G. E. MIRFIELD.

WIRE FENCE MAKING MACHINE.

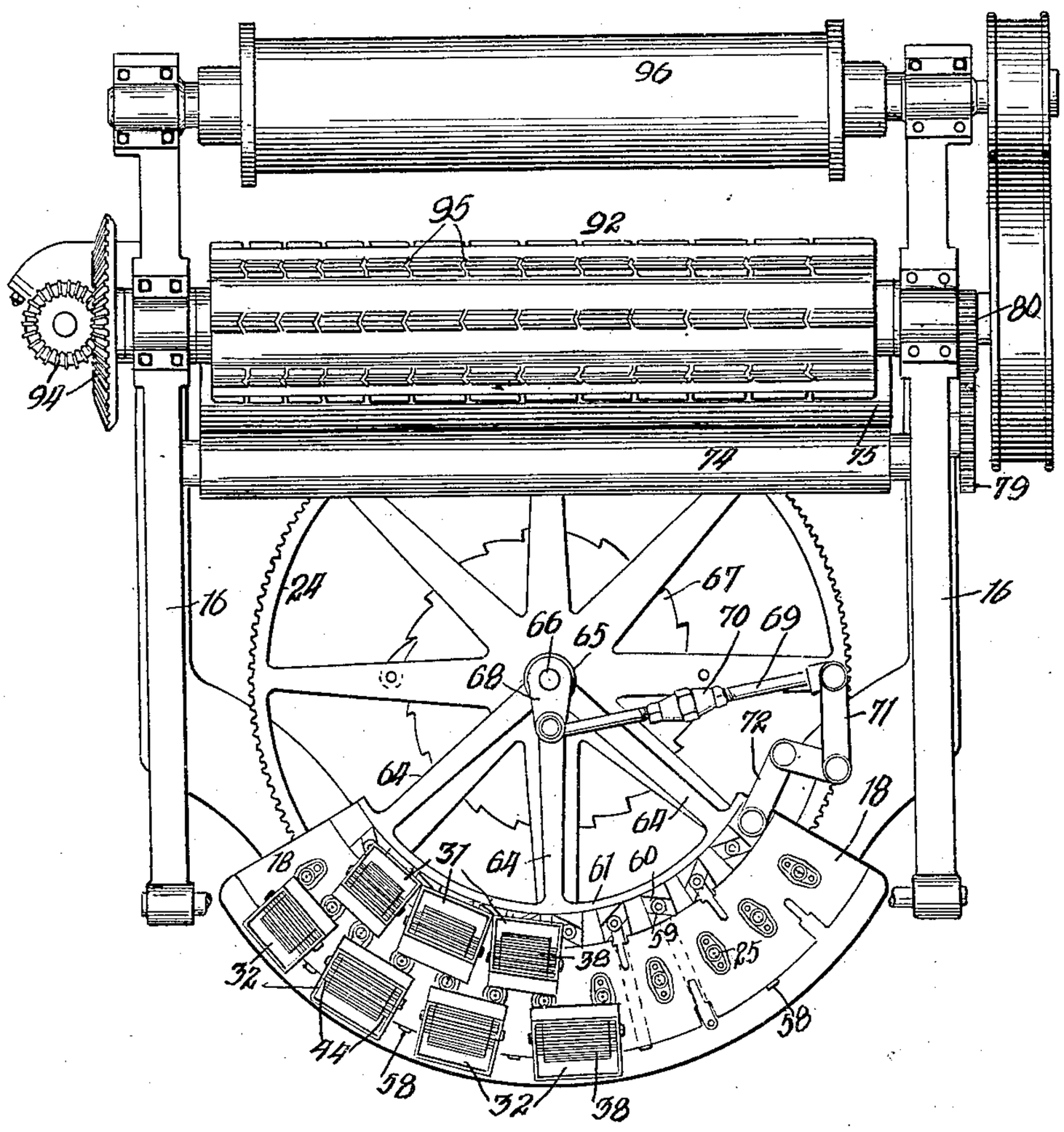
APPLICATION FILED MAY 18, 1909.

969,552.

Patented Sept. 6, 1910.

5 SHEETS—SHEET 1.

Fig. 1.



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5 SHEETS—SHEET 2.

Fig. 2.

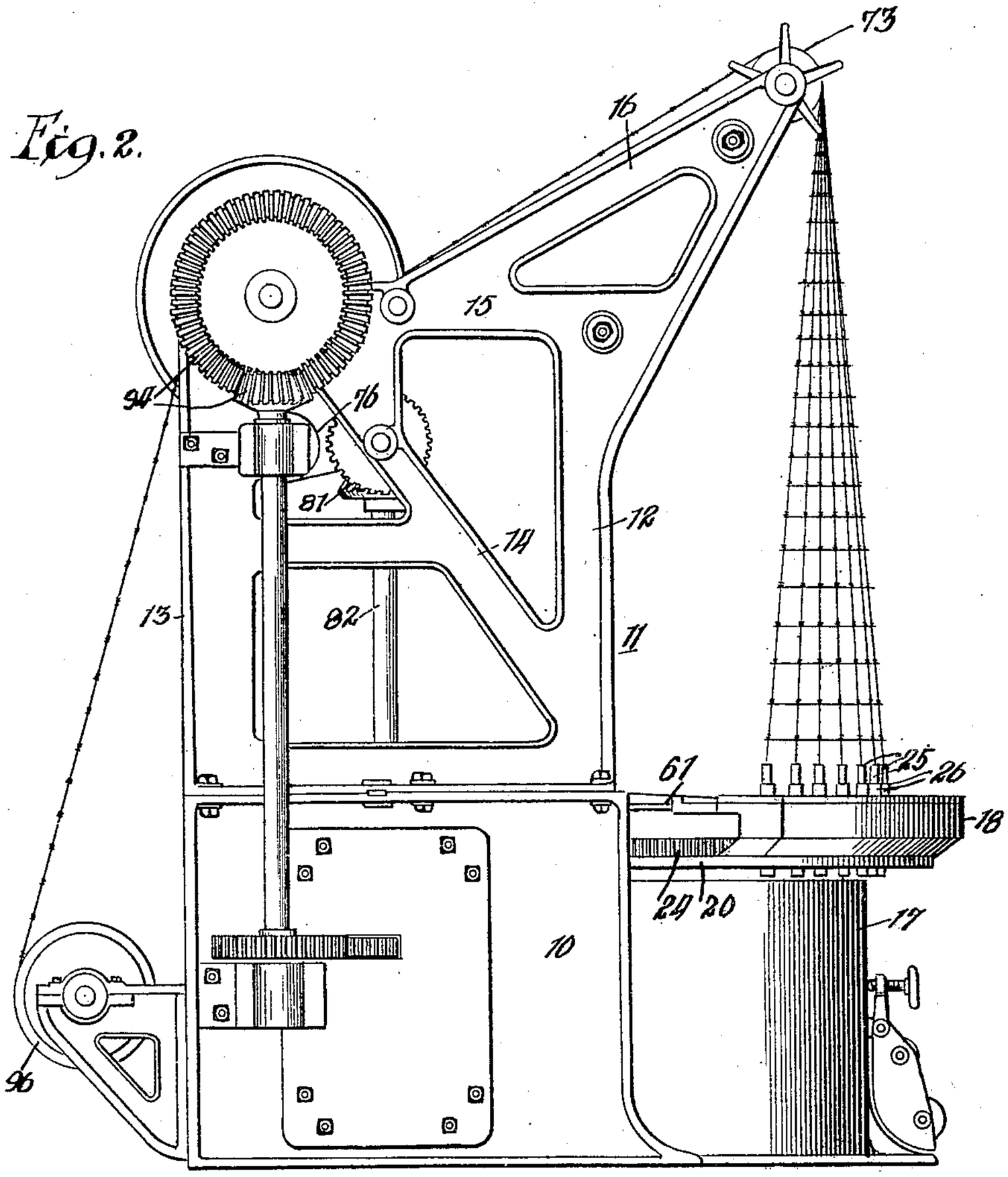

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Fig. 3.

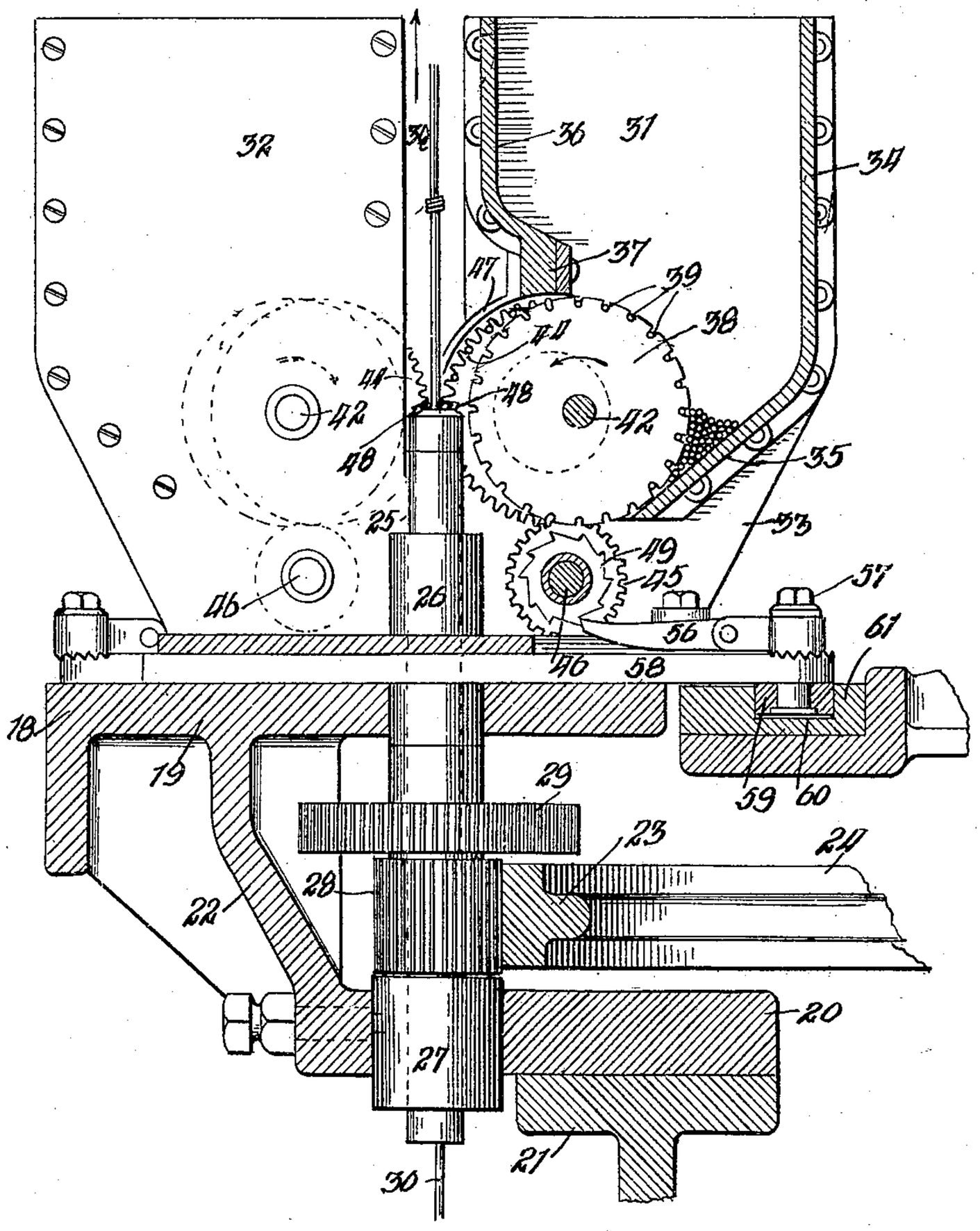
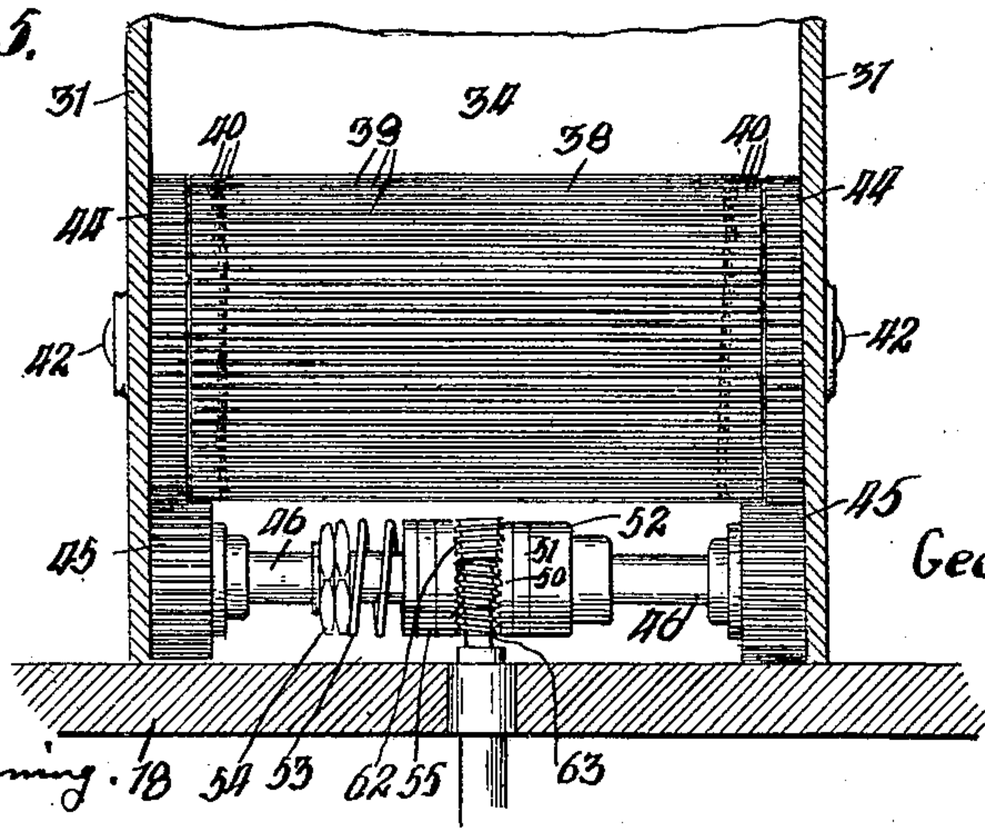


Fig. 5.



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5 SHEETS—SHEET 4.

Fig. 4.

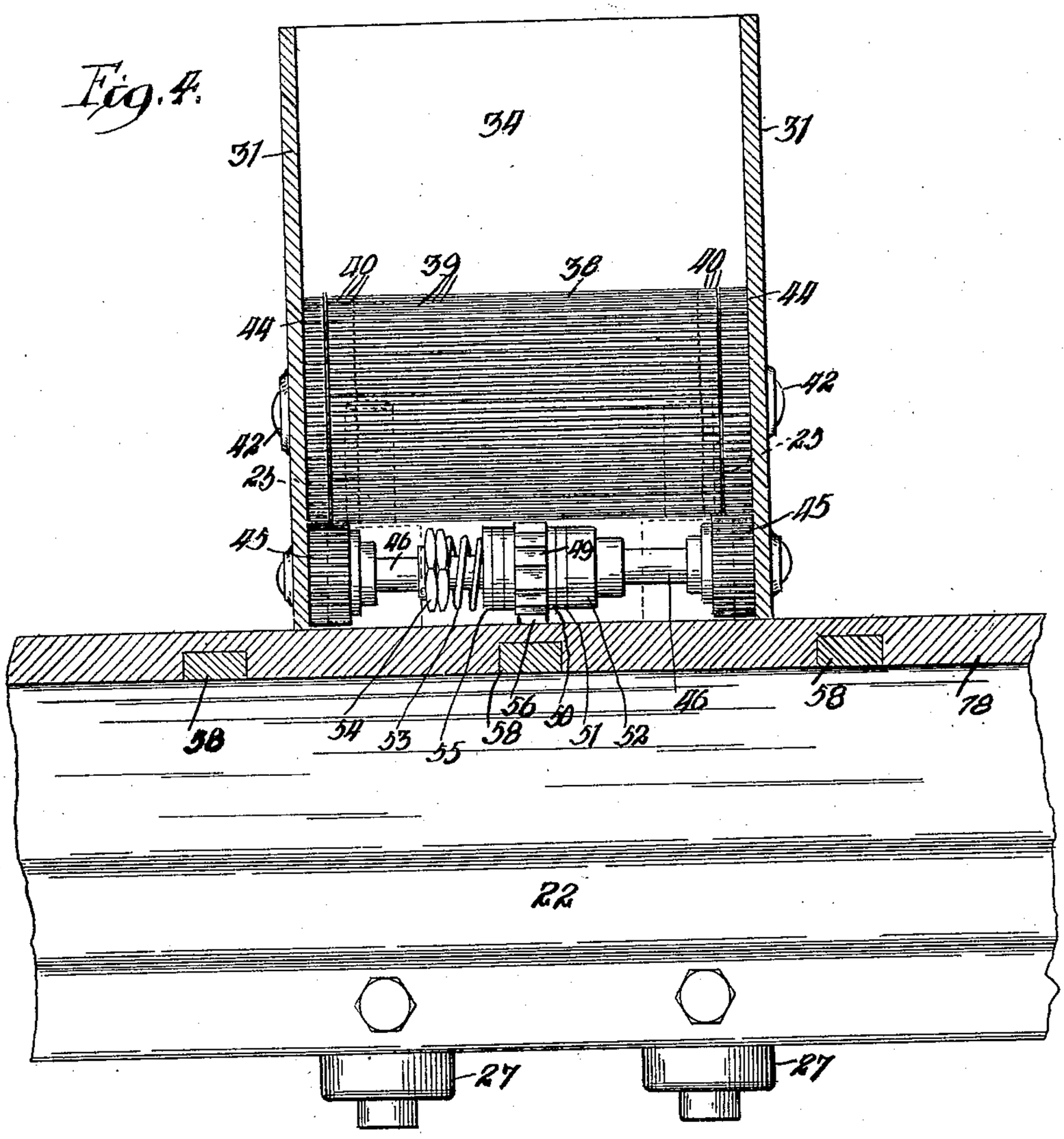
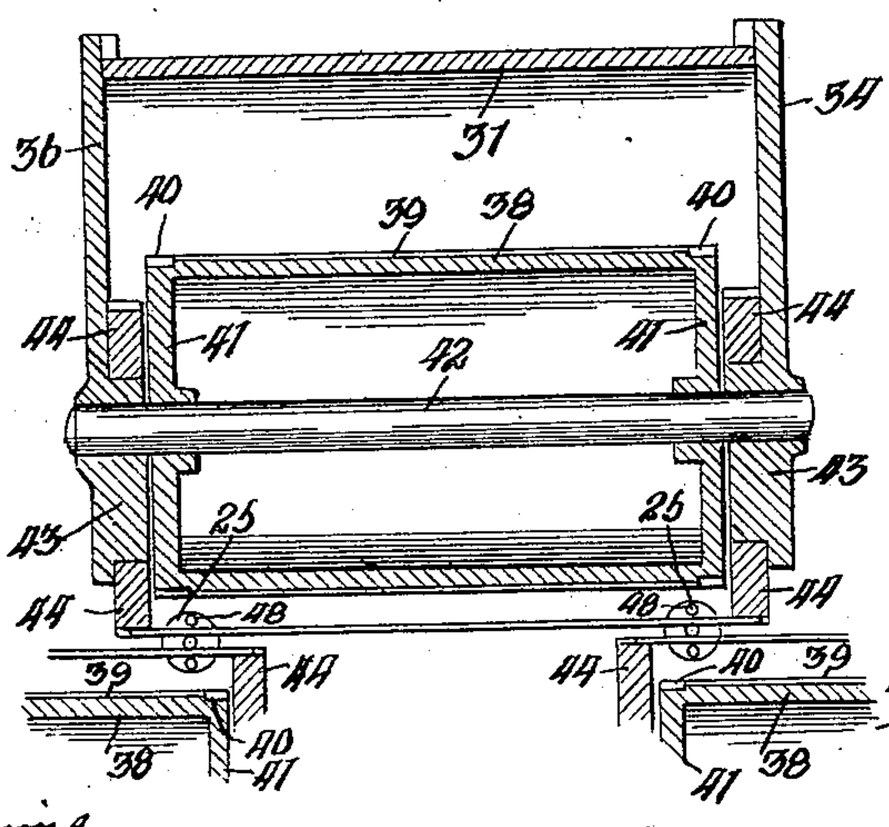


Fig. 6.



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5 SHEETS—SHEET 5.

Fig. 7.

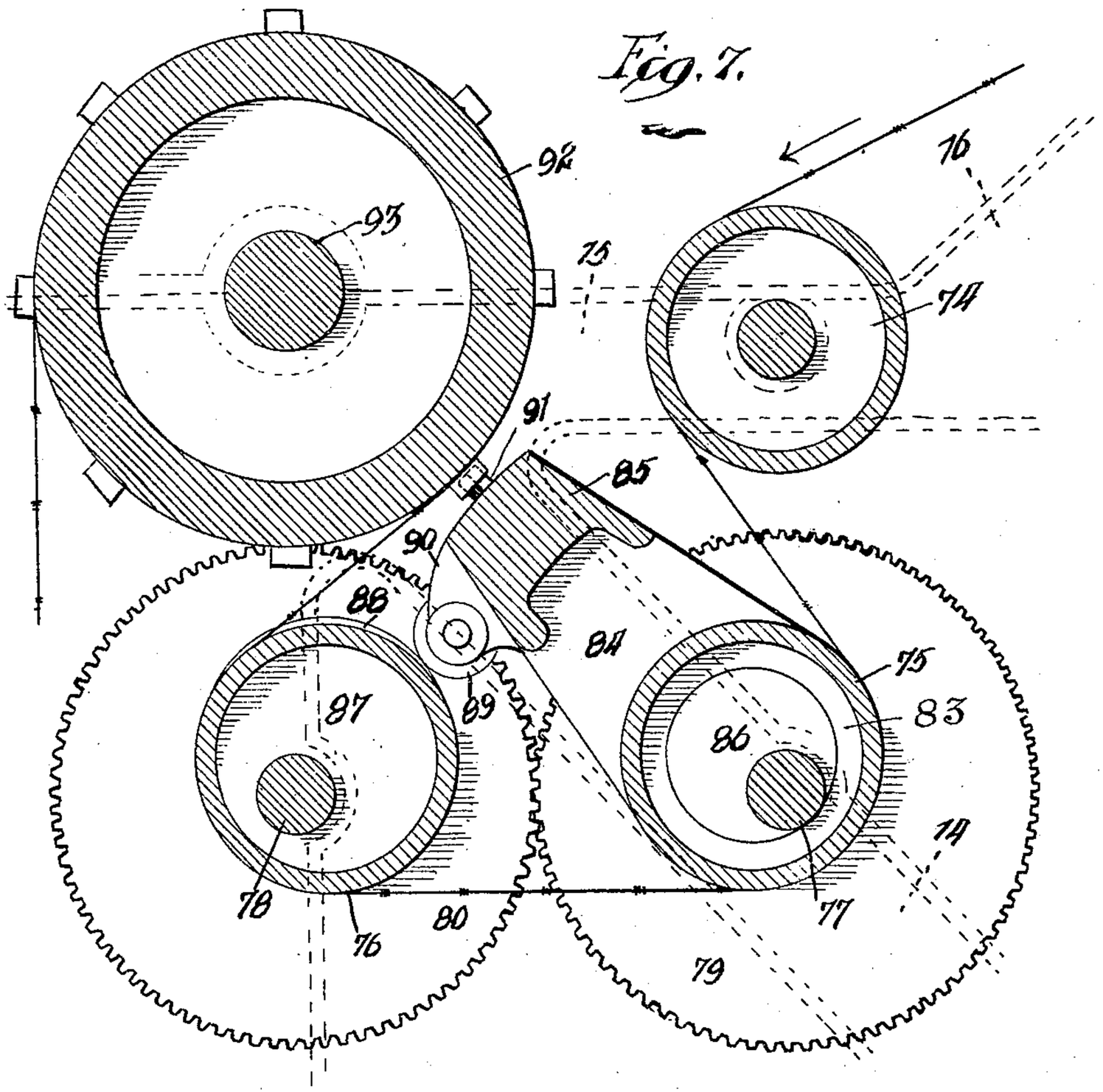


Fig. 8.

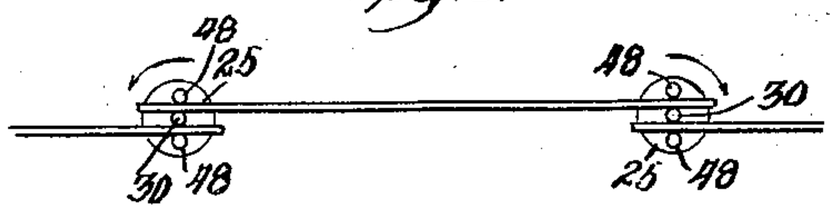
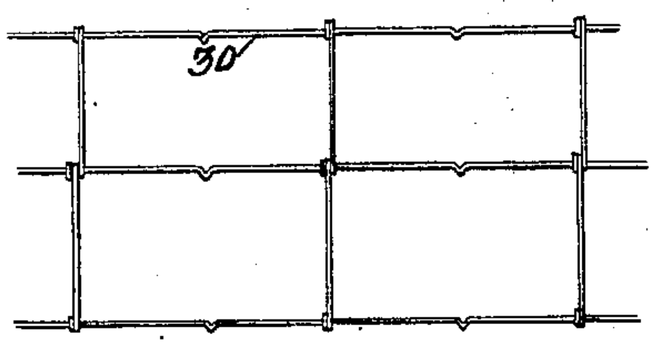


Fig. 9.



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UNITED STATES PATENT OFFICE.

GEORGE E. MIRFIELD, OF YOUNGSTOWN, OHIO, ASSIGNOR TO YOUNGSTOWN SHEET & TUBE CO., OF YOUNGSTOWN, OHIO, A CORPORATION OF OHIO.

WIRE-FENCE-MAKING MACHINE.

969,552. Specification of Letters Patent. **Patented Sept. 6, 1910.**

Application filed May 18, 1909. Serial No. 496,780.

To all whom it may concern:

Be it known that I, GEORGE E. MIRFIELD, a citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Machines for Making Wire Fence, of which the following is a specification.

The machine of the present invention is of the general type shown and described in Letters Patent of the United States, No. 894,971, issued to me August 4, 1908; and the present invention relates to certain features of improvement and modification on the machine therein shown. The machine of the present invention, like the machine of said patent, is designed to weave the well known type of wire fencing having longitudinal strand wires and cross stay wires, with the stay wires formed in sections having their ends twisted onto the strand wires. The machine of the present invention is provided with a plurality of hoppers or receptacles adapted to hold previously cut stay sections, and to feed them down from the hoppers in position to be engaged by the coilers and woven onto the strand wires.

The invention more particularly relates to the feeding mechanism for carrying down the stay sections in such a manner as to practically eliminate the possibility of the feeding mechanism skipping a stay, thereby turning out an imperfect fence. With this end in view, the machine is equipped with frictionally driven pocketed feeding devices, so arranged that, between each coiling movement of the machine, the mechanism will be moved a sufficient distance to deliver three or more stays, provided such movement be not arrested by a proper delivery of a stay from the first or second pocket. In this way it will almost invariably happen that a stay will be delivered at some time during the feeding operation, so that, when the coilers are thereafter actuated, the stays will be in position to be woven onto the strand wires.

The invention further relates to the take-up mechanism for reeling up the completed fence after each coiling operation, in a manner to evenly and uniformly distribute the tension across the entire fence fabric, whereby it will be smoothly and evenly carried up to the crimping drum in position to undergo the final or crimping operation.

The invention further relates to the means provided for harmonizing the movements of the various devices and combining them into a compact and easily operated machine.

Further objects will appear from a detailed description of the invention, which consists in the features of construction and combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is a top or plan view of the machine; Fig. 2 a side elevation of the same; Fig. 3 an enlarged elevation, partly in section, of a pair of hoppers, showing the feeding mechanism in one of them; Fig. 4 a side elevation of one of the pocketed feeding drums and associated parts, showing the hopper in section; Fig. 5 is a similar view, showing a modification in which said drum is continually instead of intermittently driven; Fig. 6 a sectional plan view of the feeding mechanism of either Fig. 4 or Fig. 5, showing its relation to the coilers; Fig. 7 an enlarged sectional elevation of the take-up mechanism; Fig. 8 an enlarged detail, showing the position in which the stay sections are delivered to the coilers; and Fig. 9 a view of a section of fence woven by the machine.

The machine is built into a frame, comprising a base portion 10 and a superstructure 11, which latter, on each side, comprises front rails 12, rear rails 13, diagonally extending brace rails 14, and top rails 15. The top and front rails merge into obliquely and upwardly extending bracket arms 16. The base portion, in front, is carried forward in the form of a rounded supporting wall 17 which carries a half ring shaped table 18 adapted to support the hoppers. The particular construction and arrangement of the framework, however, is not essential, provided only it afford the necessary rigidity for mounting the operative portions of the machine. As shown in Fig. 3, the table 18 outwardly projects beyond the wall 17 and comprises a flat supporting top portion 19 and a base portion 20, which latter rests upon the flanged upper edge 21 of the wall 17, the top portion and the base portion being connected by means of a spacing wall 22, into which space projects the toothed rim 23 of a main driving gear wheel 24. The table affords a journal mounting for a plurality of vertically disposed coilers 25 which are arranged in the arc of a circle.

The coilers are journaled through an upper journal sleeve 26 carried by the table top 19, and a lower journal sleeve 27 carried by the base portion 20, and the alternate coilers have keyed thereto, intermediate the upper and lower journal sleeves, a spur gear pinion 28 in mesh with the teeth of the main driving gear wheel 24, and each of the coilers has keyed thereto a transmission gear wheel 29 in mesh with a similar gear wheel on the next adjacent coiler, which, however, is out of mesh with the main driving gear wheel,—the arrangement being one whereby the alternate coilers are rotated in opposite directions, which is necessary in order to impart a proper twist to the ends of the stay wires. Each of the coilers is bored to afford the usual passageway for a strand wire 30 which travels upwardly in a vertical line through the machine and between rows of inner and outer hoppers 31 and 32, respectively, which hoppers, as shown to the left of Fig. 1, are arranged on the segments of a circle and in staggered relation to one another, being supported upon the table top 19.

Each of the hoppers comprises a pair of end walls 33, an outer cross wall 34 extending obliquely inward toward the line of coilers at its lower end 35, and an inner cross wall 36, the lower edge 37 of which is inturned and terminates a considerable distance above and in substantially vertical alinement with the lower edge of the outer cross wall. Within the space intermediate the lower edges of the inner and outer cross walls, in each hopper, is located a feeding drum 38 having, in its periphery, a plurality of longitudinally extending grooves or channels 39 forming pockets for the reception of stay wire sections, which are laid into the hopper and are of a length to extend from end to end thereof, sufficient clearance only being afforded to obviate the danger of cramping or binding the ends of the stay sections against the end walls of the hopper during the feeding operation. The ends 40 of each of the grooves or channels are cut slightly deeper than the intermediate portions thereof, as best indicated in Fig. 6. The feeding drum is provided, at each end, with drum heads 41 mounted upon a drum shaft 42, the ends of which are journaled through circular bosses 43 formed on the inner faces of the end walls of the hopper, as best shown in Fig. 6. The shaft 42 is eccentrically mounted with respect to the bosses 43, the major portion of each of the bosses extending inwardly from the shaft toward the line of coilers. Each of the bosses affords a journal mounting for a pocketed feeding gear wheel 44, of substantially equal diameter with the feeding drum and eccentrically mounted with respect thereto, so that the pockets of the feeding gear wheels opposite the ends of the drum will move into register with the pockets of the drum at a point just inside of the inturned edge 37 of the inner cross wall, and will thereafter move out of register with the pockets of the drum and advance away from the drum and inwardly toward the coilers, as indicated to the right of Fig. 3.

The feeding gear wheels and the intermediate feeding drum are driven by a pair of driving pinions 45, located at opposite ends of a shaft 46, the ends of which are journaled in the end walls of the hopper a considerable distance below the shaft 42 which carries the pocketed feeding drum. Each of the driving pinions 45 is of sufficient width to simultaneously engage both the teeth of the adjacent feeding gear wheel and the deeply cut ends 40 of the grooves or channels 39 in the surface of the feeding drum. The location of the driving pinions is such that the teeth of the feeding drum and the feeding gear wheel will move into register at this point and in position to mesh with the pinions in the manner stated. In order to prevent the displacement of the stay sections as they are being carried down by the teeth of the feeding gear wheels, each of the gear wheels is provided with a depending curved guide plate 47, the upper end of which is secured to the inner wall of the hopper, and the lower end of which extends down to a point closely adjacent to the upper end of the coiler.

As best shown in Fig. 6, coöperating pairs of coilers occupy a position intermediate the projecting inner edges of companion feeding gear wheels, which are so located as to support the extreme ends of a stay section and carry it downwardly and inwardly until it rests upon the upper ends of the companion coilers and abuts against the vertically extending strand wires, around which it is intended to be coiled by means of the usual coiling pins 48. The upper ends of the coilers occupy a position substantially on a level with the axis of movement of the feeding gear wheels; and the hoppers of the inner and outer rows are so arranged that the ends of the stay wires intended to be wrapped around the same strand wire will overlap to the extent required to intercoil the ends and coil them around the strand wire.

The feeding drums and feeding gear wheels can be driven either intermittently or continuously, and Figs. 4 and 5 illustrate the means employed for securing either form of operation. In Fig. 4 the driving mechanism consists of a ratchet wheel 49 which is loosely mounted upon the shaft 46, and is provided, on one side, with a friction disk 50 which bears against a similar disk 51 on a friction clutch collar 52, keyed or otherwise fixedly mounted upon the shaft. The parts are held in frictional engagement by

the action of a coil spring 53 which is interposed between a pair of nuts 54 on the shaft 46, and one or more washers 55 which abut against the ratchet wheel. The ratchet wheel coöperates with a dog 56 which is pivoted to a stud 57 entered through the inner end of a slide plate 58, which stud carries on its lower end a roller 59 which projects into a cam groove 60 in the upper face of a swinging curved plate 61. As shown in Fig. 1, the alternate cam grooves extend diagonally in opposite directions, which is necessary in order to impart movements in opposite directions to the coöperating feeding gear wheels and feeding drums in the inner and outer rows of hoppers, which must, of necessity, feed in opposite directions in order to deliver the stay sections to the intermediate coilers. Where it is desired to feed continuously, the dog and ratchet mechanism is dispensed with, and a worm wheel 62 and worm 63 are substituted, the frictional clutch members being retained and the worm driven by any suitable connections.

The swinging plate 61 lies immediately inside of the inner edge of the curved table, having a curvature commensurate therewith, and is supported by a plurality of radially disposed converging arms 64, which unite in a hub 65 loosely mounted on the upper end of a vertically disposed journal shaft 66, to which shaft the main driving gear wheel 24 is keyed. The shaft also has mounted thereon a ratchet wheel 67, which is given a step by step or intermittent movement, by suitable mechanism of the type disclosed in Patent No. 894,971, or any other mechanism adapted for the purpose.

The present invention is not concerned with the method of furnishing power to drive the devices herein described, and it is not deemed necessary to refer to such power transmission mechanism in detail.

To the upper end of the shaft 66 is keyed a crank arm 68, to which is pivoted a pitman 69 provided with a turnbuckle 70 to adjust its stroke, the end of which pitman is pivoted to one arm of a pivoted bell crank lever 71, the other arm of which is coupled to the adjacent end of the swinging plate 61, by means of a link 72,—the arrangement being such that the step by step movement of the crank arm 68 in the same direction will impart a swinging back and forth movement to the plate 61, which imparts a reciprocating movement to the slide plate 58 carrying the dogs 56.

The fence fabric, as it is woven, is carried up over a primary idler drum 73, which is supported between the brackets 16 at a point directly above the curved line of coilers, over which drum the fence is carried in a straight or flattened condition, and is thereafter carried around a secondary idler drum 74, located to the rear of and below the primary idler drum and journaled between the upper rails 15 of the frame. As shown in Fig. 7, the fence is thereafter carried around a primary take-up drum 75 and a secondary take-up drum 76, which take-up drums are located below the secondary idler drum and in the same horizontal plane with one another. Primary and secondary take-up drums are eccentrically mounted upon primary and secondary shafts 77 and 78, respectively, which shafts have mounted thereon intermeshing gear wheels 79 and 80, respectively, the former of which is driven from a pinion 81 on the upper end of a vertically mounted driving power shaft 82, which is in train with suitable gearing to drive the take-up mechanism at a speed commensurate with the weaving of the fence. The primary and secondary take-up drums are oppositely disposed toward one another, as regards their eccentricity to the shafts upon which they are mounted, with the result that, as the shafts are rotated in unison with one another, the surfaces of the two drums will alternately approach toward and diverge from one another, thereby drawing up a given length of fence with each complete revolution of the take-up drums. The primary drum is in the form of a hollow cylinder, which is journaled, at each end, upon a ring-shaped flange 83 inwardly extending from one of the side arms 84 of a transversely extending crimper bar 85. The ring flanges, in turn, encircle a pair of eccentric disks 86, which are keyed or otherwise rigidly mounted upon the shaft 77. The drum 76 is also in the form of a hollow cylinder, which, however, is journaled directly upon an eccentric disk 87 carried by the shaft 78. The drum 76, on one side, is provided with a slightly elevated cam surface 88 which is adapted to engage a roller 89 journaled between ears 90 on the lower outer side of the crimper bar 85. The crimper bar carries a crimper die 91, which extends transversely of a crimper drum 92, located at the upper rear corner of the machine frame and mounted upon a crimper drum shaft 93, which is suitably driven by gearing 94. The surface of the crimper drum is provided with a plurality of V-shaped grooves 95, and this surface thus serves as a female die member in coöperating with the crimper die 91, which is of a form corresponding to the V-shape of the grooves to produce the crimp shown in the wires of Fig. 9 of the drawings.

The direction of travel of the wire is clearly indicated in Fig. 7, and after the wire leaves the crimper drum it is wound upon a reel 96, located near the lower rear side of the machine frame. The present invention is not concerned with the particular method of operating the drums, since any suitable gearing can be employed for accomplishing this result.

The operation is as follows: The strand wires are passed up through the respective coilers, over the primary and secondary idler drums, thence down under the take-up drums, thence over the crimping drum, and finally to the reel, which reel is driven in a suitable manner. The stay sections, which may all be of the same length or of varying lengths, are then deposited in the respective hoppers, after which the machine is started and a step by step or intermittent advance is imparted to the main driving gear wheel 24. The teeth of this gear wheel are in mesh with the alternate pinions 28 on the coilers, which arrangement serves to drive alternate coilers in a direction opposite to the movement of the main driving gear wheel. The intermediate coilers, being in mesh with the alternate coilers, are simultaneously revolved in opposition thereto. At the same time the link connection, between the shaft 66 and the swinging plate 61, serves to impart a back and forth oscillatory movement to the plate 61, with the result that the slide plates 58, which control the feeding movements of the feeding drums and gear wheels, will be moved back and forth during the intervals between the coiling operations. As shown in Fig. 3, the degree of this movement will be such that each reciprocation of the dog 56 will carry down three teeth on the feeding gear wheels into alinement with the upper ends of a pair of coöperating coilers. If, however, a stay section be lodged between the first and second teeth, the continued movement of the feeding gear wheels will be arrested by the abutment of the ends of the stay section against the upper ends of the coöperating coilers, so that the stay section will serve as a lock to prevent any further movement of the feeding gear wheels. In such case the friction clutch between the ratchet wheel 49 and the clutch collar 52 will simply afford the necessary slippage to permit of the full movement of the dog without further effecting the feeding operation. If, however, a stay had failed to lodge between the first and second teeth, a continued movement would be imparted to the feeding gear wheels until such stay had been brought to coiling position, and the same thing would take place if the feeding gear wheels had missed twice and had caught a stay between the third and fourth teeth. The pocketed feeding drum, which is provided with grooves or channels extending from end to end of its surface, serves as a carrier for properly positioning the ends of the stay sections between cooperating pairs of teeth in register with one another on the companion feeding gear wheels, and prevents the end of a stay from being engaged by gear teeth which are out of register with one another. The column of stays will abut bodily against the feeding drum, and their ends will be out of contact with the feeding gear wheels until the stays have been carried by the drum to the point of delivery to the feeding gear wheels, after which the stays will be lifted away from and carried forwardly in front of the inner surface of the drum. Displacement of the stays will be prevented by the guard plates 47, which overlie the feeding gear wheels down to the point of delivery of the stays against the strand wires, at which point the ends of each stay will be positioned between the strand wire and one of the coiling pins and in position for coiling, which coiling operation will take place with each step by step movement of the main driving gear wheel. Should the machine miss delivering a stay from the first tooth of the feeding gear wheels, the arrangement is one which results in a delivery some time before the coiling operation, so that the possibility of entirely skipping a stay section is practically eliminated. The take-up mechanism, which is geared to draw up the woven fence after each coiling operation, is adapted to exert a firm, even tension on every portion of the fence without subjecting the fence to any sharp jerking action, the tension being graduated up to and down from a minimum, as the eccentrically mounted take-up drums approach and recede from their maximum point of opposition to one another. In like manner the crimping bar will be alternately moved toward and away from the crimping drum in such manner as to perform the crimping operation at the points intended,—between each stay in the fence.

From the foregoing description, it will be seen that the feeding mechanism is extremely simple in construction and operation, so that the danger of mal-adjustment or breakage is reduced to a minimum, and the parts are so arranged that the danger of completely skipping a stay is practically eliminated.

What I regard as new and desire to secure by Letters Patent is:

1. In a machine for making wire fence, the combination of a coiler, a feeding device adapted, with each feeding movement, to carry a plurality of stay sections to delivering position, and friction clutch mechanism adapted to move said feeding device until one of the plurality of stay sections has been delivered to the coiler.

2. In a machine for making wire fence, the combination of a coiler, a feeding device adapted, with each feeding movement, to carry a plurality of stay sections to delivering position, mechanism for moving said feeding device until one of the plurality of stay sections has been delivered to the coiler, and a hopper for containing previously cut stay sections in position to be carried therefrom by the feeding device.

3. In a machine for making wire fence, the combination of a coiler, a feeding device adapted, with each feeding movement, to carry a plurality of stay sections to delivering position, friction clutch mechanism adapted to move said feeding device until one of the plurality of stay sections has been delivered to the coiler, and a hopper for containing previously cut stay sections in position to be carried therefrom by the feeding device.

4. In a machine for making wire fence, the combination of a coiler adapted to have a strand wire entered longitudinally therethrough, a hopper located adjacent to the coiler and adapted to contain previously cut stay sections, a pocketed feed wheel adapted to carry a stay section from the hopper and deposit it upon the coiler in position to be coiled around the strand wire, and a pocketed feed drum eccentrically mounted with respect to the feed wheel and adapted to deliver the stay sections thereto.

5. In a machine for making wire fence, the combination of a coiler adapted to have a strand wire entered longitudinally therethrough, a hopper located adjacent to the coiler and adapted to contain previously cut stay sections, a pocketed feed wheel adapted to carry a stay section from the hopper and deposit it upon the coiler in position to be coiled around the strand wire, and friction driving mechanism for the pocketed feed wheel, adapted to move one or more of the pockets past the delivering position in case the first pocket misses a stay.

6. In a machine for making wire fence, the combination of a coiler adapted to have a strand wire entered longitudinally therethrough, a hopper located adjacent to the coiler and adapted to contain previously cut stay sections, a pocketed feed wheel adapted to carry a stay section from the hopper and deposit it upon the coiler in position to be coiled around the strand wire, a pocketed feed drum eccentrically mounted with respect to the feed wheel and adapted to deliver the stay sections thereto, and friction driving mechanism for the pocketed feed wheel, adapted to move one or more of the pockets past the delivering position in case the first pocket misses a stay.

7. In a machine for making wire fence, the combination of a hopper adapted to contain previously cut stay sections, a feed drum extending across the bottom of the hopper and provided with longitudinally extending grooves or channels, a pocketed feed wheel eccentrically mounted at the end of the feed drum, in position to bring its pockets into register with the grooves or channels at a point to the rear of the point of delivery, and adapted thereafter to carry the stay sections away from the drum, and a coiler adjacent to the pocketed feed wheel, in position to have the ends of the stay sections deposited upon the end of the coiler.

8. In a machine for making wire fence, the combination of a hopper adapted to contain previously cut stay sections, a feed drum extending across the bottom of the hopper and provided with longitudinally extending grooves or channels, a pocketed feed wheel eccentrically mounted at the end of the feed drum, in position to bring its pockets into register with the grooves or channels at a point to the rear of the point of delivery, and adapted thereafter to carry the stay sections away from the drum, a coiler adjacent to the pocketed feed wheel, in position to have the ends of the stay sections deposited upon the end of the coiler, and a guard plate overlying the pocketed feed wheel immediately behind the point of delivery.

9. In a machine for making wire fence, the combination of a hopper adapted to contain previously cut stay sections, a feed drum extending across the bottom of the hopper and provided with longitudinally extending grooves or channels, a pocketed feed wheel eccentrically mounted at the end of the feed drum, in position to bring its pockets into register with the grooves or channels at a point to the rear of the point of delivery, and adapted thereafter to carry the stay sections away from the drum, a coiler adjacent to the pocketed feed wheel, in position to have the ends of the stay sections deposited upon the end of the coiler, and friction driving mechanism for the pocketed feed wheel, adapted to move one or more of the pockets past the delivering position in case the first pocket misses a stay.

10. In a machine for making wire fence, the combination of a hopper adapted to contain previously cut stay sections, a feed drum extending across the bottom of the hopper and provided with longitudinally extending grooves or channels, a pocketed feed wheel eccentrically mounted at the end of the feed drum, in position to bring its pockets into register with the grooves or channels at a point to the rear of the point of delivery, and adapted thereafter to carry the stay sections away from the drum, a coiler adjacent to the pocketed feed wheel, in position to have the ends of the stay sections deposited upon the end of the coiler, a guard plate overlying the pocketed feed wheel immediately behind the point of delivery, and friction driving mechanism for the pocketed feed wheel, adapted to move one or more of the pockets past the delivering position in case the first pocket misses a stay.

11. In a machine for making wire fence, the combination of a hopper, open at its bottom and adapted to contain previously cut stay sections, a feed drum provided with longitudinally extending grooves or channels

and located in the open end of the hopper, a feeding gear wheel at each end of the feed drum, mounted eccentrically with respect to the drum and adapted to have the pockets intermediate its teeth brought into register with the ends of the grooves or channels in the drum at a point to the rear of the point of delivery, and thereafter adapted to carry the stay section away from the drum, and a pair of coilers, each bored to permit the passage of a longitudinal strand wire, said coilers being located adjacent to the drum and intermediate the feeding gear wheels.

12. In a machine for making wire fence, the combination of a hopper, open at its bottom and adapted to contain previously cut stay sections, a feed drum provided with longitudinally extending grooves or channels and located in the open end of the hopper, a feeding gear wheel at each end of the feed drum, mounted eccentrically with respect to the drum and adapted to have the pockets intermediate its teeth brought into register with the ends of the grooves or channels in the drum at a point to the rear of the point of delivery, and thereafter adapted to carry the stay section away from the drum, a pair of coilers, each bored to permit the passage of a longitudinal strand wire, said coilers being located adjacent to the drum and intermediate the feeding gear wheels, and friction driving mechanism for the pocketed feed wheels, adapted to move one or more of the pockets past the delivering position in case the first pocket misses a stay.

13. In a machine for making wire fence, the combination of a hopper, open at its bottom and adapted to contain previously cut stay sections, a feed drum provided with longitudinally extending grooves or channels and located in the open end of the hopper, a feeding gear wheel at each end of the feed drum, mounted eccentrically with respect to the drum and adapted to have the pockets intermediate its teeth brought into register with the ends of the grooves or channels in the drum at a point to the rear of the point of delivery, and thereafter adapted to carry the stay section away from the drum, a pair of coilers, each bored to permit the passage of a longitudinal strand wire, said coilers being located adjacent to the drum and intermediate the feeding gear wheels, and intermittently operated friction driving mechanism for the pocketed feed wheels, adapted to move one or more of the pockets past the delivering position in case the first pocket misses a stay.

14. In a machine for making wire fence, the combination of a hopper, open at its bottom and adapted to contain previously cut stay sections, a feed drum provided with longitudinally extending grooves or channels and located in the open end of the hopper, a feeding gear wheel at each end of the feed drum, mounted eccentrically with respect to the drum and adapted to have the pockets intermediate its teeth brought into register with the ends of the grooves or channels in the drum at a point to the rear of the point of delivery, and thereafter adapted to carry the stay section away from the drum, a pair of coilers, each bored to permit the passage of a longitudinal strand wire, said coilers being located adjacent to the drum and intermediate the feeding gear wheels, gearing for rotating the feed drum and the feeding gear wheels, a ratchet and dog mechanism for imparting intermittent movement thereto, and a friction clutch between the ratchet and the gearing, whereby the feeding gear wheels will be moved one or more spaces past the delivering position, save when such movement is arrested by the delivery of a stay section to the coilers.

15. In a machine for making wire fence, the combination of a hopper, open at its bottom and adapted to contain previously cut stay sections, a feed drum provided with longitudinally extending grooves or channels and located in the open end of the hopper, a feeding gear wheel at each end of the feed drum, mounted eccentrically with respect to the drum and adapted to have the pockets intermediate its teeth brought into register with the ends of the grooves or channels in the drum at a point to the rear of the point of delivery, and thereafter adapted to carry the stay section away from the drum, a pair of coilers, each bored to permit the passage of a longitudinal strand wire, said coilers being located adjacent to the drum and intermediate the feeding gear wheels, gearing for rotating the feed drum and the feeding gear wheels, a ratchet and dog mechanism for imparting intermittent movement thereto, and a friction clutch between the ratchet and the gearing, whereby the feeding gear wheels will be moved one or more spaces past the delivering position, save when such movement is arrested by the delivery of a stay section to the coilers, a slide plate upon which the dog is mounted, a swinging plate adjacent to the slide plate and provided with a cam groove, and a member connected with the slide plate and entered into said cam groove, for imparting a reciprocating movement to the slide plate with each movement of the swinging plate.

16. In a machine for making wire fence, the combination of a crimping drum and two take-up drums, each eccentrically mounted and acting in opposition to one another, and adapted, with each revolution, to draw forward a given amount of fence fabric, a crimping bar co-acting with the crimping drum and provided with a roller or the like riding on one of the take-up drums, and adapted to swing toward and

from the crimping drum with each revolution of the take-up drums, substantially as described.

17. In a machine for making wire fence, the combination of a crimping drum, two take-up drums coöperating therewith, each drum mounted eccentrically and adapted to act in opposition to the other, for drawing forward a given amount of fence fabric with each revolution, a crimping bar journaled to one of the eccentrically mounted take-up drums, and adapted to oscillate on such bearing, and a roller on the crimping bar, adapted to ride on the other eccentrically mounted take-up drum, substantially as described.

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Witnesses:
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