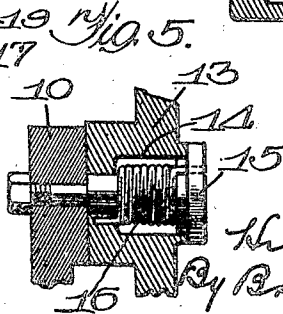
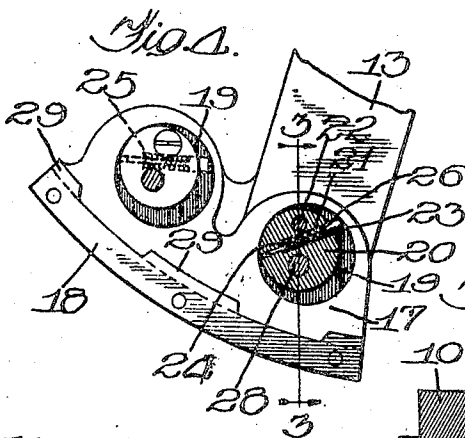
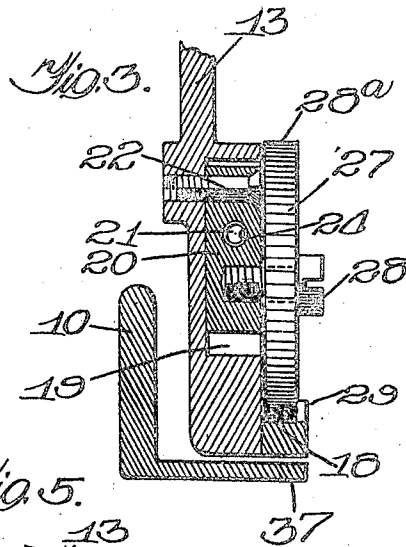
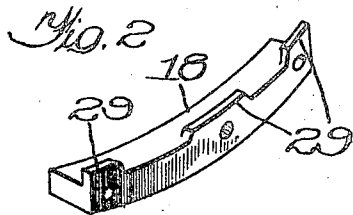
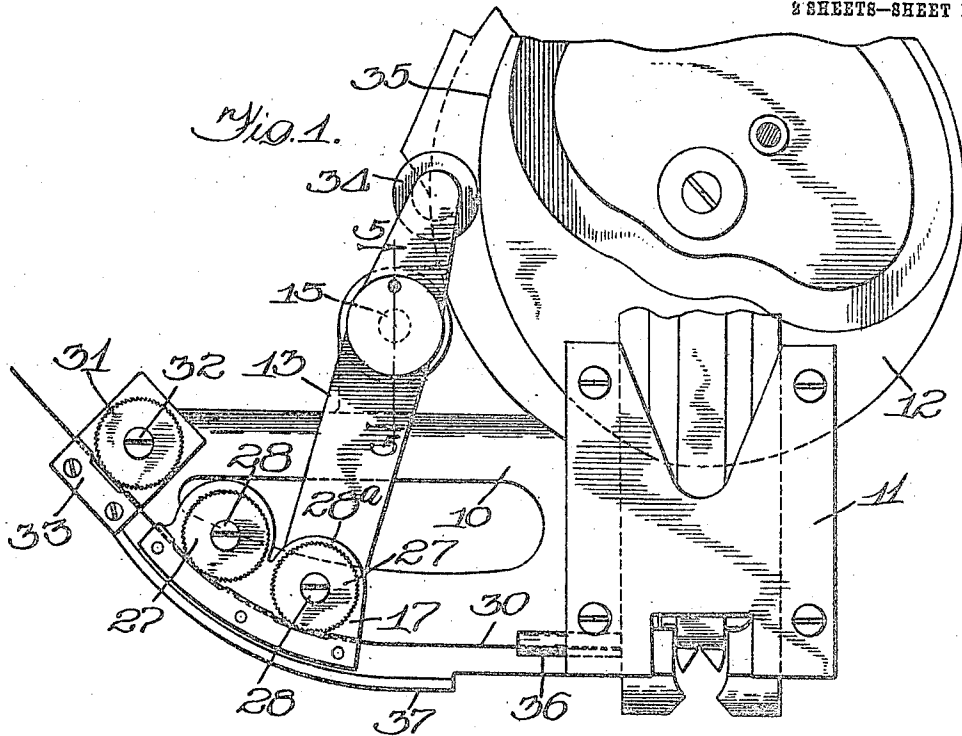


H. WEBER.
WIRE FEEDING MECHANISM FOR STAPLING MACHINES.
APPLICATION FILED JULY 7, 1908.

958,201.

Patented May 17, 1910.

2 SHEETS—SHEET 1.



Witnesses:
G. V. Douglas Jr.
E. O. Johnson Jr.

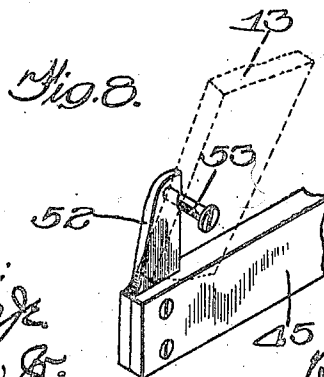
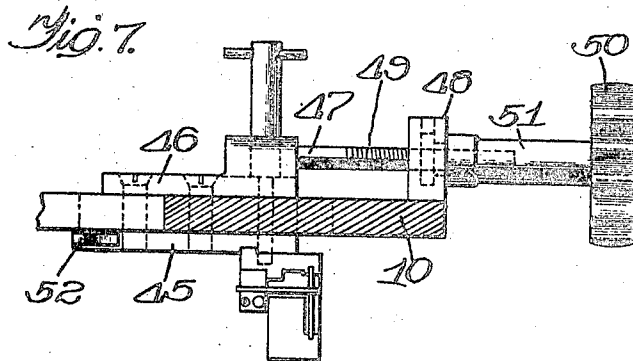
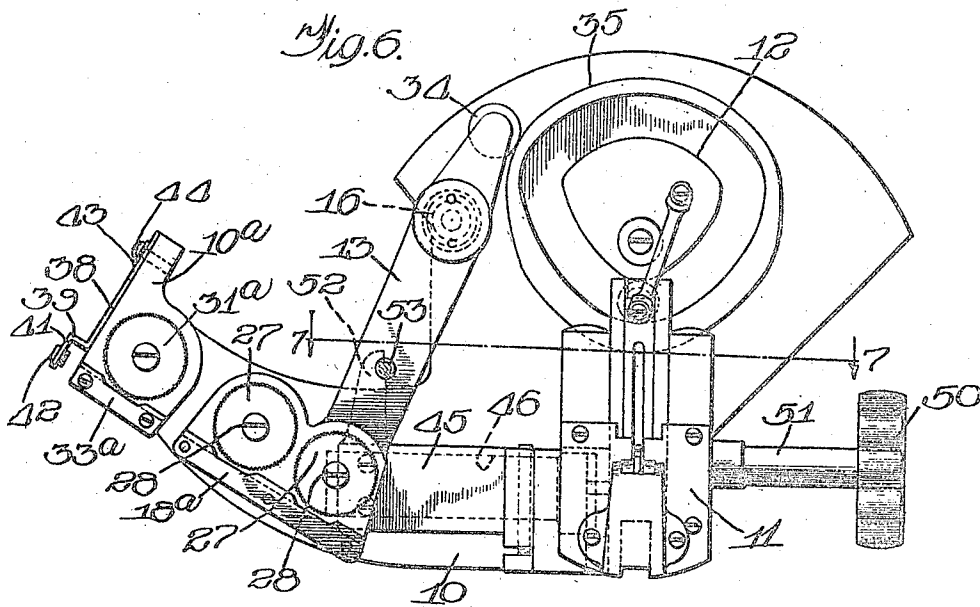
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

HENRY WEBER, OF CHICAGO, ILLINOIS, ASSIGNOR TO LATHAM MACHINERY COMPANY,
OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

WIRE-FEEDING MECHANISM FOR STAPLING-MACHINES.

958,201.

Specification of Letters Patent. Patented May 17, 1910.

Application filed July 7, 1908. Serial No. 442,263.

To all whom it may concern:

Be it known that I, HENRY WEBER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Wire-Feeding Mechanism for Stapling-Machines, of which the following is a specification.

This invention relates to improvements in wire feeding mechanism for stapling machines, and more particularly to that type of machines in which the wire is intermittently fed into the machine, and cut off into suitable lengths, formed into staples, and driven through the material which it is desired to stitch, and clenched on the other side of the material, and the primary object of the invention is to provide improved means for gripping the wire to feed the same to the forming mechanism, and one in which the operating mechanism of the gripping members will be incased and protected.

A further object is to provide improved means for removing the bend from and straightening the wire after it leaves the spool or reel from which it is supplied and before it is fed to the forming mechanism.

A further object is to provide an improved device of this character which will be simple and durable in construction and effective and efficient in operation.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings illustrating the embodiment of the invention, and in which—

Figure 1 is a detail front elevation of a portion of a stapling mechanism with parts removed, and showing an improved feeding mechanism applied thereto, constructed in accordance with the principles of this invention. Fig. 2 is a detail perspective view of the support on the feed lever over which the wire passes. Fig. 3 is an enlarged detail sectional view on line 3—3 of Fig. 4. Fig. 4 is a detail elevation with parts removed of a portion of the feed lever showing the supports for the gripping members. Fig. 5 is a detail sectional view on line 5—5 of Fig. 1. Fig. 6 is a front elevation similar to Fig. 1 of a modified form of the

invention. Fig. 7 is an enlarged detail sectional view on line 7—7 of Fig. 6, with parts of the mechanism removed. Fig. 8 is an enlarged detail perspective view of the adjustable stop for limiting the movement of the feed lever in one direction.

Referring more particularly to the drawings and in the exemplification of the invention shown in Fig. 1 of the drawings, the numeral 10 designates a portion of a suitable support for the mechanism, 11 designates generally a suitable forming and driving mechanism, and 12 an operating cam for a staple forming mechanism which is rotatably mounted upon the support 10 and is adapted to be rotated from any suitable source. All of the above parts may be of any ordinary construction and form no part of the present invention.

A feed lever 13 is provided with a tubular portion 14 intermediate its ends as shown more clearly in Fig. 5 of the drawings. This lever is pivotally mounted upon the support 10 by means of a suitable axle 15 passing through the tubular portion 14 and into the support. Surrounding the axle 15 is a suitable coiled spring 16, one end of which is secured to the axle 15 and the other end is secured to a portion of the lever 13. The lower end of the lever is preferably enlarged, as at 17, and secured to the enlargement 17 is a support 18 over which the wire is adapted to pass. The enlargement 17 of the lever 13 is provided with a plurality of recesses 19 opening through one face of the enlargement, preferably the front face. Any number of these recesses may be provided, according to the number of gripping members desired to be used, and in the present exemplification of the invention the enlargement is provided with two recesses to accommodate two gripping members.

Eccentrically mounted within each of the recesses 19 is a disk 20 which is of a diameter somewhat less than the diameter of the recesses 19. These disks are provided with apertures 21 passing therethrough in a direction transversely of the pivot 22 thereof. This pivot 22 may be formed in any suitable manner, but is preferably in the form of a screw or bolt passing transversely through the disk 20 and into the lever 13 by means of which the disk may be removably and pivotally held in position. The disks 20 are of a thickness substantially

equal to the depth of the respective recess and located within the aperture 21 is a plunger 23 which is normally held projected beyond the periphery of the disk 20 by means of a suitable elastic member 24, such as a coiled spring or the like, one extremity of which rests upon a suitable shoulder 25 formed in the aperture 21, and the shoulder 26 formed on the plunger 23. A gripping member 27 having a milled periphery 28^a is secured to the disk 20 in any desired or suitable manner, preferably by means of a fastening bolt 28, and upon which bolt the gripping member 27 is adapted to be rotated. The pivot bolt 28 of the gripping member 27 is preferably located beyond the diametric center of the recess 19 and the member 27 is of a diameter such that a portion of the periphery thereof will normally stand adjacent the support 18, and this support 18 is provided with upwardly projecting lips 29 which are adapted to stand adjacent the outer face of the gripping member 27, as shown more clearly in Fig. 3 of the drawing. With this improved construction and manner of mounting the gripping member, it will be apparent that the latter may be rotated about its axis 28 and may be also bodily adjusted to move the supporting disk 20 about its pivot 22 and thereby permit the gripping member to yield when the feed lever 13 is moved in one direction to obtain a fresh grip upon the wire 30. The support 18 is of a width substantially equal to the width of the periphery of the gripping member 27, so as to insure a positive gripping of the wire as the latter passes over the support. The two gripping members 27 which are mounted upon the enlargement 17 of the feed lever 13 are arranged to operate in unison, that is, to operate to grip the wire when the feed lever 13 is moved toward the forming mechanism 11 to advance the wire, or from the position shown in Fig. 1 of the drawings, and to yield to permit the gripping members to slide over the wire when the lever is moved back into the position shown in Fig. 1. A similar gripping member 31 is rotatably supported by means of the pivot bolt 32 on the support 10, and a cooperating wire support 33 is arranged adjacent the gripping member 31. This gripping member 31, together with its supporting disk 20, is similar in construction to the gripping members 27 and their supporting disks, with the exception that the gripping member 31 is fixed with relation to the gripping members 27 and is arranged to operate in the opposite direction from the gripping members 27, that is, when the wire 30 passes over the support 33 and below the gripping member 31 during the forward movement of the feed lever 13, the gripping member 31 will yield to permit the wire to be fed to the machine,

whereas the gripping members 27 will be clamped against the wire to cause it to advance. When the feed lever 13 is moved in the opposite direction to obtain a new grip upon the wire, the gripping member 31 will clamp the wire upon the support 33 to prevent a retrograde movement of the wire while the gripping members 27 will yield to permit the feed lever 13 to move the gripping members backwardly upon the wire to obtain a new grip. This operation will be continued as long as the feed lever 13 is reciprocated about its pivot bolt 15.

Any suitable means may be provided for reciprocating the lever 13, such, for instance, as an anti-friction roller 34 which is journaled to the free end of the lever and which has engagement with a cam surface 35 on the cam 12. The yielding member 16 will tend to hold the anti-friction roller 34 in engagement with the cam surface 35, and as the latter is rotated, the lever will be moved against the tension of the yielding member 16 to advance the wire.

By providing the spaced gripping members 27 upon the feed lever, it will be apparent that a substantial purchase will be obtained on the wire to advance the same through the guide tube 36 of the forming mechanism, and these spaced gripping members 27 will also serve to straighten the wire and to remove the bend which is created therein by means of the wire being wound upon a supply spool. If desired, the support 10 may be provided with a protecting shield 37 in the form of a laterally projecting flange which extends below the enlarged end 17 of the feed lever 13. In the exemplification shown in Figs. 1 to 4, the support 18 is shown as being struck on an arc described from the pivot of the lever 13, and the shield 27 may be also arranged on an arc of a larger radius, struck from the same center to permit the free oscillation of the enlarged end 17 of the lever.

In the exemplification of the invention shown in Fig. 6 of the drawings, the support 18^a is straight, and arranged adjacent the fixed gripping member 31^a is a wire straightener 38 which preferably comprises a body portion having an offset portion 39 and a deflected extremity 41 provided with a bearing 42 through which the wire 30 is adapted to pass as it is advanced by the feed lever. The member 38 is adapted to rest against the edge of a support 10^a adjacent the gripping member 31^a, so that the deflected extremity 41 will be spaced from the support 33^a, and the free extremity of the member is provided with a slot 43 through which a fastening device 44 is adapted to pass and which engages the support 10^a, so that the member 38 may be adjusted so as to shift the bearing 42 with respect to the supporting surface of the sup-

port 38^a to form an additional bearing surface over which the wire is adapted to pass to remove the kinks or bends in the wire. With this exemplification of the invention, it will be seen that when the feed lever 13 is in the position shown in Fig. 6 of the drawings, the upper surface of the supports 33^a and 18^a will form a straight line to receive the end of the wire and when the lever 13 is advanced the gripping members 27 will clamp the wire upon the straight surface and will advance the same to the stapling mechanism 11, so that the extremity of the wire will be directed in a proper position into the stapling mechanism.

In the exemplification of the invention shown in Figs. 6, 7 and 8, there is provided suitable means for regulating the movement of the feed lever 13 in one direction, which means preferably comprise a member 45 adjustably mounted upon the support 10, which latter is provided with a suitable slot through which a portion 46 of the member projects, and the lever of the support 10. An adjusting screw or bolt 47 is connected by one extremity to the portion 46 of the member 45, and the free extremity thereof projects through a suitable bearing 48 on the rear of the support 10, and is provided with screw threads 49. An operating handle or wheel 50 is provided with a shank 51 having internal screw threads (not shown) and into which the threaded extremity of the bolt 47 is adapted to project so that the threads will have engagement with the threads in the tubular shank 51 of the operating wheel 50 whereby the rotation of the wheel 50 will cause the member 45 to be adjusted with respect to the forming mechanism 11, and this handle 50 may be held in a fixed position in any desired or suitable manner not necessary to illustrate. The member 45 on the face of the support adjacent the feed lever 13 is provided with a projection or lug 52 which stands within the path of movement in one direction of a lug or extension 53 on the feed lever 13, so that when the anti-friction roller 34 on the free end of the feed lever 13 is forced against the cam face 35 of the cam 12 by means of the elastic member 16, the lug 53 on the lever will engage the projection or lug 52 on the member 45. It will therefore be apparent that when the wheel 50 is rotated to adjust the member 45, the lug or projection 52 will also be adjusted with respect to the staple forming mechanism, thereby varying the position of the lug so that the latter will be engaged at different times by the lug 53 on the lever 13 according to the position of the lug.

With this improved construction of feeding mechanism it will be apparent that all of the operating or controlling parts of the gripping members will be incased and fully protected, the gripping members serving as

closures for the recesses in which the controlling members therefor are located, and it will also be apparent that the controlling parts for the gripping members cannot be adjusted or interfered with without removing the gripping members, and even though an inexperienced operator may adjust the bolt or supporting pivot 28, 32 of the respective gripping members, it will be apparent that such adjustment will not dislocate or damage the controlling parts.

When the gripping members are moved to permit the wire 30 to pass, the supporting disk 20 will be moved about its pivot 22 so that the free extremity of the plunger 23 will be forced against the wall of the recess in which the respective disk is located, and a further movement of the gripping member in the same direction will tend to force the plunger within the disk and against the tension of the elastic member 24, so that when the gripping member has been adjusted and the feed lever starts to move in the opposite direction, the elastic member 24 will expand to force the disk 20 about its point of pivot support in the opposite direction to cause the periphery of the gripping member to forcibly engage the wire and clamp the same upon the support which coöperates with the gripping member.

Any desired number of gripping members 27 may be mounted upon the enlarged portion 17 of the feed lever 13, but in the present exemplification of the invention, two only of such members are shown, which are arranged in tandem and in the same plane.

In order that the invention might be fully understood the details of the foregoing embodiment thereof have been thus specifically described, but

What I claim as new is:

1. In combination in a wire stitching machine, a support over which the wire is adapted to be drawn, a gripper member co-operating with the support for holding the wire against retrograde movement and to permit the wire to freely pass in one direction, means for drawing the wire over the support, said means including an extended support for the wire, and spaced gripper members arranged in tandem and coöperating with the support for holding the wire, said gripper members being adapted to simultaneously grip the wire when the said drawing means is moved in one direction, and to simultaneously release the wire when moved in the opposite direction, means for imparting motion to the last said means, and adjustable means for limiting the movement of the said drawing means in one direction.

2. In combination in a wire stitching machine, a wire gripper comprising a member, a wire support on the member and over which the wire is adapted to pass, a support

eccentrically mounted on the member, a gripping member mounted upon the said eccentric support and adapted to cooperate with the wire support, and elastic means for

5 shifting the said eccentric to cause the gripping member to grip the wire when the first said member is moved in one direction, and to yield when the member is moved in the opposite direction.

10 3. In combination in a wire stitching machine, a wire gripper comprising a member, a wire support on the member and over which the wire is adapted to pass, said member being provided with a recess opening

15 through the face thereof, a disk eccentrically mounted within the recess, a gripping member supported by the said disk and cooperating with the said support, said disk being adapted to be shifted by the gripping

20 member to cause the member to grip the wire when the first said member is moved in one direction and to yield when the member is moved in the opposite direction, and elastic means supported by and projecting

25 beyond the periphery of the disk for controlling the movement of the disk in one direction.

4. In combination in a wire stitching machine, a wire gripper comprising a member,

30 a wire support on the member and over which the wire is adapted to pass, said member being provided with a recess opening through the face thereof, a disk eccentrically mounted within the recess, a gripping member supported by the said disk and cooperating with the said support, said disk being adapted to be shifted by the gripping member to cause the member to grip the wire when the first said member is moved

40 in one direction and to yield when the member is moved in the opposite direction, and elastic means supported by and projecting beyond the periphery of the disk for controlling the movement of the disk in one

45 direction, said gripping member being of a diameter greater than the diameter of the said recess to form a closure therefor for inclosing the said disk.

5. In a wire stitching machine, a wire gripper comprising a main supporting member, a wire support on the member and over which the wire is adapted to pass, said member being provided with an open recess, a disk eccentrically mounted within the recess

55 and being of a smaller diameter than the diameter of the recess, a gripping member supported by the disk and cooperating with the wire support, and yielding means supported by the disk and projecting beyond the periphery thereof, said gripping member being adapted to grip the wire when the main supporting member is moved in one direction and to release the wire and shift the disk to cause the said yielding means to

65 be forced into engagement with the wall of

the recess to create a tension upon the said yielding means to move the disk in the opposite direction.

6. In combination in a wire stitching machine, a wire gripper comprising a main supporting member, a wire support on the member and over which the wire is adapted to pass, said member being provided with an open recess, a disk eccentrically mounted within the recess and being of a smaller

75 diameter than the diameter of the recess, a gripping member supported by the disk and cooperating with the wire support, a member mounted upon the disk for movement transversely with respect to the pivot thereof, and elastic means disposed between said member and the disk for normally holding the member projected beyond the periphery of the disk, said gripping member being adapted to grip the wire when the main support is moved in one direction and to release the wire and shift the disk to force the said member upon the disk against the wall of the recess and against the tension of the said elastic means.

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7. A wire gripper including a main support, a wire support thereon, said main support being provided with an open recess, a disk having a smaller diameter than the diameter of the recess, means for removably and eccentrically mounting the disk within the recess, yielding means supported by the disk and projecting beyond the periphery thereof, said yielding means being normally held out of engagement with the wall of the recess, and a gripping member mounted upon the disk and cooperating with the wire support whereby the said gripping member will grip the wire when moved in one direction and will yield when moved in the opposite direction, the extremity of the said yielding means being adapted to be forced against the wall of the recess whereby a tension will be created upon said yielding means when the gripping member is moved in one direction.

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8. A wire gripper including a main support, a wire support thereon, said main support being provided with an open recess, a disk having a smaller diameter than the diameter of the recess, means for removably and eccentrically mounting the disk within the recess, yielding means supported by the disk and projecting beyond the periphery thereof, said yielding means being normally held out of engagement with the wall of the recess, and a gripping member mounted upon the disk and cooperating with the wire support whereby the said gripping member will grip the wire when moved in one direction and will yield when moved in the opposite direction, the extremity of the said yielding means being adapted to be forced against the wall of the recess whereby a tension will be created upon said yielding

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means when the gripping member is moved in one direction, said gripping member forming a closure for the recess to conceal the said disk and being adjustable with respect to said disk.

9. In combination in a wire stitching machine, a support over which the wire is adapted to be drawn, a gripper member cooperating with the support for holding the wire against retrograde movement and to permit the wire to freely pass in one direction, means on one side of the support for drawing the wire over the support, said means including a support for the wire, a plurality of gripping members spaced longitudinally from each other and cooperating with the support to grip the wire when the said drawing means is moved in one direction and to yield to release the wire when moved in the opposite direction, means for imparting movement to the last said means, and means on the other side of the first said support for deflecting the wire at a point adjacent and with respect to the support.

10. In combination in a wire stitching machine, a support over which the wire is adapted to be drawn, a gripper member cooperating with the support for holding the

wire against retrograde movement and to permit the wire to freely pass in one direction, means on one side of the support for drawing the wire over the support, said means including a support for the wire, a plurality of gripping members spaced longitudinally from each other and cooperating with the support to grip the wire when the said drawing means is moved in one direction and to yield to release the wire when moved in the opposite direction, means for imparting movement to the last said means, a member on the other side of the support provided with an aperture through which the wire passes, means for adjustably and pivotally supporting the member adjacent the support, and means for securing the member in its adjusted position to deflect the wire at a point adjacent and with respect to the support.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 27th day of June A. D. 1908.

HENRY WEBER.

Witnesses:

J. H. JOCHUM, Jr.,
C. H. SEEM.