

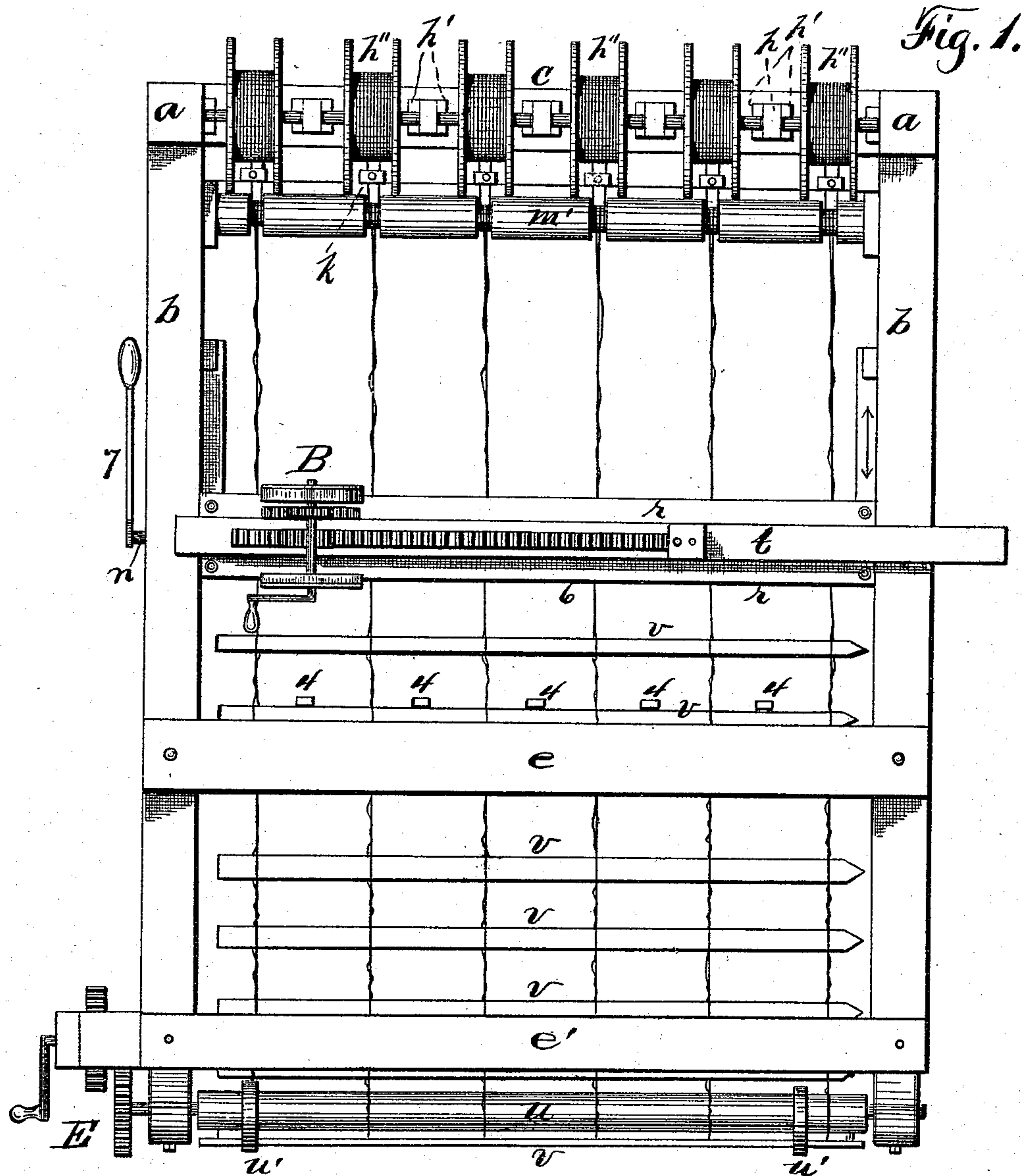
(No Model.)

4 Sheets—Sheet 1.

M. E. HODGES.
FENCE MAKING MACHINE.

No. 543,481.

Patented July 30, 1895.



WITNESSES:

Chas. H. Marvin.
M. M. Borst.

INVENTOR
Martin E. Hodges.

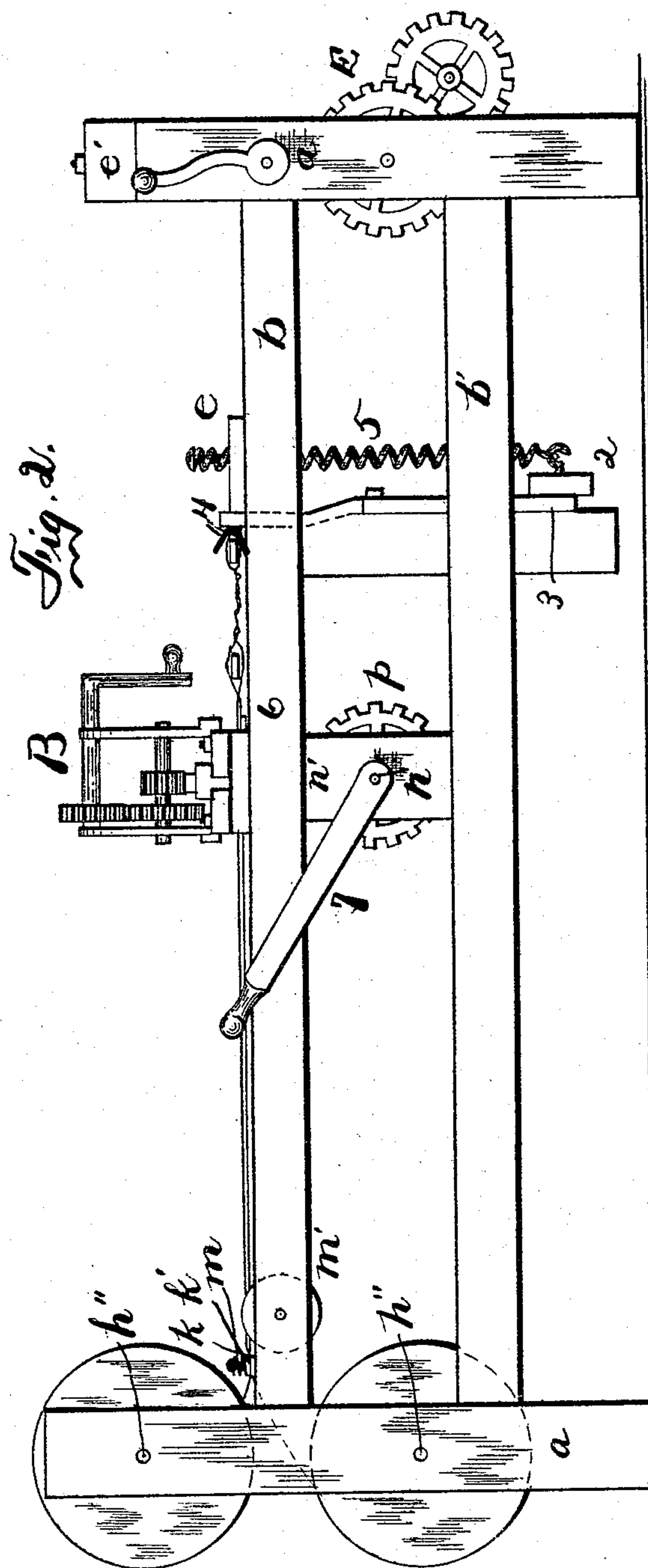
BY

Smith & Hornsow
ATTORNEYS.

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No. 543,481.

Patented July 30, 1895.



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(No Model.)

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M. E. HODGES.
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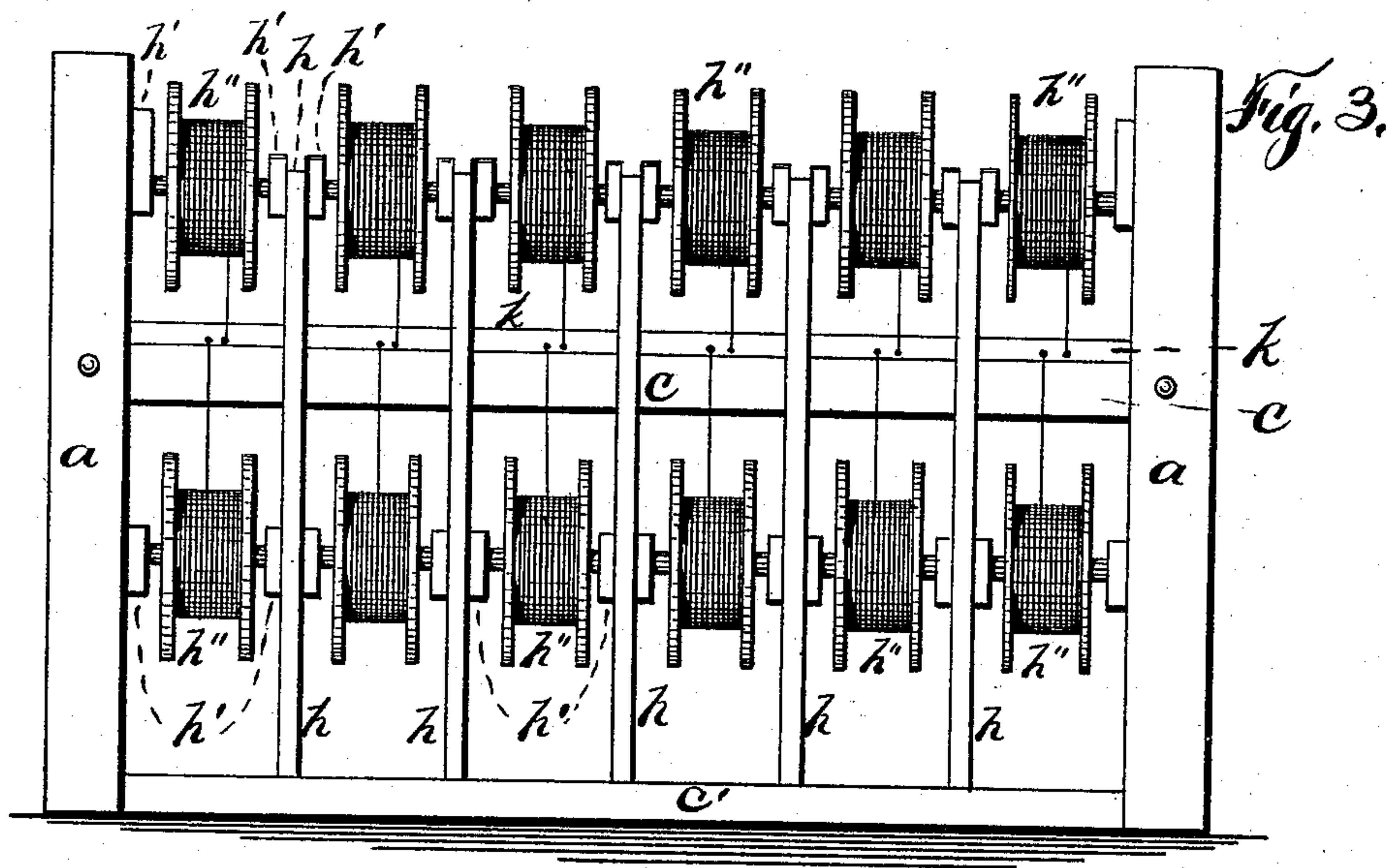
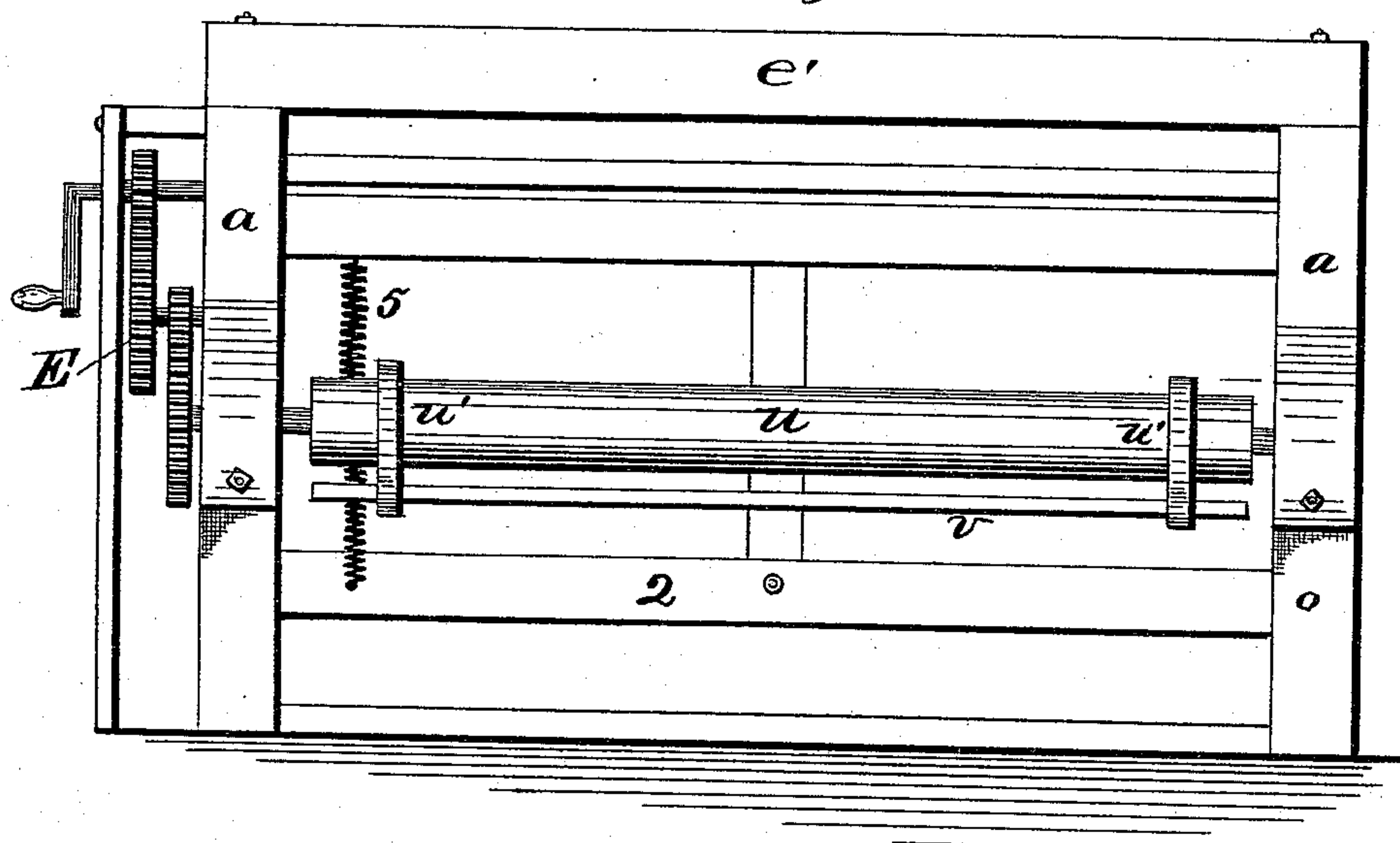


Fig. 4.



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(No Model.)

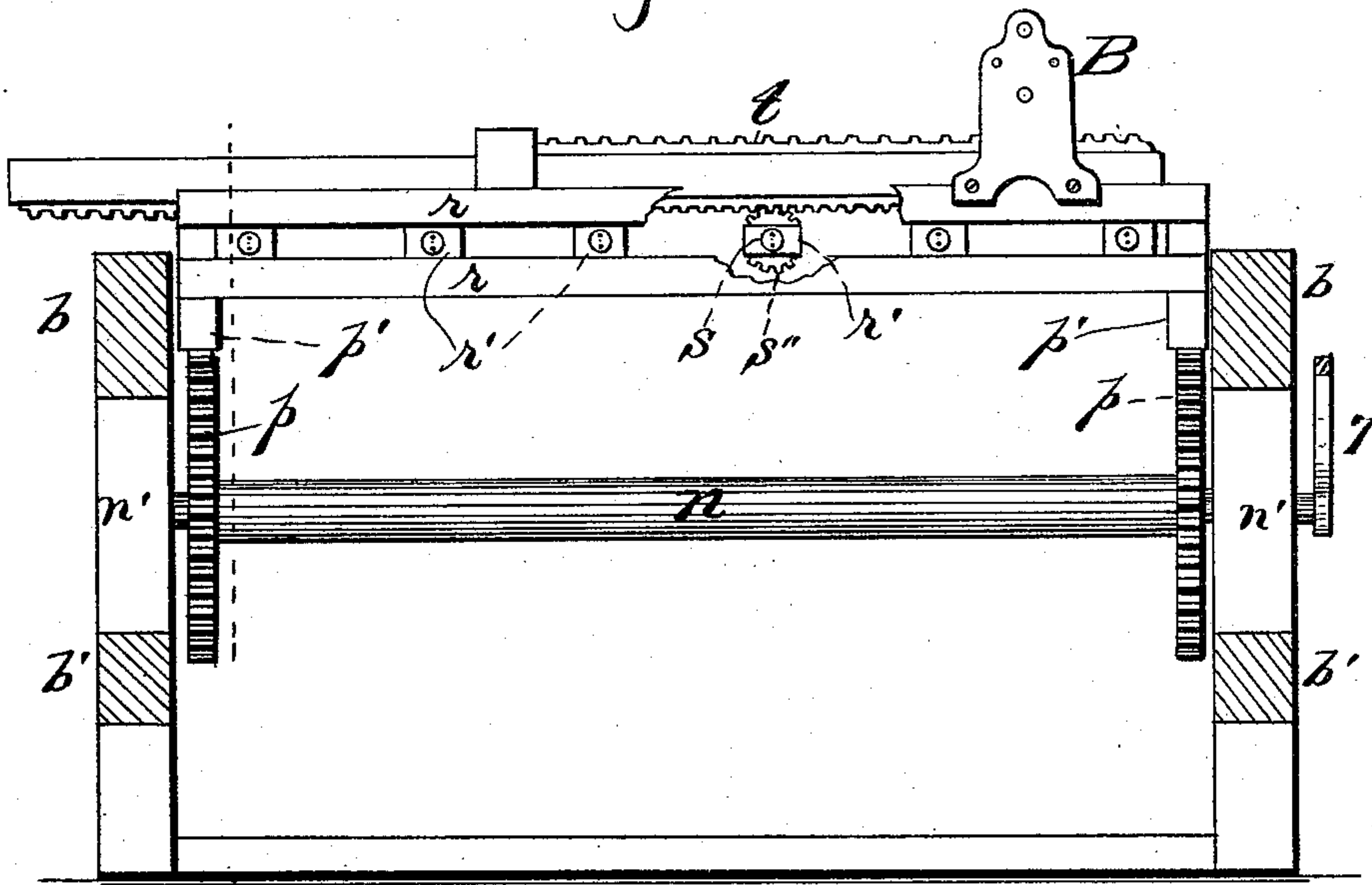
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Fig. 5.



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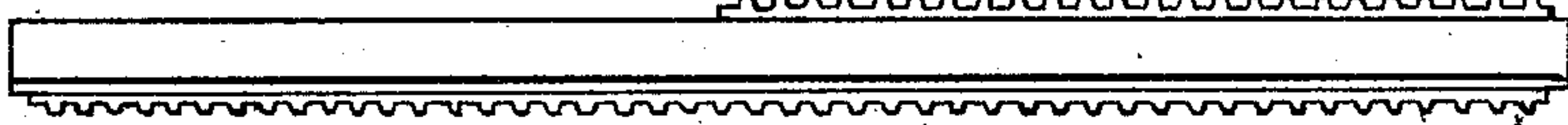


Fig. 6.

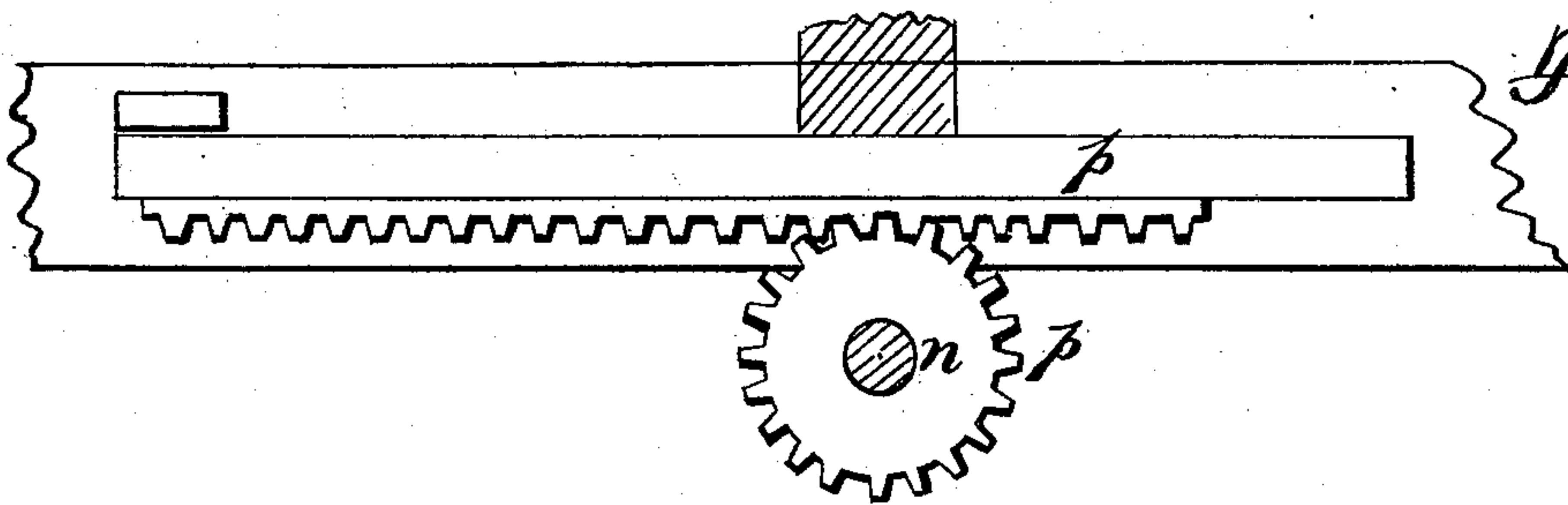


Fig. 7.

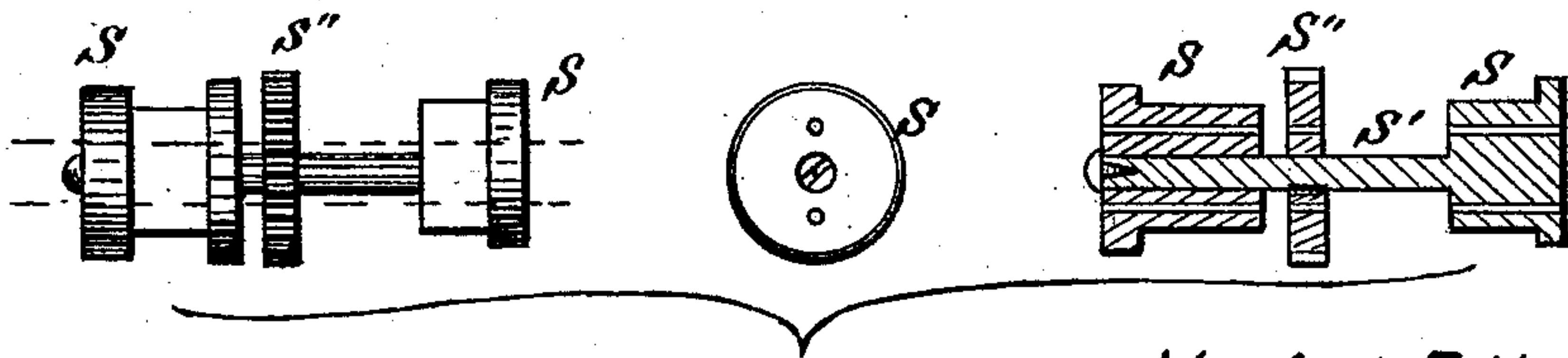


Fig. 8.

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UNITED STATES PATENT OFFICE.

MARTIN E. HODGES, OF SYRACUSE, NEW YORK.

FENCE-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 543,481, dated July 30, 1895.

Application filed March 23, 1894. Serial No. 504,769. (No model.)

To all whom it may concern:

Be it known that I, MARTIN E. HODGES, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Fence-Making Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to machines for making picket-fences, in which the pickets are secured in place by warp-wires which are twisted between the pickets.

My object is to produce an improved fence-making machine comprising pickets secured between parallel pairs of warp-wires which are twisted between the pickets to bind them; in which the wires are fed from reels or coils arranged in pairs, each pair of wires passing first through a stationary guide-bar, then through between spring-actuated tension-plates, then around a roller by which the wires are forced to draw evenly, thence passing through the rotating twisters, which are rotated first one way and then the other by means of a traversing rack-bar engaging with them, said rack-bar being driven by a gear or a system of gearing, and whereby the wires are twisted, the picket being inserted between them upon the front of a traversing lay or beater by which the picket is beaten into place in the angle of the intersection of the previously-twisted wires and left there when the lay is retracted to permit the twisting of the wires to bind the picket in proper position, said machine being provided with a reel onto which the fence is wound or with means whereby, as each picket is woven in, the finished fence is fed forward, thereby feeding the warp-wires, a stop being provided to regulate such feed, and means being also provided whereby said stops are lowered to release the fence and permit the forward feed.

My invention consists in the several novel features of construction and operation hereinafter described and which are specifically set forth in the claims hereunto annexed. It is constructed as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a top plan of the machine. Fig. 2 is a side elevation thereof. Fig. 3 is a rear elevation. Fig. 4 is a front elevation. Fig. 5 is a vertical transverse sectional eleva-

tion on a line in front of the lay. Fig. 6 is an elevation of the warp-twisting rack-bar. Fig. 7 is a sectional detail of the mechanism for operating the lay. Fig. 8 shows one of the warp guides and twisters combined in side elevation, end elevation, and in longitudinal section.

A suitable frame is erected comprising standards *a*, side rails *b b'*, end rails *c c'* at one end and like cross-bars at the other, and top rails *e e'* across between the side rails. Standards *h* are erected at the rear, which, together with the standards *a*, support the bearings *h'* in which the shafts of the wire-reels *h''* are mounted, said shafts being either secured to the reels or the reels being adapted to rotate upon them. From the reels the wires are led in pairs through holes in the cross-bar *k*, thence through the tension device, consisting of two flat bars *k'*, between which the wires pass, and springs *m* are provided which bear against one or both bars to produce the grip upon these warp-wires and regulate their tension. Thence the wires pass around the spaced roller *m'*, which causes the wires to draw evenly from the reels.

A shaft *n* is journaled in the posts *n'* and carries the gears *p*, which engage with the rack-bars *p'*, which are secured to the reciprocatory beater-frame. This frame comprises parallel bars *r*, separated from each other to receive the blocks *r'*, in which the twisters *s* are journaled, and which are mounted upon a shaft *s'*, upon which a gear *s''* is secured in engagement with the rack upon the lower face of the rack-bar *t*, which is mounted in a slotway between the two sets of frame-bars and guided thereby, and *B* is a gear or a train of gearing carried by said frame-bars and engaging with the rack upon the upper face of said rack-bar, and by which said rack-bar is reciprocated transversely to the main frame, and by such reciprocation rotates all of the twisters simultaneously according to the direction of its movement. The warp-wires of each pair are led through separate holes in each twister and through the gears upon the twister-shafts. The ends of the wires are then carried forward, to the front of the machine and there connected to the stretcher or fence-winding reel or drum, which is rotated by the gearing *E*.

As shown, a shaft is journaled in the standards, provided with a drum *u* and collars *u'* upon the drum, which are provided with hooks to properly engage with a picket *v* of the fence, 5 so that by the forward rotation of said drum the hooks will draw the finished fence along and also feed the warp-wires off from their reels. To regulate this feed a treadle 2 is connected to a slide 3, provided with fingers 4, 10 and 5 is a spring connected to said treadle and operating to raise it and the slide and fingers, so that the fingers will project sufficiently to engage with a picket and thus stop the feed until said fingers are drawn down by 15 foot-power applied to said treadle to permit further feed and rise again to stop it when the pressure is removed, and thus the pickets are spaced.

Upon the front of the beater-frame a shelf 20 6 is secured, upon which a picket is placed between the warp-wires, and then by the forward oscillation of the hand-lever 7, the gears *p* are rotated forward, which carries said frame and the picket forward into the angle 25 of the intersection of the twisted wires, and when the gears are reversed the frame is retracted and the picket has been beaten into place and is left there. Then by the gear or gearing *B* the rack-bar *t* is actuated in 30 one direction to rotate the twisters and twist the warp-wires and lock the picket. Then another picket is inserted and the operation is repeated, except that the gearing is reversed and thus the wires are twisted in 35 the opposite direction, the warp-wires being twisted in one direction on one side of each picket, and in the opposite direction upon the other side, and this reverse twisting on opposite sides binds the picket securely 40 and makes an exceedingly durable fence.

The drum *u* may be removable from its shaft, the shaft removable from its bearings, and the collars removable from the drum, so that when a quantity of fence is wound onto 45 the drum it can be removed and the roll of fence removed from the drum.

The blocks which carry the twisters are adjustable in the beater-frame, to vary the space between the warp-wires, by any ordinary means. 50

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a fence making machine, a reciprocating beater, in combination with geared twist-

ers journaled in the beater frame, a rack-bar 55 upon said beater engaging with said gears, and means to reciprocate said rack-bar to rotate said twisters.

2. In a fence-making machine, a reciprocating beater-frame, warp wire twisters mounted 60 therein and each provided with a driving gear, a rack-bar mounted in said frame and engaging with said gears, and means to reciprocate said rack-bar, in combination.

3. In a fence-making machine, the combination with the main frame, of a reciprocating beater comprising a beater frame, rack bars 65 secured to the beater frame, a shaft journaled in the main frame, gears thereon engaging with said rack-bars, and means to rotate said 70 shaft.

4. In a fence making machine, the combination with the main-frame of a reciprocating beater mounted thereon, comprising a beater 75 frame, rack-bars secured to the beater frame, a shaft journaled in the main frame, gears thereon engaging with said rack-bars, and means to rotate said shaft and gears, and warp wire twisters mounted in the beater 80 frame, and means to rotate them.

5. In a fence-making machine, a main frame, and warp-wire reels journaled thereon, a reciprocating beater frame and wire twisters 85 journaled therein, in combination with a fence-winding reel mounted upon the opposite end thereof, stop fingers projecting above the main frame and engaging with a picket in the fence, and means to vertically reciprocate said fingers.

6. In a fence-making machine, a main frame, 90 a beater frame adapted to reciprocate therein, a warp wire twister comprising a shaft, journaled in the beater frame, a twisting head secured upon said shaft, a driving gear upon said shaft, and perforations through 95 said head and gear parallel with said shaft to receive a pair of warp wires, in combination with a rack-bar upon the beater frame engaging with the gears of a series of twisters and adapted to be reciprocated to rotate all 100 of said twisters simultaneously first in one direction and then in the opposite direction.

In witness whereof I have hereunto set my hand this 1st day of March, 1894.

MARTIN E. HODGES.

In presence of—

HOWARD P. DENISON,
M. M. BORST.