

No. 686,757.

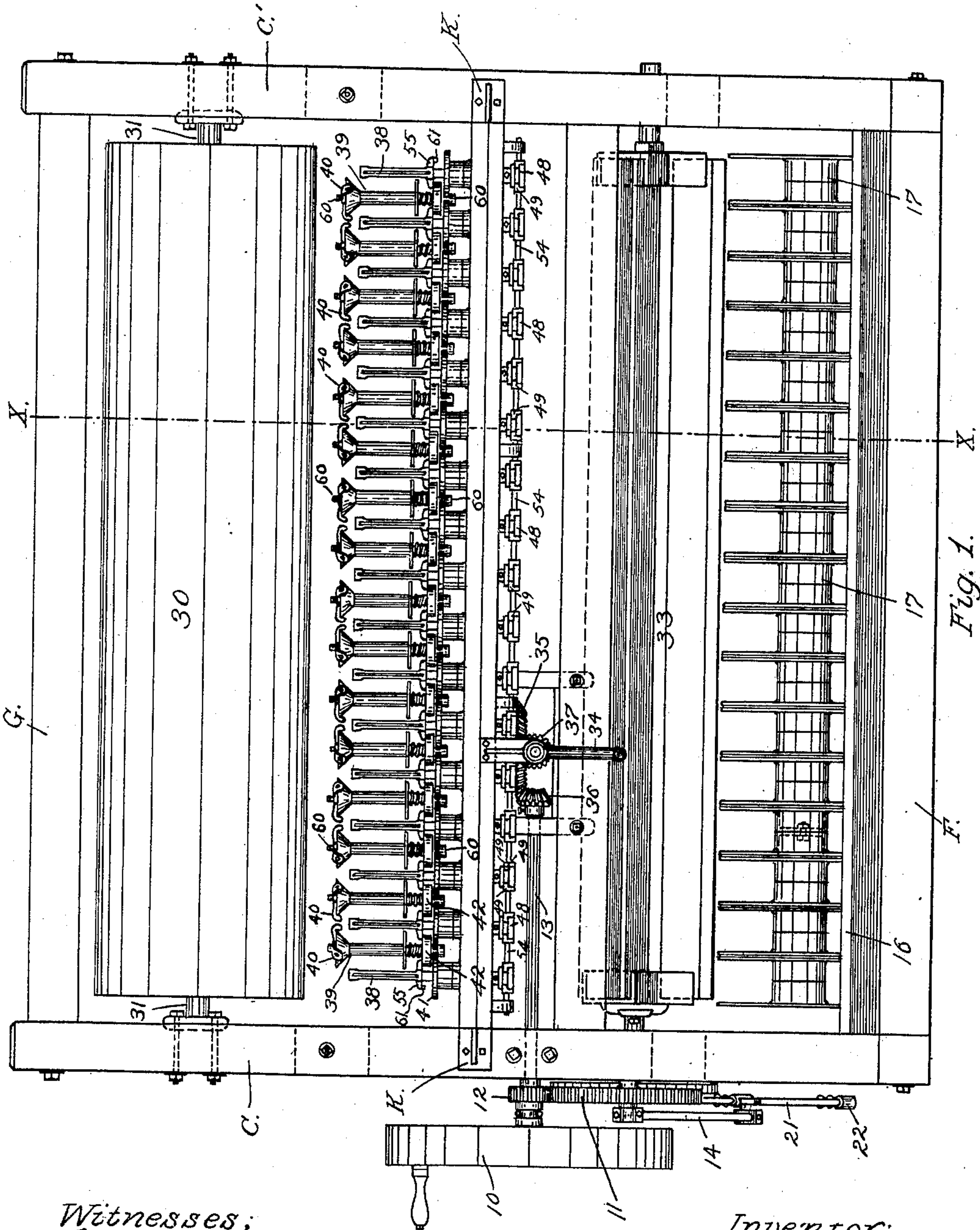
Patented Nov. 19, 1901.

W. N. PARRISH.
WIRE FENCE MACHINE.

(Application filed Feb. 23, 1901.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses;
Samuel G. Duwall.
R. E. Randle

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WILLIAM N. PARRISH,
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Robert W. Randle.

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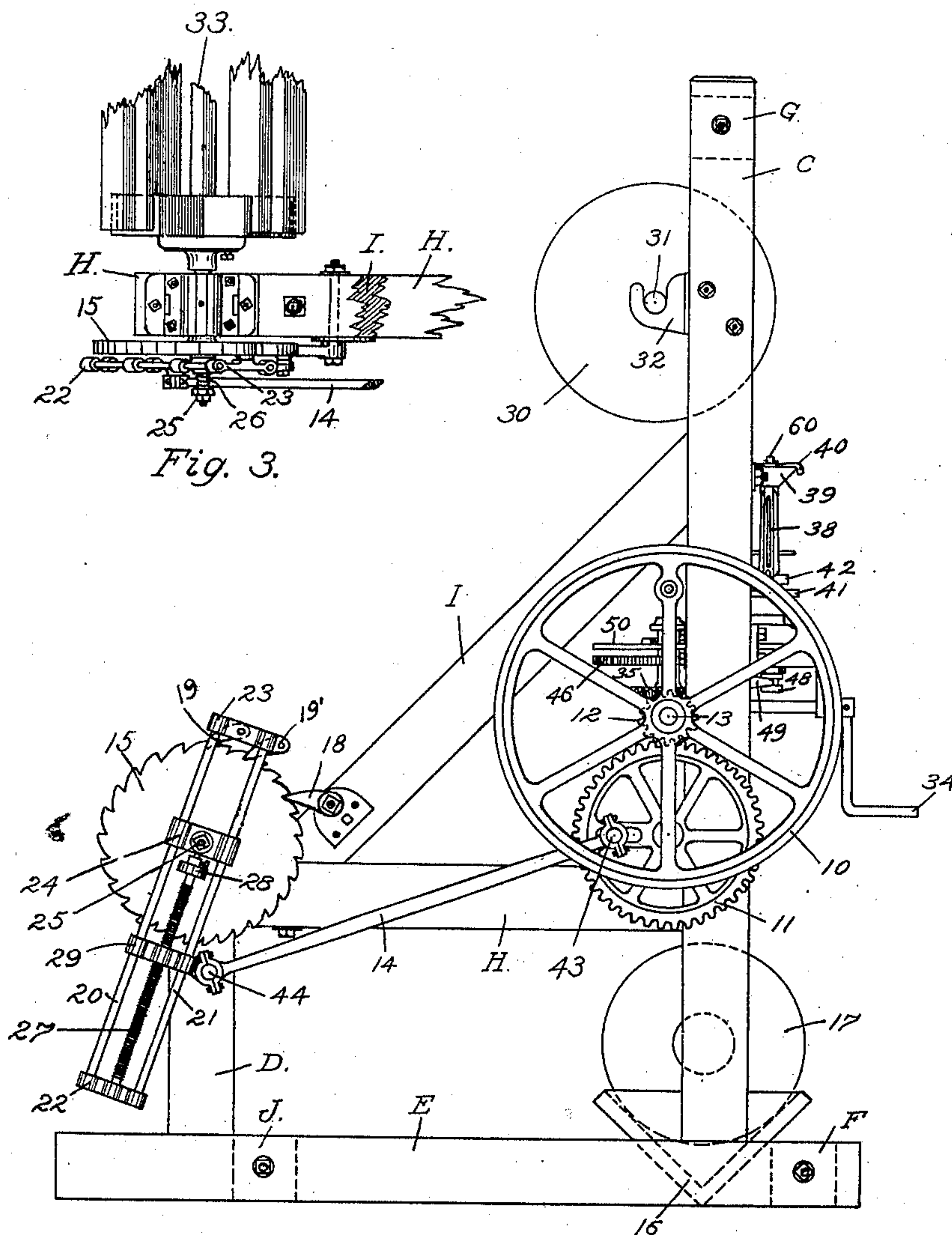


Fig. 3.

Fig. 2.

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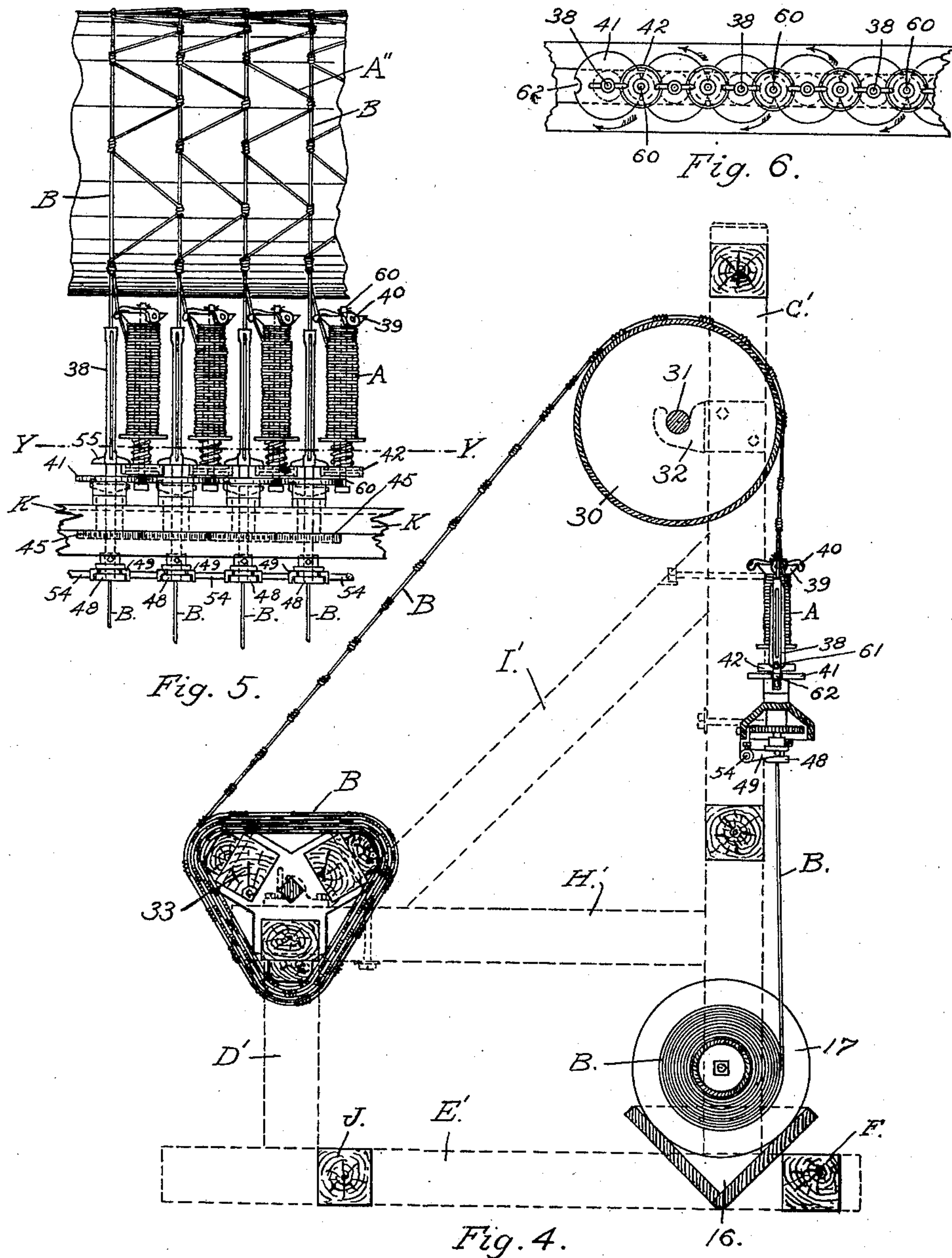
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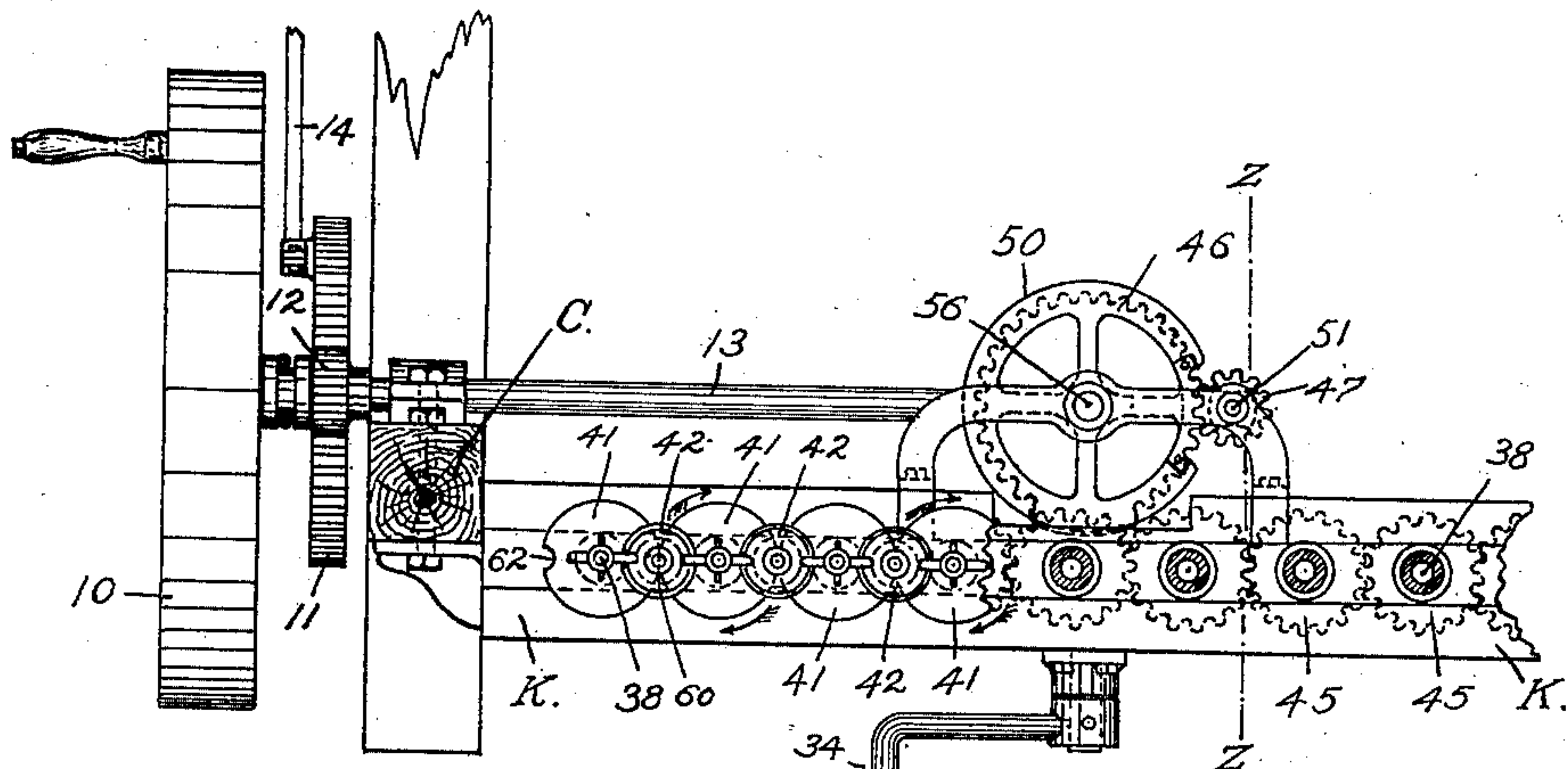


Fig. 7.

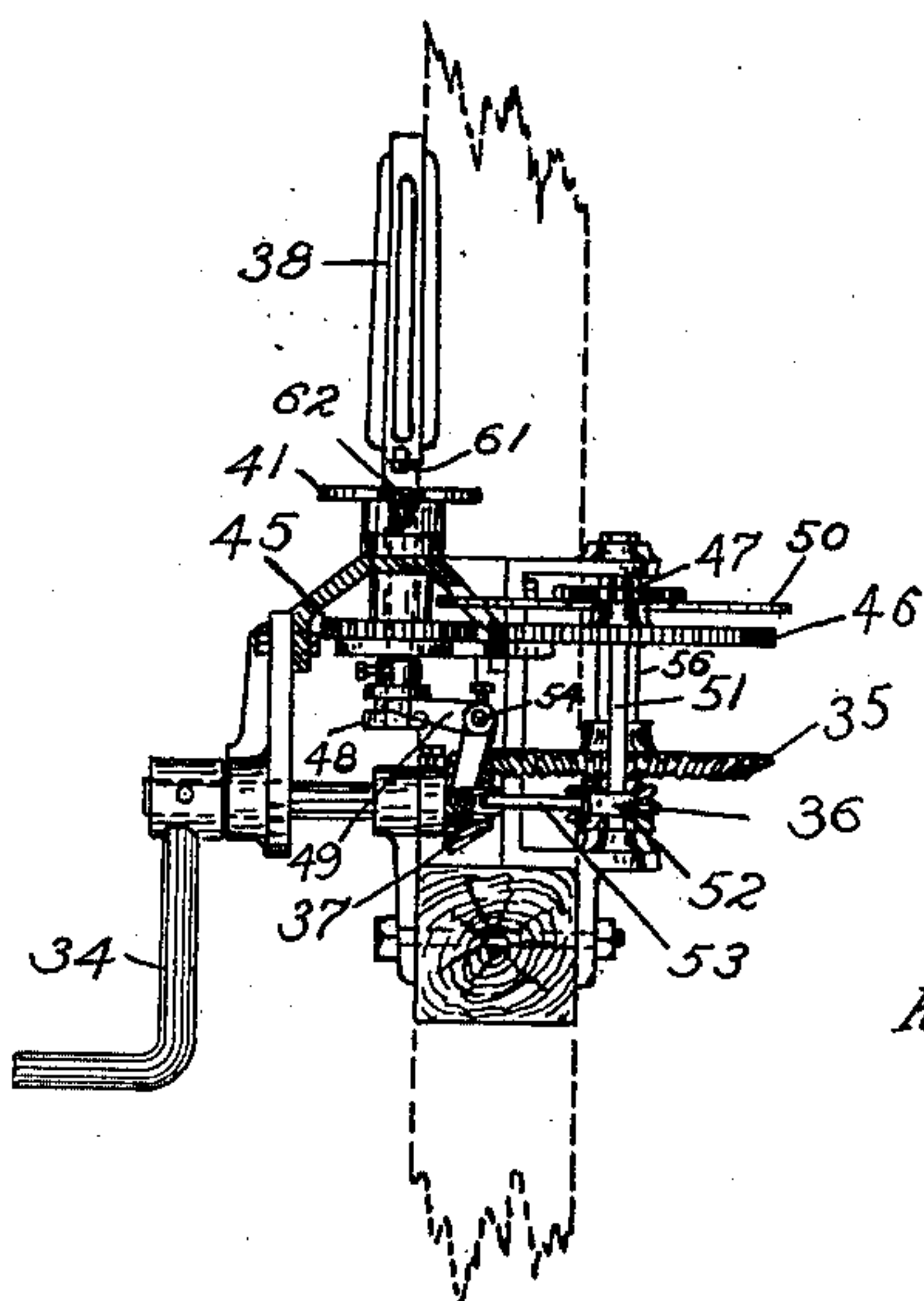


Fig. 8.

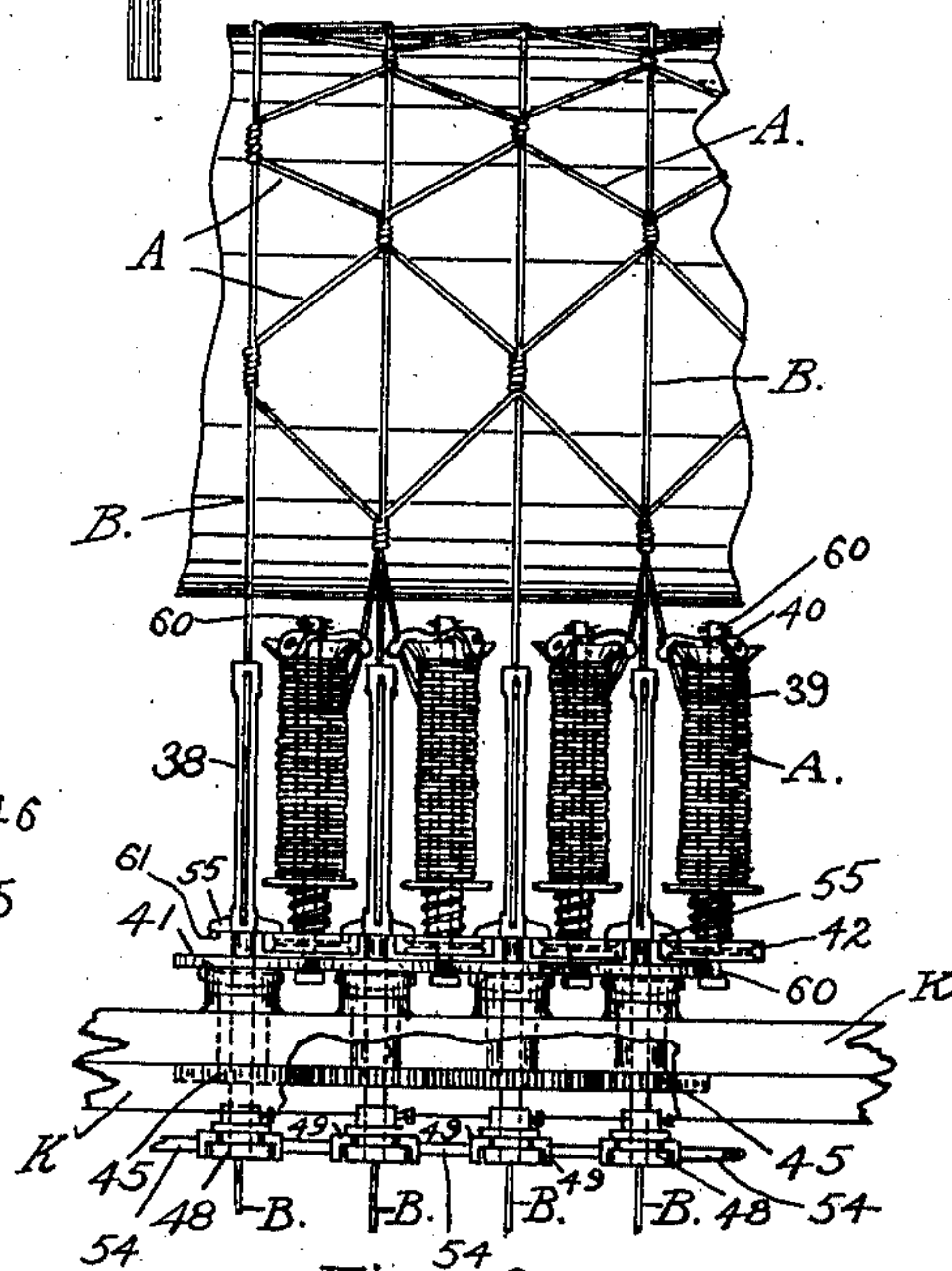


Fig. 9.

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UNITED STATES PATENT OFFICE.

WILLIAM N. PARRISH, OF RICHMOND, INDIANA, ASSIGNOR OF ONE-HALF
TO ISAAC WILLIAMS, OF RICHMOND, INDIANA.

WIRE-FENCE MACHINE.

SPECIFICATION forming part of Letters Patent No. 686,757, dated November 19, 1901.

Application filed February 23, 1901. Serial No. 48,499. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM N. PARRISH, a citizen of the United States, residing at Richmond, in the county of Wayne and State of Indiana, have invented new and useful Improvements in Wire-Fence Machines, of which the following is a specification.

My invention relates to improvements in wire-fence machines adapted to be operated by steam or hand power, preferably the former, in which all of the parts are adapted to work automatically; and the objects of my improvements are, first, to provide an automatic power wire-fence-weaving loom; second, to provide a machine adapted to weave wire fencing in various designs and at the same time wind the finished product into rolls of convenient size to handle; third, to provide new and novel means for twisting the auxiliary wires around and in connection with the main line-wires; fourth, to provide a new and novel mechanism for advancing and winding the finished product, and, fifth, to provide a wire-fence loom which involves simplicity in construction and operation and in which the greatest possible efficiency is obtained with a minimum of parts.

It consists, further, in the legitimate combinations of the features referred to with each other and with other features not yet alluded to and in numerous other subordinate but important combinations, and also in certain specific construction, all of which will be fully described hereinafter.

I attain these and other objects and other important and subordinate features by the mechanism and arrangement of parts illustrated in the accompanying drawings, forming a part of this specification, in which like letters and figures of reference refer to similar parts throughout the several views.

Referring now to the drawings, Figure 1 is a front longitudinal elevation of my entire machine. Fig. 2 is an end elevation of my machine. This view shows the left-hand end of the machine. Fig. 3 is a detail vertical view of a rear portion of the left-hand part of my machine. Fig. 4 is a cross-section of my machine looking from the right-hand toward the left-hand end of the machine, taken

on the line X X of Fig. 1. Fig. 5 is a detail elevation of a portion of my machine. Fig. 6 is a vertical view taken on line Y Y of Fig. 5. Fig. 7 is a detail vertical view of a portion of the front and left-hand part of my machine. Fig. 8 is a cross-section elevation taken on the line Z Z of Fig. 7. Fig. 9 is a detail elevation of a portion of my machine, this view being similar to Fig. 5, except that they are arranged for weaving different designs of wire fence.

The longitudinal sills F and J and the cross-sills E and E' support all of the different parts of my machine, and from them rise the main posts C and C' and the short rear posts D and D', connected by the horizontal pieces H and H' and the angular braces I and I', and the beam G, uniting the posts C and C' at the top. All of the above-named parts combined substantially as shown form the framework of my machine.

Extending from the posts C and C', near their center perpendicularly, is a double plate or table K, designed to support the weaving mechanism hereinafter described. Immediately below the beam G is journaled a drum 30 by pivots 31, journaled in the hangers 32, connecting said drum with the posts C and C'. At the rear end of the pieces H and H' and immediately over the posts D and D' and of same length as the drum 30 is a reel 33. The left-hand axle of the reel 33 extends out beyond its bearing on the piece H, to which extension is permanently secured the ratchet-wheel 15. Journaled to the center of the outside face of the wheel 15 is the reel-operating mechanism, which consists, essentially, of two parallel rods 20 and 21, united at each end by castings 22 and 23, the casting 24 located as shown and pivotally connected to the center of the wheel 15, as shown in Fig. 2. Pivotaly mounted between 24 and 22 is a threaded screw 27. Secured to or forming a part of the upper end of 27 is a brush-wheel 28, the casting 29 being adapted to travel between 24 and 22, along the rods 20 and 21, propelled by the screw 27. The casting 23 is provided with pawls 19 and 19', adapted to operate in the rack provided on the outer edge of the wheel 15, and a third pawl 18 is

secured to I and is adapted to hold the reel securely when the pawls 19 and 19' are not in action.

Secured at right angles to post C is the main shaft 13, provided with suitable bearings, the inner end of 13 being secured in the bevel-wheel 36 and the outer end of 13 being secured in the pinion 12 and the power or pulley wheel 10. Journaled to the outer side of the post C and below the pinion 12 and meshing therewith is the gear-wheel 11. The wheel 11 and the casting 29 are connected by the pitman 14 by means of the pivot-joints 44 and 43.

25 represents a tap-bolt, and 26 represents a spring for the purpose of keeping the brush-wheel 28 in contact with the wheel 15 for the purpose hereinafter set forth.

Referring to the action shown in Fig. 2, it is apparent that if the power-wheel 10 be revolved it will cause the gear-wheel 11 to revolve in the opposite direction and at a much slower rate of speed. The revolution of 11 will cause the arm 14 to vibrate, and as the arm 14 is carried to the right the pawls 19 and 19' will engage the ratchet-wheel 15 and carry it, together with the reel 33, to the left and there be secured by the pawl 18. The wheel 11 continuing to revolve will cause the pitman 14 to move in the opposite direction, carrying with it the reel-operating device, the lower part thereof moving to the left and the upper part to the right, with 25 as the center, the pawls 19 and 19' traveling back on the wheel 15, while said wheel 15 remains stationary, being held in place by the pawl 18. This last movement, it is apparent, will cause the brush-wheel 28 to revolve on the face of the ratchet-wheel 15, thus causing the casting 29 to be carried upward on the guides 20 and 21. The object of this latter movement is to cause the reel 33 to move farther at each revolution of the wheel 11. As the bale of wire continues to form on the reel 33 the action of the mechanism just described will allow the spaces of the meshes in the wire fence being produced to continue the same. When a new bale is started, the casting 29 is run back to the opposite end of the screw 27 by simply reversing said screw 27.

Between the posts C and C', I provide a trough 16, in which loosely revolve the spools 17, the weight of said spools, together with the wire contained on them, pressing on the sides of the V-shaped trough 16 by their own weight and provide a tension to keep the main line-wires straight.

Meshing with the bevel-wheel 36 is the bevel-wheel 35, and meshing with 35 is the bevel-wheel 37, 37 being used when my machine is operated by hand-power and 36 being used when my machine is used by steam or other power. The bevel-wheel 37 is connected to and adapted to be revolved by means of the crank 34. When the machine is to be operated by steam or other power, the

crank 34 can be removed and the machine can be operated by the bevel gear-wheel 36, as fully shown.

Mounted on the disks 41 are revoluble hollow perpendicular tubes 38, all of which are geared to revolve in unison, as shown, by means of the gear-wheels 45. The main line-wires B are wound on the spools 17, then passed up through the center and out at the top of the tubes 38, then over the drum 30, and secured to the reel 33. The spools 39 are to be filled with the auxiliary or cross wires A, the outer ends passing through a hole in the caps or guides 40, secured on top of the spool. The caps or guides 40 are loosely mounted on top of the spools 39 and are adapted to rotate entirely independent of any other part of the machine, their movement being controlled by the wire A being drawn off from the spools through the holes in each, as shown.

It is apparent that the revolution of the power-wheel 10 will carry with it the shaft 13, carrying the bevel-wheel 36. The bevel-wheel 36, meshing with the bevel-wheel 35, will cause the bevel-wheel 35 to revolve at right angles to 36. Extending up from 35 is an axle 56, the upper end thereof carrying the gear-wheel 46 and the segment-wheel 50. Meshing with the gear-wheel 46 is a small gear-wheel 47. Extending down from the center of 47 is an axle 51, the lower end of 51 being provided with an eccentric 52, connecting with the pitman 53.

54 represents an oscillating shaft, to which is attached fingers 49. Said shaft 54 extends the full length of the machine, and a finger 49 is attached thereto to engage in a lateral groove in each of the disks 48. It can be seen that the gear-wheel 46 engages one of the gear-wheels 45 and that all the gear-wheels 45 are meshed together and move in unison. Thus the revolution of the power-wheel 10 will revolve the shaft 13, carrying the bevel gear-wheels 36 and 35, the latter carrying the shaft 56, which carries the wheel 46, the latter operating one of the wheels 45 and causing all the gear-wheels 45 to move in unison. The spindles 38 extend up from the disks 48 and are carried thereby.

42 represents disks or wheels provided with upwardly and downwardly projecting flanges at the outer edges. Extending up from 42 are spools 39, filled with the auxiliary wires A. The spools 39 are adapted to rotate around the spindles 38 in either direction, the direction in which they rotate being governed by the operation of the eccentric 52 to raise and lower the disks 48 and the upward-projecting parts attached thereto. It can be seen that the movement made on the reel 33 will wind the finished fence on said reel in a step-by-step system, at the same time drawing the wire B from the spools 17 to the same extent. The auxiliary spindles 39 are shifted among the main-wire spindles 38 and held in their shifted positions in a manner well known in

the art, and a detailed description thereof is not deemed necessary. When the reel 33 is at rest, the spools 39 rotate around the spindles 38, the wire A drawing off of the spools 39 through one of the holes in the caps 40 and twisting the wires A in pairs around the main line-wires B, as shown in Fig. 9. When the last-named movement is accomplished, the wires B are moved up one step, the eccentric 52 elevating or lowering the spindles 38, thus causing the spools 39 to operate in the opposite direction and around different spindles 38, and consequently causing the wires A to be twisted around a different wire B at each step, and so on indefinitely.

Near the upper end of the shaft 56 is a mutilated gear-wheel 50. This gear is adapted to mesh with the gear-wheel 47 at times when the shaft 54 is to be oscillated to raise or lower the spindles 38, and as the mutilated portion of the gear 50 occupies approximately one-quarter of its periphery and the teeth or spurs the remaining three-quarters this mutilated gear can only accomplish the turning of the gear 47 through one-quarter of a complete revolution of the mutilated gear 50.

At two points opposite to each other on the periphery of the disks 41 are half-circle notches 62, adapted to receive the lower end of the axle 60. On the underside of the disks 55, extending down from the outer edge of the under faces, are points 61, said points 61 being adapted to engage in the grooves in the faces of the disks 42. The engagement of the points 61 with said grooves is governed by the fingers 49 raising and lowering the spindles 38 and the parts attached thereto.

It is apparent that my machine can be geared to weave various designs of fences other than that shown in Fig. 9—as, for instance, as shown in Fig. 5.

The specific construction of the details of this machine, in which the novel features are embodied, may be variously changed without altering the essential principles, which are claimed as new.

My improved wire-fence-weaving loom herein shown and described is perfectly adapted to accomplish the results it is intended to perform; but it is evident that changes in and modifications of the construction herein shown and described may be made and that analogous parts may be used to accomplish the same results without departing from the spirit of my invention or sacrificing any of its advantages.

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

1. The combination in an automatic wire-fence machine, of a series of auxiliary-wire spools arranged alternately between a series of hollow spindles through which pass the main line-wires, means for gearing said spools to revolve around the said spindles backward and forward, means for reciprocating said spindles vertically, means for changing the

direction in which the spools travel, and means for operating the same by hand or other power, all substantially as shown and described and for the purposes set forth.

2. In an automatic wire-fence-weaving machine, the combination with a suitable framework, as shown, a pitman 14, a gear-wheel 11 and casting 29 connected by said pitman by pivot-joints, of a step-by-step mechanism for advancing the finished product, consisting of a suitable reel 33 journaled between the horizontal cross-plates H and H', one of the pivots extending out and carrying the ratchet-wheel 15, pawls 19 and 19' and the reel-advancing mechanism journaled to the center of said wheel, all substantially as shown and described and for the purposes set forth.

3. In an automatic wire-fence-weaving machine, the combination with a suitable framework, of a power-wheel 10 and a gear-wheel 11 suitably mounted on said framework; the wheel 10 being permanently secured to the axle 13, said axle 13 also carrying the pinion 12 which meshes with and operates the wheel 11; the wheel 11 carrying an adjustable pivotal joint 43 connecting the pitman 14 thereto; said pitman being connected at its other end to the casting 29 by the pivotal connection 44, pawls for actuating the reel, and a third pawl for holding the reel when the first-mentioned pawls are out of action, all substantially as shown and described.

4. In an automatic wire-fence-weaving machine, the combination with a suitable framework, a step-by-step advancing mechanism and means for applying motive power; of the weaving mechanism, the spindles 38, adapted to rotate and to be moved up and down for the purposes set forth, of the spools 39, to be carried securely, but loosely, by between and around said spindles 38, a wire guide, cap, or spider 40 carried by and loosely mounted on the top of the spindle 60 and on top of the spool 39, all substantially as shown and set forth and for the purposes specified.

5. In an automatic wire-fence-weaving machine, the combination with a suitable framework and means for applying power, of a series of hollow fingers or spindles 38 geared to revolve in unison by means of the gear-wheels 45 connected together and geared to the wheel 46 and thereby connected to the power for operating the same and means for moving said spindles in the direction of their length, all substantially as shown and described.

6. In an automatic wire-fence-weaving machine, the combination with a plurality and an equal number of each of the main-line-wire spools 17; the auxiliary-wire spools 39; the hollow spindles 38; means for moving said spindles in the direction of their length; the disks 41, 42, 55, and 48; of a gear-wheel 46, adapted to operate in unison the above-enumerated parts, the disks 41, 42, 55 and 48 being on the said spools and spindles respectively, all substantially as shown and described.

7. In an automatic wire-fence machine, the combination with a wire-weaving mechanism, of a mutilated gear-wheel 50, meshing with the pinion 47, to intermittently carry the shaft 51, the latter, by means of an eccentric 52, adapted to oscillate the pitman 53 and thereby vertically move the fingers 49 to raise and lower the spindles 39, all substantially as shown and described and for the purposes specified.

8. The combination of the following elements: a reel 33, a reel-operating mechanism, substantially as described, for advancing the finished woven fence, a power mechanism, substantially as described, consisting of the wheels 10 and 11, the pinion 12 and the shaft 13, and a bevel-gear, substantially as described, consisting of the wheels 36 and 35 and the auxiliary wheel 37, the latter to be operated by the crank 34 to run the machine by hand-power, all substantially as shown and for the purposes specified.

9. The combination of the following elements: a series of spools 39 arranged alternately between a series of spindles 38, the latter carrying the main line-wire B and the former the auxiliary or cross wire A, substantially as described, a series of gear-wheels 45 uniting the spindles 38, disks 42 attached to the axles 60 near their lower ends, the axle 60 adapted to carry the spools 39, a cap or spider 40 carried by axle 60 on top of the spools 39, all substantially as shown and described and for the purposes specified.

10. The combination of the following elements: a shaft 56 carrying on its lower end the bevel-wheel 35 and on its upper end the gear-wheel 46 and the mutilated gear 50; the shaft 51 carrying on its upper end the pinion 47 and on its lower end the eccentric 52, the latter being adapted to intermittently raise and lower the spindles 38 by means of the pitman 53 and the fingers 49, the latter mounted on the shaft 54, all substantially as shown and described.

11. In a wire-fence machine, the combination with a supporting-frame, a winding mechanism, and means for supplying power, of a wire twisting and weaving mechanism, of auxiliary-wire spools and main-wire spindles, arranged alternately and adapted to be brought into alinement and rotated in pairs by the revolution of the main-power pulley-wheel connected to and operating on said mechanism, and means for intermittently locking and releasing said spools after they have made the required number of revolutions around said spindles, all substantially as shown and described and for the purposes specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM N. PARRISH.

Witnesses:

R. E. RANDLE,

ROBT. W. RANDLE.