

(No Model.)

2 Sheets—Sheet 1.

E. S. MORGAN.
WIRE FENCE MACHINE.

No. 549,384.

Patented Nov. 5, 1895

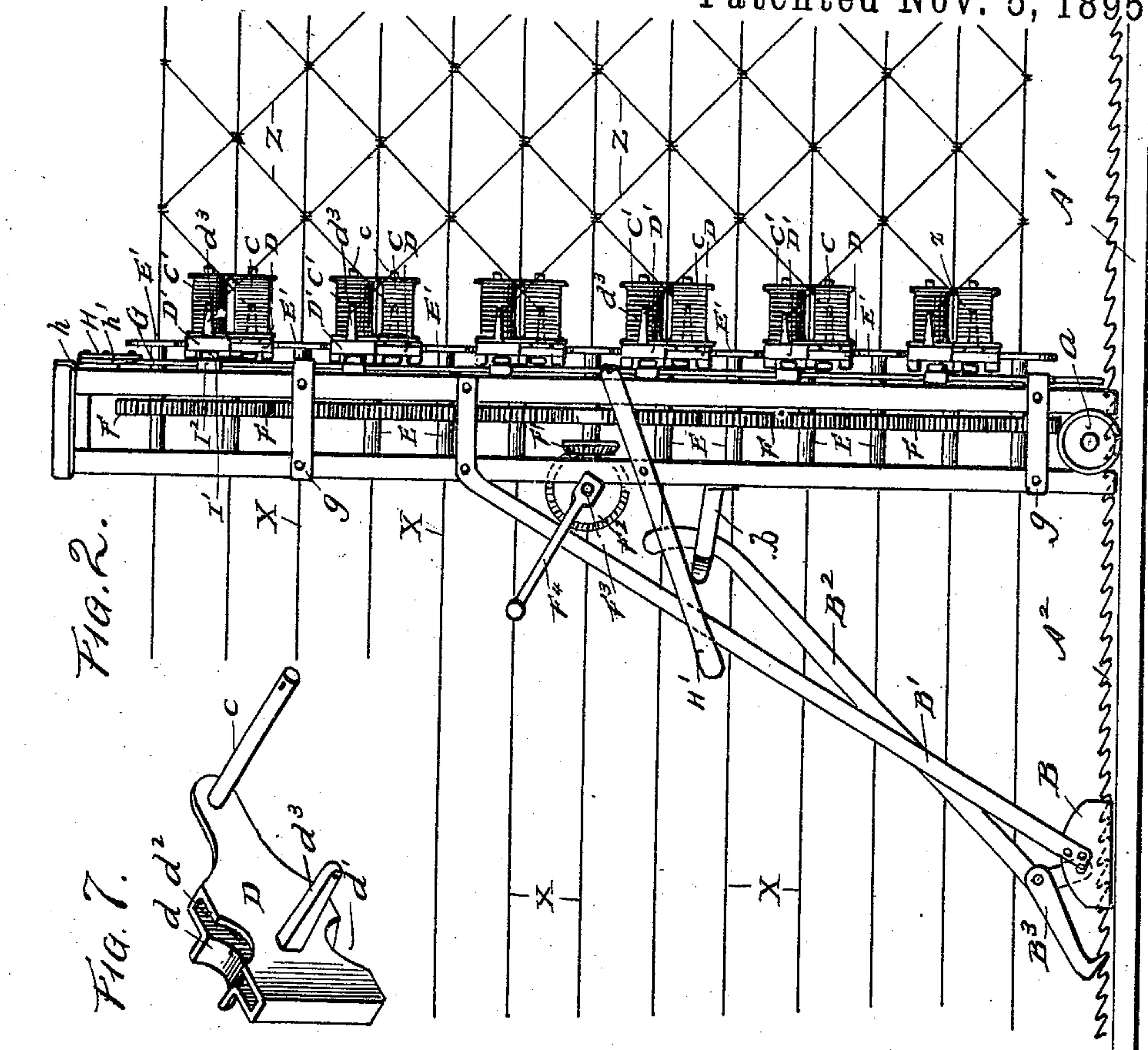


FIG. 2.

FIG. 7.

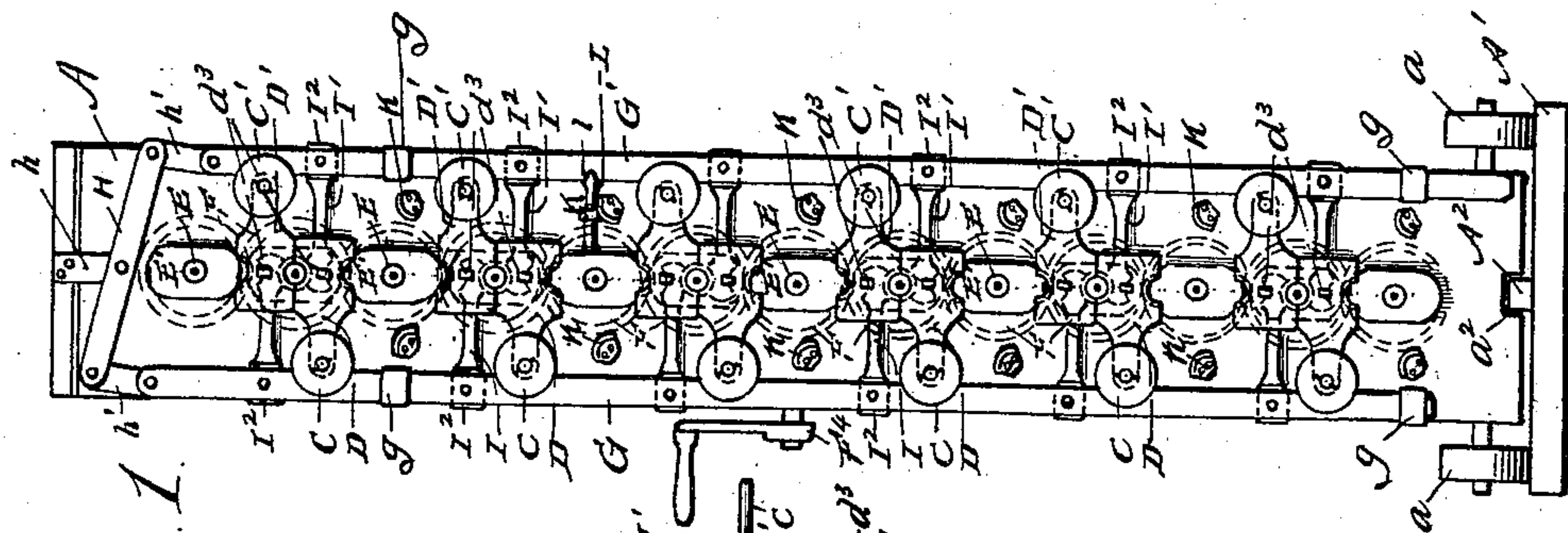
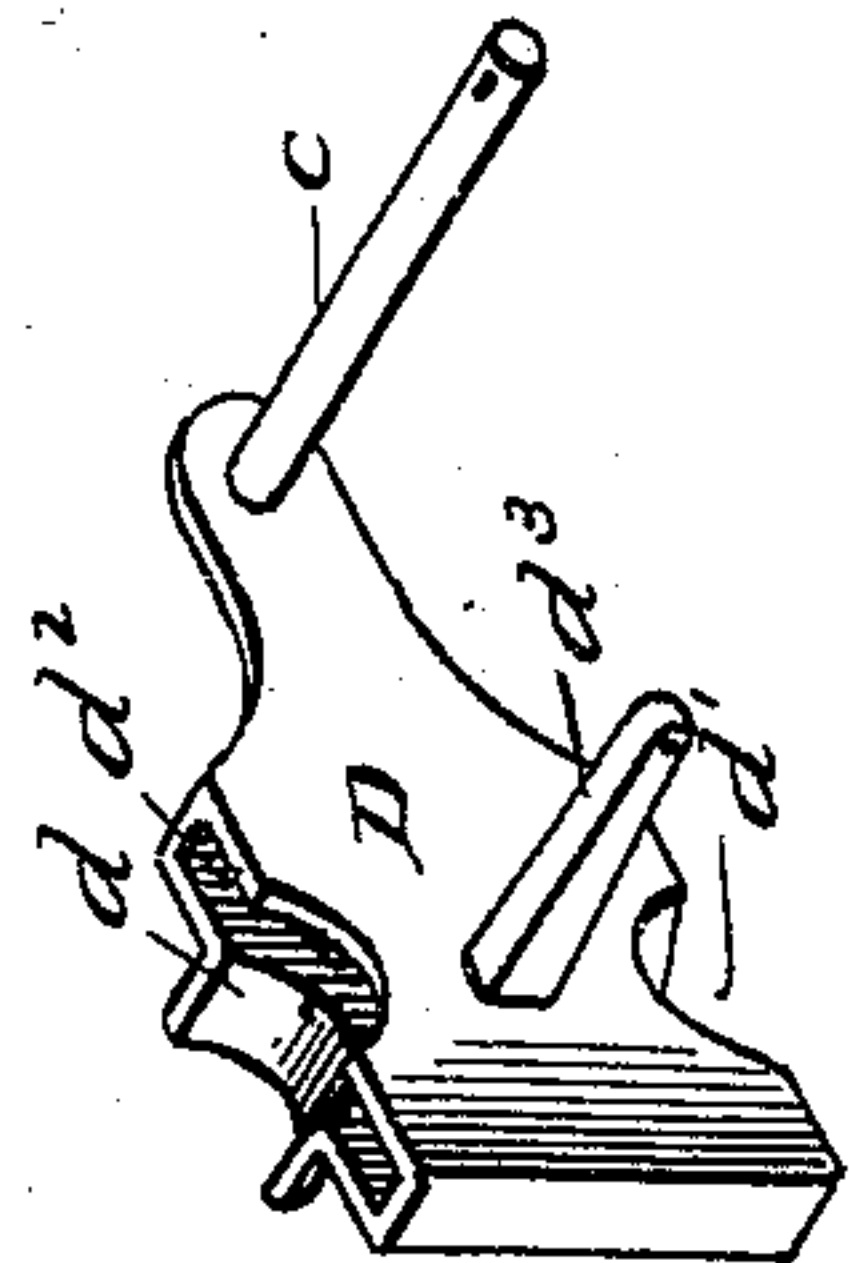
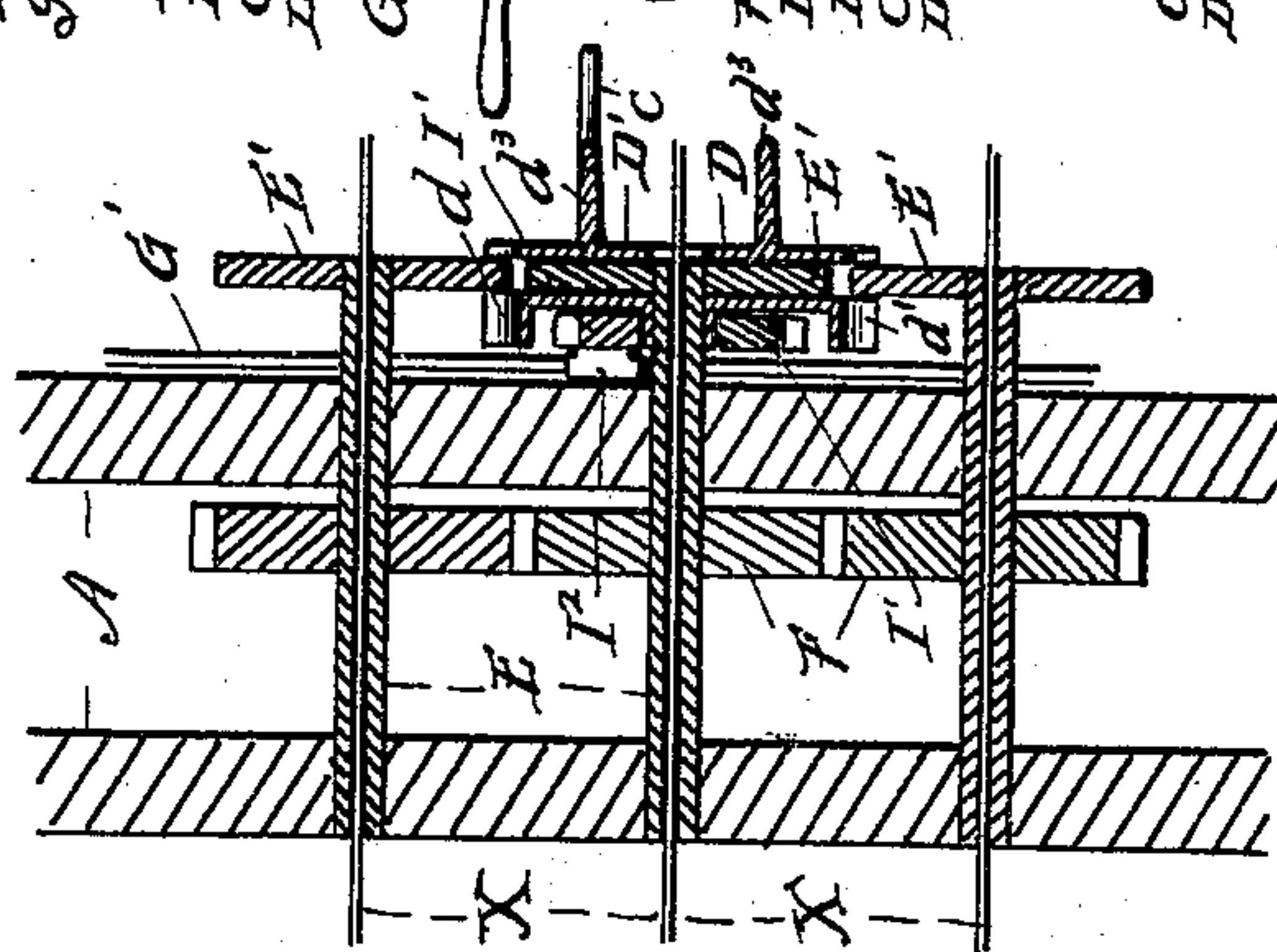


FIG. 1.



Witnesses
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FIG. 3.

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(No Model.)

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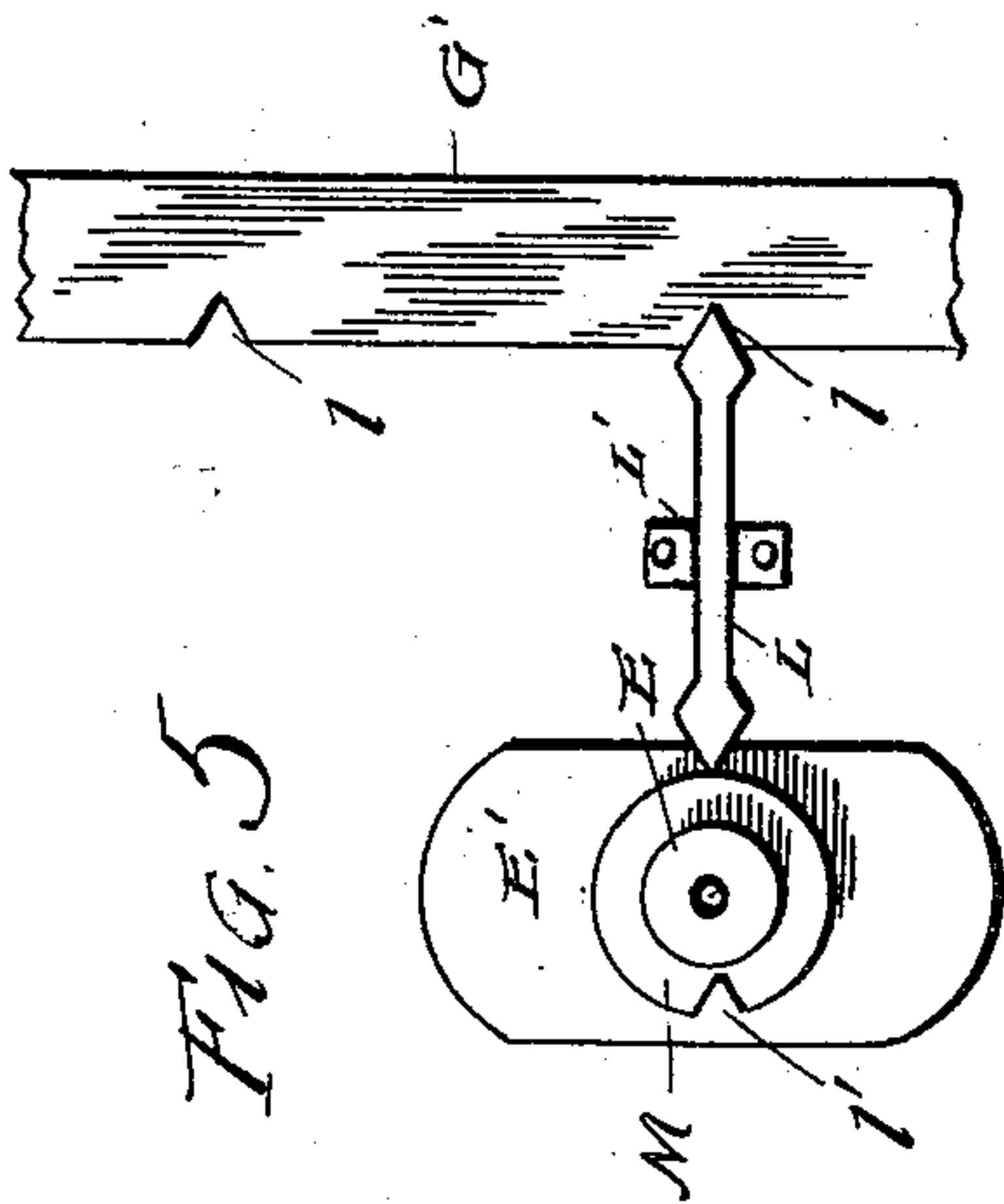


FIG. 5.

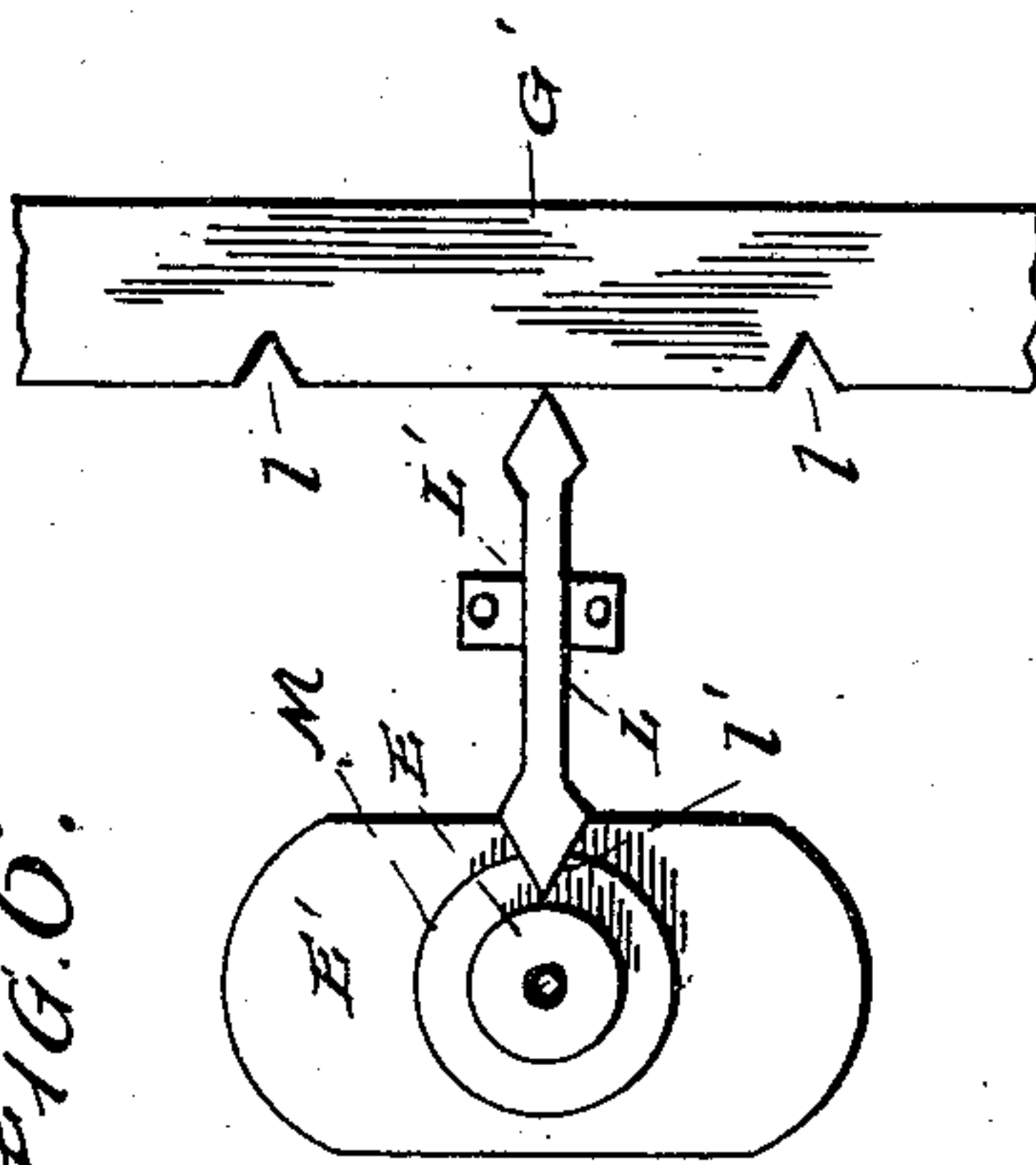


FIG. 6.

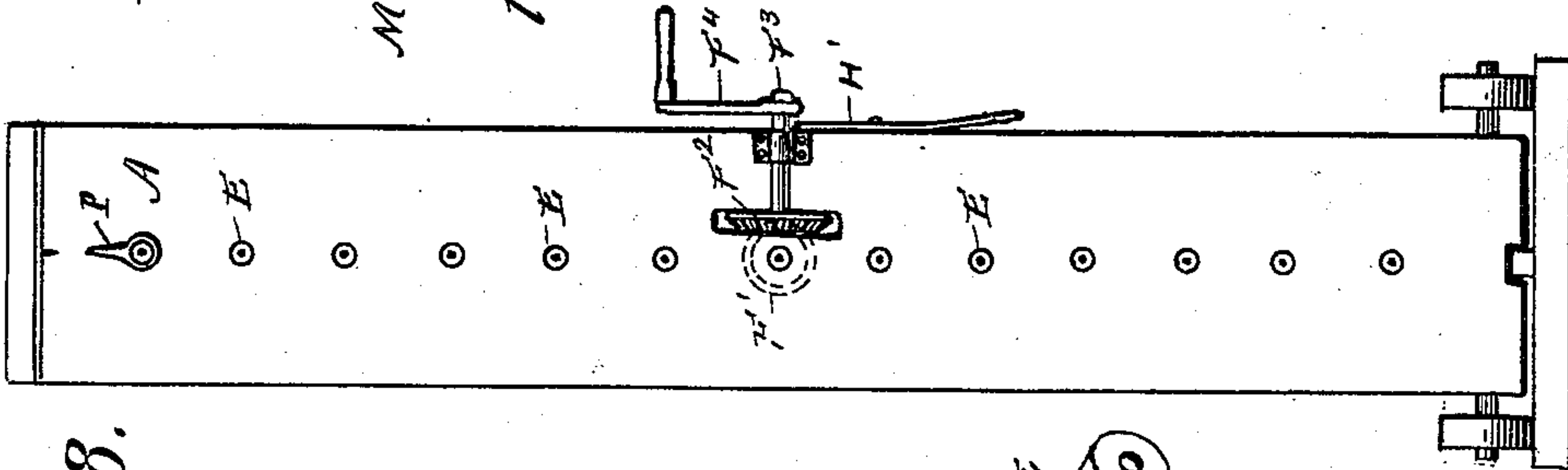
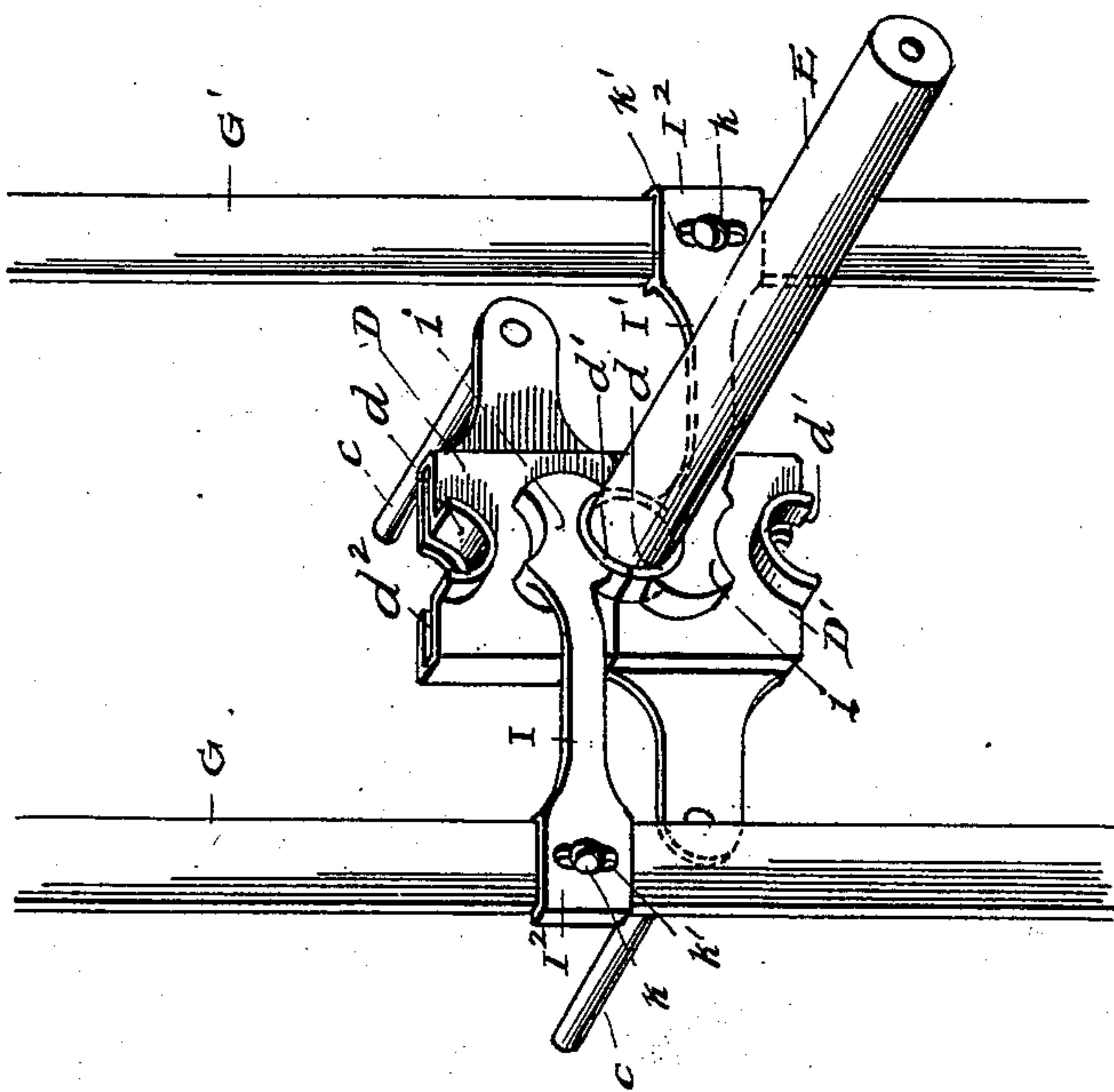


FIG. 8.

FIG. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

EDWARD S. MORGAN, OF DUBLIN, INDIANA.

WIRE-FENCE MACHINE.

SPECIFICATION forming part of Letters Patent No. 549,384, dated November 5, 1895.

Application filed June 13, 1895. Serial No. 552,703. (No model.)

To all whom it may concern:

Be it known that I, EDWARD S. MORGAN, a citizen of the United States, and a resident of Dublin, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Wire-Fence Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a rear elevation of machine with intermeshing gears F, indicated by dotted lines, and shifting bars G G' at one limit of movement. Fig. 2 is a side view of same. Fig. 3 is a fragmentary section through three of the hollow shafts, showing one pair of spool-carriers, the spools being removed. Fig. 4 is a perspective view of one pair of spool-carriers and means by which they are actuated. Fig. 5 is a rear view of controlling mechanism for the shifting bars with bar shown locked. Fig. 6 is a similar view with bar free. Fig. 7 is a front perspective view of a spool-carrier. Fig. 8 is a front view of the upright frame.

This invention has relation to certain new and useful improvements in machines for weaving wire fences, and more particularly in that class of such machines as are described and claimed in my Patent No. 432,951, dated July 22, 1890.

The object of the present invention is to provide a machine of this character which is simple in its construction and operation, which can be easily, effectively, and rapidly operated, and which is strong and reliable in all its parts.

With this and other objects in view the invention consists in the novel construction and combination of parts, all as hereinafter described, and pointed out in the appended claims.

Referring to the accompanying drawings, the letter A designates the upright frame of the machine, which is mounted upon rollers a and runs upon a suitable track or bed A'. Said frame in the present instance is shown as consisting of two parallel plates set trans-

versely of the line of the fence and spaced a short distance from each other, being suitably connected upon the bed or track.

A' is a longitudinal rack over which the frame moves, being slotted at a^2 for this purpose. B is a block which also slides over said rack in advance of the frame A, being connected to said frame by braces B'.

B² is a lever by means of which the machine is moved along the track or bed. This lever is secured loosely at its lower end in the block B and has pivoted thereto a dog B³, which drops into the teeth A² of the rack. This dog not only prevents backward movement of the frame A and its adjuncts, but when the said lever is vibrated the engagement of the dog with the rack causes the said frame to move forward with a step-by-step movement. b is a hook which holds said lever when it is not in use.

C C' designate two series of spools, upon which are wound the wire Z, which is to form the filling of the fence. These spools are arranged in pairs, as shown, one spool of each series being in each pair, and each spool is journaled loosely upon a stud c of a spool-carrier D or D'. Each spool has an independent carrier, the carriers of the spools C being lettered D and those of the spools C' being lettered D'. Said carriers are arranged one above another upon the rear face of the frame A, as best shown in Fig. 1, the two series being placed oppositely—that is to say, the carriers D extend from one side toward the center, while the carriers D' extend from the opposite side to the center. This will be readily understood from the said figure. Each carrier consists of a plate or casting which at its upper inner portion is formed with a concavo-convex seat or bearing d , which projects beyond the face thereof, and at its lower inner portion with a similar but reverse seat or bearing d' . Each is also cored out vertically, as at d^2 , to form a vertical opening for the purpose presently to be described, and each has a stud c for a spool and a perforated lug d^3 , which forms an eye or guide through which the wire Z from the spool is led.

Journaled one above another in the frame A are a series of hollow shafts E, which correspond in number and position to the longitudinal wires X of the fence. Upon the rear

end of said shafts is a transverse arm or twister E' , formed with convex ends. Said arm, when in vertical position, is designed to engage or enter the vertical opening d^2 of one of the carriers D , and also of one of the carriers D' , as best seen in Fig. 3. Said shafts E also carry each a gear-wheel F within the frame A , all of which wheels are intergeared. The shaft of one wheel has also a bevel gear-wheel F' , which is engaged by a similar wheel F^2 on a shaft F^3 , which is provided with an operating-crank F^4 . It will appear that when this shaft F^3 is rotated the entire series of wheels F , shafts E , and twisters E' will also be rotated, and that by reason of the engagement of said twisters with the spool-carriers these carriers will also be rotated.

G G' designate shifting bars, which are movable up and down in suitable guides g . One of these bars is situated at each lateral portion of the rear plate of the frame A . Fulcrumed centrally to an arm h at the upper portion of the frame is a lever H , whose end portions are connected to the respective bars G G' by links h' . Connected to one of said bars, as G , is a lever H' , which is fulcrumed to the frame A . When this lever is actuated, it will be apparent that one of said bars will be moved up and the other down. Each of said bars carries a series of inwardly-extending arms I and I' , whose end portions are formed each with a concave seat or bearing i at both the upper and lower edge. One of these arms I or I' is provided for each of the spool-carriers. Each arm has a socket or clip portion I^2 , which partially embraces the bar G or G' , and is adjustably secured thereto by a bolt or screw k , which passes through a slot k' .

The operation of the invention as thus far described is as follows: The machine being set up in the manner shown in Fig. 2, with the fence-wires X passing through the hollow shafts E , and it being desired to continue the diamond form of weaving, as shown at the right-hand portion of the figure, the shifting lever H' is actuated, thereby moving the two shifting bars G G' in opposite directions. Upon such movement the double concaved arms I of the bar G take bearings against the convex surfaces of the seats or bearings d of the spool-carriers D' and raise each of said bearings vertically a distance equal to the distance between two adjacent wires X . During this movement each of said carriers is freed from one of the arms E' and is engaged with the arm next above it. At the same time the arms I' of the bar G' are brought to bear against the seats d' of the series of carriers D , and the latter are moved down a like distance and into engagement with the twister-arms next below. By these movements it will appear from Fig. 2 that the filling-wires Z are carried into the proper positions. The shaft F^3 is now rotated, causing the spools to revolve and twisting said filling-wires around the wires X in the manner indicated at z .

The shifting bars are now again reversed, which returns the various spool-carriers to their original positions and carries the filling-wires into positions for the next twist.

The operation above described is repeated so long as the machine is in operation, the machine in the meantime being moved bodily along the fence and the frame A along its track. It will be observed from Fig. 1 that when the carriers are in position to make the twist the concave faces of the bearings d d' fit neatly the hollow shafts E , forming a center bearing for the said carriers to revolve upon.

K designates small arcuate guard-plates, which are secured to the rear face of the frame A in position to guide and hold the spools in position when the bearings d and d' leave the concavities in the arms I I' , as they do twice in each revolution.

It will be apparent that in order to make the shifts above described the twister-arms must be in perfectly-vertical positions, and it is essential to a satisfactory working of the machine that means be provided which will prevent the shifting bars G G' from being moved until all the parts are in proper position to make the shift. Suitable means for this purpose will now be described.

In one of the shifting bars (G' in the present instance) are formed two V-shaped notches l at an interval from each other corresponding to the extent of movement of the bar. L is a bar or bolt which is held to the rear face of the frame A by means of a clip L' , through which the bar is free to move toward and away from the bar G' . One end of this locking bar or bolt is shaped to fit the notches l , while the other end is similarly shaped to fit a corresponding notch l' in a collar M on one of the shafts E . When the parts are not in proper position to make the shift, the notch l' of the latter is not in position to receive the bar L , and the said bar is in engagement with one of the notches of the bar G' , thereby locking both bars G G' against movement either up or down. When, however, the parts are all right to make the shift, the notch l' is opposite the inner end of the bar L and the bar G' can be readily moved. If necessary, one of these automatic locking devices can be provided in connection with each other of the shifting bars; but one of such devices is usually sufficient.

In order that the operator may be informed when the parts are in proper position to make a shift, I provide an indicator or pointer P , which is attached to the front end of one of the shafts E . (See Fig. 8.)

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

1. The herein described wire fence weaving machine, comprising essentially a bed, a frame supported upon and adapted to move along said bed, means for actuating said frame, a series of hollow intergeared shafts journaled in said frame one above another

and carrying twister arms, the two series of vertically movable spool carriers D and D' upon the rear face of said frame, said carriers consisting each of a plate or casting having an upper laterally projecting concavo-convex seat or bearing and a lower convexo-concave seat or bearing, a vertical opening therethrough for engagement with the twister arms, and a spool stud or journal, the two series of spools journaled on said studs, the vertically movable shifter bars having double concaved arms adapted to engage the seats or bearings of the said carriers, the guards K for said carriers, means for actuating said shifting bars and for automatically locking and unlocking the same, and an indicating device for denoting when the parts are in proper position to permit the shifting bars to be actuated, substantially as specified.

2. In a wire fence weaving machine, a spool carrier comprising a plate or casting having an upper laterally projecting concavo-convex seat or bearing d , a lower convexo-concave seat or bearing d' , a vertical opening d^2 , a spool stud or journal, and a wire guide, substantially as specified.

3. In a wire fence weaving machine, a spool carrier comprising a plate or casting having the upper concavo-convex bearing d , the lower convexo-concave bearing d' , and the vertical opening d^2 , in combination with a rotary twister arm adapted to engage the said opening, and with a vertically movable

shifting device adapted to engage alternately the convex sides of said bearings, substantially as specified.

4. In a wire fence weaving machine, the combination of the vertically movable spool carriers D, D', having each a vertical opening therein, and bearings d , d' , at the upper and lower portions thereof, said bearings having each a convex face, the series of rotary shafts, their twister arms, the oppositely movable shifting bars having each a series of arms fitted to engage the convex surfaces of said bearings, and means for actuating said shifting bars and for simultaneously rotating said shafts and twisters, substantially as specified.

5. In a wire weaving fence machine, the combination of the rotary twister shafts, the arms carried thereby, the spool carriers having the bearings d , d' , provided with concave faces which fit the said twister shafts, the vertically movable shifter bars having each a series of arms formed with double concavities arranged to engage the opposite faces of the said bearings, the guards K for the spools, and an automatic lock for the said shifting bars, substantially as specified.

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

EDWARD S. MORGAN.

Witnesses:

P. SOUTH,
THOMAS C. MOORE.