

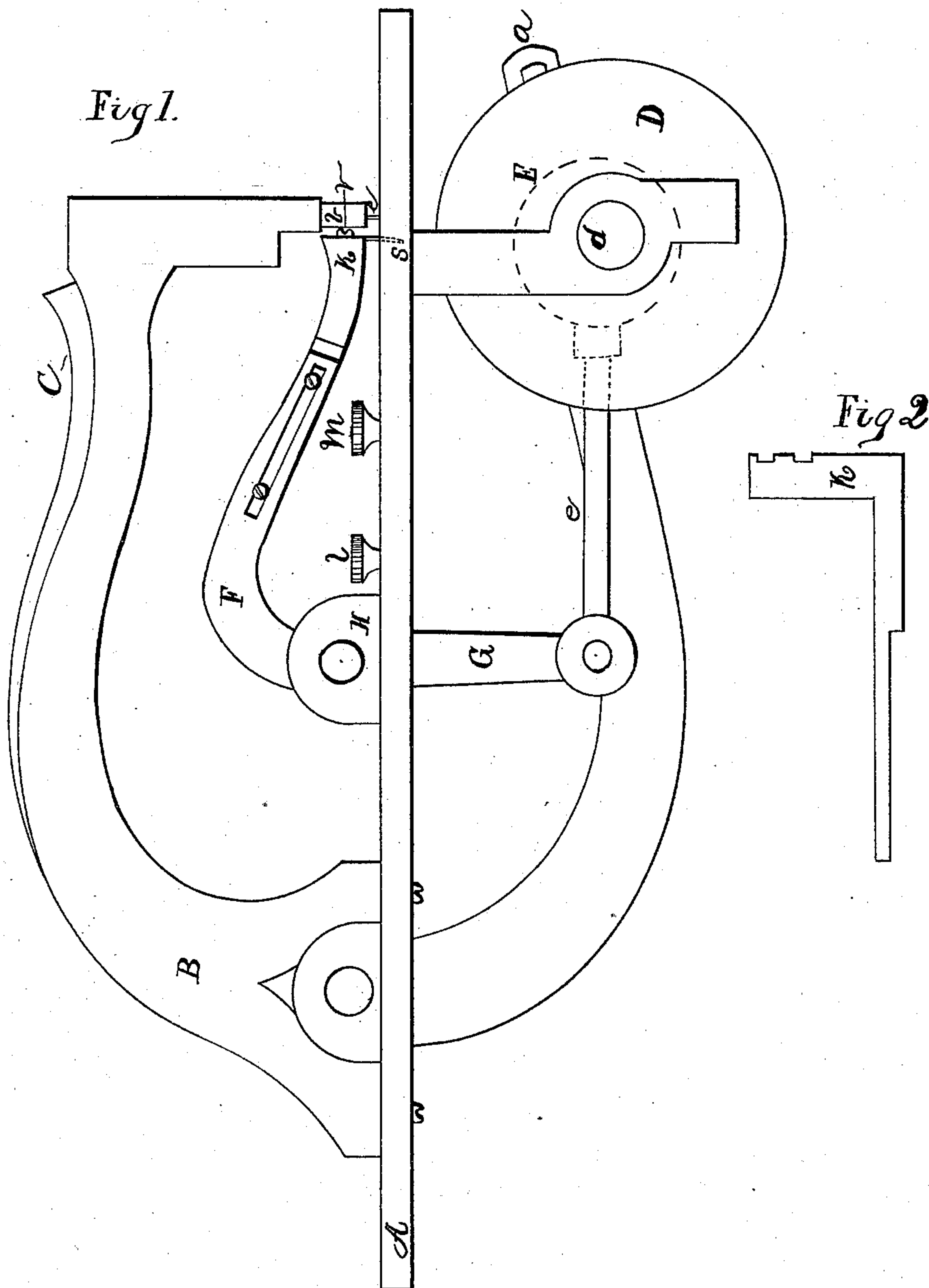
(Model.)

3 Sheets—Sheet 1.

G. H. LAWRENCE.  
SEWING MACHINE TRIMMER.

No. 290,895.

Patented Dec. 25, 1883.



Witnesses

John T. Booth  
Wm. H. Hallister Jr.

Inventor.

George H. Lawrence  
by Geo. A. Mosher  
att'y.

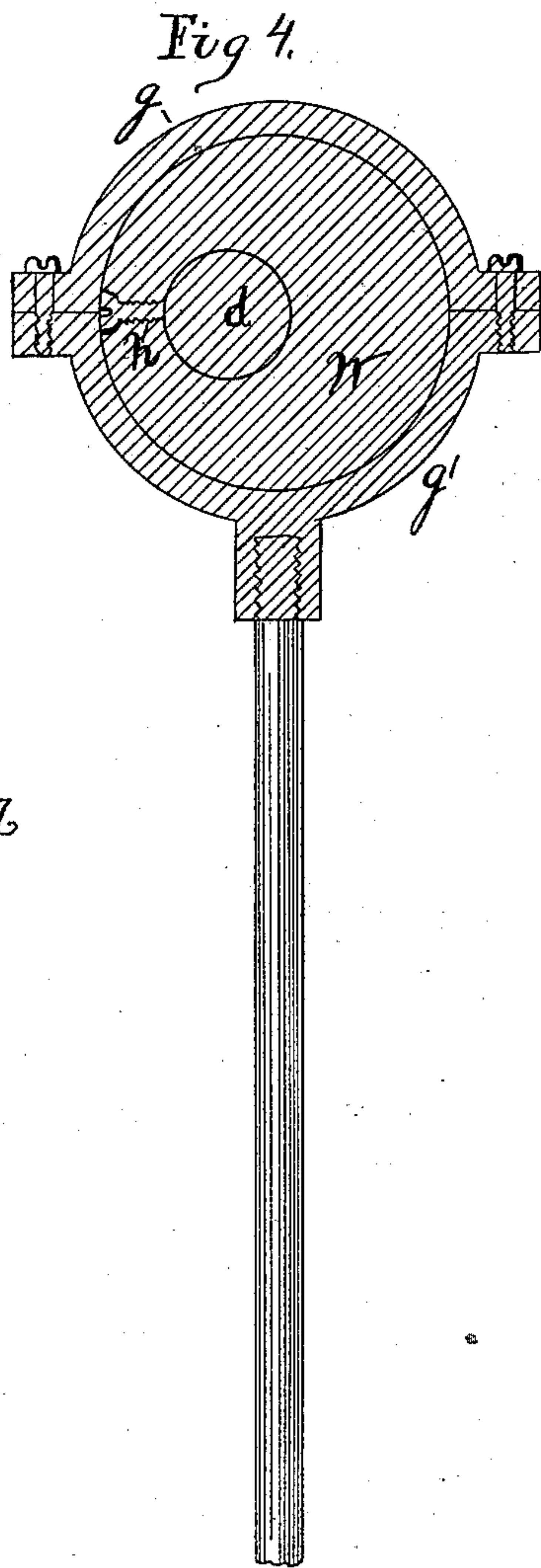
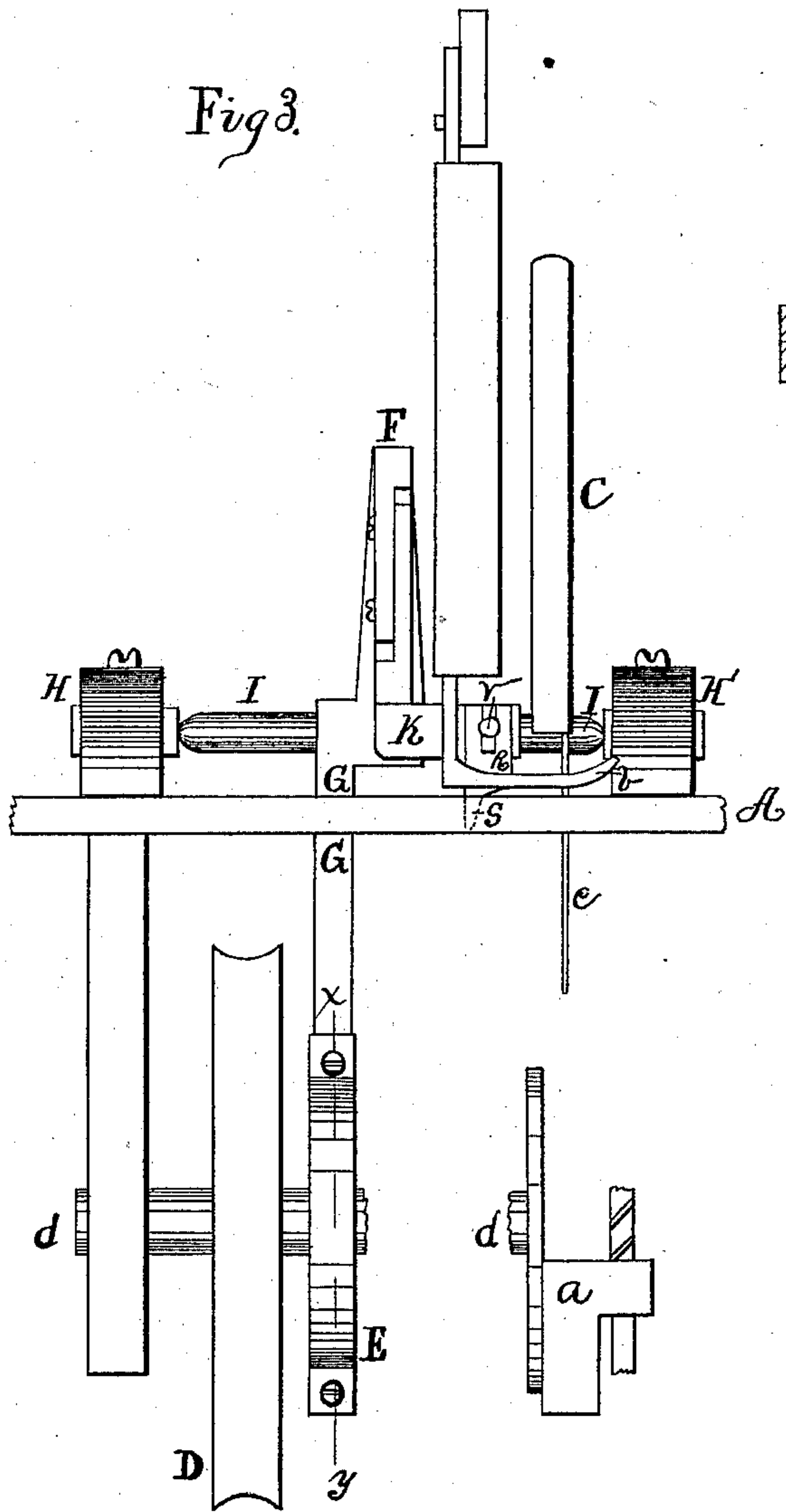
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Fig 5.

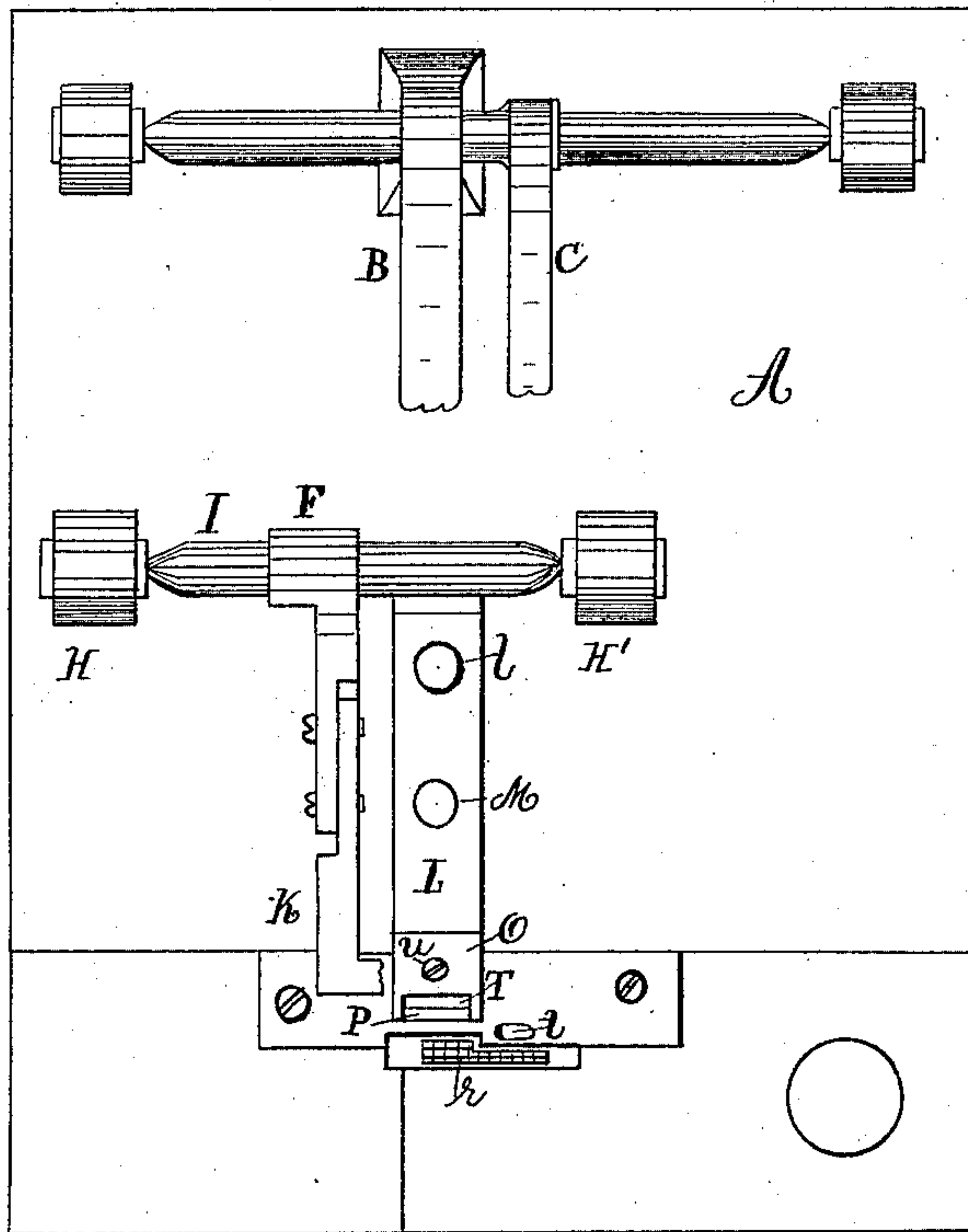


Fig 8

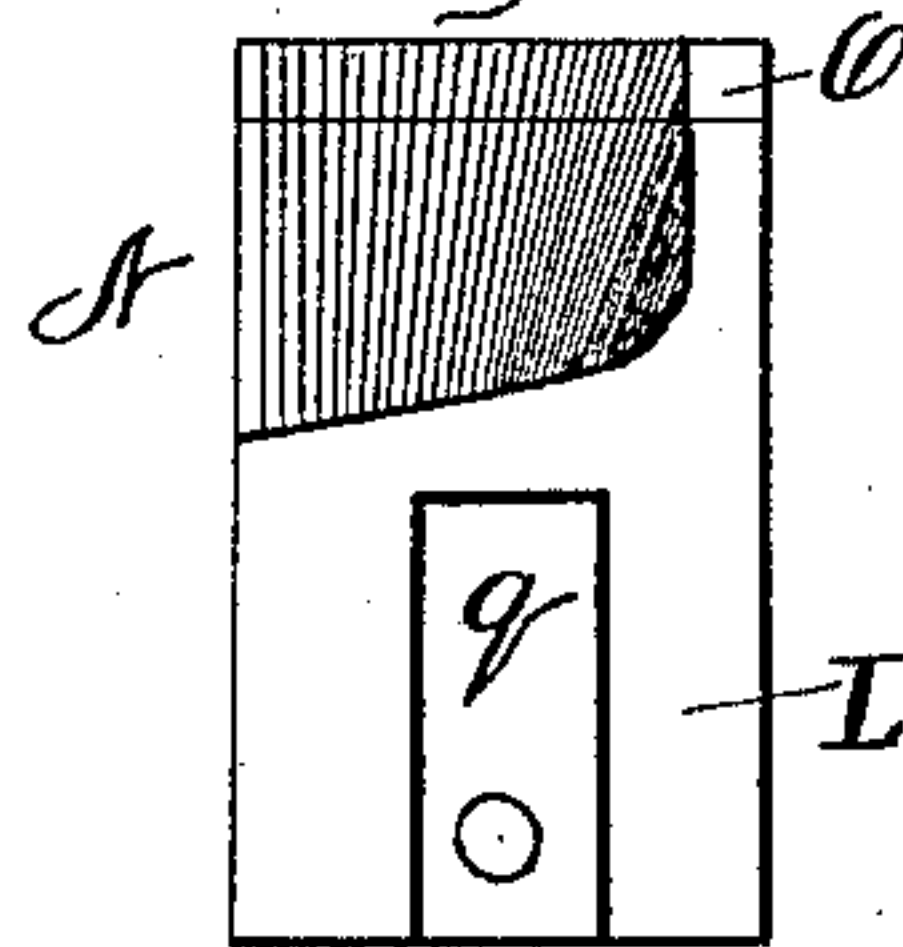


Fig 9

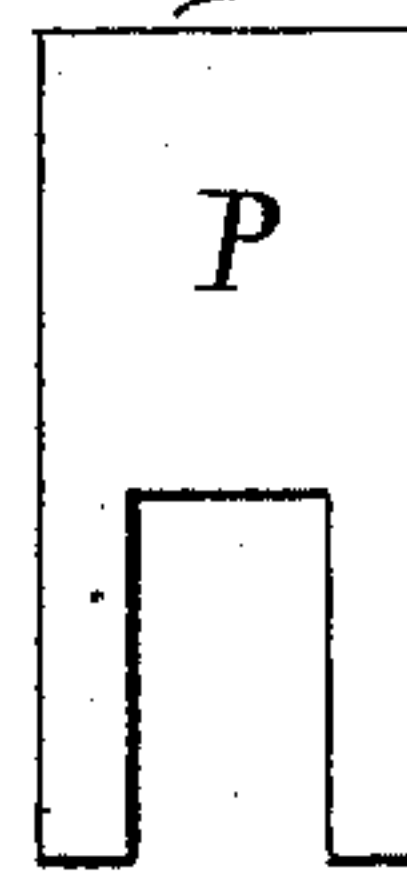


Fig 10

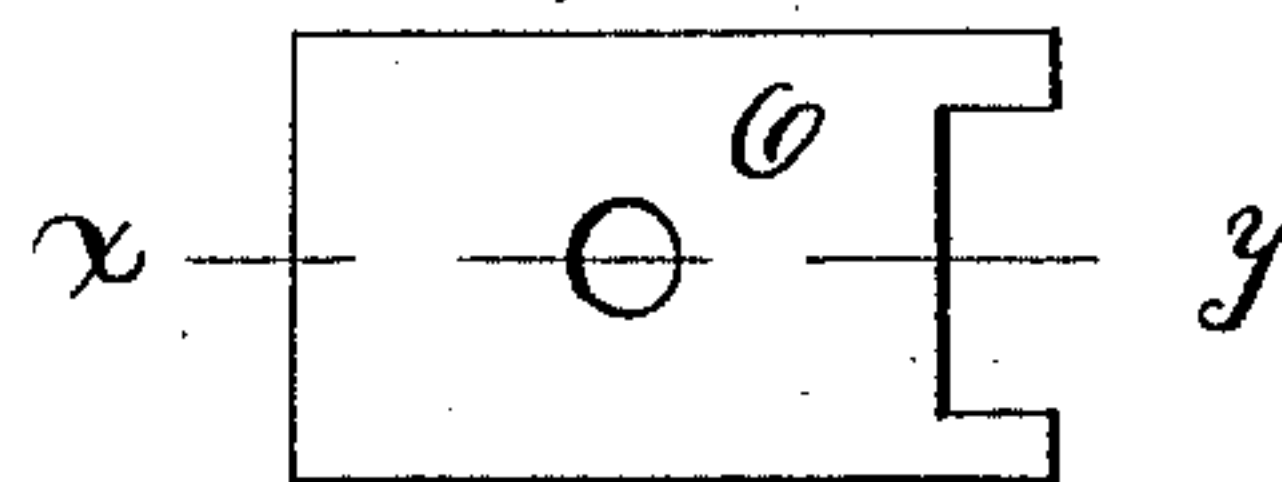


Fig 11



Fig 12

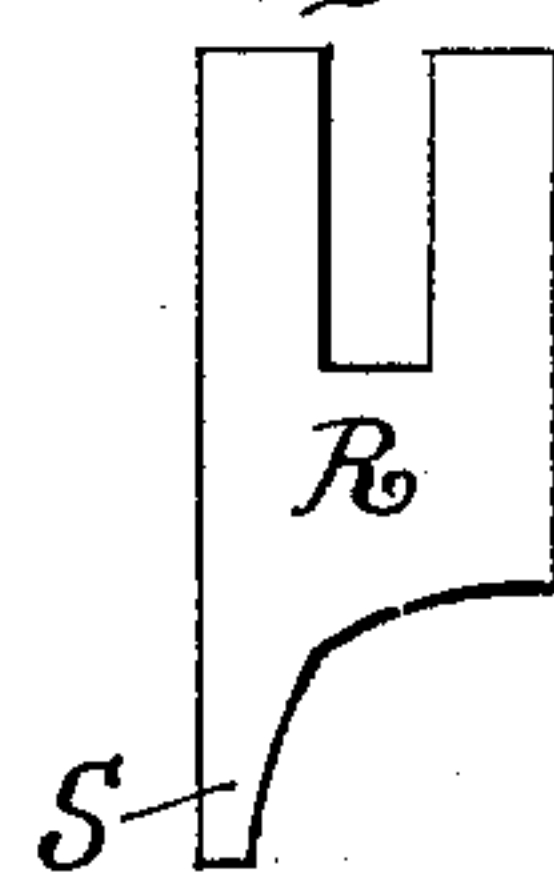


Fig 13

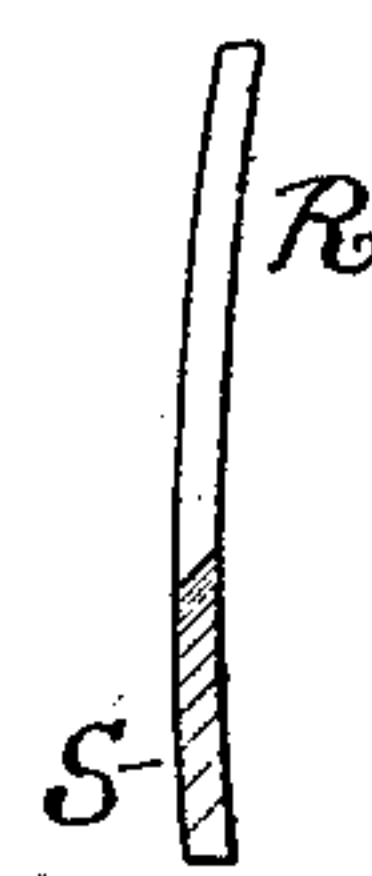


Fig 6

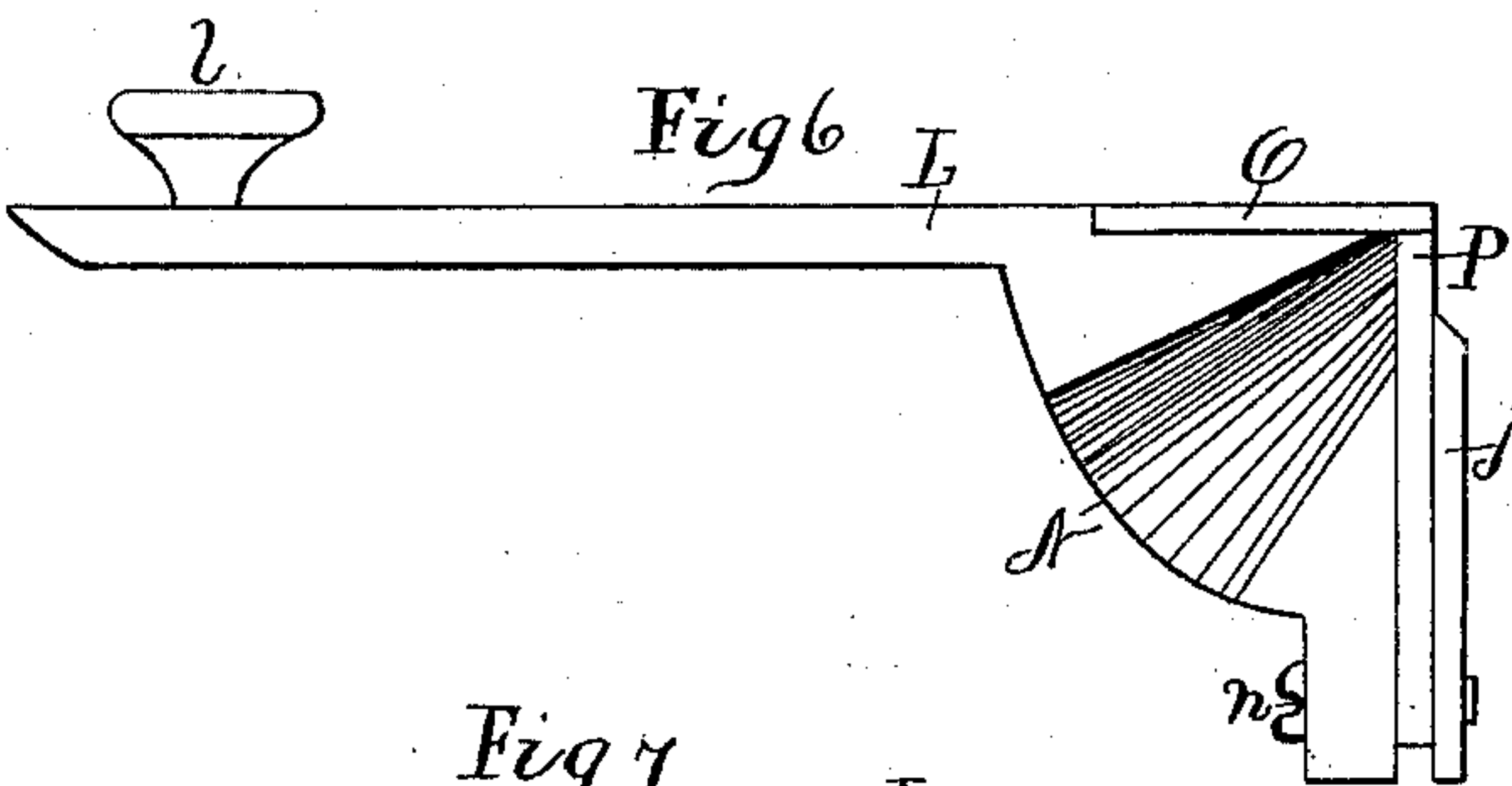
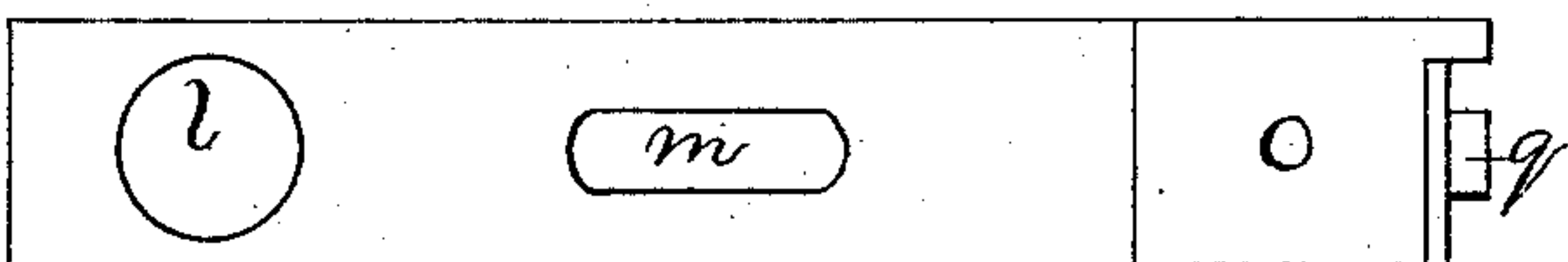


Fig 7



Witnesses.

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# UNITED STATES PATENT OFFICE.

GEORGE H. LAWRENCE, OF LANSINGBURG, NEW YORK, ASSIGNOR OF ONE-HALF TO WILLIAM A. HARDER, OF SAME PLACE.

## SEWING-MACHINE TRIMMER.

SPECIFICATION forming part of Letters Patent No. 290,895, dated December 25, 1883.

Application filed May 12, 1883. (Model.)

*To all whom it may concern:*

Be it known that I, GEORGE H. LAWRENCE, a resident of the village of Lansingburg, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Sewing-Machine Trimmers; and I do hereby declare that the following is a full, clear, and exact description of the invention, that will enable others skilled in the art to which it appertains, to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Similar letters refer to similar parts in the several figures therein.

My invention relates to improvements in sewing-machine trimmers.

The objects of my invention are, first, to secure adjustment of the relative movements of knife and needle; second, to trim the goods to different-width seams such as may be desired; third, to prevent clogging of the knives.

Figure 1, Sheet 1, is a side elevation of the principal parts of a sewing-machine, showing my improvements. Fig. 2 is a plan view of one section of the knife-bar. Fig. 3, Sheet 2, is a front elevation of parts shown in Fig. 1. Fig. 4 is a vertical section of eccentric, taken at dotted line *x y* in Fig. 3. Fig. 5, Sheet 3, is a plan view, with needle, presser-foot, and knife-bars broken away to show relative position of other parts. Fig. 6 is a side elevation of knife throat-plate. Fig. 7 is a top plan view of same, with steel plate and knife P removed. Fig. 8 is an end elevation of same, with vertical knife removed. Fig. 9 is a front elevation of vertical knife. Fig. 10 is a plan view of steel plate. Fig. 11 is a longitudinal section of steel plate, taken at broken line *x y* in Fig. 10. Fig. 12 is a side elevation of the vibrating knife. Fig. 13 is an elevation of one edge of the vibrating knife.

A is the sewing-machine bed-plate; B, the presser-foot bar, supporting presser-foot *b*; C, the needle-bar, carrying needle *c*.

*d* is a shaft provided with pulley D for receiving power, and with the eccentric E, which, through the arm *e*, operates the levers G and F, projecting from shaft I, which latter has its

bearings in the posts H H'. The arm F is made in sections F and K, held together by screws or bolts, as shown, which permits of the adjustment of the arm F to different lengths. Section K supports, at its end most remote from supporting-shaft I, a knife, R. It is evident, therefore, that the revolution of shaft *d* will transmit to the knife a vibratory motion.

L is a throat-plate resting in a slot or depression in bed-plate A, and is provided with a handle, *l*, and slot *m*, the latter to receive the set-screw M by which the position of the plate L is longitudinally adjustable upon the bed-plate.

*r* represents the ordinary feed attachment, and *t* the needle-slot in the bed-plate. The throat-plate is also provided at one end with the knife P, which is attached in a vertical position thereto by the binding-plate *j*, and bolt *n*, Fig. 6, the knife being provided with a slot to receive the corresponding projection, *q*, on the end of the throat-plate.

O is a hardened-steel plate fastened by screw *x* to the throat-plate, as shown in Fig. 5. Fig. 7 shows the top of the throat-plate with the steel plate, vertical knife P, and set-screw removed, from which it appears that when the parts are put together, as shown in Figs. 5 and 6, there will be left an opening, T, between the vertical knife P and the hardened-steel plate O, which may be termed the "throat." It is to be observed that the steel-plate shoulders pass by the vertical edges of the knife, so as to inclose the same. The throat T connects with the enlarged opening N beneath the throat and the edge of the hardened-steel plate contiguous to the throat. This edge of the steel plate is beveled on the lower side to such an extent that said edge is sharp like a knife, and the upper side of the opening N extends back and downward in about the same line of direction as the lower side of the beveled edge of the steel plate.

The vibrating knife R, Figs. 12 and 13, is made of such a size as to just fill the throat-opening T when it is thrust to its downward limit, and its position for operation is shown in Figs. 3, the dotted lines showing the portion which is inserted in the throat. Since



the knife moves in the arc of a circle the radius of which is measured by the length of the lever F, it is preferable to make the knife curved to the same arc of a circle, as shown in Fig. 13.

From the foregoing it will readily appear that when the goods to be stitched and trimmed pass by the needle over the throat T the vibrating knife will be thrust down through the same into the throat and cut the goods on a line parallel with the row of stitching. The distance of the cut from the stitching can be easily varied by lengthening or shortening the arm F, as before described, and at the same time correspondingly adjusting the throat-plate L by means of thumb-screw M and handle Z.

Heretofore it has been the practice to connect the vibrating knife-bar with the needle-bar; but I have ascertained by long experiment that such practice is not successful. The knife should not begin to cut the goods until the feeding device has ceased to act upon them, and they are firmly held in position by the presser-foot and needle, and the only successful method is by giving an independent movement to the vibrating knife, which I am able to do by the separate eccentric W, which is provided with a set-screw, *h*, by means of which the angle or relative position of the eccentric upon the shaft can be varied at will. This arrangement enables me not only to adjust the relative movement of the vibrating knife and needle in the first instance, but to readjust it from time to time as the knife wears away in use and by sharpening; and it is of great importance that the proper relative movements of the parts above mentioned should be maintained. It is of equal importance that the vibrating knife should completely fill the throat laterally, and also the end contiguous to the back of the vibrating knife, that no part of the goods will be able to wedge in between the vibrating knife and the edges of the throat, and that the vibrating knife may not be crowded away from the stationary knife P. For these reasons I have provided the hardened-steel plate O, before described, and extend projections from the same out past the stationary knife. This plate, being of hard steel, will cut any parts of the goods which come between it and the dull side of the vibrating knife, and will not so easily wear away to permit the vibrating knife to be crowded away from the stationary knife.

The vibrating knife is also provided with the projection S, the end of which is always in the throat—that is, the highest upward thrust of the knife does not raise the projection out of the throat. The throat-plate is so set by set-screw M that the elasticity of the vibrating knife is slightly acted upon, causing the two knives to bear firmly against each other, and the projection S steadies the vibrating knife and keeps the bearing of the knives against each other always properly adjusted. The curved line in Fig. 12 represents the sharpened edge of the knife, the bevel being on the reverse side and shown by the shade-lines in Fig. 13.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a sewing-machine trimmer, a vibrating knife to engage with a stationary knife, and a knife-supporting arm adapted to vibrate in a vertical plane at right angles to a plane extending upward vertically from the edge of the stationary knife, in combination with said knife and with a vibrating knife supported by said arm, and curved to the arc of a circle of which said arm is the radius, the combination and modes of operation being substantially as described, and for the purposes set forth.

2. A sewing-machine trimmer throat-plate provided with a steel top plate, forming an extension of the throat contiguous to the beveled side and vertical edges of the vibratory knife, in combination with said knife, substantially as and for the purposes described.

3. A sewing-machine trimmer throat-plate beveled on the lower side from an upper edge of the throat-plate to form a sharp edge on the plate contiguous to the beveled side of the vibratory knife, to cut any fibers that may be forced between the beveled side of the vibratory knife and the throat-plate, substantially as described.

4. A sewing-machine trimmer throat-plate having a steel top plate provided with projections adapted to inclose the vertical edges of a stationary knife, in combination with a vibrating knife, substantially as described, and for the purposes set forth.

In testimony whereof I have hereunto set my hand this 9th day of May, 1883.

GEO. H. LAWRENCE.

Witnesses:

GEO. A. MOSHER,

W. H. HOLLISTER, Jr.