

J. P. WEIS.
 STITCH FORMING MECHANISM.
 APPLICATION FILED JUNE 5, 1903.

991,917.

Patented May 9, 1911.

2 SHEETS—SHEET 1.

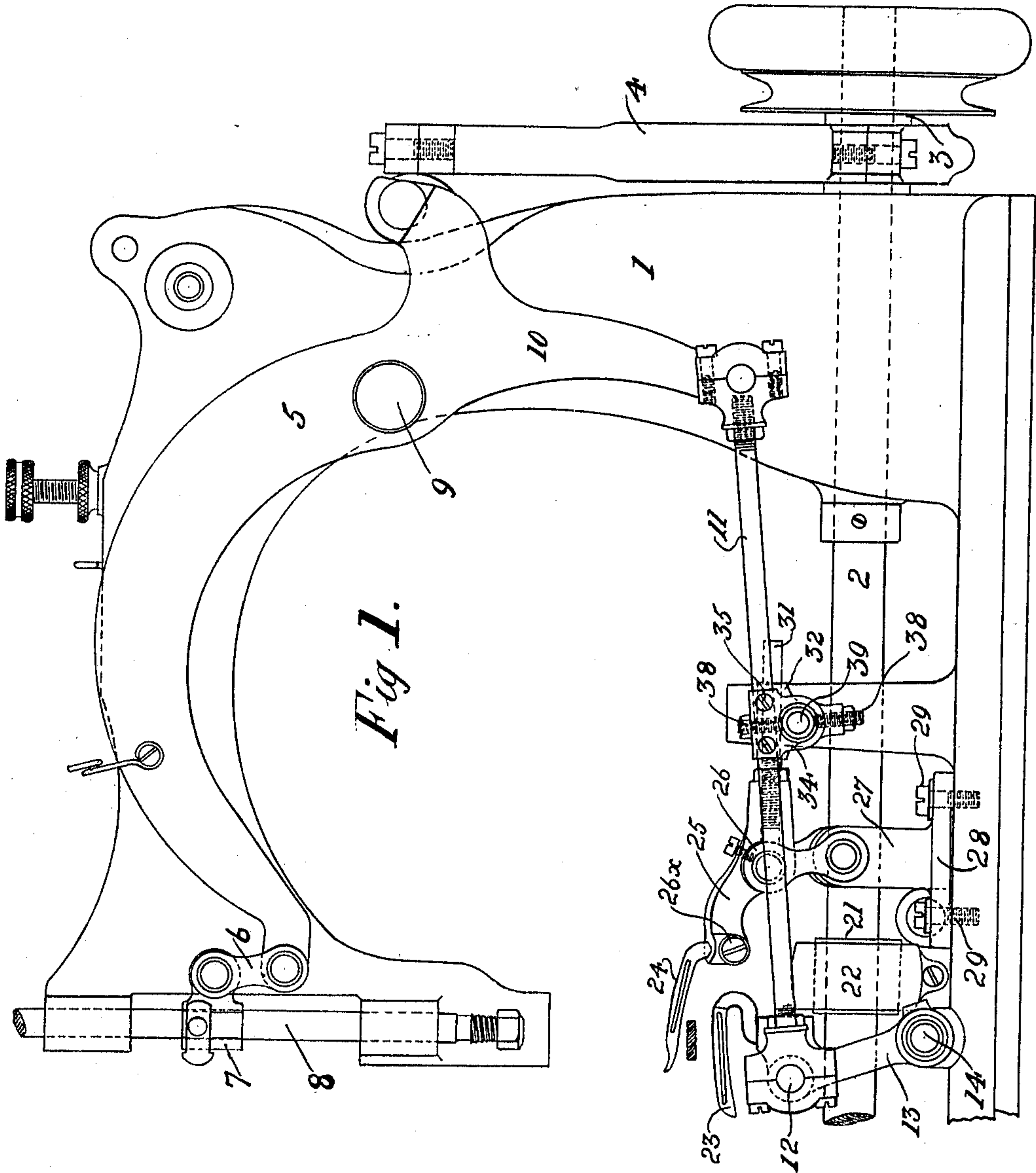


Fig 1.

WITNESSES:

M. B. Hoare
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INVENTOR:

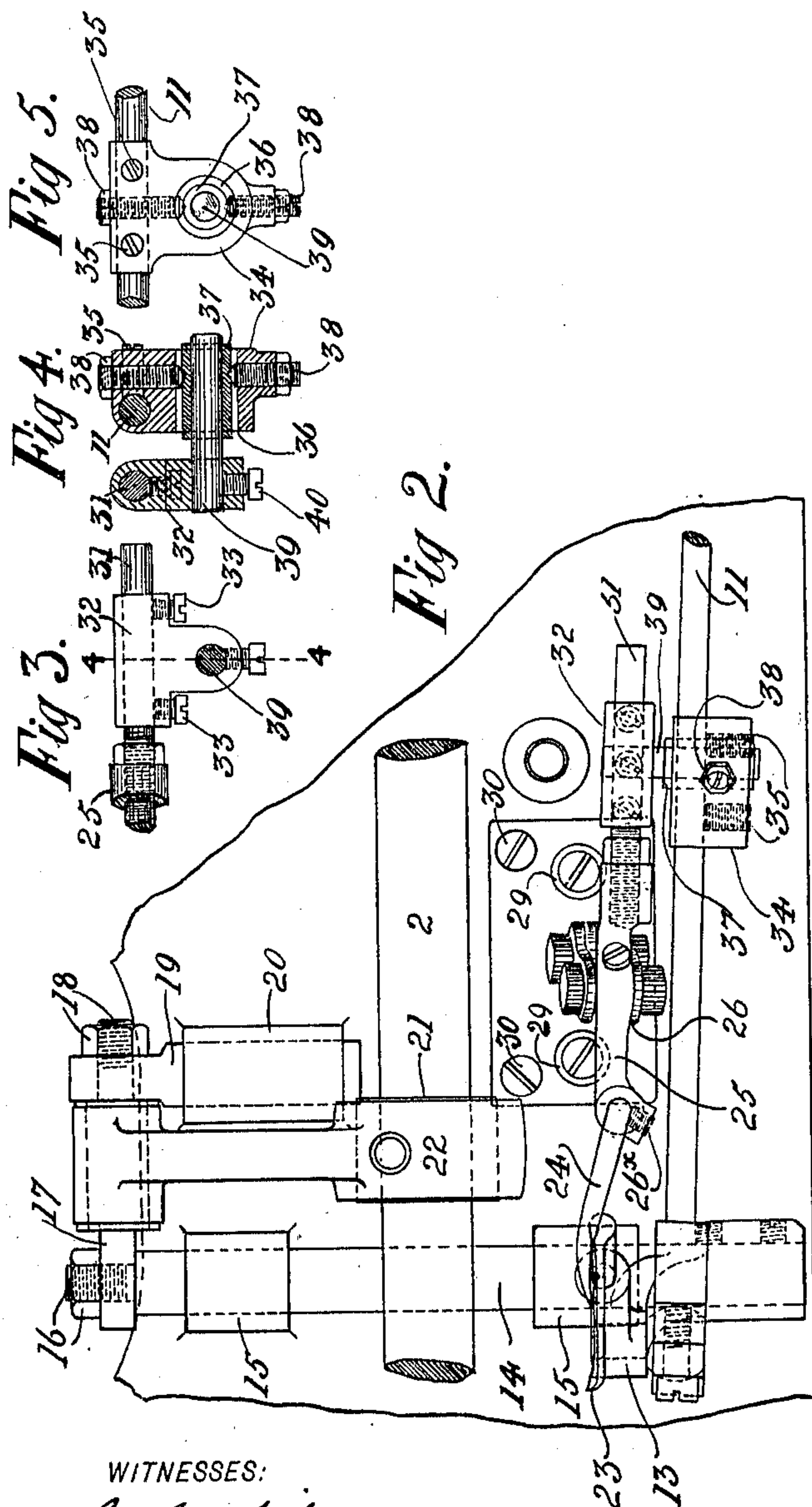
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UNITED STATES PATENT OFFICE.

JOHN P. WEIS, OF BROOKLYN, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
METROPOLITAN SEWING MACHINE COMPANY, A CORPORATION OF NEW YORK.

STITCH-FORMING MECHANISM.

991,917.

Specification of Letters Patent.

Patented May 9, 1911.

Application filed June 5, 1903. Serial No. 160,206.

To all whom it may concern:

Be it known that I, JOHN P. WEIS, a citizen of the United States, residing in Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Stitch-Forming Mechanism, of which the following is a description.

This invention relates to sewing machines of the chain-stitch type, and particularly to machines of the character noted capable of performing overedge work.

One object of my invention is to provide an overedge machine with mechanism whereby the movements of the looper may be transmitted, in part only, to the spreader, the latter being given, however, all its necessary movements by the looper actuating mechanism.

Another object of my invention is to provide a connection between the looper actuating mechanism and the spreader whereby the latter has imparted thereto its requisite movements.

Other objects will appear during the course of this description and, with the same in view, together with those specifically stated above, the invention consists in the parts, features and combinations hereinafter described and claimed.

In the drawings: Figure 1 is a side elevation of so much of a sewing machine as is deemed necessary to illustrate my invention, the latter being shown applied thereto; Fig. 2 is a top plan view of a portion of the bed-plate of the machine, showing the looper and spreader mechanism applied thereto; Fig. 3 is a detail view showing portions of the connection between the looper-rod and the spreader; Fig. 4 is a section of Fig. 3 on the line 4—4; and Fig. 5 is a front elevation of parts shown in Fig. 4.

Primarily, it should be understood that the coöperation of the needle, looper and spreader is such as to result in the production of an overedge stitch.

The frame of the machine is indicated by 1; and 2, is the driving shaft having at its rear end the usual hand-wheel and driving pulley, and carrying adjacent thereto an eccentric 3, actuating the strap 4, the movement of which is imparted to the lever 5, by any suitable pivotal connection between the two, and the forward end of which lever

is connected, by means of the link 6, and collar 7, to the needle-bar 8, guided to reciprocate vertically in the head of the frame. The needle is not shown because unnecessary to an exposition of my invention. The lever 5, is pivoted at 9, to the frame 1, and has the downwardly depending arms 10, pivotally connected in the usual manner to the looper rod 11, which, at its forward end, is pivotally connected at 12, to the looper carrier 13, fixed at its lower end, in any suitable manner, to the reciprocating rock-shaft 14, supported and guided in standards 15, of the bed-plate and extending transversely of the latter. At its rear end the rock-shaft 14, is loosely connected, by means of a screw and bolt 16, to one end of the link 17, loosely connected at its other end by means of the screw and bolt 18, with one end of a guide rod 19, supported and guided in the bracket 20, on the bed-plate. The driving shaft 2, is provided near its forward end with the eccentric 21, actuating the strap 22, which latter, at its rear end, is sleeved upon the link 17. The looper 23, has its stem suitably supported and clamped in the carrier 13, so that the same may assume the relation to the carrier shown in the drawings. From this construction it will be seen that the looper is given its longitudinal reciprocations, or loop-taking and leaving movements, by means of the eccentric 3, and intermediate connections to the carrier 13, while the lateral, or needle avoiding, movements are imparted to the looper by means of the eccentric 21, and intermediate connections.

The spreader 24, has its stem clamped in the carrier 25, by means of the screw 26*, tapped through the forward end of the carrier and engaging said stem. The carrier 25, is pivotally supported by links 26, embracing the same, and which at their lower ends embrace, and are pivotally connected to, the standard 27, of the bracket 28, fixed to the bed-plate by means of the screws 29, and vertically adjustable on said bed-plate by means of screws 30, tapped through the bracket and engaging the top of the bed-plate, the adjustment being secured by loosening the screws 29 and turning the screws 30 to the extent desired and then setting the screws 29 again. This construction

is not shown more in detail because it is not, specifically, a part of my present invention, the essential portion of the latter being to secure, by some suitable means, an adjustment of the spreader supporting-bracket so that the bracket may be tilted or inclined so as to properly tilt and position the pivotal support of the spreader-carrier, and thus, by the adjustment of said carrier, enable the proper relation between the spreader, looper and needle to be secured and maintained, and also enable the point of the spreader to describe the elliptical path, as presently described.

At its rear end the spreader is provided with rod extension 31, adjustable lengthwise in the carrier by being screwed thereto. The rod extension 31, has clamped thereto a bracket 32, by means of the screws 33, tapped through the same from the under side and engaging said extension 31. This connection renders the bracket 32, adjustable on said extension both longitudinally and laterally. The looper-rod 11, carries a bracket 34, secured thereto by means of the screws 35, tapped through the side thereof and engaging said rod 11. This construction renders the bracket 34, adjustable on the rod 11, both longitudinally and laterally. The looper rod bracket 34, is bored transversely at 36, and in said bore is disposed a sleeve 37, held therein adjustable by means of the screws 38, tapped through the top and bottom of said bracket and engaging opposite sides of said sleeve. The spreader rod bracket 32, has adjustably fixed thereto a transversely projecting pin 39, the adjustment being secured by means of the screw 40, tapped through the bottom of said bracket and engaging said pin, which is set in a transverse bore of said bracket. The pin 39, forms the connection between the spreader-rod bracket and the looper rod bracket, said pin sliding longitudinally in the sleeve 37, or telescoping the latter and constituting an actuating coupling between the two rods 11 and 31.

From the above construction it will be seen that the longitudinal movement of the looper 23, imparted by its rod 11, is likewise imparted to the spreader 24, such longitudinal movement, however, when transmitted to the spreader, developing also a vertical movement in the spreader by reason of the pivotal connection of its carrier to the standard 27. The resultant of these two movements is substantially an elliptical path described by the point of the spreader, the major axis of which path extends substantially transversely of the direction of feed and lies in a plane vertically oblique thereto. It will also be seen that the lateral movement imparted to the looper by the eccentric 21, and intermediate connections, and likewise imparted to the looper rod 11, is not

imparted to the spreader by reason of the loose sliding or telescoping connection between the looper rod and the spreader rod. Hence, it will be noted that the looper has four motions, viz., backwardly and forwardly, substantially in the direction of its length, and laterally in both directions substantially at a right-angle to its length; and that the spreader has four motions, viz., backwardly and forwardly, substantially in the direction of its length, and upwardly and downwardly at an angle to its length, such four motions of the spreader having the resultant above noted. It is further to be noted that the movement of the spreader, both longitudinally and vertically, may be varied within large limitations by merely adjusting the brackets 32 and 34, respectively, upon the rods 31 and 11, and that the angle of movement of the spreader, in carrying the looper thread over the edge of the work, may be varied to any desired degree by such adjustments, viz., the vertical movement may be made more or less abrupt, thus enabling the opening in the cloth-plate, through which the spreader is projected, to be greatly curtailed.

It will now be apparent that I have produced a simple overedge machine, and one wherein the movement of the looper and spreader are obtained by means of few and simple parts, and which movements are positive and direct.

Having thus described my invention what I claim and desire to secure by Letters Patent is:

1. A stitch-forming mechanism comprising a looper and a spreader, means for imparting four movements to the looper for entering and leaving a loop and carrying the same aside, two of which movements are at substantially a right-angle to the other two, said means including a reciprocating rod; and means for imparting four movements to the spreader, for taking a loop and carrying it across the edge of the work and returning to normal position, each of which movements is at an angle to the several movements imparted to the looper, said means including a coupling connected to the said reciprocating rod between its ends and connecting with the spreader, whereby certain of the movements imparted to the spreader are derived directly from said reciprocating rod.

2. A stitch-forming mechanism comprising a looper and a spreader; means for actuating the looper, including a reciprocating rod; and means for actuating the spreader, including a coupling connected to said reciprocating rod between its ends and connecting with the spreader, whereby the said rod imparts certain of the spreader movements and has movements of its own independently of the spreader.

3. A stitch-forming mechanism, comprising a looper and a spreader, means for actuating the same including a looper-rod, a spreader rod, and a sliding connection between the two.

4. A stitch-forming mechanism, comprising a looper and a spreader, means for actuating the two including a looper rod and a spreader rod, and a connection between the two rods involving telescoping parts.

5. A stitch-forming mechanism, comprising a looper and a spreader; means for actuating the looper, including a reciprocating and laterally vibrating looper rod, and means connecting said rod with the spreader whereby only the reciprocating movements of the rod will be imparted to said spreader.

6. A stitch-forming mechanism, comprising a looper and a spreader, means for actuating the same including a looper rod and a spreader rod and adjustable connections between the two.

7. A stitch-forming mechanism, comprising a looper and a spreader; and means for actuating the same, including a looper-rod and a spreader rod, the latter being provided with a pin having a loose sliding connection with the looper rod.

8. A stitch-forming mechanism comprising a looper and a spreader, means including a reciprocating rod for actuating the looper for imparting thereto longitudinal reciprocations, and means whereby said rod imparts to the spreader an elliptical movement.

9. A stitch-forming mechanism comprising a looper and a spreader, independent supports for said looper and spreader, means including a reciprocating rod for actuating the looper for imparting thereto longitudinal reciprocations, and means whereby said rod imparts to the spreader an elliptical movement.

10. A stitch-forming mechanism comprising a looper and a spreader, means including a reciprocating rod for actuating the looper for imparting thereto longitudinal reciprocations, and means whereby said rod imparts to the spreader an elliptical movement from below to a point above the bed-plate.

11. A stitch-forming mechanism comprising a looper and a spreader, means including a reciprocating rod for actuating the looper for imparting thereto longitudinal reciprocations, and means whereby said rod imparts to the spreader a movement such that its point will describe an elliptical path the

major axis of which lies in a plane vertically oblique to the direction of feed.

12. A stitch-forming mechanism comprising a looper and a spreader, means for pivotally supporting the spreader independently of the looper, means including a reciprocating rod for actuating the looper for imparting thereto loop-taking movements, and means whereby said rod imparts to the spreader longitudinal and vertical movements.

13. A stitch-forming mechanism comprising a looper and a spreader, means for operating the same including a rod connected to the looper and a rod connected to the spreader, an actuating coupling connecting the said rods whereby certain only of the movements of the looper-rod will be imparted to the spreader-rod, and means for adjusting the said coupling upon the rods, substantially as described.

14. A stitch-forming mechanism comprising a looper and a spreader, means for operating the same including a looper-rod and a spreader-rod, a two-part actuating coupling connecting said rods whereby certain only of the movements of the looper will be imparted to the spreader, and means cooperating with each part of said coupling for adjusting it upon its respective rod for the purposes substantially as described.

15. A stitch-forming mechanism comprising a looper and a spreader, means for operating the two including a looper-rod and a spreader-rod, and a telescopic coupling connecting the said rods whereby certain only of the movements of the looper will be imparted to the spreader, and means for adjusting said coupling longitudinally of said rods, substantially as described.

16. A stitch-forming mechanism comprising a looper and a spreader; means for actuating the looper; a bracket supported on the machine; means for tilting and adjusting said bracket relatively to the cloth-plate; a pivotal connection between the bracket and spreader; and means for actuating the spreader, whereby it will cooperate with the looper and needle in succession.

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

JOHN P. WEIS.

Witnesses:

CHAS. MCC. CHAPMAN,
M. B. HOARE.