

No. 770,447.

PATENTED SEPT. 20, 1904.

J. H. & J. B. URSBRUCK.

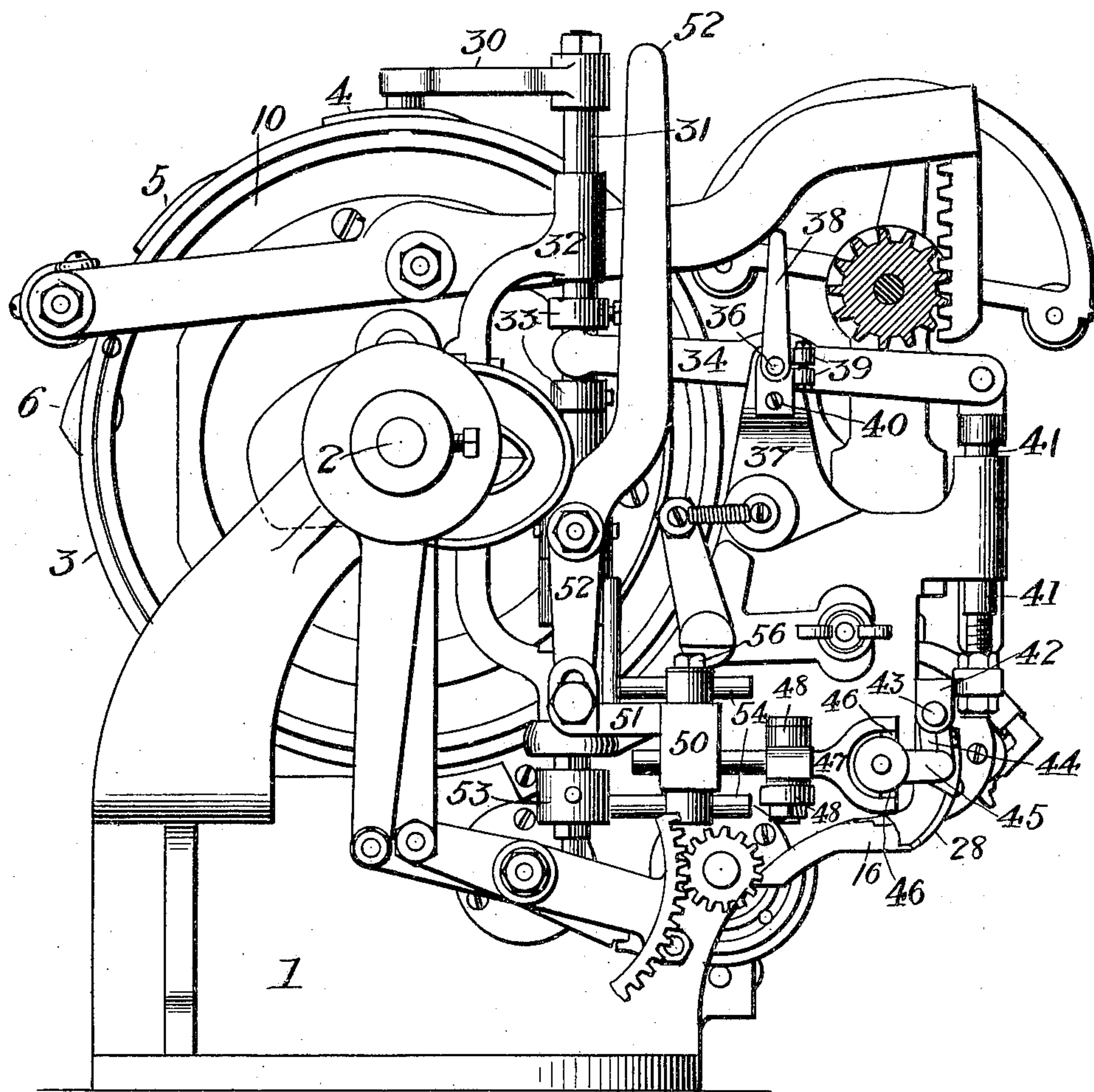
FEED MECHANISM FOR SEWING MACHINES.

APPLICATION FILED DEC. 6, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

*Fig. 1.*

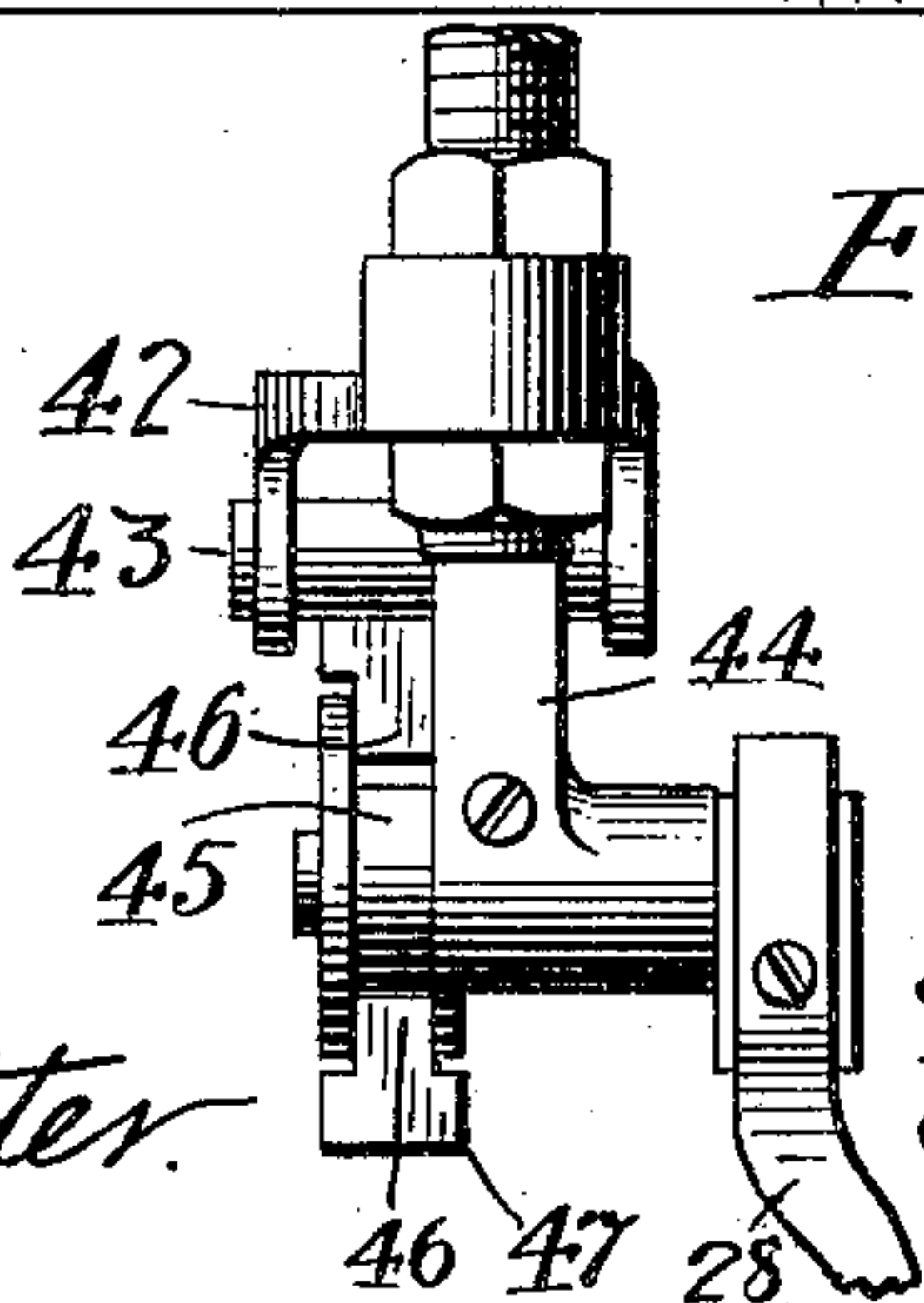


*Fig. 7.*

Witnesses:

*O. W. Edlin*

*A. Harvey cutter.*



Inventors:

*John H. Ursbruck and*

*Joseph B. Ursbruck.*

*by Hector J. Fenton,*  
*Atty.*

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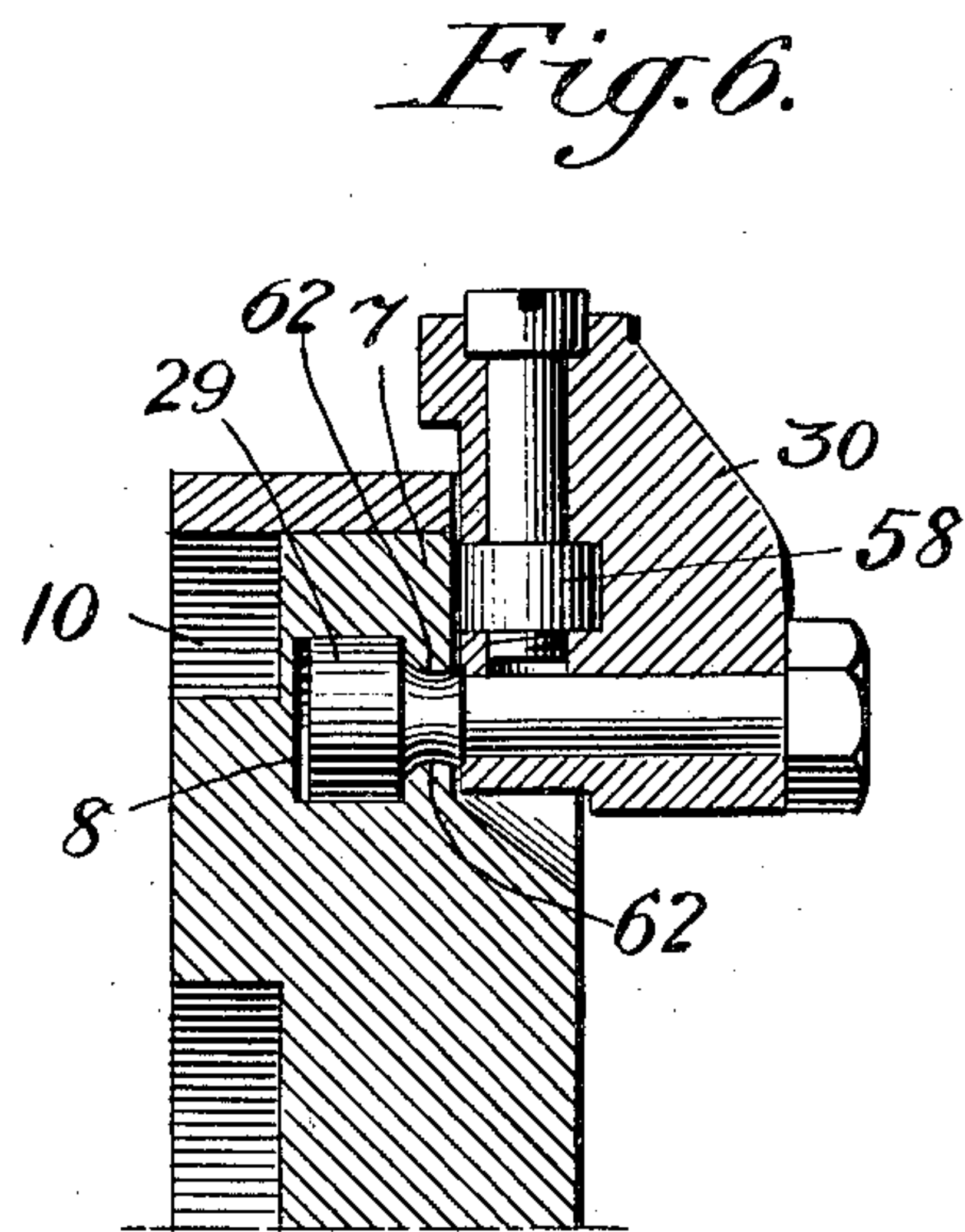
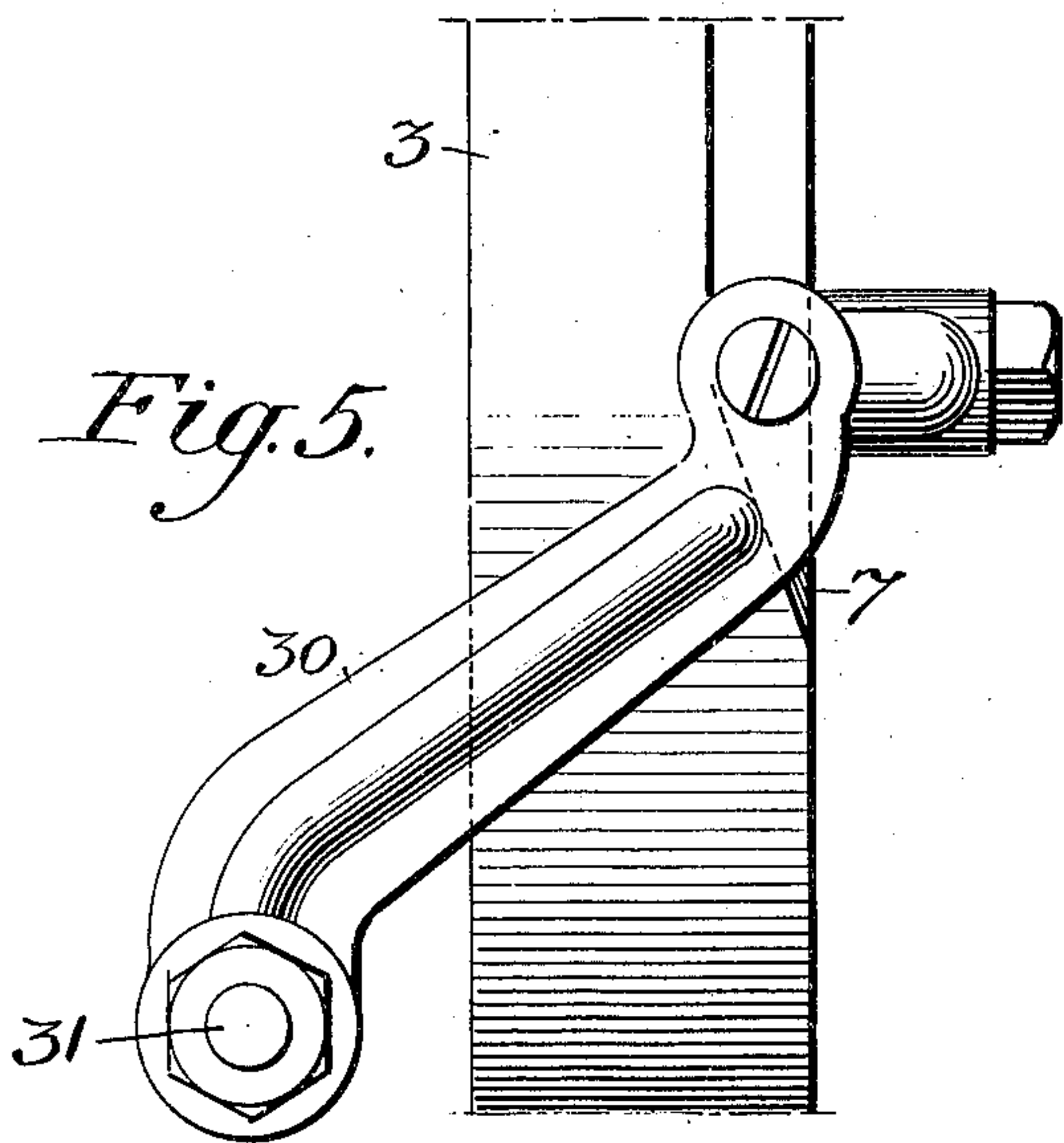
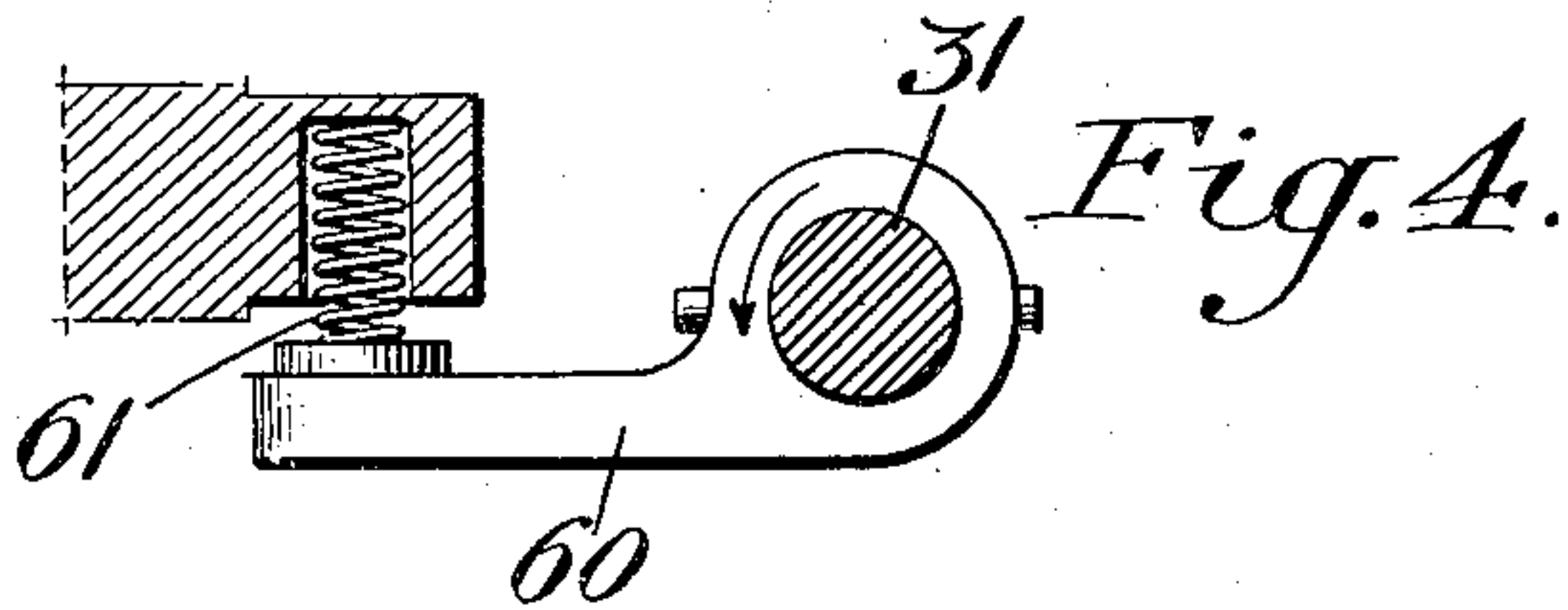
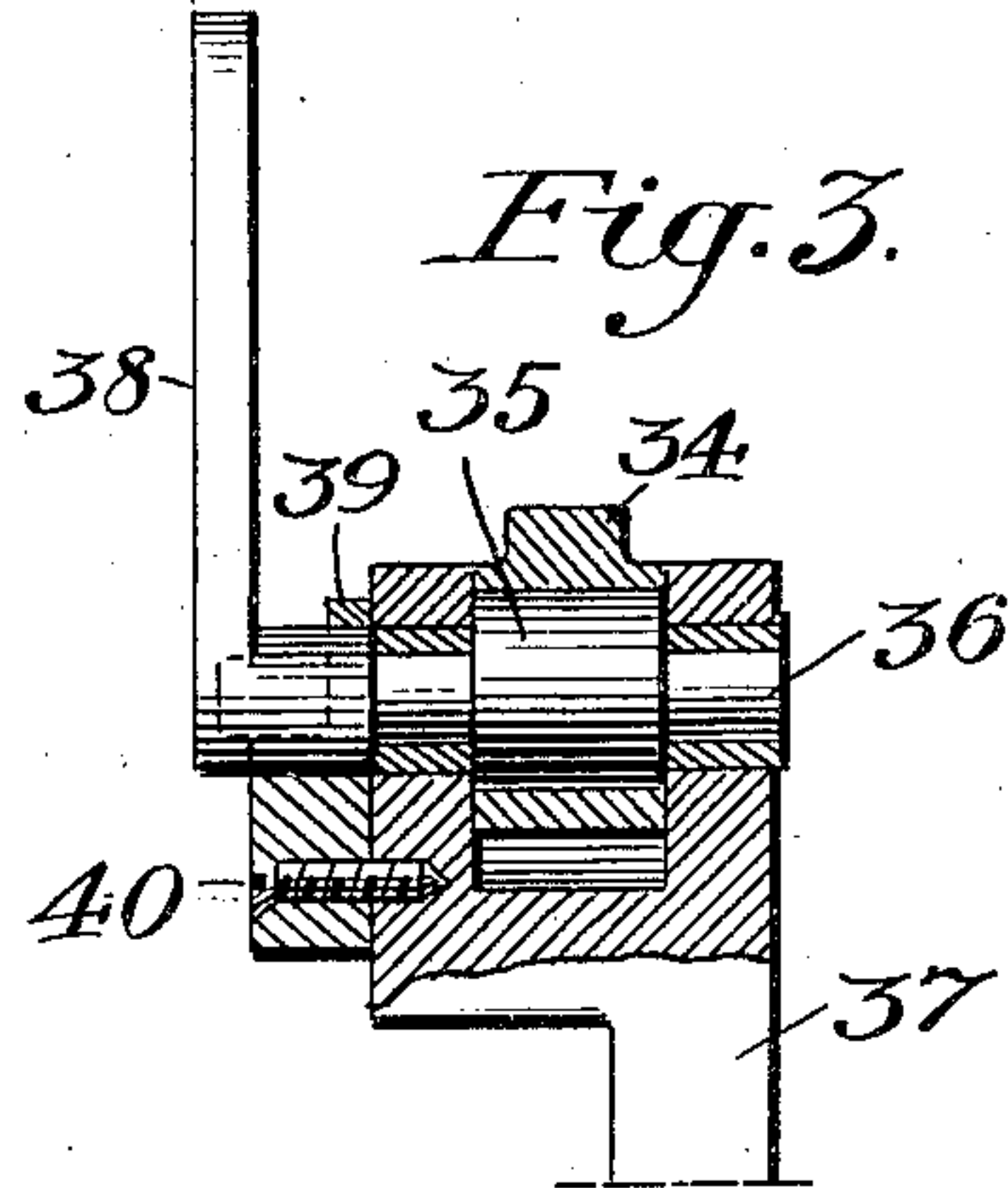
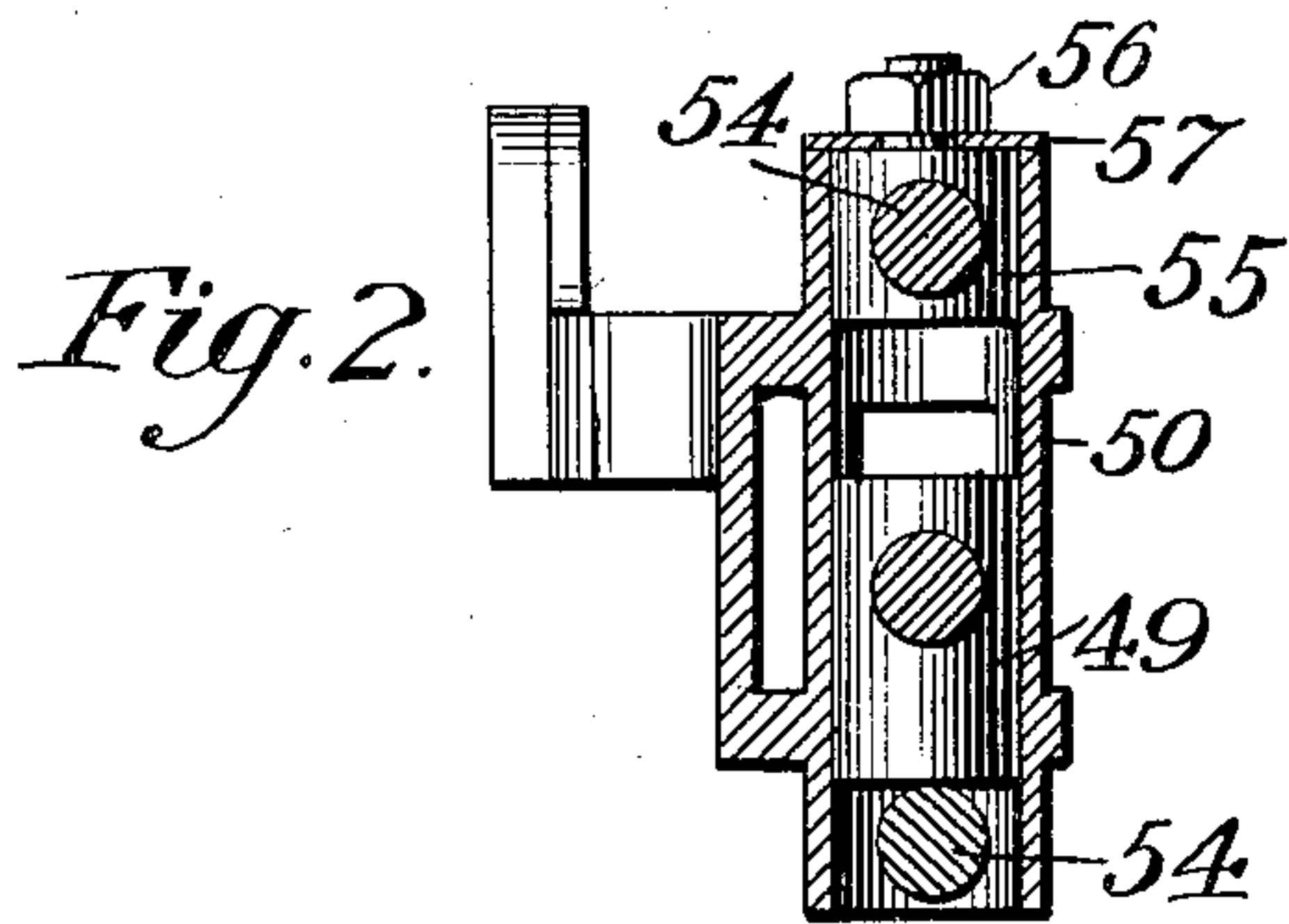
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FEED MECHANISM FOR SEWING MACHINES.

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NO MODEL.

2 SHEETS—SHEET 2.



Witnesses:  
D. W. Edelin  
A. Harvey cutter.

Inventors:  
John H. Ursbruck and  
Joseph B. Ursbruck.  
by Hector J. Fenton Atty



# UNITED STATES PATENT OFFICE.

JOHN H. URSBRUCK AND JOSEPH B. URSBRUCK, OF PHILADELPHIA,  
PENNSYLVANIA; ASSIGNORS OF ONE-HALF TO JOHN A. HUNTER  
AND MARY A. HUNTER, OF PHILADELPHIA, PENNSYLVANIA.

## FEED MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 770,447, dated September 20, 1904.

Original application filed August 6, 1900, Serial No. 26,071. Divided and this application filed December 6, 1902. Serial No. 134,091.  
(No model.)

*To all whom it may concern:*

Be it known that we, JOHN H. URSBRUCK and JOSEPH B. URSBRUCK, both citizens of the United States, and residents of the city of Philadelphia, in the State of Pennsylvania, have jointly invented certain new and useful Improvements in Feed Mechanism for Sewing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

The invention to be hereinafter described relates to feeding mechanism for sewing-machines, and more particularly to machines for sewing boots and shoes wherein two threads are employed to form a lock-stitch, the object of the present invention being to provide a machine of this type with a simple and effective feeding mechanism for feeding leather and other heavy materials.

The present application is a division of our application, Serial No. 26,071, filed August 6, 1900, upon which Letters Patent No. 715,323, dated December 9, 1902, have been granted and issued; and the invention consists of the parts and combinations, as will be hereinafter described and then definitely pointed out in the claims.

In the drawings, Figure 1 is a side view of a machine embodying our invention, showing the parts with which the feeding mechanism coöperates. Figs. 2, 3, and 4 are sectional views, on an enlarged scale, showing details of the feeding mechanism; and Figs. 5 and 6 are respectively a plan view and a vertical section illustrating certain elements of the feeding mechanism and the cams for acting thereupon. Fig. 7 is an enlarged detail of the head and its bifurcated member and connected parts to be described.

The fixed frame or bed of the machine is represented at 1, and on this frame are suitable bearings for the driving-shaft 2, to which power may be applied in any convenient way so as to rotate the same.

Fixedly secured to the shaft 2 is a cam-disk 3, having peripheral cams 4, 5, and 6,

Fig. 1, a side face-cam 7, Fig. 6, cam-groove 8, Fig. 6, and a cam-groove 10 on the face opposite cam-groove 8, Fig. 1, all of which parts constituting the cams and cam-grooves of disk 3 are fully set forth in our patent above mentioned, to which reference may be had.

The work is supported upon a projecting bracket or finger 16 at the front of the frame 1, the forward face of said finger or bracket being preferably beveled rearwardly and otherwise constructed as fully disclosed in our application referred to.

The work holding and feeding finger 28 has imparted to it a rising-and-falling movement and a longitudinally-reciprocating movement, the finger first rising from and releasing its hold upon the work resting upon the support 16, then moving backwardly to such a distance as is required for the length of stitch to be produced, then descending, so as to again grip the work, and then moving forwardly, so as to feed said work forwardly over the work-support.

The rising-and-falling movements are imparted to the feed-finger by the cam-groove 8, Fig. 6, in the disk 3, said groove acting upon an antifriction-roller 29, mounted upon the depending end of an arm 30, which extends over the top of the disk 3 and is secured to a vertical shaft 31, mounted so as to be free both to rise and fall and to turn in suitable bearings 32 on the fixed frame, Fig. 1.

Between collars 33 on the upright shaft 31 projects the inner end of a lever 34, which is hung upon the eccentric portion 35, Fig. 3, of a pivot-spindle 36, adapted to bearings in a bracket 37 on the fixed structure, said pivot-spindle having an arm 38, whereby it may be turned in its bearings, so as to raise or lower the fulcrum of the lever 34, a split clamp 39 embracing the hub of the lever and being secured by a screw 40 to the bracket 37, so as to serve as a means of locking the pivot-shaft 36 and its eccentric bearing for the lever 34 in any position of adjustment of the same.

The outer end of the lever 34 is forked for engagement with the upper end of the rod 41,



which is suitably guided in a bearing on the fixed frame and carries at its lower end a forked head 42, with transverse rod 43, which passes through and is supported by the opposite members of this forked head and is embraced by the upper end of the arm 44, which therefore swings on it. This swinging arm 44 is part of or mounted upon a bar 45, which carries the feed-finger 28.

The bar 45 has an enlarged disk-like head end 45<sup>a</sup>, which is peripherally grooved at one end for the reception of oppositely-disposed lugs 46, projecting inwardly from the forked forward end of a lever 47, which is pivoted to lugs 48 on the fixed frame and passes freely through an opening in a block 49, which is free to turn in a tubular sleeve 50, having a slotted arm 51, whereby it engages a pin or screw at the lower end of a lever 52, which is suitably fulcrumed upon a fixed portion of the frame.

The upright shaft 31 has a groove at the lower end, and said lower end of the shaft passes through hubs 53, having pins for engaging with said groove, each of said hubs having a forwardly-projecting arm 54, the lower of said arms engaging with the lower portion of the sleeve 50 and the upper arm engaging with said sleeve and with a block 55 therein, which block has a threaded stem for the reception of a nut 56, which bears upon a washer 57, resting upon the top of the sleeve 50, as shown in Fig. 2. The shaft 31 is rocked at suitable intervals by reason of the contact of the side cam 7 of the disk 3 with an antifriction-roller 58, Fig. 6, carried by the overhanging portion of the arm 30, and this rocking movement of the rod 31 causes vibration of the arms 54, and consequently of the lever 47. Hence longitudinal reciprocation is imparted by said lever to the bar 45, which carries the feed-finger 28. The extent of this longitudinal reciprocation depends, of course, upon the throw of the lever 47, and this can be varied by moving the sleeve 50 nearer to or farther from the axis of said lever 47, such movement, in effect, shortening the arm of the lever with which the block 49 engages and at the same time lengthening the arms 54, or vice versa.

When it is desired to operate the machine for a considerable time with the same length of feed, the sleeve 50 may be locked to the upper arm 54 by tightening the nut 56, and thereby drawing the block 55 so firmly into contact with said arm as to prevent it from sliding thereon.

When the sleeve 50 is not locked in position on the arm 54, movement can be readily imparted to said sleeve by manipulation of the lever 52, and the length of stitch can therefore be readily controlled and can be varied to any desired extent between its extreme limits at any time during the operation of the machine.

The feed-finger 28 always has the same extent of rising-and-falling movement; but the distance between the face of the work-support 16 and the lower end of the feed-finger when the same is depressed may be increased or diminished to suit the thickness of the work being acted upon by a rocking movement of the eccentric pivot-stud 36 of the lever 34, so as to raise or lower the fulcrum of said lever by the action of the eccentric portion 35 of said pivot-stud.

The shaft 31 has secured to it a projecting arm 60, as shown in Fig. 4, which arm is acted upon by a coiled spring 61, contained in a recess in the fixed frame, the action of this spring tending to move the shaft 31 in the direction of the arrow, Fig. 4, and thereby maintain the antifriction-roller 58 of the arm 30 constantly in contact with that face of the cam-disk 3 of which the cam 7 forms part.

The cam-groove 8 of the disk 3 has inwardly-projecting ribs 62 in that portion adjacent to the face-cam 7, as shown in Fig. 6, so as to still further insure the maintenance of the contact of the antifriction-roller 58 with said cam 7 at the time that the arm 30 is having a rising-and-falling movement imparted to it by the action of the cam-groove 8 upon the antifriction-roller 29.

From the construction thus described it will be evident that the feeding mechanism may be readily adjusted for varying thicknesses of material being sewed by simple manipulation of lever 38 and that the feeding movement of the finger 28 under the action of its operating mechanism may be quickly and readily adjusted to secure the desired length of stitch.

It has not been deemed necessary in this application to particularly describe the various needles and other parts of the sewing-machine with which the feeding mechanism co-operates, as these are fully set forth and described in our application Serial No. 26,071, of which the present application is a division, and in the said Letters Patent No. 715,323 since issued thereon.

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

1. The combination in a sewing-machine, of the feed-finger with longitudinal reciprocating mechanism therefor having as elements a lever, a vibrated arm, a sleeve engaging said arm, a block engaging the lever and free to turn in said sleeve, and means for longitudinally moving the sleeve on the arm and lever, substantially as specified.

2. The combination in a sewing-machine, of the feed-finger, a carrier therefor, a bar on which said carrier is free to slide longitudinally, means for raising and lowering said bar, a lever for imparting longitudinal movement to the carrier, and means for vibrating said lever, substantially as specified.

3. The combination in a sewing-machine, of



the feed-finger, devices to support the same, means to impart a rising-and-falling movement thereto, said means comprising as an element a rocking lever centrally fulcrumed and pivotally connected at one end to the devices which carry the feed-finger; and means to impart a longitudinal reciprocatory movement to said feed-finger, said means comprising a lever, an actuating-arm, and a sleeve connecting said arm and lever and adjustable longitudinally thereon.

4. The combination in a sewing-machine, of a feed-finger, with devices for imparting rising-and-falling and a longitudinal reciprocatory movement thereto, and with mechanism for actuating said devices, said mechanism having as elements a shaft free to rock and to move vertically in its bearings, an arm on said shaft, a rotating disk and two cams actuated thereby, one of said cams acting on said shaft-arm, to move it so as to rock the shaft, and the other cam acting to move it so as to slide the shaft in its bearings; and a horizontally-disposed rocking lever, one end of which is vibrated by said vertically-disposed rocking shaft and the other end of which is pivotally connected to the devices which carry the feed-finger.

5. The combination, in a sewing-machine, of

a feed mechanism comprising a feed-finger, with supporting devices therefor, means to impart thereto an adjustable feeding movement consisting first of a rising and releasing and then a backward movement to the predetermined length of the stitch required, followed by a descending and gripping and then a forward feeding movement, said means comprising as elements an actuating-shaft mounted vertically in bearings, cam mechanisms operating respectively to rock said shaft and to slide it in its bearings, a rocking lever actuated by said shaft, operating to impart rising-and-falling movement to the feed-finger, with means to shift the fulcrum of said lever and to lock it in any position of adjustment; a lever vibrated by means connected with said actuating-shaft and operating to impart longitudinal movement to the feed-finger, with devices to adjust the extent of the longitudinal reciprocation thereof.

In testimony whereof we have hereunto affixed our signatures this 1st day of December, A. D. 1902.

JOHN H. URSBRUCK.  
JOSEPH B. URSBRUCK.

Witnesses:

GEO. W. REED,  
A. M. BIDDLE.