

(No Model.)

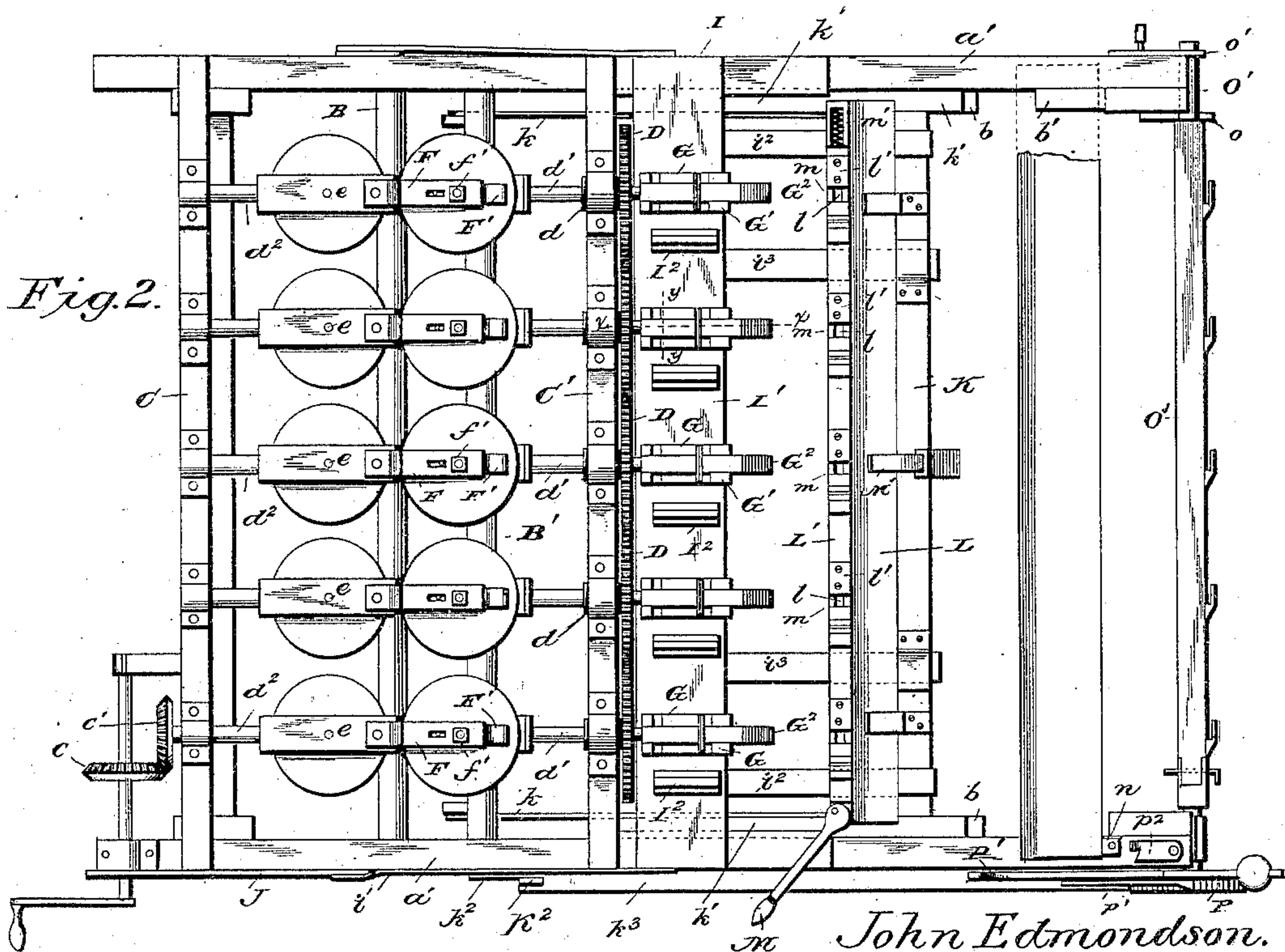
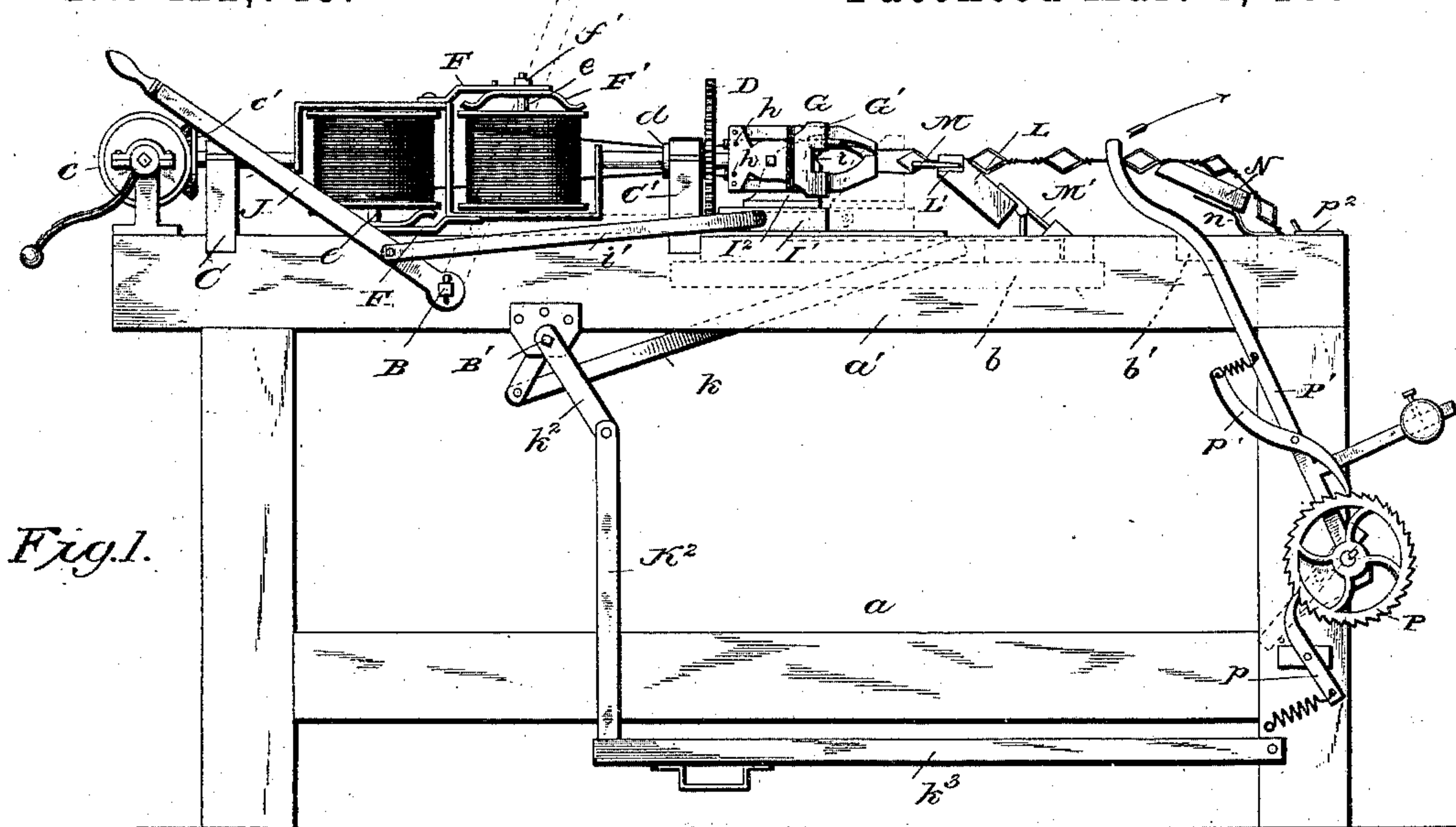
2 Sheets—Sheet 1.

J. EDMONDSON.

WIRE AND SLAT FENCE MAKING MACHINE.

No. 422,749.

Patented Mar. 4, 1890.



Witnesses

L. S. Elliott.
W. M. Johnson

Inventor

By his Attorney

John Edmondson.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

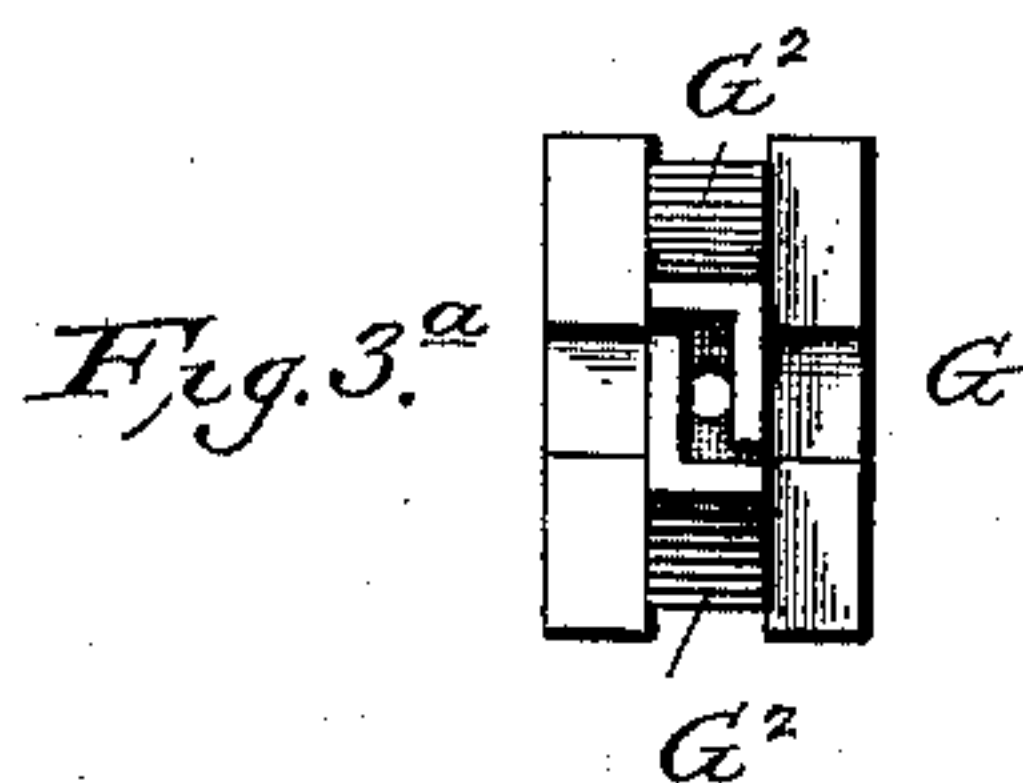
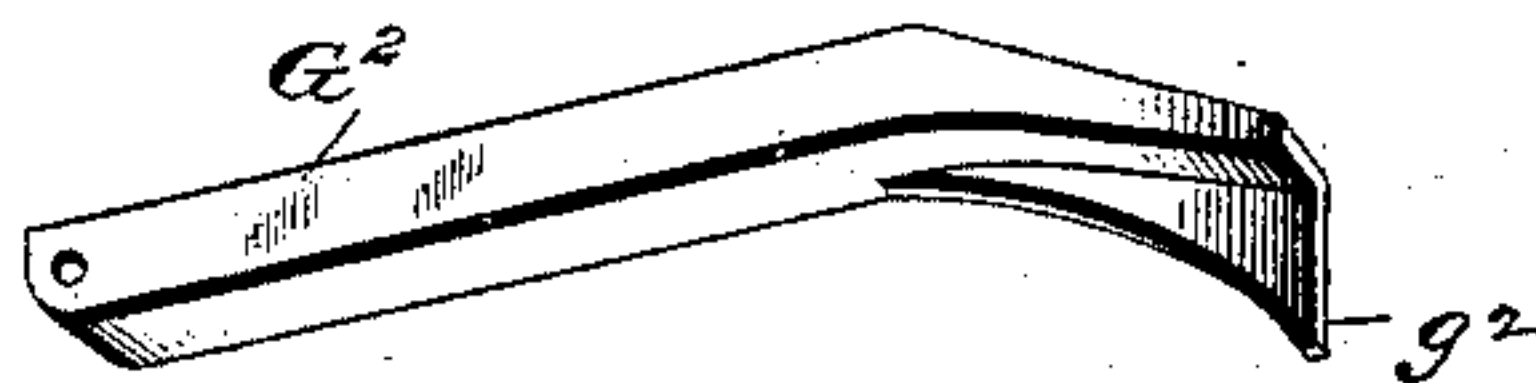


Fig. 4.

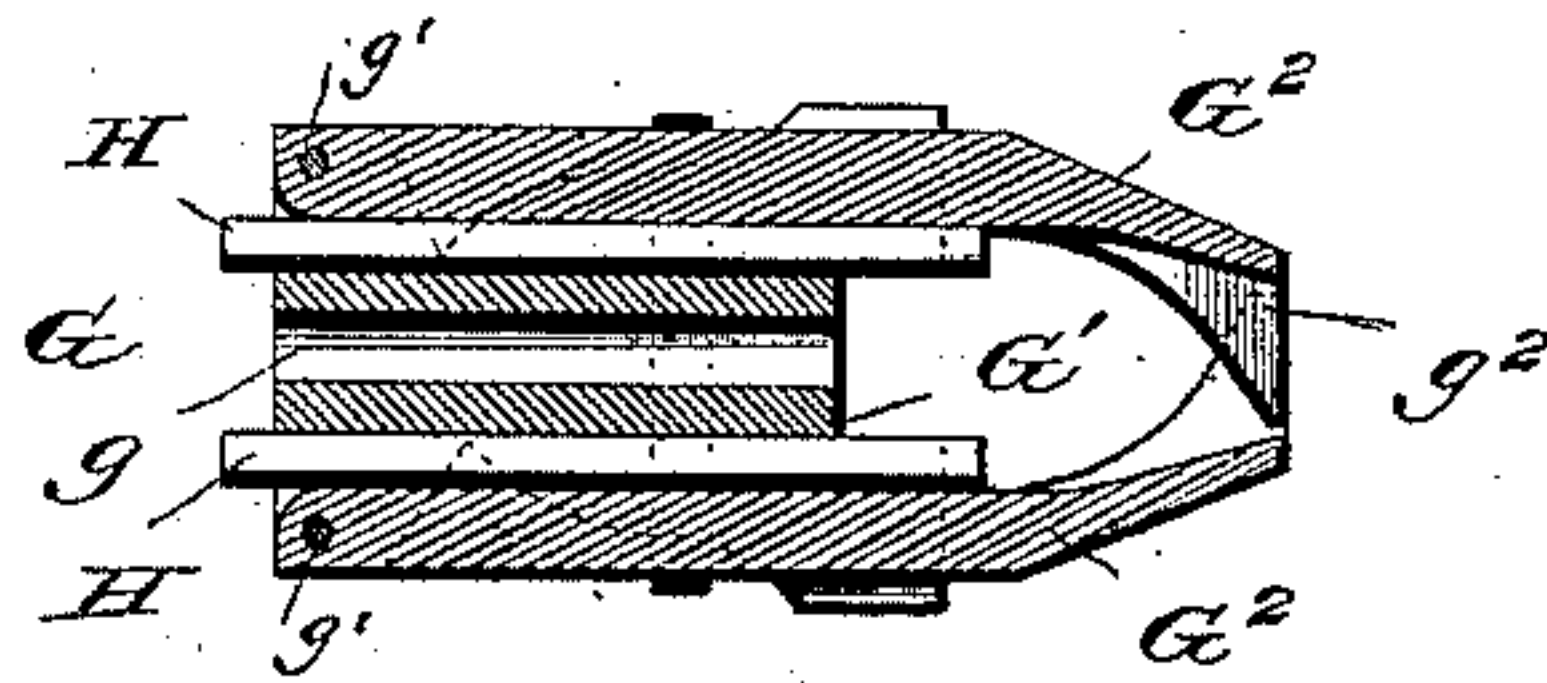


Fig. 5.

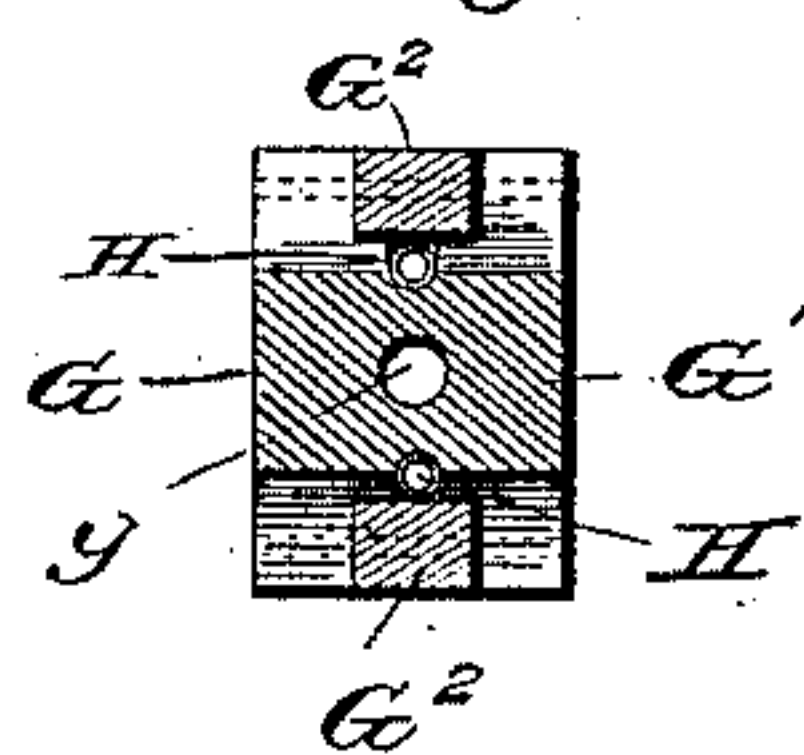


Fig. 6.

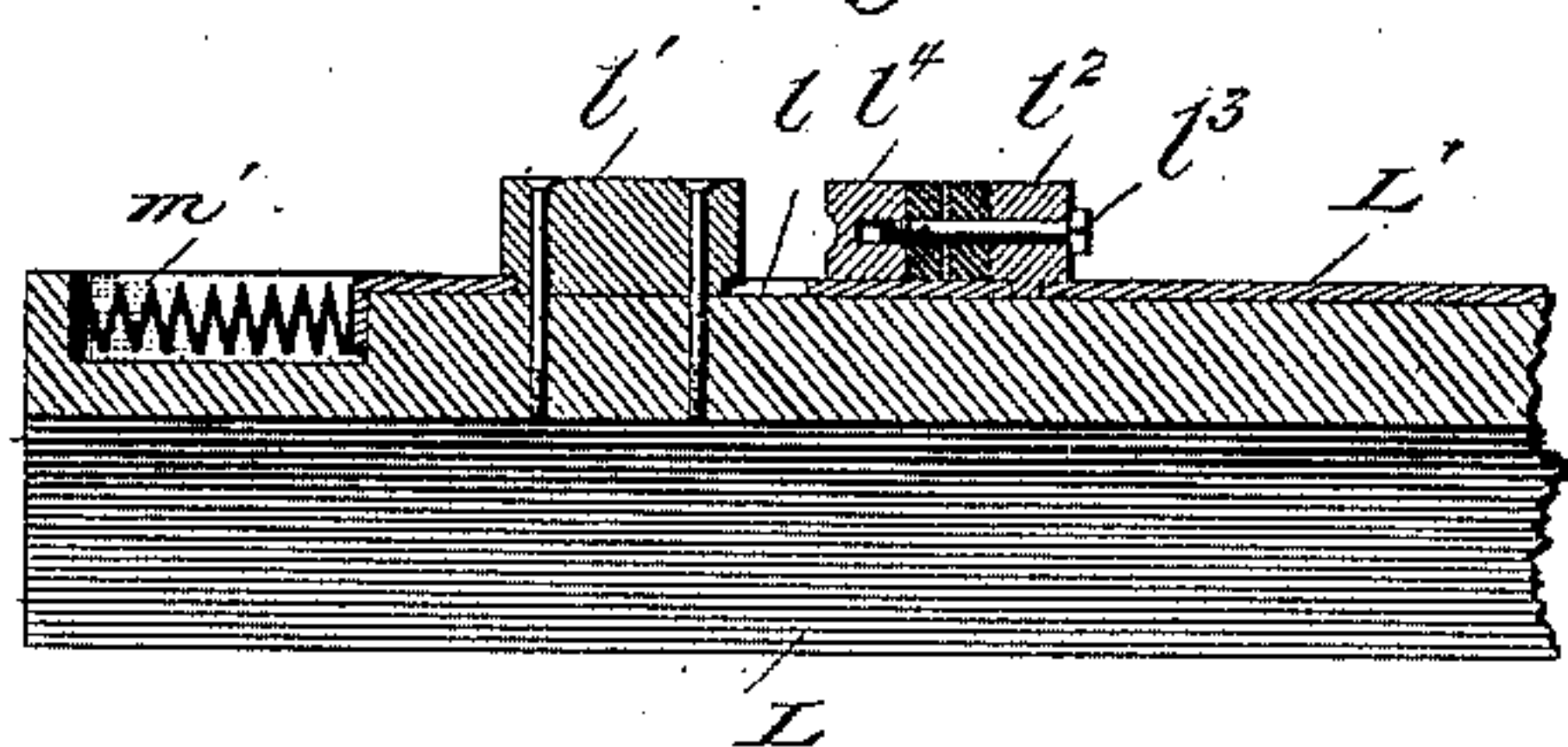
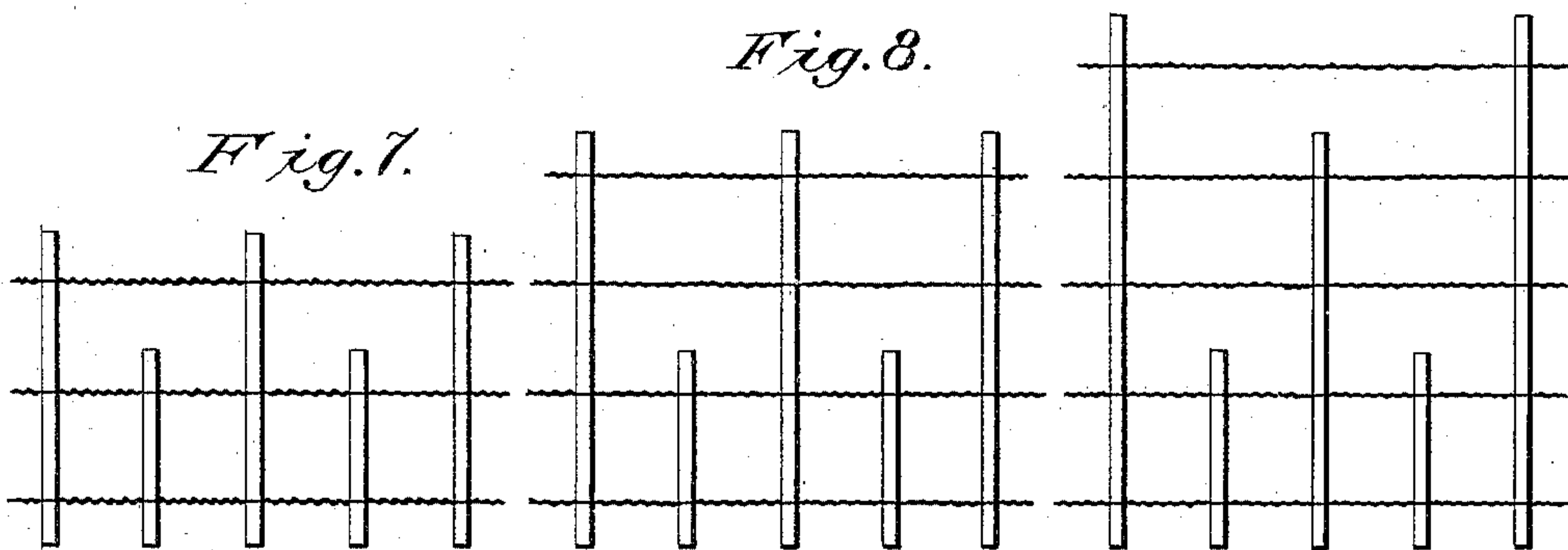


Fig. 9.

Fig. 8.

Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN EDMONDSON, OF DAYTON, OHIO.

WIRE-AND-SLAT-FENCE-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 422,749, dated March 4, 1890.

Application filed October 3, 1889. Serial No. 325,902. (No model.)

To all whom it may concern:

Be it known that I, JOHN EDMONDSON, a citizen of the United States of America, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Wire-and-Slat-Fence-Making Machines; and I do hereby 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.

My invention relates to machines for making wire-and-picket fences, the special object of the machine being to make the style of fence in which a number of pairs of wires are twisted so as to embrace the pickets or slats, said pickets or slats being arranged so that they will be alternately of different lengths to provide a wire-and-picket fence which will be close at the bottom and comparatively open at the top; and my invention consists in the peculiar construction and combination of devices, as will be hereinafter fully set forth and particularly claimed.

In the accompanying drawings, which illustrate my invention, Figure 1 is a side elevation of my improved machine for making wire-and-picket fences. Fig. 2 is a plan view. Fig. 3 is a detail view of one of the jaws of the twister-head. Fig. 3^a is a detail end view of one of the twister-heads. Fig. 4 is a sectional view taken through the line *xx* of Fig. 2. Fig. 5 is a sectional view taken through the line *yy* of Fig. 2. Fig. 6 is a sectional view of a part of the clamp-bar. Figs. 7, 8, and 9 are side views of different styles of fence which may be constructed upon the machine.

A refers to the frame of the machine, which consists of four vertical corner-posts which are suitably connected to each other by longitudinal side pieces *a* and *a'* and transverse cross-pieces, as shown. To the side pieces are journaled shafts B and B', the shaft B' being mounted in suitable hangers located beneath the side pieces *a'*, while the shaft B is journaled in boxes let into the side pieces. To the side pieces a slight distance below

their upper edges are secured rigidly strips *b* and stops *b'*, and upon the strips aforesaid the pusher-bar and clamp slide, as will be more particularly hereinafter described.

At the front portion of the frame is rigidly secured a transverse strip C, provided at suitable intervals with bearings for the front ends of the frames which carry the spools, and at the front of the machine is journaled a short stub-shaft carrying a miter-wheel *c*, which meshes with a wheel *c'* for rotating the spool-frames and shafts connected therewith. The miter-wheel *c* is turned by the ordinary crank-handle.

C' refers to a cross-piece rigidly mounted upon the frame and provided with journals, within which lie the collars *d*, formed upon the gear-wheels D, the said gear-wheels having attached centrally thereto a shaft *d'*, which extends beyond each side thereof, one end being connected to the spool-carrying frame to be on a line with the short shaft *d*, journaled upon the cross-piece C.

The spool-carrying frames are made up of a strip of metal bent as shown in Fig. 1, and the portions which extend parallel with the axis carry pins *e*, upon which the spools containing the wire are mounted. To this spool-carrying frame is attached one end of a metal plate F, the opposite end carrying a spring-plate F', which is attached thereto by means of a thumb-nut *f'*, and this device acts as a tension for the spools, the tension being regulated by turning the thumb-nut *f'* upon the screw-threaded end of the pin *e*, which operation clamps the spring-plate F' upon the end of the spool. The tension-springs F' are provided with pins which engage the perforations in the plates F to prevent said springs turning with the spools.

The gear-wheels D mesh with each other, so that each spool-frame and parts connected thereto will rotate in opposite directions, or idle-wheels may be interposed, so that each of the spool-frames and twister-heads will rotate in the same direction. The wires from the spools are passed through openings in the gear-wheels D on each side of the shaft upon which said gear-wheels are mounted, and from thence they pass to the twister-heads G.

The twister-head consists of a casting G',

having recesses and a central opening g , to which the shaft d' is secured by set-screws or equivalent means. The recesses at their lower ends are semicircular, as shown in Fig. 5, while the inner sides thereof are parallel, and within these recesses move fingers G^2 , pivoted to the casting at g' . The ends of the fingers are provided with projections g^2 , which extend at right angles with the main portion of the finger, and provide, when the two fingers are in position, a rectangular opening, through which the wires from the spool pass, said wires being guided by short sections of pipe or tubing H , which are secured in the casting by set-screws h , so that they can be adjusted to and from the ends of the fingers. The flanges g^2 of the expanding fingers are inclined, and the casting G' is also cut away, so as to provide a space in which the pickets can be inserted. The fingers G^2 are held together by an elastic or spring band, which permits the free ends of the same to open, so that the pickets can be forced beyond the same by the presser-bar.

I refers to the picket-pusher, and consists of a board I' , upon which is secured at suitable intervals brackets I^2 , which are provided near their upper ends with V-shaped recesses i , and when this picket-pusher is moved toward the front of the machine these recesses i in the brackets will lie forward of the openings in the twister-heads. The board I' is connected by suitable bars i' to the lever J on one side and on the other to a short arm which extends from the opposite end of the rock-shaft B , which provides a means for operating the same. To the under side of the board I' are secured two projecting fingers i^3 , which pass through openings or slots in a transverse bar, to which the clamp-bar, to be hereinafter described, is hinged, and it is also provided with metallic strips i^2 with downwardly-bent ends which engage the aforesaid bar to retract the same or move it toward the twister-heads when desired. The bar K , which has guides through which the projecting fingers i^3 pass, is rigidly connected to said pieces k' , which slide upon the strips b , attached to the inner sides of the longitudinal pieces a' of the frame, and to the pieces k' are connected rods k , which are pivoted to the projecting arms of the rock-shaft B' , said rock-shaft having a crank-arm k^2 , from which depends a bar K^2 , pivoted to the lever k^3 , provided with a stirrup, as shown, said stirrup being located so that the lever and parts connected thereto can be operated by the foot while one hand is manipulating the lever J and the other the crank-handle which rotates the spool-frames and twister-heads.

To the transverse bar K is hinged what I term a "clamp-bar," the said device consisting of a piece of wood of sufficient length to extend across the frame of the machine, and one edge of this clamp-bar L is recessed or rabbeted for the reception of a metallic strip L' , which is provided with slots l , corre-

sponding in number with the number of twister-heads, and through these slots pass the lower ends of blocks l' , which are rigidly bolted to the clamp-bar, and between the blocks l' and the clamp-bar L the strip L' can be slid. To the strip L' is rigidly secured blocks l^2 , through which pass horizontal bolts l^3 , which clamp thereon an end block l^4 , which is recessed, and between the block l^4 and block l^3 is interposed a rubber packing or washer, so as to permit of a slight give or spring pressure of said block. The bar L is provided between these clamping-jaws with plates m , which will prevent the wires from dropping down and resting upon the upper edge of the clamp-bar. The metallic strip L' is moved in one direction by a spring m' and in the opposite direction, so as to clamp the wires between the blocks, by a lever M , having a cam-head, said lever being pivoted to one end of the bar L . To the center of the clamp-bar is secured an arm M' , carrying a weight which serves to hold the clamp-bar and parts attached thereto in position against the wires, and at the same time permits the ready depression of the same when it is desired to release the clamps and move the clamp-bar and pusher back to their original position. The upper surface of the clamp-bar is inclined, as shown, so that the picket may rest upon the same, which is especially desirable when diamond-shaped pickets are used in the construction of the fence. The clamp-bar M' drops by its own weight when the wires are released and is raised by hand when a picket comes into position.

N refers to a supporting-bar which is secured to the upper edges of the longitudinal pieces a' by springs n , and the edges of this bar are rounded, so that the fencing can pass or slide easily over the same to the reel O , the shaft O' thereof being secured at one end to the rear legs or supports of the frame by a journal o and a lever o' , (shown in dotted lines, Fig. 1,) said lever having one edge notched to partly embrace the rounded end of the reel-shaft, while the opposite end engages with a removable pin which enters the leg to hold the lever in contact with the shaft. The opposite end of the reel-shaft fits into a box or rectangular socket mounted upon the inner end of a short shaft, the outer end of which carries a ratchet-wheel P , with which spring-actuated pawls p and p' engage, one of said pawls being pivoted to the supporting-leg, while the other is pivoted to a lever P' , which lever is journaled loosely upon the shaft of the ratchet-wheel and has an outwardly-projecting weighted arm for automatically moving the lever in the direction indicated by the arrow, and thus turning the reel-shaft. The movement of the lever is limited in one direction by an abutment p^2 pivoted so that it can be turned in and out of the path of the lever P' , as desired. The reel-shaft O' has a series of fingers or cleats attached thereto in exact line with the center

of the twisting-heads, which are beveled on one side, and beneath these cleats the ends of the wires or fencing are placed, and to remove the reel it is only necessary to detach the reel-shaft by loosening the lever which holds one end of the shaft in place, and, loosening the set-screw in the box at the other end, lift the roll out and remove the shaft.

The machine hereinbefore described is especially adapted for making fencing after the styles illustrated in Figs. 7, 8, and 9, or any such modifications thereof as may be desired, and the parts of the machine co-operate in making such a fence, as by the use of the tubes or hollow fingers, which are adjustable, the twist may be shortened or lengthened, as desired. By employing the expanding fingers the twist will begin close up to the picket.

In using the machine the operator stands in front with his left hand upon the lever J, a picket being inserted between the expanding fingers of the twister-head, and his right foot rests in the stirrup attached to the lever k^3 .

The lever J is then raised to a vertical position, which carries the picket through and beyond the expanding fingers and against the clamp-bar, leaving a small space between the fingers of the twister-head and the picket.

The clamp-bar is prevented from moving forward by the pressure of the operator's foot in the stirrup while the picket is being forced up by the pusher-bar tightly between the wires. When this is done, two revolutions

are given to the twister-heads by turning the crank-handle connected to the miter-wheel c, after which the foot is removed from the stirrup and the lever J brought forward until the slides of the clamp-bar

strike the strip b' , which movement carries the finished fabric forward and it is automatically wound upon the reel-shaft by the operation of the weighted lever P'. The cam-lever of the clamp-bar is now swung to open

the jaws and release the wires, and the said clamp-bar will drop down, and at the same time the lever J is thrown back to its original position, which will bring the clamp-bar and picket-pusher to their proper positions, and

said operation is continued until sufficient fencing has been woven. The extended vertical end of the lever P admits of its being returned to its first position by hand, the weight merely assisting such movement.

The special object of the clamp-bar is to secure equal length of all the wires, so that the pickets will be parallel with each other.

Having thus described my invention, I claim—

1. In a machine for making wire fences, a spool-carrying frame mounted on short shafts, said frame being bent, as shown, to receive two spools, pins for supporting the spools, and tension-springs having upwardly-projecting pins which engage with the slotted bar or plate, held upon the spool-shafts by adjusting-nuts, the opposite ends of said slotted plates

being rigidly secured to the spool-carrying frame, substantially as shown, and for the purpose set forth.

2. In a machine for making wire fences, a twister-head consisting of a casting having a recessed front end, within which recess are pivoted jaws having overlapping ends, said casting also carrying adjustable tubes and a spring-band for holding the jaws together, substantially as set forth.

3. In a machine for making wire fences, a twister-head having pivoted jaws which overlap each other at their free ends, a spring for holding said jaws together, and the frame or casting to which the jaws are pivoted having an opening through which the picket can be passed, said frame being secured to a shaft, substantially as shown, and for the purpose set forth.

4. In a machine for making wire fences, a twister-head consisting of a body portion cut away at its forward end and provided with side recesses, jaws or expanding fingers pivoted thereto and provided with overlapping ends, an elastic or spring for holding the expanding fingers together, and tubes H, adjustably attached to the head, substantially as and for the purpose set forth.

5. In a machine for making wire fences, the combination, with the spool-carrying frames, intermeshing gear-wheels, and twister-heads, of a sliding bar having brackets, a rock-shaft having connecting-straps which engage with said sliding bar, and extending-straps having bent ends which engage with a sliding frame carrying a clamp-bar, so that said clamp-bar can be operated in one direction by the movement of the rock-shaft, substantially as set forth.

6. In a fence-machine, the combination of the spool-carrying frames and rotary twister-heads with expanding jaws through which the pickets may be passed, a sliding pusher-bar with brackets having notches which engage with the pickets, said pusher-bar being adapted to be projected and retracted beyond the twister-heads by the mechanism shown, a clamping-bar having a series of laterally-moving jaws attached to a sliding metallic strip which can be operated in one direction by the movement of the pusher-bar, the transverse bar to which the clamping-bar is attached being connected to a rock-shaft provided with a foot-lever for operating the same, together with stationary jaws against which the movable jaws are adapted to be pressed, substantially as set forth.

7. In a wire-fence machine, a hinged bar provided with a series of stationary projections, and a bar carrying clamps having spring-cushions adapted to be moved toward the rigid projections to embrace the wire, substantially as and for the purpose set forth.

8. In a wire-fence machine, a hinged or pivoted lever provided with a series of stationary jaws and a series of movable jaws connected to a sliding strip, and a weighted

arm, substantially as shown, and for the purpose set forth.

9. In a machine for making wire fences, a sliding frame connected to a main frame and adapted to be actuated by a lever, said frame carrying a bar having a series of clamping-jaws and a lever for operating said clamping-jaws, said bar being hinged or pivoted to the sliding frame and having a weighted arm for elevating the forward edge of the clamping-bar, together with stationary jaws against which the movable jaws are adapted to be pressed, substantially as shown, and for the purpose set forth.

10. In a machine for making wire fences, a lever carrying a spring-actuated pawl which engages with a ratchet-wheel mounted on a stub-shaft which engages with the reel-shaft, a projecting arm carrying a weight for operating said lever in one direction, and a pawl for preventing the backward rotation of the ratchet-wheel and reel-shaft, substantially as shown, and for the purpose set forth.

11. The combination, in a wire-fence machine, of the main frame having at one end a

miter-wheel and operating-handle which engages with a miter-wheel attached to the stub-shaft d^2 , a spool-carrying frame the opposite end of which is provided with a shaft d' , upon the end of which is secured a twister-head, gear-wheels D, having flanges or collars d operating in bearings, a reciprocating bar having brackets with V-shaped notches which is adapted to be moved beneath and beyond the twister-heads, a reciprocating clamping-bar having a series of stationary and corresponding series of movable jaws, a guide N, connected to the main frame by a spring, and a reel automatically operated in one direction by a weighted arm and spring-actuated pawl, the parts being constructed and organized substantially as shown, and for the purpose set forth.

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

JOHN EDMONDSON.

Witnesses:

M. P. NOLAN,
L. E. CUSTER.