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O. S. STURTEVANT.

MAGAZINE FOR WIRE FENCE MACHINES.

APPLICATION FILED APR. 21, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

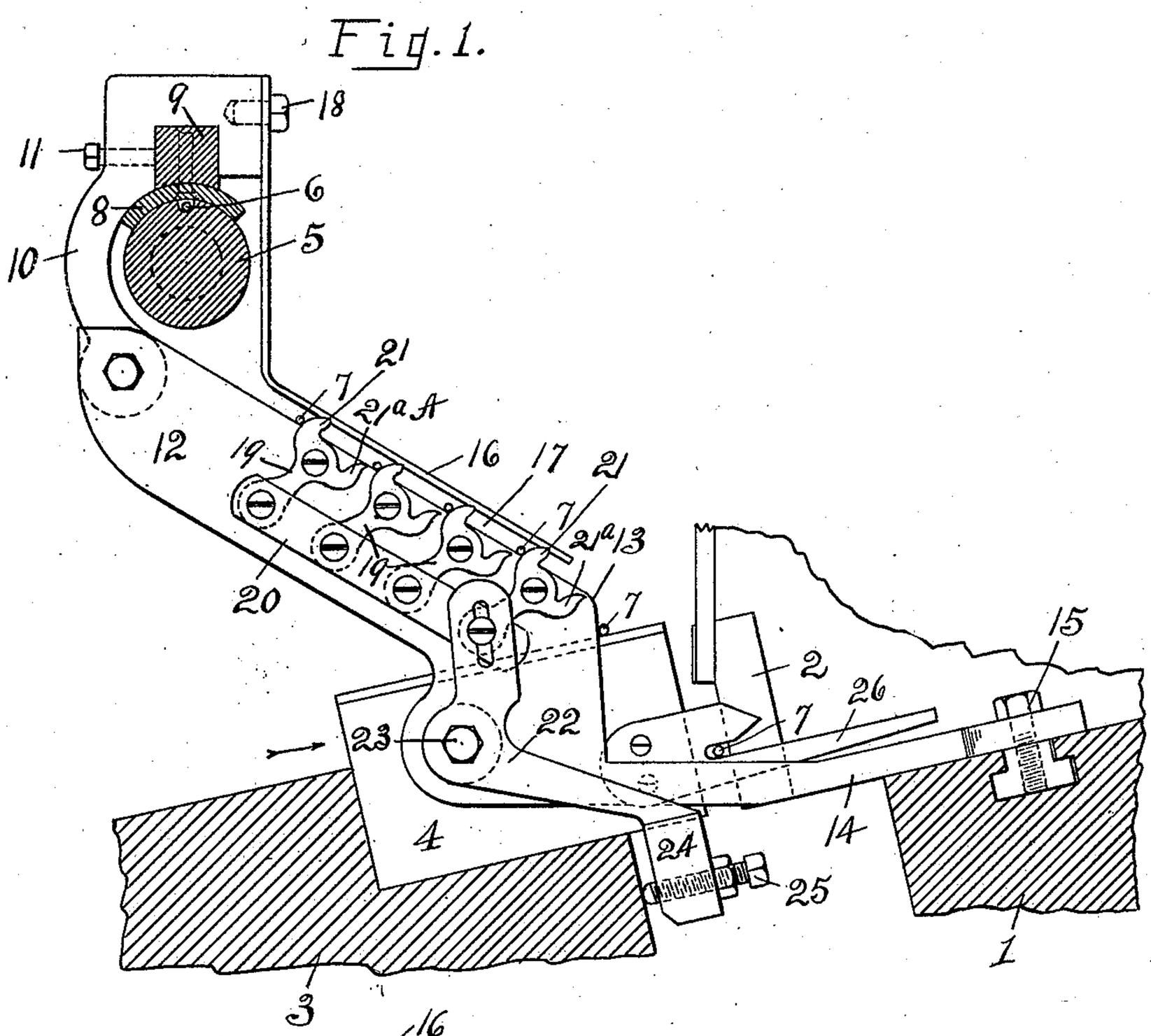
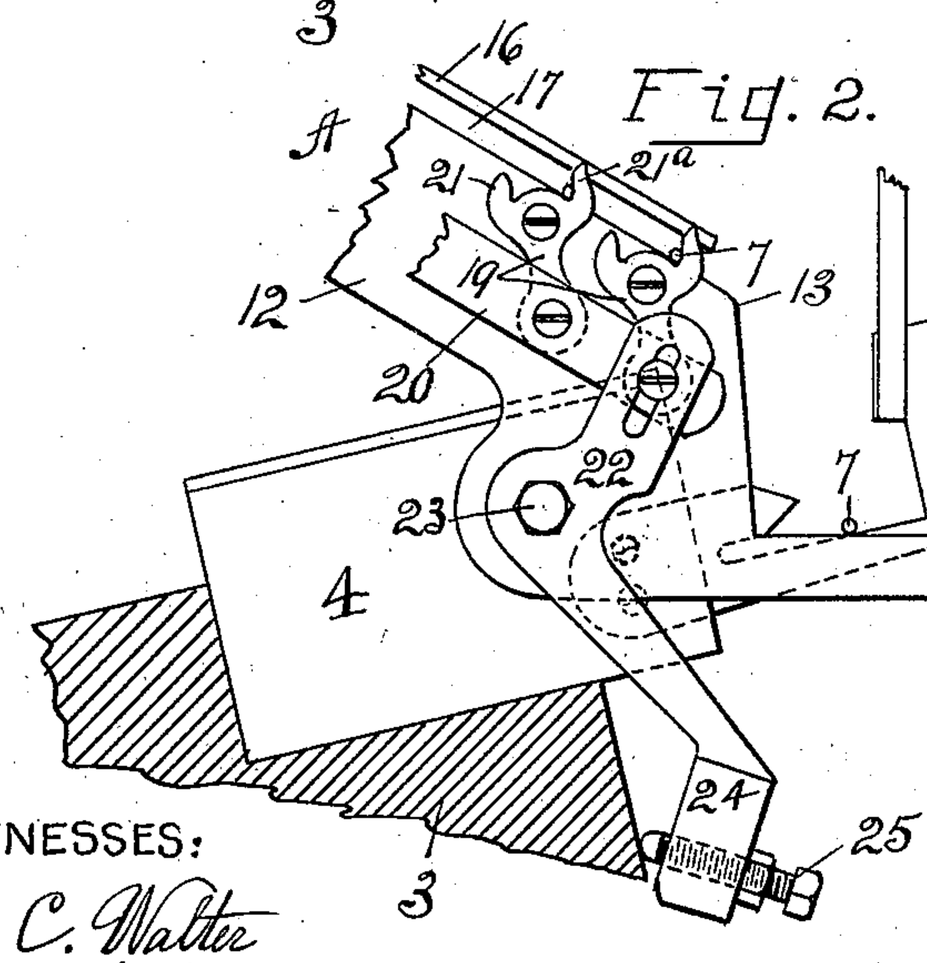


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

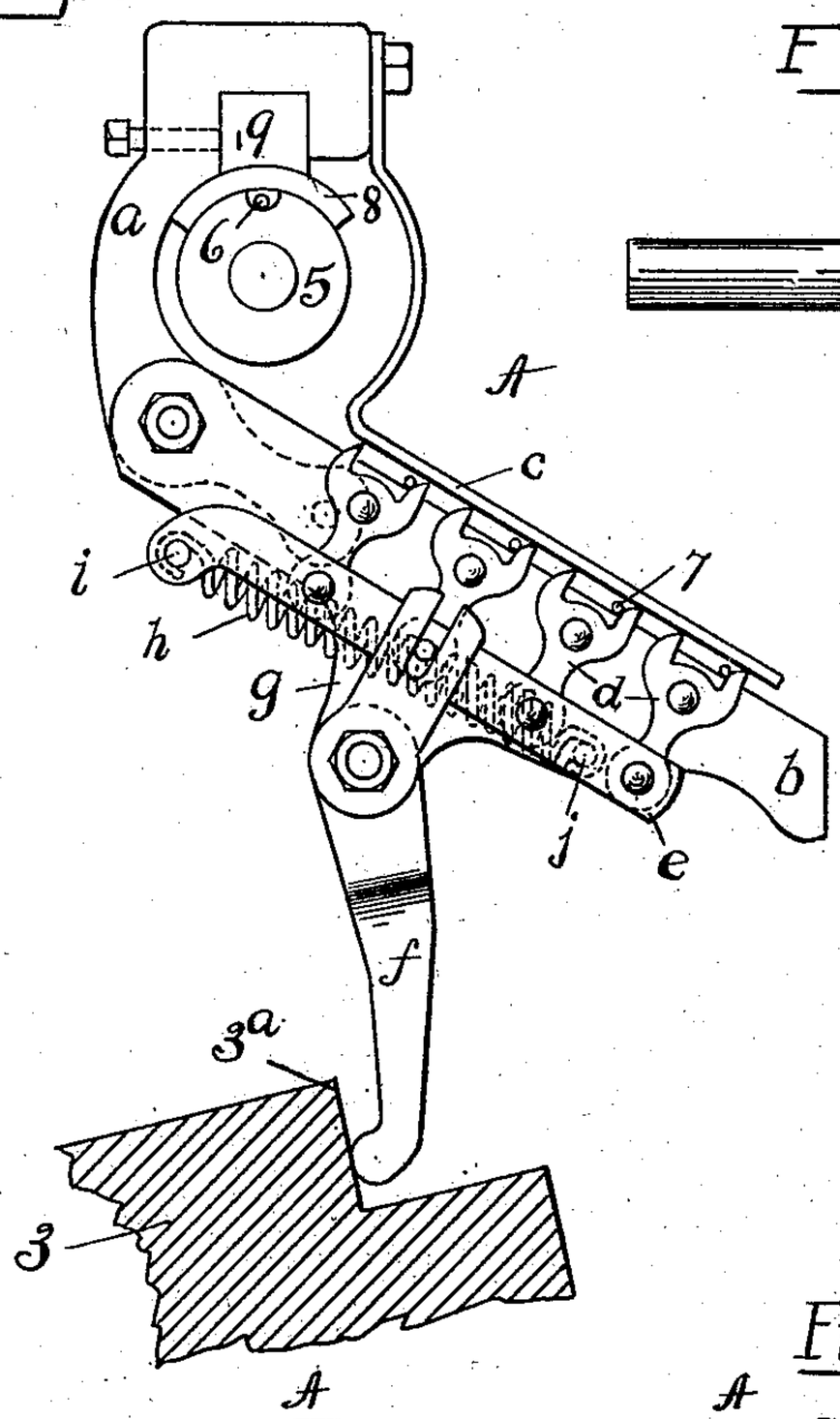


Fig. 4.

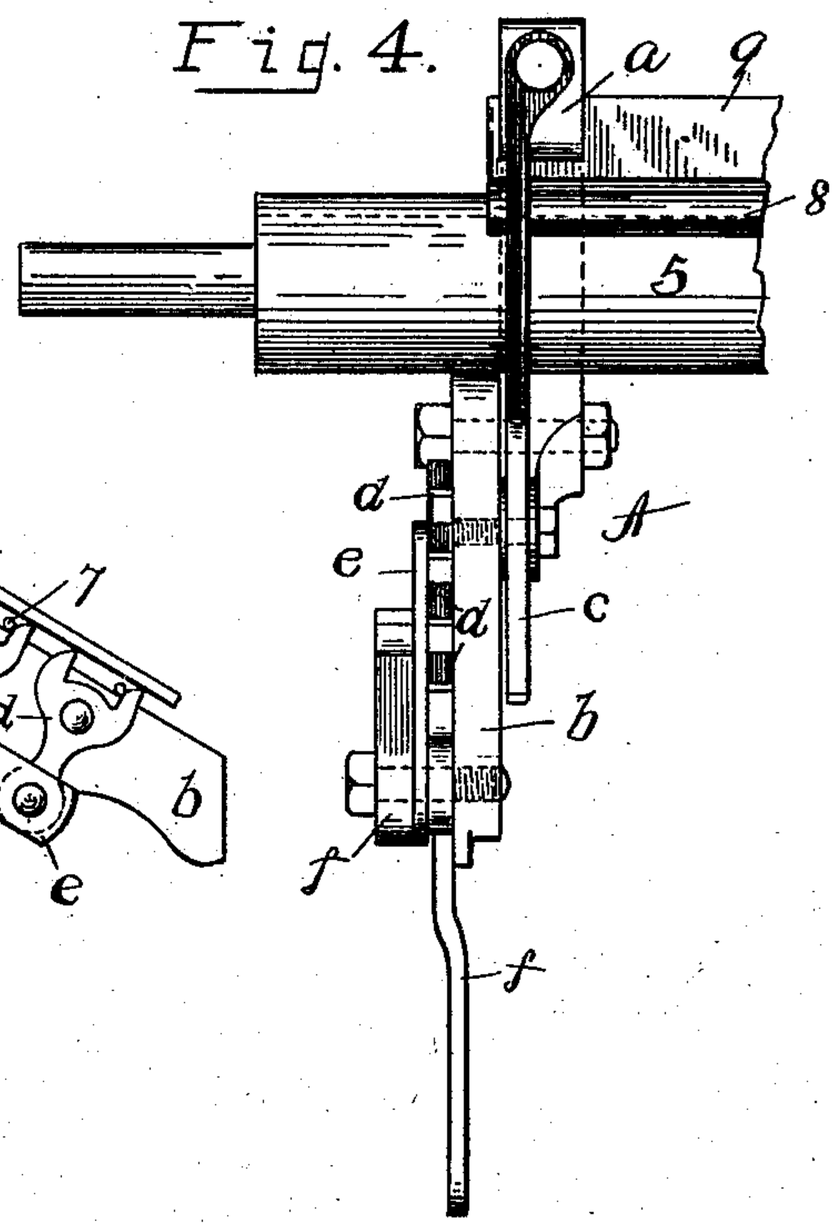
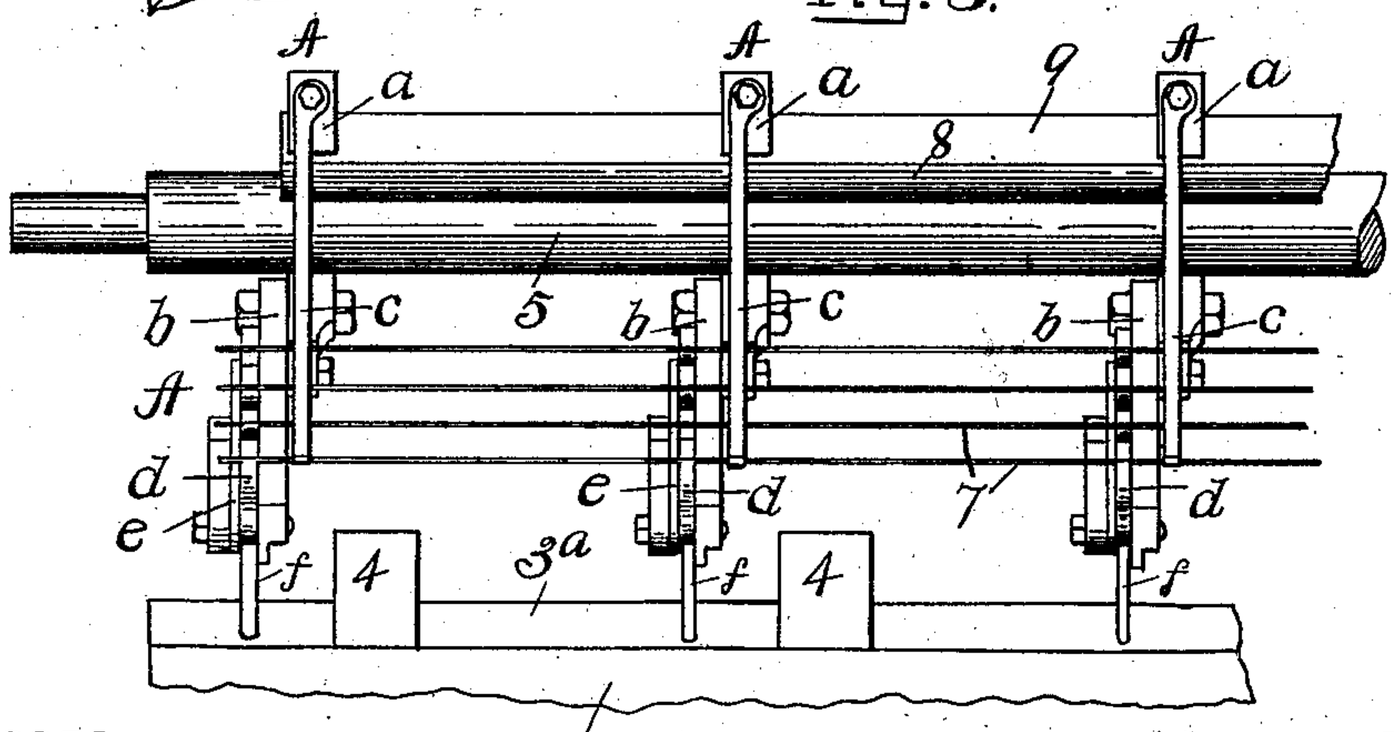


Fig. 5.



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UNITED STATES PATENT OFFICE.

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MAGAZINE FOR WIRE-FENCE MACHINES.

No. 842,980. Specification of Letters Patent. Patented Feb. 5, 1907.

Application filed April 21, 1906. Serial No. 312,978.

To all whom it may concern:

Be it known that I, ORANGE S. STURTEVANT, a citizen of the United States, and a resident of Adrian, in the county of Lenawee and State of Michigan, have invented certain new and useful Improvements in Magazines for Wire-Fence Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to looms for the manufacture of woven-wire fencing, and particularly to improvements in magazines which are employed in conjunction with the weaving parts of such machines for holding a plurality of woof or stay wires preparatory to the intermittent dropping thereof into position to be woven to the warp or line wires of the fabric.

The object of my invention is the provision of a magazine of the kind described which is constructed to carry a plurality of woof or stay wires in full view of the operator, whereby a short bent or otherwise defective wire-section may be detected and removed from the weaving parts prior to the securing thereof to the warp or line wires and a perfect one substituted therefor without necessitating the stopping of the loom, and which is also provided with improved mechanism for intermittently dropping and imparting a spaced step-by-step movement to the wires within the magazine, whereby a positive and accurate feed thereof is effected.

While the essential and characteristic features of the invention are necessarily susceptible of modification, the preferred embodiments thereof are illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my improved magazine, together with a pair of the coöperating dies and portions of the loom to which the magazine and dies are attached, with the movable parts shown in the position which they assume when the table or beam carrying the movable die is approaching its limit of forward or clenching movement. Fig. 2 is a similar view of a portion of the parts shown in Fig. 1, illustrating the relative positions of the parts when the table or beam carrying the movable dies is at its limit of rearward or opening movement. Fig. 3 is a side elevation of a slightly-modified form of the magazine with the movable parts thereof shown in intermediate position. Fig. 4 is a front elevation of the drop-shaft magazine shown in Fig. 3; and Fig. 5 is a front elevation, on a reduced scale, of a portion of a drop-shaft with a plurality of magazine parts associated therewith, together with a portion of the movable table or beam.

Referring to the drawings, 1 represents the stationary beam or table carrying the fixed dies 2 of the loom, and 3 the movable beam or table, which extends in parallelism with the beam or table 1 and carries the movable dies 4 of the loom. Disposed over the movable beam or table 3 and extending transversely of the loom is a drop-shaft 5, which is provided on its surface with one or more longitudinally-extending radially-disposed grooves into which the feed-wire 6, from which the woof or stay wire sections 7 are cut, is fed. This shaft is actuated by suitable mechanism to revolve and drop a wire-section from its groove at proper intervals, the severing of the section from its thread being effected by the revolving of the shaft past a fixed shearing part or in any other suitable manner. A segmental cap-strip 8 surmounts the shaft 5 for the purpose of covering the groove when in its normal position or during the feed of the wire therein and is carried on the under side of the cross-beam 9 of the loom.

The magazine comprising the features of my invention consists in suspending a plurality of like magazines or wire-receiving parts A in suitable spaced relation from the beam 9, whereby as the wire-sections 7 are dropped from the shaft 5 they are received by said parts and caused to be intermittently fed to the weaving parts of the loom. These wire-receiving parts each consists of a hanger-arm 10, having its upper end fashioned to hook over or engage with the beam 9, to which it is securely fastened by a set-screw 11 and its lower or pendent end extending downwardly at the rear of the shaft 5 below the plane of its under surface. This lower end of the arm 10 is either cast inte-

gral with or attached in any suitable manner to the upper end of a forwardly-extending rearwardly-inclined member 12, which has its upper surface terminating at its lower end adjacent the plane of contact of the dies 2 and 4, but slightly above the upper surfaces of the movable dies 4, as at 13. At this point the face of the member 12 extends downwardly and terminates in a forwardly-extending finger 14, which has its end bolted or otherwise secured to the table or beam 1, as at 15, for the purpose of strengthening said member. 16 represents a guide-strip which is disposed over the upper surface of the major portion of the member 12 in proper spaced relation to form a guideway 17 between it and the member 12 for the passage of the wire-sections and has its upper or rear end bent upwardly in advance of the shaft 5 and secured to the upper end of the hanger-arm 10 by a bolt or screw 18, as shown.

On one side of the inclined member 12 are mounted a plurality of oscillatory fingers or rocker-arms 19, which have their pivots disposed in a common plane, but in different horizontal planes and equidistantly spaced longitudinally of said member. These fingers have their lower or power ends pivoted in spaced relation to a common link or connecting member 20 and their free ends broadened and formed with two lips 21 and 21^a, which are suitably positioned to alternately project across the guideway 17 of the magazine as the fingers are oscillated first in one direction and then another, thus maintaining the wire-sections 7 in spaced relation therein and impeding the free passage of the wire-sections 7 therethrough.

A properly-timed oscillatory movement is imparted to the fingers 19 from the movable table or beam 3 through the medium of a bell-crank lever 22, which is pivoted at 23 to the forward end of the inclined member 12 and has one arm in sliding pivotal connection with the link 20 and its other arm projecting forwardly and formed at its end with a weighted portion 24, which extends downwardly in advance of the table or beam 3 and carries a pin or screw 25 for loose contact with the forward face of said table or beam. With this construction it will be apparent that the lever 22 will be oscillated in one direction by the forward movement of the table or beam 3 and in the other direction by gravity, due to the lowering of its weighted end as the table or beam 3 recedes.

26 represents a finger which is secured to one of the dies 2 4 and is of suitable length to span the space between the coacting faces of said dies when in open position whereby to support and hold a woof or stay wire 7 in proper position to be secured to the warp or line wires of the fabric, as is common in machines of this class.

In Figs. 3, 4, and 5, which illustrate a slightly-modified construction of the invention, *a* represents the hanger-arm; *b*, the inclined member, which is shown as being supported solely by the hanger-arm, as it does not have its forward end secured to the fixed table or beam of the loom; *c*, the upper guide-strip; *d*, the oscillatory fingers; *e*, the link connecting the fingers *d*, and *f* the operating-lever, which is fulcrumed to a boss or ear *g* on the under side of the member *b* and has its upper end in sliding pivotal connection with the link *e* and its lower end disposed in the path of movement of the shoulder 3^a, which extends the length of the movable table or beam 3. With this construction the lever *f* has its movement actuated in one direction by the advancing movement of the table or beam 3 and in the other direction by the coiled contraction-spring *h*, which has one end attached to the link *e*, as at *i*, and its other end attached to the inclined member *b*, as at *j*.

In practice a suitable number of the magazine parts A are secured in spaced relation along the beam 9, with their suspended ends projecting between the paths of movement of the dies 4 on the table or beam 3. The magazine is usually filled with wire-sections 7 in the first instance by hand by the placing of a section above the same lip 21 21^a of each finger 19, as shown in Figs. 1 and 2, it being understood, of course, that the same wire-section is in like engagement with the same finger of each magazine part of the series. In Fig. 1 the movable table or beam 3 is shown as nearing its limit of forward movement with a wire-section disposed between the coacting faces of the dies in position to be secured to the warp or line wires of the fabric, a wire-section disposed on the upper surface of the die 4 in advance of the end of the inclined member 12, and a wire-section disposed above the lip 21 of each finger 19. On each receding or rearward movement of the table or beam 3 the wire-section which rests on the dies 4 is caused to drop between the coacting faces thereof, due to the rearward movement of the dies, and be supported by the fingers 26, and the fingers 19 on the inclined members 12 are caused to oscillate in the proper direction to reverse the positions of the lips 21 and 21^a of each finger 19, so that the latter obstruct the passage-way through the magazine instead of the former, as shown in Fig. 2, thus releasing the wire-sections from the lips 21 and permitting them to fall to engagement with the lips 21^a of the fingers 19. As the table or beam 3 moves forward the positions of the lips 21 and 21^a of the fingers 19 are again reversed, so that the wire-sections are released from the lips 21^a and fall to the lips 21 next below, while the lowermost section drops upon the dies 4. These operations are repeated during the running of the loom. As the lower-

most wire is released from the lower end of the magazine a new wire is deposited therein, due to the revolving of the shaft 5 and the dropping of the freshly-cut wire-section therefrom, thus maintaining the magazine in constantly replenished condition.

It will be apparent with my construction of magazine that one or more of the fingers or rocker-arms 19 may be employed, as the operator may desire, that the wire-sections carried thereby are in full view of the operator, so that a defective section may be perceived and removed before it has been woven to the fabric and a perfect one substituted therefor, and that a positive and accurate feed of the sections from the magazine to the weaving parts of the loom is accomplished.

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

1. In a magazine, a wire-receiving part, an oscillatory element having fixed projections for imparting an intermittent movement to the wires passing through the magazine when the element is oscillated, and means for oscillating said element.

2. The combination with the inclined way of a magazine, of an oscillatory member having two spaced fingers fixedly projecting therefrom and formed with rounded upper surfaces, and means for oscillating the member to cause the fingers to alternately obstruct the passage-way through the magazine.

3. The combination with the inclined way of a magazine, of an oscillatory member having one end provided with spaced projections which alternately obstruct the passage-way in the magazine when the member is oscillated, and means having connection with the other end of said member for effecting a movement thereof.

4. A magazine comprising an inclined guide adapted to receive and direct the cross-wires, means for placing the wires into the upper end of the guide, oscillatory members associated with said guide and having a plurality of spaced projections which are provided with rounded wire-engaging surfaces and alternately lie in the path of movement of the wires as the members are oscillated, and means for imparting a like simultaneous movement to all the members.

5. In a magazine, a wire-receiving part, a plurality of oscillatory members associated therewith and having portions projecting in the path of movement of the wire-sections therethrough, and means for effecting a like simultaneous movement of said members whereby the wire-sections are caused to intermittently drop from one to the other thereof.

6. In a magazine, an inclined wire-receiving part, a series of sets of oscillatory members arranged in the plane of incline of said part and each being fashioned to twice interrupt the feed of the wire-sections through the part at spaced points therein as the member is oscillated, and means for imparting like simultaneous movements to said members.

7. The combination with a magazine for holding a plurality of sections of wire, of a plurality of elements disposed in spaced relation along the inclined way thereof for the purpose of maintaining the wire-sections in spaced relation during their passage through the magazine, said elements being capable of like movements in unison to effect a dropping of the wire-sections from one to the other thereof, and means for imparting movement to said members.

8. The combination with a magazine for holding a plurality of wire-sections, of a plurality of oscillatory members each having spaced portions disposed in different horizontal planes along the inclined way thereof in position to impede the progress of the wire-sections therethrough, and means for oscillating the fingers in unison to permit a movement of the sections from one to the other of said portions and members.

9. In a wire-fence loom, the combination with the drop-shaft and inclined way for receiving and directing the course of the wire-sections dropped from the shaft, of a plurality of rocker members disposed intermediate said shaft and the discharge end of the way, said members each being formed with spaced portions which operate to maintain the wire-sections in spaced relation during a considerable portion of their distance of travel through the way and cause them to have a step-by-step movement, and means for rocking said members.

10. The combination with a magazine for holding a plurality of wire-sections, and a source of supply therefor, of rocker-arms having lips fixedly projecting therefrom in position to alternately cross the path of movement of the wire-sections when the arms are rocked, whereby the wire-sections have a spaced step-by-step movement through the magazine, and means for rocking said arms.

11. In a magazine, the combination with an inclined way, of a plurality of rocker-arms arranged in different horizontal planes and having portions projecting therefrom in position to alternately cross the passage through the inclined way when the arms are rocked, whereby to cause an object to have a step-by-step movement during its passage through the way, a member connecting all of said rocker-arms to cause them to rock in unison, and means for imparting a reciprocal movement to the member.

12. The combination with the inclined magazine of a wire-fence machine, of a plurality of rocker members disposed in differ-

ent horizontal planes along the way thereof, said members having one end formed with projections for alternately obstructing the passage-way through the magazine when the members are rocked, and means for rocking the members.

13. The combination with a source of wire-supply, of a plurality of inclined spaced wire-receiving parts combining to form a magazine, a plurality of fingers associated with each of said parts and movable to effect a step-by-step movement to the wire-sections passing through the magazine, said fingers each having spaced wire coacting parts.

14. The combination with a drop-shaft, of a magazine associated therewith and comprising a plurality of spaced wire-receiving parts, a series of rocker-arms carried by each part for imparting a step-by-step movement to the wires passing therethrough, each rocker-arm having spaced wire coacting parts, a member connected to each series of arms and movable to effect a simultaneous movement thereof, and means for imparting a like simultaneous movement to all of said members.

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

ORANGE S. STURTEVANT.

Witnesses:

ANNA NOONE,

E. H. GRIFFIN.