

(No Model.)

W. L. HEBERLING.
SEWING MACHINE SHUTTLE.

No. 346,281.

Patented July 27, 1886.

Fig. 1.

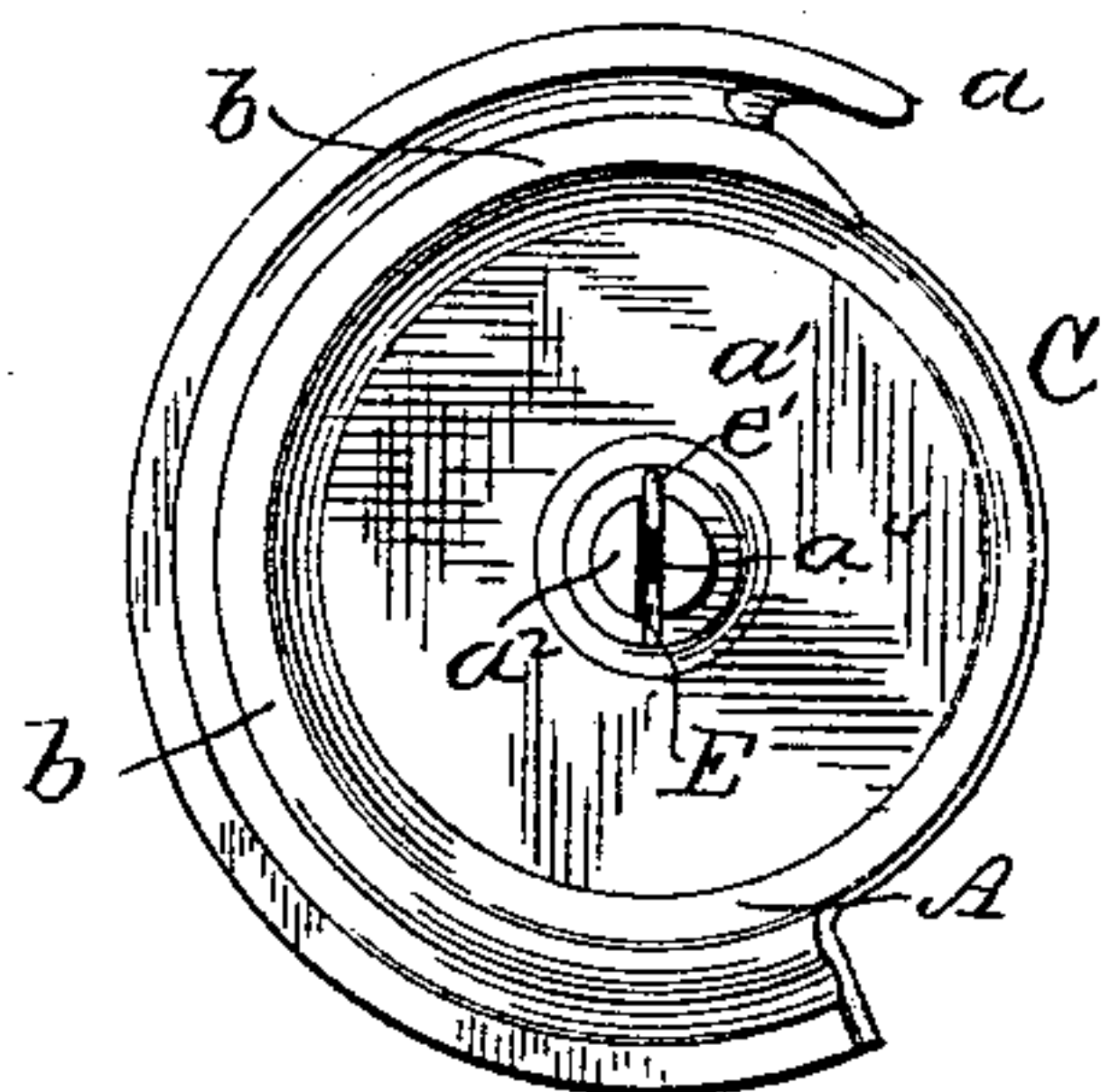


Fig. 2.

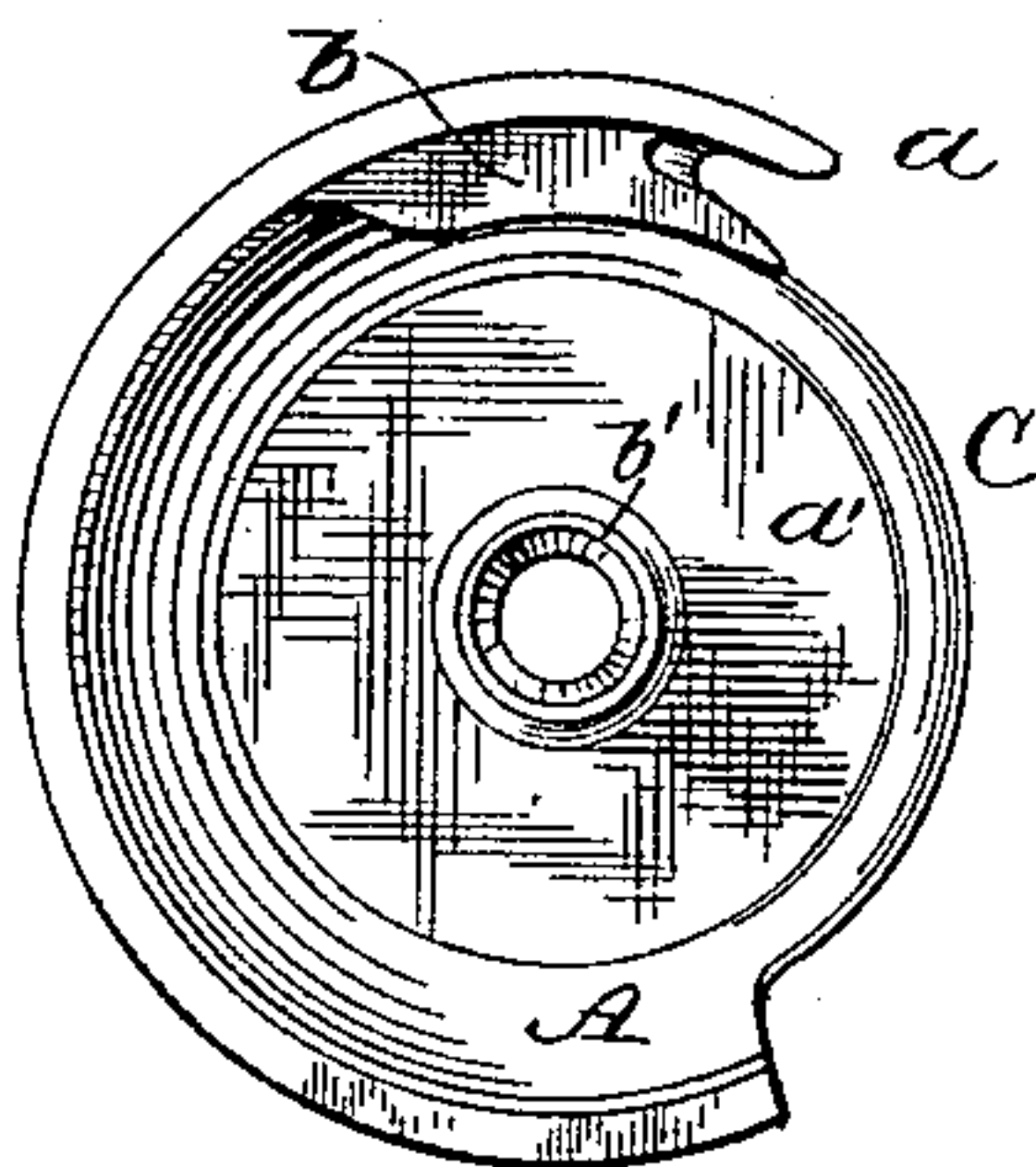


Fig. 3.

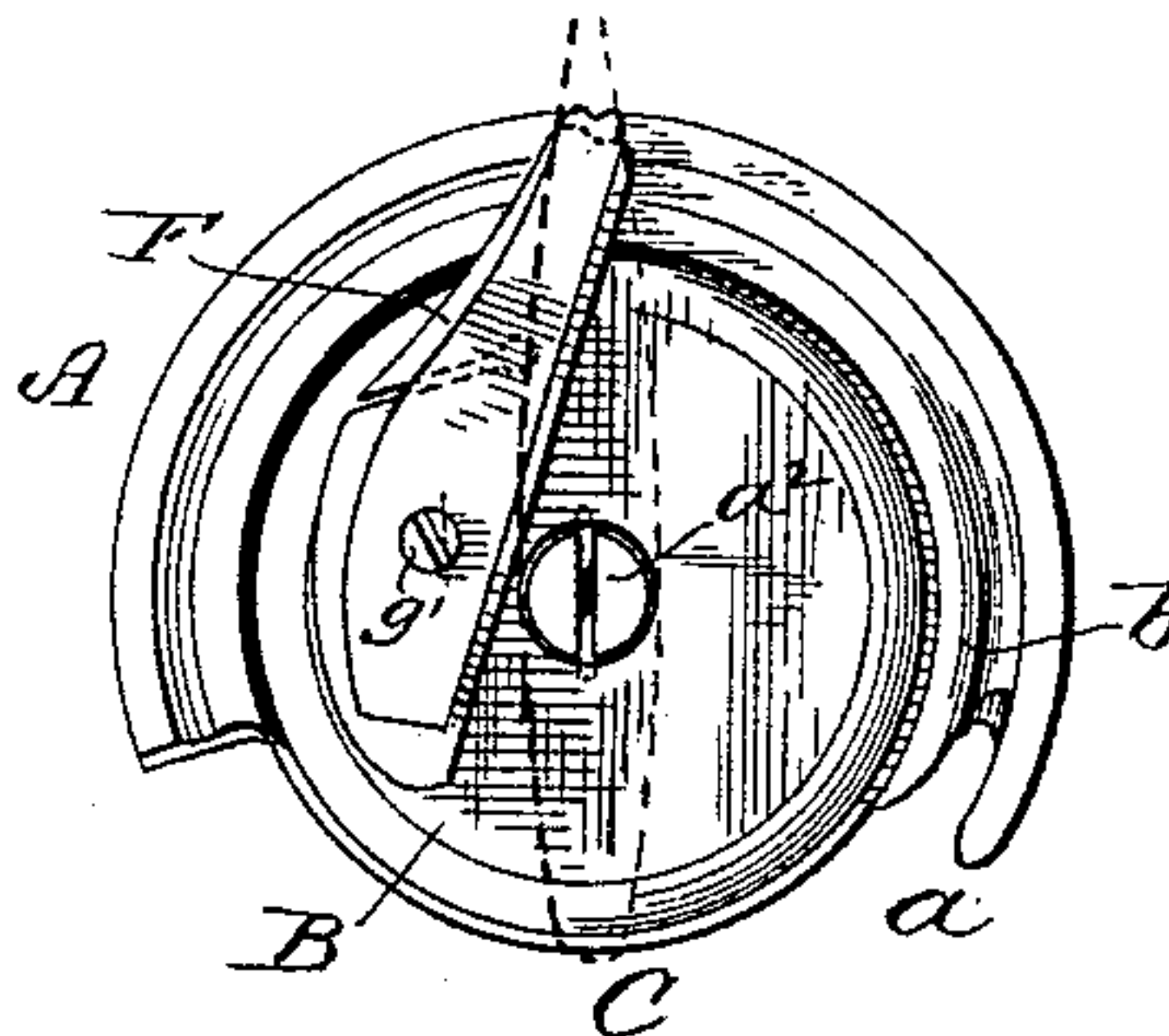


Fig. 4.

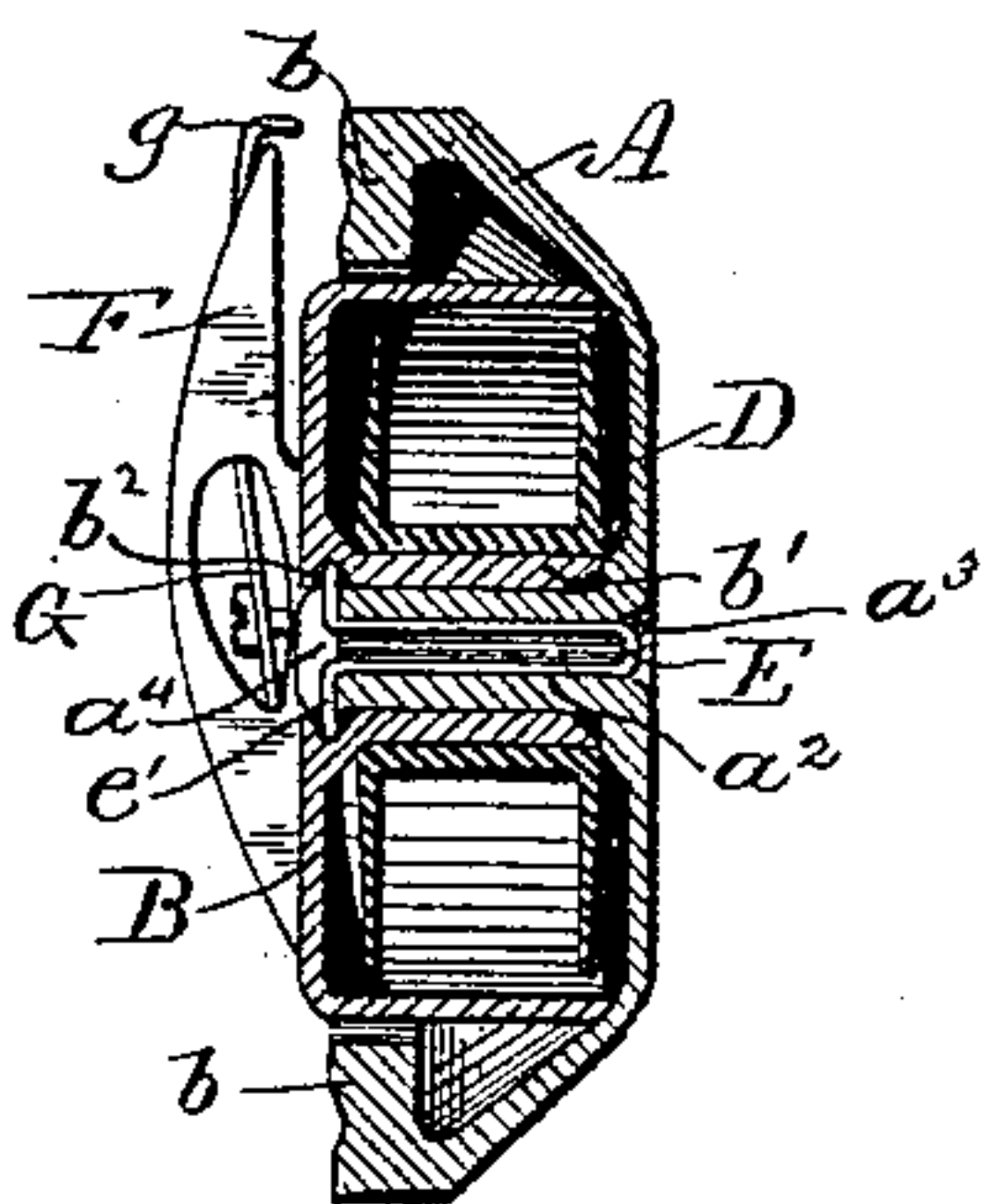


Fig. 5.

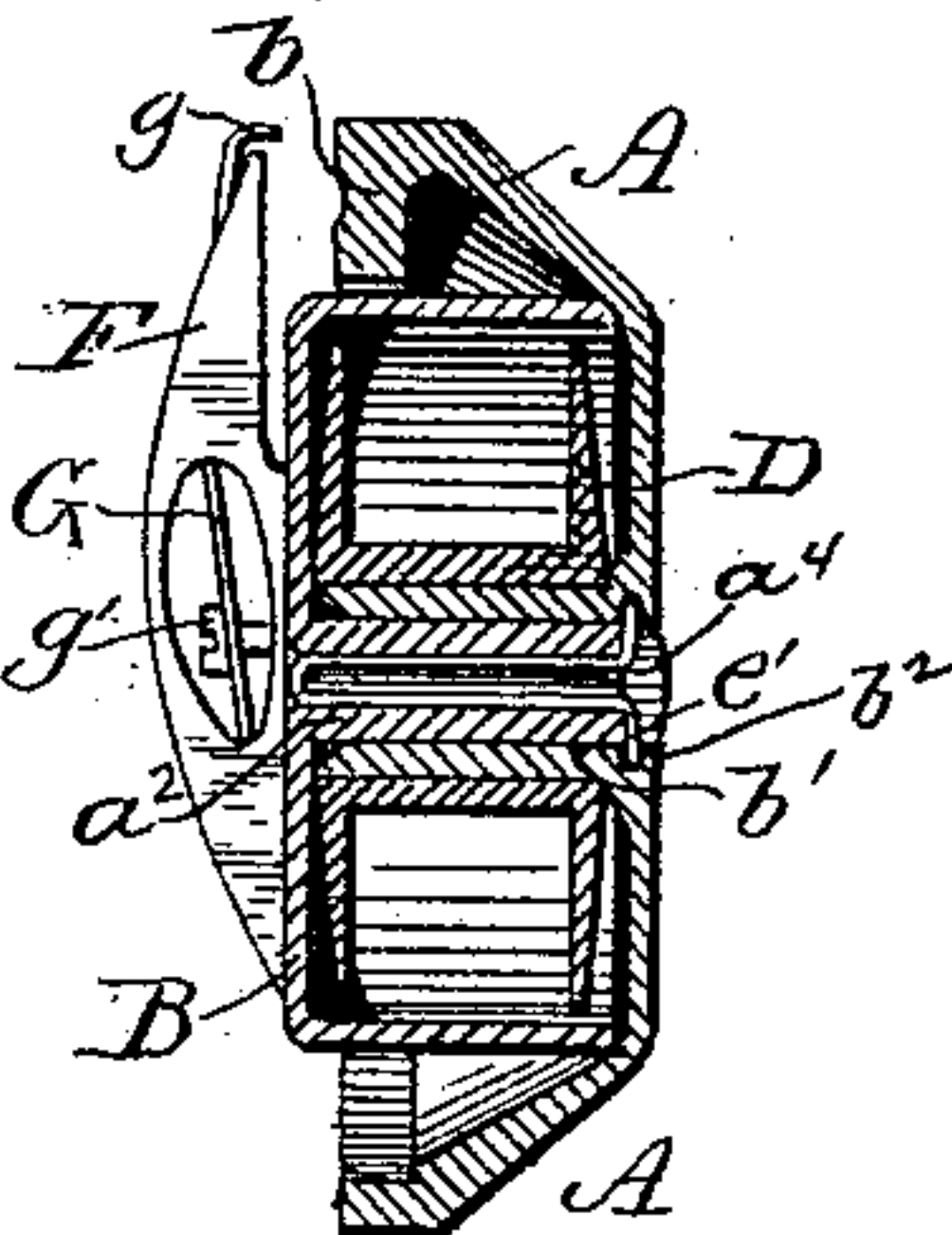


Fig. 6.

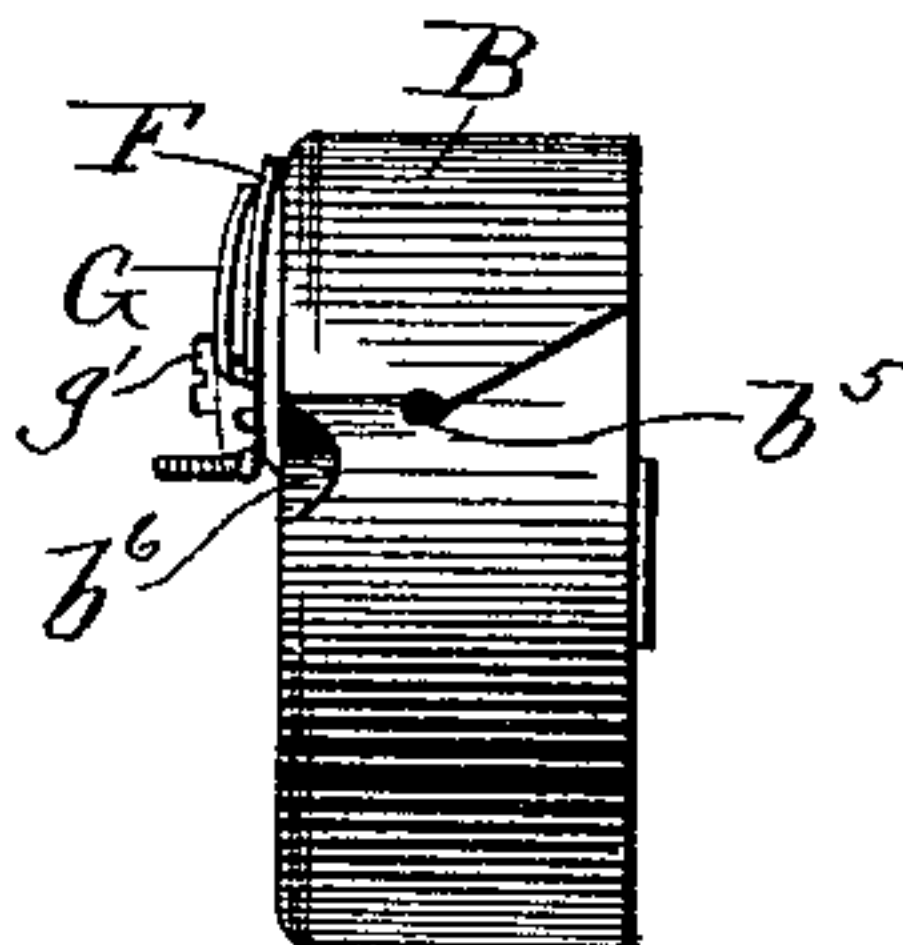


Fig. 7.

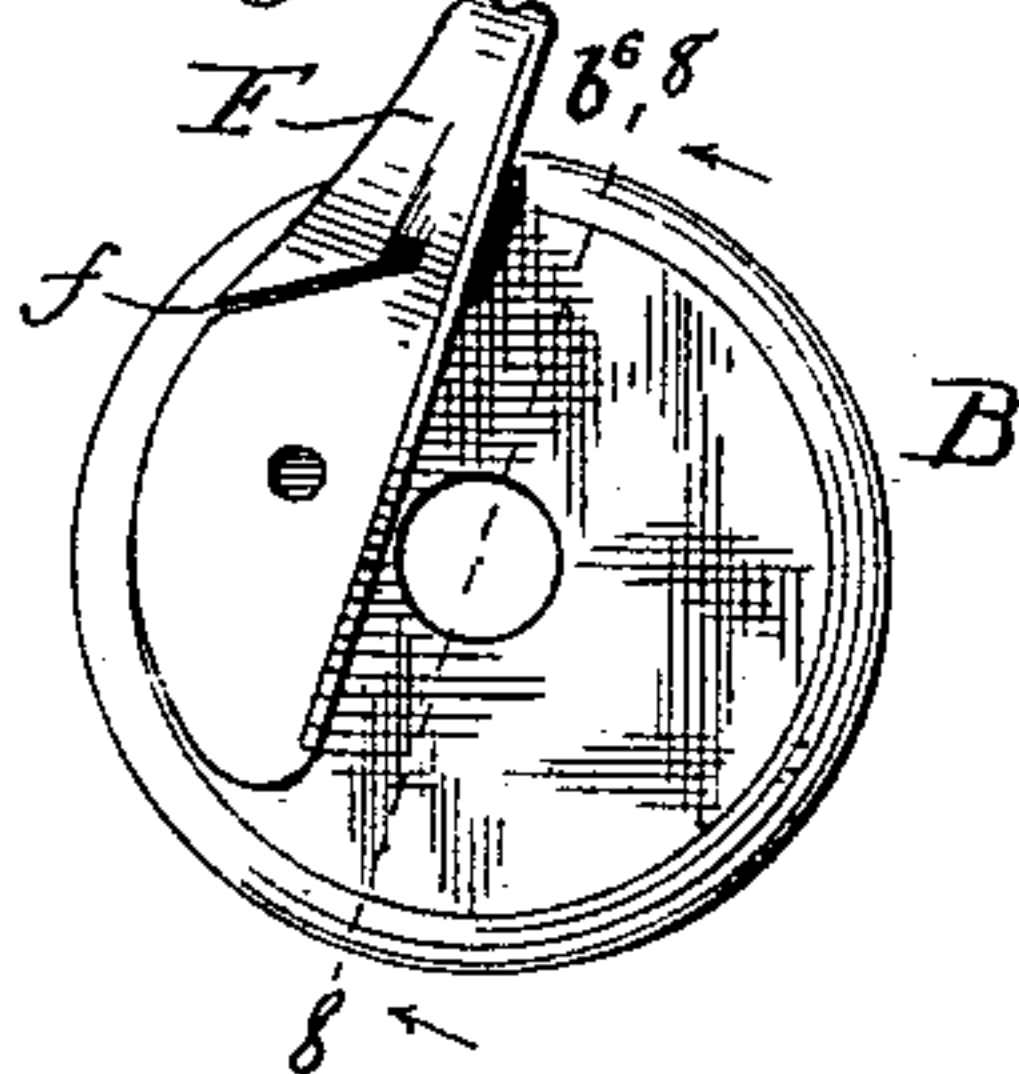


Fig. 8.

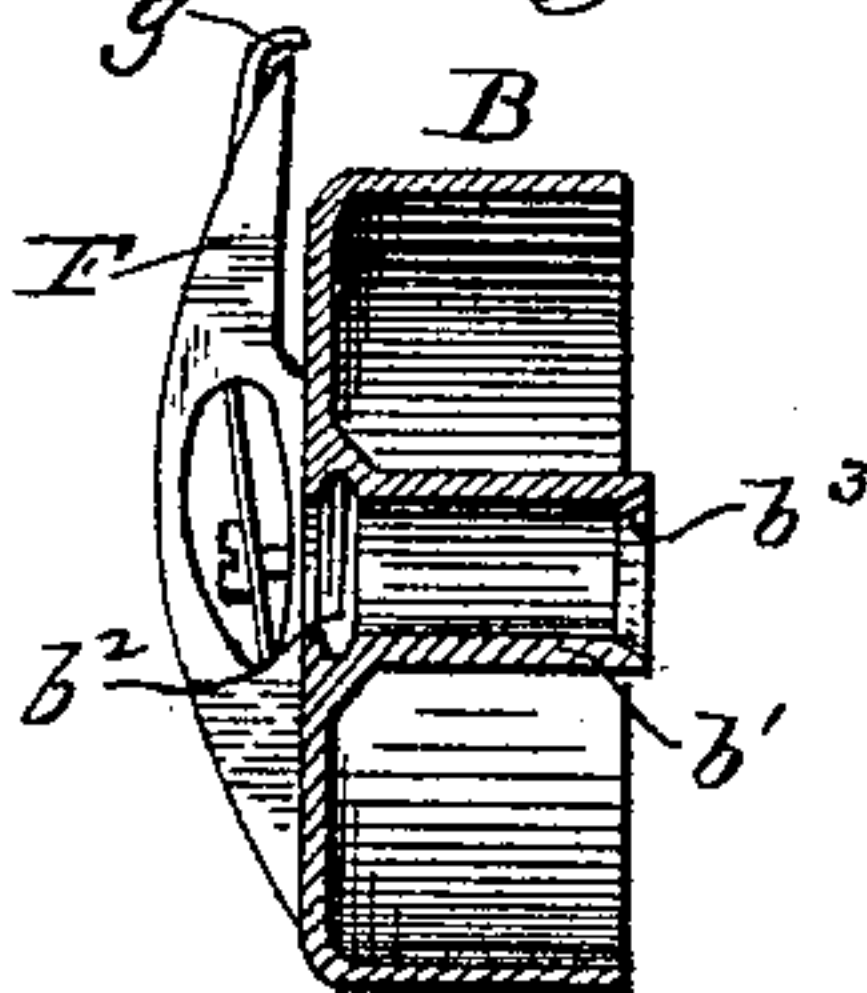


Fig. 9.

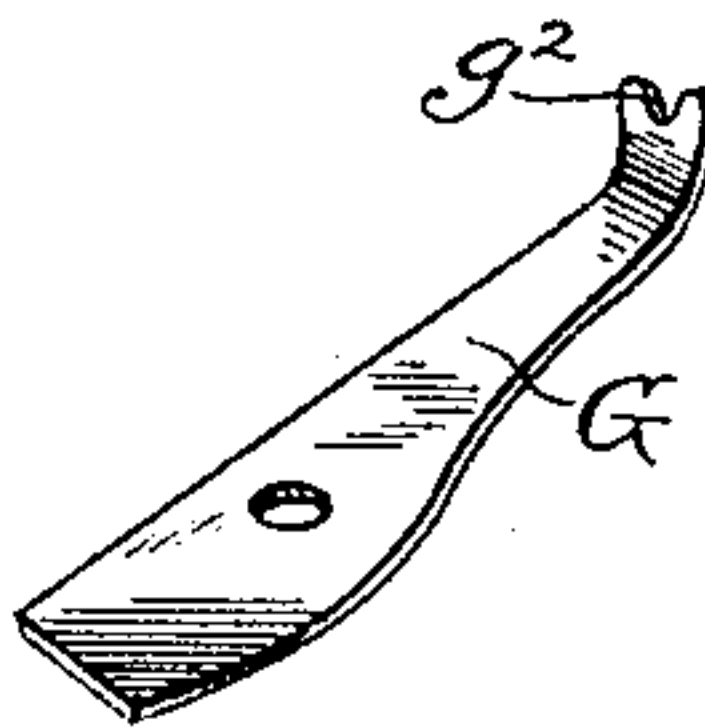
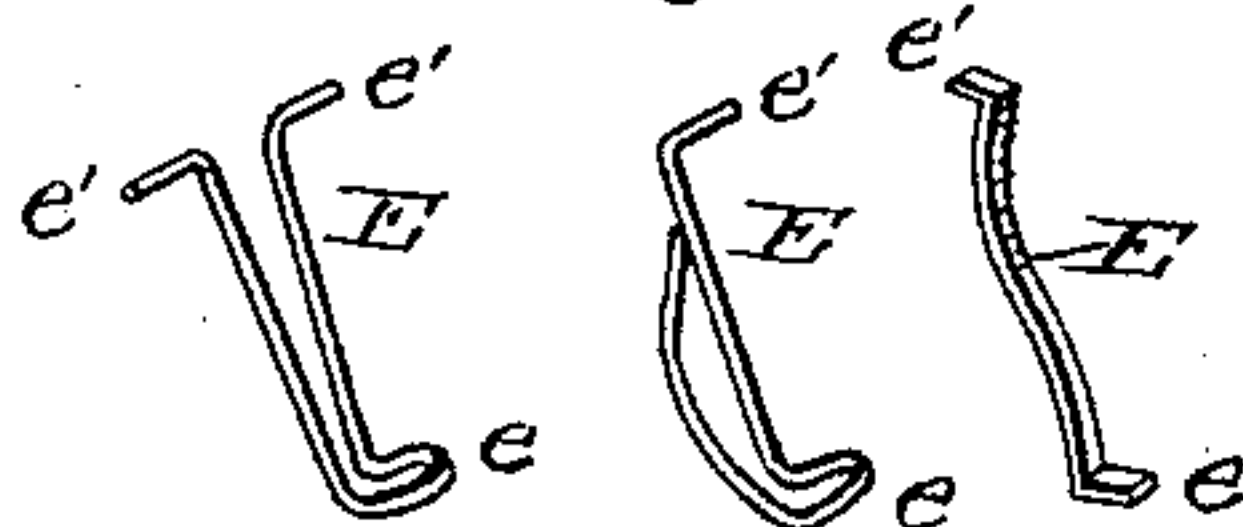


Fig. 10.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM L. HEBERLING, OF BATH, ASSIGNOR OF ONE-FOURTH TO
WARREN HEBERLING, OF HAVANA, ILLINOIS.

SEWING-MACHINE SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 346,281, dated July 27, 1886.

Application filed September 28, 1885. Serial No. 178,384. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. HEBERLING, a citizen of the United States, residing at Bath, in the county of Mason and State of Illinois, have invented certain new and useful Improvements in Sewing-Machine Shuttles, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to that class of rotary sewing-machine shuttles having disk-bobbins contained in stationary bobbin-cases supported by the bodies or shells of the shuttles; the present invention comprising certain improvements in the forms of shuttles shown by Patents Nos. 311,490 and 311,491, granted February 3, 1885, to John Heberling and myself.

In the drawings, forming part of this specification, Figures 1 and 2 are front views of two forms of my improved shuttle. Figs. 3 and 4 are sectional views of the same with the bobbin-cases and bobbins in position. Fig. 5 is a front view illustrating the operation of my shuttle. Fig. 6 is a top view of the bobbin-case. Fig. 7 is a detail front view of the bobbin-case with the tension-spring removed; and Fig. 8, a sectional view of the bobbin-case on line 8 8, Fig. 7. Fig. 9 is a detail perspective view of the tension-spring; and Fig. 10, detail views of several forms of spring-catches.

A denotes the shuttle-body, which is made as a dish-formed shell, provided with a point or hook, *a*, for seizing the loops of needle-thread, and with a guard, *b*, for insuring the passage of the outer limbs of the said loops over the outer face of the bobbin-case B. The shell A is cut away on one side in front of the hook *a* to form a loop-passage, C, and said shell has in its center a space, *a'*, which is occupied by the bobbin D and its case B, and which is termed the "bobbin-space." This bobbin-space preferably extends out to the loop-passage C, so as to admit of the use of a bobbin having the largest possible diameter relative to the size of the loops of needle-thread required to pass around the shuttle and bobbin-case, as in Patent No. 311,491, above referred to.

The shell A is provided with a central pin for supporting the non-rotary bobbin-case B and the bobbin D. In the form of my inven-

tion shown in Figs. 1 and 3 this pin *a*² is bored out for the reception of a bobbin-case-retaining spring-catch, E, and the bobbin-case is provided with a central pin, *b'*, in the form of a sleeve, which fits over the pin *a*² when the parts are in working position. In Figs. 2 and 4 this construction is reversed by providing the bobbin case B with the bored-out pin *a*², which carries the spring-catch E, and forming the sleeve-pin *b'*, in which the pin *a*² fits on the shell A.

At the base of the pin *a*², on the outer face of the part by which it is carried, I form a small recess, *a*³, which is larger in diameter than the space in the pin *a*², occupied by said spring-catch, and the looped end of the latter is bent over at a right angle, or nearly so, to the body of said catch to form a small hook, *e*, adapted to engage the shoulder formed by said recess, and thus assist in holding the catch in place. The end of the pin *a*² is provided with a transverse nick or slot, *a*⁴, and the ends of the spring-catch E are bent over to form projections *e'*, occupying said slot and extending outside of the body of the pin *a*². The projecting ends *e'* are preferably within the end of the pin, or, in other words, nearer to the base of said pin than the top or outer end thereof, the slot *a*⁴ being made deep enough for this purpose. At the base of the sleeve-pin *b'*, I form a recess, *b*², which is undercut, or made larger in diameter than the inside of said sleeve-pin, thus forming a shoulder for the engagement of the projecting ends *e'* of the spring-catch. The end of the sleeve-pin *b'* is beveled, or made slightly flaring at *b*³, so that when the bobbin-case is to be placed in position in the shuttle the said sleeve-pin will slip over the projecting ends *e'* of the spring-catch, and compress them within the slot *a*⁴ until the bobbin-case is in place, when the said ends will spring outward into the recess *b*², and by engagement with the shoulder thereof will hold the bobbin-case securely in working position.

The shoulder of the recess *b*², engaged by the ends *e'* of the spring-catch, is inclined, so that when the bobbin-case is to be removed a slight outward pull thereon, enough to overcome the stress of the arms of the spring-

catch, will compress the said ends e' into the slot a^1 , and thus permit the bobbin-case to be slipped out of the shuttle-shell; or this same result may be effected by making the ends e' of the spring-catch inclined and the shoulder square.

The spring-catch E consists, preferably, of a single bent piece of steel wire having two projecting ends, e' , as shown in detail in Fig. 10; but it may be provided with only one projecting end or catch e' , or may be a small plate-spring, if desired, as shown in the modifications in said figure.

In Patent No. 311,490, above referred to, the shuttle-shell is shown as being of about half the depth of the bobbin-case, said shell having an inclined guard rearward of the point of the shuttle, for carrying the loops of needle-thread over the outer face of the bobbin-case. In my present shuttle the shell thereof is made nearly as deep as the bobbin-case, and the guard b , instead of being inclined, as formerly, is straight, so that when the shuttle is in working position it will be vertical. This straight guard b permits the bobbin to be placed within the line of action of the needle, so that a larger bobbin may be used, and the periphery thereof may be brought up closer to the throat-plate than would be permitted by the old form of shuttle and guard, as in the old form the needle would come in contact with so large a bobbin as may be used with my new shuttle. The guard b is merely a thin rib, behind which, outside of the bobbin-case, is left an open space, so that the shuttle-shell will be as light as possible. The straight guard b may extend all around the shell A, except at the loop-passage, as shown in Figs. 1 and 5, or it may be made short, extending only a small distance rearward of the hook a , as shown in Fig. 2.

The bobbin-case B is provided with a rigid arm, F, which engages some stationary part of the machine, and thus prevents the said bobbin-case from rotating with the shuttle, as is usual with this class of devices. The arm F is provided with an open-thread slot, f , and with a small notch, f' , at its upper end. G is the tension-spring, which is attached to the arm F by a securing and regulating screw, g' , and the said spring is provided at its upper end with a small hook, g , overlapping the top of the arm F, said hook having a thread-notch, g^2 . The bobbin-case is provided at its upper side with an open or slotted thread-hole, b^5 , and with a recess, b^6 , the latter admitting of the descent of the needle to a proper extent to form loops to be caught by the point of the shuttle.

The bobbin-case is threaded simply by drawing the bobbin-thread into the hole b^5 in said case, into the slot f in the arm F and beneath the tension-spring, and then into the notch f' at the top of said arm, in which position it will be retained by the hooked and notched end of the tension-spring.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. A sewing-machine shuttle-shell cut away on one side to form a loop-passage, and having a bobbin-space extending to said loop-passage, and a sleeve-pin centrally arranged in said bobbin-space, combined with a bobbin-case provided with a pin fitting in said sleeve-pin, and having its periphery extending to the edge of said shuttle-shell at said loop-passage, and a securing device, as a spring-catch, for retaining the said bobbin-case in place, substantially as set forth.

2. A sewing-machine shuttle-shell cut away on one side to form a loop-passage, and having a bobbin-space extending to said loop-passage, a pin centrally arranged in said bobbin-space, and a straight guard rearward of the hook or point of said shuttle, combined with a bobbin-case supported by said pin and having its periphery extending to the edge of said shuttle-shell at said loop-passage, and a spring-catch for retaining the said bobbin-case in place, substantially as set forth.

3. A sewing-machine shuttle-shell and a bobbin-case supported thereby, one of the said parts having a sleeve provided with a shouldered recess and the other of said parts having a bored-out pin, combined with a spring-catch secured in said pin, and having one or more projecting ends engaging said shouldered recess to retain said bobbin-case in place in the shuttle-shell, substantially as set forth.

4. The combination, with the shuttle-shell A, having the bored-out pin a^2 , provided with the slot a^1 , of the spring-catch E, having projecting ends e' , and the bobbin-case B, provided with the sleeve-pin b' , having the shouldered recess b^2 at its base, substantially as set forth.

5. The combination, with the shuttle-shell and the bobbin-case supported thereby, of the rigid arm F, having the thread-slot f and the tension spring G, having the hook g , overlapping the top of said arm and provided with a thread-notch, g^2 , as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM L. HEBERLING.

Witnesses:

HENRY CALVER,
CLARENCE E. DOYLE.