

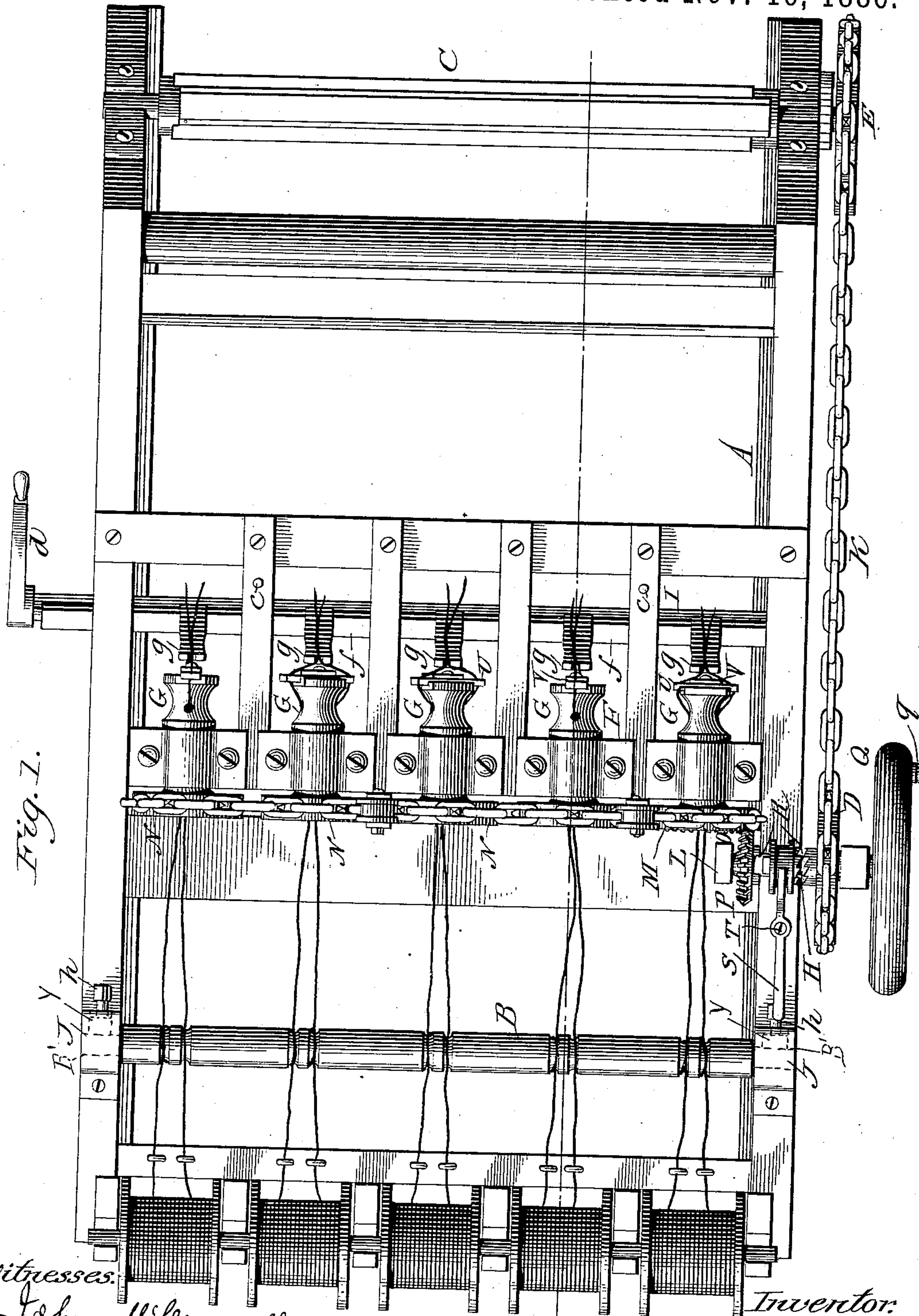
(Model.)

2 Sheets—Sheet 1.

A. HAYNES.
FENCE MACHINE.

No. 352,540.

Patented Nov. 16, 1886.



Witnesses.

John McConnell
L. F. Hamilton

Inventor:

Archimedes Haynes
by A. DuBois his Atty,

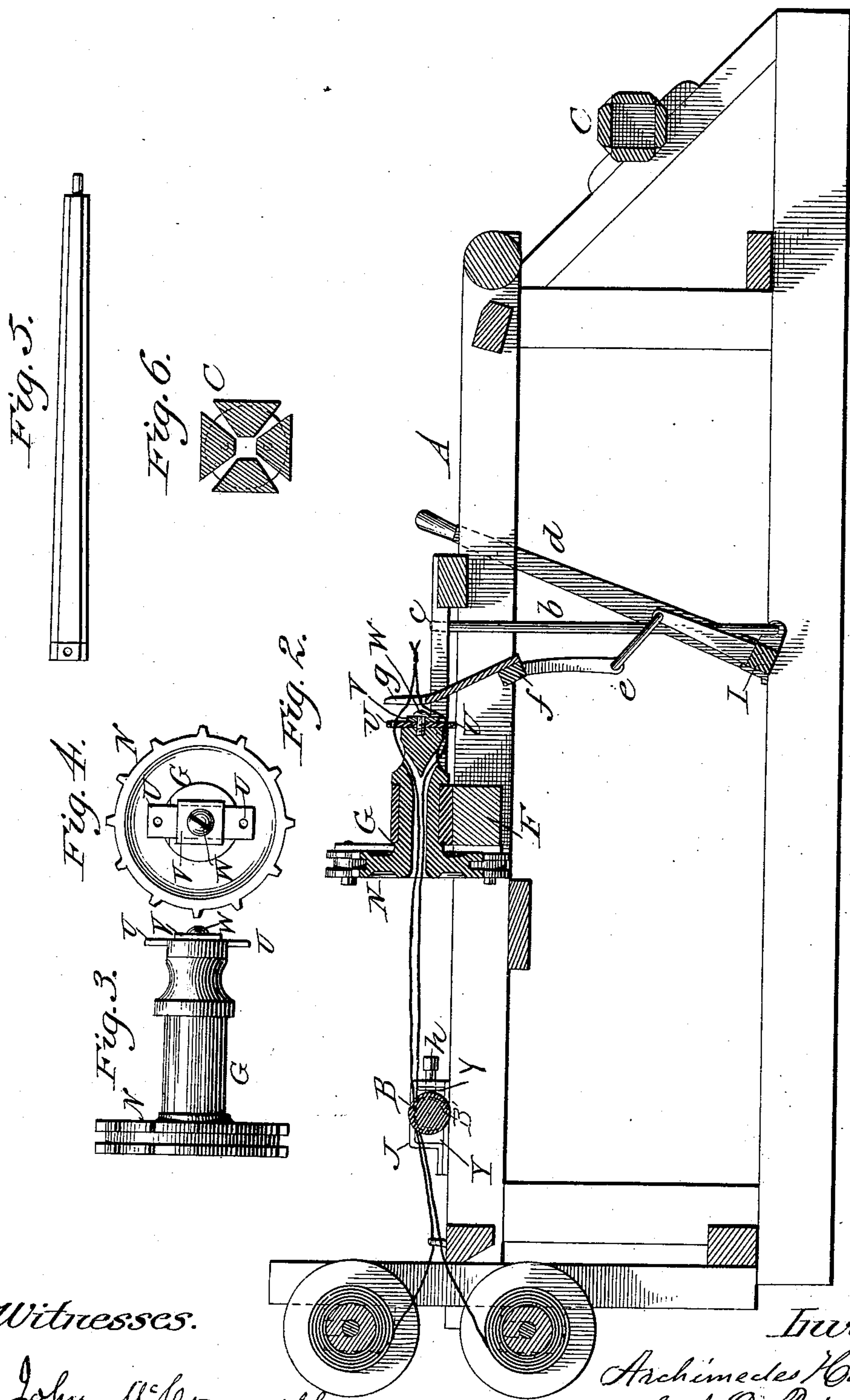
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UNITED STATES PATENT OFFICE.

ARCHIMEDES HAYNES, OF SPRINGFIELD, ILLINOIS.

FENCE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 352,540, dated November 16, 1886.

Application filed April 17, 1886. Serial No. 199,267. (Model.)

To all whom it may concern:

Be it known that I, ARCHIMEDES HAYNES, a citizen of the United States, residing at Springfield, in the county of Sangamon, State of Illinois, have invented certain new and useful Improvements in Fence-Machines, of which the following is a specification.

My invention relates to that class of machines in which horizontally-rotating twisters are employed to twist wires around slats or laths, forming what is known as "combination-fence."

The objects of my improvements are, first, to provide a simple and efficient means for alternately operating with the same gear the twisting and reeling devices; second, to provide means for conveniently adjusting the length of the twist; third, to provide means for simultaneously regulating the tension of all the wires; fourth, to provide an efficient stop to prevent the fence from moving too far during the operation of reeling; fifth, to provide means to hold the lath to place during the operation of twisting; sixth, to provide a reel of improved and convenient construction. I attain these objects by mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top view, showing the general construction of frame-work and the relative positions of the parts effected by my improvements. Fig. 2 is a vertical longitudinal section on plane indicated by broken line in Fig. 1. Figs. 3 and 4 are a side view and end view, respectively, of the twister-head, showing the positions of the sliding wire-guides. Fig. 5 is a view of one of the reel-staves. Fig. 6 is a transverse section of reel.

Similar letters refer to similar parts throughout the several views.

The general arrangement of frame-work—such as in common use—is clearly shown in Fig. 1, and no detailed description is necessary. In this figure A is the top side piece of the frame. B is the tension-roll. C is the reel. D and E are sprocket-wheels on the shaft H and the end of reel respectively. The cross-piece F supports the twisters G, Figs. 3 and 4, arranged parallel to each other at suitable distances along its length. I is a rock-shaft, to which is connected by the arm b the stop c. This rock-shaft is operated by the lever d. The same lever and rock-shaft also operate,

by means of the jointed lever e and the shaft f, the tightening-finger g. This finger g presses the slat against the twist previously made. J J are the adjustable boxes of the tension-roll. h h are the set-screws for regulating same. K is a sprocket-chain connecting the wheels D and E.

In Fig. 1, L is a hanger, supporting in suitable boxes at the upper ends of its arms the drive-shaft H and its connected gear. This hanger rests on top of, and its arms at their bases span, the side piece, A, of main frame in such position that the sprocket-wheel M shall lie in line and connect by sprocket-chain with like wheels N at the extremity of twisters, Fig. 1. O and P are bevel cog-gears communicating motion from shaft H to the sprocket-wheel M and thence by chain to the twisters. Q is the fly-wheel, secured to the end of shaft H, operated by the crank q. D is a sprocket-wheel which propels the reel. R is a double clutch moved to and fro by the shipper-lever S and alternately engaging the sprocket-wheel D and the bevel-wheel P. T is a standard supporting the shipper-lever. That part of the shaft H on which the clutch slides is square. The remainder of shaft is round, so that the clutch revolves with the shaft, and the wheels D and P remain at rest unless engaged with the clutch.

In Figs. 3 and 4 the twister G consists of a shaft, hollow for a portion of its length, having at its center a suitable journal for supporting at one end the sprocket-wheel N, and at the other the wire-guides U, which lie in a groove in the end of the twister, and are held in place by the plate V, secured by the set-screw W. The wire-guides U may be moved to or from the center by loosening the set-screw W. At the forward end of the journal the twister is pierced by holes to admit the wires, which pass through the holes in the ends of the wire-guides U. By drawing the wire-guides outward the wires are twisted nearer the laths, while by bringing the guides nearer the center the twist is made longer. By this means the twist is adjusted to the size of the wires and laths which may be used, and may be regulated so as to weave tapering or uneven laths as firmly as straight ones. This very useful result has not, I believe, been hitherto attained.

In Fig. 1, B' is one journal of the tension-roll. Y is a rectangular slide moving in a mortise in the block J, having its inner end concave and fits around the journal B'. By
5 tightening or loosening the set-screw *h* the slide Y is caused to bind or release the journal B', thus tightening or loosening the tension of the wires which pass around the tension-roll B. By this means the tension of all the wires
10 is simultaneously regulated.

The reel C consists of two circular ends, Fig. 6, connected by longitudinal staves, which, when in place, form a cylinder on which the completed fence is reeled. These
15 staves are tapering in the direction of their length, and are so arranged on the circular end plates that the wide end of one stave lies between the narrow ends of the two adjoining staves, and vice versa, the narrow end be-
20 tween two wide ends.

I preferably use four staves, as shown in Fig. 6, the wide ends of two opposite staves being secured to one end plate and the wide ends of the two alternate staves being secured
25 to the other. By this means the reel being lifted from its bearings may be readily separated into parts and withdrawn from the bundle of fence wound around it, and subsequently the parts slid together and the reel replaced
30 in its bearings ready for use.

The operation of my machine is as follows: The spools of wire are placed in the supports provided for them. The wires are separately
35 passed through the eyelets and around the tension-roll B, thence through the perforations in the twister-head and through the holes in the ends of the adjustable wire-guides U. The projecting ends of each pair of wires are then
40 by hand twisted together to hold them in place. The operator stands on one side near the fly-wheel Q, while his assistant stands on the opposite side near the lever *d*. The assistant inserts a lath or slat endwise between the ends of the twist-
45 ers G and the projecting ends of the twisted wires. The lath being in place, he moves the lever *d* rearward, which causes the finger *g* to press the lath closely against the twisted wires and hold it in place. There-
50 upon the operator, having previously thrown the clutch R into gear with the bevel cog-wheel P, turns the fly-wheel Q, imparting motion through the gearing to the twist-
55 ers G, which twist the wires around the lath. The projecting ends of the wires are then suitably connected to the reel C, and the tension of the

wires adjusted by means of the tension-roll B. The operator then shifts the lever S, throwing the clutch R into gear with the sprocket-wheel H, giving motion, through the chain K
60 and sprocket-wheel E, to the reel C, so that the lath is drawn forward, drawing all the wires with it, until stopped by the projecting pin or stop *c*. The assistant then reverses the lever *d* and inserts another lath, and these
65 operations are continued until sufficient fence is made to complete a bundle of the desired size. The wires are then cut and the reel sup-
70 porting the bundle lifted from its bearings, the end fastenings of the reel-staves are removed, and the reel withdrawn from the bundle. The reel is again assembled and put in
75 place, and another bundle of fence in like manner woven, reeled, and removed, and so on continuously.

I am aware that there are fence-machines
75 having a rectangular frame supporting horizontally-rotating twist-ers, also supporting a reel and having stops to prevent excessive reeling. I therefore do not, broadly, claim such
80 combination.

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

1. The combination, in a fence-machine, of the double clutch R, the shipper-lever S, the sprocket-wheel D, and means for connecting it
85 with the sprocket-wheel E on the end of the reel, and the bevel-gear P and intermeshing bevel-gear O, secured to the twister G, substantially as shown, and for the purpose specified.

2. The combination, in a fence-machine, of a twister consisting of a stem, G, sprocket-wheel N, sliding wire-guides U, and set-screw W, with the tension-roll and operating mechanism, substantially as shown, and for the pur-
95 pose stated.

3. The combination, in a fence-machine, of the tension-roller B, the box J, the slide Y, and the set-screw *h*, substantially as shown, and for the purpose specified.

4. The combination, in a fence-machine, of the hand-lever *d* and connecting mechanism, conjointly operating the stops *c* and presser-fingers *g*, with the twisting apparatus, substan-
100 tially as shown, and for the purpose stated.

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Witnesses:

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WM. L. GARDNER.