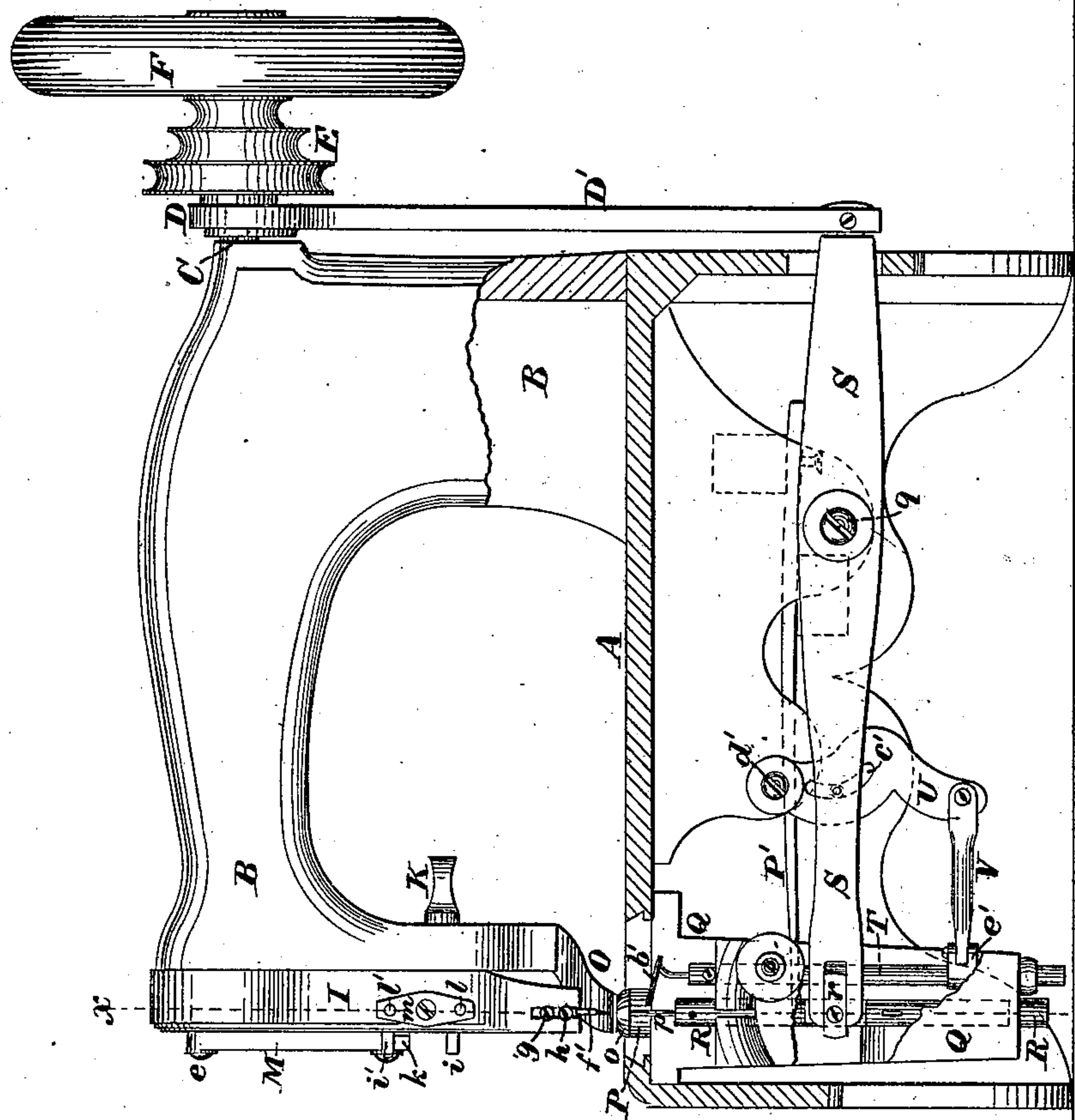
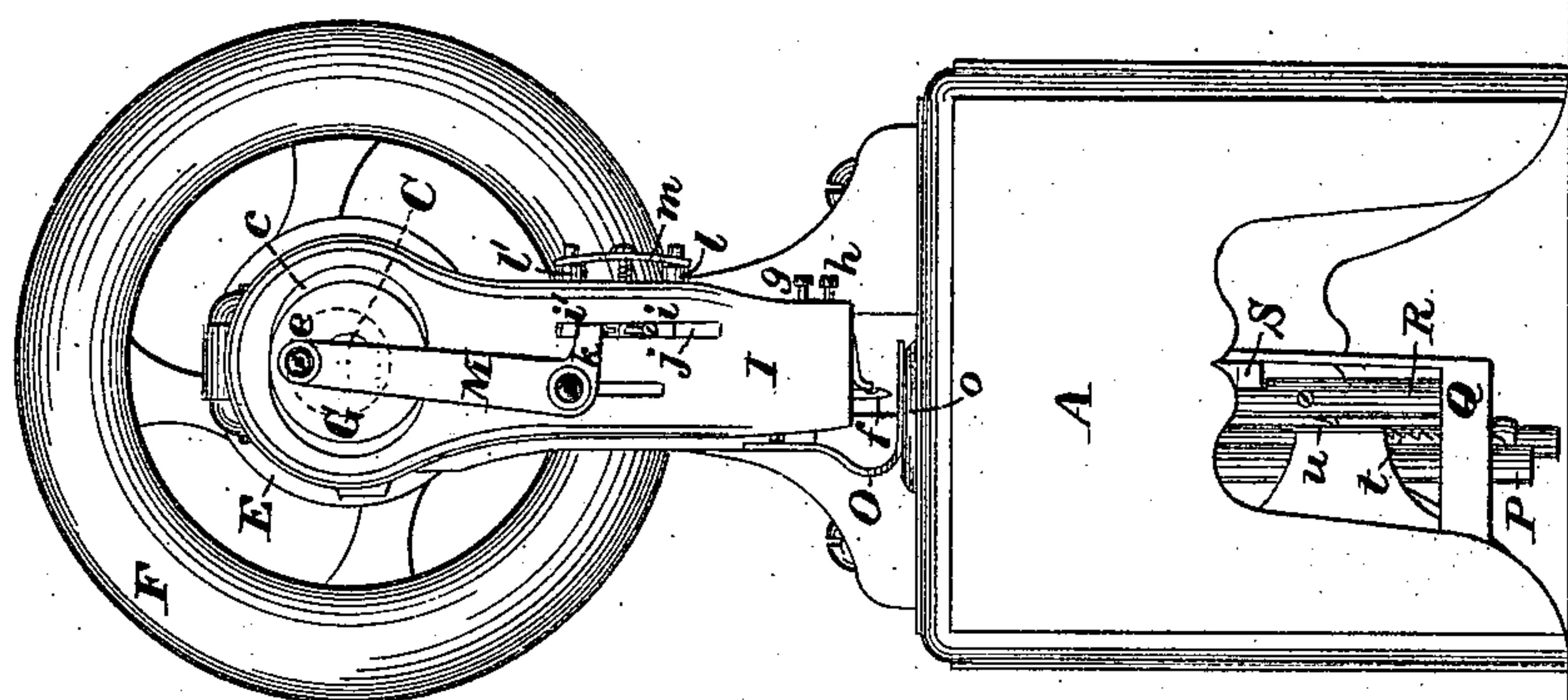


H. F. NASON.
Wax-Thread Sewing-Machine.

No. 227,288.

Patented May 4, 1880.



Witnesses:

E. A. Hemenway.
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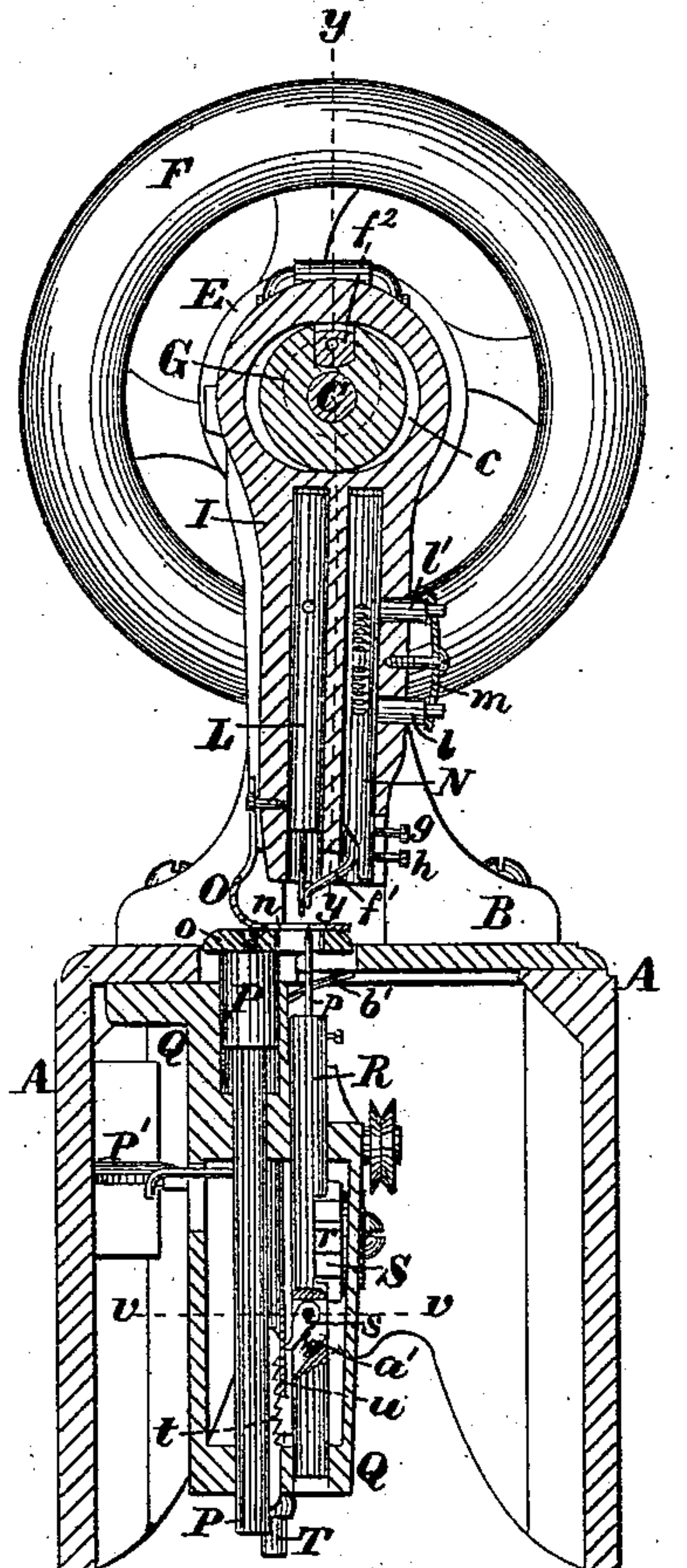


Fig. 3.

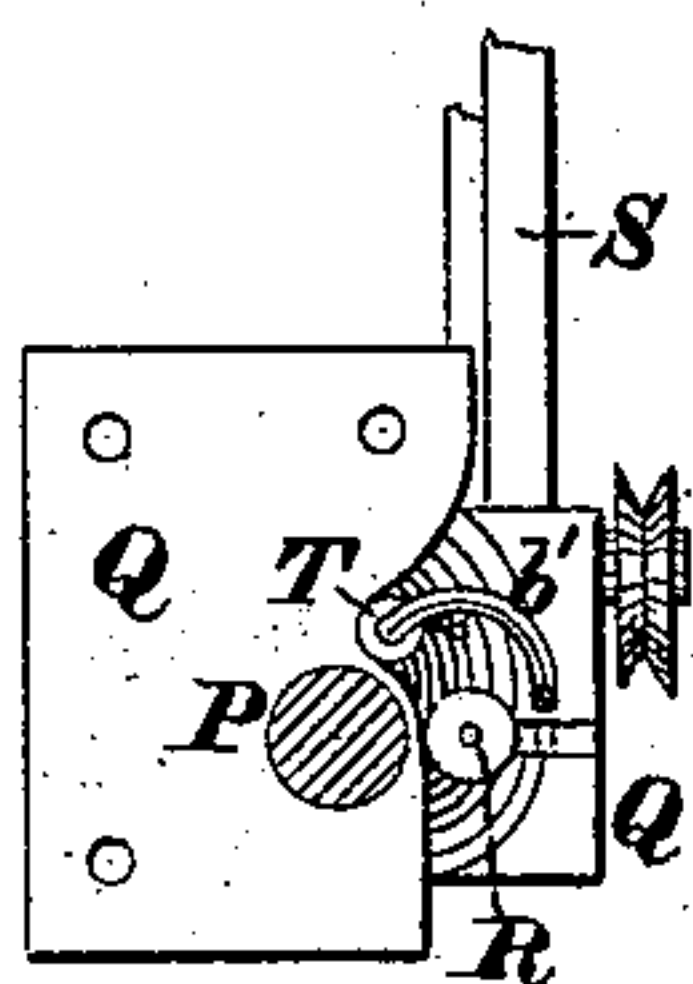


Fig. 4.

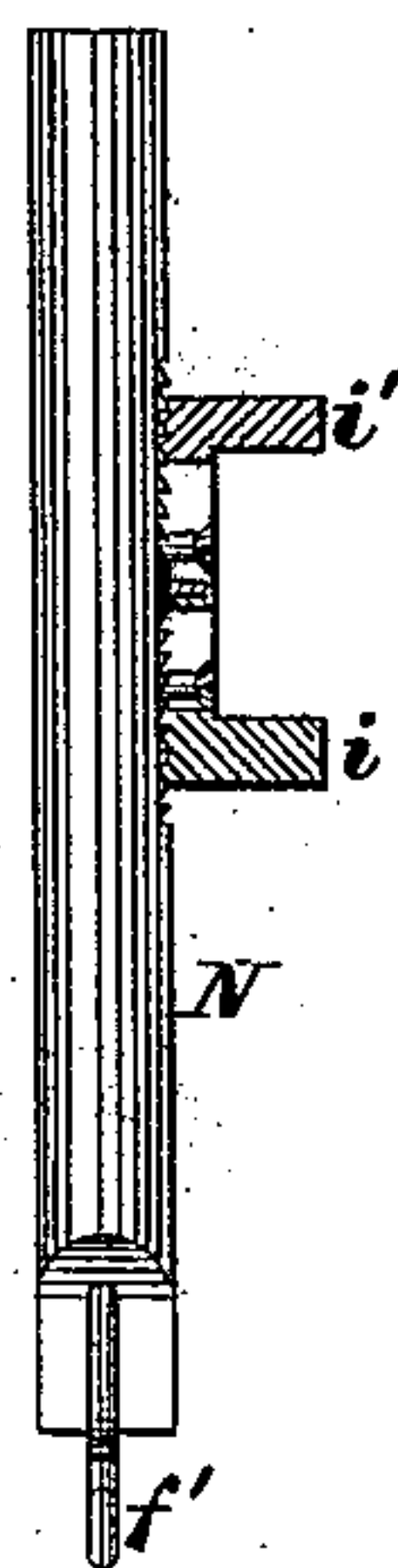


Fig. 9.

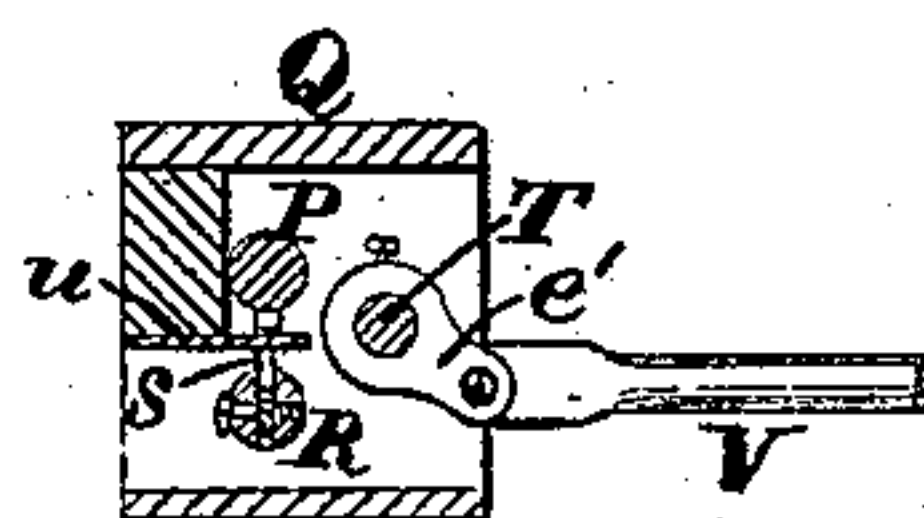


Fig. 7.

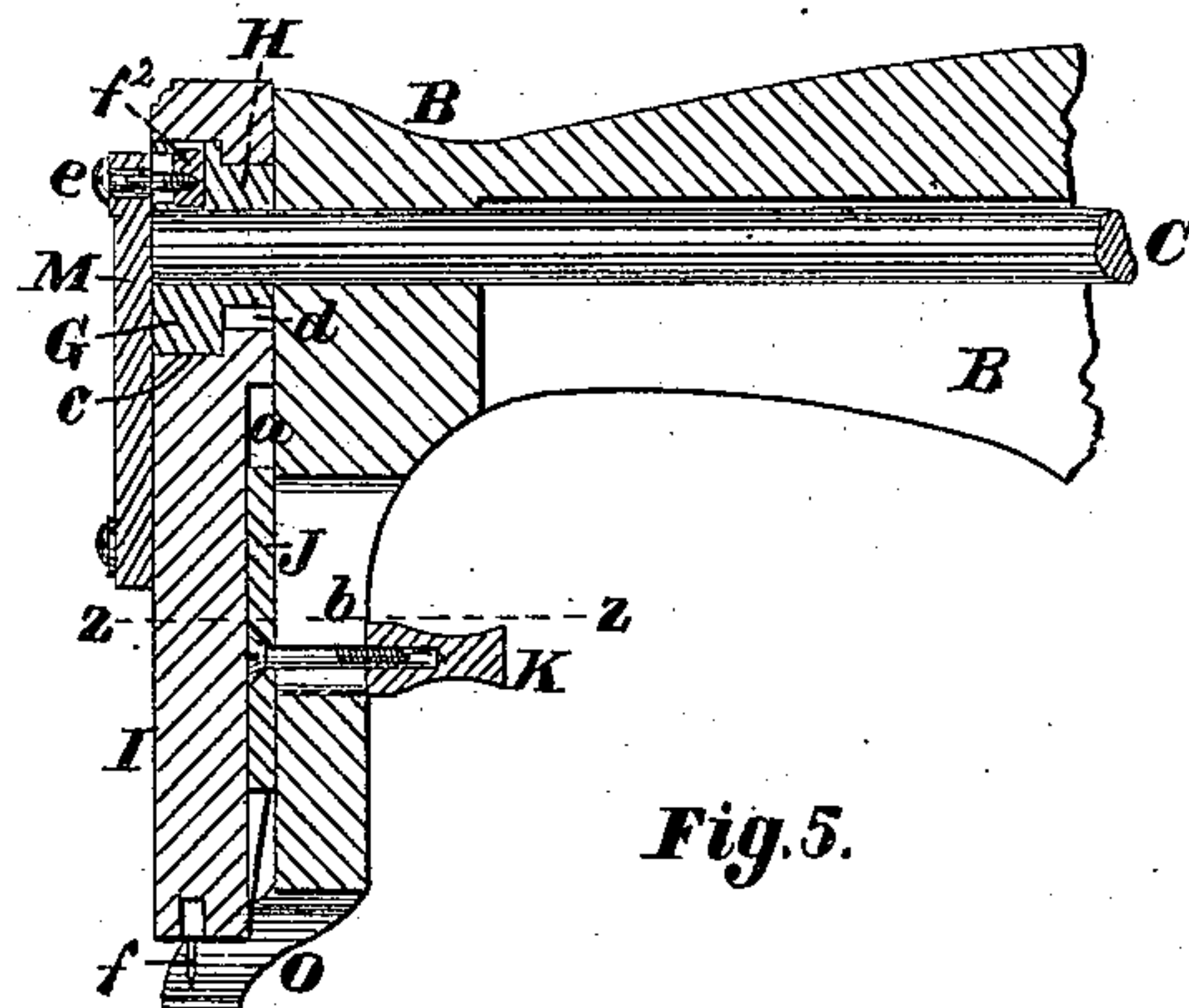


Fig. 5.

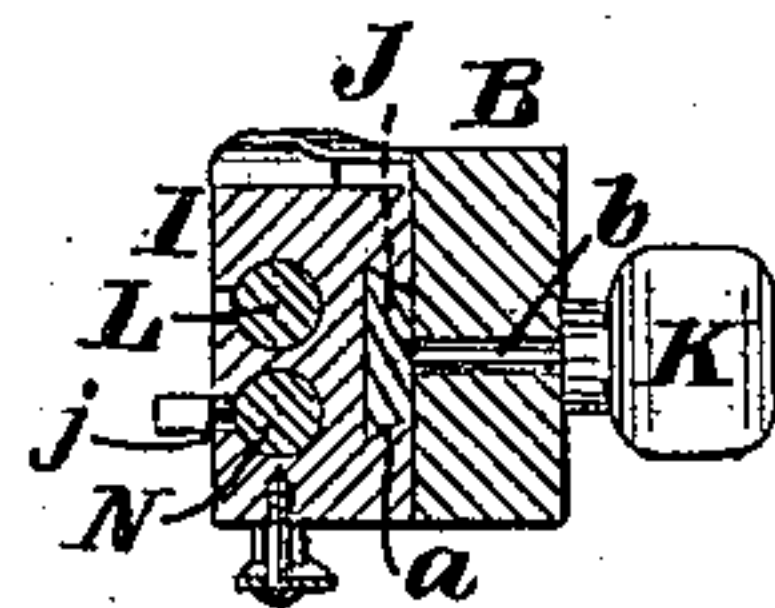


Fig. 6.

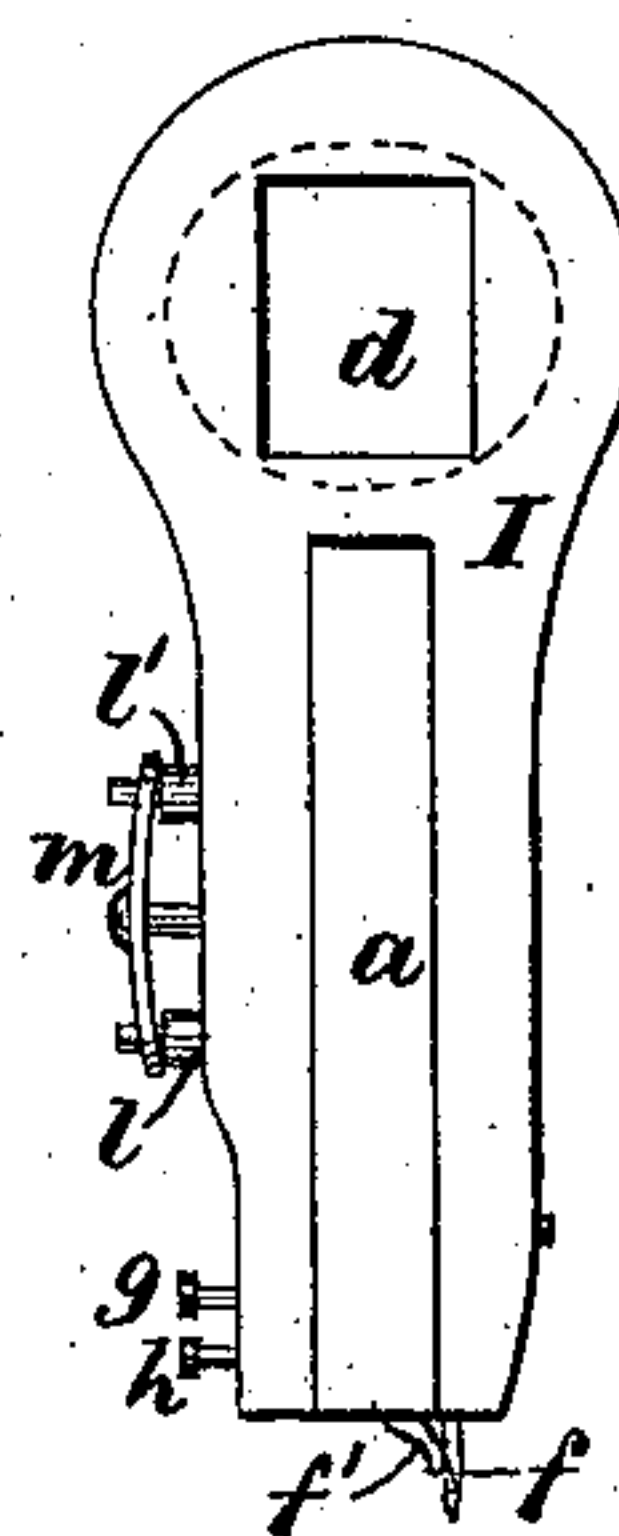


Fig. 8.

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UNITED STATES PATENT OFFICE.

HORACE F. NASON, OF NATICK, MASSACHUSETTS.

WAX-THREAD SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 227,288, dated May 4, 1880.

Application filed December 15, 1879.

To all whom it may concern:

Be it known that I, HORACE F. NASON, of Natick, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Wax-Thread Sewing-Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to improvements in wax-thread sewing-machines, whereby such machines are adapted to do special work, such as sewing shoe or brogan counter-stiffeners to the quarters or boot-straps to their legs.

In the manufacture of brogans the heel-stiffeners have to be sewed around their upper edges to their quarters, and to do this upon the sewing-machines now in use the stiffener has to be tacked to the quarter by two or more nails, and the outside of the quarter has to be marked with a line to locate and serve as a guide for the stitching, and the sewing is done with the quarter placed in the machine with the stiffener side downward. This requires considerable labor in the preparation of the work, which is saved by the use of my improved machine, besides entirely dispensing with the use of the tacks, which often are so carelessly located as to be struck by the needle in sewing and render it unfit for further use, or, as the tacks are seldom removed before lasting the shoe, the tack may be troublesome in lasting, or may be in a position to be in sight above the heel or sole when the shoe is lasted, thereby injuring the shoe.

The same extra labor in the preparation of the work applies to sewing on the straps of boot-legs, which require to be placed in position and tacked, and marks to be made upon the outside of the leg as a guide in sewing.

The object of my invention is to obviate this unnecessary labor by so constructing the sewing-machine that the work may be placed in the machine with the stiffener or strap side up, without previous tacking of the parts together, and sewing them together, guiding the work by the edge of the stiffener or strap; and it consists in certain novel arrangements and constructions of the operative parts of the sewing-machine, which will be best understood by reference to the description of the drawings, in which—

Figure 1 is a front-end elevation of a machine embodying my invention. Fig. 2 is a sectional side elevation. Fig. 3 is a vertical transverse section on line *xx* on Fig. 2. Fig. 4 is a detail, showing the awl-bar, thread-guide bar, and the stand in which they have their bearings in plan, with the yielding throat-plate bar cut in section. Fig. 5 is a vertical section through the front portion of the goose-neck on line *yy* on Fig. 3. Fig. 6 is a horizontal section on line *zz* on Fig. 5. Fig. 7 is a horizontal section on line *vv* on Fig. 3. Fig. 8 is an elevation of the back or inner side of the feed-bar; and Fig. 9 is an elevation of the cast-off bar, with the adjustable lugs by which it is moved shown in section.

A is the table or bed of the machine, from the right-hand end of which rises the goose-neck B, firmly secured thereto in any well-known manner, and having mounted in bearings formed in its upper portion the shaft C, to the rear end of which is secured the eccentric D, grooved cone-pulley E, and the hand-wheel F, all constructed and applied in a well-known manner.

The shaft C also has formed upon or secured to its front end the crank-disk G (the periphery of which is concentric with the axis of said shaft) and the eccentric H, placed in the rear of said disk, but in close proximity thereto, the purpose of which will presently appear.

I is the feed-bar, having formed in its back or inner face a vertical dovetailed groove, *a*, to receive a correspondingly-shaped block, J, pivoted by the thumb-screw K to the goose-neck B, and adapted to be adjusted to a higher or lower level, to vary the feed by moving said screw up or down in the slot *b*.

The feed-bar I has formed in its upper end a recess, *c*, extending about half-way through said bar, of a height just equal to the diameter of the disk G and a length horizontally equal to the diameter of said disk plus the throw of the eccentric H, and through the remaining portion of the thickness of said feed-bar is cut a slot, *d*, having a horizontal width just equal to the diameter of the eccentric and a vertical height equal to or in excess of the diameter of said eccentric plus its throw, by which arrangement the feed-bar has imparted to it the necessary lateral movement about its

pivotal connection to the goose-neck without vertical movement.

L is the needle-bar, having a bearing nearly its entire length in the feed-bar I, in which it may be reciprocated by means of the connecting-rod M and crank-pin *e*, set in the disk G, and has set in its lower end the barbed needle *f*, said needle-bar being so set in said feed-bar that when the feed-bar is in such a position that the point of the needle is at the extreme of its movement toward the front the needle and needle-bar shall be in a vertical position, or, in other words, so that the lateral movement of the needle for feeding the work shall always start from the same point, whatever may be the length of said movement.

N is the cast-off bar, having its bearing in the feed-bar I, and having set in its lower end the cast-off *f'*, secured in position therein by the set-screw *g*, and adapted to be adjusted laterally by means of the set-screw *h*, the inner portion of the lower end of said bar being cut away, as shown in Figs. 3 and 9, to permit the shank of the cast-off to spring for that purpose.

One side of the cast-off bar N has formed thereon a series of teeth or serrations extending laterally across it, with which corresponding teeth or serrations on the rear sides of the two adjustable lugs *i i'* engage, said lugs being secured to said bar by screws passing through slots formed therein, and said lugs project through the slot *j* in the feed-bar I, and are acted upon alternately by the short arm or toe *k* of the connecting-rod M to move said cast-off bar up and down, said bar being held at either extreme of its movement until acted upon by said toe by the friction-pads *l l'*, acted upon by the spring *m*.

O is a fixed presser-foot or resistance-plate attached to the goose-neck B, and having cut through it a slot, *n*, for the passage of the needle and cast-off, and of sufficient length to permit the feed of the material by a lateral movement of the needle while it is in the goods. Directly beneath this presser-foot or resistance-plate is a yielding throat-plate, *o*, attached to the upper end of the bar P, which has its bearings in the stand Q, bolted to the under side of the table A, and is forced upward by the tension of the spring P', to force the work against the resistance-plate or presser-foot O.

R is the awl-bar, mounted in bearings in the stand Q and carrying in its upper end the awl *p*, which pierces the work from the under and face side thereof, as the bar R is moved upward by lever S, pivoted at *q*, and connected to said bar by its forked front end embracing a lug, *r*, formed upon or secured to the side of said bar, as shown in Figs. 2 and 3, motion being applied to said bar by the eccentric D acting upon the eccentric-rod D', leading therefrom to and connected with the rear end of said lever S.

A pawl, *s*, is pivoted to the awl-bar R, and its point engages with ratchet-teeth *t*, formed

upon or secured to the side of the throat-plate bar P, to move the throat-plate *o* downward and relieve the pressure on the work while the work is being fed, said pawl being prevented from engaging with said teeth during the first part of the downward movement of the awl-bar by the shield or guard-plate *u*, interposed between the bars P and R, and against which the toe of the pawl *s* is forced by the tension of a spring, *a'*, all as shown in Figs. 3 and 7.

The thread guide or looper *b'* is set in the upper end of the vertical rocker-shaft T, which has its bearings in the stand Q, and is moved around the needle to guide the thread into the proper position to be caught by the barb of the needle as it is drawn up by means of a stud or pin set in the side of the lever S acting upon the cam-slot *c'*, cut in the lever U, pivoted at *d'*, and connected at its opposite end to one end of the link V, the opposite end of which is connected to the short lever *e'*, formed upon or secured to the rocker-shaft T, as shown in Figs. 2 and 7.

The stroke of the needle may be varied by adjusting the crank-pin *e* to a greater or less distance from the axis of the shaft C by means of the nut-block *f'*, fitted to a mortise in the edge of the disk G, and adapted to be moved radially therein, the crank-pin *e* passing through a radial slot in the face of said disk and being screwed into said block in a well-known manner. By this arrangement of the parts—*i. e.*, an awl to pierce the work, a yielding throat-plate, and a thread-guide, all placed beneath the work, a barbed needle, a cast-off, and a fixed presser-foot or resistance-plate placed above the work, and a fixed or stationary table upon which the work rests during the operation of sewing—I am enabled to sew many kinds of work at a great saving in time and labor as compared with the machines now in use, and do equally good work—as, for instance, counter-stiffeners may be sewed to the quarter without being tacked thereto, as heretofore practiced, the counter being simply laid upon the quarter in proper position and the quarter and counter placed on the table beneath the presser-foot O, with the counter at the top and the yielding throat-plate *o* pressing against the under side of the quarter. The sewing may then be completed without further preparation, the operator using the edge of the counter, which is in full view, as his guide to determine the location of the stitching, and, as a consequence, the direction that the work should have given to it during the sewing. The awl pierces the work from below, and consequently from its face side, in conjunction with the barbed needle working from the upper side and drawing up the loop of the stitch to said upper side of the work, which is also the inner side when worked into a shoe. This makes a nice handsome stitch upon the under or face side of the work.

The yielding throat-plate *o* is depressed to a greater or less extent, according to the thickness of the stock to be sewed, and is moved

downward from such position a sufficient distance to permit the free movement of the work by the lateral movement of the needle by the engagement of the pawl *s* with the highest tooth of the ratchet-teeth *t*, which appears below the lower edge of the shield or guard-plate *u*.

The throw of the cast-off may be varied at will by adjusting the lugs *i* and *i'* upon the cast-off bar *N*.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a waxed-thread sewing-machine, of a fixed table, upon the upper surface of which the work may rest while being sewed, a fixed presser-foot or resistance-plate provided with a slot for the passage of the awl and needle, a barbed needle, and a cast-off, all located above said table, and an awl to pierce the goods, a yielding throat-plate provided with an opening for the passage of the awl and needle, and a thread-guide, all placed beneath the table, and mechanism adapted to impart the necessary motions to the needle, cast-off, awl, and thread-guide, substantially as described.

2. The shaft *C*, provided with the eccentric *H* and the concentric disk *G*, in combination with the pivoted feed-bar *I*, provided with the recess *c* and slot *d*, all constructed, arranged, and adapted to operate substantially as and for the purposes described.

3. In a sewing-machine, the combination of the cast-off bar *N*, provided with the lugs *i* and *i'*, the needle-bar *L*, connecting-rod *M*, pivoted to said needle-bar and provided with the laterally-projecting arm or toe *k*, and mechanism for operating said connecting-rod, substantially as described.

4. In a sewing-machine, the combination of the cast-off bar *N*, having formed on one of its sides a series of teeth or serrations, the independently-adjustable lugs *i* and *i'*, also provided with teeth or serrations and having slotted vertical portions, as shown, screws for adjustably securing said lugs to said bar, the needle-bar *L*, its connecting-rod *M*, provided with the short arm or toe *k*, and mechanism for operating said connecting-rod, as set forth.

5. The yielding throat-plate *o*, its bar *P*, provided with ratchet-teeth *t*, in combination with the awl-bar *R*, provided with the pawl *s*, mechanism adapted to reciprocate said awl-bar vertically or in a line parallel to said throat-plate bar, and the stationary shield or guard-plate *u*, all arranged and adapted to operate substantially as and for the purposes described.

Executed at Boston, Massachusetts, this 13th day of December, A. D. 1879.

HORACE F. NASON.

Witnesses:

C. H. DODD,
W. E. LOMBARD.