

O. REDMOND.  
Sewing Machine.

No. 42,110.

Patented March 29, 1864.

Fig. 1

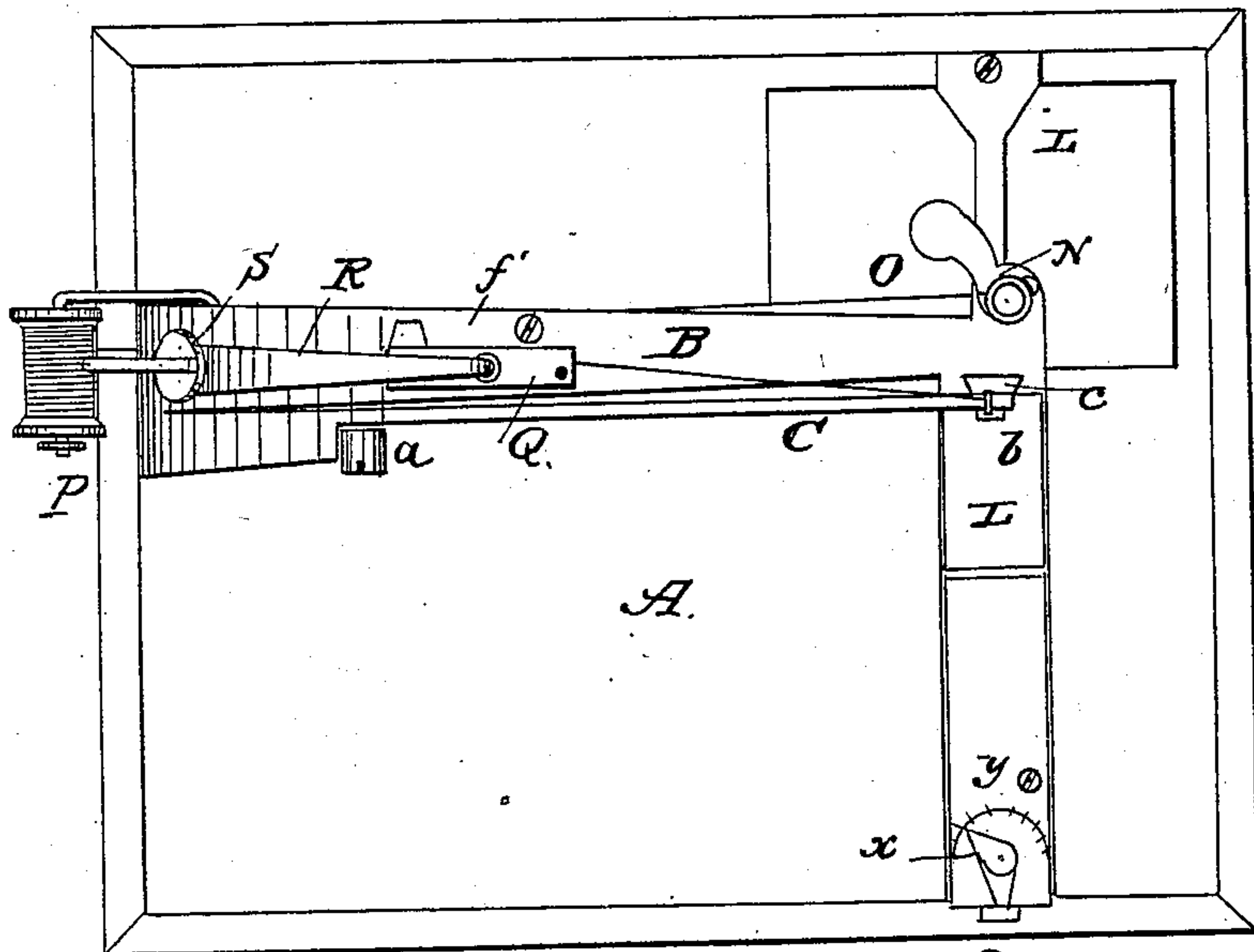


Fig. 3

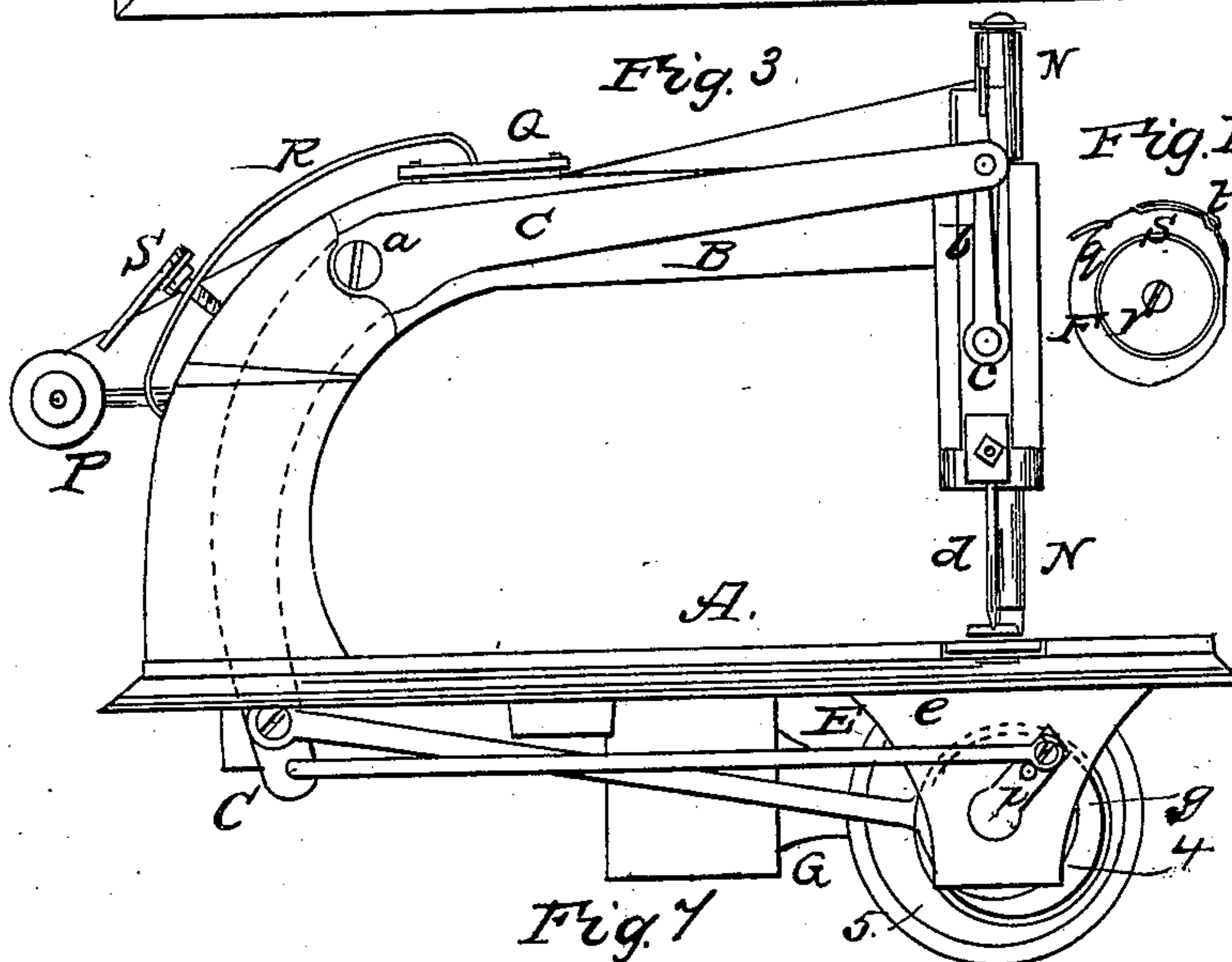


Fig. 7

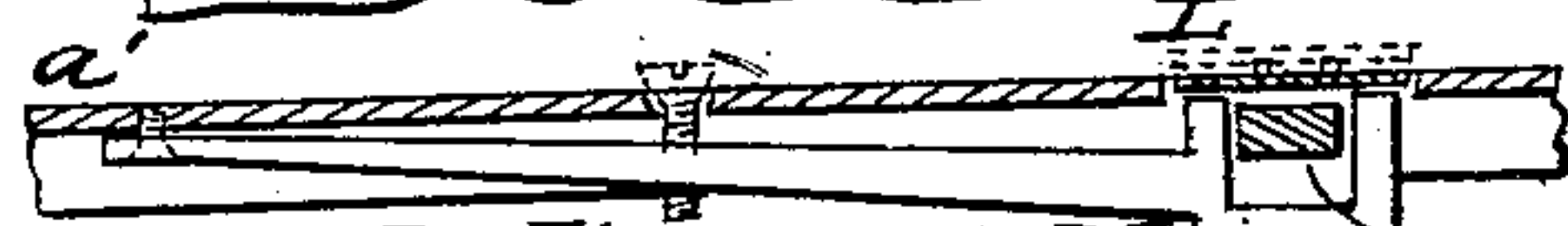
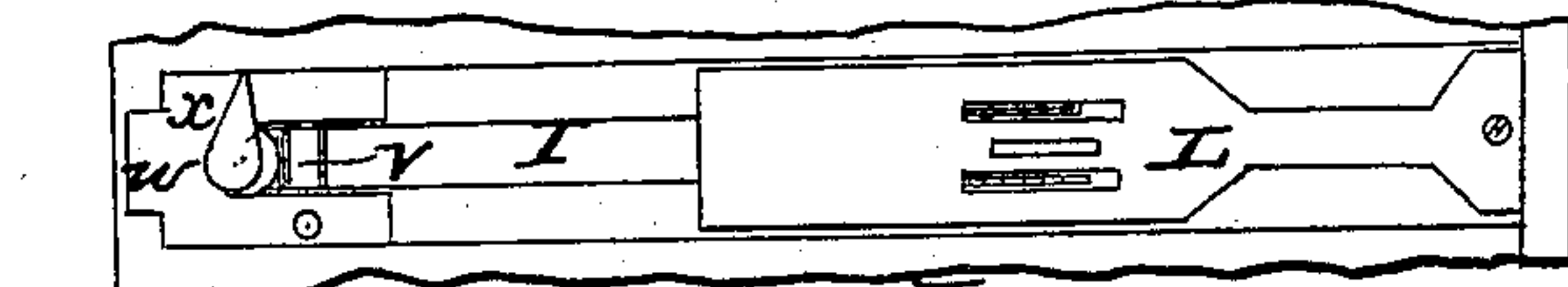


Fig. 8

Fig. 10

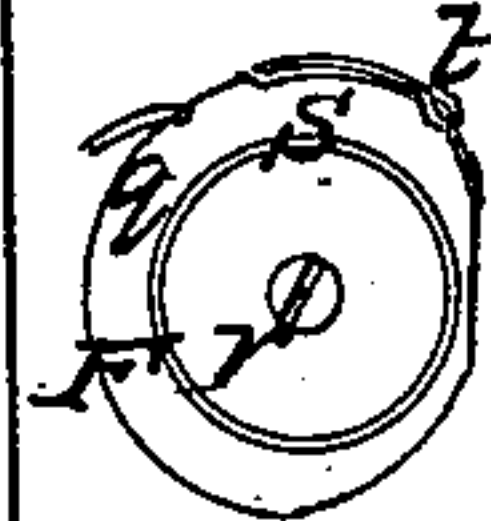


Fig. 11

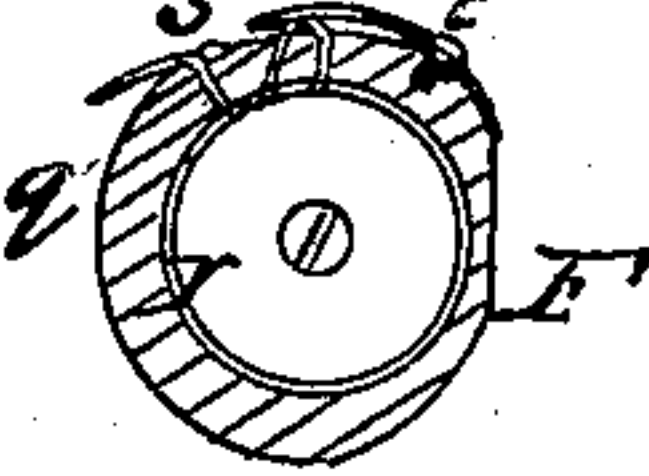


Fig. 9

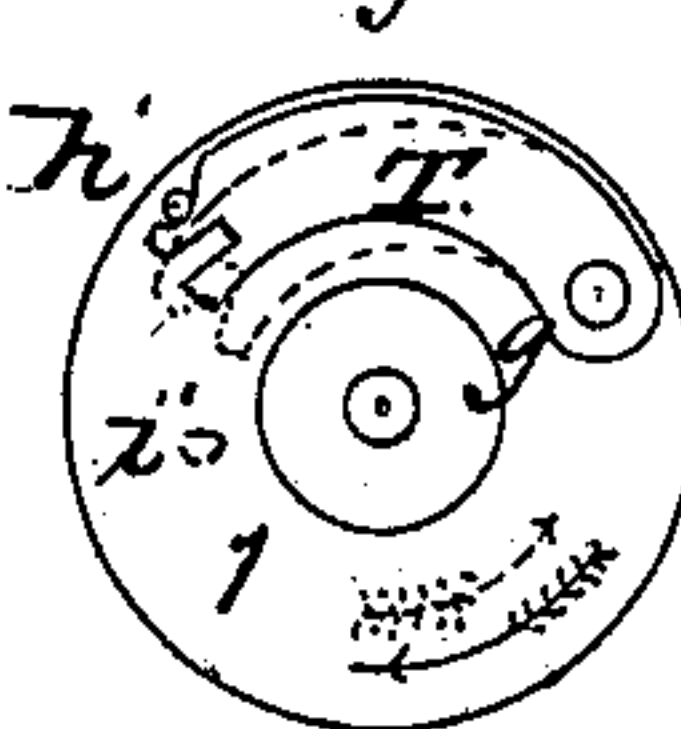
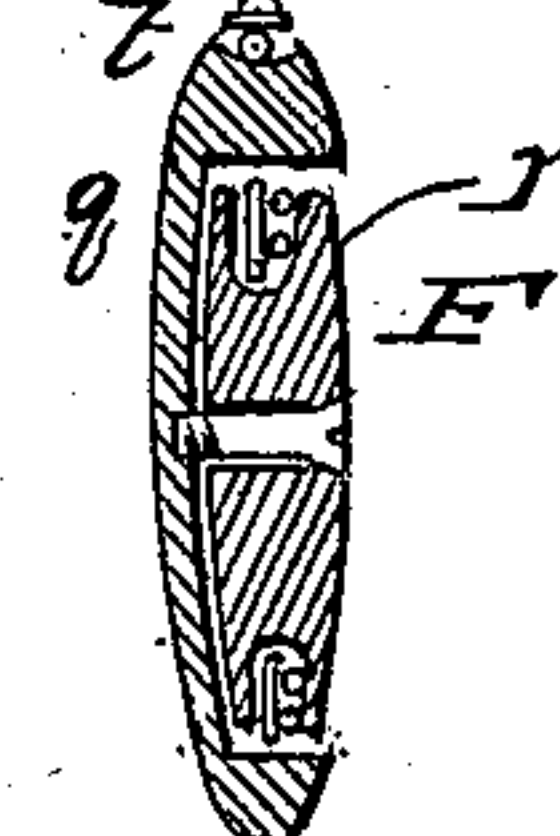


Fig. 12



Witnesses A. B. C. D. E. F. G. H. I. J. K. L. M. N. O. P. Q. R. S. T. U. V. W. X. Y. Z.

Inventor  
Owen Redmond  
By J. Fraser & Co.  
Atty.

O. REDMOND.  
Sewing Macihne.

No. 42,110.

Patented March 29, 1864.

*Fig. 2.*

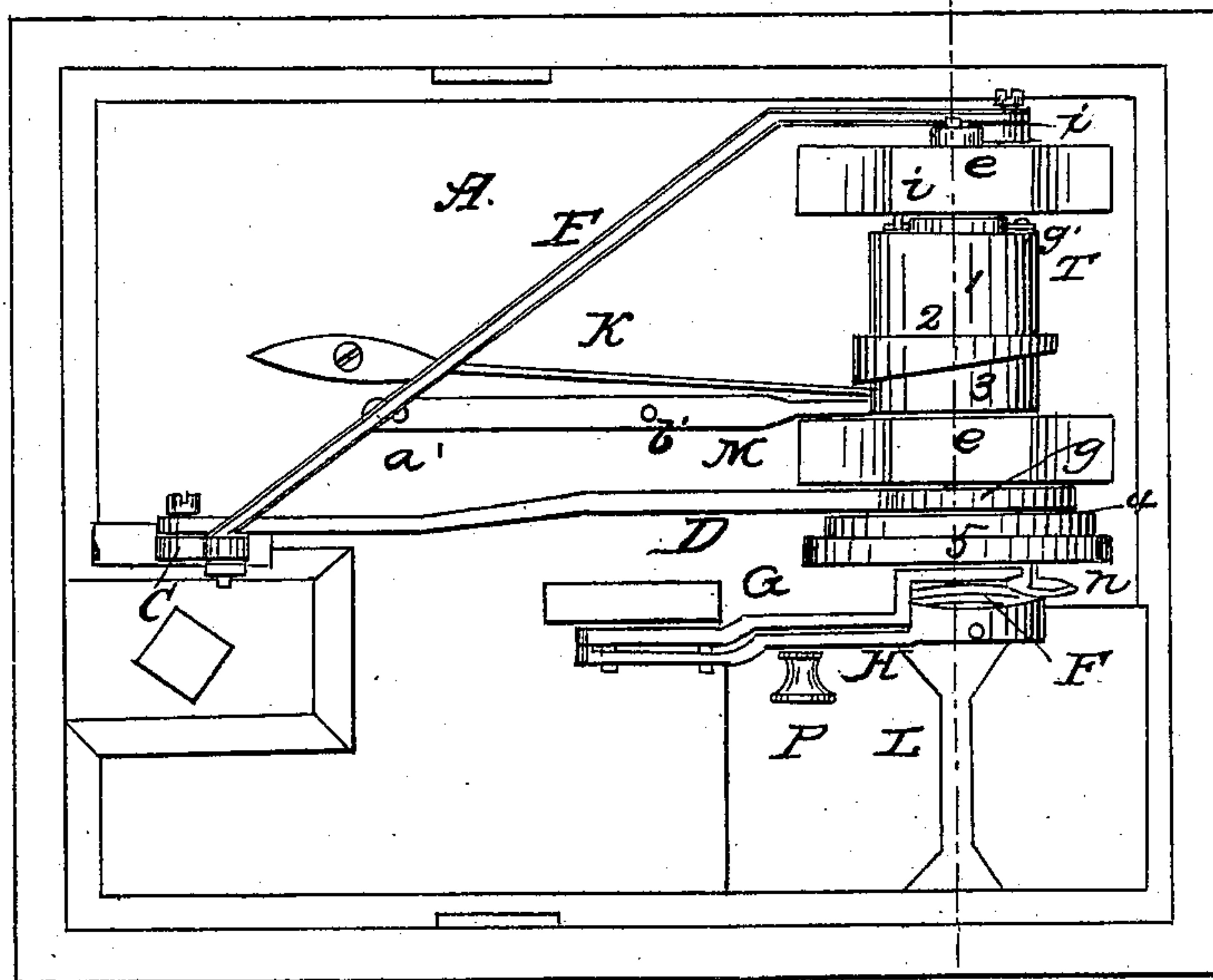


Fig. 6

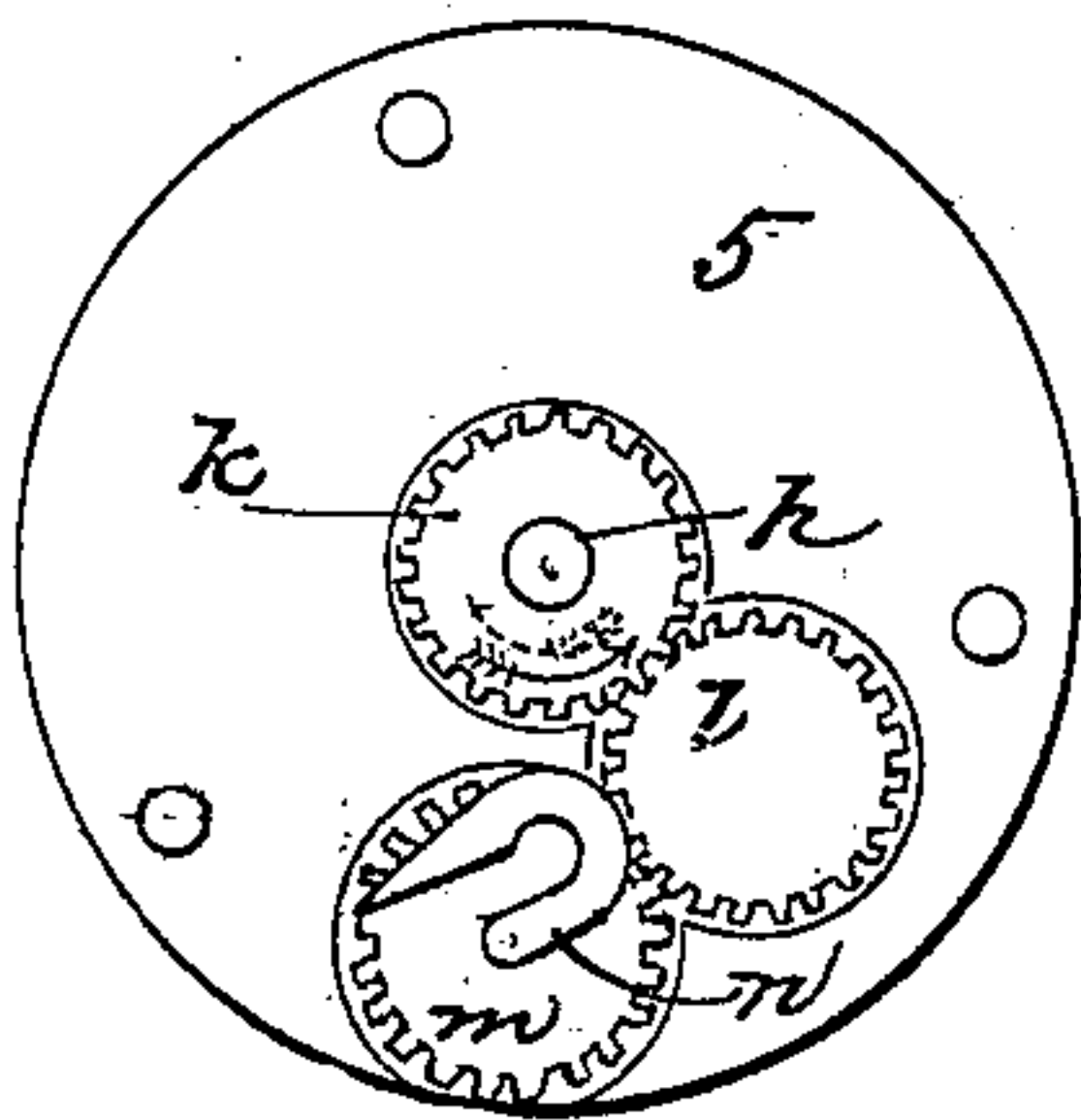


Fig. 4

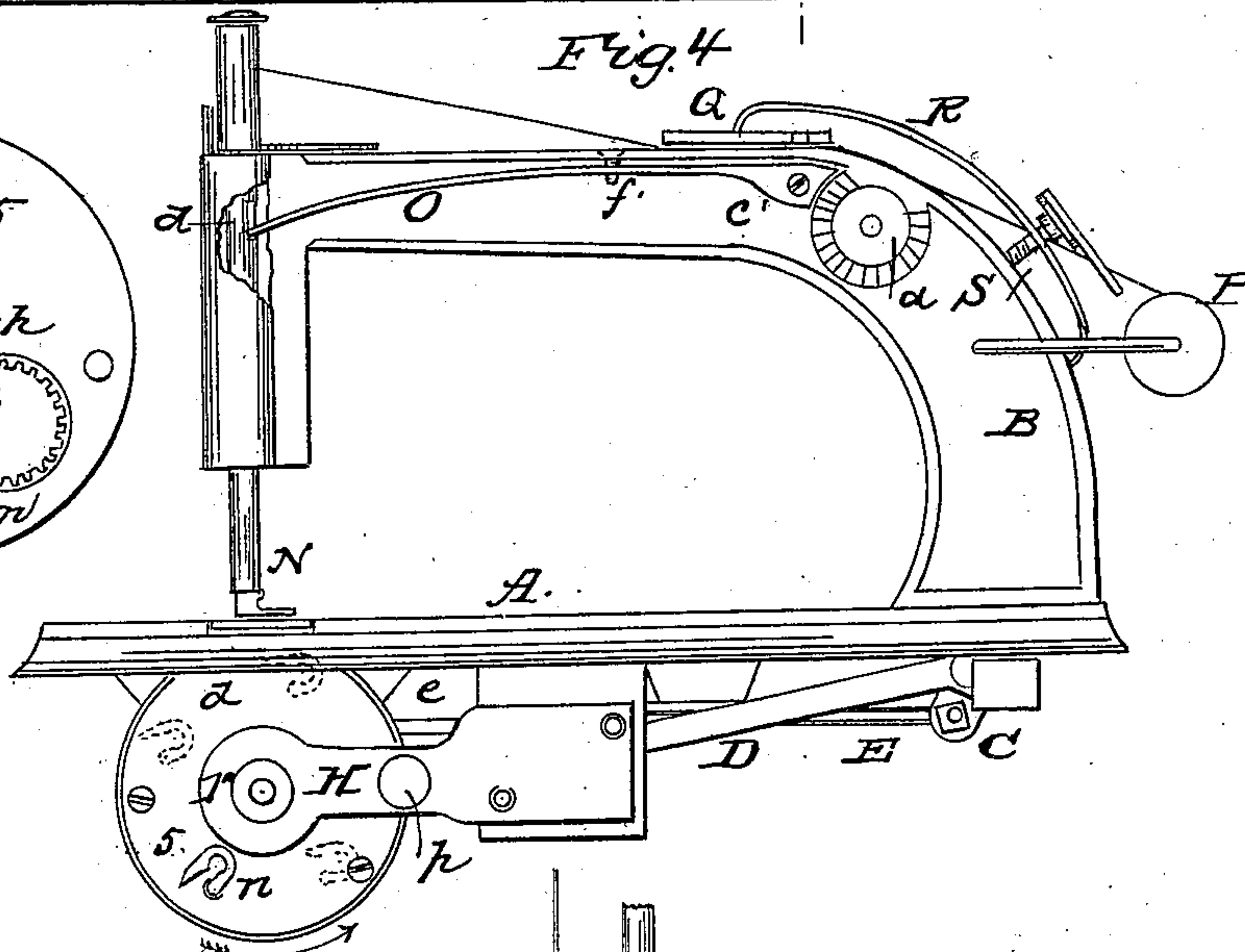
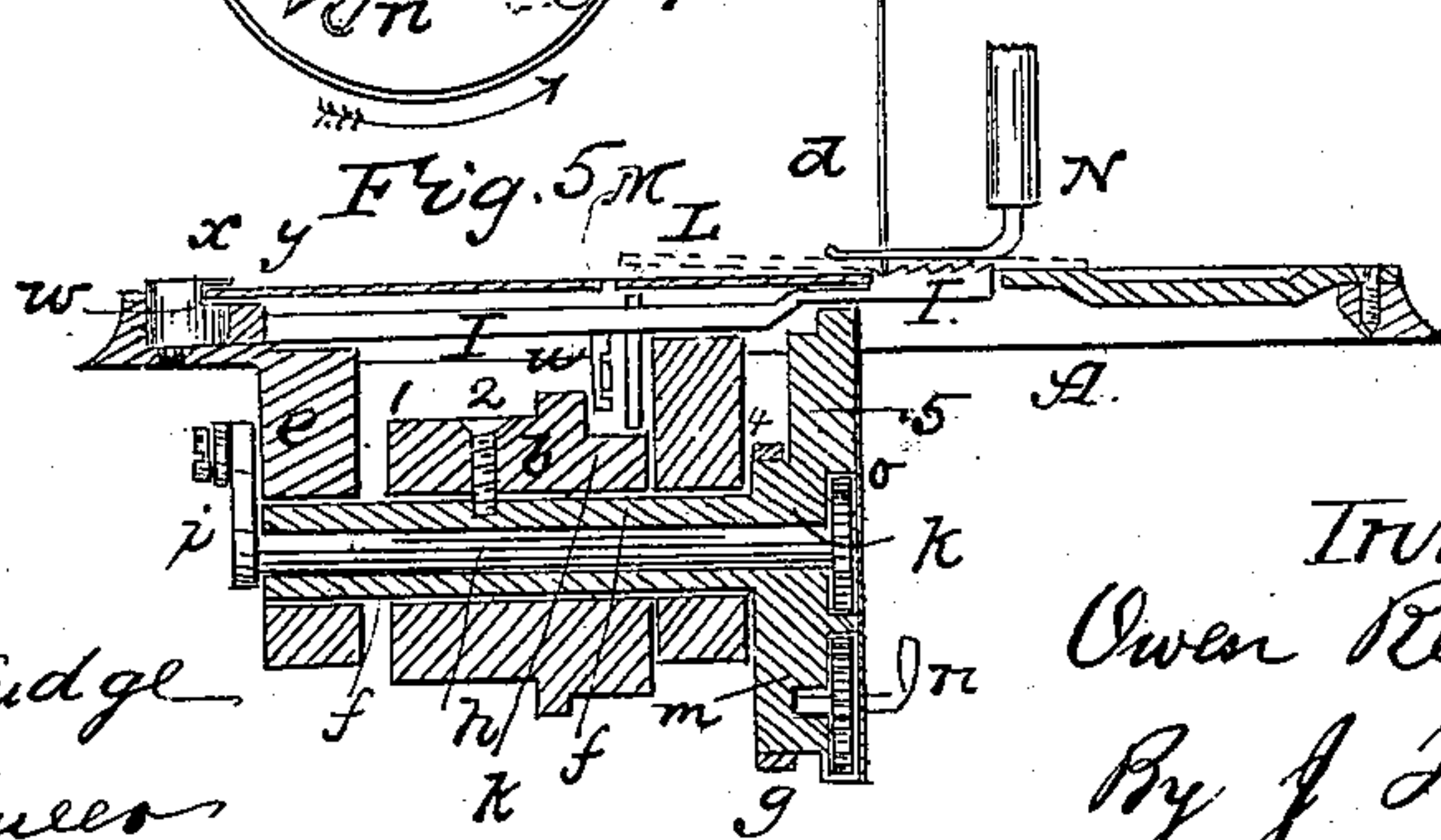


Fig. 5<sup>n</sup>



witnesses  
Alfred Ethendge  
Chas F. Spencer

Inventor  
Owen Redmond  
By J. Fraser & Co  
Attys.



# UNITED STATES PATENT OFFICE.

OWEN REDMOND, OF ROCHESTER, NEW YORK.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 42,110, dated March 20, 1864.

*To all whom it may concern:*

Be it known that I, OWEN REDMOND, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is a plan of the top of my improved machine; Fig. 2, a plan of the bottom; Fig. 3, an elevation of one side; Fig. 4, an elevation of the opposite side; Figs. 5, 6, 7, 8, 9, 10, 11, and 12, views of parts detached.

Like letters of reference indicate corresponding parts in all the figures.

My machine is of that class known as the "double-thread machine;" and the invention consists in the arrangement of parts herein-after fully set forth.

As represented in the drawings, A is the usual iron bed or plate, with which the parts are connected; B, the curved arm, to which the needle-bar is attached; and C, the needle-bar, pivoted at *a* and having its rear or lower end curved and extending downward through the bed, as shown in Figs. 2, 3, and 4, so as to be properly connected with the operating-eccentric. To the forward end of the needle-bar is jointed a pitman, *b*, which is also jointed at the opposite end to a guide, *c*, sliding in the head of the arm B, and to which the needle *d* is secured, as usual.

On a line with the needle the bed A is provided with two bearings, *e e*, projecting downward from its bottom, and in these bearings is mounted a set of pulleys, cams, and eccentrics, as clearly represented in Figs. 2, 3, 4, and 5. Of this set, 1 is the band-pulley, by which the machine is operated. 2 is the side cam, that operates the feed-bar. 3 is the vertical cam, that raises the cloth-plate, hereinafter described. 4 is the eccentric, that operates the needle-bar by means of connecting-rod D and its strap *g*; and 5 is the circular head or wheel, in which is situated the pinions for operating the looper, as will presently be explained. The eccentric 4 and the head 5 are situated outside the inner bearing, and are provided with a hollow shaft, *f*, Fig. 5, to which the outer cams are coupled, and which forms the journals of the parts. Through the hollow shaft passes an independent rock-shaft, *h*, having secured to its outer

end a small crank, *i*, connected with the lower extremity of the needle-bar by a rod, E, and to its inner end a small pinion, *k*, Figs. 5 and 6, sunk flush in the face of the head 5, but turning freely therein, said pinion gearing with another, *l*, which in turn gears with a third, *m*, having the looper *n* attached rigidly thereto and extending out through a thin disk or plate, *o*, which is attached to the head by screws or otherwise, and serves to keep the pinions in place. In Fig. 6, which is an end view of the head, the disk *o* is removed for the purpose of showing the arrangement of the pinions.

The looper is a hook substantially of the form shown in the drawings, and its object is to catch the needle-thread and carry it downward around the shuttle, presently to be described. Its projection, therefore, from the head is such as to come into close contact with the needle when lowered. In rotating, the looper assumes the positions indicated by the various outlines of the same in Fig. 4. It catches the thread, as shown at the top in red lines, and carries it downward, while at the same time the needle is rising. At the position of the looper indicated in black lines the needle begins to fall again, while at the same time the looper commences to change its position toward that shown in red lines at the right hand, thus producing a drawing action on the thread to compensate for the fall of the needle, and keeping it taut till it has passed the shuttle, when the looper turns so as to release the thread, which then draws up and forms the stitch, while the looper is free to act again.

It is apparent that if the looper were rigidly secured to the head it would catch the thread but not release it; and it is also apparent that the looper would not be in the right position at all times if the pinion *k* were perfectly stationary, from the fact that from the time the looper first catches the thread to the time it reaches the position indicated in black lines, Fig. 4, it must not greatly vary its angle in order to hold the loop properly; but at the latter position it is desirable that it should turn quickly into the position shown at the right in red in order to release the loop to form the stitch. An irregular action is thus required, which is accomplished by means of the rock-shaft *h* receiving a motion from the needle-bar through the connecting-rod E and crank *i*,



the effect being to turn the pinion *k* forward, as indicated by the black arrow, Fig. 6, when the thread is first caught, thus counterbalancing or retarding to a certain degree the regular rotation of the looper-pinion, and then, at the proper position, reversing the motion, as indicated by the red arrow, and thus accelerating the rotation of the looper-pinion so as to turn the looper quickly into the position to discharge the thread. From this point till the looper catches the thread again the pinion *k* remains stationary. This action is produced by the simple reciprocations of the needle-bar.

At a suitable position beneath the needle is situated the shuttle *F*, being sustained by a clamp consisting of two parts, *G* *H*, Figs. 2 and 3, the former being secured to a bearing of the bed by screws or otherwise, and the latter being adjusted to it by means of a set-screw, *p*. The shuttle is situated between the ends of the clamp, which forms a socket in which it rests loosely, in such a manner that the loop of the needle-thread may pass around it, and thus around its thread, and form the stitch. This construction of the clamp does not differ essentially from others in use.

The construction of the shuttle is shown most clearly in Figs. 10, 11, and 12, which are respectively a side elevation, vertical section, and cross-section. It consists of two parts—an outer case, *q*, circular and sharp-edged in front, but with a square shoulder in the rear, to rest against the side of the clamp-socket to keep it from turning, and a bobbin, *r*, within it, containing the thread, and which turns on a central pivot. The case is perforated through the edge with several small holes, through which the thread passes, as shown at *s*, and it has on its top, or at a suitable position, a small spring, *t*, secured by means of a screw, which spring rests on the thread as it comes through the holes, and thus regulates the tension. By means of the screw the spring may be made to press more or less, and the tension is thus adapted to any kind or condition of sewing. This arrangement of the shuttle is very convenient.

I employ the ordinary reciprocating feed-bar, *I*, Figs. 5 and 7, which receives its forward movement by means of the side cam, 2, as before described, and its backward movement by means of a spring, *K*, Figs. 2 and 5, which fits against a projection, *u*. The end of the feed-bar rests against a piece of cork, *v*, which in turn rests against a small eccentric, *w*, having a pointer, *x*, moving over a scale on a plate, *y*, above. In Fig. 7 (which is a plan) this plate is removed in order to show the parts beneath.

It will be seen that by turning the eccentric *w* in one direction or the other the feed-bar will be correspondingly moved forward or backward, and its throw accordingly modified, thus regulating the length of the stitch; and this gage is exactly indicated by the pointer and the scale above. The feed-bar merely reciprocates forward and back, and does not fall, as

usual, in the backward movement to clear it of the cloth; but in order to effect this I employ a yielding cloth-plate, *L*, Figs. 5, 7, and 8, which is lowered, as in black lines, when the feed goes forward, but is raised, as in red, when it goes backward, thus lifting the cloth up free from the teeth. To produce this automatic action, a bar, *M*, Figs. 2, 5, and 8, is secured, as represented at *a'*, to the under side of the bed-plate, the opposite end extending under the cloth-plate and having a head resting against said plate and on the cam 3, whose throw is sufficient to raise the plate to the desired height. At a suitable position between the ends of the bar *M* the same is provided with an adjusting-screw, *b'*, or equivalent, which plays loosely in the bed, so as to be easily operated, and serves as a gage to the throw of the bar, and consequently the cloth-plate *L*, and thus adapting the degree to which the latter is raised to the thickness of the cloth which is being sewed. This gage or adjustability is necessary, for it is frequently the case that several thicknesses of thick cloth have to be sewed at once, and at other times but a single thickness of light fabric, and in the latter case, if the cloth-plate is greatly elevated, it is difficult to guide the material properly. I am aware that a yielding cloth-plate has before been employed, but am not aware that the same has ever been capable of being adjusted in its elevation as I have above described.

I also regulate the pressure of the cloth-presser *N* by means of a flat spring, *O*, Fig. 4, secured to the curved arm *B*, as shown at *c'*, the opposite end of which rests in a notch, *d'*, of the shaft, and I raise and lower this so as to obtain greater or less pressure by means of an adjusting-screw, *f'*. By this means I am enabled to adapt the force of the presser to the thickness or condition of the cloth, which effect cannot be produced by the ordinary arrangement.

The needle-thread passes from the spool *P* between the arm *B* and a plain elongated plate, *Q*, which is pressed down by a flat spring, *R*, or its equivalent, whose intensity is adjusted by a thumb-screw, *S*. By this means a perfect tension of the thread is produced and the same is adjusted, while by the long bearing upon the thread there is less danger of breakage than where the bearing is short and abrupt. This tension is also much more regular, especially where there are any enlargements or knots in the thread.

To the end of the band-pulley 1 is pivoted at *g'*, near the periphery, a curved arm or brake, *T*, Figs. 2 and 9, whose opposite end plays free, but is prevented from being thrown beyond the circle by a lug, *h'*.

The bearing *e* is provided with a pin or stop, *i'*, projecting nearly to the end of the band-pulley, and its position is such that when the brake is lowered, as in red lines, Fig. 9, its movable end will strike the stop and prevent further turning of the pulley in that direction; but when raised, as in black lines, it will pass



ver it free in the opposite direction. Thus, when the pulley is turning forward, as indicated by the black arrow, the brake is thrown outward by the centrifugal action, and there is no impediment to its progress; but if turned backward, as indicated by the red arrow, the brake falls and strikes the stop and arrests the motion. This a very simple, convenient, and effective arrangement.

What I claim as my invention, and desire to secure by Letters Patent; is—

1. Governing the motion of the looper *n* by means of the set of pinions *k l m*, situated in the head 5 in such a manner that the said looper shall come in proper position to catch the needle-thread and carry it around the shuttle and then discharge it, substantially as herein set forth.

2. In combination with the set of pinions *k l m*, situated in the head 5, the rock-shaft *h*, crank *i*, and connecting-rod E, jointed to the lower end of the needle-bar C, substantially as described.

3. Gaging the length of the stitch and indicating the gage by means of the eccentric *w*, provided with the pointer *x*, and the cork *v* for

deadenning the sound, when the same are used in combination with the feed-bar I, as herein set forth.

4. I do not claim a yielding cloth-plate rising above the feed-bar in its backward movement, but I also claim operating the yielding cloth-plate L by means of the bar M, adjusted to raise the cloth-plate more or less to adapt the action to either thick or thin fabric by means of the screw *b'* or equivalent, said cloth-plate being used in combination with the feed-bar I, substantially as described.

5. The brake T, pivoted to the band-pulley, in combination with the pin or stop *i'* or equivalent, arranged in such a manner as to be thrown outward clear from the stop when turning forward, but to fall and strike the stop and arrest the motion when turned backward, substantially as specified.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

OWEN REDMOND.

Witnesses:

R. F. OSGOOD,  
J. FRASER.