

E. E. BEAN.

4 Sheets—Sheet 1.

Sewing Machine for Sewing Leather.

No. 89,275.

Patented April 27, 1869.

Fig. 1

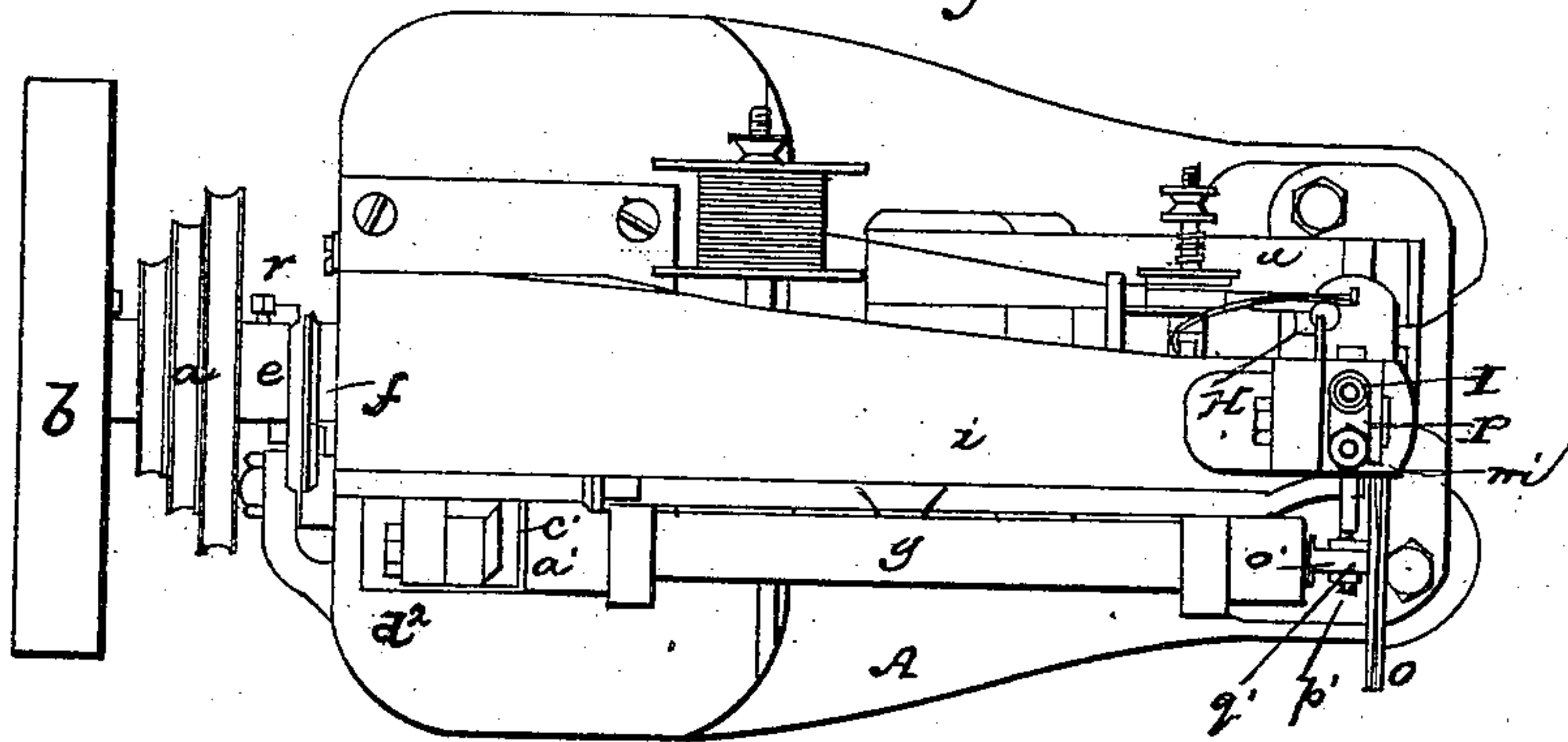
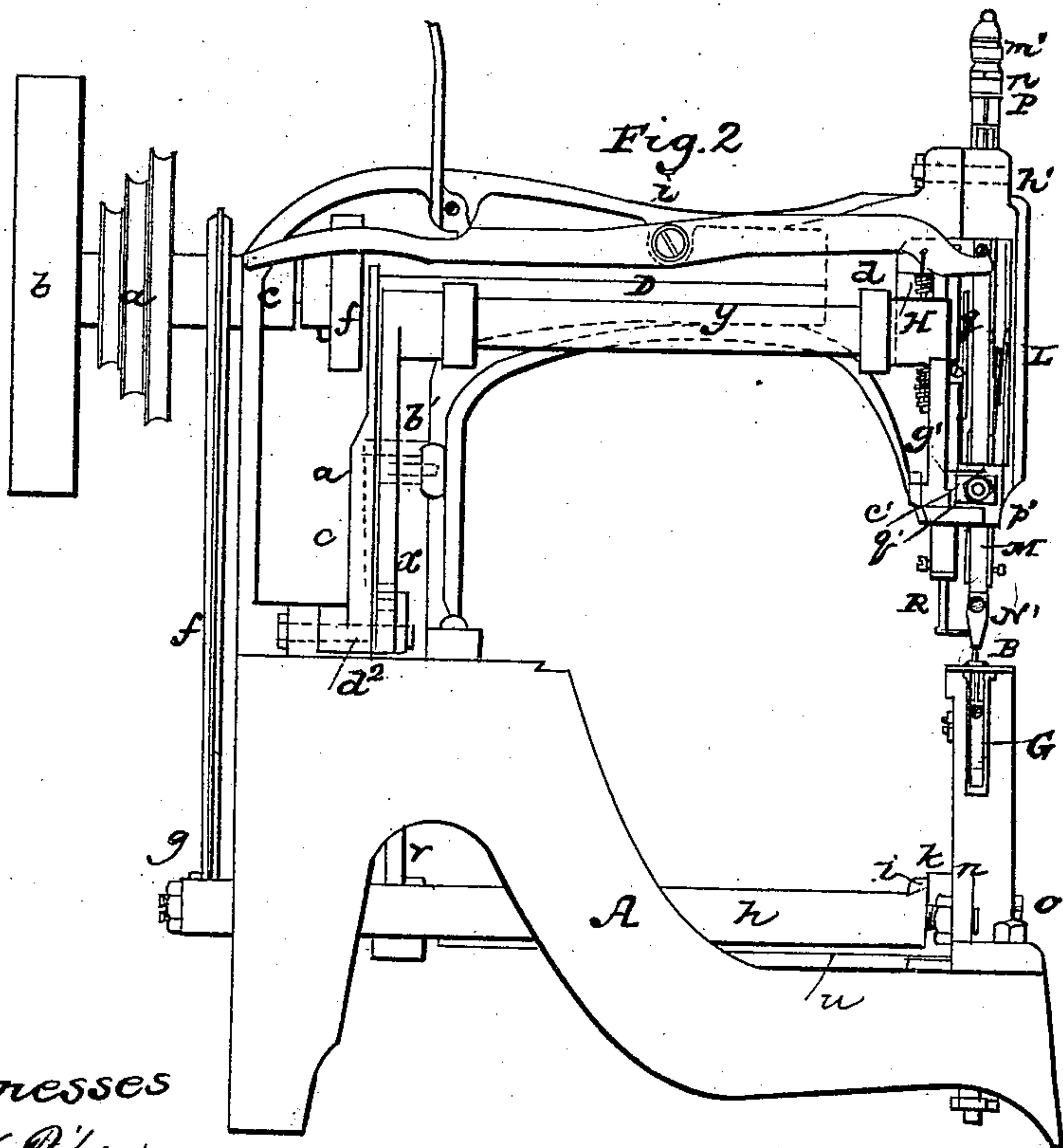


Fig. 2



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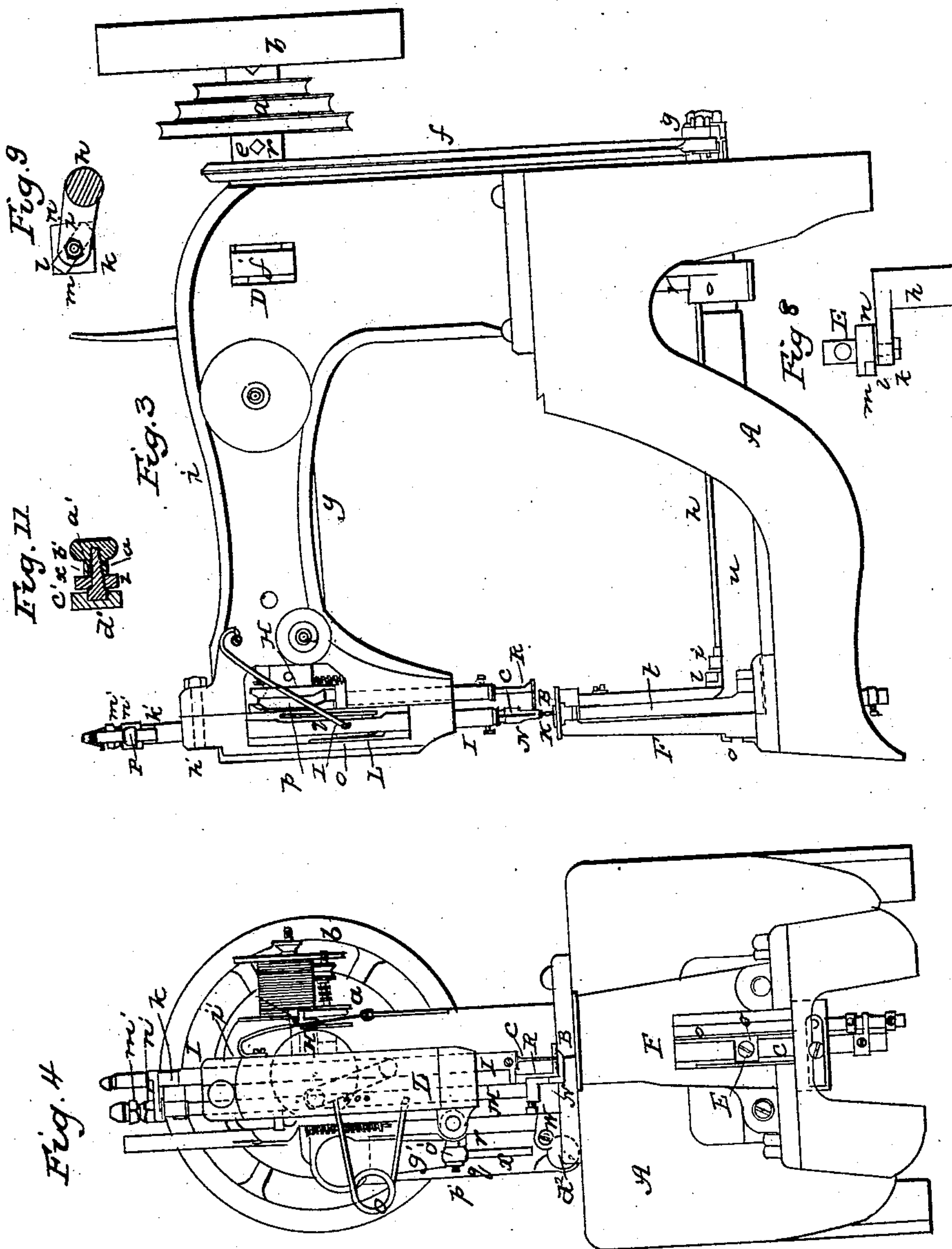
Inventor
Edwin E. Bean
by his attorney
R. H. Eddy

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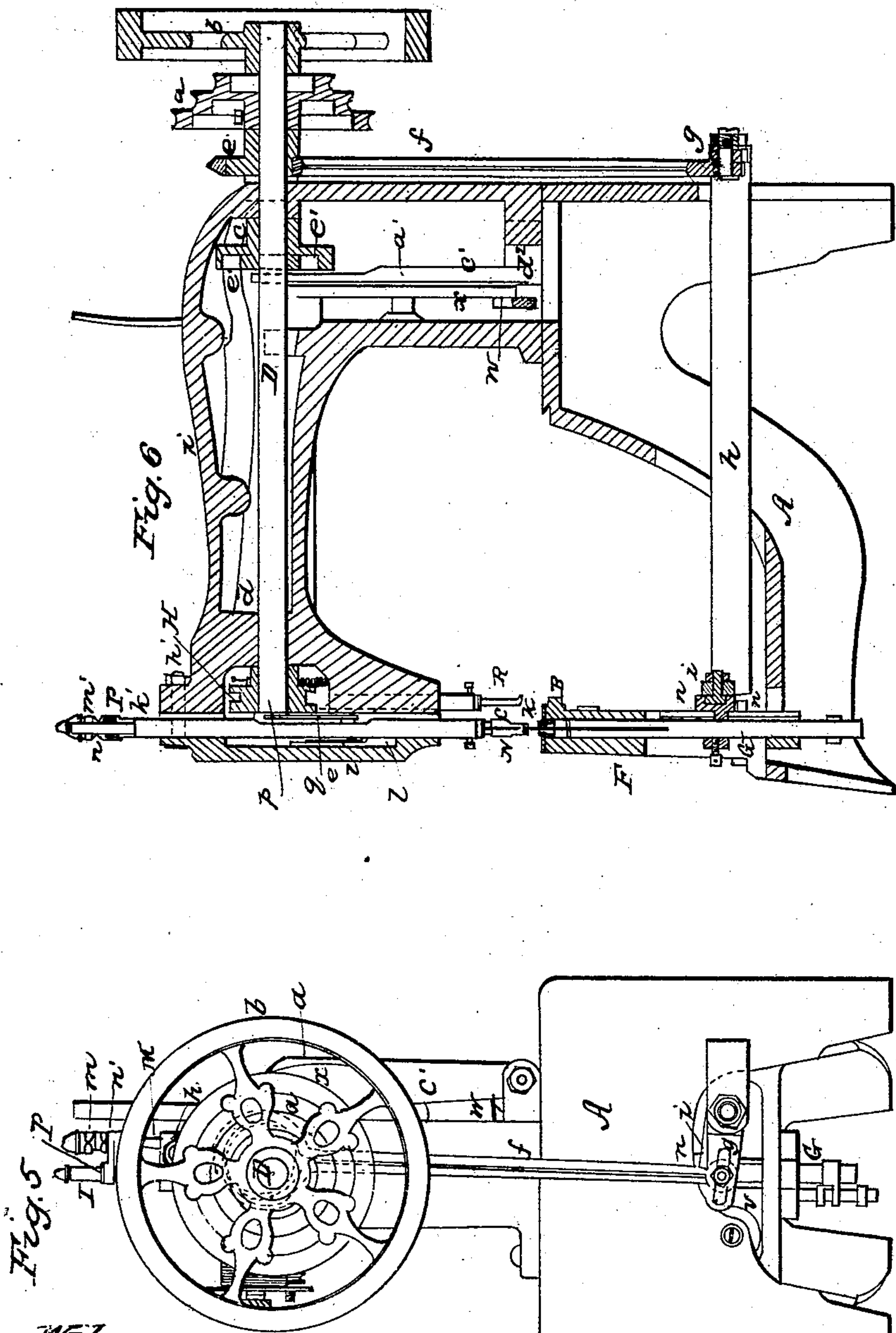
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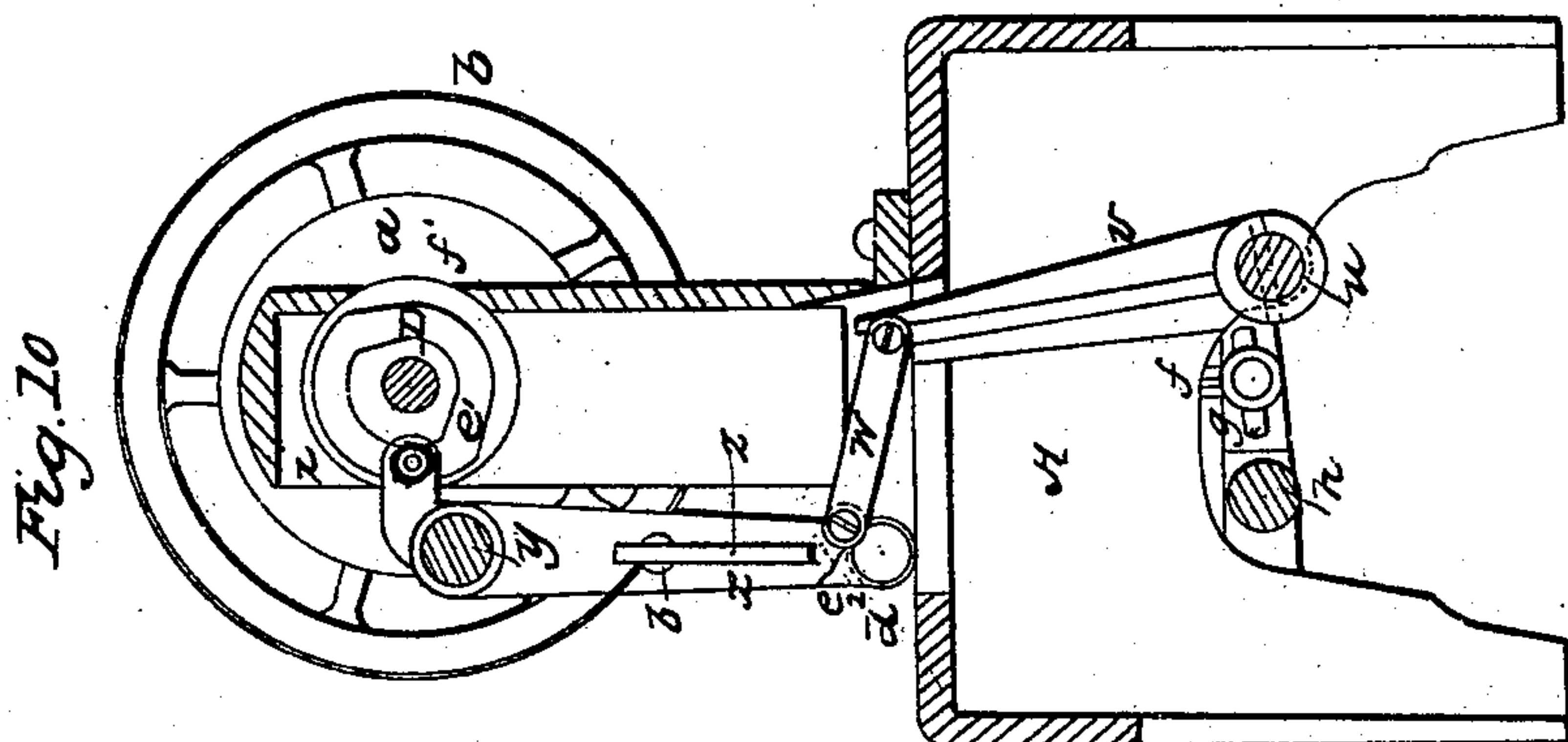
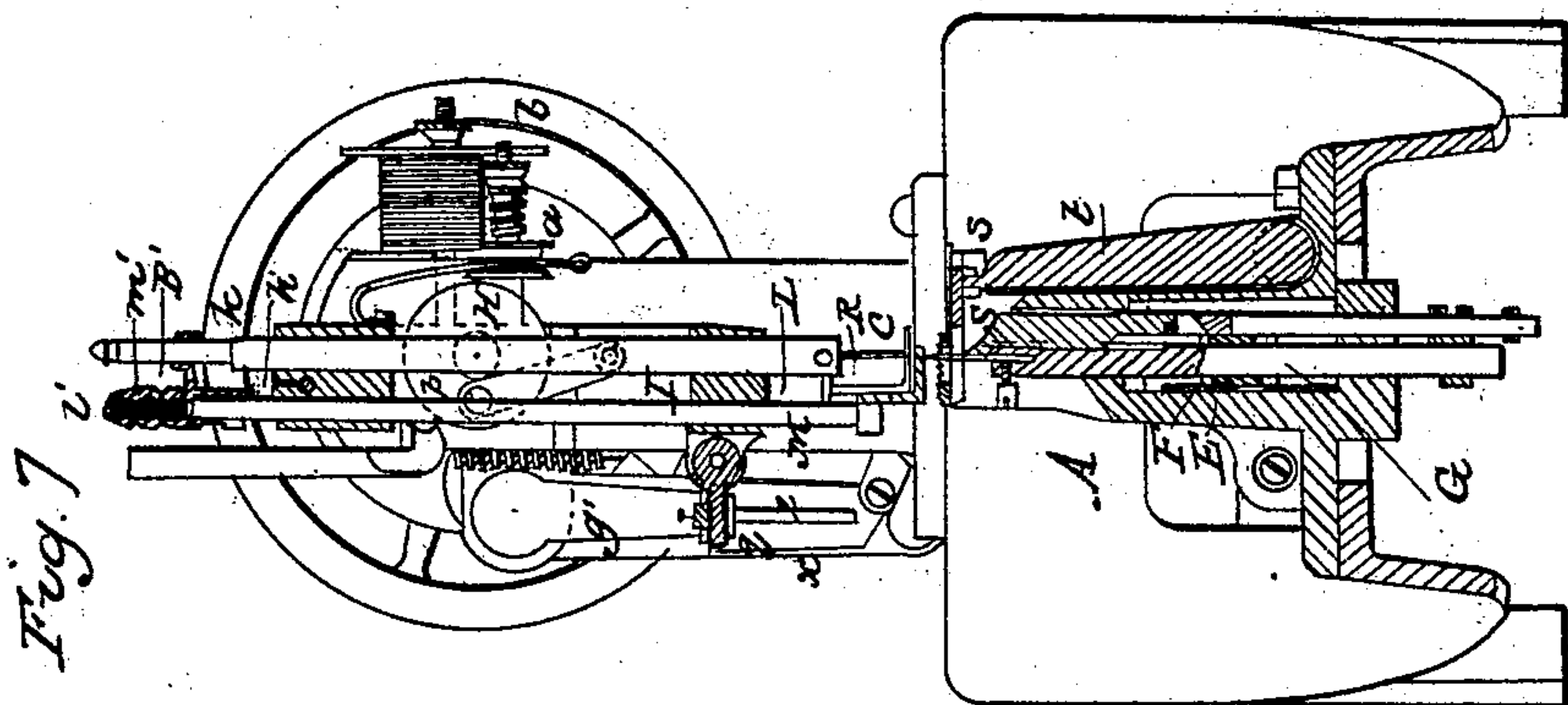
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UNITED STATES PATENT OFFICE.

EDWIN E. BEAN, OF BOSTON, ASSIGNOR TO DAVID WHITTEMORE, OF NORTH BRIDGEWATER, MASSACHUSETTS.

IMPROVEMENT IN SEWING-MACHINE FOR SEWING LEATHER.

Specification forming part of Letters Patent No. 89,275, dated April 27, 1869.

To all persons to whom these presents may come:

Be it known that I, EDWIN E. BEAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Machinery for Sewing Leather or other Material; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Figs. 2 and 3 opposite side elevations, Fig. 4 a front-end view, and Fig. 5 a rear-end elevation, of my improved sewing-machine. Fig. 6 is a longitudinal section, and Fig. 7 a transverse section, of it, taken through the needle and awl.

The first part of the machine to be explained is the mechanism for imparting to the needle and the awl their vertical movements.

In the drawings, A denotes the frame of the machine; B, the needle, and C the awl. The driving-shaft is represented at D as provided with a series of driving-pulleys, *a*, and a fly-wheel, *b*. This shaft is supported in bearings *c d*, on what is termed the "goose-neck" of the frame.

On the shaft, at the rear end of the frame, is an eccentric, *e*, which is embraced by a connector, *f*, whose lower end or part is jointed to an arm, *g*, projecting from a horizontal shaft, *h*, arranged within the frame, in manner as represented in the drawings.

The joint-pin of the connection of the arm and connector may be adjustable lengthwise of the arm, such being by means as represented, and for the purpose of varying the distance of movement of the needle-carrier.

From the front end of the shaft *h* another arm, *i*, projects at a right angle with the shaft, and has a joint-pin, *k*, going through it. This joint-pin extends from a slide, *l*, which is disposed within an inclined groove, *m*, formed in the head *n* of an arm, E.

Fig. 8 is a top view, and Fig. 9 an inner-side view, of the arms E *i*, the slider *l*, and the joint-pin *k*.

The said arm E extends into the bed-post F of the frame A, and has the needle-carrier G extended through it, and fastened to it by a clamp-screw, *o*. (See Figs. 4 and 6.) Furthermore, there is fixed on the front part of the driving-shaft D a wheel, H, having a crank-

pin, *p*, extended from its front face or side. This pin is the joint-pin of a connection-rod, *q*, which extends down from it, and, at or near its lower part, is pivoted to the awl-carrier I, which is placed over the needle-carrier, and with it is supported so as to be capable of being moved vertically within the frame.

The eccentric *e* is so applied to the driving-shaft as to be capable of being revolved on it, and of afterward being fixed in position on it by means of a set-screw, *r*. This enables a person to so adjust the eccentric with respect to the rest of the mechanism by which the needle and awl-carriers are moved vertically as to insure the proper simultaneous upward movement of the needle and awl, and the subsequent descent of the needle before that of the awl, in order that there may be space enough between the needle and awl for the material to be sewed to be either introduced into or removed from the machine.

From the above it will be seen that for effecting the vertical movements of the needle and awl I avoid the use of cams, as generally employed, and depend mainly on cranks or arms, an adjustable eccentric, and certain shafts, as specified. This enables me to greatly simplify the mechanism for so operating the needle and awl carriers, and to attain a very desirable and smooth or noiseless operative mechanism, comparatively speaking.

In the drawings, the feeder is shown at K as arranged to slide laterally and horizontally within the upper part of the bed-post F. Into a notch, *s*, of this feeder the upper end or part of an arm, *t*, extends, such arm being projected upward from a horizontal shaft, *u*, arranged in the frame in the manner as represented.

Fig. 10 is another transverse section of the machine, it being taken just in front of the connection-rod of the rear arm, *v*, of the shaft *u*. The said arm *v* extends up from the shaft *u*, and is pivoted to one end of the said connecting-rod, (shown at *w*,) the other end of such rod being pivoted to an arm, *x*, which projects downward from a rocker-shaft, *y*, arranged on one side of the goose-neck, in manner as shown in the drawings. There is a slot, *z*, made lengthwise in the said arm *x*. This slot receives a slide-pin, *a'*, which slides within the

slot, and is provided with a clamp screw and nut, b' , to enable it to be fixed to the arm.

Fig. 11 is a section of the said pin, the arm x , and the lever c' , into a groove, d^1 , of which the pin a' extends. The said lever c' , arranged with reference to the arm x in manner as represented, has its fulcrum d^2 at its foot.

A pin projects from the upper part of the lever into the cam-groove e' of the side of a wheel, f' , fixed on the driving-shaft.

By the operations of the cam-wheel f' , the lever c' , the pin a' , the arm x , the connection rod w , the arm v , the shaft u , and the arm t , the feeder will be moved back and forth the extent of its movement, and, consequently, the length of the stitch depending on the position of the pin a' . Thus, by setting the said pin higher in the slot of the arm x , we can cause the feeder, when operated, to have a greater degree of motion. By lowering the pin we produce the contrary effect, or a lesser degree of movement of the feeder.

From the front end of the rocker-shaft y another arm projects downward, it being marked g' . At its lower part the arm g' is jointed to a pendulous head or bar, L , which is supported by, and so as to be capable of swinging laterally on, a journal, h' , extended from the front end of the goose-neck i' of the frame A .

The awl-carrier I and the presser-foot carrier M are supported by and within the pendulous head or bar L , the presser-foot being shown at N .

Now, as the arm g' will move with and be moved by the shaft y , it will be perceived, from the description given of the mechanism for operating the feeder, that while such feeder may be in movement there will be a corresponding lateral movement of both the awl and the presser-foot. Thus the awl, instead of being out of the material to be sewed while it is being fed along the length of a stitch, remains in the said material. The instant the awl descends upon the material the feeder commences to advance, and the awl descends into and through the material, and advances laterally with it and the feeder. The awl, nevertheless, performs no function of feeding the material along, which, it will be observed, is effected by a separate mechanism.

The presser-foot carrier M is raised with the presser-foot at the proper time by the action of the awl-carrier, it being afterward depressed by means of a spring, O .

An arm, P , projects from the presser-foot carrier, and is adapted to it so as to slide vertically on it. This arm also embraces the awl-carrier, and rests on a shoulder, k' , thereof. A male screw, l' , projects up from the presser-foot carrier M , and receives two nuts, $m' n'$, the upper of which is a check-nut to the other of such nuts. By means of the screw and the lower nut the presser-foot may be adjusted to the material to be sewed, whatever may be its thickness.

While the awl-carrier may be in movement upward its shoulder will be carried against the

arm P , and will raise it and cause it to raise upward the presser-foot carrier.

The next part of the machine to be described is the mechanism by which the awl may be adjusted with reference to the needle. This mechanism forms the connection of the arm g' with the pendulous head or bar L . It consists of a crank-pin, o' , which revolves freely within the said arm. This crank-pin has a male screw, p' , extended through and hinged to the bar L . Two screw-nuts, $q' r'$, screwed on the screw p' and on opposite sides of the pin o' , enable a person to effect, with the screw, the adjustment as above mentioned.

The thread-carrier is shown at R , and the "cast-off" at S , they being operated in the usual manner, their operative mechanism constituting no part of my present invention.

In making my invention I have avoided the employment of cams as ordinarily used for effecting the operations of the needle and awl, and sought to attain the same principally by means of shafts and crank-arms extended therefrom, as they cause them to work better and with less noise and wear of mechanism, and enable the machine to be made cheaper, comparatively speaking, than when cams are employed. I have also avoided the necessity of lifting the awl out of the material to be sewed before feeding such material along the length of a stitch.

To operate the needle and awl by rocker-shafts and crank mainly, I have been obliged to employ an adjustable eccentric, as set forth. By having it adjustable I can vary its position on its shaft, so as to cause the needle and awl to move at such variable speeds as may be desirable for the work to be done.

What I claim, therefore, as my invention is as follows:

1. I claim the combination for effecting the movements of the awl and needle, the same consisting of the rotary driving-shaft D , the adjustable eccentric e , its connector f , the rocker-shaft h , its arms $g i$, and the cranked wheel H and connecting-rod q , the whole being applied together and to the awl and needle carriers $I G$ and frame, and arranged substantially in manner and so as to operate as as specified.

2. I also claim, in combination with mechanism for feeding the material to be sewed, and mechanism for imparting to the awl and needle their vertical movements, the mechanism, substantially as described, by which the awl, while piercing the material, is moved laterally with such material and feeding mechanism without of itself in any way affecting the feeding of the material.

3. I also claim the combination for effecting the movements of the feeder and the presser, the same consisting of the grooved cam f' , (applied to the driving-shaft,) the lever c' , applied to the said cam, as described, the rocker-shaft y and its arms $x g$, the pendulous bar or head L , the connecting-rod w , and the shaft u and its arms $t v$, the whole being arranged with

and applied to the presser and feeder and the frame of the machine, substantially as set forth.

4. And, in combination with the said mechanism for effecting the movements of the feeder and the presser-foot, I claim the slot z (in the arm x) and the adjustable pin a' and its clamp-screw applied to the lever c' and the arm x , their purpose being to regulate the length of stitch, as set forth.

5. I also claim the combination of the adjusting-screw p' and nuts q' r' , or the equiva-

lent thereof, with the pendulous bar L , the crank-pin o' , and the arm g of the mechanism for operating the awl and the feeder, as set forth, the purpose of the said parts o' , p' , q' , and r' being to enable the awl to be adjusted with reference to the needle.

EDWIN E. BEAN.

Witnesses:

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