

(No Model.)

I. J. TUTTLE.  
SEWING MACHINE SHUTTLE.

No. 316,080.

Patented Apr. 21, 1885.

Fig. 1.

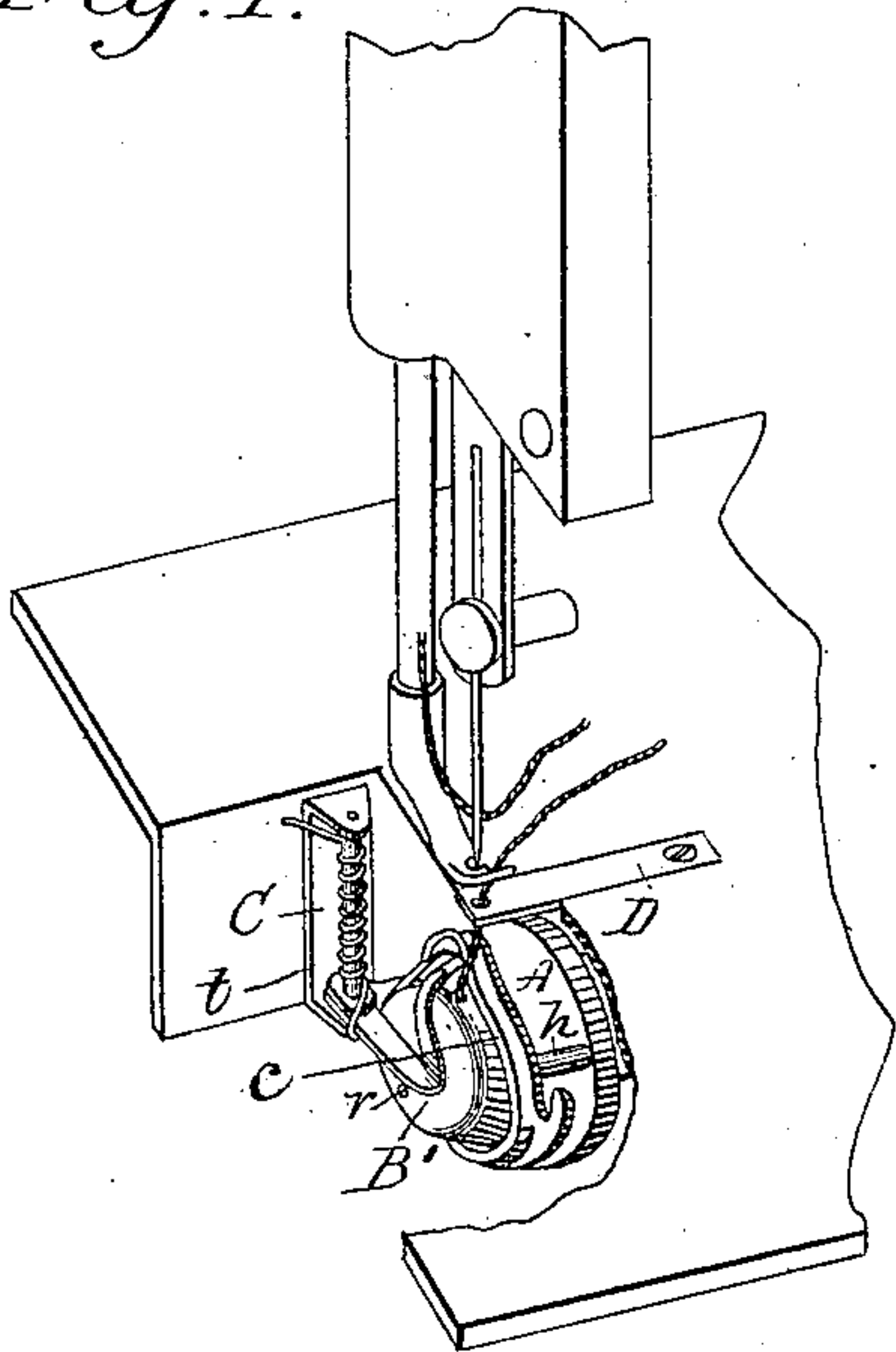


Fig. 2.

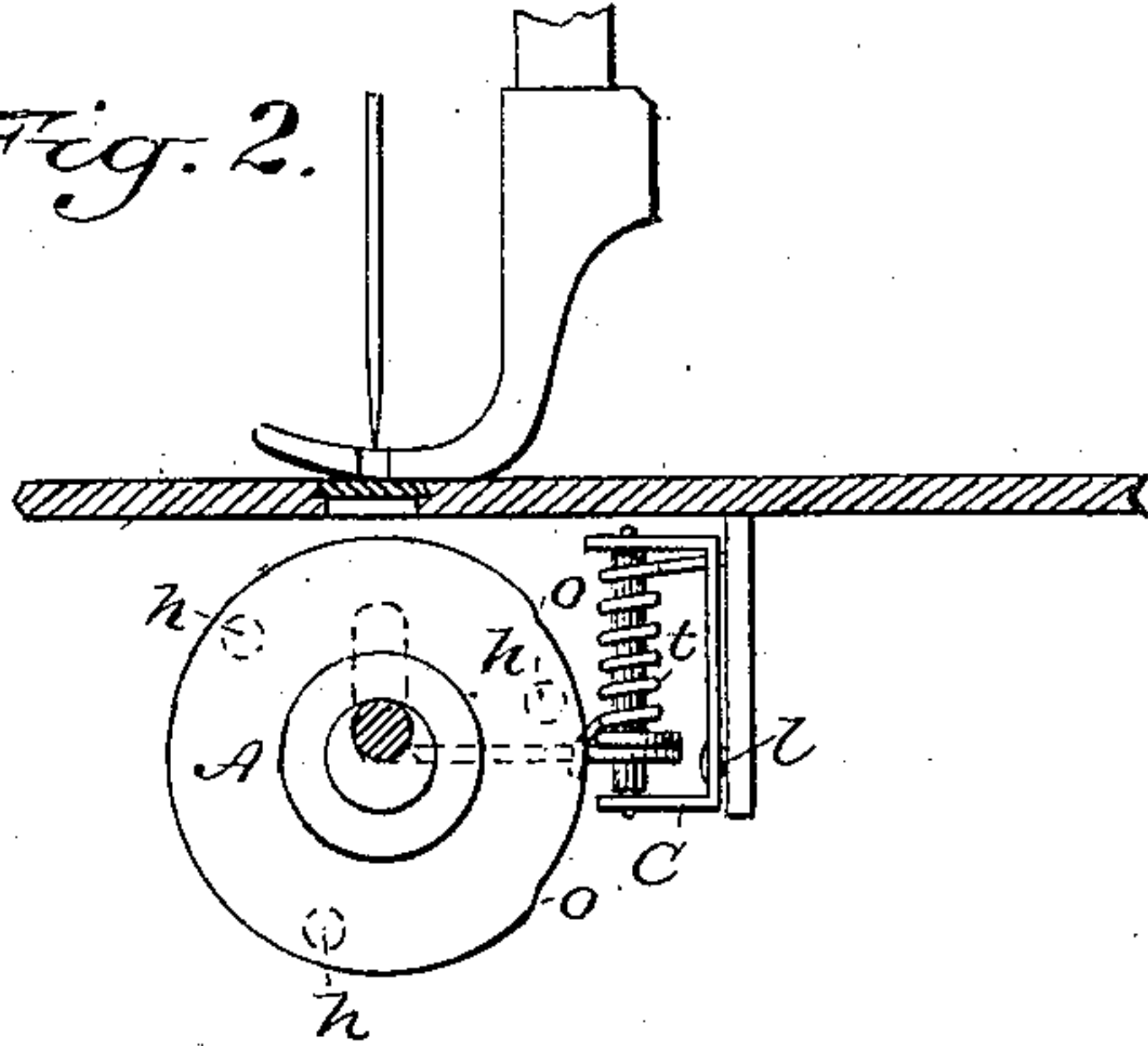


Fig. 3.

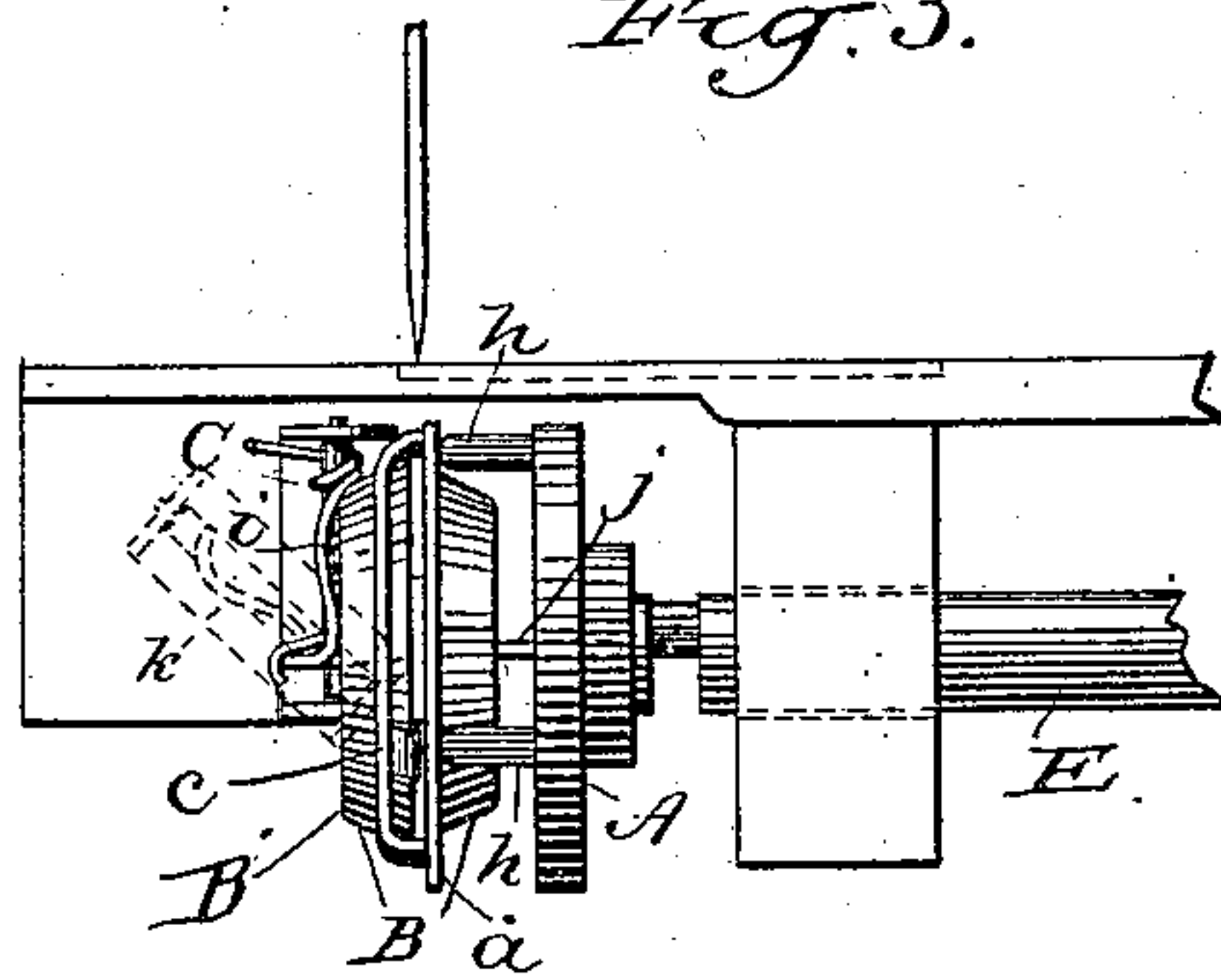


Fig. 8<sup>a</sup>

Fig. 4.

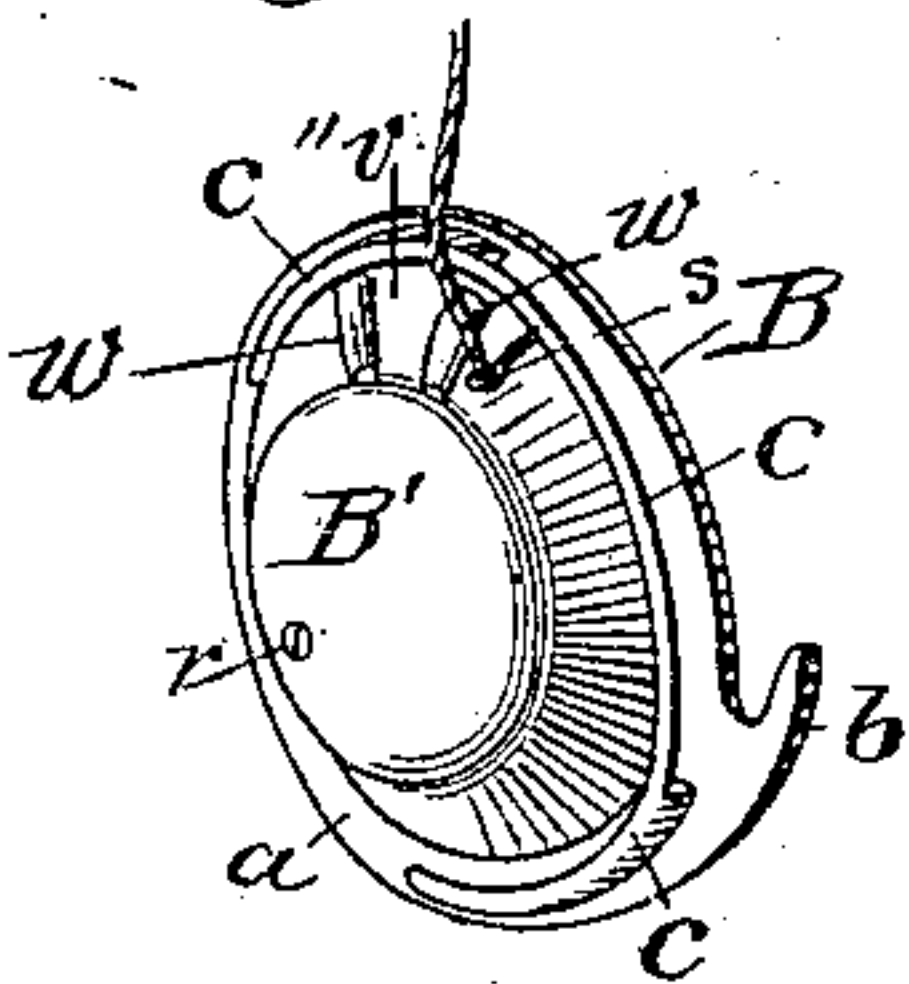


Fig. 5.

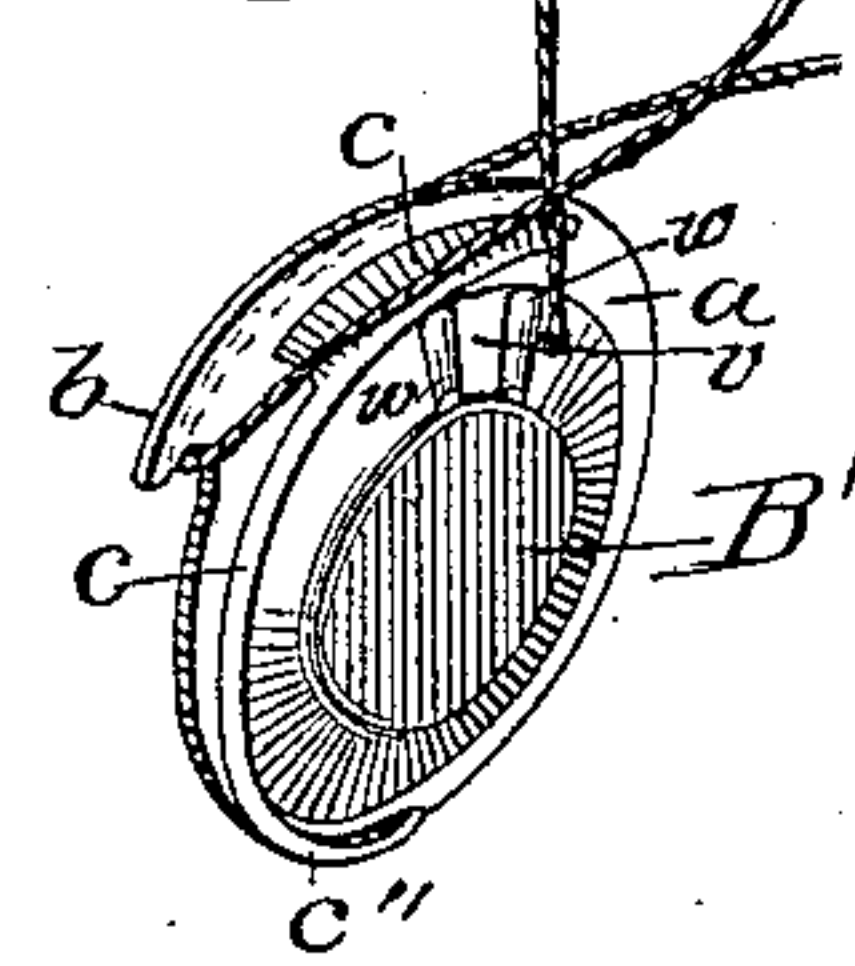


Fig. 6.

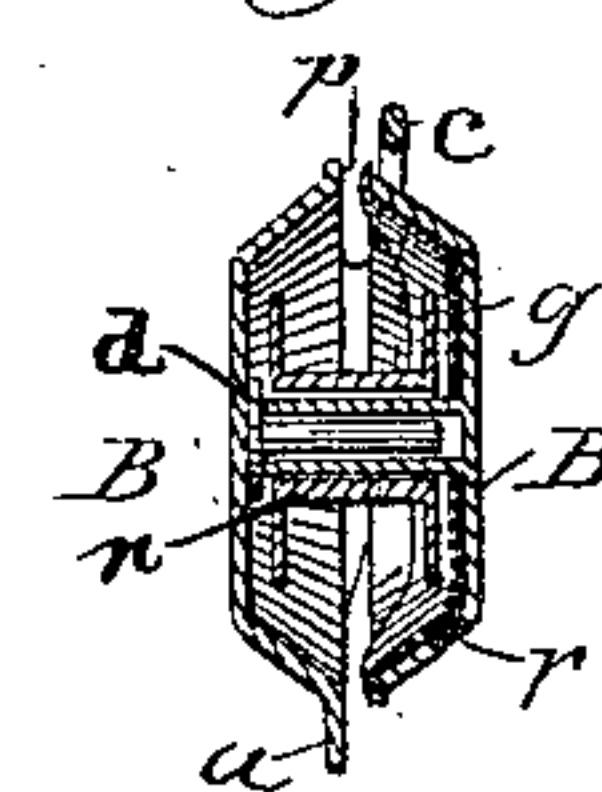


Fig. 6<sup>a</sup>

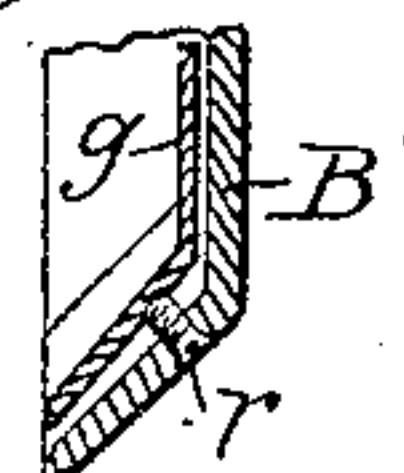


Fig. 11.

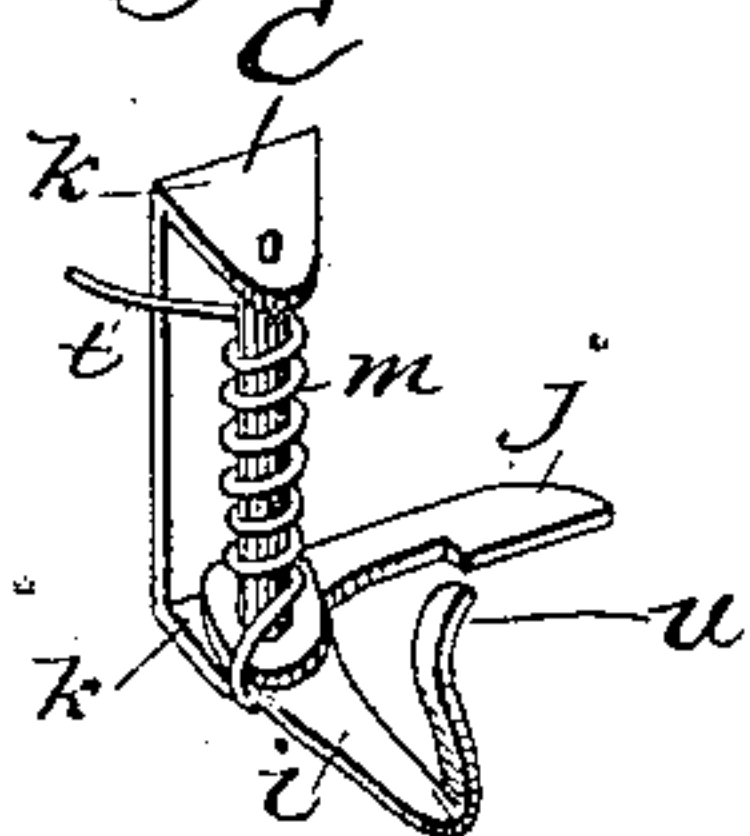


Fig. 7.

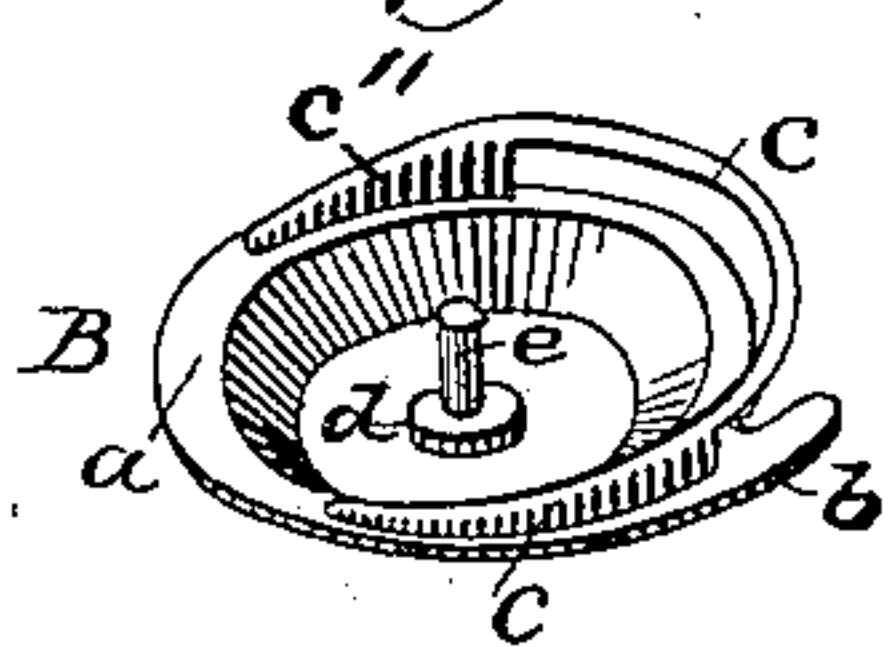


Fig. 8.

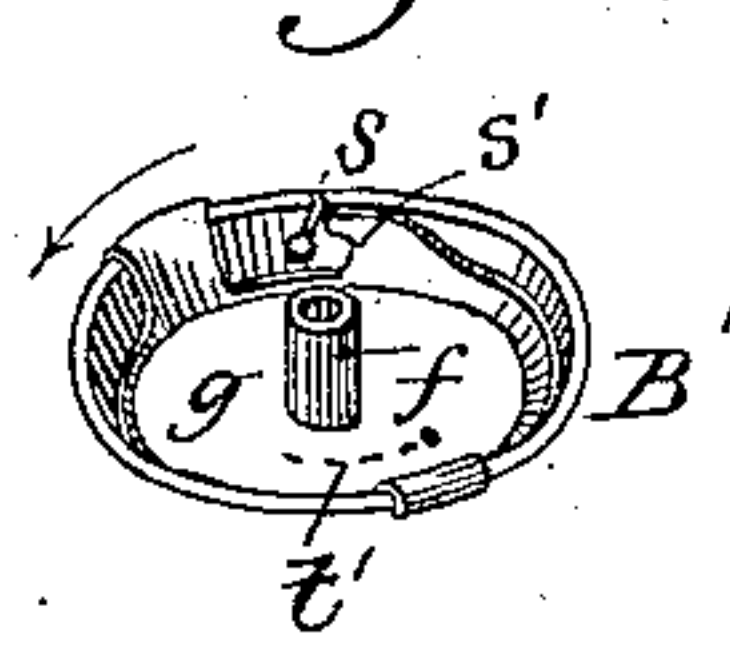


Fig. 10.

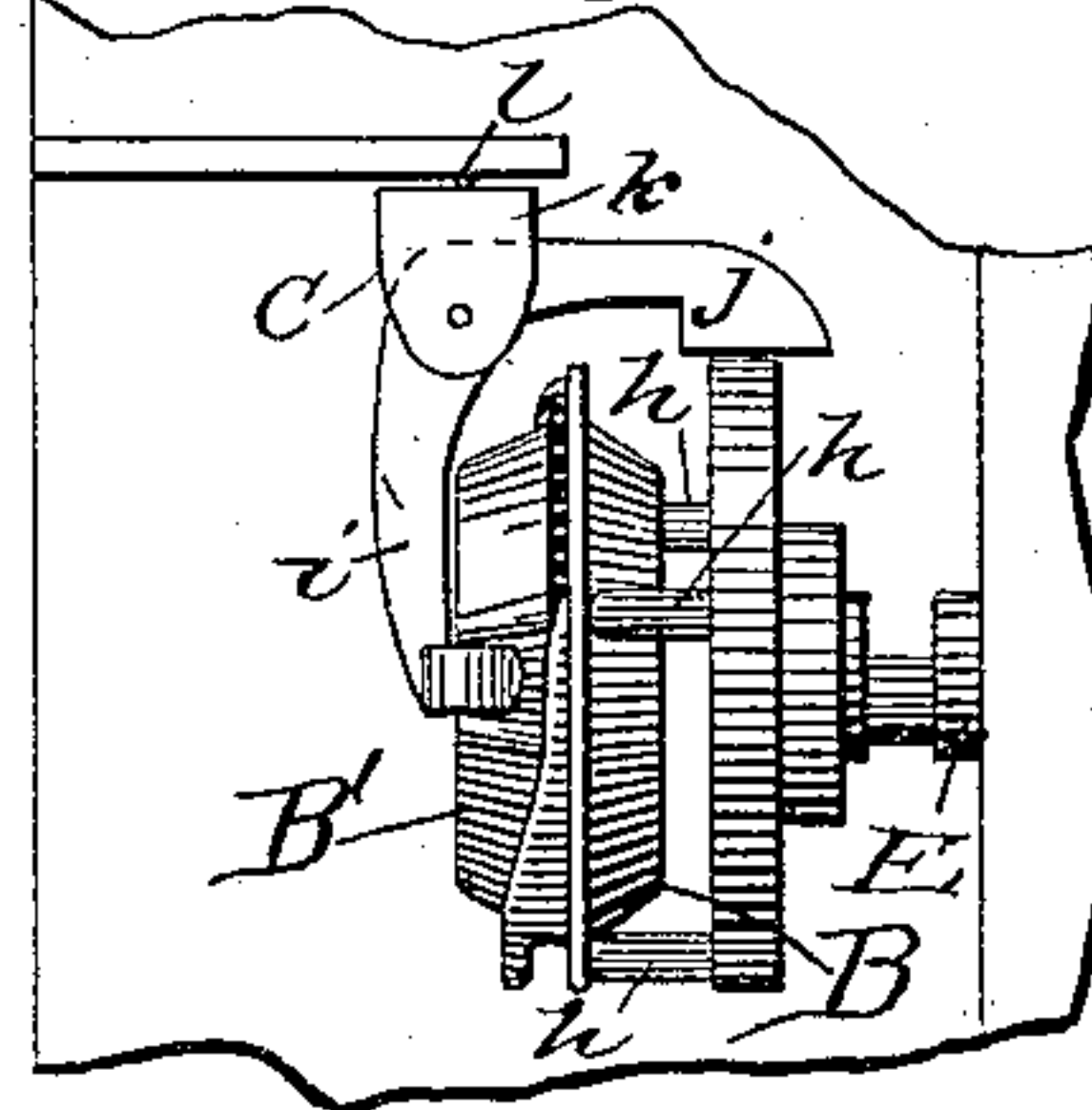


Fig. 9.

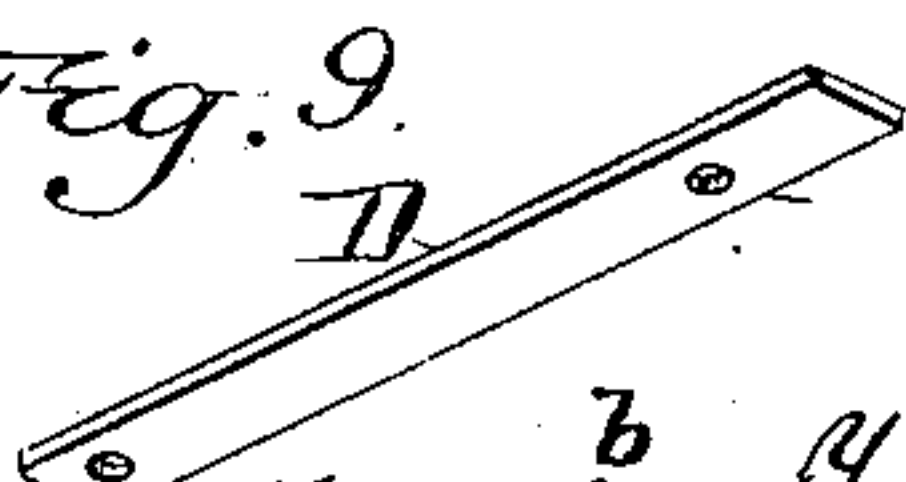
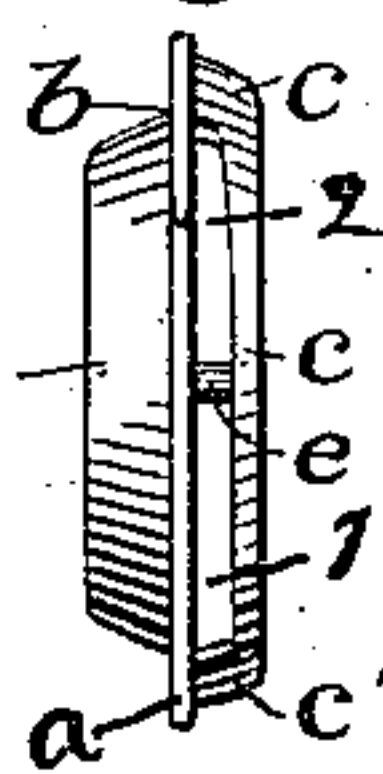


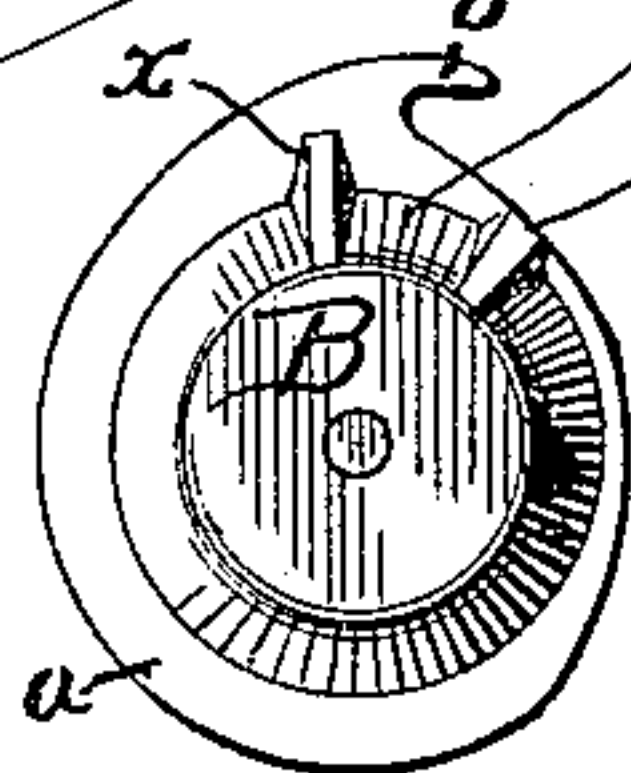
Fig. 12.



Witnesses:

W. P. Bell  
R. M. Bell

Fig. 13.



Inventor:

Ira J. Tuttle



# UNITED STATES PATENT OFFICE.

IRA J. TUTTLE, OF WHEATVILLE, NEW YORK, ASSIGNOR TO THE WHEELER  
& WILSON MANUFACTURING COMPANY, OF BRIDGEPORT, CONN.

## SEWING-MACHINE SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 316,080, dated April 21, 1885.

Application filed June 12, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, IRA J. TUTTLE, a citizen of the United States, residing at Wheatville, in the county of Genesee and State of New York, have invented certain new and useful Improvements in Sewing-Machine Shuttles; and I do hereby declare the following to be such a description of my invention as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The object of my invention is to provide a sewing-machine shuttle formed in two parts, one of which is adapted to rotate on the other, of such construction that the rotary part may be loosely held and be operated by a carrier without a shuttle-race, while the stationary part will afford a bearing on which the rotary part can revolve, my construction comprising certain features contributing to insure the proper engagement of the shuttle with the loops of needle-thread, and to the proper management of the under or shuttle thread.

In order that the object of my invention may be fully understood, I have shown in connection with my shuttle one form of mechanism by which it may be supported and operated. I do not, however, wish to claim this mechanism in this application, as such a mechanism in its preferred form constitutes the subject-matter of another application (Case B) filed by me October 21, 1884, Serial No. 146,106.

In the drawings, Figure 1 is a perspective view of a portion of a sewing-machine with my invention applied thereto. Fig. 2 is a side elevation, partly in section, as seen from the side next to the arm of the sewing-machine. Fig. 3 is a front view. Figs. 4 and 5 are perspective views of the shuttle, and Fig. 6 is a sectional view of the same. Fig. 6<sup>a</sup> is an enlarged sectional detail of part of the shuttle and the tension-spring. Fig. 7 is a perspective view of the revolving part of the shuttle, and Fig. 8 a similar view of the stationary part thereof. Fig. 8<sup>a</sup> is a detail perspective view of the sleeve or journal-box, which is secured within the stationary part of the shuttle. Fig. 9 is a perspective view of the throat-plate. Fig. 10 is a view of my invention as

seen from the upper side of the machine, looking down. Fig. 11 is a perspective view of the shuttle-holder and its supporting-frame. Figs. 12 and 13 are edge and side views, respectively, of the revolving part of the shuttle.

B indicates the revolving or rotary part of my shuttle, and B' the stationary part thereof, the former being provided with a central post or journal, *e*, fitting in a sleeve or journal-box, *f*, arranged centrally inside of the latter, said post and sleeve thus forming central bearings to adapt one part of my shuttle to rotate on the other. The sleeve *f* is closed at its outer end to adapt it for the retention of oil, and is preferably formed of greater length than the post *e*, thus leaving a space, as seen in Fig. 6, contiguous to the inner end of said post, in which may be placed a small quantity of cotton or other analogous absorbent material for holding the surplus oil, which will slowly disseminate itself over the friction-surfaces.

At the base of the post or journal *e* is formed a flange or shoulder, *d*, against which the inner end of the sleeve *f* abuts to hold the adjacent edges of the two parts of the shuttle slightly separated, (see Fig. 6,) to prevent friction between these edges, and also to enable the operator to see when the thread is exhausted from the bobbin *n*. The shoulder *d* also serves, by impinging against the contiguous bobbin-disk near its center, to hold the bobbin otherwise out of contact with the rotary part of the shuttle. The rotary part B of the shuttle is formed with a peripheral rim, *a*, on which is the point or hook *b* of the shuttle, and secured to said rim is an inclined flange, *c*, which projects over the opening *p* between the two parts of the shuttle, and thus prevents the loops of needle-thread from catching therein. Said flange also serves as a guard to hold the shuttle-thread out of the way of the needle. The flange *c* is provided with a needle slot or opening, (see Fig. 12,) which is arranged mostly in front of the hook *b*, said slot being tapered rearwardly or toward said hook. In the operation of the machine the needle descends into the wider part, 1, of the said slot, and should the needle be slightly bent or deflected the narrower portion, 2, of



the slot will insure the proper engagement of the shuttle-hook and needle to enable the former to seize the loops of needle-thread. Thus the shuttle cannot by any possibility miss the loops of needle-thread, and danger of breaking the needle is also avoided.

On the flange *c* is formed an inclined or cam-shaped portion, *c'*, which serves, as the shuttle revolves, to deflect the shuttle-thread far enough from a straight line to assist in tightening the stitches, thus acting in a measure as a take-up. The rotary part B of the shuttle is provided on its outer face with lugs *x x*, forming between them a recess, *y*, for the reception of one of the arms *h* of the shuttle-carrying disk A, said arm or horn thus serving as a driver or pusher to rotate the said part of the shuttle. The stationary part B' of the shuttle is also provided on its outer face with lugs *w*, forming between them a recess, *v*, for the reception of the finger *u* of the shuttle-holder, said finger thus preventing the rotation of this part of the shuttle.

Although I have shown two lugs *w*, one will ordinarily be sufficient for the purpose stated, and as with one lug there will be less friction on the needle-thread this construction will in most instances be preferable.

Inside of the stationary part B' of the shuttle is placed the tension-plate *g*, said plate, as shown, being secured in place by a shoulder on the sleeve *f*. (See Fig. 8<sup>a</sup>.) A threading-slot, *s*, leading to a thread-hole, is formed in the edge of the said part B' of the shuttle, and a hook, *s'*, is formed on the tension-plate. To place said plate in operative position, it is turned in the direction indicated by the arrow in Fig. 8 until said hook overlaps said slot about three-sixteenths of an inch. The shuttle may then be threaded by drawing the thread behind the hook *s'*, between the tension-plate and the interior of the shuttle-shell, and through the slot *s* into the thread-hole. The tension is regulated by an adjusting-screw, *r*, bearing against the tension-plate on that side of its pivotal point opposite to the hook *s'*, and acting to tilt said plate slightly. The point of the screw *r* engages the tension-plate at one of a series of slight indentations or recesses, (the position of which is indicated by dotted line *t'* in Fig. 8,) said screw thus serving to hold said plate from turning on its pivot. When, after long use, a slight groove has been worn by the thread on the interior of the shuttle-shell, thus rendering it difficult to properly adjust the tension, the trouble may be obviated by turning the tension-plate slightly in the direction indicated by the arrow in Fig. 8, thus bringing a new or unworn portion of the shuttle-shell opposite the tension-plate. After such adjustment the tension-plate will be held in place, as before, by the screw *r*, which will then be contiguous to a new or different recess of the series above referred to.

From the foregoing description it will be apparent that my shuttle consists of two parts having central bearings, thus adapting one

part to rotate on the other. It will also be seen that the shell of the stationary part of the shuttle is partly (in fact mainly) outside of the shell of the rotary part, of which latter the flange *c* is a portion. From this construction it follows that the said stationary part of the shuttle may be engaged and held from rotation by the shuttle-holder, and also be retained in the shuttle-carrier by the latter without interfering with the rotary part of the shuttle.

I have shown in connection with my shuttle a supporting and operating mechanism suitable for use therewith, which I will now briefly describe, but which, it will be understood, may be varied as circumstances may require.

E indicates the lower rotary shaft of a sewing-machine, to the forward end of which is secured a disk, A, having arms or horns *h*, said disk, with its arms or horns, constituting the shuttle-carrier. The said arms or horns *h* embrace the bulging or projecting portion of the rotary part B of the shuttle, one of the said arms entering between the lugs *x x* thereon, thus serving as a driver or pusher, as above described.

C is a frame, attached at *l* to a depending lug or bracket on the bed-plate of the machine, said frame having ears *k*, between which is pivoted a small shaft, *m*, and to the latter is rigidly attached the shuttle-holder, consisting, in the present instance, of the arms *i j*, extending at right angles to each other, or nearly so, the former having an upturned finger, *u*, bearing against the stationary part of the shuttle.

Around the shaft *m* is coiled a spring, *t*, having a tendency to force the arm *i* toward the shuttle, and the finger *u* is thus caused to hold the latter in its carrier, pressing the rim *a* of the rotary part of the shuttle against the ends of the arms or horns *h* of the carrier. The arm *j* of the shuttle-holder extends adjacent to the cam-periphery of the disk A, and as the depression in the periphery of the said disk between the points *o o* is passing said arm the shuttle will not be held so firmly by its holder but that the needle-thread can easily pass the horns *h* of the carrier; but when the full part of said disk is passing said arm the shuttle will be held more tightly. From this operation it follows that after the needle-loop has passed the horns of the carrier any unnecessary looseness or rattle of the shuttle will be avoided, and the hook thereof will be undeviatingly brought into proper relation to the needle at the moment when it is to catch the loop of needle-thread.

I am aware that revolving shuttles made in two parts have heretofore been constructed, and I do not therefore wish to be understood as claiming such shuttles, broadly; but

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

1. A sewing-machine shuttle consisting of the combination of two parts having central



bearings, to adapt one part to rotate on the other, the case of the stationary part projecting partly outside of the case of the rotary part, whereby said stationary part is adapted to be pressed against by the shuttle-holder to retain the shuttle in its carrier, substantially as set forth.

2. A sewing-machine shuttle consisting of the combination of two parts, one of which is adapted to rotate on the other, one of said parts being provided with a central post or journal, and the other with a central sleeve or journal-box closed at one end, to adapt it for the retention of lubricating material, substantially as set forth.

3. A sewing-machine shuttle consisting of the combination of two parts, one of which is provided with a central post or journal, and the other with a central sleeve or journal-box closed at one end, and of greater length than said post or journal, whereby said sleeve or journal-box is adapted for the reception of lubricant-holding material contiguous to the end of said post or journal, substantially as set forth.

4. A sewing-machine shuttle consisting of the combination of two parts having central bearings, to adapt one part to rotate on the other, the rotary part being provided on its outer face with lugs forming a recess between them for the reception of the shuttle driver or pusher, and the stationary part projecting partly outside of the rotary part, so that it may be pressed against by the shuttle-holder, substantially as set forth.

5. A sewing-machine shuttle consisting of the combination of two parts having central bearings, to adapt one part to rotate on the other, the rotary part being provided on its outer face with lugs for the reception of the shuttle driver or pusher, and the stationary part having a projecting portion extending outside of the rotary part, and being provided on its outer face with one or more lugs for engagement with the shuttle-holder, to prevent said part from rotating, substantially as set forth.

6. A sewing-machine shuttle having a point or hook and a rearwardly-tapering needle slot or recess in front of the said point or hook,

to insure the proper engagement of the latter with the needle, substantially as set forth.

7. A sewing-machine shuttle consisting of the combination of two parts having central bearings, to adapt one part to rotate on the other, the stationary part projecting partly outside of the rotary part, and the latter being provided with a flange having an inclined or cam-shaped portion, serving as a take-up for the under thread, substantially as set forth.

8. A sewing-machine shuttle consisting of the combination of two parts, one of which is adapted to rotate on the other, the stationary part being provided with a spring tension-plate bearing against its inner surface, substantially as set forth.

9. A sewing-machine shuttle consisting of two parts, one of which is adapted to rotate on the other, combined with a spring tension-plate pivotally attached to the interior of the stationary part of said shuttle, and thus adapted to be changed in position to compensate for wear, and means for retaining said plate in any position to which it may be adjusted, substantially as set forth.

10. A sewing-machine shuttle consisting of two parts, one of which is adapted to rotate on the other, combined with a spring tension-plate pivotally attached to the interior of the stationary part of said shuttle, said tension-plate being provided with a series of recesses, and the said stationary part of the shuttle having a screw for adjusting the tension, and also adapted for engagement with said recesses, to hold said plate in any desired position, substantially as set forth.

11. A sewing-machine shuttle consisting of two parts, one of which is adapted to rotate on the other, combined with a spring tension-plate bearing against the interior of the stationary part of said shuttle, and a tension-regulating screw passing through said stationary part and impinging against said tension-plate, substantially as set forth.

IRA J. TUTTLE.

Witnesses:

W. P. BELL,  
R. M. BELL.