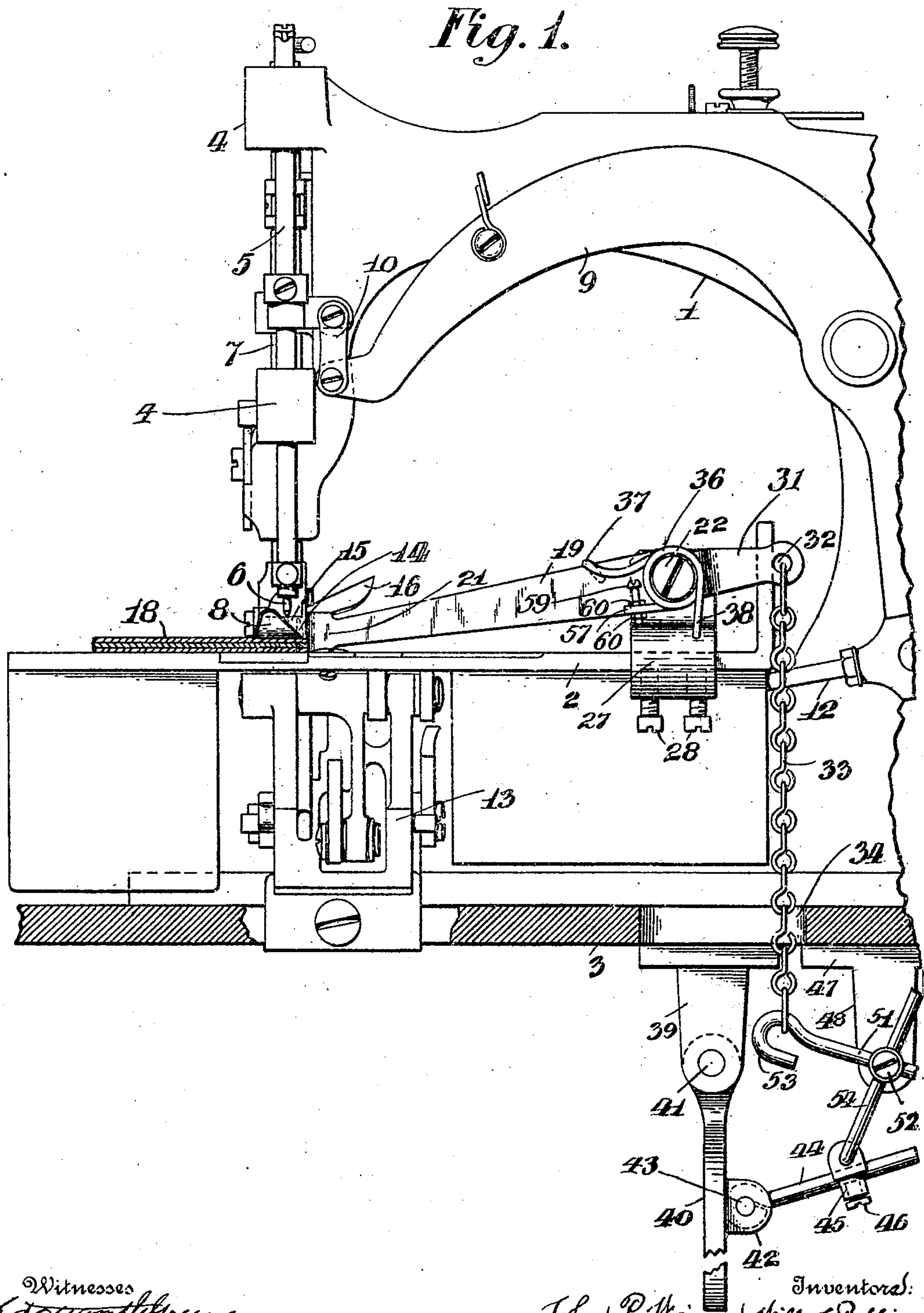


J. P. WEIS & W. C. ROBBINS.
 WORK GUIDE FOR SEWING MACHINES.
 APPLICATION FILED MAY 11, 1905.

954,552.

Patented Apr. 12, 1910.

4 SHEETS—SHEET 1.



Witnesses
Edgeworth Sumner
M. Herskovitz

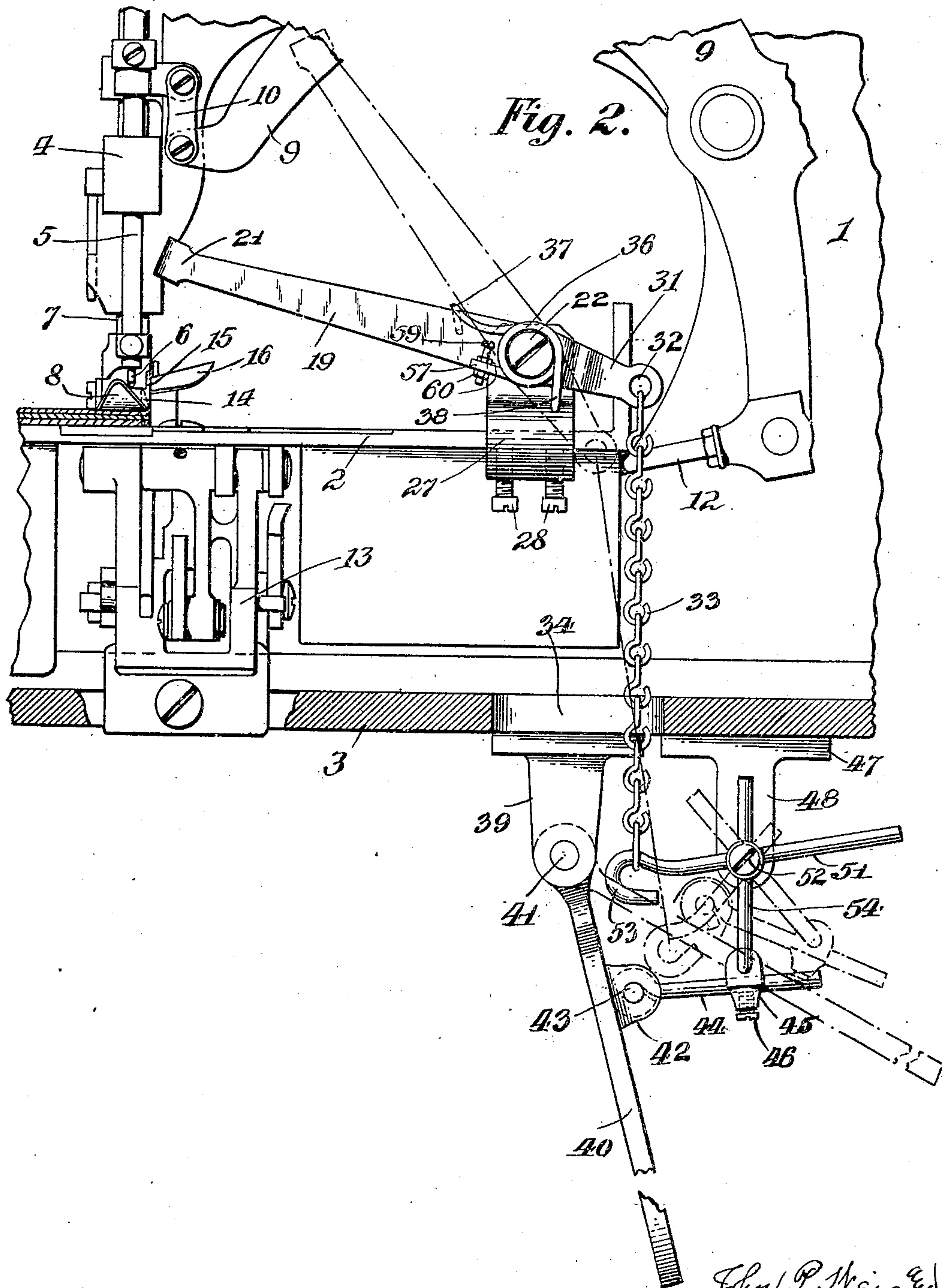
Inventors:
John P. Weis and William C. Robbins
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4 SHEETS—SHEET 2.



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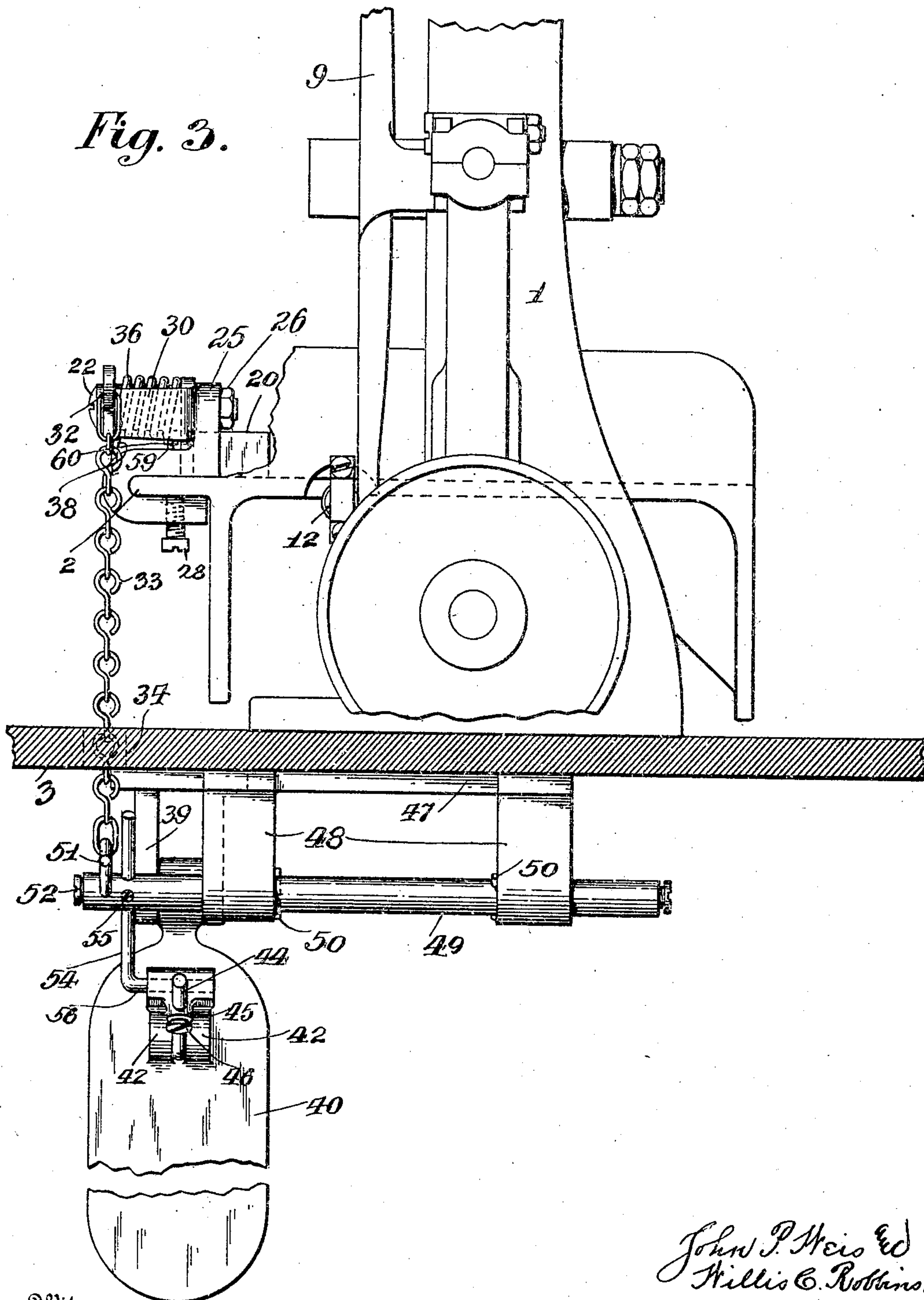
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4 SHEETS—SHEET 3.

Fig. 3.



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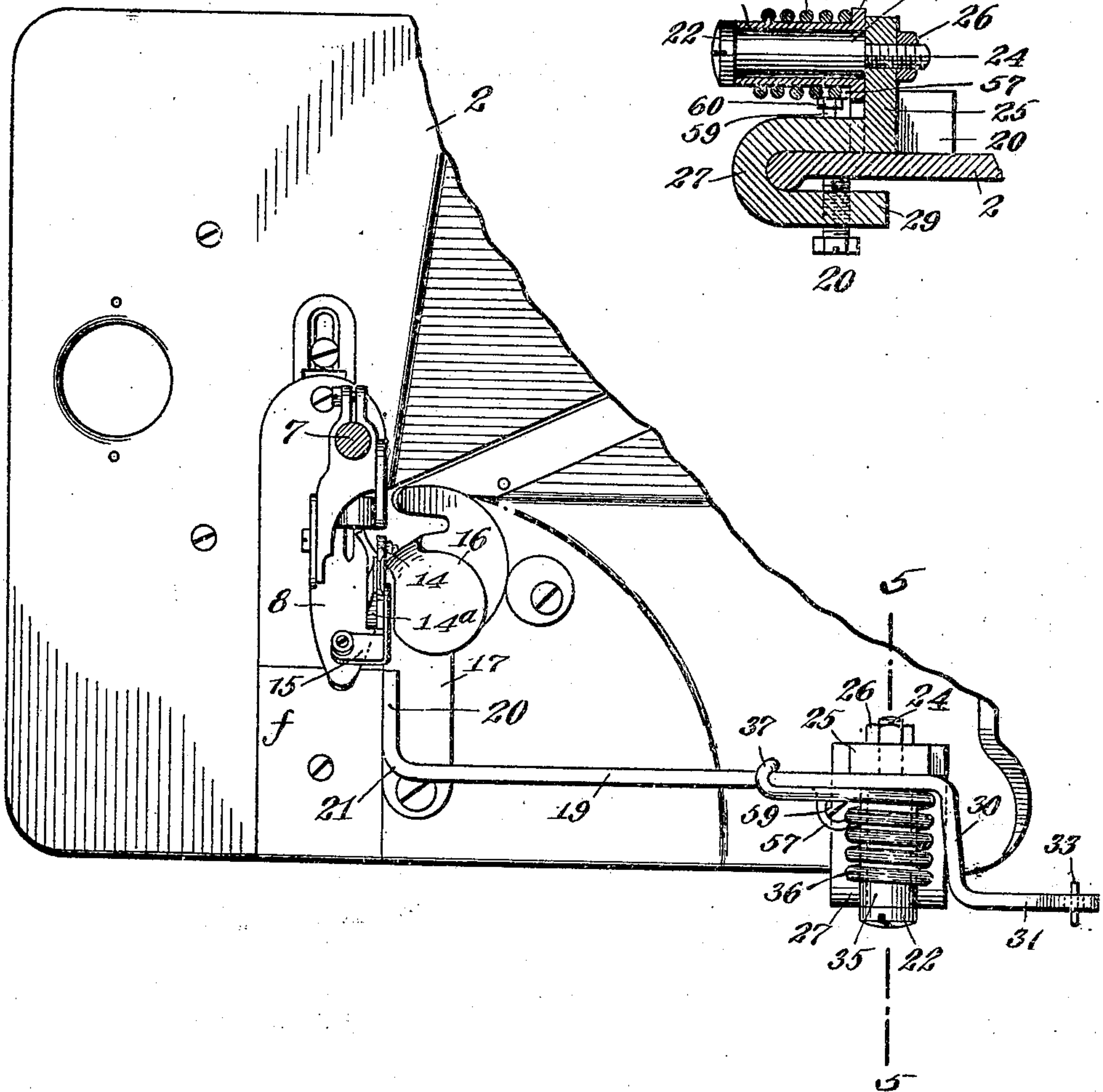
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4 SHEETS—SHEET 4.

Fig. 5.

Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN P. WEIS AND WILLIS C. ROBBINS, OF NYACK, NEW YORK, ASSIGNORS TO METROPOLITAN SEWING MACHINE COMPANY, OF NYACK, NEW YORK, A CORPORATION OF NEW YORK.

WORK-GUIDE FOR SEWING-MACHINES.

954,552.

Specification of Letters Patent.

Patented Apr. 12, 1910.

Application filed May 11, 1905. Serial No. 259,856.

To all whom it may concern:

Be it known that we, JOHN P. WEIS and WILLIS C. ROBBINS, citizens of the United States, residing in Nyack, county of Rockland, and State of New York, have invented a new and useful Improvement in Work-Guides for Sewing-Machines, of which the following is a description.

This invention relates to sewing machines, but more particularly to work-guides to be employed on and in connection with sewing machines.

Among the objects of this invention, the following may be noted: to provide a guide for attachment to any sewing machines by means of which the edge or edges of the fabric can be controlled and properly led up to the stitch-forming mechanism; to provide an edge-guide for attachment to any sewing machine which can be, during the operation of the machine, thrown into and out of action at the will of the operator and without the necessity for the operator using his hands for the purpose; to provide an edge-guide for attachment to any sewing machine which may be momentarily elevated to any given degree from the work-plate during the operation of the machine, whereby the operator may manipulate the work freely on the work-plate and without obstruction by the guide; to provide a guiding mechanism for sewing machines which can be operated so as to hold the guide elevated from the work-plate of the machine by a simple, quick movement of the controlling mechanism; and to provide a guide for adjustable attachment to a sewing machine cloth-plate so that it may operate either as an edge-guide or as a tuck-guide, and may also be applied to any sewing machine and properly adjusted with reference to the stitching mechanism to cooperate with the work either as an edge-guide or as a tuck-guide.

With these several objects in view, together with others which will be detailed during the course of this description, the invention consists in the parts, features and combinations of elements hereinafter described and claimed.

In the drawings, forming part of this application: Figure 1 is a front elevation of so much of a sewing machine as is deemed necessary to illustrate the application thereof to of the guide mechanism, the latter being

shown in operative position for performing its edge-guiding function and the table of the machine being shown partially in section; Fig. 2 is a view similar to that of Fig. 1, but showing the guide in two positions, viz., partially elevated in full lines and completely elevated in dotted lines, the controlling mechanism being shown in corresponding positions; Fig. 3 is a rear end elevation showing the machine-table in section; Fig. 4 is a detail plan view calculated to show the guiding mechanism and the relation of the edge-guide to the line of feed and trim; and Fig. 5 is a transverse section taken on the line 5—5 of Fig. 4, looking in the direction of the arrows.

Primarily, it should be understood that heretofore great difficulty has been experienced in operating upon all kinds of goods, but more especially upon knit and elastic goods, in properly manipulating the work so that it may be traversed accurately up to the stitch-forming mechanism. One element of difficulty resides in the fact that the operator has been unable to freely manipulate the work in advance of the stitch-forming mechanism on the cloth-plate of the machine, the usual guiding devices ordinarily being fixed or set in position and so disposed as to prevent freedom of movement both of the work and of the hands of the operator. Hence, it is desirable that a guiding mechanism be provided by means of which the edge-guide, at or about the stitching point, can be instantly, for the requisite length of time and at the will of the operator, thrown completely out of the way so as to enable freedom of movement both of the work and the hands of the operator around the stitching position and over and about the work-plate. More especially is this desirable in connection with machines whereby trimming and sewing are performed simultaneously, inasmuch as it is often desirable, after determining and fixing the line along which the work shall be trimmed, to change such predetermined line of trimming so as to produce either a deeper or more shallow line of cut and, oftentimes, so as to trim properly along curved edges by the proper manipulation of the work without reference to, or aid from, the edge-guide. Hence, the obvious necessity of having a guide in proper position when required, and providing means

whereby said guide may be instantly, and at the will of the operator, thrown out of action for a period. Moreover, it often happens that when the edge of the work
 5 has been trimmed and stitched,—and it may be overstitched,—it is desirable to make a line or group of evenly spaced tucks. This can be done by folding and stitching the work to make the first tuck, using the device
 10 as an edge-guide for the purpose; then by flattening the work the tuck will be caused to stand vertically, and by adjusting the device, as hereinafter explained, it can be used to regulate the distance of the succeeding
 15 tucks from the one first formed, the latter being kept in contact with the guide for the purpose.

In the drawings, a mechanism has been illustrated whereby the desired purposes
 20 may be accomplished, but only so much of a conventional chain-stitch sewing machine has been illustrated as is deemed necessary to disclose the mode of operation and functional disposition of the guiding mechanism.
 25 In said drawings, the numeral 1 designates the overhanging arm of the machine, 2 the work-plate thereof, 3 the table which supports the machine, 4 the head of the machine, 5 the needle-bar, 6 the needle, 7 the
 30 presser-bar, 8 the presser-foot, having the usual upturned toe, 9 the needle-actuating lever, 10 the link connecting said lever with the needle-bar and 12 the looper-actuating rod driven from the lower end of the needle-
 35 lever 9. The trimming mechanism is designated generally by 13, but the details of this trimming mechanism have not been set forth, inasmuch as they are non-essential to the invention of this application, except
 40 in so far as the position of the trimmer and ledger-blades is concerned, the plane in which the same operate, and the line along which the work is trimmed. The trimmer-blade 14 is shown by dotted lines in Fig. 1
 45 and in full lines in Fig. 4, the latter figure also showing the ledger-blade 14^a and the relation of the trimming mechanism to the stitch-forming mechanism and the guide of our invention to be presently described. It
 50 may be stated, however, that this trimming mechanism is, in all material respects, substantially the same as that illustrated in the application of John P. Weis, Serial No. 160,208, filed June 5, 1903. The trimming
 55 blade 14 is shown in dotted lines in Fig. 1 because the coöperative position of the parts is such as to bring the needle to almost its lower limit and the trimming blade into a corresponding position and completely be-
 60 hind a coöperating guide 15, fixed to the inner edge of the presser-foot and extending vertically in coöperative relation to the edge-guide. The representation at 16 is intended to indicate a shunt-device by means
 65 of which the trimming from the edge of the

work is deflected away from the stitching point and carried off to the rear of the machine. The base-plate of this device is shown in Fig. 4 and is indicated by 17. The
 said features 15, 16 and 17 are not herein
 70 illustrated more in detail, because the same form no part of this invention and are shown only to disclose the juxta-position and coöperative relation of the edge-guide thereto. It may be noted, however, that
 75 these parts form the subject-matter of the application of John P. Weis, Serial No. 279,116 filed September 19, 1905. The fabric to be trimmed is indicated at 18.

The guide consists of the lever 19 having
 80 its forward end bent at a right-angle to its length, as indicated more particularly in Fig. 4, to produce the edge-guide 20; and, it will be noted that, in order to make the guiding face of the edge-guide 20 stand in a
 85 vertical plane parallel with the path of reciprocation of the needle, the end of the lever 19, approximately at the bend which forms the edge-guide 20, is bent slightly
 90 vertically at or about the point 21, as clearly shown in Figs. 1 and 2, this slight vertical bend being given to compensate for the angle at which the lever 19 extends from its piv-
 95 otal support 22 to the guiding line at the surface of the work-plate. The pivot 22 consists of an elongated screw having an extended smooth body-portion 23 and a screw-threaded smaller extension 24, which
 100 screws into and through the vertical portion 25 of the supporting-bracket, the nut 26 clamping the pivotal screw tightly to the bracket. The supporting-bracket has the bent and curved portion 27 formed so as to
 105 embrace the work-plate 2, such bent portion being made, on its inner surface, to conform in great measure with the shape of the work-plate at its edge, as shown in Fig. 5. One
 110 or more clamping screws 28 are tapped through the bottom portion 29 of the bracket and impinge against the bottom of the work-plate 2 so as to hold the bracket firmly in position; and it will be understood that this construction is such that the guid-
 115 ing mechanism can readily be attached to any ordinary sewing machine. The lever 19, beyond its pivot 22, is bent so as to produce the straight portion 30 and extended offset end 31, the latter being provided with the aperture 32 for convenient engagement
 120 of any actuating device, such as a chain 33, which depends from said end 31 and extends through an elongated slot 34 in the table 3 for engagement with the controlling mechanism presently to be described. At its
 125 pivotal point the lever 19 is extended into a tubular hub 35 which is sleeved upon the smooth portion 23 of the screw 22 and which is loosely held between the head of said screw and the vertical extension 25 of the supporting bracket, so as to have free piv-
 130

otal movement. Coiled about the tubular hub 35 is a strong, torsional spring 36, one end of which is extended along the length of the lever 19 and has its end bent at 37 over the upper edge of said lever so as to bear firmly thereon, and having its other end extended, as at 38, into an aperture at the top of the bracket-portion 27, so as to firmly hold the same in position. Obviously, the normal tendency of this spring is to forcibly press the guiding end 20 of the lever 19 upon the work-plate 2 and hold the same in operative position.

To the bottom of the table 3 is rigidly secured a hanger 39, upon which freely swings the knee-rest or lever 40 pivoted to the hanger at 41, said knee-rest or lever having formed on one side the two ears 42, between which is pivoted at 43 the rod 44 carrying the socket-clamp 45, which is held to the rod by the clamping-screw 46. On the bottom of the table 3 is also secured the hanger-bracket 47, having two hangers 48 in which is journaled the rod or shaft 49, held in the hangers 48 from longitudinal movement by means of the pins 50 extending therethrough and engaging the respective hangers. At its forward end the shaft 49 has fixed thereto the hooked rod 51,—which, it will be noted,—is quite long,—by means of a set-screw 52 tapped into the end of said shaft and engaging said rod 51. The hooked end 53 of the rod 51 coöperates with the chain 33. A second rod 54 is extended transversely through the shaft 49 at a right-angle and adjacent to the rod 51, the same being clamped to the rod by means of a set-screw 55 tapped into the shaft and into engagement with said rod, said rod being, thus, longitudinally and axially adjustable. The rod 54 is bent at its outer end and extended at 56 into the socket of the clamp-socket 45, set upon the rod 44, the engagement of the extension 56 with said socket being loose and pivotal. Obviously, the clamp-socket 45 can be adjusted axially and longitudinally of the rod 44, the rod 54 can be axially adjusted and also longitudinally adjusted transversely of the shaft 49, but substantially at a right-angle to the longitudinal adjustment of the rod 51.

The construction just described is such that the rods 51 and 54 have circular movement with the rod 49 as an axis; the knee-lever or rest 40 can swing in the arc of a circle on the pivot 41; the rod 44 can have circular movement on the axis 43; and the rods 44 and 54 have relative pivotal movements by reason of the clamp-socket connection between them. It will be noted that the pivotal connection between the rod 44 and the knee-lever 40 constitutes in effect a toggle-joint, in that, when power is applied to the lever 40, irrespective of the point of

application, it is transmitted to the rod 44 through the joint or pivot 43.

Obviously, the hangers 39 and 48 and respective bracket-portions may be formed either separately, as shown, or may be formed all in one, and the shaft 49 need not be extended into and supported by the rear-most hanger 48, but may be shortened and journaled in the forward hanger 48. These are obvious modifications, needing no additional illustration for an understanding.

It will now be understood that the supporting-bracket 27 may be clamped at any portion along the length and edge of the work-plate of the machine, in order to bring the edge-guide 20 in proper relation to the stitch-forming, feeding and trimming mechanisms, for any of its functions. No feeding mechanism has been illustrated, however, in order to avoid confusion thereof with the invention, but in Fig. 4 the general line of feed is indicated by the arrow *f*, and from this it will be understood that the line or path of feed is parallel with the plane of the face of the edge-guide 20 and that the said edge-guide 20 extends parallel with the path or line of feed, while the guide-lever 19 extends at an angle to the said line or path of feed.

From the above description it will be understood, and especially on reference to Fig. 2 of the drawings, that, at the will of the operator, the work-guide can be lifted to any extent desired from the work-plate of the machine, according to the amount of pressure applied to the knee-lever 40; and it will also be understood that, when the said guide is lifted or forced into the dotted-line position of Fig. 2, the controlling mechanism will have assumed such position that the guide will be rigidly and firmly held without any further attention from the operator. This is produced because the rod 44 and the knee-lever 40 assume a position in substantial parallelism, which forces the rod 51 into the extreme low position shown by the dotted lines in Fig. 2, with the rod 54 at an acute-angle to the rod 44. This disposition of parts makes the strain or tension of the spring 36 upon the lever 19, which is transmitted through the chain 33, draw directly longitudinally of the rod 44 and against the toggle-joint 43 with the sole tendency to lift the knee-lever 40, and as the plane which intersects the axis of the toggle-joint 43, and the pivot between the rods 44 and 54 also intersect the pivot 41 of the knee-lever 40, the whole power of the spring 36 is exerted to hold the lever 19 elevated instead of to depress the same. Hence, when the knee-lever 40 is pushed sufficiently over to make the parts assume the dotted-line position of Fig. 2, the guide-lever 19 will be firmly held elevated without

any further attention from the operator, and the latter is thus enabled to manipulate the work as he pleases with both hands, without any interference from the guide; and the operator is also at liberty to manipulate the work during the operation of the machine at any time he sees fit, by only partially lifting the lever 19, as shown by full lines in Fig. 2.

So far the invention has been described with reference to its function as an edge-guide, with an occasional reference to its function as a tuck-guide. Upon reference to the drawings, it will be seen that the lever 19, near its pivot, is provided with a laterally extended lug 57, having a screw-threaded aperture, — through which extends the screw 59, the end of which bears against the horizontal portion of the supporting bracket and can be adjusted so as to hold the guiding end 20 of the lever 19 at the required elevation to rest easily and without drag upon any thickness of work and thus act as a tuck-guide. When the screw 59 has been properly adjusted, the adjustment is held by means of the nuts 60 arranged on opposite sides of the lug 57, which are turned tightly into engagement therewith, thus preventing the screw 59 from having longitudinal or turning movement. It will now be understood that by adjusting the supporting bracket to the proper position along the cloth-plate, the guiding end 20 of the lever 19, can be caused to overreach the work and be positioned so as to engage a tuck, formed as suggested, at any desired distance from the stitching point, or line of feed. To accommodate this adjustment and permit this use of the guide, the slot 34 has been elongated, as described and shown, so that the chain 33 may pass along properly with the guide as adjusted, and the hooked-rod 51,—made quite long for the purpose, as shown,—is also adjusted longitudinally to the extent desired to correspond with the adjustment of the guide, thus allowing the chain 33 to extend straight between the latter and hook 53. As previously noted, the adjustment of the screw 59 will be such as to hold the guide-end 20 over the work of any thickness and so as not to create drag or friction thereon, it being obvious that, to act as a tuck-guide, the end 20 should rest but lightly upon, or just out of contact with, the face of the work, and be in easy contact with the body and base of the tuck.

From the above description it will be seen that a simple, compact and convenient guide and guide-controlling mechanism has been produced; that a guide, acting as an edge-controlling mechanism has been produced; that the guide, acting as an edge-guide, can be readily and easily thrown in and out of operation without inconvenience

to the operator or interrupting or interfering with the work; that the guide, acting as a tuck-guide, can be positioned so as not to drag on the work, irrespective of the thickness of the latter; that adjustments can be made to adapt the guide to practically any sewing machine; and that the guide is convertible by the employment of the height regulating device.

Although we have shown and described the guide as being controlled by mechanism operated by a knee-lever or shift, and prefer such construction, we do not purpose limiting certain of our claims thereto, but shall so couch them as to include also a treadle for operating the controlling mechanism, inasmuch as, by an obvious mechanical change, the guide can be operated by the foot instead of by the knee.

Having thus described our invention, what we claim and desire to secure by Letters Patent is:

1. In combination with a sewing machine and the stitch-forming mechanism thereof, of a guide attached to the cloth-plate of the machine, means for adjusting said guide on said cloth-plate relatively to the stitch-forming mechanism, and controlling means coöperating with said guide for manipulating the same, including a knee-rest pivoted below the cloth-plate so as to be accessibly presented to the operator, whereby the guide, at the will of the operator, may be elevated to any desired extent from the cloth-plate or thrown into and out of operative position during the operation of the machine, thereby leaving a clear space between the guide and the cloth-plate for the manipulation of the work.

2. In combination with a sewing machine and the stitch-forming mechanism thereof, of a work-guide pivoted to the cloth-plate of the machine, and controlling means co-operating with said guide for manipulating the same, accessibly presented to the operator, whereby the guide, at the will of the operator, may be elevated to any desired extent from the cloth-plate or thrown into and out of operative position during the operation of the machine, thereby leaving a clear space between the guide and the cloth-plate for the manipulation of the work.

3. In combination with a sewing machine and the stitch-forming mechanism thereof, of a guide carried by the cloth-plate, and controlling means, coöperating with the guide and operable during the running of the machine, for lifting said guide bodily from the cloth-plate and locking the same in lifted position, said controlling means including a knee-rest supported below the cloth-plate and thereby being accessibly presented to the operator to be always under the latter's control.

4. In combination with a sewing machine

and the stitch-forming mechanism thereof, of a work-guide, means for adjusting the same on the cloth-plate of the machine, and controlling means, coöperating with said guide and operable during the running of the machine, whereby said guide may be lifted bodily from said cloth-plate and locked in lifted position, said controlling means including a knee-rest supported below the cloth-plate and thereby being accessibly presented to the operator to be always under the latter's control.

5. In combination with a sewing machine, of a work-guide carried thereby above the cloth-plate and in position to coöperate with the work, and means, located below the cloth-plate and operatively connected to said guide, for throwing the latter into and out of operative position, said means including a toggle mechanism.

6. In combination with a sewing machine, of a work-guide carried thereby above the cloth-plate and in position to coöperate with the work, and means, located below the cloth-plate and operatively connected to said guide, for throwing the latter into and out of operative position, including a bell-crank lever and a toggle device.

7. In combination with a sewing machine, of a pivotally supported work-guide carried thereby above the cloth-plate and in position to coöperate with the work, and means, located below the cloth-plate, for turning said guide upon its pivot into and out of operative position, said means including a knee-lever, a bell-crank lever a connection between the two levers, and a connection from the bell-crank lever to the said guide.

8. In combination, in a sewing machine, a stitch-forming mechanism, a trimming mechanism, and a guiding mechanism, the trimming mechanism being arranged to trim the work in advance of the stitching mechanism and the guiding mechanism having a part coöperating with the work, in advance of the trimming mechanism, and means located below the work-plate of the machine whereby, at the will of the operator, the guiding-device of the guiding mechanism may be thrown vertically into and

out of operative position, thereby enabling the operator to manipulate the work so as to change the amount of trim on the edge of the work.

9. In combination, in a sewing machine, stitch-forming mechanism, trimming mechanism, and guiding mechanism, the guiding mechanism having a guiding-device located in advance of the other two mechanisms, mechanism located below the work-plate of the machine whereby the guiding-device may be actuated, at the will of the operator, to throw the same vertically into and out of operative position, and means whereby the guide may be adjusted bodily transversely of the line of feed.

10. In combination, stitch-forming mechanism and guiding mechanism, means for adjusting the guiding mechanism relatively to the stitch-forming mechanism so as to coöperate with the edge of the work, means whereby the guiding mechanism may be adjusted relatively to the stitch-forming mechanism to operate upon the surface of the work, and controlling means supported below the cloth-plate so as to be accessibly presented to the operator whereby, in either position, the guiding device of said guiding mechanism may be thrown into and out of operative position at the will of the operator and during the running of the machine.

11. A guide for sewing machines comprising a spring-controlled lever carrying at one end a guiding-device, and means coöperating with its other end, for manipulating said device, whereby the guide may be raised and lowered to any desired extent or thrown into and out of its normal operative position, said means being accessibly presented to the operator whereby said device can be operated at will.

In testimony whereof we have hereunto signed our names in the presence of two subscribing witnesses.

JOHN P. WEIS.
WILLIS C. ROBBINS.

Witnesses:

CHAS. McC. CHAPMAN,
M. HERSKOVITZ.