

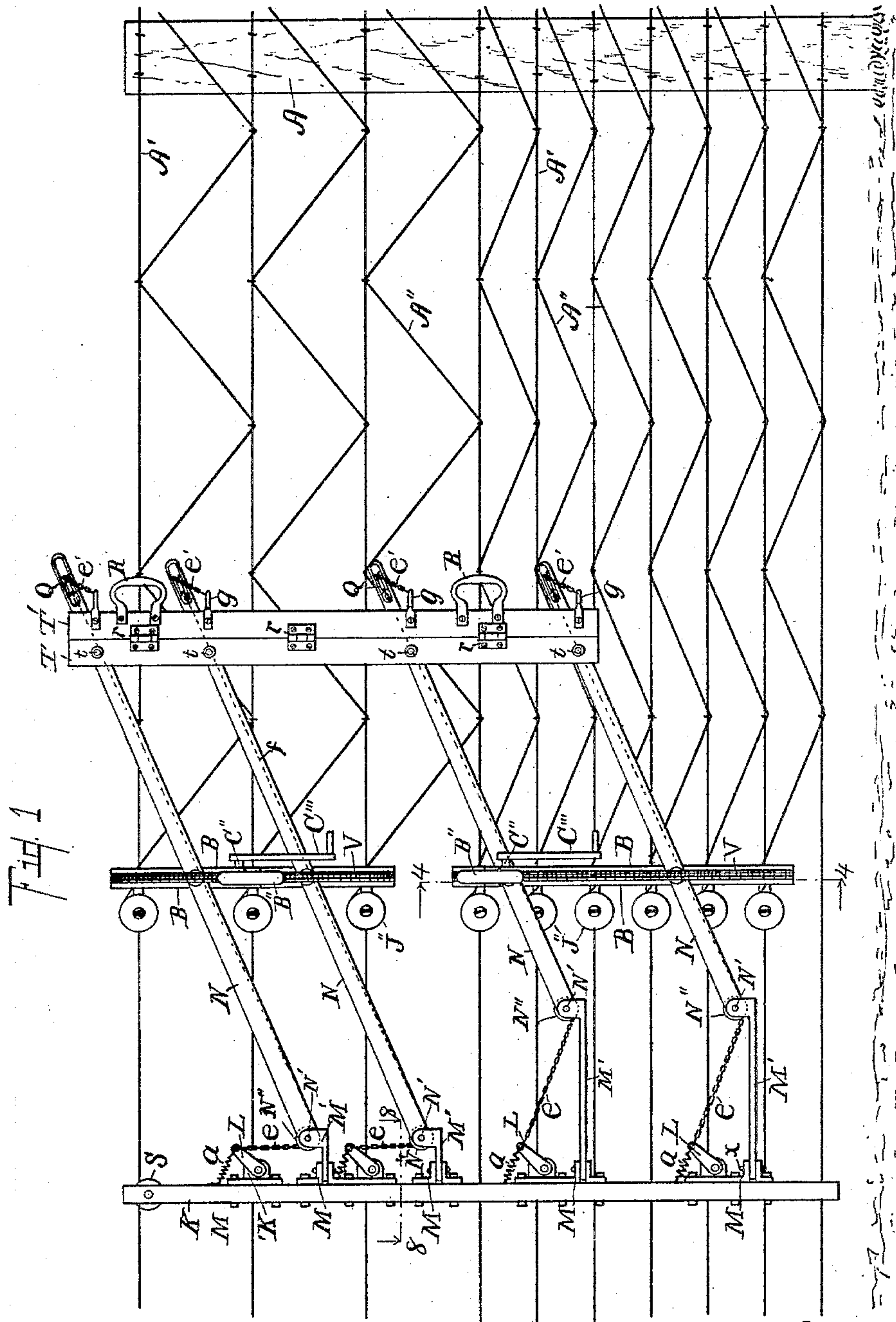
(No Model.)

2 Sheets—Sheet 1.

G. B. ST. JOHN.  
WIRE FENCE MACHINE.

No. 597,442.

Patented Jan. 18, 1898.



Witnesses.

*W. L. Wood*  
*V. E. Chappell.*

Inventor.

*Garland B. St. John*  
*By Fred L. Chappell*

Attorney.

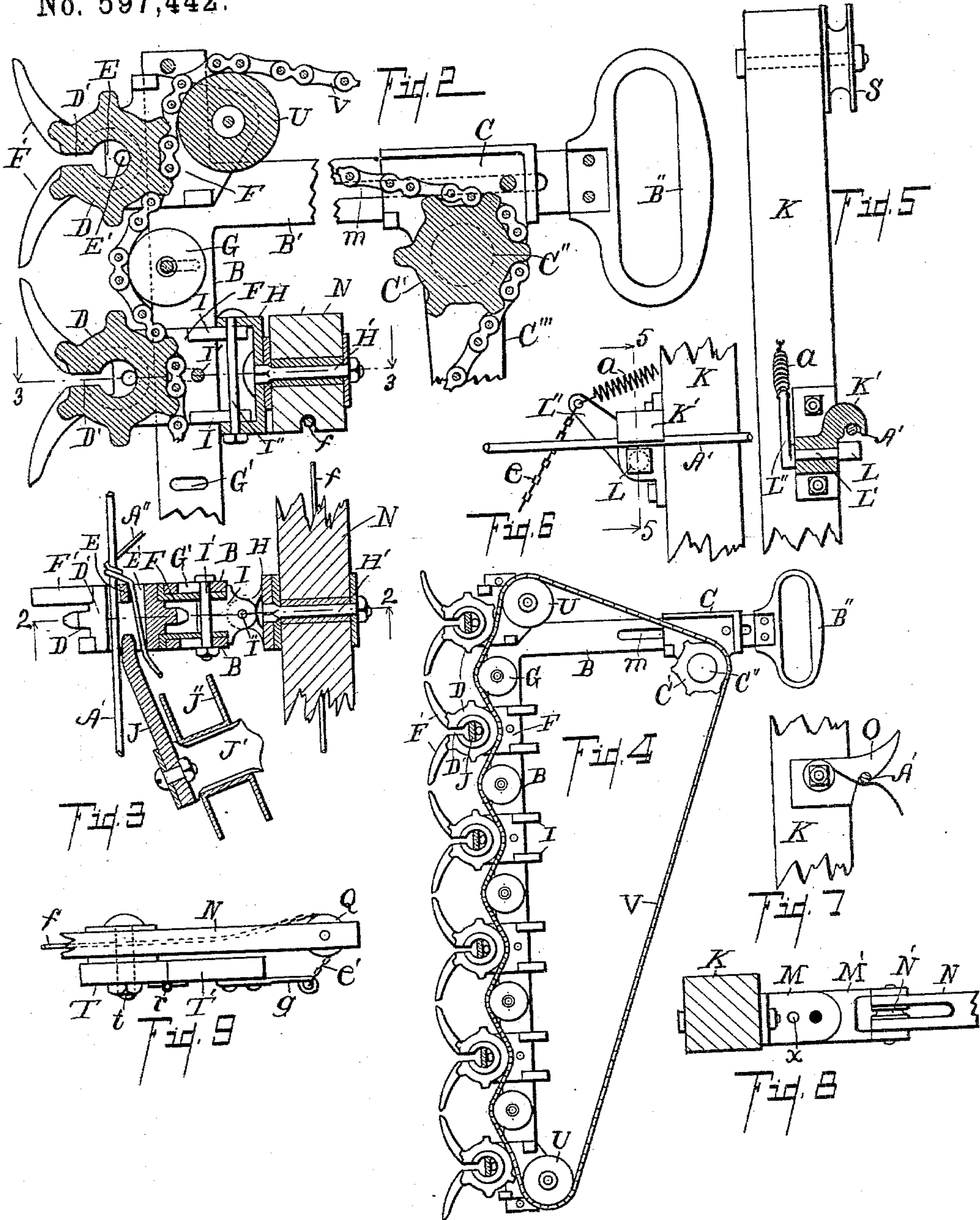
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# UNITED STATES PATENT OFFICE.

GARLAND B. ST. JOHN, OF KALAMAZOO, MICHIGAN.

## WIRE-FENCE MACHINE.

SPECIFICATION forming part of Letters Patent No. 597,442, dated January 18, 1898.

Application filed April 3, 1897. Serial No. 630,635. (No model.)

*To all whom it may concern:*

Be it known that I, GARLAND B. ST. JOHN, a citizen of the United States, residing at the city of Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented a certain new and useful Improvement in Fence-Machines, of which the following is a specification.

This invention relates to improvements in wire-fence machines. It relates in many particulars to improvements in the wire-fence machine shown and described in my application for a patent for a fence-machine filed February 13, 1897, Serial No. 623,312, and to additional features for use in connection with this style of fence-machine.

The objects of this invention are, first, to provide an improved fence-machine for use on the fence after the longitudinal strands are in place that will simultaneously weave the cross-strands into the same between all of the longitudinal strands, even when located at different intervals apart; second, to provide such a machine adapted to operate on all of the longitudinal strands that can be easily passed by a post of the fence to which the longitudinal strands have already been attached; third, to provide improved means of manipulating and drawing out the wire or wires for the cross-strands of a fence in weaving or winding the same in; fourth, to provide means of adjusting the brackets and winders in relation to each other to accommodate longitudinal strands in a fence at different distances apart; fifth, to provide in a wire-fence machine improved means of locking the same in place on the longitudinal strands of the fence during the manipulation of the machine and its winders; sixth, to provide an improved construction of winder for wire fences that shall permit the wire of the cross-strands to pass easily therethrough; seventh, to provide an improved construction of winder for wire-fence machines that can be operated in a narrow space to facilitate the construction of narrow meshes; eighth, to simplify the construction of winders to a wire-fence machine and increase the strength thereof in proportion to the amount of material used; ninth, to provide an improved frame for the winders that will so manipulate a number thereof that the wire

carried on the spools thereof can be easily paid out or drawn out in its operation. Further objects will definitely appear in the detailed description of the machine. I accomplish these objects of my invention by the devices and means described in the following specification, definitely pointed out in the claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a view of a portion of wire fence in course of construction with my improved machine in operation thereon. Fig. 2 is an enlarged detail sectional view of parts of the winders and actuating mechanism with portions broken away, taken on a line corresponding to line 2 2 of Fig. 3. Fig. 3 is an enlarged detail sectional view taken on line 3 3 of Fig. 2. Fig. 4 is an enlarged detail sectional elevation showing the winders and their actuating mechanism, taken on line 4 4 of Fig. 1. Fig. 5 is an enlarged detail view, partly in section, on line 5 5 of Fig. 6, of the upright guiding and supporting bar K. Fig. 6 is an enlarged detail view of the positive clamping means for securing the bar K in position, being an elevational view of the parts shown in Fig. 5. Fig. 7 is an enlarged detail view of one of the spacing-clamps on the bar K, which are provided to engage longitudinal strands of the fence. Fig. 8 is an enlarged detail sectional view taken on line 8 8 of Fig. 1, showing the connection of the swinging arms or levers M to the supporting-bar K. Fig. 9 is an enlarged detail view of the controlling means for the levers N and the actuating means for the clamps on the supporting-bar K, being a top plan view of the same at the outer ends of the levers N.

In the drawings all of the sectional views are taken looking in the direction of the little arrows at the ends of the section-lines, and similar letters of reference refer to similar parts throughout the several views.

Referring to the lettered parts of the drawings, A represents the post of a fence; A', the longitudinal strands thereof, which are located at wider distances apart at the top than at the bottom of the fence. A'' represents the cross-strands thereof, which are zig-zagged between the longitudinal strands and wrapped or wound around the same at equal intervals of their length. This much of the



fence is defined that the operation and purposes of the fence-machine may more clearly appear from the description thereof.

K is an upright bar, having a roller S at the top to engage under the topmost strand of the fence, the said bar extending across the entire width of the fence. On this bar are placed spacing and guiding clips O to engage a portion of the longitudinal strands and clamping-hooks K' with opposite members L, carried on suitable rock-shafts L' and operated by lever L'' to securely engage and clamp the wires to retain the bars securely in position during the manipulation of the remaining portions of the machine. To this bar K are secured suitable ears or brackets M, to which are pivotally secured arms M' by the vertical pivots  $x$ . The points of pivoting of the lower arms M are adjustable by means of a series of holes in the bracket M for receiving the pivot-pins  $x$ . The objects of this adjustment will appear more definitely hereinafter. There are a pair of these arms M' for each winder-section of the machine, which will be hereinafter described. A pair of levers N is pivoted on horizontal pivots N' to the outer ends of the arms M', and on these pairs of levers N are carried the winder-sections of the machine. There is a winder-section for each pair of levers and as many sections as there are groups of wires or strands located at different distances apart upon the fence. The levers N belonging to each winder-section are secured thereto by a horizontal pivot-bolt H' through a small bracket H to permit the up-and-down motion of the lever and secure the parallel action of the winder-sections, which retains it in the vertical position. The bracket H is secured to the winder by the vertical pivot-bolt I'', extending through projecting ears or lugs I on the back of the winder-sections to permit of swinging the winder-section from side to side to facilitate the drawing out of the cross-strands, as will hereinafter definitely appear. The outer ends of all the levers N are secured to the vertical bar T by horizontal pivots  $t$ , extending therethrough, the bar T being connected in parallel lines to the pivotal connection of the levers to the winder-sections and also to the pivotal connections between the levers N N, with the arms M' M', corresponding thereto. To one side of the bar T is secured by the hinges  $r$  a bar T'. Suitable handles R are attached to the same for its manipulation. Little lugs or eyes  $g$  are secured thereto, to which the swinging of the bar T' imparts motion. Chains  $e'$  are secured to these eyes  $g$  and extend over guiding-sheaves Q on the ends of the levers N and connect to rods  $f$ , extending along the levers N, and to chains  $e$ , passing over guiding-sheaves N'', at the opposite ends of the levers N and connecting to arms L'' to actuate the rock-shaft L'' to engage the longitudinal strands. Springs  $a$  return each arm L'' and disengage the longitudinal strands A' when

the bar T' is swung back to place. There is an eye  $g$ , chain  $e'$ , rod  $f$ , and chain  $e$  for each lever N of the machine. The winder-sections consist of side pieces B with rearwardly-projecting portions B', which form the frame for retaining the winder-gears and idlers in position for operation. Between the side pieces are adjustably retained the cheek-pieces F of the winders and the idler or guiding-pulleys G, the said pulleys being carried on said sleeves G'', clamped by suitable bolts between the sides. The bolts and sleeves G are adjustable transversely in slots G' in the sides to take up the slack of the sprocket-chain. The brackets or cheek-pieces extend rearwardly and form the projecting lugs or ears I on the backs of each section to which the levers N are pivotally connected. Journal-bearings are formed in the opposite ends which have open slots on one side. One of the cheek-pieces F is extended into diverging guiding-arms F' to assist in placing the winder-sections in operative position on the fence. These cheek-pieces are each held by a bolt I', extending therethrough and through the side pieces B. In the journal-bearing is supported a sprocket-gear D, having a hub that projects into the bearings. The gear is slotted at D' into the hub. An arm J is formed, preferably, integral therewith and leaves an opening E' at one side and a space within the hub and opposite the slot D' on the other. On this arm J is carried a spool J'' by the spool holder J', a spool or equivalent device being used in this position. On an arm B' projecting to the rear is a driving sprocket-gear C', adjustable in the bracket C and revoluble by the shaft C'' and crank C'''. A sprocket-chain V passes over these gears to actuate the winder-gears D, the same being guided to place by idlers U U at the top and bottom and the intermediate idlers G.

In use the operator places the bar K on the strands of the fence. He next swings the remainder of the machine into engagement with the fence by handles R. He next turns the handle R and bar T', which through its connections clamps the bar K to the fence. He next revolves both cranks C''' and winds the cross-strands A'' on the longitudinal strands. He then turns the winder-sections toward the left by means of handle B'', which permits a straight pull on the strands A'' from the spools. He then by handles R swings the machine from the fence and so draws out the strands A'' A'' to the required length for a new mesh. He next turns bar T' back by handles R, which through its connections releases bar K from the strands and permits the same to be moved forward and up or down on the fence for a new mesh, when the above-named movements are repeated.

From this description it will be noted that in operation my improved fence-machine is operative to accomplish the desired results. Owing to the pivotal points of the levers N varying in distance from the bar K, the lower



winder-section will only be raised the short distance between the longitudinal strands at that point, and the upper winder-section will be raised a greater distance, corresponding to the greater distance between the strands at that point. Owing to the adjustment of the pivot-points  $x$  between the lower arms  $M'$  and bar  $K$ , provision is made to draw out from the spools only sufficient wire to form the meshes of the fence below when a larger amount, sufficient for the upper meshes, is drawn out above, owing to the differences in the lengths of the levers caused thereby. Owing to the pivoting of the winder-sections at  $I'$ , they can be thrown to one side, which avoids kinking the wire at the point of joining to the longitudinal strands and over one side of the opening  $E'$ , and consequently makes it easy to draw the section away from the fence, as the wire unwinds easily. This easy operation is also facilitated by the fact that the arm  $J$ , which carries the spool  $J''$ , is practically in line with the opening  $E'$  through the winders.

The construction of the winders with the cheek-pieces adjusted between the sides of the section makes it possible to adjust the same at any required distance. Where they are close together to secure wider work, only each alternate winder need be threaded.

I am aware that all that is required for the operation in a machine is a single section which might be passed twice over the fence to complete. The section would operate most advantageously in connection with a pair of levers  $N$  and its connection. The single section could be used independent of the levers. The winders alone could be used in other relations, as could also the winders having guiding-arms  $F' F'$  to facilitate placing the machine on the fence in shifting up and down or in advancing along the same, as the arms guide the wires to place and draw them in or spread them out, as required, in whatever adjustment may be made of the winders. This I believe to be a new operation in fence-making machines.

From my description and statements of operation it must be clear to any one skilled in the art to which my invention pertains that great change can be made in the details thereof without departing from my invention.

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

1. In a wire-fence machine the combination of a bar  $K$ , with roll  $S$ , at the top and spacer-clips  $O$ , and clamps thereon consisting of hooks  $K''$ , with opposite jaw member  $L$ , on rock-shaft  $L'$ , with arm  $L''$ , to actuate the same to secure the bar to the longitudinal strands of the fence; pairs of arms  $M'$ , pivoted by vertical pivots to brackets  $M$ , on said bar  $K$ ; pairs of levers  $N$ , pivoted to said arms  $M'$ , by horizontal pivots; upright bars  $T$ , pivoted to all said levers  $N$ ; a bar  $T'$ , connected by hinges  $r$ , to bar  $T$ ; ears of eyes  $g$ ,

on bar  $T$ ; chain  $e'$ , rod  $f$ , and chain  $e$ , connecting each of said ears  $g$ , to corresponding arm  $L''$ ; guiding-pulleys  $Q$ , and  $N'$ , to guide said chains and rod; springs  $a$ , connecting said arms  $L''$ , and bar  $K$ , to throw the clamps normally out of engagement; vertical winder-sections made up of side pieces  $B$ , with arms  $B'$ ; winders made up of cheek-pieces  $F$ , having lugs  $I$ , to the rear a journal-bearing to the front with a slot into the same with guiding-arms  $F', F'$ , to each side; winder-sprockets  $D$ , with slots  $D'$ , therein with holes at each side to fit the journal-bearings and arm  $J$ , projecting from the hub with an opening  $E'$ , to one side and an open space opposite the slot; a spool  $J''$ , carried on each arm; a driving-gear  $C'$ , in adjustable slide  $C$ , with crank  $C'''$ , and shaft  $C''$ , connected; a sprocket-chain  $V$ , extending over said sprocket-gears to actuate the same; brackets  $H$ , pivoted by bolts  $H''$ , to arms  $N$ ; and vertical pivots  $I''$ , connecting said brackets to the winder-sections all co-acting substantially as described for the purpose specified.

2. In a wire-fence machine the combination of a bar  $K$ , with roll  $S$ , at the top and spacer-clips  $O$ , and clamps thereon consisting of hooks  $K'$ , with opposite jaw member  $L$ , on rock-shaft  $L'$ , with arm  $L''$ , to actuate the same to secure the bar to the longitudinal strands of the fence; pairs of arms  $M'$ , pivoted by vertical pivots to brackets  $M$ , on said bar  $K$ ; pairs of levers  $N$ , pivoted to said arms  $M'$ , by horizontal pivots; upright bar  $T$ , pivoted to all said levers  $N$ ; a bar  $T'$ , connected by hinges  $r$ , to bar  $T$ ; ears of eyes  $g$ , on bar  $T$ ; chain  $e'$ , rod  $f$ , and chain  $e$ , connecting each of said ears  $g$ , to corresponding arm  $L''$ ; guiding-pulleys  $Q$ , and  $N''$ , to guide said chains and rod; springs  $a$ , connecting said arms  $L''$ , and bar  $K$ , to throw the clamps normally out of engagement; winder-sections with means of actuating the same pivotally connected to each pair of said levers  $N$ , co-acting as specified.

3. In a wire-fence machine the combination of a bar  $K$ , with means of securing the same to the fence; pairs of arms  $M'$ , pivoted by vertical pivots to brackets  $M$ , on said bar  $K$ ; pairs of levers  $N$ , pivoted to all said levers  $N$ ; vertical winder-sections made up of side pieces  $B$ , with arms  $B'$ ; winders made up of cheek-pieces  $F$ , having lugs  $I$ , to the rear a journal-bearing to the front with a slot into the same with oblique guiding-arms  $F', F'$ , to each side; winder-sprockets  $D$ , with slots  $D'$ , therein with hubs at each side to fit the journal-bearings and arm  $J$ , projecting from the hub with an opening  $E'$ , to one side and an open space opposite the slot; a spool  $J''$ , carried on each arm; a driving-gear  $C'$ , in adjustable slide  $C$ , with crank  $C'''$ , and shaft  $C''$ , connected; a sprocket-chain  $V$ , extending over said sprocket-gears to actuate the same; brackets  $H$ , pivoted by bolts  $H''$ , to arm  $N$ ; and vertical pivots  $I''$ , connecting said brackets to the winder-sections all co-



acting substantially as described for the purpose specified.

4. In a wire-fence machine the combination of a bar K, with means for securing the same to the fence; pairs of arms M', pivoted by vertical pivots to brackets M, on said bar K; pairs of levers N, pivoted to said arms M', by horizontal pivots; upright bar T, pivoted to all said levers N; winder-sections with means for actuating the same pivotally connected to each pair of said levers N, coacting as specified.

5. In a wire-fence machine the combination of a main bar with suitable clamps to secure it to the longitudinal strands of the fence and serve as guides therefor; a pair of parallel levers secured thereto by horizontal pivots; a cross-bar pivoted to the outer ends thereof to actuate the same together; a bar hinged to said cross-bar and adapted to swing thereon; connections from said swinging bar to the clamps on the main bar to actuate the same; a vertical winder-section supported on said levers; means to actuate said winders coacting as specified.

6. In a wire-fence machine the combination of a main bar with suitable means to secure it to the longitudinal strands of the fence and serve as guides therefor; a pair of parallel levers secured thereto by horizontal pivots; a cross-bar pivoted to the outer ends thereof to actuate the same together; a vertical winder-section supported on said levers; means to actuate said winders coacting as specified.

7. In a wire-fence machine the combination in a winder-section of side pieces B, cheek-pieces F, adjustably clamped between the same having lugs to hold them separate and having a journal-bearing in one side with a

slot opening thereinto and having guiding-arms F', F', projecting to each side thereof; a winder-gear in said journal-bearing with an arm projecting therefrom, with an aperture to one side through the gear and an open space opposite the slot and suitable means of actuating the said gears for the purposes specified.

8. In a wire-fence machine a suitable frame; a series of winders one above the other adjustably supported therein; wire-carrying means supported on said winders; pairs of divergent guiding-arms extending each side of the winder to guide the longitudinal strands of the fence to place within the winders for the purpose specified.

9. In a wire-fence machine a suitable frame; a series of winders one above the other supported therein; wire-carrying means supported on said winders; pairs of divergent guiding-arms extending each side of the winder to guide the longitudinal strands of the fence to place within the winders for the purpose specified.

10. In a winder for wire fences the combination of a frame supporting a suitable journal-bearing, slotted at one side; a winder-gear with a hub for said bearing having a slot in one side and a perforation through the hub and with an arm projecting from said hub; and means of carrying wire on said arm for the purpose specified.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

GARLAND B. ST. JOHN. [L. S.]

Witnesses:

V. E. CHAPPELL,  
DALLAS BOUDEMAN.