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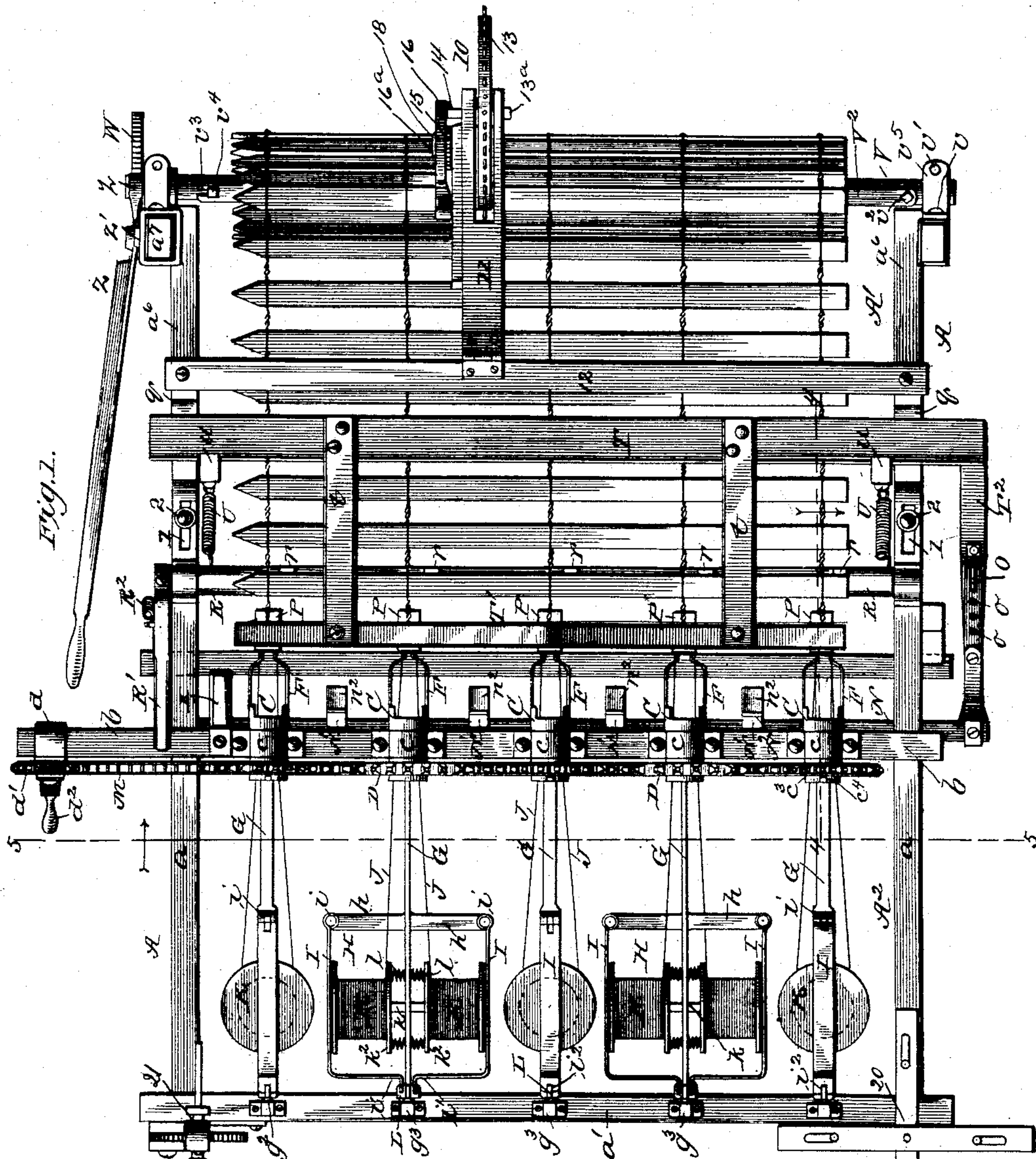
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E. W. CHANNELL.

FENCE MACHINE.

No. 414,140.

Patented Oct. 29, 1889.



WITNESSES:

Fred G. Dieterich
Jos. A. Ryan

INVENTOR

E. W. Channell
BY
Marion L. C.
ATTORNEY

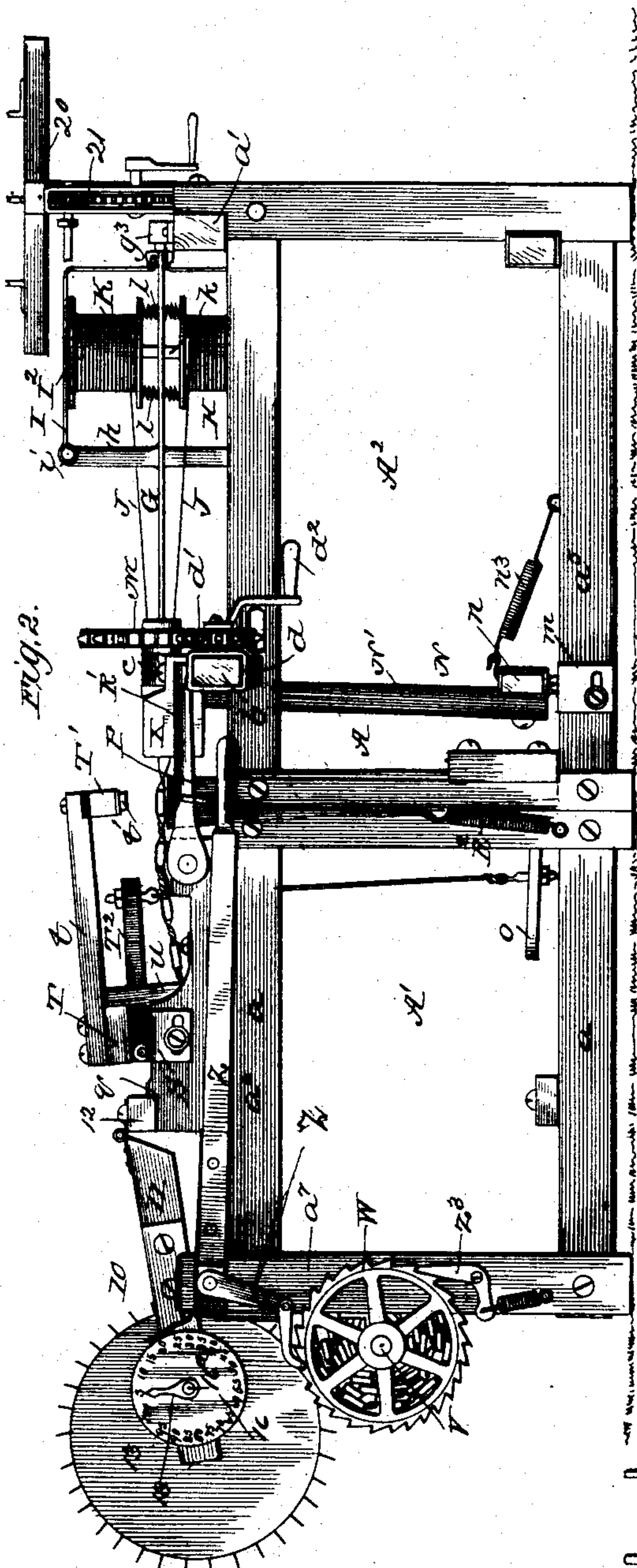
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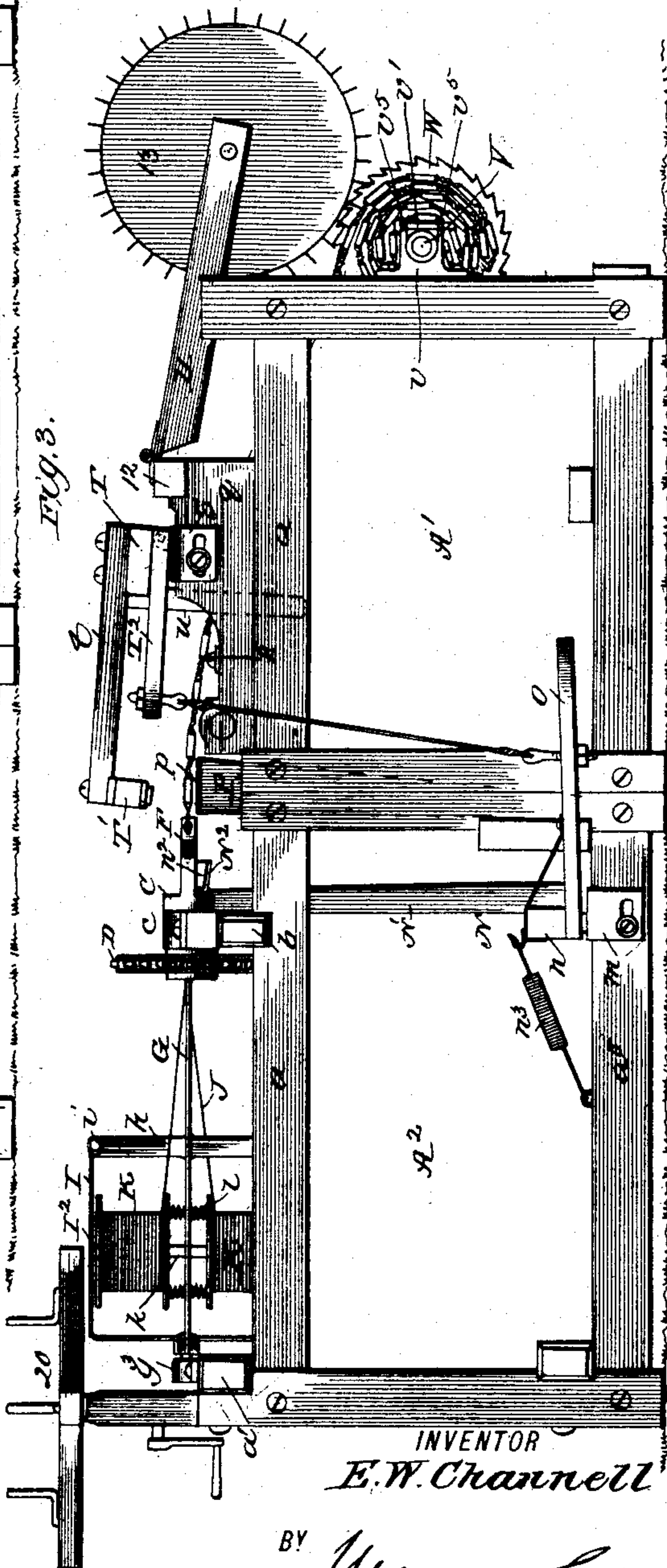
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E. W. Channell
BY *Wm. L. G.*
ATTORNEY

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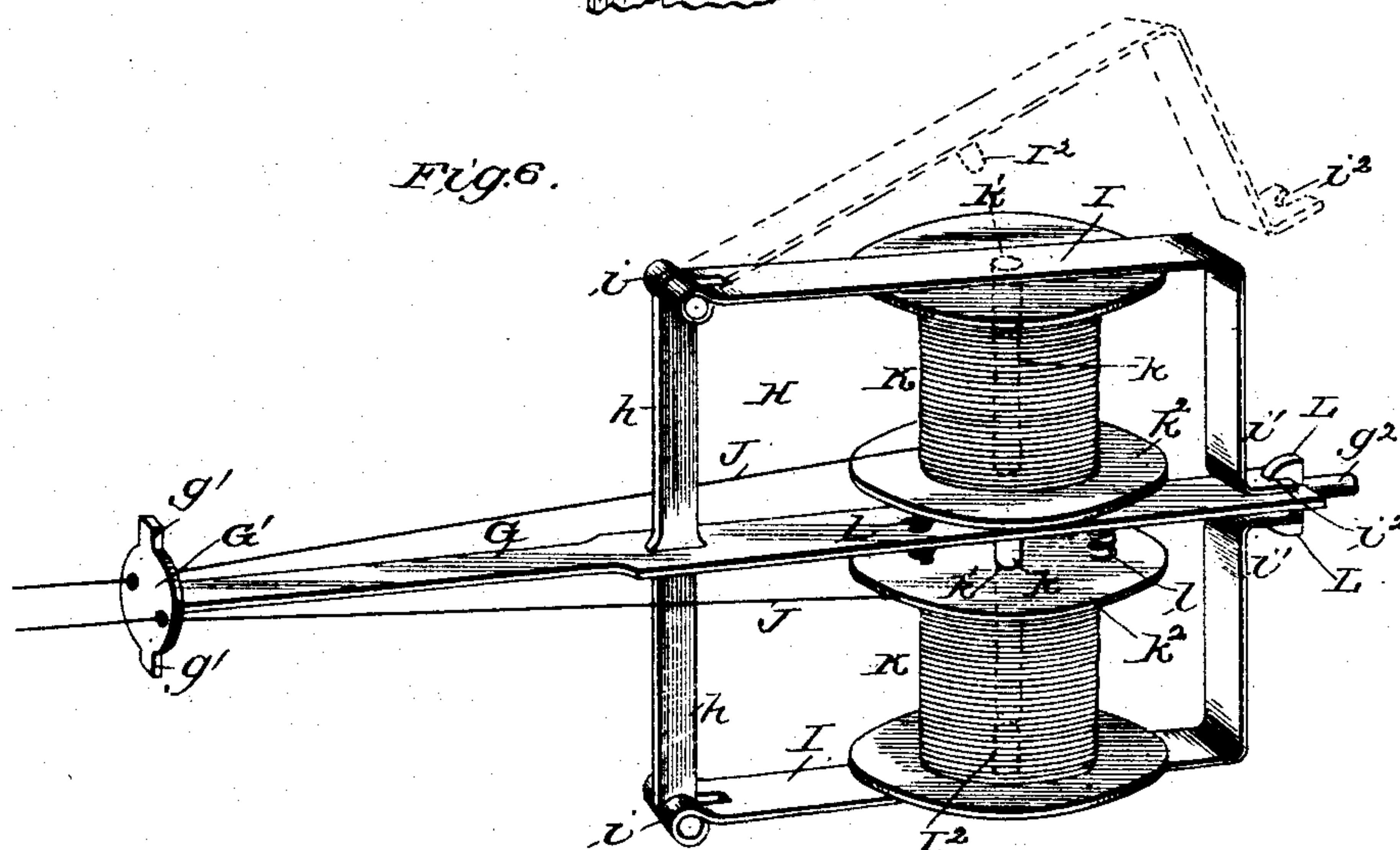
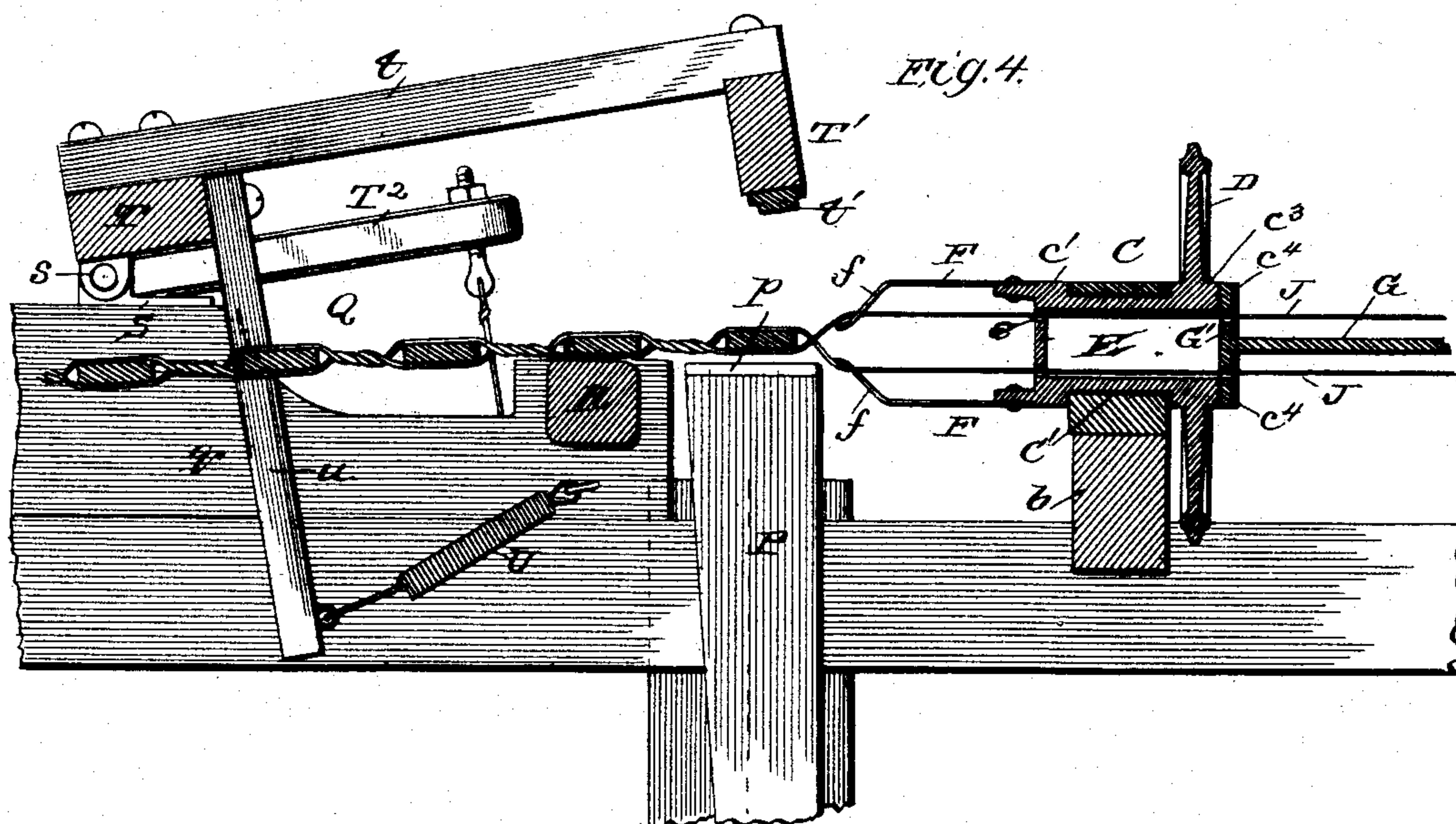
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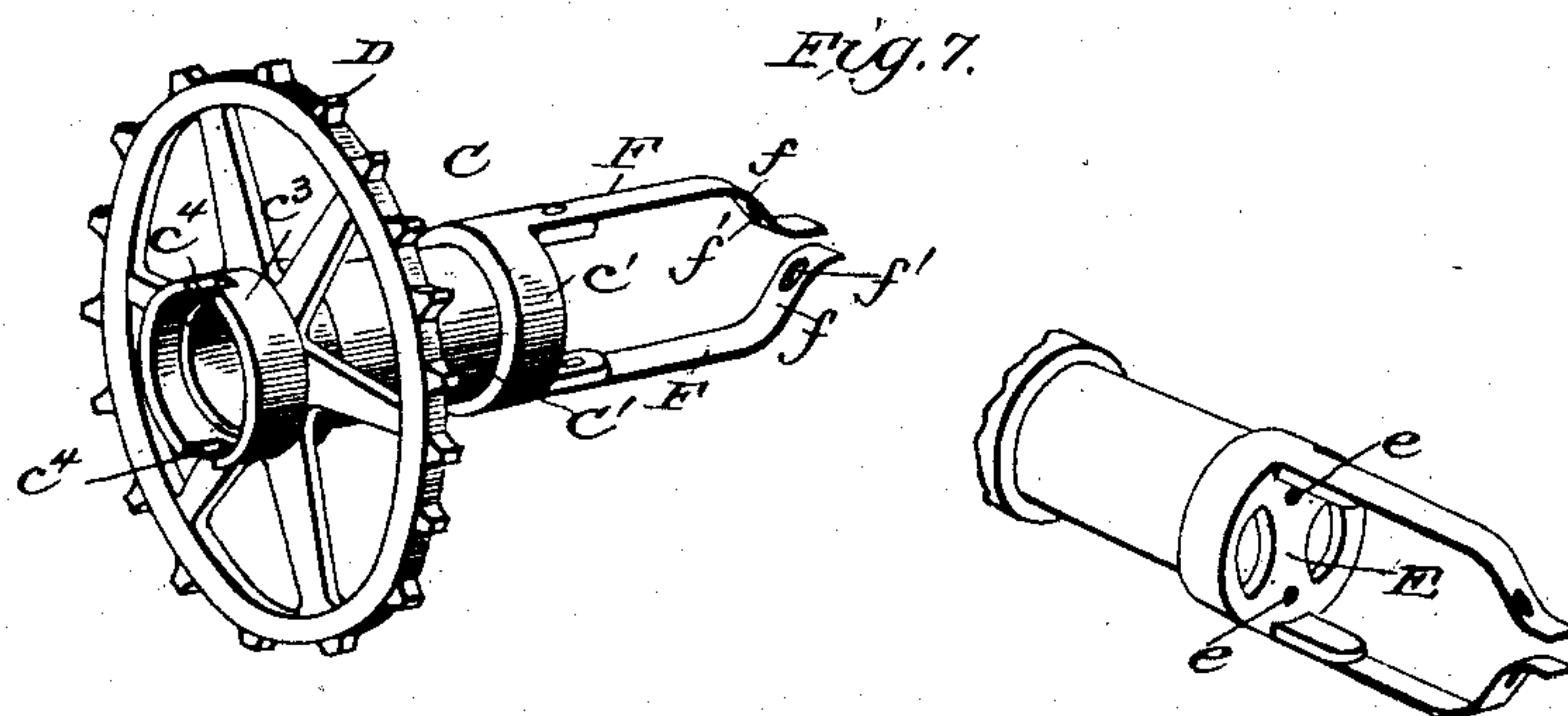
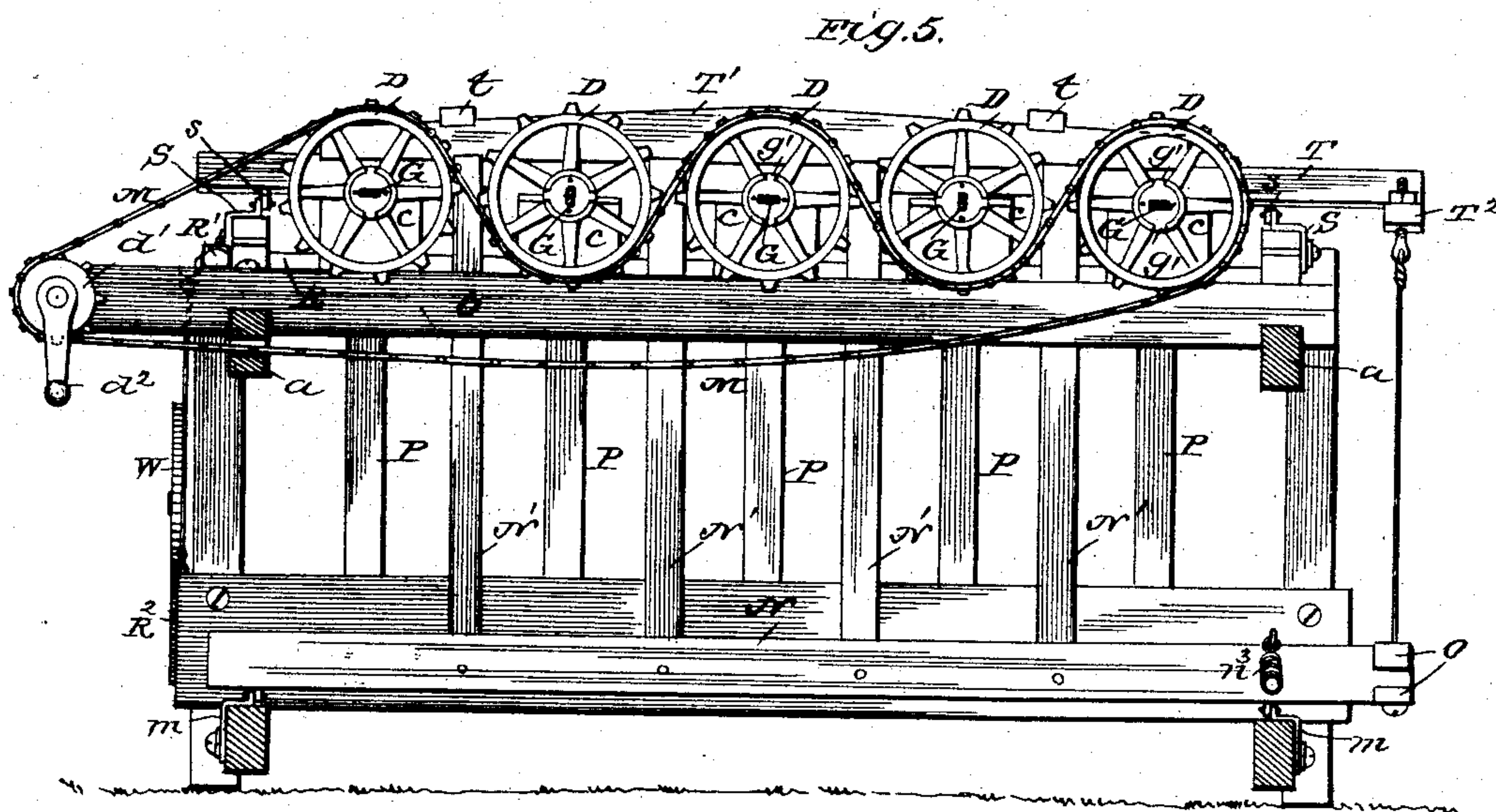
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E. W. Channell

BY *Wm L*

ATTORNEY

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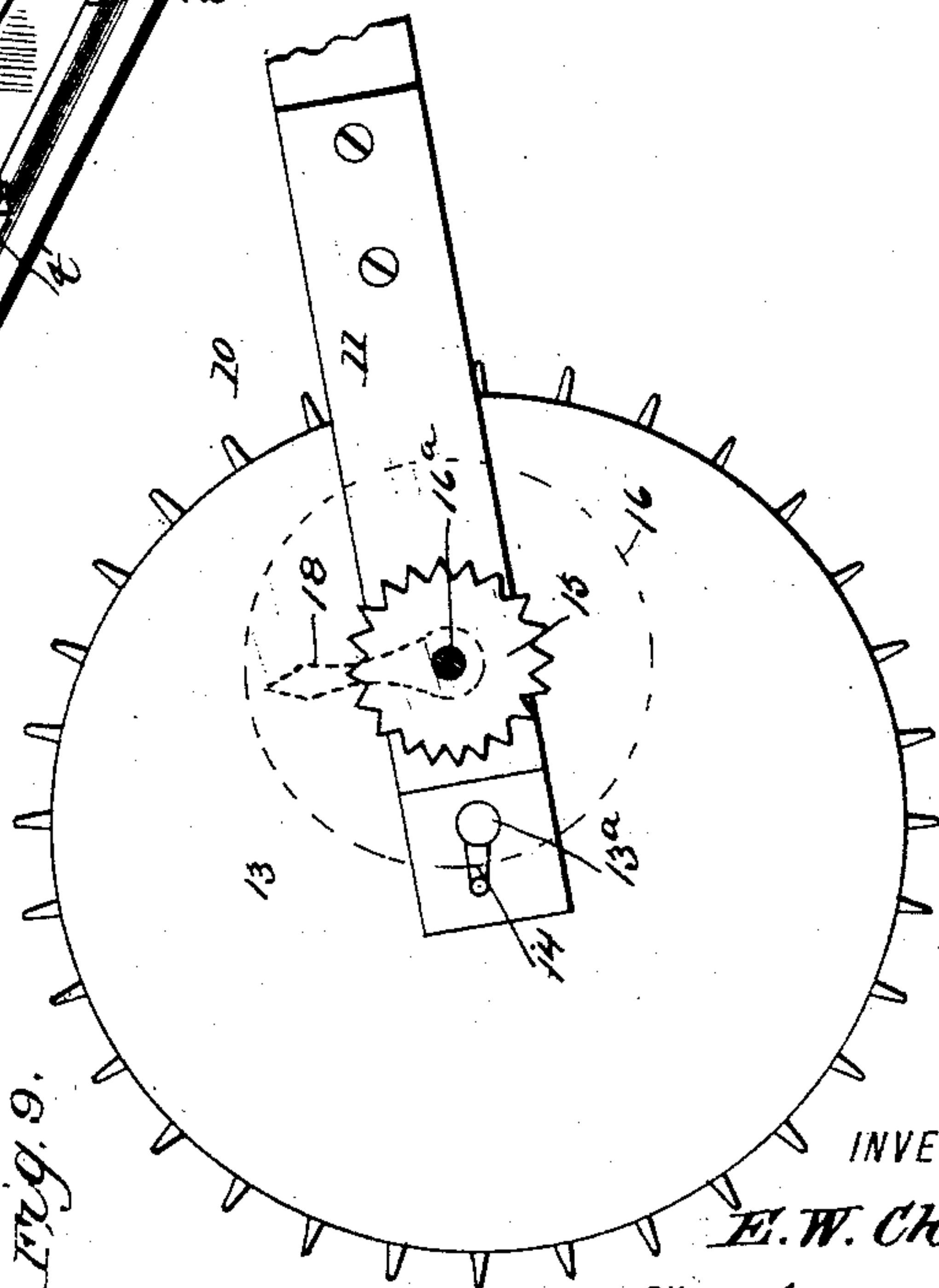
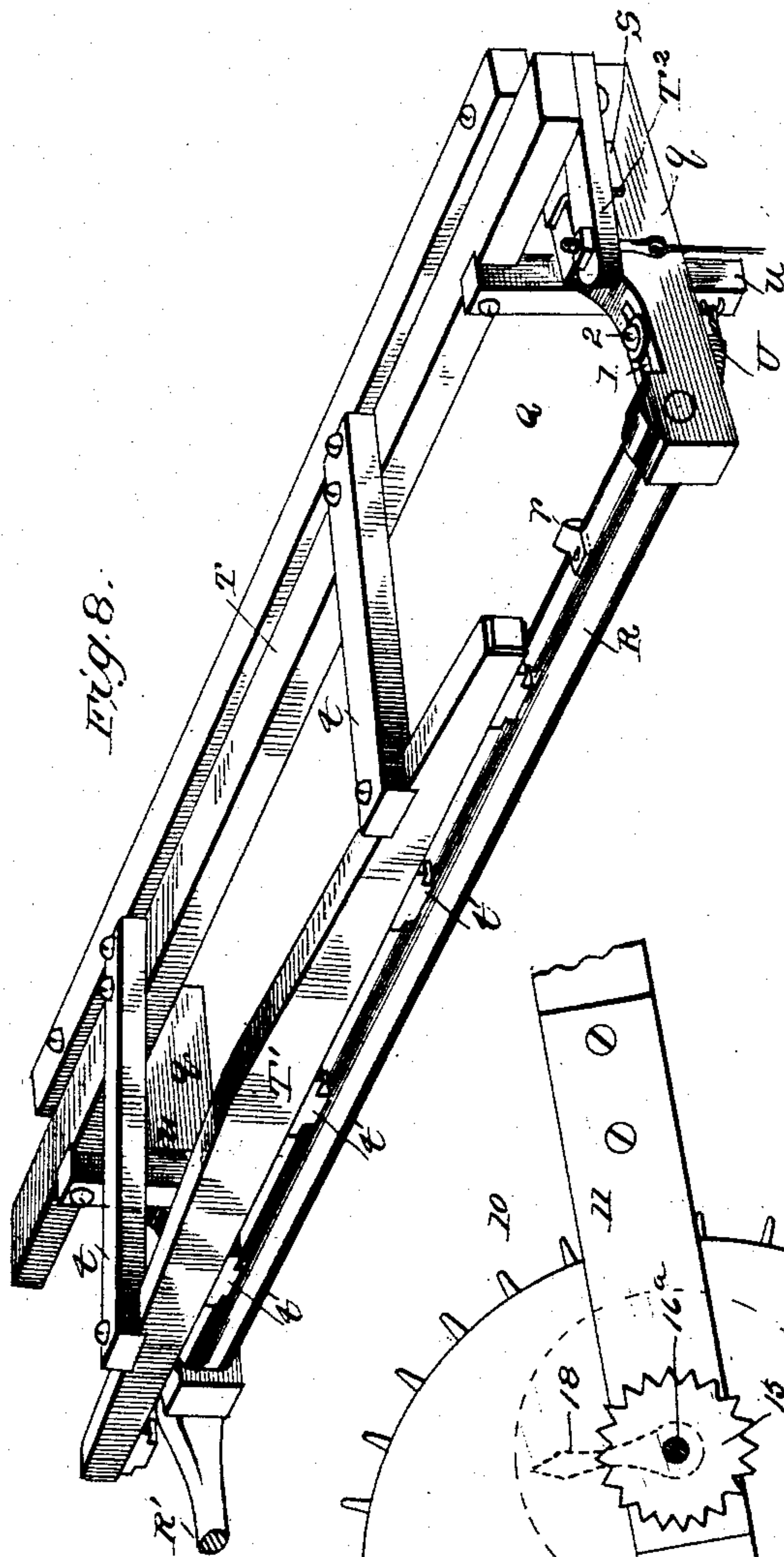
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Jos. A. Ryan

INVENTOR
E. W. Channell.
BY *Wm. L.*
ATTORNEY

UNITED STATES PATENT OFFICE.

EMMET W. CHANNELL, OF WACO, TEXAS, ASSIGNOR OF TWO-THIRDS TO
JESSE P. HODGE, OF SAME PLACE.

FENCE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 414,140, dated October 29, 1889.

Application filed August 16, 1889; Serial No. 321,042. (No model.)

To all whom it may concern:

Be it known that I, EMMET W. CHANNELL, residing at Waco, in the county of McLennan and State of Texas, have invented certain new and useful Improvements in Fence-Making Machines, of which the following is a specification.

My invention relates to that class of fence-making machines known as "fence-loom," for making picket-fences; and it has for its object to provide a machine of this character which will effectively do its work, which will be of great capacity, easy to manipulate, and positive in its desired operation.

To this end my invention consists in sundry novel combinations and peculiar arrangements of parts, all of which will be hereinafter fully described in the annexed specification, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a top plan view of my improved fence-loom. Figs. 2 and 3 are side views taken from opposite sides of the machine. Fig. 4 is a longitudinal section taken on the line 4 4, Fig. 1. Fig. 5 is a transverse section taken on the line 5 5, Fig. 1. Fig. 6 is a detail perspective view of one of the spool-carrying frames. Fig. 7 is a detail view illustrating one of the twisting-disks. Fig. 8 is a perspective view of the hammer-frame, and Fig. 9 is a detail view of the automatic measuring devices.

Referring to the accompanying drawings by letter, A A indicate the main frame, which is formed in two sections A' A², bolted together in such a manner that the two sections may be conveniently detached for shipping or moving.

Upon a transverse beam *b*, mounted upon the upper longitudinal beams *a a* of the frame, section A², are mounted, in bearing-boxes *c c*, a series of twisting devices C C, one of which is most clearly shown in Fig. 7 of the drawings. By reference to said figure it will be observed that said devices are each formed of a hollow tube C', provided on one end with a collar or flange *c' c'*, and a chain-wheel D, fixed or cast integral with the tube, said tube portion resting in the bearing-boxes and held

from lateral movement therein by the collar *c'* and the wheel.

E denotes cross-bars formed in the outer ends of the tubes C', which are provided with the wire apertures *e e*, as shown. From the outer edges of the cross-bars E and adjacent to the apertures *e e* project spring-steel guide-fingers F F, the outer ends of which are bent in toward each other, as shown at *f*, and are provided with the wire passages *f f'*. The opposite end of the hollow tube C' is projected rearward, forming a hub *c³*, which is provided with two diametrically-arranged notches *c⁴ c⁴*, in which fit the radial lugs *g' g'* on disks G' G', formed on one end of the spool-frame-supporting bar G, said disks fitting in the hubs *c³* and serving to support one end of said bar G, the opposite end thereof being provided with short journals *g² g²*, fitting in bearing-boxes *g³ g³*, mounted on the inner cross-bar *a'* of the frame-section A². The spool-frames H consist each of a transverse bar *h*, projected to each side of the bar G, near the center thereof, and the two bars I, which are hinged at one end *i* to the outer ends of the bar *h*, the inner or lower ends of which are projected, as at *i'*, and provided each with a notch *i²*.

In operation, when it is desired to place the spools K in place, (there being two spools to each frame,) the inner ends of said spools K are slipped onto the short pintles *k*, projected in opposite directions from the bars G. The hinged spring-bars I are then brought down until the short pintles I², which project inward from said bars, engage the recesses *k'* in the outer faces of said spools, thereby forming journals upon which the spools will revolve. The lower notched ends of bars I will then slip under and engage the notched lugs L L, formed on the inner ends of the bars G, as clearly shown in the drawings. By this construction it will readily be seen that the spools may be quickly attached or detached, as occasion may require. To create a slight tension and to secure a light-running and compensating movement, I arrange coiled springs *l l* on each side of the bars G G, which bear against an inner flange K² of the spool, as shown.

The wires J are wound in opposite directions

on each pair of spools, and each extend from the spools and pass through openings $g^2 g^2$ in the disks g , then through the holes e in the cross-pieces E , and through the wire-orifices f' in the spring-steel fingers f , the ends of said wires then being connected with the winding-shaft in a manner hereinafter described.

One end of the cross-bar b is extended to one side of the main frame, and has secured thereto a metallic thimble d , on which is journaled a chain-wheel d' , provided with a crank-handle d^2 .

M denotes an endless drive-chain, which passes over the chain-wheels on the twisters or shuttle-tubes and over the drive-wheel d' ; said chain being passed over said wheels so as to drive each alternate wheel in a reverse direction.

On the lower longitudinal timbers $a^5 a^5$ are secured adjustable bearing-plates $m m$, in which is hinged the cross-bar n of the pusher-frame N , which consists of a series of vertical bars $N' N'$, the upper ends of which are located between the twister or shuttle devices, and have secured thereon L-shaped plates N^2 , the lower arms n^2 of which are disposed in alignment with the center of the twister-tubes. The arms N are normally pulled back against the outer face of the cross-beam b by the coiled spring n^3 , which is attached to the pusher-frame and the main frame, as shown.

In operation, when the twister-disks are turned so that the fingers are disposed in vertical position so that the wire strands are pulled apart to admit of the picket being pushed in place, the L-shaped plates N^2 form supports for the pickets. Now, when the pusher-bar is operated by pressing on the foot-lever O , which is connected therewith, it will be swung outward and push the pickets between the wires onto the supports P , which consist of vertical posts secured to the main frame, and which are disposed in alignment with and at a short distance in front of the twister-tubes, said posts being provided on their upper faces with metal plates $p p$ to form solid abutments for the hammering device presently described.

Q denotes an adjustable frame secured upon the upper beams $a^6 a^6$ of the frame-section H' , which consists of the end pieces $q q$, which are provided with elongated slots $1 1$, through which pass the securing-screws $2 2$, as most clearly shown in Fig. 1 of the drawings.

Journaled in the end pieces $q q$, in front of the picket-supporting posts P , is a revolving stop or spacer-bar R , provided with a series of metallic angle-stops $r r$, which serve to hold the last picket woven in place, while the next succeeding picket is being put in position. A lever-arm R' is secured to one end of the spacer-bar R , which is normally pulled down against the cross-bar b by means of a coiled spring R^2 , as shown. By this construction it will be seen that, when the last picket inserted between the wires has been woven in place and the operator desires to feed the

same forward, by lifting the lever R' the bar, with the stops, will turn and allow the previous picket to move forward, and by quickly releasing the said lever the bar and stops will turn back in position to engage and stop the last picket woven in place.

S denotes adjustable bearing-plates secured to the end pieces of the adjustable frame, to which is hinged the hammering device. (Shown in detail in Fig. 8 of the drawings.) Said device consists of a transverse bar T , which is provided with pintles $s s$ on its under side, which engage the adjustable bearings S , as shown. Projecting rearwardly from the bar T are two arms $t t$, the outer ends of which are connected with a transverse bar T' , arranged parallel to the bar T , and which is normally disposed above the picket-supporting posts. The under side of said bar is provided with a series of metallic plates $t' t'$, which in operation are arranged to strike against the metal plates on the picket-supports. The bar T' is normally held up from the picket-supports by means of the coiled springs $U U$, one end of said springs being connected to the main frame, while their opposite ends are connected to depending bars $u u$, secured to the bar T , as shown. One end of the bar T is extended beyond the frame, and has secured thereto a rearwardly-projecting arm T^2 , to which is connected a rod or chain, the lower end of which is adjustably secured in any one of a series of apertures o in the foot-lever O , as most clearly shown in Figs. 1 and 3 of the drawings. By this construction it will be observed that the hammer-bar is self-lifting, and that by operating on the foot-lever it will close down and hammer the wire on each side of the picket, thereby removing all slack in the wire, also holding the pickets secure and making a stiff and rigid fence. It will also be seen that, by arranging one foot-lever to operate both the pusher-bar and hammer, but one movement of the foot is necessary to feed the picket forward after the twisters have operated, and to hammer said twists down. It will be understood, however, that in the practical construction of my machine the pusher-bar, hammer-bar, and their connections with foot-lever are so adjusted that the pusher-bar operates slightly in advance of the hammering device.

V denotes a hollow winding-shaft, which is journaled in open brackets $v v$, formed on the front end of the machine-frame, and which is held in place by means of the detachable pins $v' v'$, fitting in the apertured ears $v^5 v^5$ of the brackets. One end of said shaft is projected beyond the side of one of the brackets v , and is provided with a ratchet-wheel W , with which engages the operating-lever Z , which is journaled to a metallic thimble z , secured upon the upper end of the post a^7 , the handle Z' of the same extending back to within convenient reach of the operator.

V^2 denotes a bar which is secured at one

end by means of the bolt and nut v^2 to the shaft V, its other end being notched, as at v^3 , and held in place by engaging a bolt v^4 , secured to the shaft.

5 In operation the ends of the wire strands are passed under said bar V^2 and about the shaft and secured thereon. After a roll of sufficient size has been wound upon the shaft the wire strands are cut, the detachable pins
10 are withdrawn, and the shaft V removed from its bearings. The bolt v^2 is then removed and the roll of fence is slipped off the shaft, and the same can then be quickly put back in operative position. This construction pre-
15 sents a simple, quick, and effective manner whereby the fence-rolls may be removed.

Z^3 denotes the pawl for holding the ratchet-wheel from reverse movement.

X denotes a stop-block secured to the beam
20 b, which limits the inward thrust of the pickets when pushed in place between the wires.

10 denotes the registering device, which consists of a bar 11, hinged to the cross-bar 12 of the adjustable frame and extends for-
25 ward over the woven pickets.

13 denotes the registering-wheel, which is journaled in the said frame, which is provided with a series of equidistant pins in its periphery, which may represent inches, and
30 which engage the pickets, as shown, and are caused to move and revolve the wheel as the pickets are wound on the shaft V. One end of the shaft 13^a of the wheel 13 is provided with a lateral lug 14, which at each complete
35 revolution of the wheel 13 engages a toothed disk 15, formed on one side of a smaller wheel 16, loosely mounted on a fixed axle 16^a , said wheel having a scale marked on its outer face, which represents feet.

40 18 indicates an indicator or pointer secured upon the outer end of the axle 16^a .

20 denotes a wire-reel secured to the rear end of the frame A', which is provided with L-shaped iron stays on each of its arms, said
45 reel being adapted to carry any size coil.

21 represents a wire-winder or spooler, of any approved construction, attached to the rear end of the machine, opposite the reel, as clearly shown in the drawings.

50 From the foregoing description, taken in connection with the drawings, the operation and advantages of my improved fence-machine will be readily understood. It will be seen that the several parts being adjustably
55 connected, as described, the same may be readily set to any desired adjustment.

The construction is simple, requiring only the services of one man and a boy, and is of such a character as to turn out a substantial
60 picket fence.

Having thus described my invention, what I claim is—

1. In a fence-making machine, essentially as described, the combination, with the twister
65 disks or tubes provided with extended hubs having radial notches, of the spool-holding frame detachably journaled at one end in

the main frame, its opposite end provided with radial projections adapted to fit the radial notches in the said disk-hub, substantially as and for the purpose described. 70

2. In a fence-making machine, essentially as described, the combination, with the twisting devices consisting each of a hollow tube journaled to the main frame, provided at one
75 end with a cross-bar having wire passages, spring-arms projecting forward from said tube, their inner ends bent toward each other and provided with wire passages, a drive-wheel secured upon said tube, the rear end
80 of said tube extended and provided with notches in its outer end, of the spool-supporting frame consisting of a main bar provided at its forward end with a disk having radial extensions fitting the notched end of the tube, 85
the opposite end journaled in the main frame, and yokes secured to said main bar adapted to support the spools, and means for operating the twister devices and the spools, substantially as shown and described. 90

3. The combination, with the twister-tubes constructed as described, of the spool-supporting frames consisting of a main or supporting bar detachably connected at one end to the twister-tube to turn therewith, the op-
95 posite end journaled in the main frame, arms extending laterally in opposite directions from said supporting-bar, spring-arms hinged at one end to the outer ends of said lateral arms, their free ends adapted to engage lock-
100 ing-lugs on the supporting-bar, pintles formed on the inner faces of the supporting-bar and hinged arms, and the spools journaled on said pintles between said bar and arms, substantially as shown and described. 105

4. In a fence-making machine, essentially as described, the spool-supporting frame consisting of the main bar, the lateral fixed arms, and the hinged arms, said arms and bar provided with short pintles projecting inwardly,
110 in combination with the spools provided with end recesses fitting on said pintles, and coiled or buffer springs secured between the disks and the supporting-bar, substantially as and for the purpose shown and described. 115

5. In a fence-making machine, essentially as described, the combination, with the wire feeding and twisting devices constructed substantially as shown and described, and the vertical picket-supporting posts arranged in
120 front of the twisting-tubes, of a pusher-frame consisting of a transverse bar adjustably pivoted to the lower timbers of the main frame, vertical arms secured to said bar and extended upward between the twister-tubes, the
125 upper ends of said arms provided with L-shaped picket-rests, a spring for normally holding said vertical arms between the twister-tubes, and a foot-lever connected to the said transverse bar of the pusher-frame, said
130 pusher-frame adapted to force the picket onto the picket-supporting posts when the lever is depressed, as and for the purpose described.

6. The combination, with the wire feeding

and twisting tubes, essentially as described, and the picket-supporting posts arranged in front of said tubes, of a pusher-frame pivoted at its lower end to the main frame, the upper
5 end disposed between the twister-tubes, a foot-lever connected to said pusher-frame, a hammer-frame pivoted at its front end to the main frame, its forward end disposed over the picket-supporting posts, a connection be-
10 tween said hammer-frame and the aforesaid foot-lever, and means for normally holding the hammer-frame elevated above said picket-posts, said pusher-frame and hammer-frame operated simultaneously by a single move-
15 ment of the foot-lever, substantially as shown and described.

7. The combination, with the wire-feeding and wire-twisting devices and the picket-supporting posts, of a hammering device con-
20 sisting of a transverse bar adjustably journaled to the frame of the machine to or from the picket-supporting posts, rearwardly-projecting arms, and a transverse hammer-bar secured to the outer ends of said arms, pro-
25 vided with a metal-hammering face or faces, said hammer-bar disposed normally above the picket-supporting posts, a spring for holding it in such position, and means for operating said hammering device, substantially as
30 shown and described.

8. In a fence-making machine, essentially as described, the combination, with the winding-shaft V, detachably journaled in the main frame, as shown, and provided with a project-
ing bolt v^4 , of the bar V^2 , provided with a 35 notch v^3 at one end engaging the bolt v^4 , its opposite end bolted to the shaft, as at v^2 , substantially as and for the purpose described.

9. In a fence-making machine, essentially as described, a registering device consisting 40 of an arm or frame hinged to the main frame and projected over the finished fence-section, a wheel journaled in the outer end of said arm, provided with a series of radial teeth engaging the moving pickets, whereby said 45 wheel is revolved, the shaft of said wheel provided with a lateral projection, a toothed disk formed on one face of a dial-wheel loosely mounted on a fixed shaft, said tooth-
50 wheel adapted to be turned by the said lateral projection, and a pointer arm secured on the outer end of said fixed shaft and projected over the dial-face, substantially as and for the purpose described.

EMMET W. CHANNELL.

Witnesses:

E. D. CONGER,
P. H. POGUE.