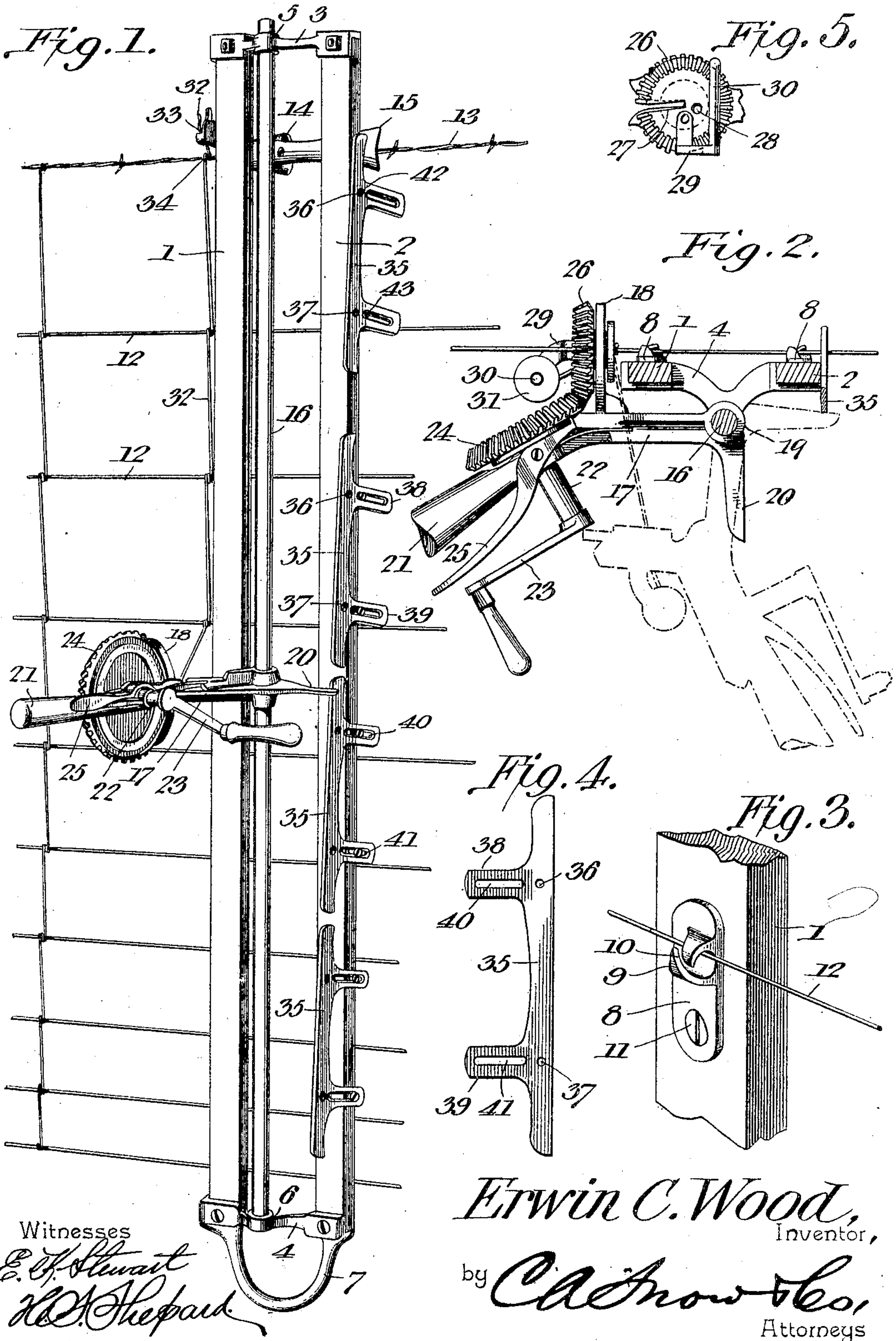


E. C. WOOD.  
WIRE FENCE MACHINE.  
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# UNITED STATES PATENT OFFICE.

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## WIRE-FENCE MACHINE.

No. 804,292.

Specification of Letters Patent.

Patented Nov. 14, 1905.

Application filed January 9, 1905. Serial No. 240,344.

*To all whom it may concern:*

Be it known that I, ERWIN C. WOOD, a citizen of the United States, residing at Marshall, in the county of Dane and State of Wisconsin, have invented a new and useful Wire-Fence Machine, of which the following is a specification.

This invention relates to wire-fence machines of that class which are employed for weaving vertical stay-wires with line-wires previously erected. In this class of machines when employed upon a fence having the line or runner wires spaced at different intervals considerable difficulty is experienced in reeling out the desired length of stay-wire to properly extend between adjacent runners without undue looseness or tightness after the completion of the stay. In view of this difficulty it is the main object of the present invention to provide for accurately gaging the length of stay-wire to be unreeled for extending between each pair of adjacent runners and to accomplish this gaging of the wire in a very simple and expeditious manner with practically no interruption in the usual manipulation of the machine, the gaging operation being accomplished during the shifting of the wire-twisting mechanism from one runner to the next below runner.

Other objects of the invention reside in the provision of certain new and useful improvements in the construction of the frame of the machine for convenience in handling the same, particularly when engaging and disengaging the frame with respect to the runner-wires, and to permit of the frame being readily advanced along the fence-wires during the manipulation of the machine.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a perspective view of a wire-fence machine embodying the features of the present invention and shown in connection with a portion of a wire fence. Fig. 2 is a cross-sectional view taken through the frame of the machine with the wire-twisting mechanism in plan.

Fig. 3 is a fragmentary perspective view of a portion of the frame, showing one of the guides for the reception of a runner-wire. Fig. 4 is a detail view of one of the gage members for determining the length of stay-wire to be unreeled for each successive manipulation of the wire-twisting mechanism. Fig. 5 is a detail view of the spool-carrying and wire-twisting member of the twisting mechanism.

Like characters of reference designate corresponding parts in each and every figure of the drawings.

The frame of the present machine includes a pair of spaced uprights 1 and 2, which may be of any material, but preferably of wood, so as to render the frame both light and durable. Upper and lower duplicate brackets 3 and 4 connect the uprights at their upper and lower ends, said brackets or cross-bars being provided intermediate of their ends with eyes or sockets 5 and 6, aligned vertically and offset at what will be termed the "front" of the frame. Upon the lower end of the frame is a shoe 7, designed to run upon the ground, and thereby remove the weight of the frame from the runner-wires.

Upon the back of the frame and disposed at predetermined intervals is a series of wire-receiving guides, one of which has been shown in detail in Fig. 3 of the drawings and consists of a plate or body 8, provided at one end with a transversely-disposed open-ended tubular guideway 9, the outer side and opposite ends of which are intersected by an oblique slot 10, the opposite end of the body being provided with an opening for the reception of a suitable fastening 11, preferably a screw set into the frame with sufficient tightness to render the guide rigid during the operation of the machine. When fitting the frame to the runner-wires of a fence, each threaded fastening 11 is loosened, so as to permit of the guide being turned upon the fastening until the oblique slot 10 is disposed horizontally, so as to receive the adjacent runner-wire 12 laterally therethrough, after which the guide is turned into its normal upright position and the fastening 11 tightened, whereby the guide is again fixed and the frame is slidably engaged with the fence in order that it may be slid longitudinally thereof, the oblique disposition of the slots of the guideways preventing lateral separation of the frame from the fence.

When the uppermost runner of the fence is a barbed wire, as indicated at 13, an open-



ended substantially conical guide member 14 is secured to the back of the upright 1, and a semitubular guard member 15 extends forwardly from the guide member and projects  
5 in advance of the upright 2 in position to engage the barbs and prevent the same from injuring the wooden uprights of the frame.

For the support of the wire-twisting mechanism there is an upright cylindrical bar 16,  
10 preferably a metallic pipe having its ends supported in the seats or eyes 5 and 6 of the upper and lower brackets or cross-bars 3 and 4. The wire-twisting mechanism employed in connection with the present frame is substantially  
15 the same as that shown and described in my copending application for patent filed August 22, 1904, Serial No. 221,790, to which reference may be had for a complete understanding of the details of said mechanism. In general the wire-twisting mechanism includes a  
20 frame or bracket made up of the angularly-related and rigidly-connected members 17 and 18, of which the member 17 terminates at one end in an open-ended sleeve or tubular knuckle  
25 19, from which extends a radial arm 20 at substantially right angles to the bracket member 17. At the opposite end of the bracket member 17 is a handle-bar 21, which is set at an angle to the bracket and is employed for raising  
30 and lowering the bracket upon the bar 16, which passes loosely through the sleeve or knuckle 19, the bracket being also capable of being rotated upon the bar 16 as an axis. A shaft 22 is rotatably mounted transversely  
35 across the inner end portion of the handle and is provided at its front end with an operating-crank 23 and at the rear side of the handle with a beveled gear 24, there being a spring-pressed dog or pawl 25 mounted upon  
40 the arm 21 for engagement with the gear 24 to lock the same against rotation whenever desired. Upon what will be termed the "rear" side of the bracket member 18 is a beveled  
45 gear 26, in mesh with the drive-gear 24 and provided with a radial slot 27, extending to the center of the gear and also having an opening 28 located at one side of the center of the gear. A bracket-arm 29 extends rearwardly  
50 from the gear or wire-twisting element 26 and is provided with an upstanding spindle 30, upon which a spool of wire 31 is rotatably supported, the free end portion of the wire extending from the spool through the opening 28.

In using the machine as thus far described the several runner-wires 12, which have been previously stretched upon fence-posts, are successively engaged with the wire-receiving  
60 guides 8 upon the back of the frame with the shoe or runner 7 engaging the ground. The free end of the wire 32 from the spool 31 is fixed to the upper portion of the rear edge of the frame—as, for instance, by means of a suitable wire-clamp 33—after which the wire-  
65 twisting mechanism is swung in toward the

fence, so as to receive the adjacent runner-wire in the slot 27 of the wire-twisting member 26, whereupon the crank-handle 23 is manipulated so as to rotate the member 26, and thereby turn the latter and the spool of wire 31  
70 around the runner-wire, which results in twisting the stay-wire upon the uppermost runner, as indicated at 34. After the stay-wire has been twisted a suitable number of times around the adjacent runner-wire, preferably twice, the twisting mechanism is swung  
75 away from the fence upon the bar 16 as a pivotal support, so as to clear the runner-wire, and then the twisting mechanism is lowered into position for engagement with the next  
80 below runner-wire and the twisting operation is repeated, and so on to the bottom of the fence.

As now commonly constructed wire fences have the runner-wires at the bottom of the  
85 fence closer together than at the top of the fence, and when the wire-twisting mechanism reaches the lower runner-wires the length of stay-wire to be unreel is of course less than at the top of the fence, and heretofore considerable  
90 difficulty has been experienced in determining the proper length to be unreel in order that the lower portion of the stay-wire may not be too loose nor yet too tight. To overcome this difficulty, I propose to provide  
95 for accurately gaging the length of stay-wire to be unreel for extending between each pair of adjacent runners and accomplish this result by means of a series of gage members  
100 35, which are carried by the frame of the machine and are set in position for successive engagement by the stop-arm 20 of the wire-twisting mechanism when swung away from the fence, as indicated by dotted lines in Fig. 2 of the drawings. Each gage mem-  
105 ber consists of a body member having a straight front edge and provided adjacent its opposite ends with perforations 36 and 37 and having arms 38 and 39 projected at the rear of the body in alinement with the respective openings 36 and 37 and provided  
110 with the respective longitudinal slots 40 and 41. The uppermost gage member is applied to the front edge of the frame of the machine and is secured thereto by means of a fastening 42, set through the upper opening 36, and another fastening 43, set through the lower opening 37 or the slot 41 of the arm 39, preferably in the slot. The arms of the gage of  
115 course extend at the rear side of the frame, so as to bring the straight edge of the gage at the front of the frame, and by experiment the proper length of stay-wire to be unreel is determined and then the gage 35 is set for contact by the stop-arm 20 of the twisting  
120 mechanism, so as to limit the swing of the twisting mechanism to that amount of movement which is required to unreel the proper amount of stay-wire. In the same manner the successive gages are adjusted from the  
125



top to the bottom of the series of gages, the lower gages of course being projected farther in front of the frame than the upper gages to reduce the swinging movement of the twisting mechanism in accordance with the decrease in the spaces between the runner-wires at the bottom of the fence. After the successive gages have been adjusted the machine is in condition for operation, and the proper length of stay-wire is accurately gaged by swinging the twisting mechanism from its operative position away from the fence until stopped by contact of the stop-arm 20 with the adjacent gage 35, whereupon the twisting mechanism is lowered into alinement with the next below runner-wire and then swung toward the fence to receive said alined runner-wire within the twisting member 26. When the twisting mechanism is being swung upon the bar or post 16, the pawl 25 is of course in engagement with the drive-gear 24 to prevent rotation thereof and to maintain the spool of wire 31 in an upright position, the pawl of course being released when it is desired to manipulate the device for twisting the stay-wire upon the respective runner-wires. It will here be explained that it is preferred to serrate or roughen the face of each gage which engages the wooden upright of the frame, so as to prevent slipping of the gage when struck by the stop-arm 20 of the twisting mechanism, said serration being indicated in Fig. 4 of the drawings.

From the foregoing description it will be understood that the present machine is exceedingly simple and may be readily applied and disconnected with respect to the runner-wires of the fence, and when mounted upon the fence the guide members 8 in addition to supporting the machine in an upright position also maintain the runner-wires spaced according to predetermined intervals. Furthermore, after the gages 35 have been set the operation of the machine is purely mechanical and practically continuous when operating upon each stay-wire, as it is not necessary to stop and determine the length of stay-wire to be unreel between each pair of runner-wires, wherefore the manipulation of the machine is very simple and its capacity depends solely upon the ability of the operator.

Having fully described the invention, what is claimed is—

1. A wire-fence machine having a wire-twisting mechanism shiftable thereon, and means to gage the length of wire to be unreel from the twisting mechanism for connection between successive runner-wires in accordance with predetermined different intervals between said wires.

2. A wire-fence machine having wire-twisting mechanism shiftable thereon, and a gage set in the path of the wire-twisting mechanism to limit its movement and thereby gage

the length of wire to be unreel from the twisting mechanism for connection between adjacent runner-wires.

3. A wire-fence machine having wire-twisting mechanism shiftable thereon, and a gage set to predetermined intervals in the path of the twisting mechanism to adjustably limit its movement and thereby gage the lengths of wire to be unreel from the twisting mechanism for connection between successive runner-wires.

4. A wire-fence machine having wire-twisting mechanism shiftable thereon and also capable of movement at substantially right angles to its shiftable movement, and a gage set in the path of the latter movement to gage the length of wire to be unreel from the twisting mechanism.

5. A wire-fence machine having twisting mechanism shiftable thereon and also capable of supplemental movement at substantially right angles to its shiftable movement in its successive positions upon the frame, and gages set in the successive paths of the supplemental movements of the twisting mechanism to gage the lengths of wire to be unreel from the twisting mechanism.

6. A wire-fence machine comprising a frame, wire-twisting mechanism shiftable longitudinally of the frame and capable of supplemental swinging movements in any shifted position of the twisting mechanism, and gages carried by the frame and set in the swinging paths of the wire-twisting mechanism to limit the movement thereof and thereby determine the lengths of stay-wire to be unreel from the twisting mechanism.

7. A wire-fence machine having a longitudinal bar, wire-twisting mechanism carried by and shiftable longitudinally upon the bar and also capable of swinging upon the bar in any shifted position, and gages carried by the frame in the paths of the swinging movements of the wire-twisting mechanism to limit said swinging movements and thereby gage the lengths of stay-wires to be unreel from the wire-twisting mechanism.

8. A wire-fence machine comprising a frame, wire-twisting mechanism shiftable longitudinally of the frame and also capable of swinging movements at substantially right angles to its shiftable movement, and a slotted gage carried by the frame in the swinging movement of the wire-twisting mechanism and provided with a fastening passing through the slot and engaging the frame to adjustably support the gage.

9. A wire-fence machine comprising a frame, wire-twisting mechanism shiftable longitudinally upon the frame and also capable of swinging transversely thereof, a stop projection carried by the twisting mechanism, and a gage carried by the frame in the path of the swinging movement of the twisting mechanism.



ism to limit said movement and thereby gage the length of wire to be unreeled from the twisting mechanism.

10. A wire-fence machine comprising a  
5 frame having a longitudinal bar, wire-twisting  
mechanism slidable longitudinally and rotatable transversely upon the bar, and a series of  
gages carried by the frame and set at predetermined intervals in successive swinging  
10 paths of the wire-twisting mechanism to adjustably limit the swinging movements thereof and gage the lengths of said wire to be unreeled from the twisting mechanism.

11. In a wire-fence machine, the combination of a frame including spaced uprights,  
15 cross-bars connecting the uprights at their upper and lower ends, an intermediate longitudinal bar carried by the cross-bars, wire-twist-

ing mechanism slidable longitudinally upon the upright bar and capable of being swung thereon as an axis, and a longitudinal series of gages carried by the frame and adjustable to be set at predetermined intervals in successive swinging paths of the wire-twisting mechanism to adjustably limit its swinging movements and thereby gage the lengths of stay-wire to be unreeled from the twisting mechanism.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ERWIN C. WOOD.

Witnesses:

ADELBERT DEWEY,  
JOHN FALLOWS.