

(No Model.)

3 Sheets—Sheet 1.

J. H. MANTION.  
MATCH SPLINT COILING MACHINE.

No. 539,067.

Patented May 14, 1895.

Fig. 1.

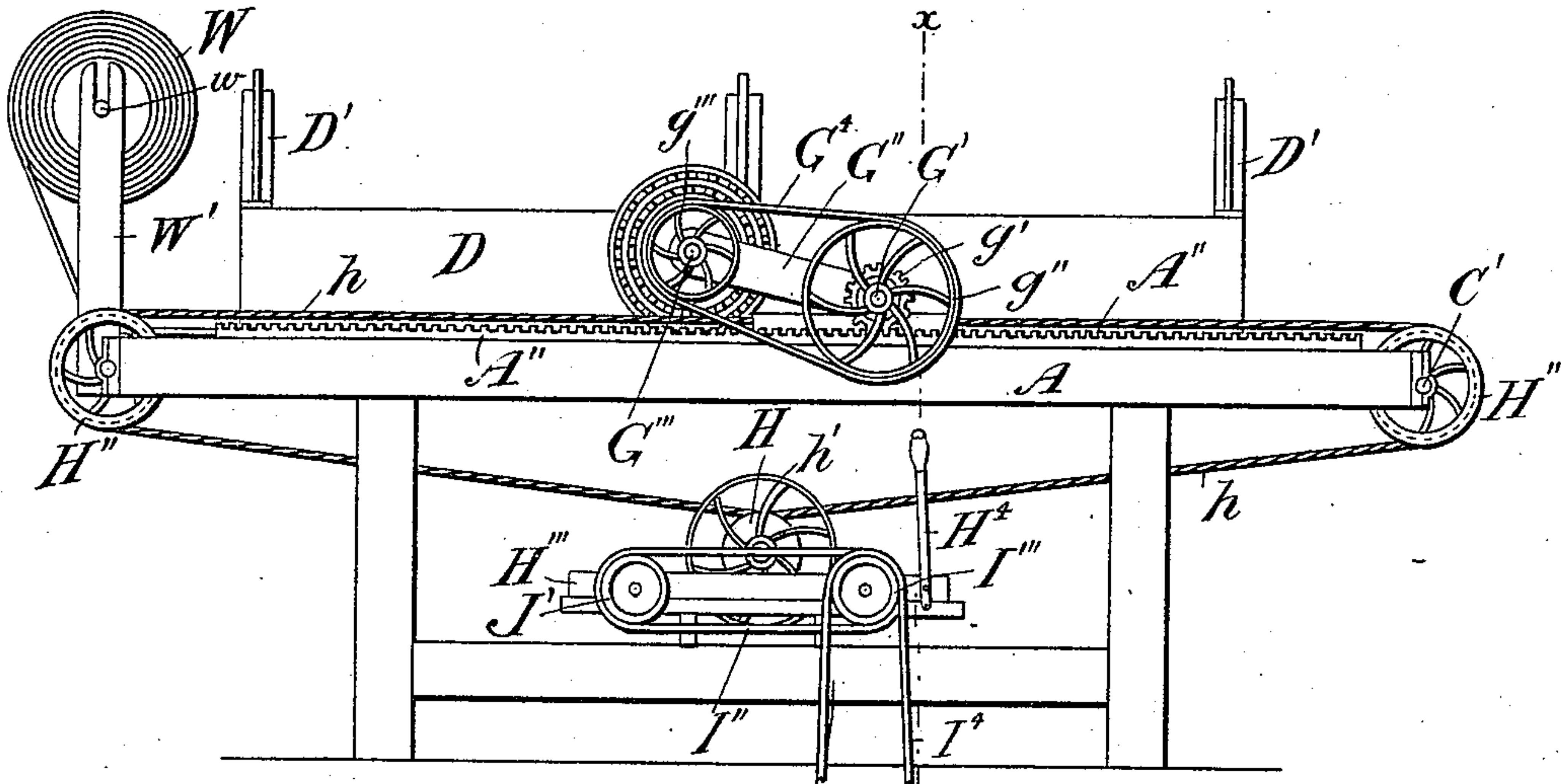
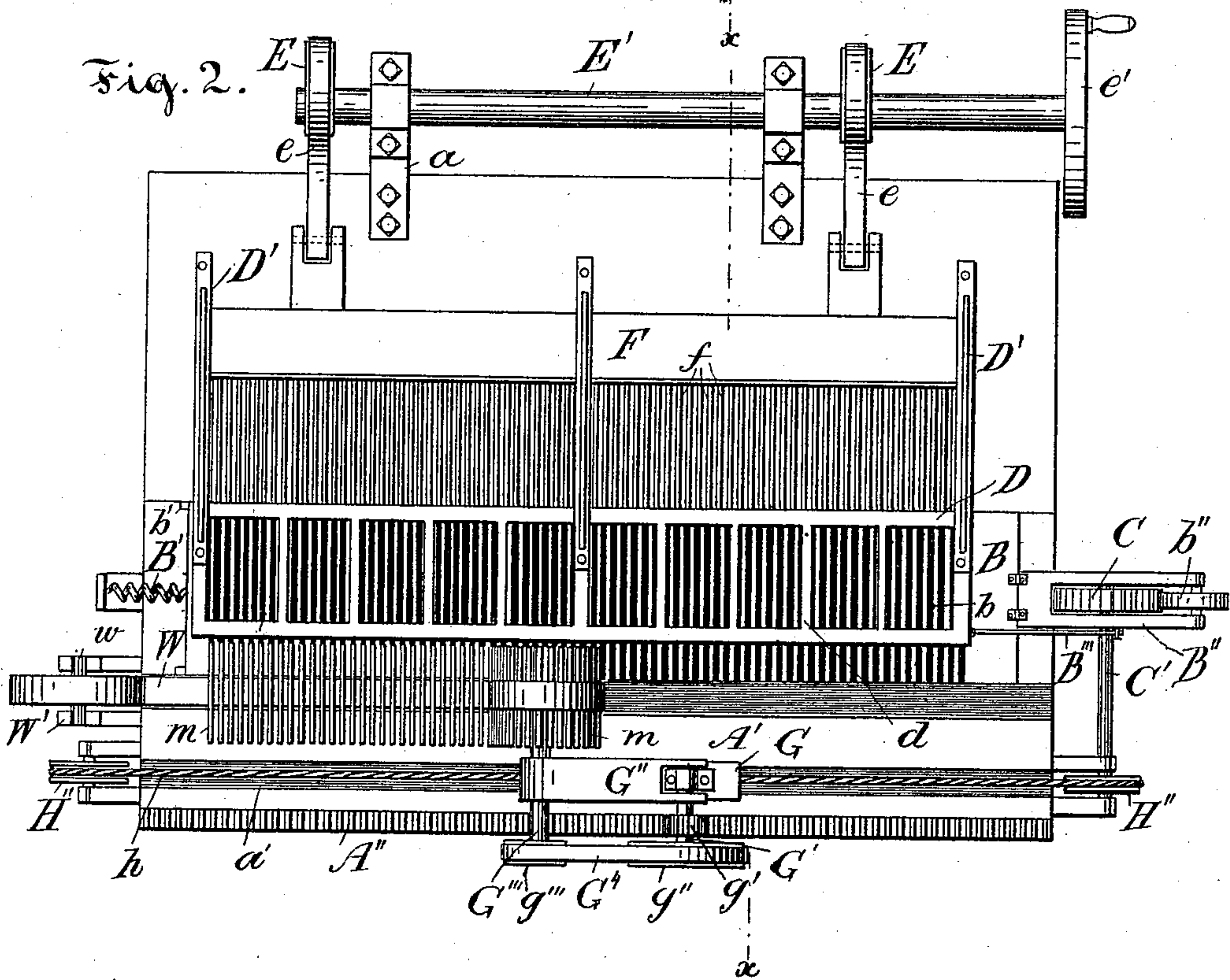


Fig. 2.



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Fig. 3.

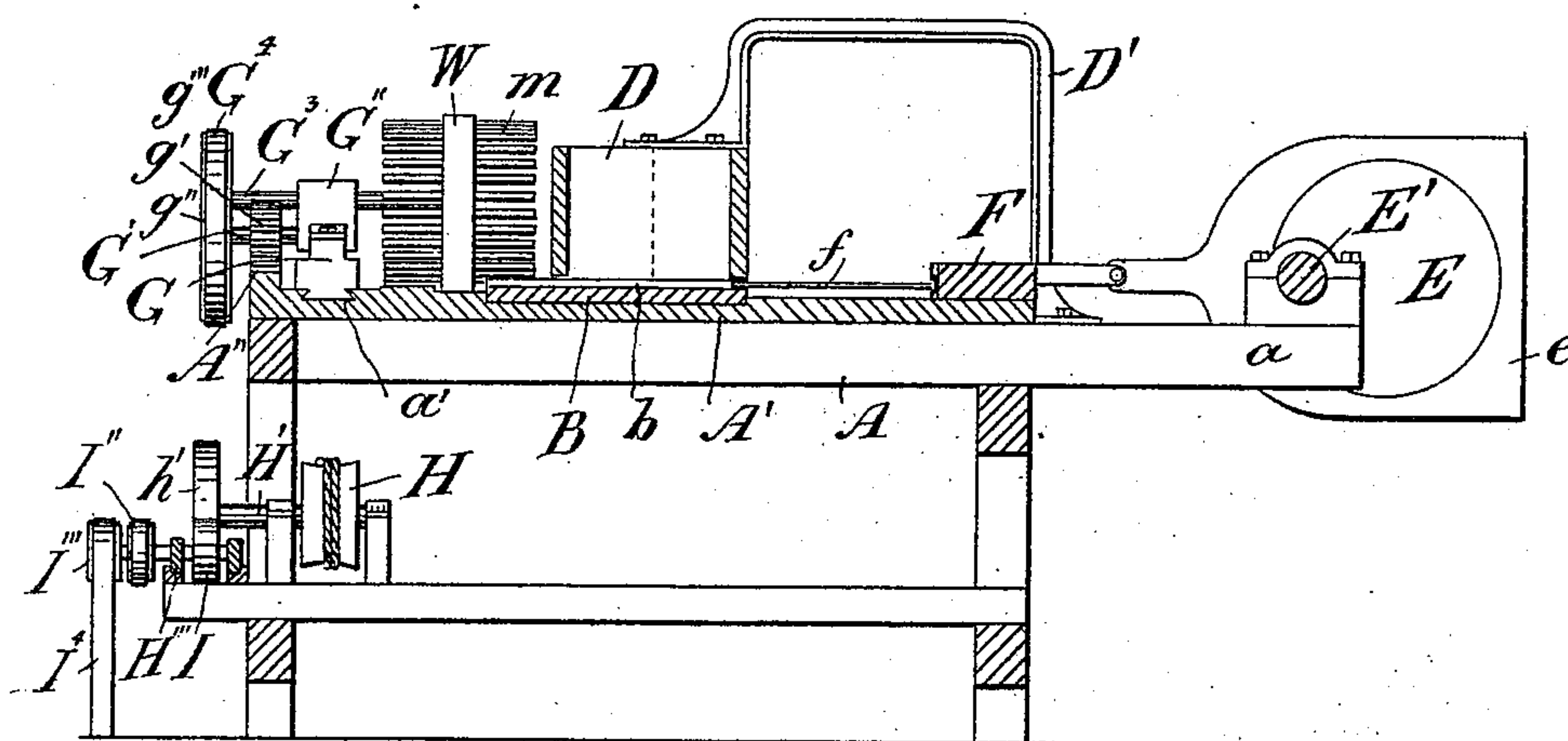
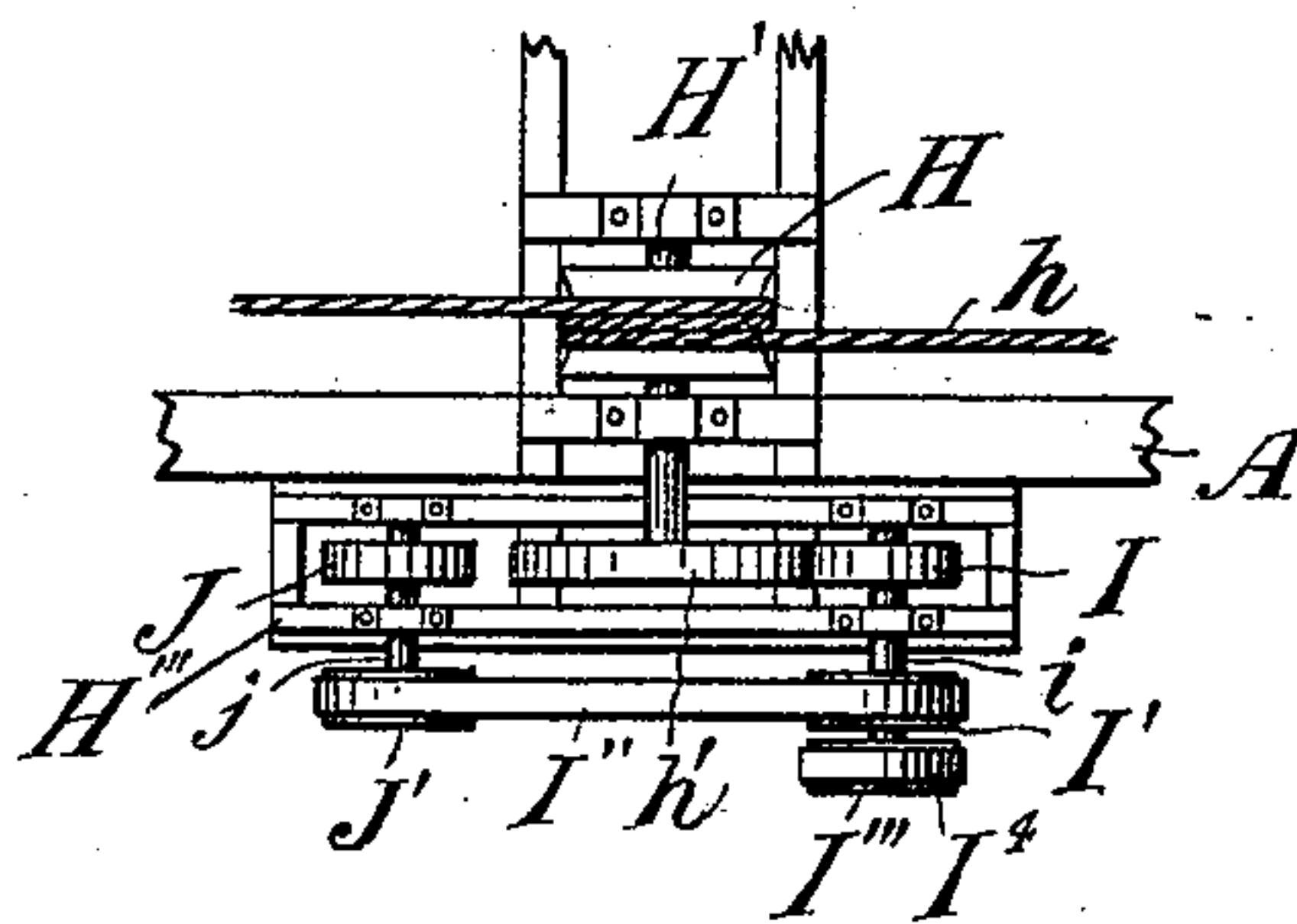


Fig. 4.



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Fig. 5.

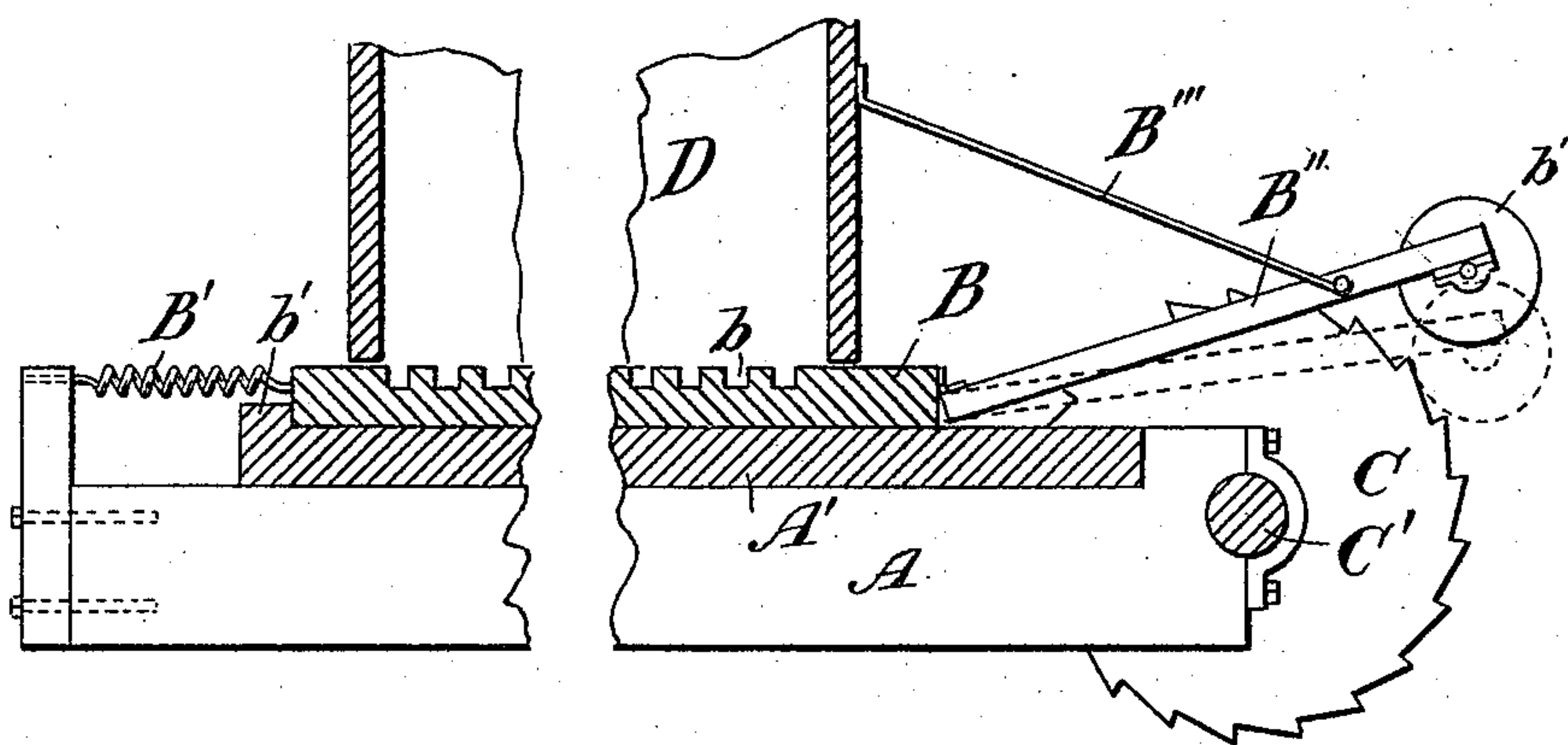


Fig. 8.

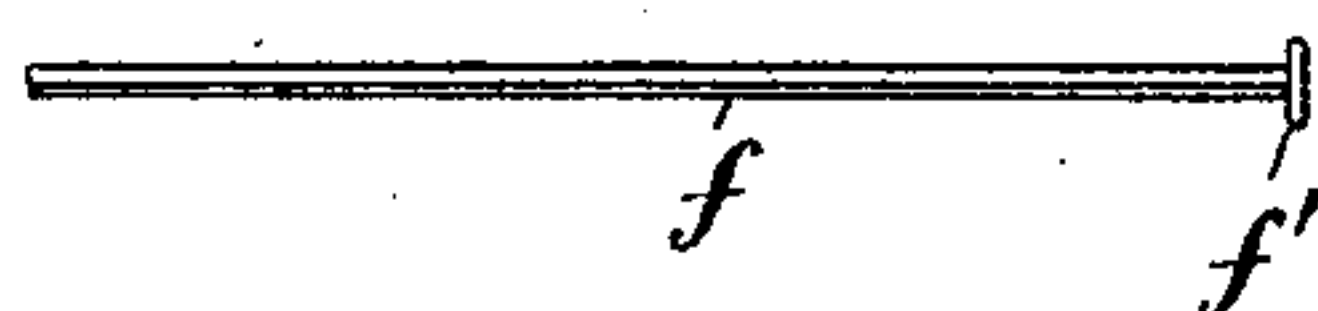


Fig. 7.

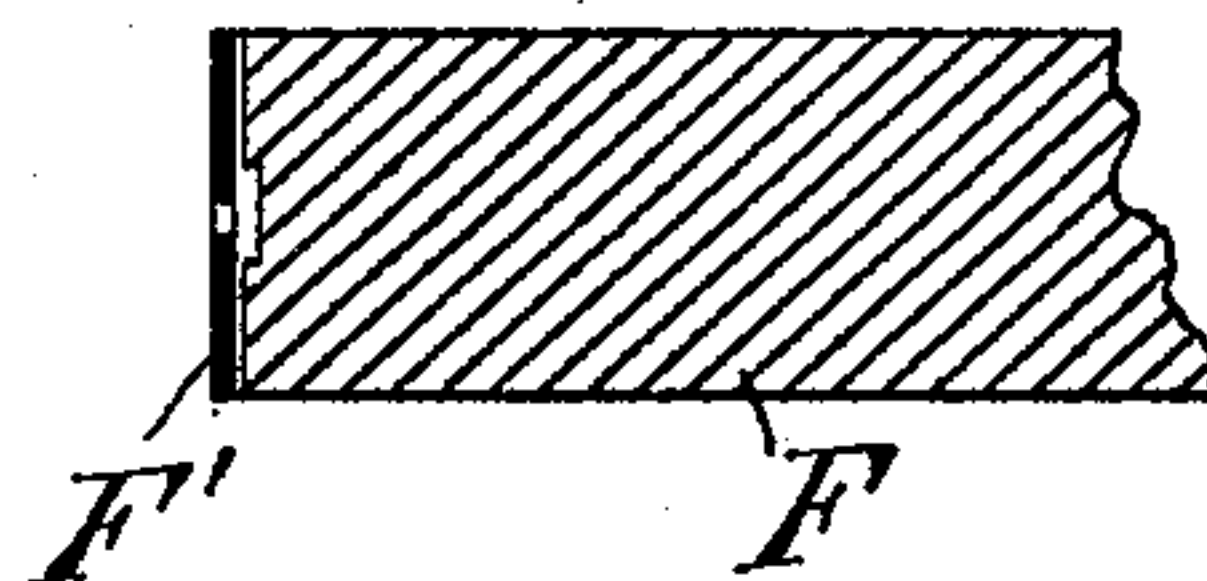
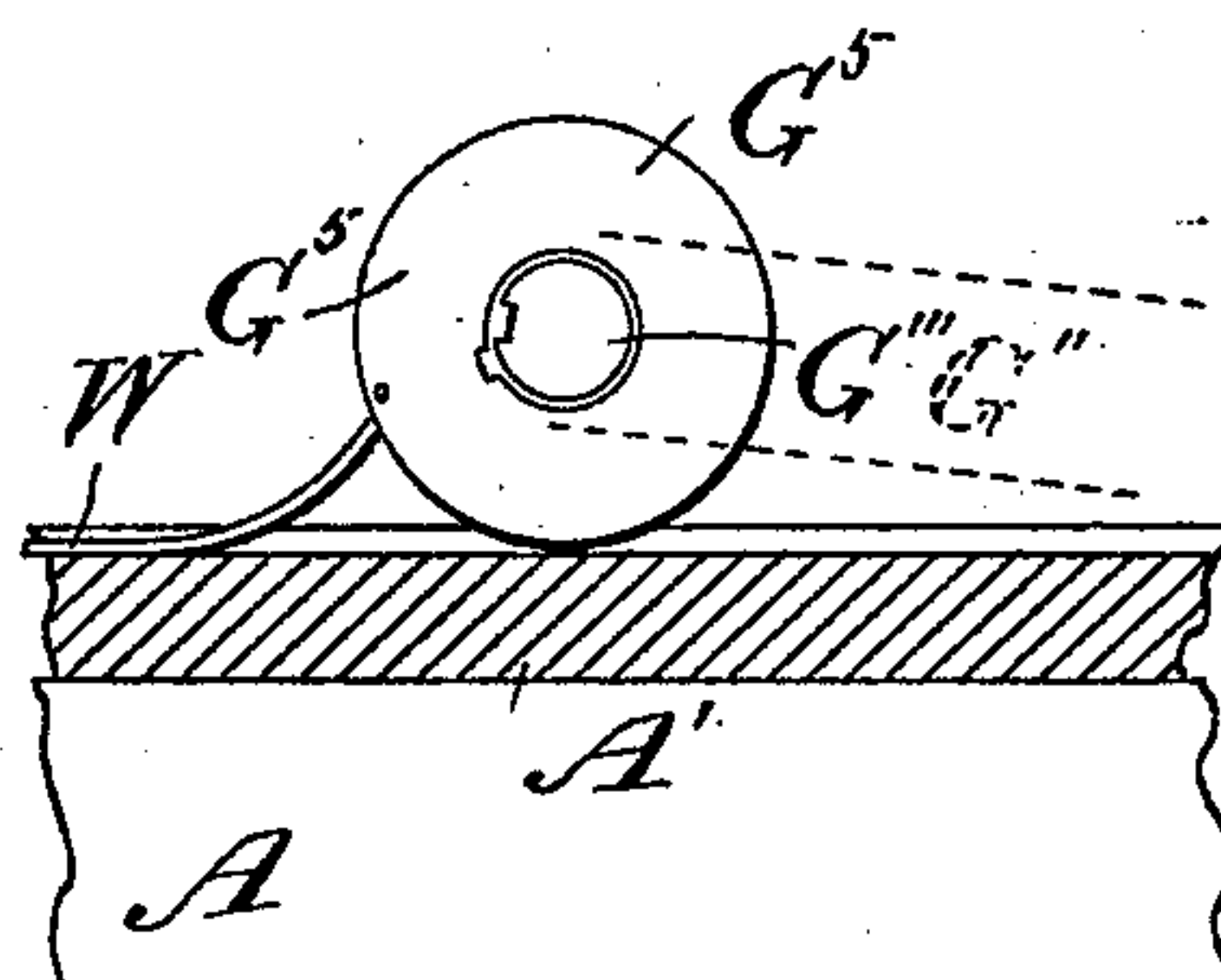
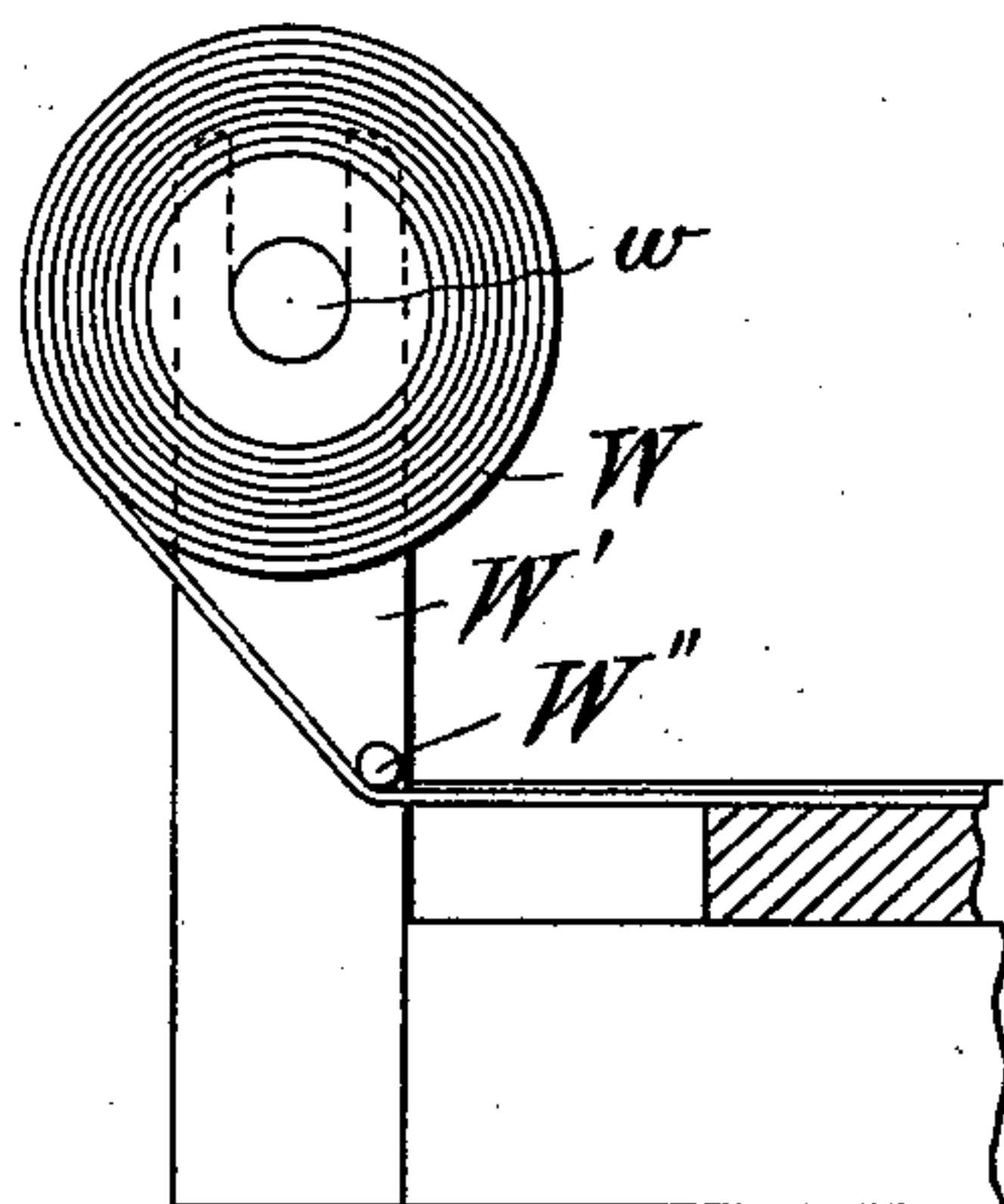


Fig. 6.



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# UNITED STATES PATENT OFFICE.

JOSEPH H. MANTION, OF HULL, CANADA.

## MATCH-SPLINT-COILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 539,067, dated May 14, 1895.

Application filed May 3, 1894. Serial No. 509,884. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH H. MANTION, of the city of Hull, in the Province of Quebec and Dominion of Canada, have invented certain  
5 new and useful Improvements in Match-Splint-Coiling Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a  
10 part hereof.

My invention, which will be hereinafter fully set forth and claimed, relates to machines for putting up match splints in a convenient shape for dipping.

15 Figure 1 is an elevation of my improved machine. Fig. 2 is a top view of the same. Fig. 3 is a transverse section of the same on line *xx*, Figs. 1 and 2. Fig. 4 is a separate top view of the driving-gear. Fig. 5 is a longitudinal section, on a larger scale, of the hopper and grooved plate and vibrating gear part being broken out. Fig. 6 is a detail of the tape and tape-drum, and Figs. 7 and 8 are  
20 details of the pusher-comb.

25 Upon a table, consisting of suitable frame work, A, with top or plate, A', is slidably bedded a transversely grooved plate, B, Figs. 2, 3 and 5, held in a channel of such depth that the bottom of the grooves stand about level  
30 or slightly higher than the upper surface of a flat webbing tape or band, W, laid parallel to and in front of it. Said plate is of any desired length and of such a width as to extend transversely under a hopper capable of  
35 holding a double match splint and reaching close to the edge of the tape W which is adapted to hold said splints in the center. The grooves, *b*, in said plate, Fig. 5, are capable of holding a match splint freely and may  
40 be any desired distance apart. Said plate has one end drawn against a stop or shoulder, *b'*, in the bed, Figs. 2 and 5, by a spring, B', and to the other end is pivoted a rod, B'', carrying a bowl, *b''*, at its end and adapted  
45 to be held up by a hooked rod, B''' This bowl, journaled on said rod, is adapted, when not held up by the hooked rod B''', to bear upon the face of a ratchet wheel, C, which is mounted upon a cross shaft, C', journaled at  
50 the end of the table and receiving motion from a convenient source, which wheel draws it a short distance against the pull of the

spring at the other end, thus giving a short and rapid traverse or vibratory motion to the plate B.

Superimposed on the plate B, but not resting on, or supported by it, is a hopper, D, capable of holding a double match splint transversely and extending over the entire length of the grooved portion of the plate, being secured to the table by brackets D' and provided at intervals with transverse partitions  
55 *d*, as shown in Figs. 1, 2, 3, and 5.

On a rearward extension of the table frame, *a*, Figs. 2 and 3, parallel to the plate B, is  
60 journaled a shaft, E', provided at one or both ends with a hand crank, *e'*, and having mounted upon it two or more eccentrics, E, with eccentric straps, *e*, which are adapted to give a traverse motion to the pusher comb to  
65 which they are pivoted. Said pusher comb, shown in Figs. 2 and 3 and in detail in Figs. 7 and 8, consists of a bar, F, to the front edge of which are secured a series of fingers, needles, pins or pushers, *f*, one for each groove  
70 *b* in the plate B. Said fingers or pins are formed with a head *f'* and the shank inserted in the perforations of a plate, F', which is then secured to the edge of the bar F with the heads *f'* between the plate and the bar,  
75 thus keeping them in place against the solid abutment of the bar F and yet retaining a considerable degree of flexibility. These fingers or pushers have their free ends inserted in the grooves *b* under the back of the hopper  
80 and never leave them. They slide in said grooves far enough to have their points project clear in front of the hopper, the throw of the eccentrics being duly adapted to such travel pushing before them the splints in the  
85 grooves.

The flexible mounting of the fingers *f* serves to allow for the vibrations of the plate B in which the ends of the fingers rest while the bar F remains stationary. At the same time  
90 the ends of the fingers are sufficiently confined one in each groove of the plate and under the rear edge of the hopper to prevent them leaving their position.

A carriage, G, Figs. 1, 2 and 3, is held slid-  
95 ingly near the front edge of the table in a dovetailed bed, *a'*, parallel to the plate B. Upon it is journaled a shaft or spindle, G', having mounted upon it a pinion *g'* gearing



into a rack, A'', at the edge of the table and also, upon the end of the shaft overhanging the table edge, a pulley g''. Upon said shaft is also pivoted, at both sides of the journal, the bifurcated end of an arm, G'', to the other end of which is journaled a shaft or spindle, G''', which receives motion from the pulley g'' through a pulley g''' mounted at one end and connected by a belt G<sup>4</sup>. The other end of said shaft or spindle G''' extends over the tape W and has journaled upon it a drum, G<sup>5</sup>, Fig. 6, which it rotates by means of a spring clutch or other connecting device when moving in one direction. Upon said drum the end of the tape W is secured, a coil of the same being placed at one end of the table upon a roller or axle, w, in brackets W', whence it is drawn under a guide roller, W'', along the table top in which a suitable groove may be provided for it.

The carriage G is propelled forward and backward by a reversible drum, H, Figs. 1, 3 and 4, having a cord, h, coiled upon it which passes over a guide pulley, H'', at each end of the table and has its ends secured to said carriage. One of the guide pulleys H'' is mounted upon the shaft C' which carries the ratchet wheel C, (Fig. 2,) and gives motion thereto. The drum H is mounted upon a shaft H' journaled below the table top A' and carries a friction pulley, h'. To this motion is communicated at will by one of two other friction pulleys, I and J, mounted upon parallel shafts or spindles, i and j, one on each side of the shaft H' and journaled upon a movable frame H''' controlled by a lever H<sup>4</sup>. The shafts or spindles i and j each have a belt pulley, I' and J' respectively, mounted upon it which are connected by a belt, I'', one of the two, say i, receiving motion from a driving pulley I''' mounted upon it and a belt I<sup>4</sup>.

The machine operates as follows: The match splints to be prepared for dipping are placed in the hopper D, the crank e' turned to withdraw the pushers f from the clear space of the plate B within the hopper, and a roll or coil of tape or webbing is placed upon the brackets W', the end thereof passed under the guide roller W'' and connected to the drum G<sup>5</sup>, the carriage G with the latter having been run up to that end of the table. The carriage G is now run in the opposite direction by reversing the lever H<sup>4</sup>, thus moving the frame H''' and disengaging that one of the two friction pulleys I or J which has been in contact with the friction pulley h' and engaging it by the other, both being of course first set in motion by the belt I<sup>4</sup> and pulley I'''. The carriage G now travels along the table in the opposite direction, the shaft or spindle G' being rotated by the pinion g' upon it being engaged by the rack A'', but as the clutch slips the drum G<sup>5</sup> does not rotate but uncoils a length of tape or webbing from the axle w and draws it along the table in front of the plate B. When the carriage G has arrived at the other end of the table and a full length

of tape has been drawn off and laid, it is stopped by moving the lever H<sup>4</sup> so that neither of the pulleys I and J engage the pulley h'. The vibrating motion of the plate B also stops, as the cord h, pulley H'' and wheel C cease running with the carriage G, and a match splint, m, will have been shaken in each groove of the plate B. The crank e' is now given a turn, causing each finger f to push out the splint m that lies before it in the groove b clear of the hopper and receding again and leaving the groove clear for another splint. The splints just pushed out have been propelled and laid across the webbing or tape W, one end being still in the plate B, but free to be lifted and ready to be coiled up. This is now done by moving the lever H<sup>4</sup> and thus the frame H'', causing that one of the friction pulleys I and J to engage the pulley h' which will rotate it and the drum H so as to propel the carriage G toward the coil of tape and the shaft or spindle G''' with the drum G<sup>5</sup>, through the rack A'', pinion g' and the pulleys g'' and g''', causing said drum to wind up the tape or webbing with the splints deposited on it and forming tape and splints into a roll or coil W m in which the splints are firmly held. The shaft or spindle G''' being journaled at the free end of a pivoted arm, is adapted to rise as the thickness upon the drum G<sup>5</sup> increases. This operation may be repeated. The vibrating motion may be stopped at any time by raising the arm or rod B'' and holding it up by the rod B'''.

If single match splints are to be manipulated, a block is inserted in the rear portion of the hopper, filling out the rear half thereof which otherwise would have been occupied by the extra length of the splints. In such case one end of the splint may be within or at least even with one edge of the tape, as then only one end requires dipping.

I claim as my invention—

1. A match splint coiling machine, composed of a suitable frame or table supporting the operating mechanism, a transversely grooved plate bedded thereon in a channel adapted to allow a longitudinal motion, means to impart a longitudinal vibrating motion to said plate, a hopper extending longitudinally over and transversely partly across said plate and held over and close to the top of the same by brackets secured to the table, a pusher comb having the ends of its fingers in the rear ends of the grooves in the said plate and adapted to travel therein beyond the front of the hopper intermittently, a flat tape or webbing laid along said table in front of the said plate and level with the bottom of the grooves therein, a carriage held slidingly on said table parallel to said plate and tape, a shaft or spindle journaled on said carriage and receiving motion by moving on said table and communicating it to a shaft or spindle journaled on an arm pivoted to said shaft or spindle and having a drum adapted to engage and



coil up said tape and means of imparting an intermittent reciprocating motion to said carriage at pleasure by a cord having its ends secured to said carriage, substantially as set forth.

2. In a match splint coiling machine, the combination of a table A A' adapted to support suitable mechanism, a transversely grooved plate B bedded on said table to slide thereon longitudinally, means of giving a longitudinal vibratory motion to said plate, a hopper D and brackets D' the latter holding the former over said plate and close to the surface thereof without resting thereon, fingers f flexibly secured to a bar F at one end and having their free ends in the rear end of the grooves, a shaft E' provided with hand crank e' journaled parallel to said plate, eccentrics E mounted on said shaft and straps e on said eccentrics pivoted to the comb bar F and adapted to operate said fingers in said grooves, substantially as set forth.

3. In a match splint coiling machine, the combination of a table A A' adapted to support suitable mechanism, a transversely grooved plate B bedded on said table to have a longitudinal sliding motion, means of im-

parting a longitudinal vibrating motion to said plate, a hopper D held above and close to the upper surface of said plate by brackets D' secured to said table, fingers f secured flexibly to a bar F having their ends in the grooves of said plate, means of moving said fingers in said grooves at pleasure and a tape or webbing W laid before the front edge of said plate level with the bottom of the grooves in said plate, substantially as set forth.

4. In a match splint coiling machine, the combination of a table A', a transversely grooved plate having a longitudinal vibrating motion thereon, tape or webbing laid in front of said plate and parallel to it so that its upper surface is not above the bottom of the grooves in said plate, means of holding one end of said tape at one end of the table on an axle or roller, and means of drawing off a length thereof and then rolling it up, substantially as set forth.

In testimony whereof I have signed in the presence of the undersigned witnesses.

JOSEPH H. MANTION.

Witnesses:

A. HARVEY,  
B. HARVEY.