

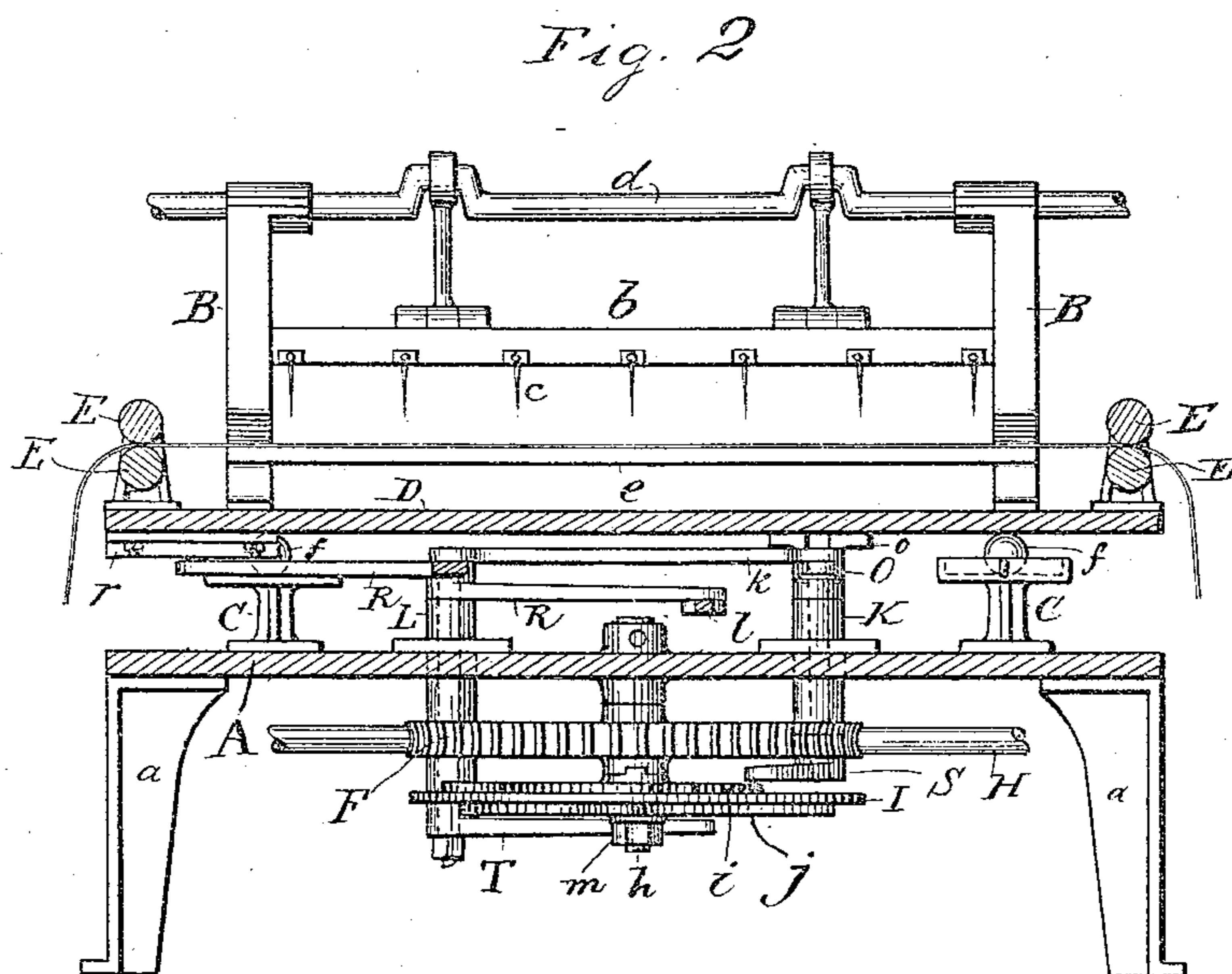
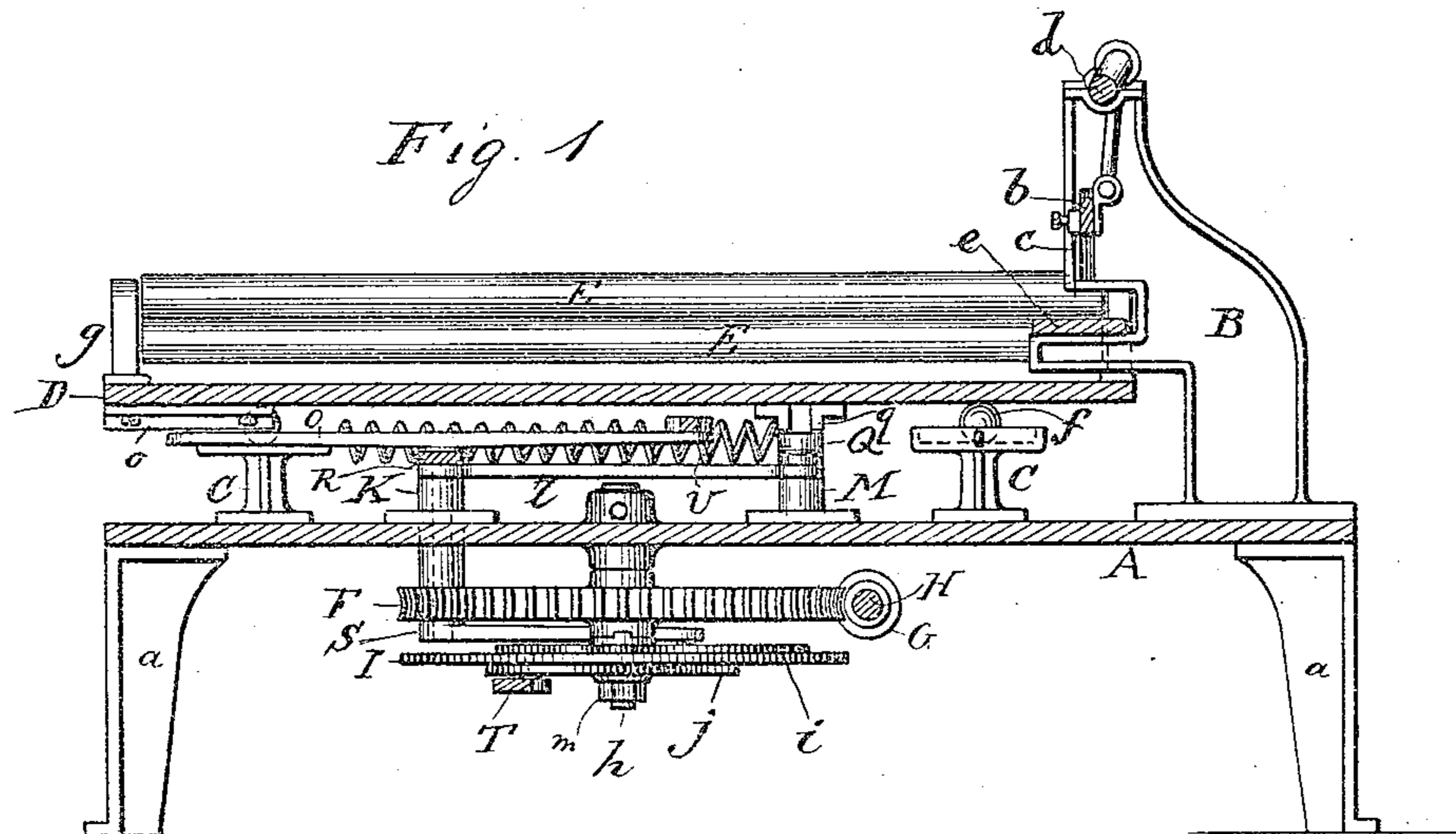
(No Model.)

3 Sheets—Sheet 1.

A. BECK.  
QUILTING MACHINE.

No. 438,138.

Patented Oct. 14, 1890.



Witnesses:  
Otto Luebkert  
Orren V. Sturges

Inventor:  
August Beck  
By Wm. Lotz  
his Attorney

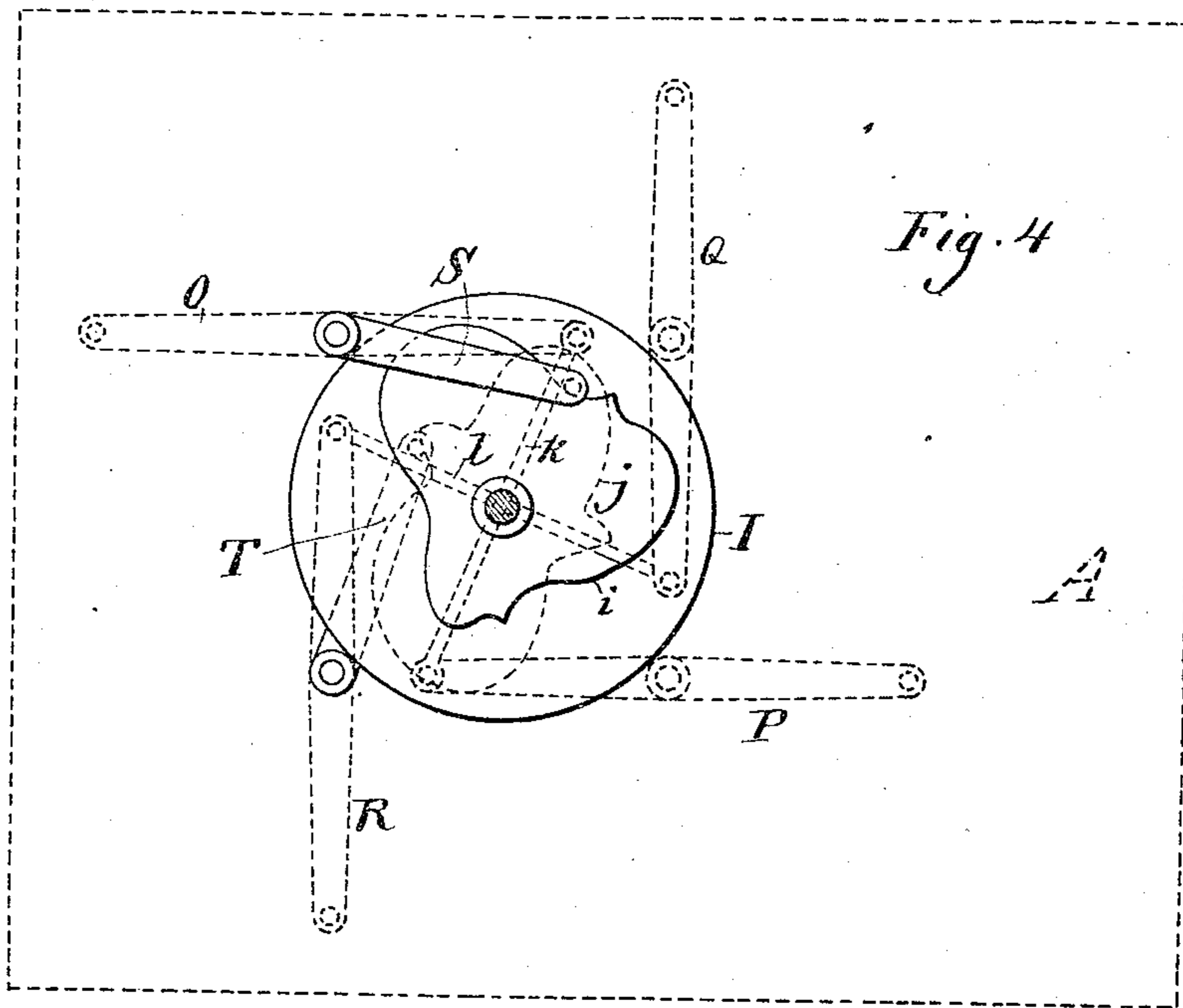
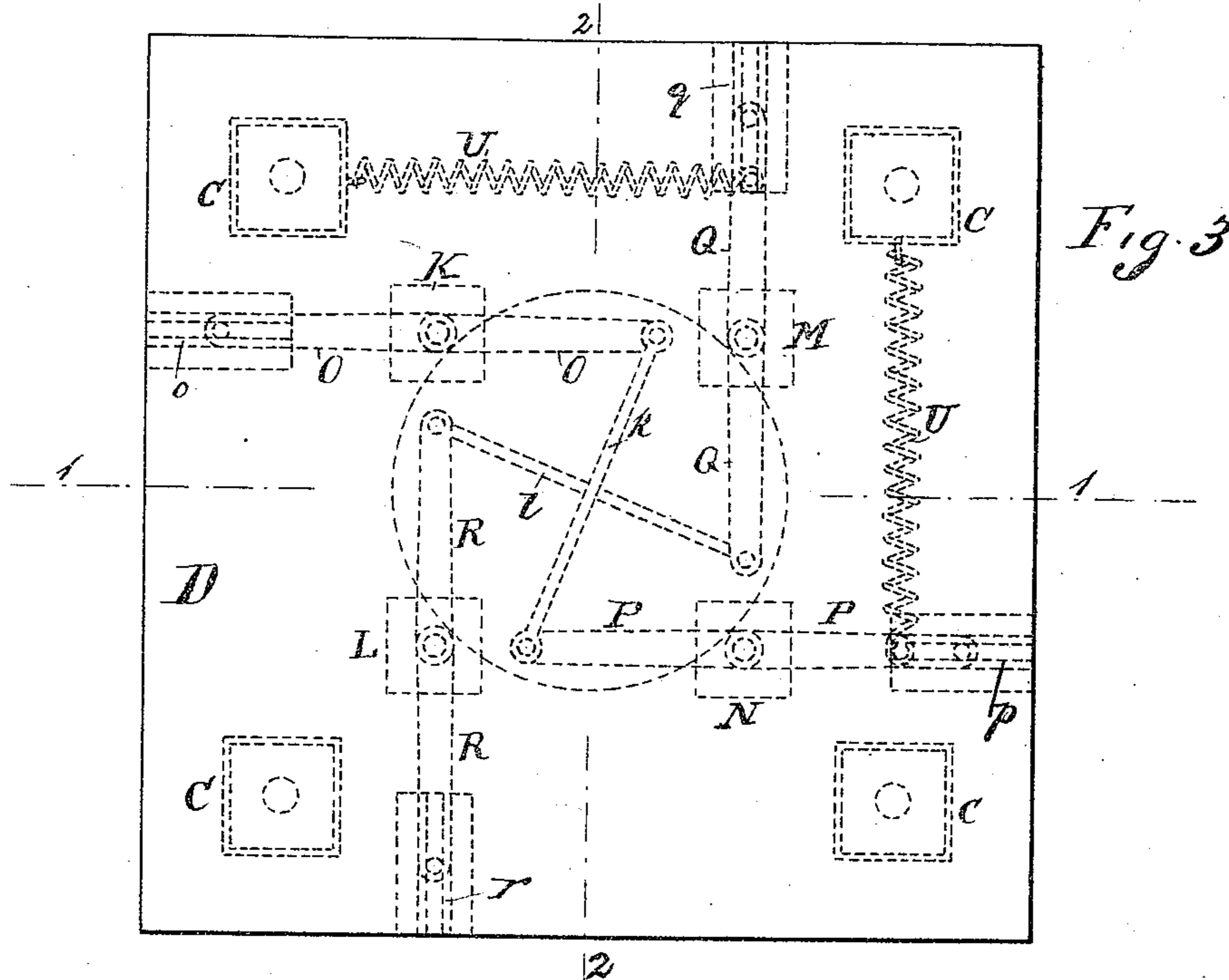
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3 Sheets—Sheet 2.

A. BECK.  
QUILTING MACHINE.

No. 438,138.

Patented Oct. 14, 1890.



Witnesses:  
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Inventor:  
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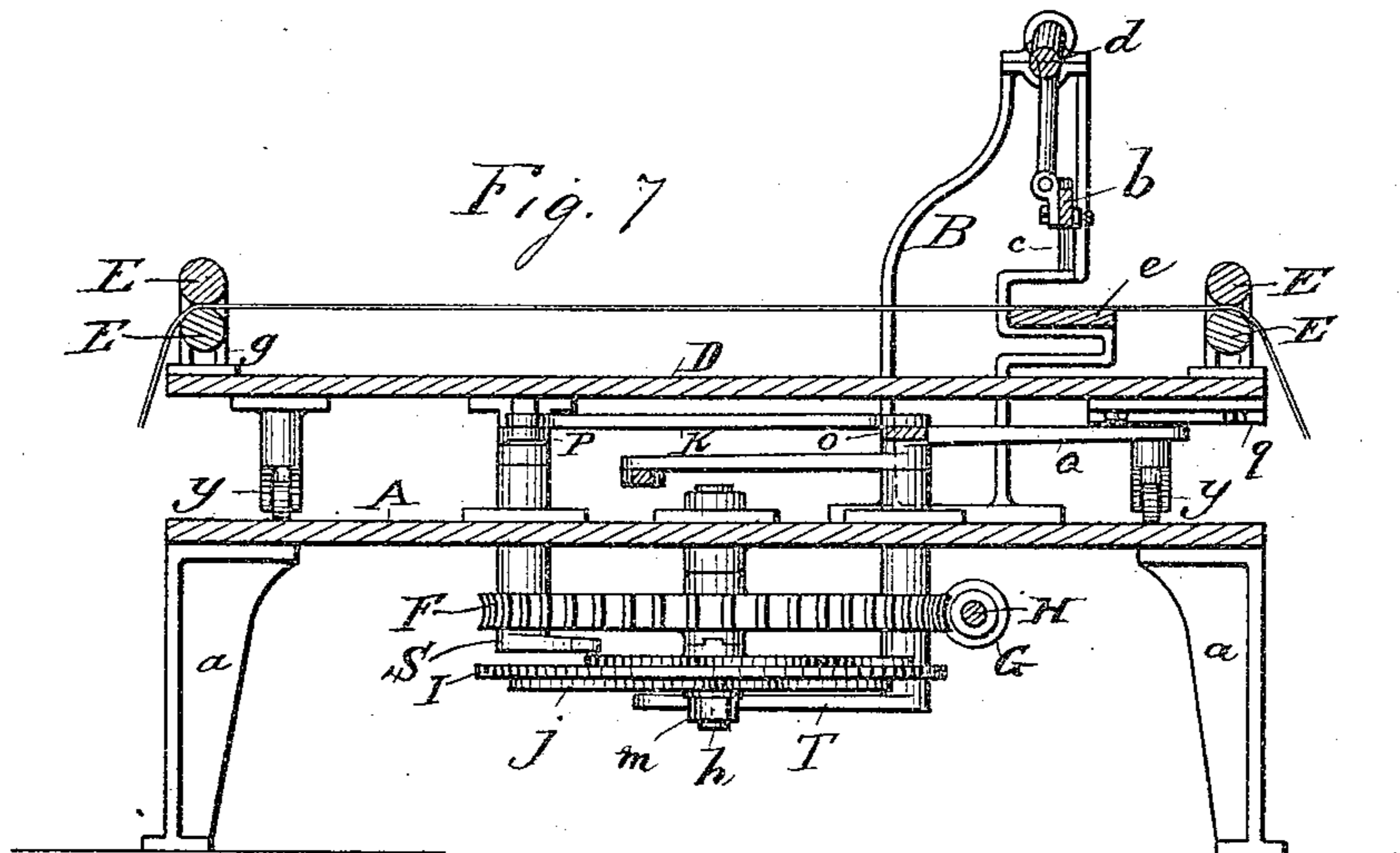
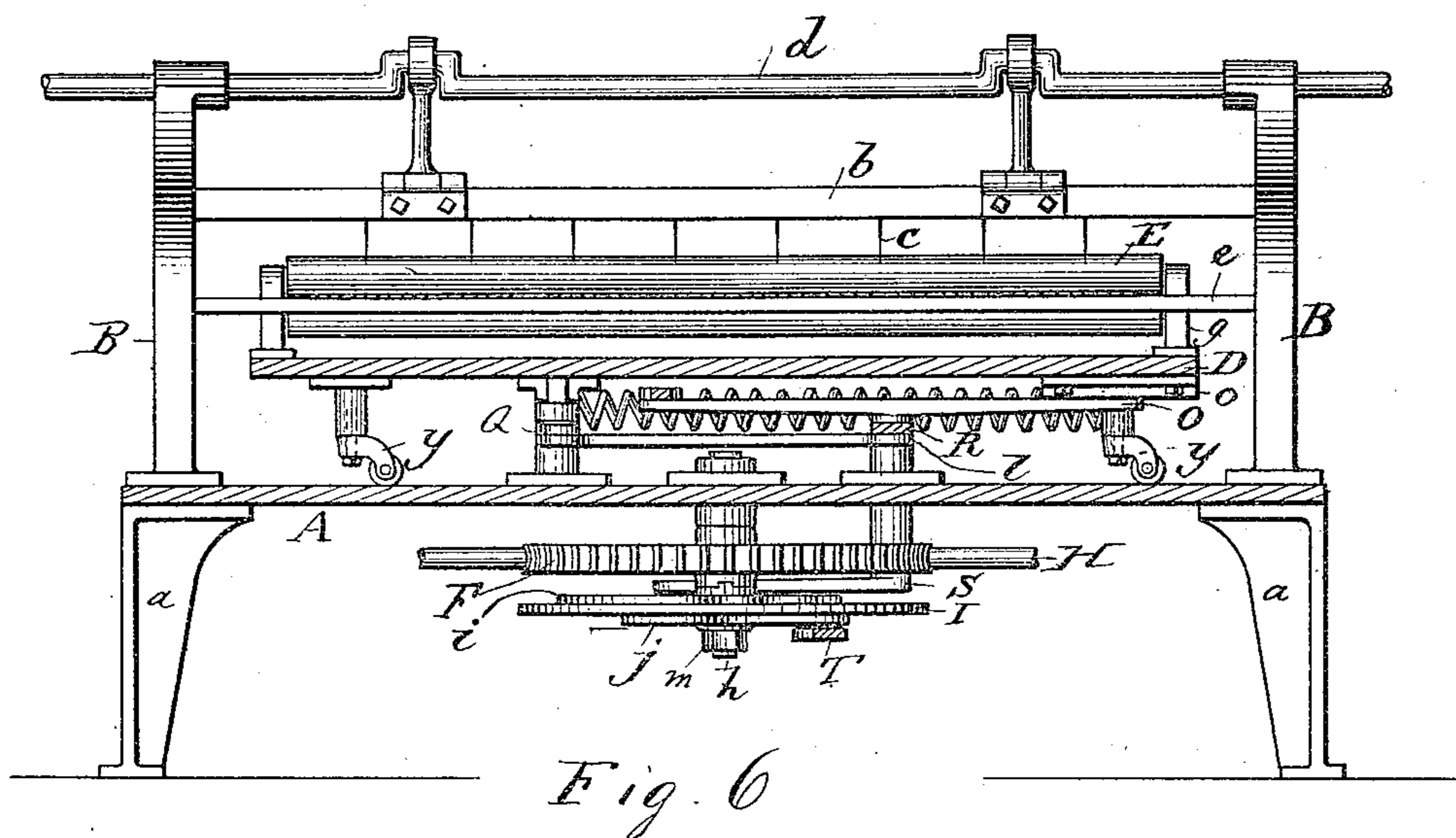
(No Model.)

3 Sheets—Sheet 3.

A. BECK.  
QUILTING MACHINE.

No. 438,138.

Patented Oct. 14, 1890.



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Inventor:  
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# UNITED STATES PATENT OFFICE.

AUGUST BECK, OF CHICAGO, ILLINOIS.

## QUILTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 438,138, dated October 14, 1890.

Application filed April 9, 1890. Serial No. 347,202. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUST BECK, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Quilting-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This my invention relates to sewing-machines in which a gang of needles is arranged at equal distance apart to work in unison, all simultaneously sewing the same pattern, which machines are generally known as "quilting-  
15 machines;" and it is the object of this my invention to provide a machine for producing by stitching ornamental designs on the goods to be sewed by supporting the same on a table to move horizontally in all directions in accordance with the design to be produced, such movement of the table to be automatically brought about by a single rotating cam-disk from below the moving table; and with these objects in view my invention principally consists of a single table movable on a  
25 horizontal plane in all directions without deviating from a parallel position relative to the line of the vertically-reciprocating needles of the sewing-machine, of a cam pivotally fixed below the moving table to be slowly rotated in proportion to the motion of the needles, and of crank-lever or arm connections between such cam and the table that will transmit the required successive movements to  
30 such table, determined by the shape of the cam, all as will be more fully hereinafter described and specifically claimed.

In the accompanying drawings, Figure 1 represents a longitudinal vertical section on  
40 line 1 1 in Fig. 3; Fig. 2, a transverse vertical section on line 2 2 in Fig. 3. Fig. 3 is a plan of the moving table, with the operating-levers and cam-disk shown in dotted lines. Fig. 4 is a plan of the cam-disk, showing the operating-levers connected therewith. Fig. 5 is  
45 a short portion of a design which the cam is laid out to produce, and Figs. 6 and 7 represent longitudinal and transverse sections of the machine modified.

50 Corresponding referential characters in the several figures of the drawings designate like parts.

A denotes a rigid table resting upon legs *a*, upon which at one side are mounted the end standards B of the sewing-machine, having a  
55 long bar *b*, vertically guided in these standards, and to this bar *b* are connected the needles *c* at such equal distances apart as the width of the design to be produced will require. This bar *b* is vertically reciprocated by a  
60 crank-shaft *d*, journaled in the top of the standards B, and below the needle-bar *b* is secured between these standards B the throat-plate *e*, provided in its bottom with the shuttle-carriers in the usual manner. 65

This sewing-machine may be of any usual construction as heretofore used for quilting purposes, and therefore I have only described its principal parts for a better explanation of its combination with the devices that herein-  
70 after will be described.

Upon the table A are rigidly fixed four (more or less) stands C, each having to its top a plane horizontal square surface bordered by an upwardly-projecting rim, and upon each  
75 such surface of a stand C is placed a true spherical metal ball *f* to roll thereon. The four balls *f* support the table or frame D, which, with the least friction, will move thereon in any direction a sufficient distance the designs to be  
80 produced may require. Upon both ends of this table or frame D are provided rollers E, journaled in housings *g*, fixed upon the corners of this table D. Between these rollers E is held the sheet of material in a stretched  
85 condition while the stitching is carried on until the design is completed, which material may then be shifted between the rollers for the same design to be continued on the next following section of the goods in a like man-  
90 ner. The top of the lower rollers E is to be on the same elevation with the top of the rigid throat-plate *e* of the sewing-machine in a manner that the edge of the sheet of material to be stitched will rest upon the top of  
95 such throat-plate *e* to move thereon with table or frame D.

The rigid table A is provided with a boss for securing a pin *h*, extending vertically downward below the table and forming the  
100 fulcrum for the hub of a worm-wheel F, loosely turning therein and engaging a worm G, mounted upon a longitudinal shaft H, that may be driven by suitable connections from

the sewing-machine shaft or from a counter-shaft, from which also the sewing-machine is driven, the object being that the worm-wheel will be slowly rotated simultaneously with the reciprocating of the needle-bar. Upon this pin *h* is also fitted a cam-disk I, the hub of which by clutch-teeth or other means will be coupled with the hub of worm-wheel F to rotate therewith, and this cam-disk is removably held on pin *h* by a nut *m*. This cam-disk I has to its top and bottom projecting cams *i* and *j*, shaped on their periphery in accordance with the design to be produced, the upper one *i* to control the transverse movements of table D and the lower one *j* the longitudinal movements of the same.

Upon the table A are rigidly bolted or otherwise fixed four vertical boxes K, L, M, and N, placed on quarter-circular positions relative to cam-disk I, and the boxes K and L extend downward through openings in table A, and into each one of these boxes is fitted the trunnion of a double crank O, P, Q, and R, the cranks O and P being on longitudinal positions, with their inward crank-ends pivotally coupled by a connecting-rod *k* to swing in unison and to retain relative parallel positions, while the cranks Q and R are on transverse positions with their inward crank ends pivotally coupled by a connecting-rod *l*, also to swing in unison and to retain their relative parallel positions. The outward crank ends of crank-arms O, P, Q, and R have upwardly-projecting crank-pins, and the table D has on its bottom face guideways *o*, *p*, *q*, and *r* engaging the crank-pins, the guideways *o* and *p* for the pins of cranks O and P being on longitudinal directions, and the guideways *q* and *r*, engaging the pins of cranks Q and R, being on transverse directions, whereby the swinging of arms O and P will move the table D transversely, and the swinging of cranks Q and R will move the table longitudinally, and whereby, with the movement by either two cranks, the guideways for the pins of the other two cranks will allow a sliding movement of such table D, which, for either direction of movement, being thus pushed or guided on opposite sides by two crank-pins coupled to swing uniformly in the same direction, is held to be always on a parallel position with the sewing-machine throat-plate *e*, no matter whether such table D is moved longitudinally or transversely, or in both directions simultaneously.

Upon the lower protruding ends of the trunnions of crank-arms K and L are rigidly mounted cranks S and T, the end pin of the crank S or a roller pivoted thereon being held in contact with the peripheral edge of the upper cam *i* of cam-disk I, and the end pin of crank T or a roller pivoted thereon being held in contact with the peripheral edge of lower cam *j* of cam-disk I, each by the elastic tension of a spiral spring U, one connecting the crank P and the other one the crank Q with one of the stands C. With this arrange-

ment, as the cam-disk I is slowly turned, the pins or rollers of the cranks S and T, by following the irregular peripheral edges of the cams *i* and *j*, will impart to each crank a swinging movement independent of the other crank, and the crank S, being rigid with cranks O, again connected with cranks P, will thus move the table D transversely, and the crank T, being rigid with cranks R, again connected with cranks Q, will thus move the table D longitudinally, whereby, from the movement of the table simultaneously more or less in both directions, any curved lines of stitching the design may be composed of can be produced on the goods.

Fig. 5 shows a sample of a design as may be produced, and the cams *i* and *j* have been laid out for moving the table D in accordance with this design, when each of the seven needles shown in Fig. 2 will produce one section of the design, that is repeated for forming the border. For different designs different cam-disks I will be required, which are readily exchangeable by first detaching arm T, then detaching the nut *m*, that will release cam-disk I, to be removed and exchanged with another disk I, that again will be secured by nut *m*, and, then, after replacing arm T upon the end of the trunnion, the machine is ready to start again.

It will thus be readily seen this machine so arranged will automatically bring out by stitching any desired design by a single cam-disk laid out for it, which cam-disks can be quickly exchanged for different designs, and, it being of great importance that the table holding the goods to be stitched should be moved with the utmost ease, the balls *f*, supporting the table, will allow it to move with the least friction for following the motions prescribed by the outline of the rotating cam.

In place of balls *f* for supporting table D caster-wheels *y* may be attached to such table, as shown by Figs. 6 and 7, which, however, would not work with the same ease.

The machine, as herein shown and described, is arranged more particularly for stitching ornamental borders, for which purpose the longitudinal edge of the fabric to be stitched is supported on the sewing-machine throat-plate, as shown by Figs. 1 and 2; but I can also arrange the device described for stitching ornamental designs upon the entire surface of the goods by placing the sewing-machine between the rollers E and parallel therewith to extend over the table D for the entire width of the goods to be stitched to pass over the sewing-machine throat-plate between standards B and to be moved thereon by the motions imparted to table D, as shown by Figs. 6 and 7.

What I claim is—

1. The combination, with a sewing-machine arranged to operate simultaneously a series of needles and having a throat-plate, of an independent table or frame for carrying the fabric to be stitched, said table being sup-

ported on balls, so as to be horizontally movable in all directions, guideways on right-angular lines secured to the under side of such table or frame, cranks connected in pairs to move in unison, each pair engaging opposite guideways, and a cam imparting swinging movements to each pair of cranks independent of the other pair for moving the table or frame and the fabric carried thereby and changing the relative position of the fabric and needles for each stitching operation, substantially as set forth.

2. The combination, with a sewing-machine arranged to operate simultaneously a series of needles and having a throat-plate, of an independent table or frame provided with rollers on opposite ends for carrying and stretching the fabric to be stitched, balls for supporting such table or frame to be horizontally movable in all directions, guideways on right-angular lines secured to the under side of such table or frame, and cranks, one for each guideway, connected in pairs to move in unison, each pair engaging opposite guideways, and each pair of cranks operated independently of the other pair from peripheral

cam-edges of a rotating disk located below the table or frame, all substantially as set forth, to operate as specified.

3. The combination, with a sewing-machine arranged to operate simultaneously a series of needles and having a throat-plate, of the independent table or frame D, for carrying the fabric, a series of balls *f*, for supporting the table or frame D, guideways *o*, *p*, *q*, and *r*, secured to the bottom of such table or frame D, cranks O and P, connected by rod *k*, cranks Q and R, connected by rod *l* and engaging the guideways, disk I, arranged to be rotated by suitable mechanism and having peripheral cams *i* and *j* on its top and bottom faces, and cranks S and T, mounted, respectively, upon the trunnions of levers O and R, to be operated by these cams and by springs U, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

AUGUST BECK.

Witnesses:

WILLIAM H. LOTZ,  
OTTO LUEBKERT.