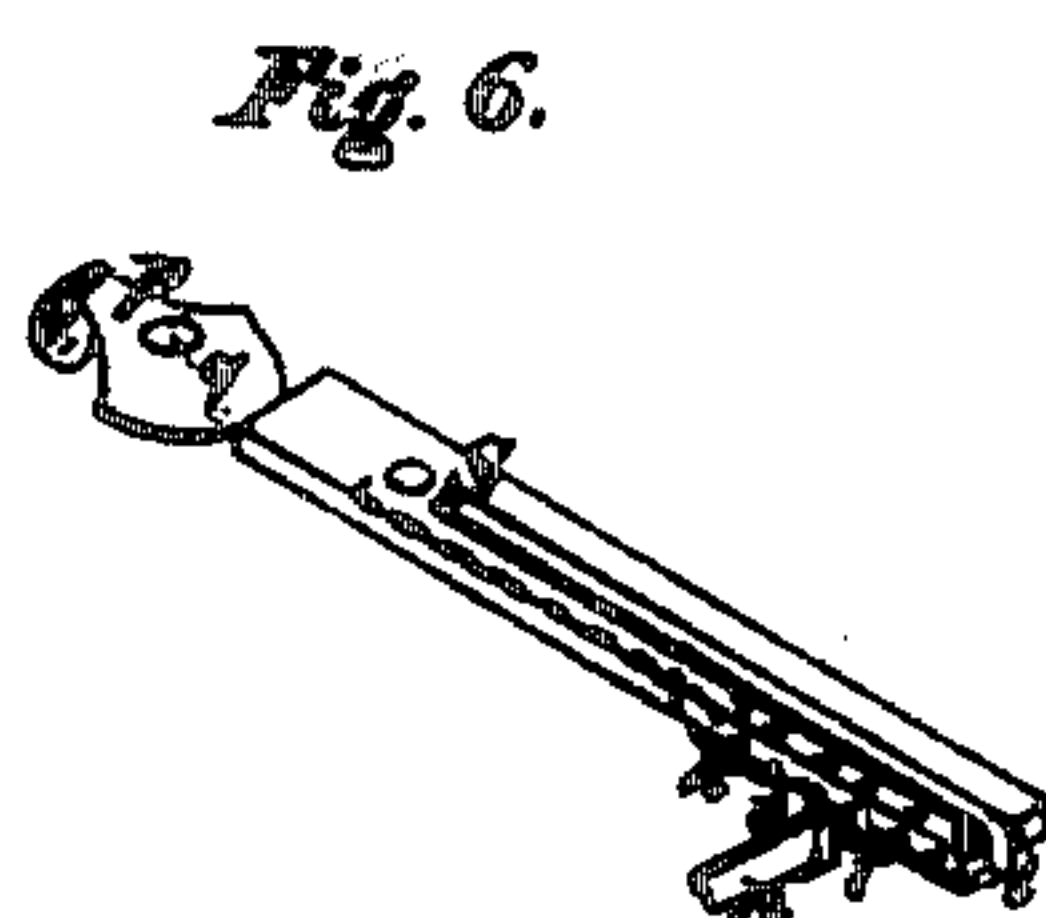
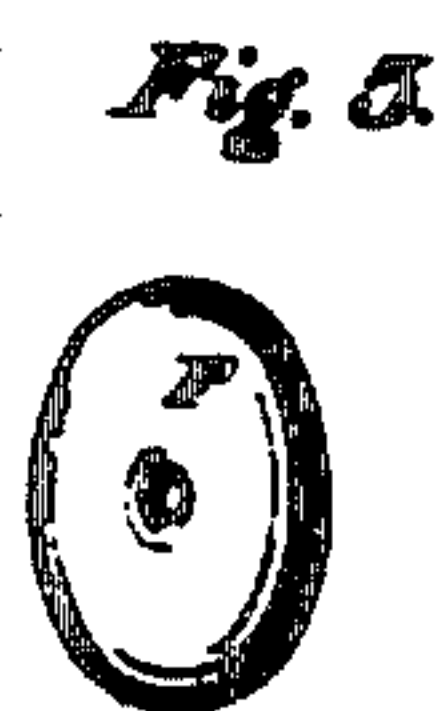
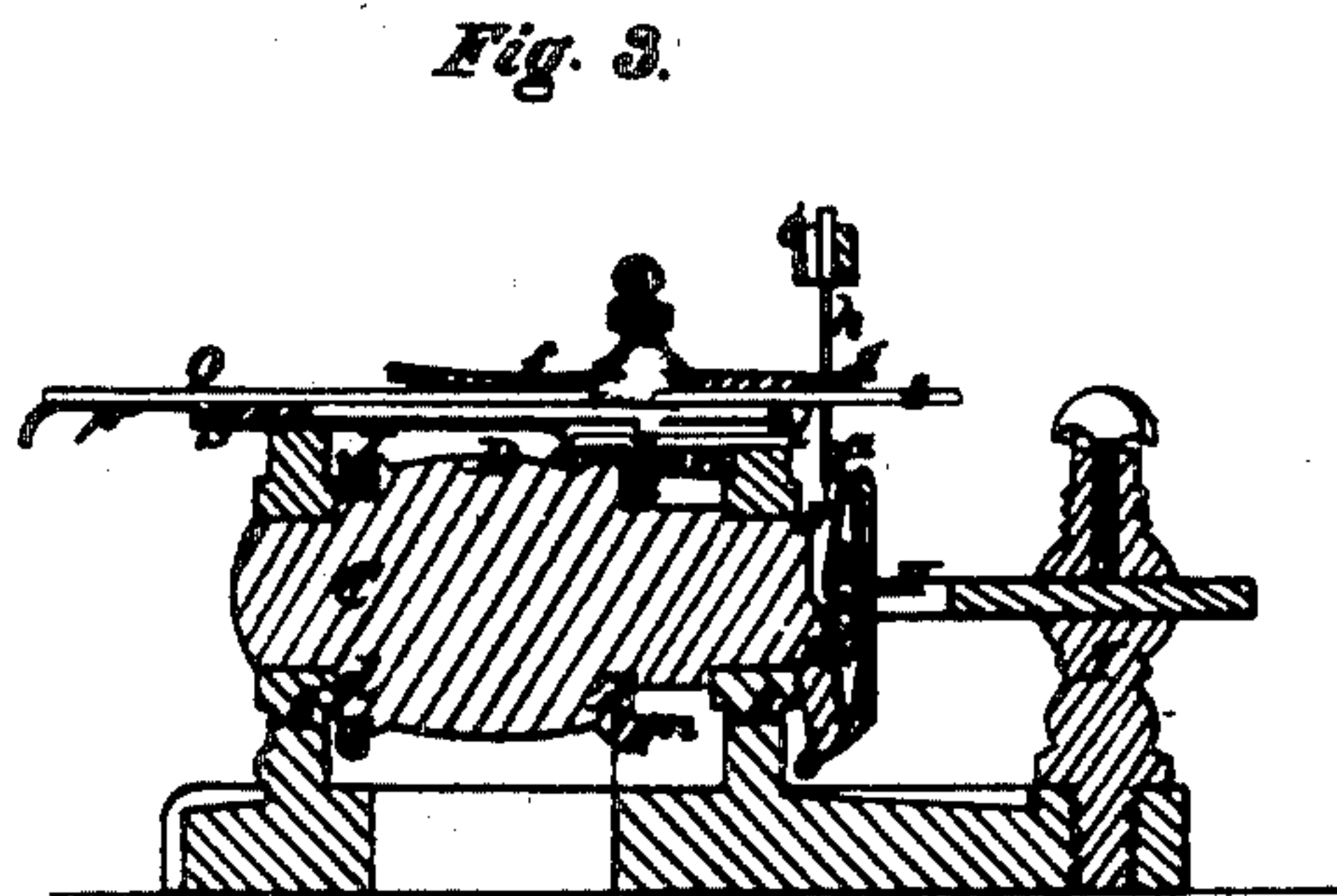
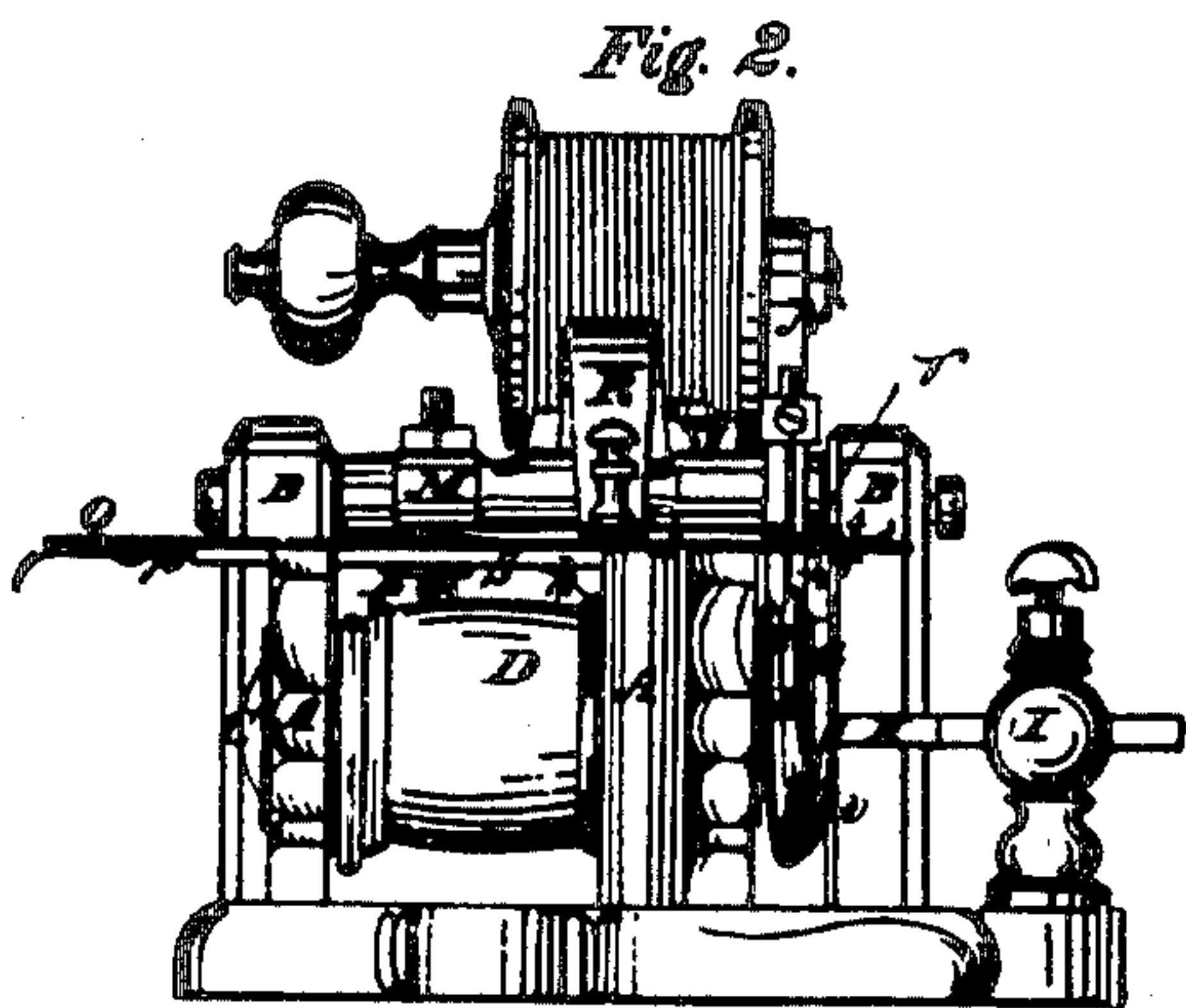
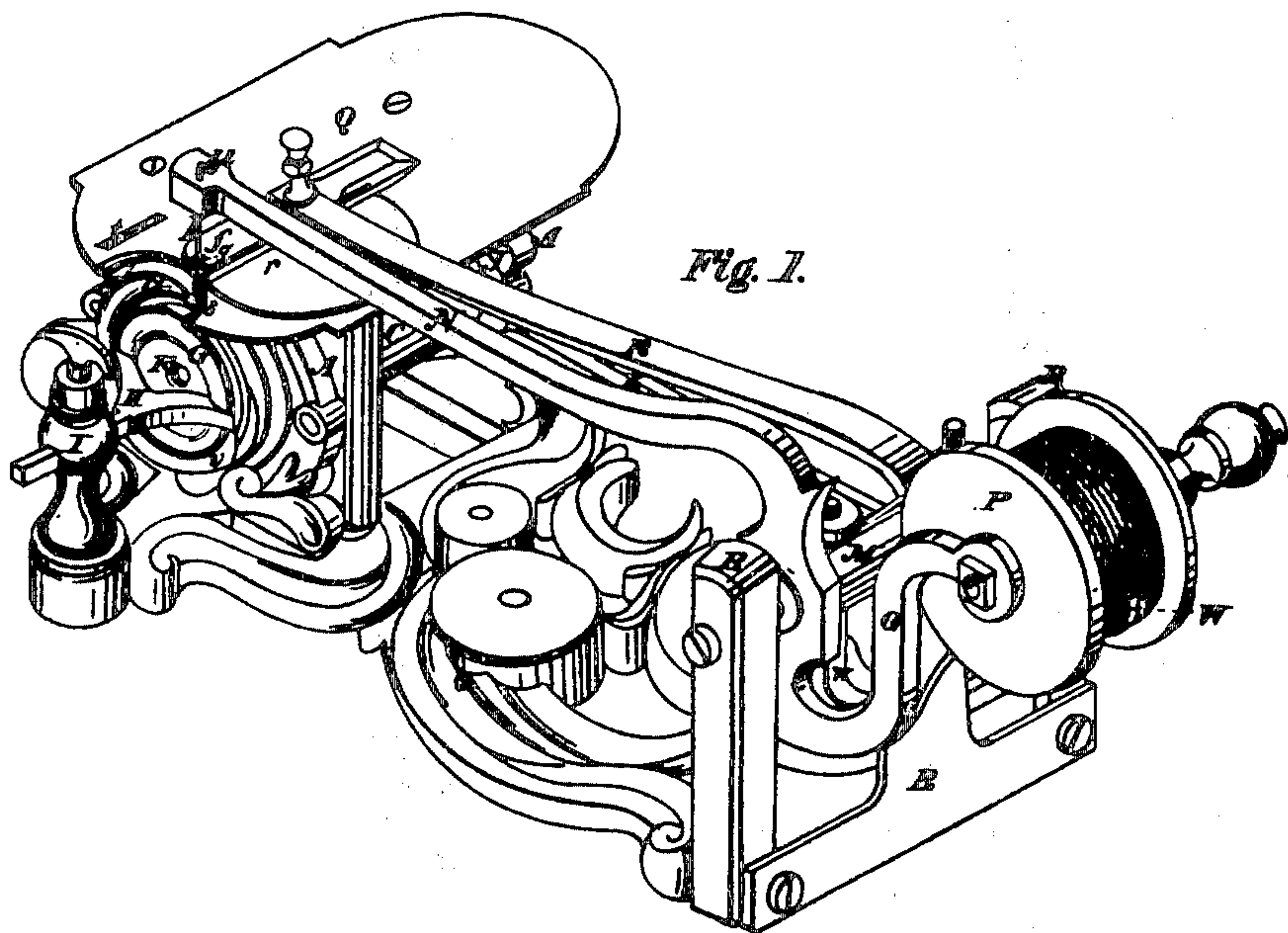


A. B. WILSON.
SEWING MACHINE.

No. 9,041.

Patented June 15, 1852.



UNITED STATES PATENT OFFICE.

A. B. WILSON, OF WATERTOWN, CONN., ASSIGNOR TO NATHL. WHEELER,
A. B. WILSON, ALANSON WARREN, AND G. P. WOODRUFF.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 9,041, dated June 15, 1852

To all whom it may concern:

Be it known that I, ALLEN B. WILSON, of Watertown, in the county of Litchfield and State of Connecticut, have invented certain new and useful Improvements in Machinery for Sewing; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a view in isometrical perspective of my improved machine, which I term "the improved seaming lathe." Fig. 2 is an end elevation of the same. Fig. 3 is a transverse vertical section of the same, taken through the parts which form the stitches. Fig. 4 is a view in perspective of the rotating hook which opens the loops detached from the machine. Fig. 5 is a view in perspective of the bobbin which carries the thread which is to be passed through the loops. Fig. 6 is a view in perspective of the feed-bar and appendages detached from the machine.

Similar letters of reference indicate corresponding parts in each of the several figures.

This machine in certain points resembles that for which Letters Patent of the United States, bearing date the 12th day of August, 1851, were granted to me. The main point of difference consists in the employment, in combination with the rotating hook for the purpose of carrying the thread which is to be passed through the loop formed in the needle-thread, of a bobbin which is stationary in the line of its axis, the said bobbin being of such form and being so placed in relation to the said rotating hook as to cause the said rotating hook to extend the loop and pass it right over the bobbin. This is, in effect, the same as the bobbin passing and carrying the thread through the loop; but the reciprocating movement of the bobbin and the mechanism for producing it are dispensed with.

To enable those skilled in the art to make and use my invention, I will proceed to describe fully its construction and operation.

The working parts of the machine are all attached to or carried by a suitable frame, A A B B, which is secured firmly to a table or bench. The mandrel C, resembling in a certain degree the mandrel of a lathe, is fitted in

suitable bearings in the standard A A of the frame, and is suitably turned or provided with a pulley, D, to secure rotary motion through a driving-band from a driving-wheel moved by a treadle under the table, or by any suitable means. At the front end the mandrel is provided with a plate or portion of a disk, E, (best seen in Fig. 4,) which is concave on its face, and has portions of two threads of a screw formed on its periphery, a portion of the periphery being cut away to form the hook *a*, which opens the loop in the needle thread. One part of the front or outer thread of the screw is chamfered off at *b* to the back or inner thread, and the notch *c* or recess between the screw threads is made to extend back from the hook *a* about one-third of the circumference. Within the concavity in the face of the disk E the bobbin F, which carries the thread to be passed through the needle-thread, is held by a ring, G, attached to a forked rod, H, which is adjustable in a small standard, I, secured in the frame, the said ring holding the bobbin in its place, but allowing it to turn very freely. The bobbin F resembles somewhat the bobbins employed in the carriages of lace-machines, that being the form which occupies least space longitudinally to its axis. The edges of the two plates of which it is formed are brought nearly close together, but the plates are bellied out to hold a quantity of thread. One part, *d*, of the mandrel is turned eccentrically, and is encircled by a ring, J, to which a rod, K, is attached, which connects to an arm, L, which is secured to the arbor M, which is fitted in bearings in the standards B B of the frame and forms the fulcrum of a two-armed lever, one, N, of whose arms is the needle-arm, and to the other, O, is secured the spindle *c*, upon which is hung the spool or bobbin P, which carries the thread for supplying the needle and forming the loops. By the revolution of the mandrel C, the eccentric *d* is caused to give a vibratory movement to the lever N O.

The cloth or material to be sewed is laid upon a plate, Q, which is secured to the top of the standards A A, and forms a small table. It is held down by a small pressing-plate, *f*, which is attached to the end of a curved spring, R, which is secured to the back of the standards

B B, and extends over the top of the machine. In the front end of the pressing-plate *f* there is a notch, *g*, cut to allow the needle to pass through, and an opening corresponding to the notch *g* is cut through the plate *Q* for the same purpose.

The needle *h*, which is attached to the arm *N* describes an arc which would nearly intersect the axis of the mandrel *C*. The hook *a* also rotates in a vertical plane parallel with that in which the needle works, its point passing as close as possible in front of the needle. The movements of the hook and needle are so regulated that the hook passes the needle just as it is commencing its ascent.

The cloth receives the necessary movement to enable the needle in its successive descents to perforate it at suitable distances, by means of a feed bar, *S*, whose form is most intelligible in Fig. 6. It is a straight flat bar with a slot extending nearly its whole length, and with two ears, *i i*, on its underside. Under the slot is secured a spring bar, *k*, which has a sharp-pointed tooth, *l*, at the end. The bar *S* slides in suitable rabbets or mortises in the standards *A A*, immediately below the plate *Q*. The point of the tooth *l* is immediately under a small opening in the plate, but does not pass through until pressure is applied below the spring.

Upon the mandrel *C* there is a cam, *T*. (See Fig. 3.) This cam is nearly cylindrical and concentric to the mandrel, but at one point, *m*, in its periphery there is a prominence. This prominence extends also to the front. By the revolution of the mandrel the prominence on the cam is made to act on the under side of the spring-bar *k* and force up the point of the tooth *l* at the same time that its front part acts on the back of the ears *i i*, and moves the feed-bar longitudinally forward toward the plane of the needle's motion. This movement of the feed-bar while the point of the tooth *l* is protruding above the surface of the plate *Q* causes the tooth to catch the cloth and move it forward for a new stitch, the bar being returned by the pressure of a spring, *n*, which is secured to one of the standards on the ears *i i* after the prominence *m* on the cam has passed. The tooth being freed from the cloth as soon as the prominence is clear of the spring-bar prevents its catching on its return.

The length of the stitch is regulated by an eccentric stop, *p*, which is pivoted on a pin, *q*, to the underside of the plate *Q*. Against this stop the feed-bar is forced by the spring *n*. The length of the stitch is greatest when the least prominent part of the stop is turned toward the end of the bar, as it allows the bar to go back farthest, and it is shortest when the most prominent part of the stop is opposite the bar.

In preparing to commence operation, the material to be sewed is placed on the top of the plate *Q*, under the pressing-plate *f*, and closes up to the turned-up part of the plate *r*,

which serves as a gage to regulate the distance of the seam from the edge of the material. The thread from the bobbin *P* is conducted through the hole *n*, near the end of the needle arm at the back of the needle, and thence through the eye of the needle, which is made transversely to the plane of its motion. The thread from the bobbin *F* is passed through a slit between a small spring, *x*, and the edge of the plate *Q* to the opening through which the needle passes. In this opening it plays freely. Its end is passed under a spring, *l*, which secures it. The end of the thread from the needle is then held by the attendant and all is ready. The machine is then set in motion, the mandrel rotating in the direction indicated by the arrow shown in Fig. 1. The descent of the needle-arm forces the needle through the material, the needle carrying the thread with it, the thread lying close to the needle behind and in front of it. When the needle commences to rise, the point of the rotating hook *a* passes between the needle and the thread, and as the needle rises a loop is formed in the thread. As the rotation of the hook continues, it extends the loop, and that part of the loop which is on the front side of the hook is drawn between the bobbin and the concave face of the disk, that part which is behind the hook passing into the notch or recess *c*. The loop is extended by the continued rotation of the hook and the next descent of the needle-arm, until it is wide enough to allow the bobbin *F* to pass through it, and on the next descent of the needle is slipped over the chamfered part *b* of the disk, and caused to be drawn over the front of the bobbin *F*, between it and the ring *G*. Thus it will be understood that as one side of the loop passes on one side of the bobbin and the other on the opposite side, the bobbin passes through it, and on its being drawn tight it locks the thread from the bobbin *F*. Though the needle-arm descends, and the needle passes twice through the cloth during the operation of forming one stitch, it must not be supposed that the two movements only form one stitch, as the same operation is performed by every movement of the needle and every revolution of the hook *a*; but the second stitch is commenced before the first is finished, the extension of the loop for the second stitch drawing the first loop tight.

The operation of the rotating hook and needle continues, as described, until it is desired to stop, or until the thread from either bobbin gives out; but prior to or during the early part of every descent of the needle, the cam *T* comes into operation on the feed-bar *S* and spring *k*, and moves the cloth the distance required for the next stitch. This movement of the cloth causes the bobbin *F* to unwind and give out enough thread for the next stitch.

The end of the needle-thread, which has been described as being held by the attendant may be relinquished by him, and the end of the thread from the bobbin *F* may be released

from under the spring *t* after the first stitch is finished, and the machine will continue its operation.

In order to prevent the loops as they slip off the hook *a* from escaping too quickly, and to produce a slight drag upon the thread as it is being tightened, a piece of leather, *r*, is applied to the ring *G*, and its friction on the thread produces the desired effect. A brake-spring, *w*, is applied to the bobbin *P* to produce a proper amount of tension on the needle-thread. This tension is always the same, owing to the bobbin being hung upon an arm attached to and vibrating with the needle-arm which causes its position to bear always the same relation to that of the needle.

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

The combination of the bobbin *F* for carrying one thread with a rotating hook which is of such form or forms part of a disk, or its equivalent of such form, as to extend the loop on the other thread, and pass it completely over the said bobbin, whereby the two threads are interlaced together, the parts being arranged and operating in any way substantially as herein set forth.

ALLEN B. WILSON.

Witnesses:

F. HURD,

HOLBROOK CURTIS.