

(No Model.)

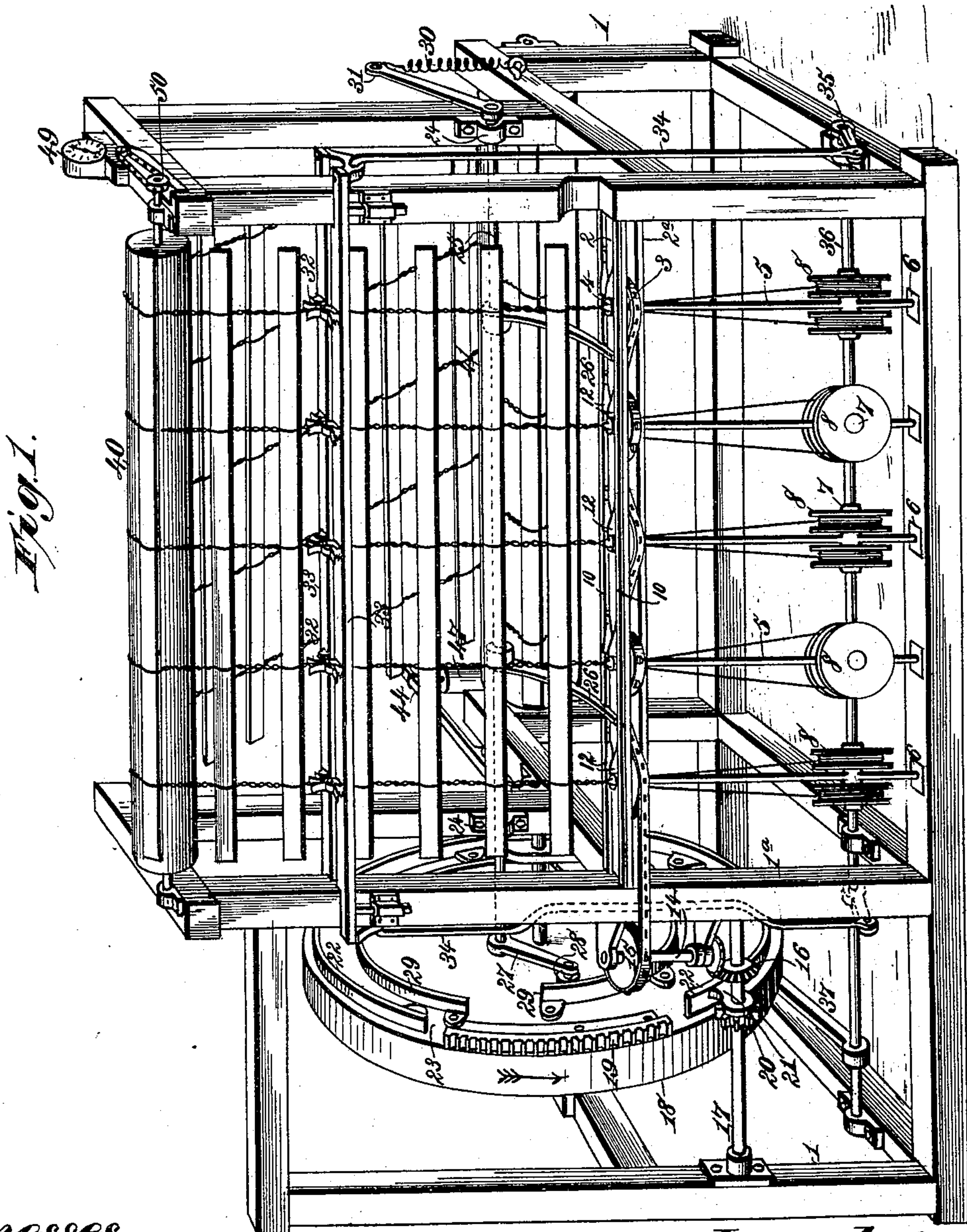
3 Sheets—Sheet 1.

L. W. FREEMAN.

MACHINE FOR MAKING WIRE FENCING.

No. 395,890.

Patented Jan. 8, 1889.



Witnesses:
Robert Smith,

J. A. Rutherford

Inventor:

Leander W. Freeman.

By James L. Norris,
Att'y

(No Model.)

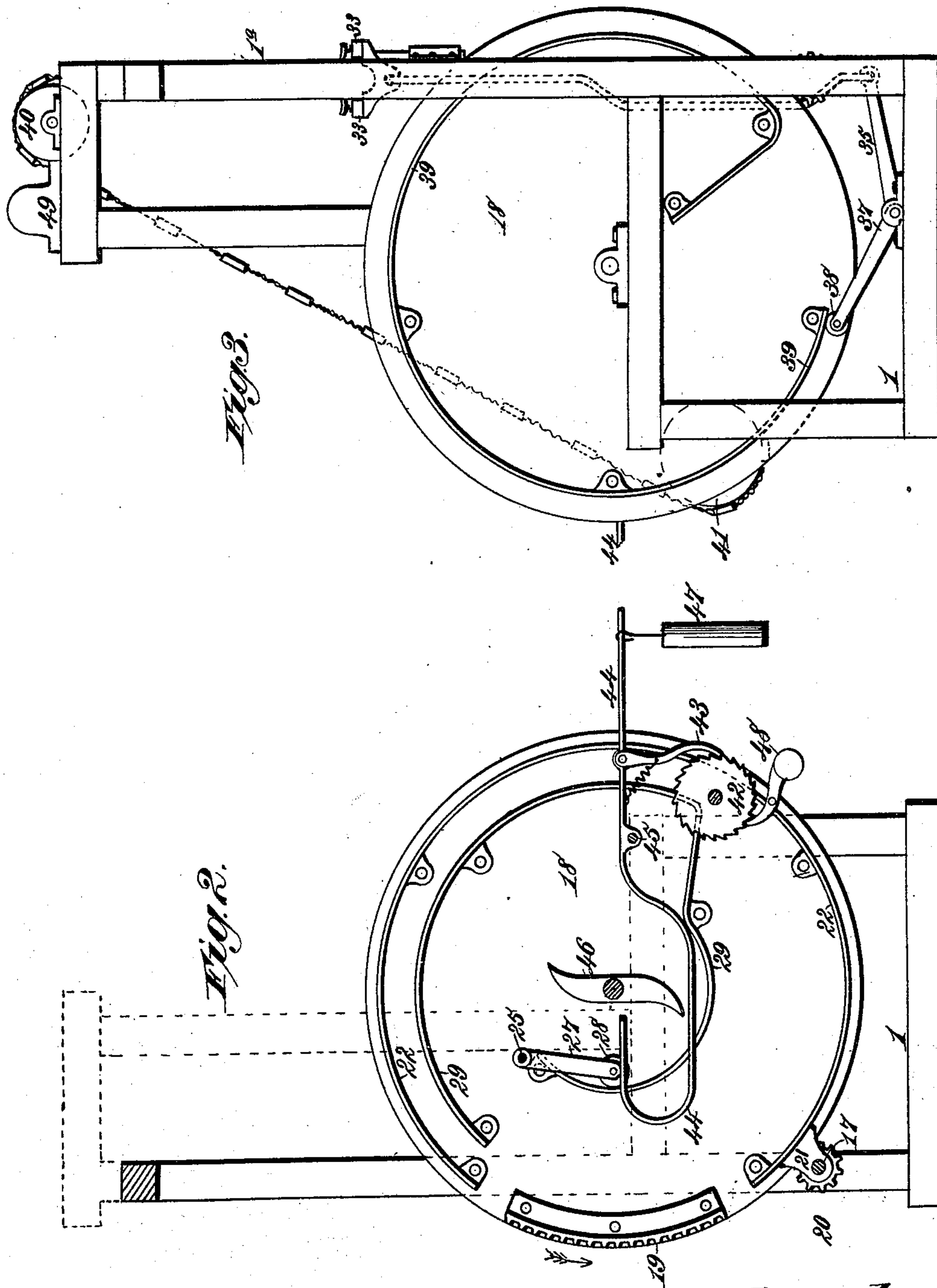
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L. W. FREEMAN.

MACHINE FOR MAKING WIRE FENCING.

No. 395,890.

Patented Jan. 8, 1889.



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(No Model.)

3 Sheets—Sheet 3.

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Fig. 4.

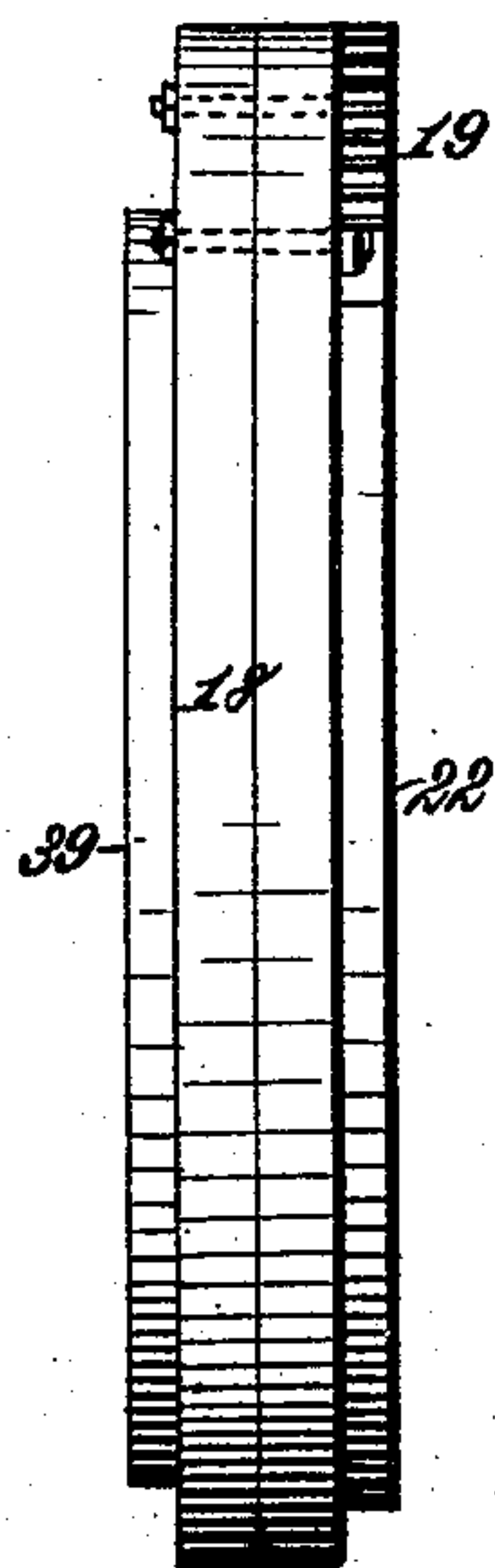


Fig. 5.

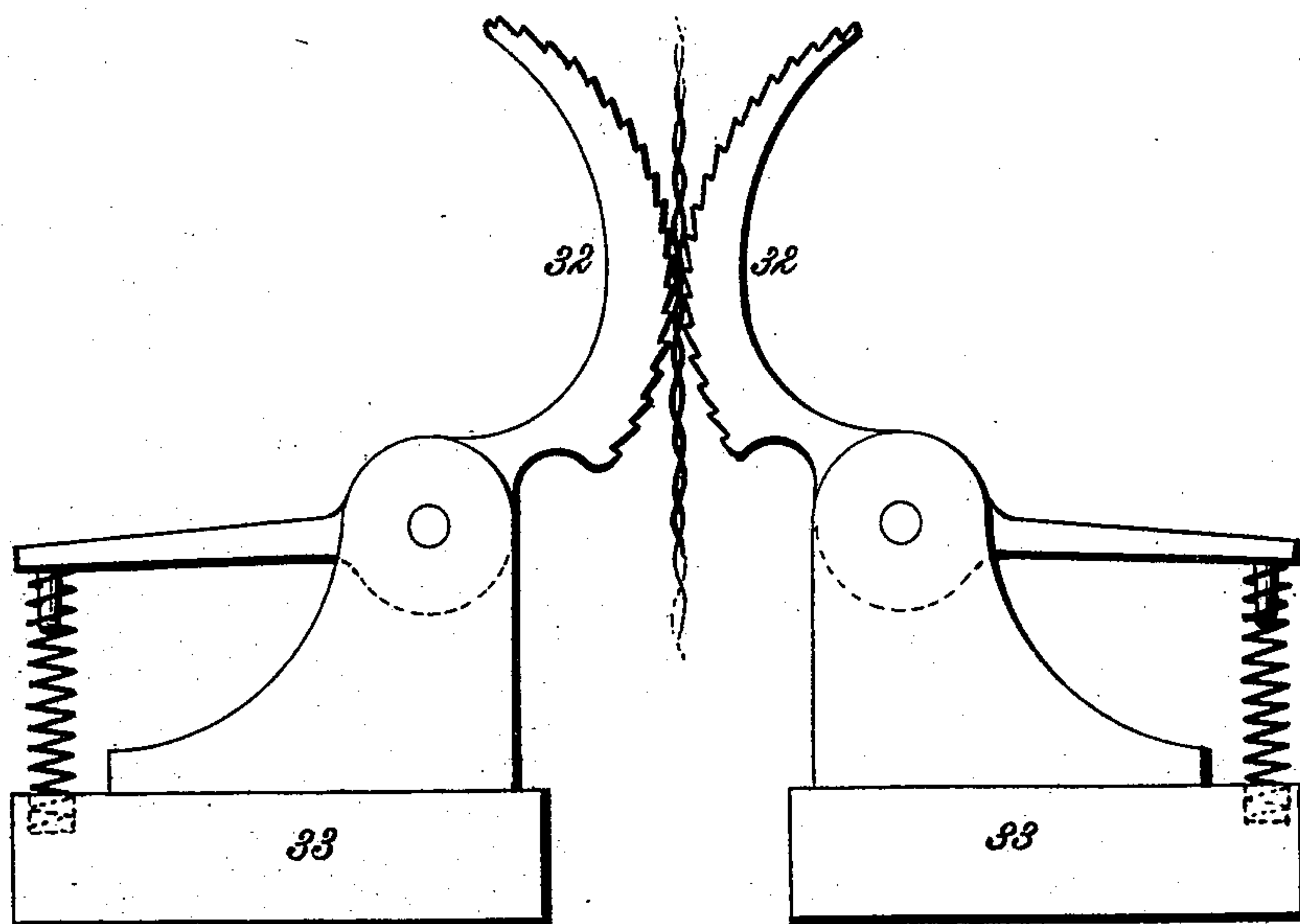
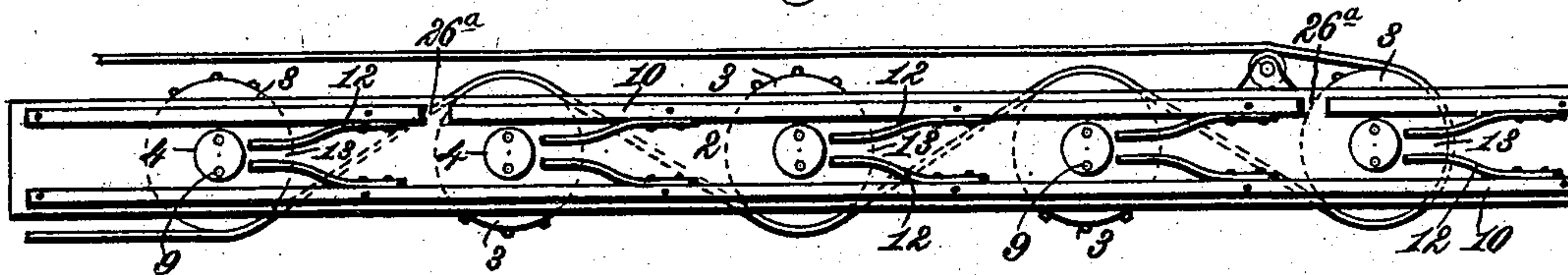


Fig. 6.



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UNITED STATES PATENT OFFICE.

LEANDER W. FREEMAN, OF LIBERTY, INDIANA.

MACHINE FOR MAKING WIRE FENCING.

SPECIFICATION forming part of Letters Patent No. 395,890, dated January 8, 1889.

Application filed May 17, 1888. Serial No. 274,162. (No model.)

To all whom it may concern:

Be it known that I, LEANDER W. FREEMAN, a citizen of the United States, residing at Liberty, in the county of Union and State of Indiana, have invented new and useful Improvements in Looms for Making Wire Fencing, of which the following is a specification.

My invention relates to that class of machines employed in the manufacture of wire fencing, wherein a series of vertical palings are connected together at equal intervals by parallel strands of wire running horizontally and twisted between the adjacent palings.

It is the purpose of my invention to provide a comparatively simple, easily operated, and compact mechanism for the purpose specified, wherein the twisters shall be operated by positive mechanism and have intermittent action, it being my further purpose to combine with the driving-gear devices for arresting and holding the shaft by which motion is communicated to the twisting-heads until the next paling is introduced.

It is my further purpose to provide simple means for spacing the palings and novel mechanism for operating the spacer.

It is my further purpose to simplify the organization of machines of this class, to provide improved means for guiding the palings to the twisting-heads, to reduce the number of parts composing said machine, and to so arrange and combine the same that they shall all be driven by a single master-wheel.

These ends I accomplish by the several novel features of construction and new combinations of parts hereinafter fully described, and then definitely pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a machine embodying my invention. Fig. 2 is a sectional end elevation thereof. Fig. 3 is an end elevation. Fig. 4 is a detail edge view of the master-wheel. Fig. 5 is a detail vertical section showing the devices for advancing the manufactured web as it comes from the twisters. Fig. 6 is a detail plan view of the twisters with the paling-guides.

In the said drawings the reference-numeral 1 denotes the frame-work of the machine, upon which the operative parts are supported. Upon the front upright portion thereof is

mounted a horizontal plate, 2, below which are arranged a series of sprockets, 3, having hubs 4, which project through said plate. These sprockets are arranged at equal or suitable intervals, and are carried by shafts 5, having bearing in step-blocks 6 upon the lower horizontal base-piece of the frame, and also supported in a second plate, 2^a, below said sprockets, said plates 2 and 2^a constituting a support for the sprockets 3, carrying the twister-heads 4. Upon each shaft is mounted a cross-pin, 7, carrying spools 8, from which the wires are taken. These wires are carried up on each side of the shaft through the plate 2^a and through apertures 9 in the hubs or twisting-heads 4. Upon each parallel edge of the plate 2 is formed a ledge, 10, upon which is mounted, one side of each twisting-head, a plate, 12, of metal or other suitable material having moderate elasticity. These plates are attached to the ledges 10 by one end and their other ends are converged to a point immediately beside the twisting-heads, a passage, 13, being allowed for the paling, which is guided thereby to a proper position between the wires carried by the twisting-heads.

Outside the parallel uprights 1^a of the frame is arranged a vertical shaft, 14, stepped upon a bearing on the frame-work, having a sprocket-wheel, 15, lying in the same plane with the sprockets 3. A sprocket-chain gears this wheel with the several sprockets 3 of the twisters, said chain being carried alternately behind and in front of the latter and then returned to the driving-sprocket direct. The shaft 14 is provided with a bevel-gear meshing with a similar bevel, 16, upon a shaft, 17, which is driven by a master-wheel, 18. Inasmuch as the twisters are revolved intermittently and must remain at rest during a portion of the revolution of the master-wheel, I mount upon the latter a segmental toothed flange, 19, extending over an arc of suitable length on the periphery of the master-wheel. At each revolution this geared flange engages a pinion, 20, on the shaft 17, and rotates the same a number of times, according to the length of the flange and the size of the pinion. In order to render the number of revolutions uniform and avoid accidental rotation,

as well as to hold the pinion 20 in position to mesh accurately with the teeth of the flange as the latter reaches it, I combine with said pinion a device which slightly resembles the well-known "Geneva stop," consisting of a stop-plate, 21, rigid with the shaft and having a concave face adapted to accurately fit the surface of a flange, 22, upon the vertical face of the master-wheel outside the flange 19. This flange 22 terminates before it reaches the end of the gear-flanges, to enable the angle of the stop-plate to pass off and to permit the initial rotation of the pinion 20. In a similar manner there is a space, 23, allowed between the other end of the gear-flange and the stop-flange, the former being of such length as to bring the stop-plate 21 into engagement with the flange 22 as the pinion 20 rides off the flange 19. In this manner the twist-ers will always have exactly the same number of revolutions, and there will be no danger of breaking teeth out of the pinion or flange by the interference of the same.

As each twist is made, it is necessary to raise the paling from the plate 2 in order to draw it closely up between the wires and off the twisting-heads. This movement of the paling should be uniform in order to properly space the palings, and for this purpose I mount in suitable bearings, 24, a spacing-shaft, 25, having arms 26, which extend forward and downward and lie upon the plate 2 beneath the paling. The shaft 25 is rotated by a crank-arm, 27, having a friction-roll, 28, which at the proper moment is engaged by a cam-flange, 29, upon the vertical face of the master-wheel. The arms 26 are thrown down by the action of cam-flange 29 into the recesses 26^a, Figs. 1 and 6, so as to rest on the plate 2 between the hubs 4 and the free ends of the plates 12. When the roll 28 passes off the flange, the shaft is rocked and the arms raised by the tension of a spring, 30, acting upon a crank-arm, 31, upon the other end of the shaft 25. The paling is thereby pushed closely up into the crotch between the wires and held there, while the wires are twisted below it, whereupon the arms drop and another paling is introduced. As the web is formed it is fed vertically by automatic grippers 32, mounted upon reciprocating supports 33, which are so connected with the uprights of the frame as to move freely thereon. Connected to said supports are pitmen 34, driven by crank-arms 35, actuated by a shaft, 36. This shaft is provided with a crank-arm, 37, having at its end a friction-roll, 38, which engages with a flange, 39, upon the outer face of the master-wheel, as shown in Fig. 3. As the wires are twisted beneath the palings, the supports 33 rise, drawing the grippers 32 against the web and thereby advancing the latter with the upward movement of the grippers. Here it is supported until the flange 39 passes off the roll 38, whereupon the support 33 falls by its own gravity, the grippers opening and releasing the web. The flange 39 almost immediately

re-engages the roll on the crank 37 and again raises the support. The completed web passes over a guide-roll, 40, upon the top of the frame, and is thence carried to a take-up roll, 41, upon which it is wound. This take-up is actuated by a ratchet, 42, rigid upon its shaft, said ratchet being driven by a vibrating pawl, 43, carried by a lever, 44, fulcrumed upon a bearing, 45, and extending upon both sides thereof. A cross-head, 46, upon the shaft of the master-wheel, vibrates the lever 44 in one direction, lifting the pawl 43 to make a new engagement with the ratchet. The effective movement of the pawl is accomplished by a weight, 47, hung upon the other end of the lever. A stop-pawl, 48, prevents the unreeling of the web.

Any suitable form of measuring apparatus, 49, may be combined with the guide-roll 40 and driven by a gear, 50, upon the shaft of said roll.

What I claim is—

1. The combination, in a machine for making wire fencing, of a series of twister-heads having sprockets, a shaft having a sprocket-wheel and a bevel-gear, an endless belt connecting the sprocket-wheel with the sprockets of the twister-heads, a shaft having a pinion and a bevel-gear engaging the gear on the sprocket-wheel shaft, and a master-wheel having teeth to intermittently rotate said pinion, substantially as described.
2. The combination, with a revolving master-wheel, of a series of twister-heads, rising and falling supports having spring-grippers, a spacing-shaft having arms or fingers, and means, substantially as described, for intermittently rotating the twister-heads, intermittently raising the gripper-supports, and intermittently rocking the spacing-shaft by the revolution of the master-wheel.
3. The combination, in a machine for making fences, of a series of twister-heads having sprockets, a shaft having a bevel-gear and a sprocket-wheel, an endless belt engaging the sprocket-wheel and alternately passing in front of and behind the sprockets of the twister-heads, a shaft having a pinion and a bevel-gear engaging the bevel-gear on the sprocket-wheel shaft, and a master-wheel having a segmental toothed flange for intermittently rotating the said pinion, substantially as described.
4. The combination, in a machine for making wire fencing, of a series of twister-heads having sprockets, a shaft having a sprocket-wheel and a bevel-gear, an endless belt connecting the sprocket-wheel with the sprockets on the twister-heads, a shaft having a concave stop-plate, a pinion and a bevel-gear engaging the gear on the sprocket-wheel, a master-wheel having a segmental toothed flange to intermittently rotate the pinion, and a flange extending around the master-wheel and terminating at a short distance from the ends of the toothed flange, substantially as described.

5. The combination, with the intermittingly rotating twister-heads and a master-wheel having a cam-flange, of a spacing-shaft having arms or fingers and a crank-arm intermittingly operated by the cam-flange for turning the shaft to depress the arms or fingers, and a spring for turning the shaft to elevate the arms or fingers, substantially as described.

6. The combination, with intermittingly rotating twister-heads, of a master-wheel having a cam-flange on its inner vertical face, a spacing-shaft having at one end a crank-arm provided with a roller-stud operated by the cam-flange, a spring, and a crank-arm on the spacing-shaft connected with the spring, substantially as described.

7. In a machine for making wire fencing, the combination, with the twisting mechanism, of a feed for the completed web, consisting of a reciprocating support having cam-faced grippers pivotally mounted thereon, between which the web passes, substantially as described.

8. In a machine for making wire fencing, the combination, with the twisting mechanism, of a feed for the completed web, composed of a reciprocating support having cam-faced spring-actuated grippers pivotally mounted thereon, pitmen actuating the support, and a shaft vibrating the pitmen, said shaft having a crank-arm provided with a roll engaging a cam-flange on the outer vertical face of the master-wheel, substantially as described.

9. The combination, in a machine for making wire fencing, of intermittingly-rotating twister-heads and a support for said twister-heads, with guides for the palings consisting of elastic plates connected at one end with said support and having their other ends converged toward the respective twister-heads, substantially as described.

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

LEANDER W. FREEMAN.

Witnesses:

DANIEL T. SNYDER,
MICHAEL GLEASON.