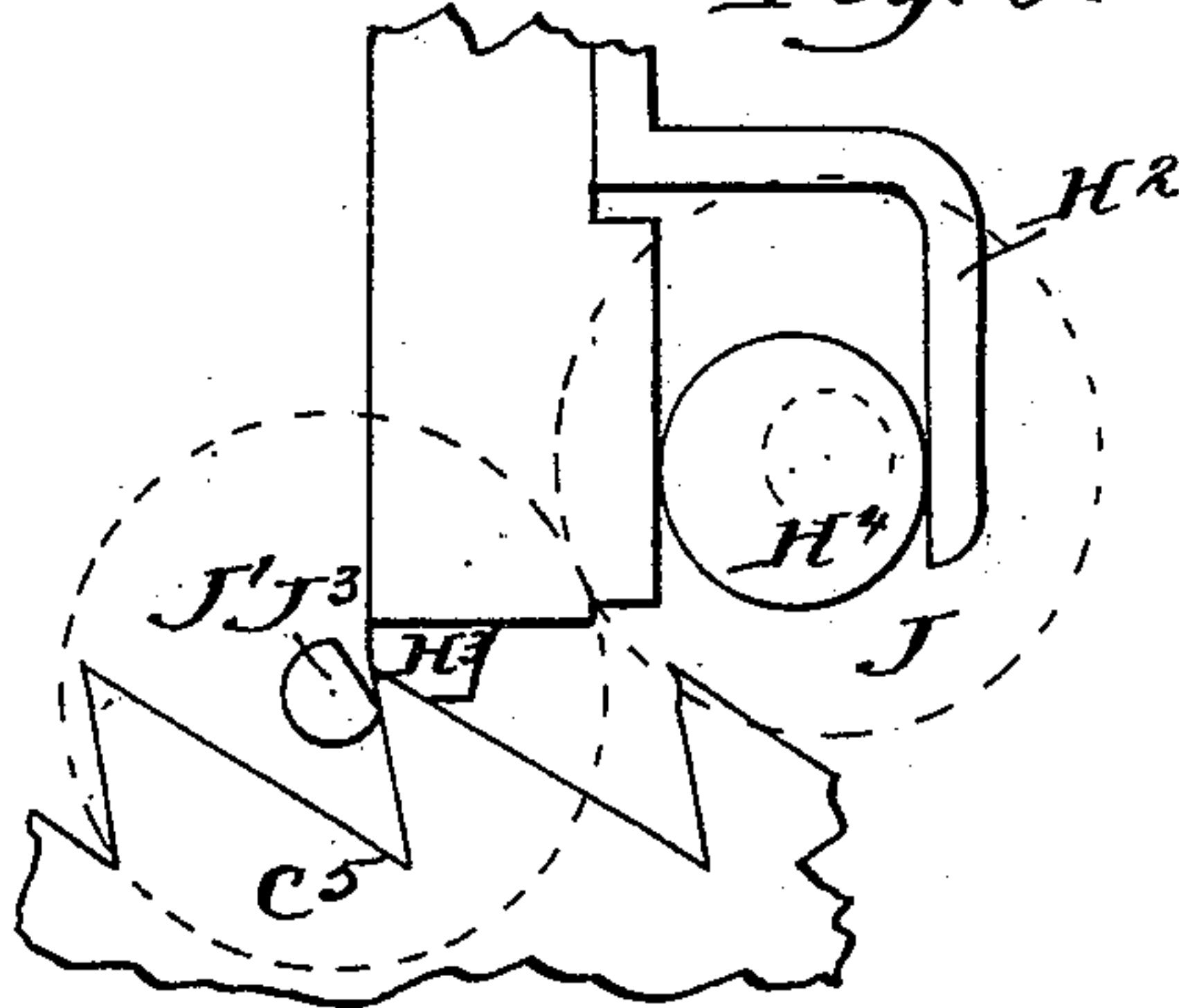


Fig. 6.



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UNITED STATES PATENT OFFICE.

ELISHA B. RICH, OF CHICAGO, ILLINOIS.

SAW-SWAGING MACHINE.

SPECIFICATION forming part of Letters Patent No. 438,861, dated October 21, 1890.

Application filed December 10, 1889. Serial No. 333,265. (No model.)

To all whom it may concern:

Be it known that I, ELISHA B. RICH, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Automatic Saw-Swages, of which the following is a specification.

My invention relates to automatic saw-swaging machines, and has for its object to provide a cheap, simple, and convenient machine.

My invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side view of the machine. Fig. 2 is a plan view; Fig. 3, a cross-section; Fig. 4, a detail view of a portion of the saw feeding and shifting mechanism. Figs. 5, 6, and 7 are enlarged details showing, respectively, the first, second, and third positions of the swaging devices proper in operation.

Like parts are indicated by the same letter in all the figures.

A is the bed-plate or table of the machine, supported on the legs B B and provided with a hanger C, on which is secured the block C', vertically adjustable by means of the screw-rod C² and hand-wheel C³. On the block C' is secured the slotted bar C⁴ to receive the saw C⁵, and on this bar is adjustably secured the arm C⁶, having at its upper end the pressure-block C⁷, which normally holds the saw in the position indicated in Fig. 3. Secured upon the table is the bed D.

E is the driving-wheel, loose on its shaft and provided with the clutch E', adapted to be engaged by the clutch E², which is secured on the driving-shaft E³, so as to slide thereon but rotate therewith. This clutch is secured to the cross-rod E⁴, which terminates in the handle E⁵, projecting beyond the face-plate E⁶. By means of this handle and rod the driving-wheel may be thrown in or out of connection with the driving-shaft. The driving-shaft carries the pinion F, which meshes with the gear F' on the shaft F². This shaft also carries the eccentric F³, which drives the pitman F⁴, connected to the arm F⁵ on the rock-shaft F⁶. On the opposite end of this rock-shaft is the arm F⁷, to which is adjustably pivoted the feed-finger F⁸, adapted to engage the teeth of the saw C⁵, and thus successively feed the same forward tooth by tooth. On

the wheel F' is secured the cam-piece G, adapted to engage the rod G', which passes transversely through the table A and engages the inner side of the saw C⁵. This rod when moved toward the saw by the cam G operates in opposition to the spring C⁶. On the face-plate E⁶ is pivoted at H the hanger H', having the rear finger H² and the lower removable swaging-tooth H³, shaped at its lower extremities substantially as shown. On the shaft F² and outside the face-plate is supported the eccentric-roller H⁴, rotating between the finger H² and the hanger H'. The normal position of the hanger, roller, and shaft is adjusted by means of the sliding block H⁵, in which the shaft is journaled, and the controlling set-screw H⁶.

H⁷ is a guide-piece bearing against the hanger and roller to keep the swaging-tooth in position against the face-plate.

J is a pinion on the shaft F², meshing with the pinion J' on the shaft J², which is journaled in the face-plate, and the outer end of which J³ is cut at one side to serve as a rotating swaging die or anvil in opposition to the swaging-tooth H³.

The use and operation of my invention are as follows: The saw is placed in the grooved rest or piece C⁴, the same being adjusted by means of the hand-wheel C³ to such position as may be necessary to bring the teeth of the saw in the line of the swaging dies or parts. The saw is here normally held in the position indicated in Fig. 3, or in the line of such swaging parts. As the machine operates, the parts are so adjusted that when a tooth has been swaged the end of the rod G' is engaged by the cam G and the saw bent out of the line of the swaging-dies in opposition to the action of the spring C⁶. At the same time the parts are so adjusted that the feeding-tooth F⁸ performs its excursion and feeds the tooth next to be swaged past the die while it is thus bent out of the line of the dies, and thus the rod is released from the cam and the saw restored to its normal position, the next tooth being substantially in the position indicated in Fig. 5. The clutches E' E² being in contact, the rotation of the shaft F² continues and the cam-roller or eccentric H⁴ rotates, as does also the shaft J² and end thereof J³. This rotation swings the tooth H³ forward, and thus

brings the parts into the position indicated in Fig. 6. A continuation of the same motion swages the saw-tooth, as shown in Fig. 7, and a continuation of the same motion releases
5 the saw-tooth by swinging back the swaging-tooth H^3 , with its hanger H' . The process of feeding the saw last above described is now repeated and the next tooth brought between the swaging-dies. The screw H^6 may be op-
10 erated to move the block H^5 , and thus set the eccentric H^4 to an exceedingly nice adjustment. When the swaging-tooth H^3 is worn or injured, it may be removed and another attached to the hanger H' .

15 Having thus described my invention, what I claim, and desire to secure by Letters Patent, is as follows:

1. In an automatic saw-swaging device, the

combination of a rotating die, a swinging opposed die, a cam to actuate the latter, a recip- 20
rocating feed-finger to feed the saw, a spring-support for one side of the saw, and a recip-
rocating cam-actuated push for the other side to intermittently bend the saw out of the nor-
mal plane of its motion, and driving-wheels 25
connected with these parts, so as to drive and operate them automatically.

2. In an automatic saw-swaging device, the combination of a rotating die with a swing-
ing cam-actuated opposed die and driving 30
mechanism to actuate the two said dies.

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Witnesses:

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