

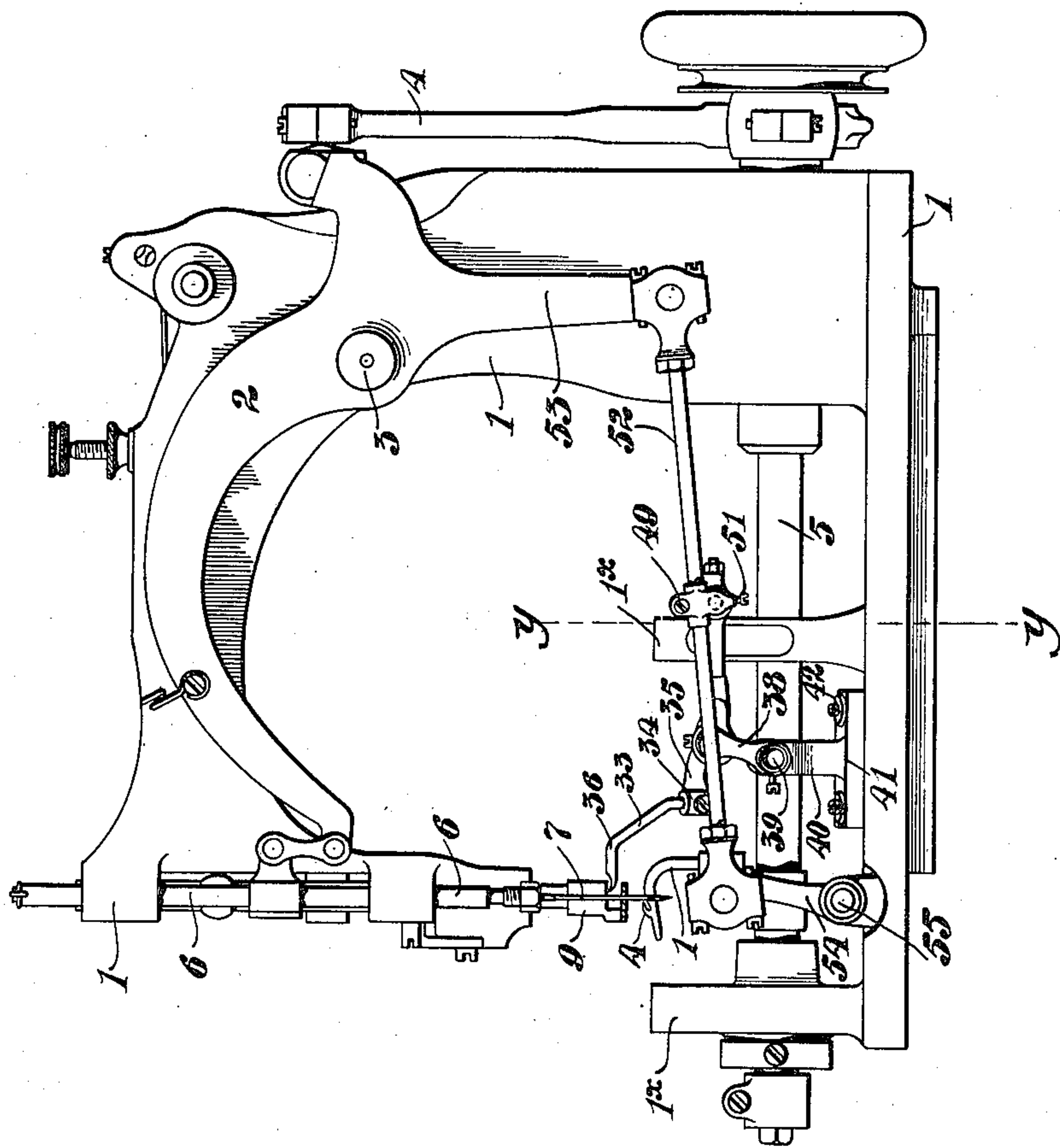
J. P. WEIS.  
OVEREDGING SEWING MACHINE.  
APPLICATION FILED JAN. 30, 1903.

990,410.

Patented Apr. 25, 1911.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses  
*Edgworth*  
*H. B. Hoare*

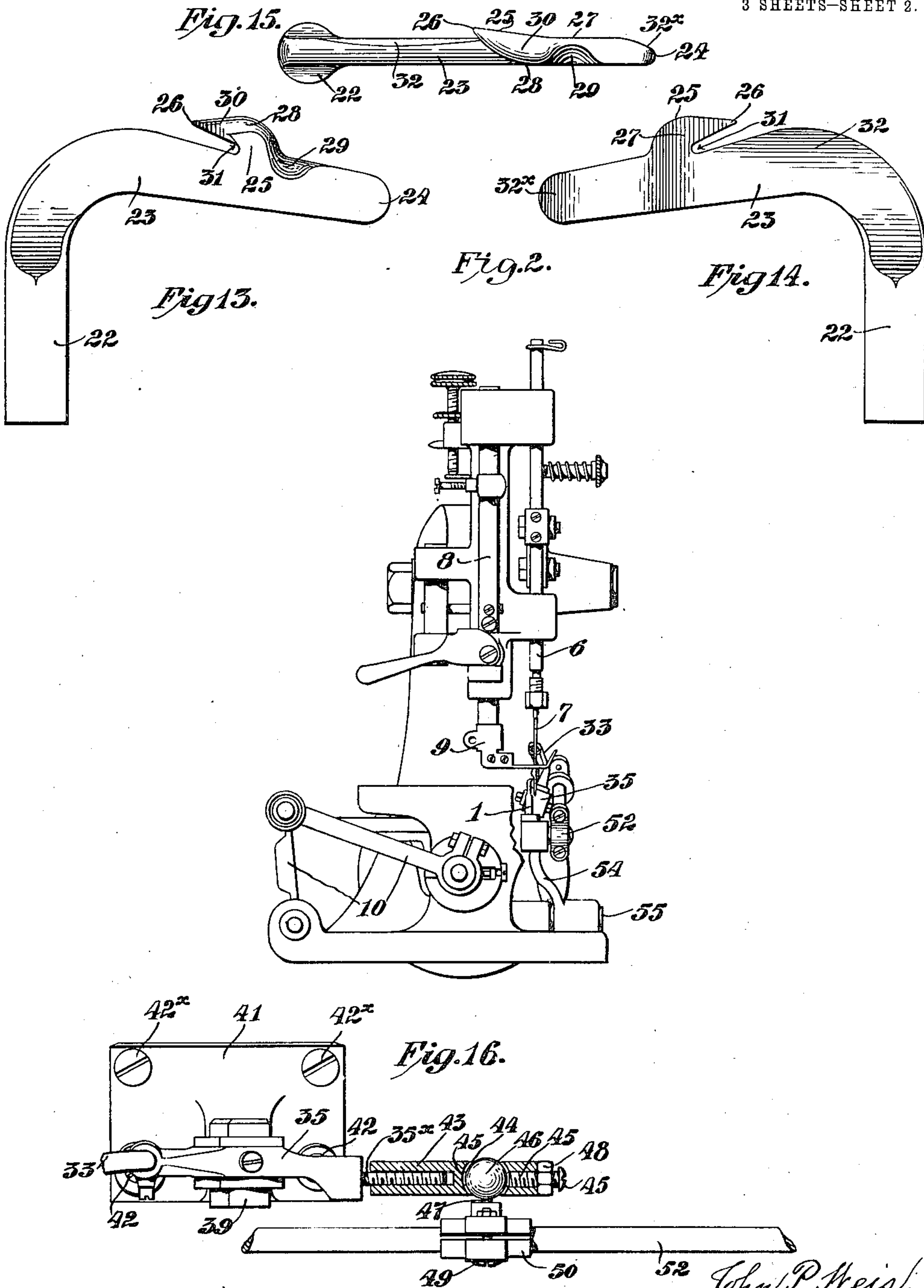
*John P. Weis*  
Inventor  
By *Chas. M. C. Chapman*  
Attorney

J. P. WEIS.  
OVEREDGING SEWING MACHINE.  
APPLICATION FILED JAN. 30, 1903.

990,410.

Patented Apr. 25, 1911.

3 SHEETS—SHEET 2.



Witnesses  
*Edgworth*  
*W. B. Hoare*

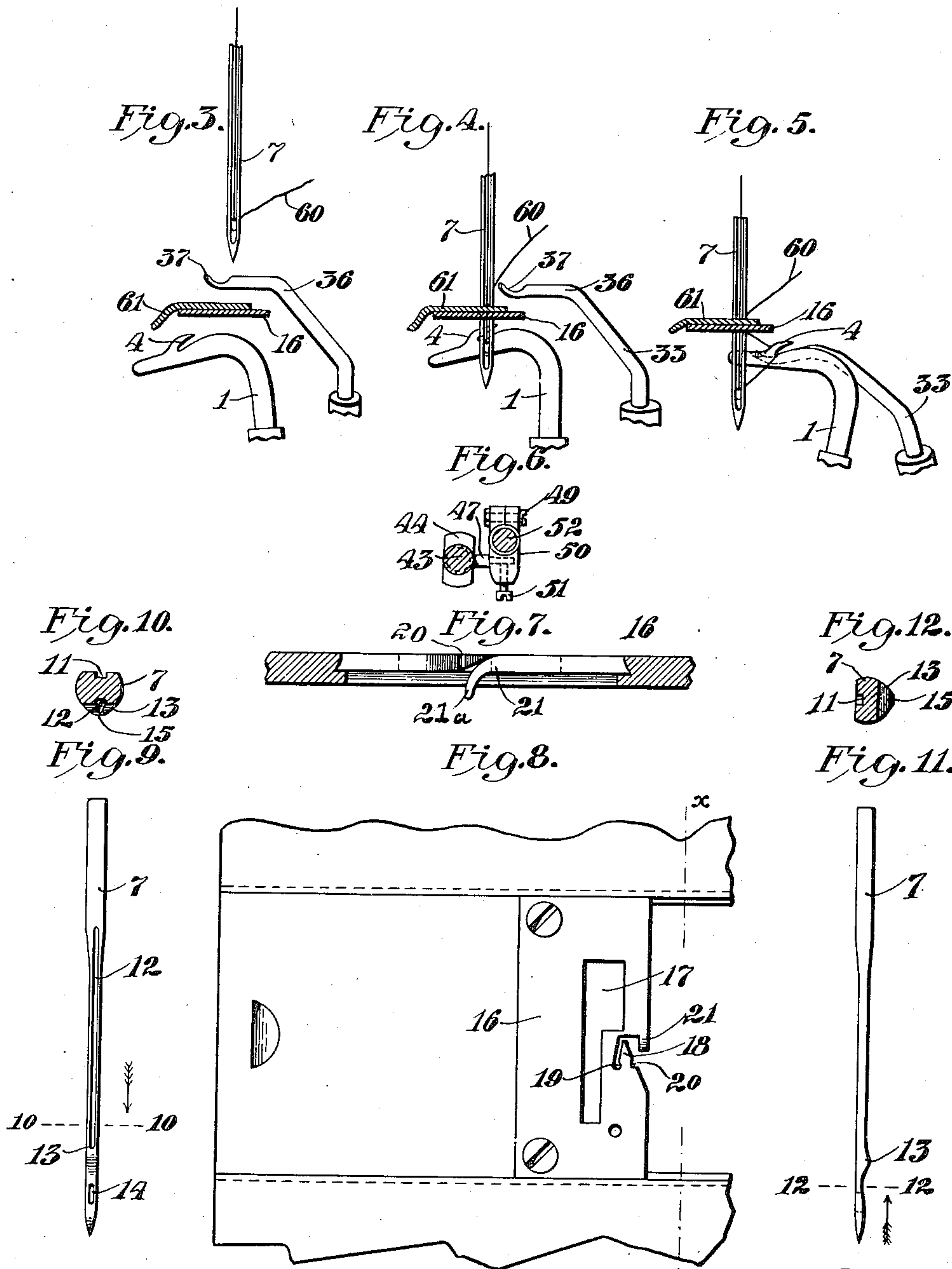
*John P. Weis*  
Inventor.  
By *Chas. M. C. Chapman*  
Attorney.

J. P. WEIS.  
OVEREDGING SEWING MACHINE.  
APPLICATION FILED JAN. 30, 1903.

990,410.

Patented Apr. 25, 1911.

3 SHEETS—SHEET 3.



Witnesses  
*Edgeworth Thorne*  
*W. B. Hoare*

*John P. Weis.*  
Inventor.  
By *Chas. M. C. Chapman.*  
Attorney.



# 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.

## OVEREDGING SEWING-MACHINE.

990,410.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Application filed January 30, 1903. Serial No. 141,101.

*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 Overedging Sewing-Machines, of which the following is a description.

This invention relates to chain-stitch sewing machines, of the type wherein is usually employed a looper which enters the loop of needle-thread "cast", or "thrown-out", by the needle, and manipulates the same in a manner to produce or form a single chain-stitch.

Particularly, the invention relates to machines of the chain-stitch type capable of making overedge or binding stitches.

The object of this invention is to provide a chain-stitch overedging machine which will be extremely simple in its mechanism; will employ but few coöperating parts, to produce its functions; will use the least possible quantity of thread in binding or overedging; and which will be capable of very high speed.

Another object of this invention is to provide a chain-stitch machine with a looper capable of operating close to the under side of the cloth-plate, or throat-plate, and engage the thread on the downward movement of the needle at a point and period of time much ahead of and before the time when a loop is ordinarily "cast" or "thrown-out" by the needle in the conventional chain-stitch machine.

Another object of this invention is to provide a chain-stitch machine with mechanism for engaging the needle-thread during the descent of the needle, in contradistinction to entering a loop cast or thrown-out by the needle at any time during its travel below the cloth-plate.

Another object of this invention is to provide a mechanism for actuating the spreader directly from the looper actuating rod, in contradistinction to operating said spreader from the needle actuating lever or some other independent part of the machine; and to provide means for regulating the throw of the spreader so that its projection above the cloth-plate may be controlled, as well as the character of the movement of the

spreader in its passage from below, up over the cloth-plate.

Other objects of this invention will appear during the course of the following description, and upon them stress will be laid in order to clearly indicate the objects and purposes thereof.

With the above objects in view, the invention consists in the parts, elements and combinations hereinafter described and claimed.

In the drawings: Figure 1 is a front elevation of a machine embodying my invention; Fig. 2 is an end elevation of said machine; Figs. 3, 4 and 5 are views, intended to be merely diagrammatic, showing the three, principal positions of the needle, looper and spreader; Fig. 6 is a section, taken on the line  $y-y$  of Fig. 1, showing in detail the connecting device between the looper-actuating rod and the spreader-carrier; Fig. 7 is a section on the line  $x-x$  of Fig. 8, showing the construction of the throat-plate; Fig. 8 is a plan of the cloth-plate, showing particularly the structure of the throat-plate; Fig. 9 is a rear elevation of the needle very much enlarged; Fig. 10 is a cross-section thereof on the line 10-10, of Fig. 9, looking in the direction of the arrow; Fig. 11 is a side elevation of the needle very much enlarged; Fig. 12 is a cross section thereof on the line 12-12, of Fig. 11, looking in the direction of the arrow; Fig. 13 is a rear elevation of the looper; Fig. 14 is a front elevation of the looper; Fig. 15 is a top plan of the looper; and Fig. 16 is a top plan of a portion of the spreader and its actuating mechanism, showing in sectional detail the connecting and adjusting means.

Primarily, attention is directed to the fact that this machine is devoid of any special form of take-up, pull-off, tension-device, or other special form of thread-controller. The machine employs, merely, an ordinary form of disk-tension, which is lightly applied to the thread; also, the simplest form of take-up, *e. g.* a thread-guide secured to the upper end of the needle bar; also, any simple thread-guide, between the tension and the needle-eye, for properly leading the thread to the latter, which may be found suitable. Moreover, any suitable form of presser-foot mechanism, and any suitable form of feed-



ing-mechanism are employed. Hence, it will be seen that this machine is reduced to the very simplest form and the least number of parts consistent with good work.

5 In the drawings 1, indicates the frame of the machine, it being here noted that the cloth-plate has been omitted from Figs. 1 and 2, in order to clearly disclose the stitch-forming elements, the posts for supporting  
10 said plate being indicated by 1<sup>x</sup>.

2, indicates the needle-bar actuating lever, oscillated on its fulcrum 3, by means of the eccentric strap and rod 4, driven by the  
15 usual eccentric on the main-shaft 5, of the machine.

6, is the needle-bar; 7, the needle; 8, the presser-bar; 9, the presser-foot; 10 those portions of the feeding-mechanism which have been illustrated in the drawings, and which  
20 constitute a portion of the means for giving longitudinal movement to the feed-bar.

The needle 7, is provided in its face with a longitudinal groove 11, extending from below its eye to its shank portion, this being  
25 usual. In its back, the needle is grooved at 12, from its shank portion down to the enlargement or raised portion 13, such raised portion, projection, or hump, being  
30 sufficiently prominent to cause the thread extending across the same to be separated from the body of the needle between said hump and the eye of the needle 14, thus  
35 leaving between the thread and the body of the needle, and between the hump and the eye of the needle, a space or opening into which the point of the hook of the looper  
40 may enter to engage the needle-thread on the downward movement of the needle. Said hump may be rendered more prominent by depressing or scarfing the body of  
45 the needle above the eye, thus throwing the hump into relief; but, this manner of forming the space, for the coöperation of the hook of the looper with the thread, is  
not essential, it being only necessary to so construct the needle that said hook will infallibly engage the thread in the manner stated.

As will be seen, upon reference to Figs. 10 and 12, the surface of the hump or enlargement is slightly flattened at 15, in order to provide a rest for the thread in its passage along the needle and over the hump to the eye of the needle.

55 The throat-plate 16, is provided with the usual feed-slot 17, and is also provided with a tongue 18, over which the stitches are formed, and from the free end of which the loops slip during the progress of the  
60 fabric under the action of the feed. A needle aperture 19, is provided in the throat-plate at one side of the tongue, and a notch or recess 20, is provided in the other side of the tongue. The throat-plate is also provided,  
65 adjacent the tongue, with a finger 21,

extending oppositely to the tongue, and having a downwardly curved guard 21<sup>a</sup>. The functions of this finger and guard and also the function of the notch 20, will be hereinafter fully set forth. 70

The form and structure of the looper are clearly shown in Figs. 13, 14 and 15, and therein the looper is shown provided with a stem 22, adapted as usual, to be inserted  
75 in the socket of the looper-carrier and to be held therein by the usual binding screw. The body of the looper is indicated by 23, and in this connection it may be noted that the body is that portion which extends from the shank to the tip 24. The hook is indi-  
80 cated by 25, this being the portion which receives the needle-thread just after the eye of the needle has descended below the thread-engaging point thereof. As shown, the thread-engaging point 26, of the hook  
85 of the looper lies, or stands, in a vertical plane parallel with the plane in which the body of the looper lies. Furthermore, the face of the hook 27, is substantially flat, although slightly curved, or concaved, longi-  
90 tudinally, while the back of the hook is quite prominently convexed, or curved, at 28, from the point 26, to the plane of the depression 29. Furthermore, as seen by  
95 Figs. 13 and 15, the hook is curved, or convexed, transversely at 30, from its top to approximately its throat 31.

The depression 29, is made in the back of the body of the looper, at the top thereof and directly in rear, and at the base of the  
100 hook 25, this depression being for the reception of the spreader, the end of which normally lies or stands therein or adjacent thereto, in position to engage the loop of  
105 needle-thread, extending from the eye of the needle to and held by the hook in its throat, and extending therefrom across the back of the looper to the work.

The body of the looper, on its face, just in front of the point of the hook, is slightly  
110 beveled, slabbed, or rounded off at 32, for the purpose of preventing the needle, in its descent, from engaging the body of the looper, which might result in turning the  
115 point of the needle or causing it to glance in rear of the point of the hook. Moreover, as the needle descends and its point passes the portion 32, of the looper, the body of the looper below and forward of the slabbed  
120 portion at 32<sup>a</sup>, deflects the needle laterally so as to prevent the point of the hook from striking the needle, which would result in rupturing or injuring the point of the hook and possibly, bending or breaking the  
125 needle. At its tip, on its face, the looper is slightly rounded or curved, at 32<sup>x</sup>, this form being given by preference and not from necessity, to afford a nice finish and smooth engagement with the strand of  
130 needle-thread, and also to provide against



any possibility of the tip of the looper engaging, objectionably, the body of the needle. The tip of the looper is also rounded vertically at its end, by preference, for  
 5 nice finish, and for avoiding angles which might objectionably engage the strand of thread.

It will be noted that the thread-engaging hook of my looper is pointed, substantially,  
 10 longitudinally of the looper-body and in the direction of the shank thereof, this being one of the many peculiarities of the looper and constituting one of its leading features, inasmuch as such disposition enables the  
 15 hook to cooperate with the needle during the backward movement of the looper and when the eye of the needle descends only a short distance below the cloth-plate, or throat-plate, of the machine, and enables the hook  
 20 thereof to engage the thread while the needle is moving downwardly and long before it reaches its lower extreme. Moreover, it will be noted that the hook of my looper is projected vertically, or off-set, from the  
 25 looper-body, thus enabling the looper to operate nearer the throat-plate, or cloth-plate, and render it possible for the point of the hook to engage the needle thread instantly the eye of the needle is below the plane or  
 30 path of operation of the said offset hook. This is a leading and important feature of my invention. Again, it will be noted the looper-body, in advance of the point of the hook, is much broadened where the slabbed  
 35 portion occurs, these features being provided to enable the needle to properly cooperate with the point of the hook on account of the off-set disposition of the latter from its body-portion; that is to say, as the needle  
 40 descends and the point of the off-set hook approaches the thread-engaging position, the slabbed portion 32 of the looper presents itself for engagement by the needle, should the latter be bent or otherwise deflected, thus  
 45 insuring that the needle will descend in the proper path and present its thread in proper position for accurate and certain engagement by the hook of the looper. Hence, it will be observed that though this looper is  
 50 placed in its carrier in precisely the manner that loopers are ordinarily placed therein, in conventional chain-stitch machines, the thread engaging movement of the looper is its rearward movement, or what would ordi-  
 55 narily be the rearward movement of the looper in the ordinary machine thus the looper engages the needle-thread on its backward instead of its forward, movement and obviates the necessity of awaiting the  
 60 usual slow retrograde movement on the part of the needle to throw out a loop. To aid this action of the looper, the hump on the needle has been provided, as above described, and over which the needle-thread  
 65 extends into the eye of the needle. An-

other important feature of this looper is the relation of the point of the hook to the body thereof, which relation is such as to insure the proper and accurate engagement of the point of the hook with the needle-thread  
 70 the instant the eye passes below the upper edge of the looper-body or the under side of the throat-plate. Still another important feature of this looper is the forward extension, including the tip, which constantly  
 75 guides the needle while it is below the throat-plate and prevents it at any time from springing into the path of or behind the looper, during the stitch-forming operation, the same being at all times, after the hook  
 80 has engaged the needle-thread, in engagement with said needle. This extension also prevents the strand of the needle-thread loop, on the forward movement of the looper, which causes said thread to become slack,  
 85 from twisting or springing in front of the looper in any manner. This extension also prevents the hook from catching the thread in any other manner than as is intended, viz.,  
 90 on the backward movement of the looper, and the downward movement of the needle. Again, the slabbed, or beveled portion in front of the hook of the looper, prevents the point of the needle from striking the looper-body, and has the additional function of  
 95 properly and surely deflecting the needle into position for enabling the hook to engage the needle-thread.

The form of the spreader is not of paramount importance. It is essential, however,  
 100 that the same be curved or so formed as to reach over the edge of the throat-plate, as clearly shown in Figs. 3 and 4. Herein, the spreader consists of the shank portion 33, seated and securely held in the socket 34, of  
 105 the spreader carrier 35. The spreader is formed with a forwardly extending angular body-portion 36, having at its forward end a forwardly extending, vertically and later-  
 110 ally curved thread engaging finger 37. This form may be clearly seen in the diagrammatic views as well as in Fig. 2.

The carrier for the spreader is pivoted to the upper end of a link 38, which latter at its lower end is pivoted at 39, to the upper end  
 115 of the standard 40, of bracket-piece 41, secured to the frame by screws 42, and 42\*, passing through the base of bracket 41, and engaging the frame of the machine. In rear  
 120 of its pivotal point the carrier 35, is provided with a rearwardly extending screw-threaded rod 35\*, adjustable in and connected to the socket-piece 43, of a universal joint, the latter consisting of the socket-  
 125 piece, having the enlarged, apertured portion 44, provided internally with bearings 45, for the reception of a ball 46, having a stem 47. Either or both of the bearings may be rendered adjustable, the one at the end of the socket-piece being thus shown, and con-  
 130



sisting of a screw having a depression in its end and adjustable in the screw-threaded boring in the end of the socket-piece, a jam-nut 48, screwing onto the end of said bearing-screw and against the end of the socket-piece, for the purpose of preventing longitudinal movement of the screw. The stem 47, of the ball 46, is connected to a clamp 50, by any suitable means, such as the binding screw 51, and which clamp is adjustably secured by screw 49, to the looper-actuating rod 52, connecting the looper-carrier with the depending portion 53, of the needle-bar actuating lever 2, at its forward end said rod 15 being suitably connected to the looper-carrier 54, which in turn is journaled, for oscillation, upon the horizontal bearing 55, suitably supported by the frame of the machine.

The clamp 50, is adjustable longitudinally of the looper-actuating rod, and the socket-piece 43, of the universal joint is adjustable longitudinally of the extension 35<sup>x</sup>, of the spreader-carrier. Hence, it will be observed 25 that the action of the spreader, according to the adjustment of the connection between the same and the looper-actuating rod, can be rendered more or less abrupt or precipitate in its vertical movements and such vertical 30 movement can be regulated in extent. In fact, it is the object of this invention to so actuate the spreader-carrier as to give to the spreader an angular movement consisting of a vertical movement and a forward, substantially horizontal movement, at a right-angle 35 to its vertical movement, and also to regulate the amount of such vertical movement as well as the extent of the horizontal movement. These results are obtained and the 10 effects produced by the connection between the looper actuating-rod and the spreader-carrier as above described. Moreover, stress is laid upon the means for actuating the spreader-carrier, viz., a direct connection be- 45 tween the looper actuating-rod and the spreader-carrier, in contradistinction to a connection between said spreader-carrier and the depending arm of the needle-bar actuating lever, or any of the usual and complicated means for actuating said spreader. 50

It will thus be seen that I have produced an overedging machine consisting of very few parts and of exceeding simplicity.

The operation of the parts is as follows: 55 With reference to the diagram to Figs. 3, 4 and 5, it will be noted that three, principal positions are illustrated, Fig. 3, showing the looper in its extreme forward position, the spreader in its extreme forward and upper 60 position and the needle in its extreme upper position; Fig. 4 showing the looper in position just after engaging the needle-thread 60, the needle having just passed its eye below the upper edge of the looper and its 5 hump just below the throat-plate, and the

spreader moving backwardly after having deposited its thread around the shank of the needle; and Fig. 5 the extreme rearward position of the looper, the extreme downward position of the needle, and the extreme 70 downward and backward position of the spreader. It is to be distinctly understood that these views are merely diagrammatic, are much enlarged, and the parts very much separated for the purpose of clearly showing 75 the coöperation of the parts. In other words, it is to be understood that the hook of the looper operates right close up against the under side of the throat-plate, just as close as it is possible to adjust the same 80 without contact therewith; that the needle in its downward movement barely passes its hump below the throat-plate before the hook engages its thread.

The parts are so timed that the needle 85 hardly gets below the cloth-plate before the hook on the looper, on its backward movement, engages the needle-thread, as shown in Fig. 4, and carries it to its rearward extreme and in position for the spreader to en- 90 gage the same and carry it up over the edge of the work 61. That is to say, the looper reaches its extreme forward position, Fig. 3, while the needle is above the cloth-plate, and begins to return to its rearward extreme at 95 the same time the needle begins to descend through the work. In the middle of the travel of the looper the needle has descended below the cloth-plate and the hook of the looper has engaged the needle-thread, Fig. 4. 100 In its extreme rearward position, Fig. 5, the looper has carried the thread back into position for engagement by the spreader, which latter has reached its downward and backward extreme and is lying with its point or 105 finger in the depression at the base of the hook preparatory to rising into engagement with the loop of needle-thread to carry the same up over the edge of the work and the cloth-plate. In its extreme forward position 110 the spreader has carried the thread beyond the path of the needle, and lies in front of the latter, the thread extending from the last stitch made, back of the needle, over the finger on the spreader, around in front of the 115 needle and down to the under side of the work over the edge of the latter.

When the looper has reached its rearward extreme, Fig. 5, and the spreader is about to ascend and carry the loop of needle-thread 120 above the cloth-plate and over the edge of the work, the form of the loop is substantially triangular, viz., extending from the eye of the needle to and around the hook of the looper and thence up to the under side 125 of the work at the last stitch point. When the spreader ascends, it engages the loop held by the looper, and, at the same time, the needle ascends and the looper moves forward, both the latter giving up the thread 130



to the spreader, thus yielding the same without undue strain for the purpose of furnishing sufficient for the overedging. When the spreader has reached its forward limit, the looper has likewise reached its forward limit and the needle its upper limit, and as the needle descends the looper moves backward, and the spreader moves backward thus giving up the thread held thereby and allowing it to loosen and bow so that the needle may surely penetrate the same. This strand of the loop now surrounding the needle, on the surface of the goods,—and which extends from the needle over the edge of the work to the under side thereof and to the last needle puncture,—being somewhat slack, is readily given up to the looper in its backward movement. Thus the overedge loop is drawn with the proper degree of tension upon the edge of the work. In order to secure the “spread” of the two strands of the overedge loop on the edge of the work, the notch 20, in the outer edge of the tongue on the throat-plate is provided. As the spreader carries the loop over the edge of the work, the strand thereof lying in the direction of the feed, or nearest the last stitch made, is carried against the tongue just beyond the notch, or between the latter and the end of the tongue, while the other strand of said loop is carried into the notch. Hence, as the feed takes place the strand of thread first mentioned is carried along and caused to slide from the tongue, while the second strand mentioned is momentarily retained in and by the notch, or until the spreader has reached its forward extreme, and is then drawn from said notch by the continued feed movement.

The downwardly depending guard or support 21<sup>a</sup>, of the finger 21, on the throat-plate has no effect upon the loop or stitch during ordinary sewing; but in “chaining-off,” viz., making a chain, or series, of stitches independently of the work, the guard becomes effective to prevent the strand of the loop, extending from the last stitch, or chain, to the hook of the looper, from falling down or being carried back from the position necessary for it to assume for the proper engagement of the spreader therewith, in carrying the thread up over the edge of the throat-plate. That is to say, when the work is being stitched it supports the strand of the loop extending from the last stitch, or chain, to the hook of the looper, and such strand is thus held in proper position for accurate engagement by the spreader; but, when chaining-off is accomplished, the work has passed from the tongue 18 on the throat-plate, the stitches are loosely formed over and readily slip from the said tongue, which neither retains nor supports said stitches, and the latter are being formed into a chain, or connected series, independently of the work, the lat-

ter, in consequence, no longer affording a support for the strand as in overedging. Hence, it is necessary to provide means, such as the support or guard 21<sup>a</sup>, which will hold the said strand in substantially the manner that the work does, or so that the spreader can properly engage the same and carry it over the edge of the tongue as in overedging the work. In this operation of chaining-off, the movements and coöperation of the needle, looper and spreader are substantially the same as in ordinary sewing, but the guard or support 21<sup>a</sup> takes the place of the work for the purposes stated and the result being a chain of stitches, or links, consisting of a single strand on one side and two strands on the other of each link in the chain, the latter strands bearing the relation of the strands in the Fig. 8, the chaining being done over the edge of the tongue and one strand entering the notch therein in precisely the manner as in ordinary sewing or overedging.

Special attention is directed to this function of my machine, as in the ordinary chain-stitch machine or overedging machine chaining-off cannot be accomplished, the loops or stitches ordinarily becoming so entangled as to prevent the same. Attention is also directed to the value of chaining-off in chain-stitch machines and in overedging machines; that is to say, when a piece of work has been finished, it is desirable to feed in another piece instantly and without stopping the machine, or it may be necessary or desirable, after one piece of work has passed through the machine, to run in another piece without cutting the connecting threads. These operations can be accomplished on my machine without breaking or entangling the threads. This is doubly important in high-speed manufacturing machines, as it enables the machines to be run by power continuously, resulting in a great saving of time and increased output. It will thus be seen that, in addition to the needle, looper, spreader and special form of throat-plate of my machine, necessary for overedging, the guard or support 22 is the only feature essential to, and practically constitutes, my means for chaining-off. Moreover, attention is directed to the character of the movement of the spreader, which is practically angular instead of curved as is usual; that is to say, in engaging the thread and carrying it vertically the movement is precipitate as previously noted. The reverse movement of the spreader is along substantially the same lines. This angular, or precipitate movement of the spreader is due to the particular manner of actuating the same, and the importance of such movement and of such actuating mechanism will be understood and appreciated when it is considered that the spreader may be located close to the bottom of the cloth-plate, and close to the edge of



the throat-plate and projected above the latter through a confined aperture. Thus, very little of an opening in the cloth-plate is necessary to secure the proper operation and projection of the spreader, and there being very little of an opening in the cloth-plate, there is less liability of contact of the work with the mechanism of the machine, and a greater work-supporting surface is afforded on the cloth-plate.

Any form of adjustable edge-gage may be provided for properly guiding the work to the stitch-forming and feeding mechanism, such gage being usual in overedge stitching machines.

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

1. The combination, in a sewing machine, of a reciprocating thread-carrying needle; a looper confined to movement below the cloth-plate of the machine and having a thread-engaging hook; a spreader cooperating with the looper below the cloth-plate and the needle above the cloth-plate; and means for actuating the needle, looper and spreader so that the looper-hook will take the needle-thread while the needle is moving downwardly, and the spreader will take the said thread from the looper and carry it in loop form over the edge of the work into the path of the needle, to form an overedge stitch.

2. The combination, in a sewing machine, of a reciprocating thread-carrying needle; a looper confined to movement below the cloth-plate of the machine and having a thread-engaging hook; a spreader cooperating with the looper below the cloth-plate and the needle above the cloth-plate; and means for actuating the needle, looper and spreader so that the hook of the looper, on the backward movement of the latter, and as the needle is moving downwardly, will take the thread from the needle, and the spreader will take the thread from the looper and carry it, in loop form, over the edge of the work into the path of the needle, to form an overedge stitch.

3. The combination, in a sewing machine, of a reciprocating thread-carrying needle having an enlargement above its eye providing a rest for the thread in its passage to the eye; a looper confined to operate and cooperate with the said needle below the cloth-plate of the machine and having a hook pointing rearwardly; a spreader cooperating with the needle above the cloth-plate and the looper below the cloth-plate; and means for actuating said needle, looper and spreader to cause the hook of the looper to take the thread from the needle between its eye and enlargement and during the backward movement of the looper, and the spreader to take the thread from the looper

and to carry said thread, in loop form, over the edge of the work into the path of the needle, to form an overedge stitch.

4. An overedging machine comprising a needle, a looper, and a spreader, the needle having an enlargement above its eye providing a rest for the thread in its passage to the eye, and the looper having a depression; and means for actuating the parts whereby the looper will take the thread directly from the needle between the eye and enlargement, and the spreader will operate in the depression of the looper to engage and carry the said needle-thread over the edge of the work.

5. An overedging machine comprising a needle, a looper, and a spreader, the needle having an enlargement above its eye providing a rest for the thread in its passage to the eye, and the looper having a hook pointing rearwardly and a depression at the base of the hook; and means for actuating the parts to cause the looper to take the thread directly from the needle between the eye and enlargement, and the spreader to cooperate with the depression in the looper to engage and carry the said needle-thread over the edge of the work.

6. An overedging machine comprising a needle, a looper, and a spreader, the needle having an enlargement above its eye providing a rest for the thread in its passage to the eye, and the looper having a hook offset from its body and a depression at the base of the hook; and means for actuating the parts to cause the looper-hook to take the thread directly from the needle between the eye and enlargement, and the spreader to cooperate with the depression in the looper to engage and carry the said needle-thread over the edge of the work.

7. A sewing machine comprising a vertically reciprocating needle and an oscillating looper, the needle having means above its eye providing a rest for the thread in its passage to the eye and to separate the thread from the needle above its eye, and the looper having a stem and body-portion at substantially a right angle to each other and a hook vertically offset from and carried by the body-portion pointing toward the stem; and means for actuating the parts to cause the hook, during its backward movement, to take the thread directly from the needle above its eye.

8. The combination, in a sewing machine, of a reciprocating needle; a looper, cooperating with said needle; a spreader, cooperating with said needle and looper; and means for actuating the needle, looper and spreader, including a reciprocating rod connected to the looper and a connection between said rod and the spreader, said means causing the looper to take the thread from the needle during the downward movement



of the latter, and causing the spreader to take said thread from the looper and carry the same, in loop form, over the edge of the work into the path of the needle, to form an overedge stitch, said movement of the spreader occurring during the forward movement of the looper.

9. A sewing machine having stitch-forming mechanism comprising a needle, looper and spreader; means for actuating the several parts including a reciprocating pitman connected with the looper; and a universal joint connection between said pitman and the spreader for actuating the latter.

10. A sewing machine comprising a looper and actuating mechanism; a spreader; means connecting the spreader and looper actuating means; and means for adjusting said connection relatively to the looper actuating means.

11. The combination, in a sewing machine, of a reciprocating thread-carrying needle; a looper, cooperating with the needle, confined to oscillations in a single curved path below the cloth-plate of the machine; a spreader, cooperating with the needle above and the looper below the cloth-plate; and means for actuating the needle, looper and spreader to cause the looper to take the thread from the needle, and the spreader to take the thread from the looper and carry the same, in loop form, over the edge of the work into the path of the needle, the path of movement of the spreader being from in rear of the looper below the cloth-plate, vertically over the latter to in front of the needle.

12. The combination, in a sewing machine, of a reciprocating thread-carrying needle; a looper cooperating with said needle; a spreader cooperating with said needle and looper; a throat-plate, through which the needle reciprocates, having a tongue with a notch in its side; and means for actuating the needle, looper and spreader to cause the looper to take the thread from the needle and the spreader to take said thread from the looper and carry the same, in loop form,

over the edge of the work, with one strand thereof into said notch and the loop into the path of the needle.

13. The combination, in a sewing machine, of a reciprocating thread-carrying needle; a looper cooperating with said needle; a spreader cooperating with said needle and looper; a throat-plate, through which the needle reciprocates, having a depending, thread-supporting guard-finger; and means for actuating the needle, looper and spreader to cause the looper to take the thread from the needle, and the spreader to take said thread from the looper and carry the same, in loop form, into the path of the needle, the said guard-finger acting as a support for the thread.

14. A stitch-forming mechanism including a needle, looper, spreader, and actuating mechanism therefor, the needle having means above its eye for separating the thread from its body, and the looper having a projecting hook for engaging the needle-thread; and a throat-plate having a tongue with a notch in its side in which the spreader lays a strand of the loop of thread taken from the hook to the needle.

15. A stitch-forming mechanism including a needle, looper, spreader, actuating mechanism therefor, and a throat-plate having a tongue with a notch in its side; the needle having means above its eye for separating the thread from its body, and the looper having a hook to engage the needle-thread at the point of separation; and the actuating mechanism causing the looper to take the needle-thread, and the spreader to take the thread from the looper and carry it into the notch and over the tongue to the needle.

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

JOHN P. WEIS.

Witnesses:

CHAS. McC. CHAPMAN,  
MABEL B. HOARE.