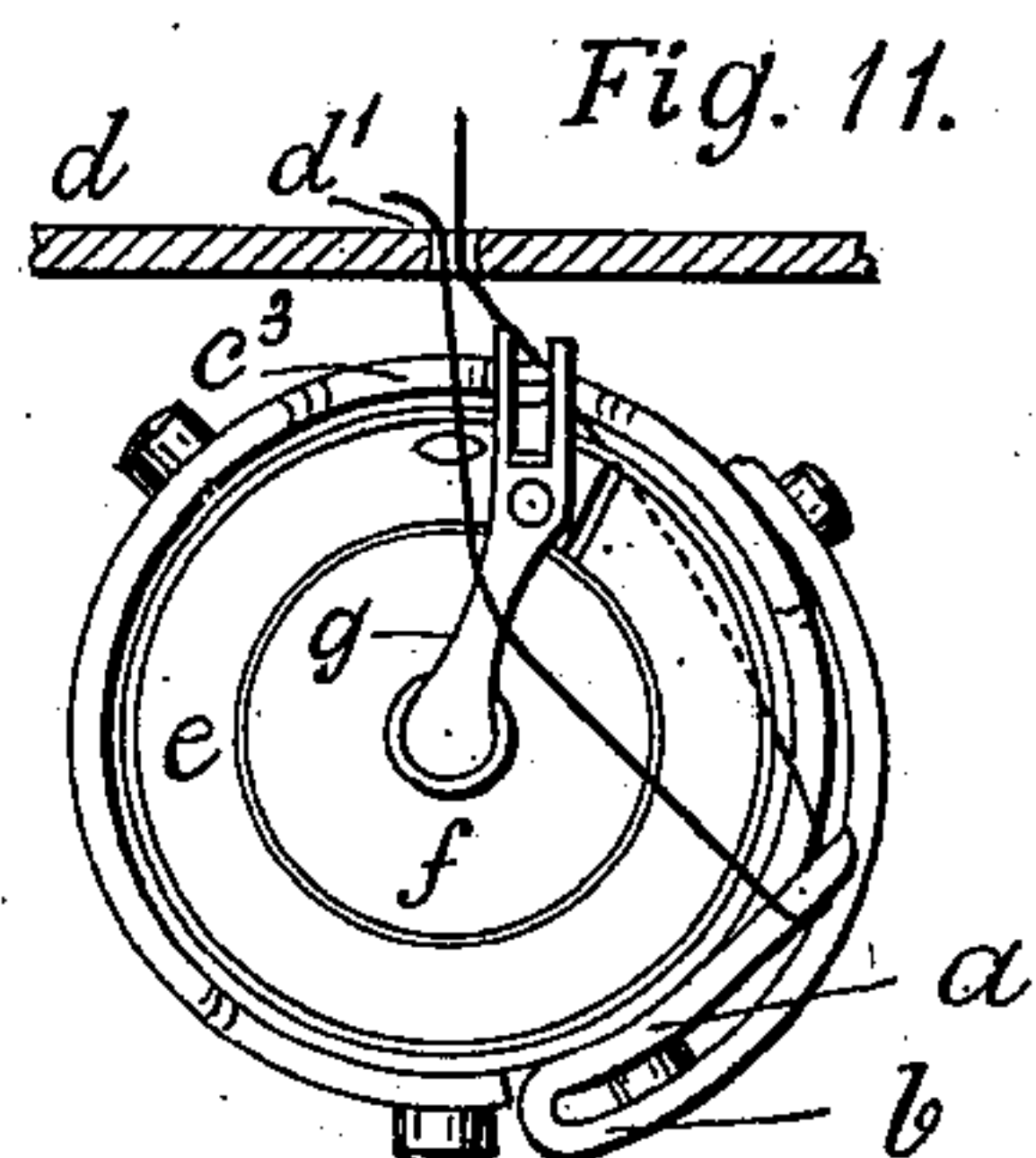
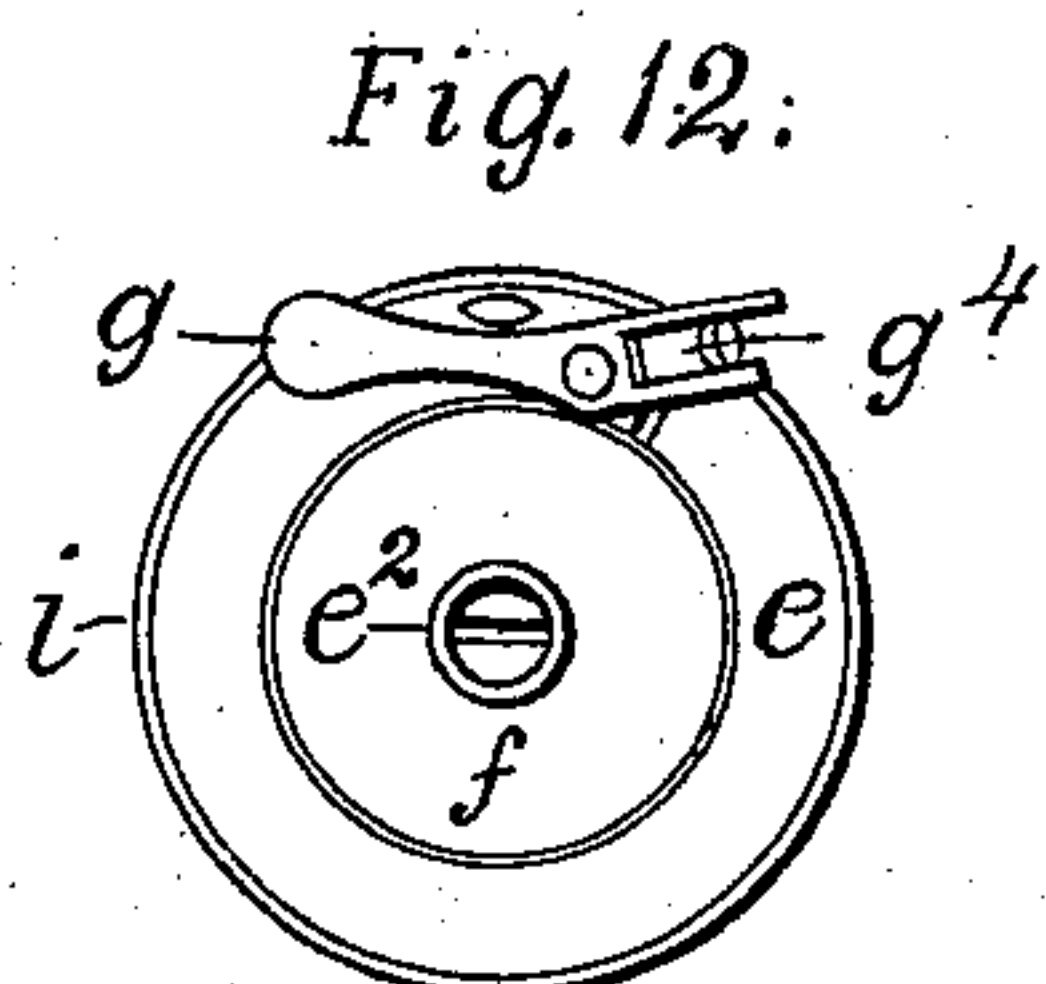
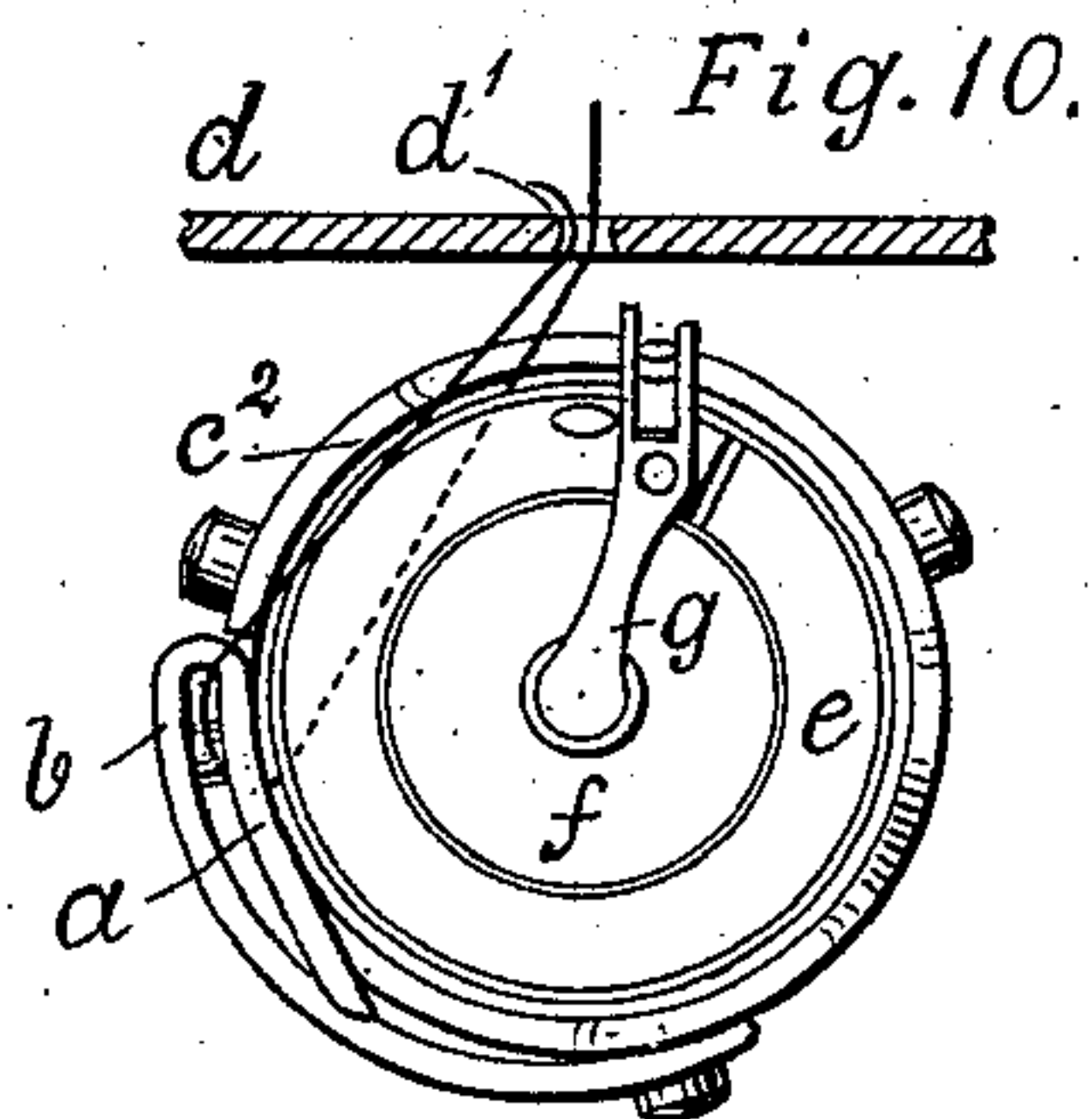
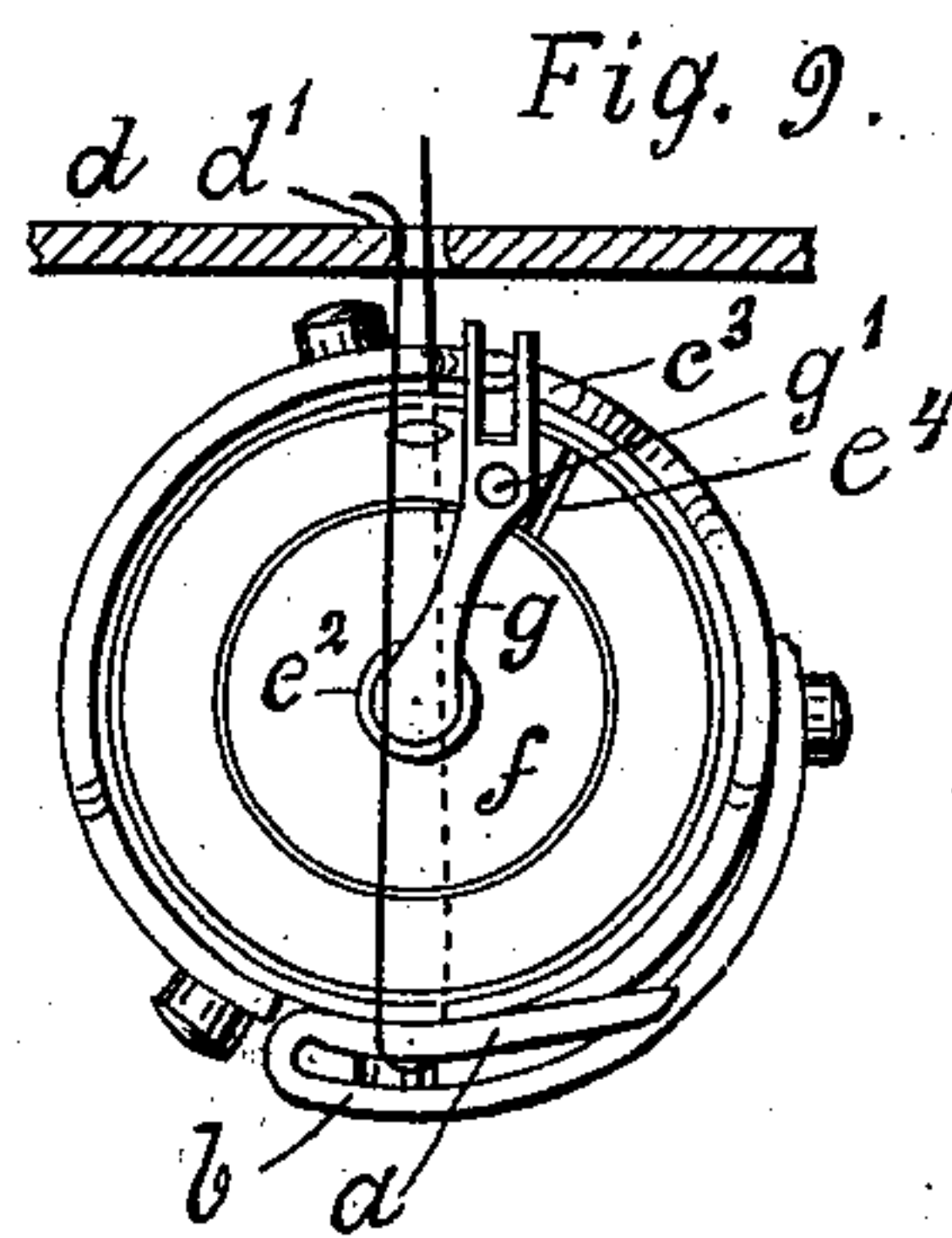
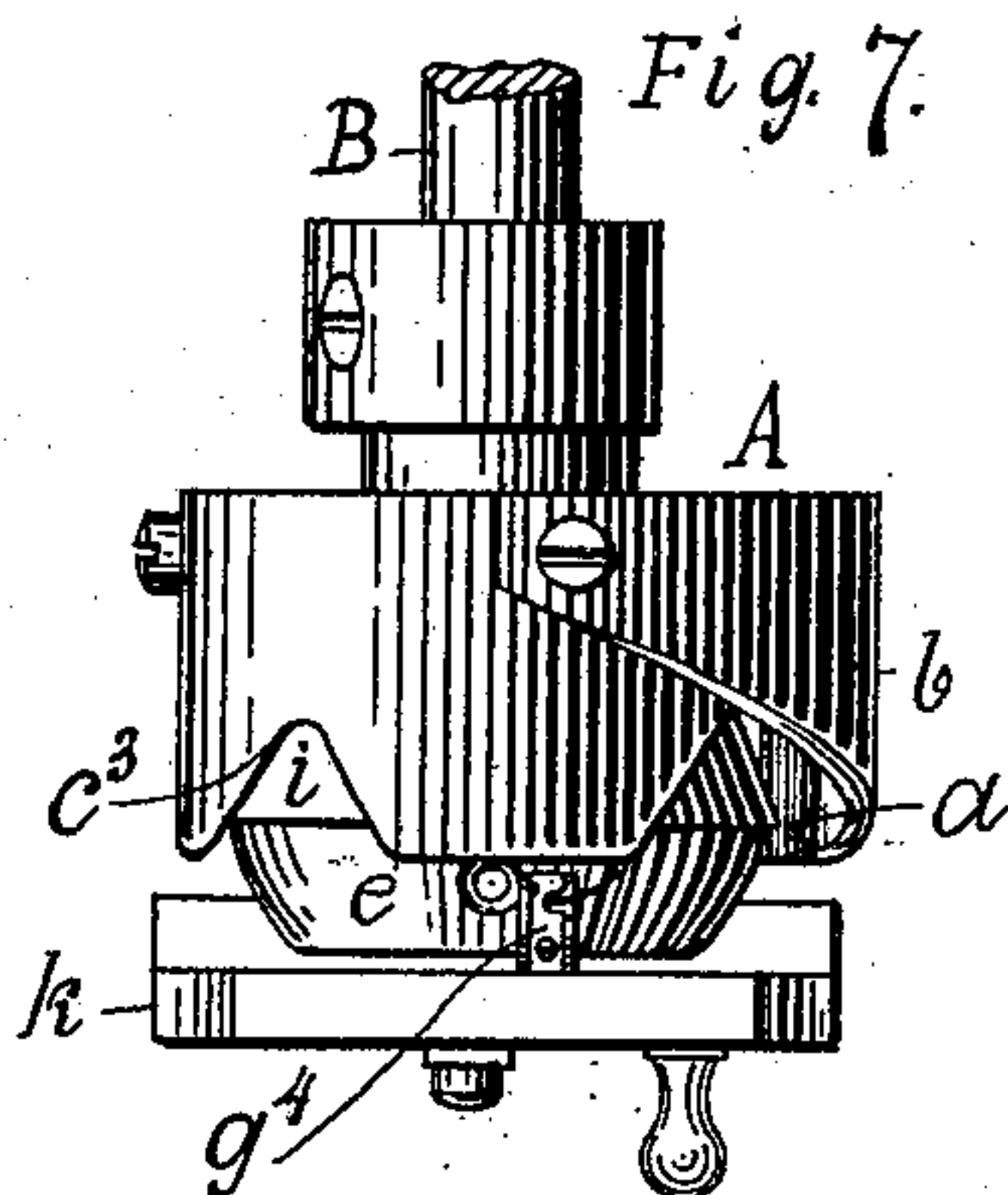
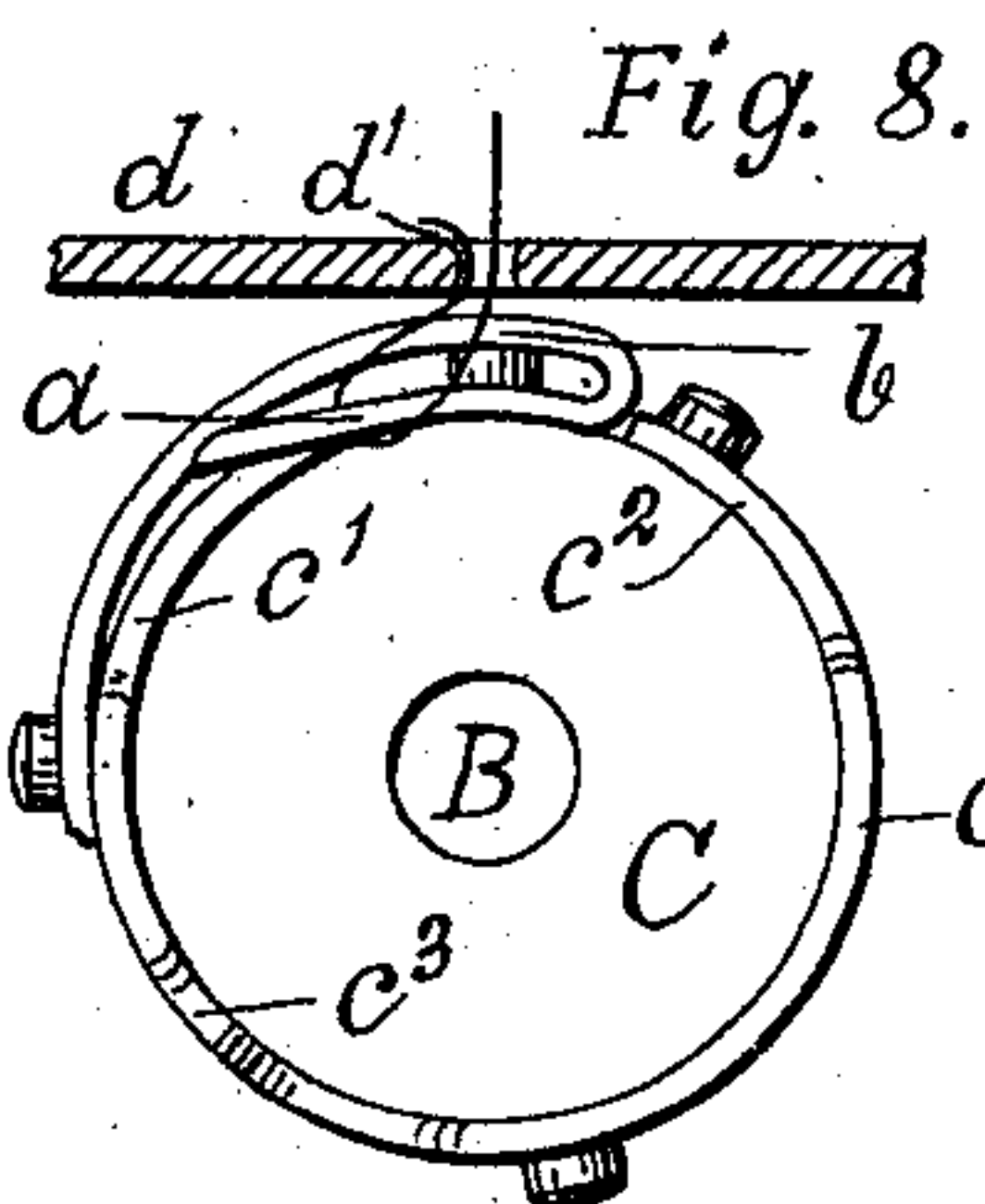
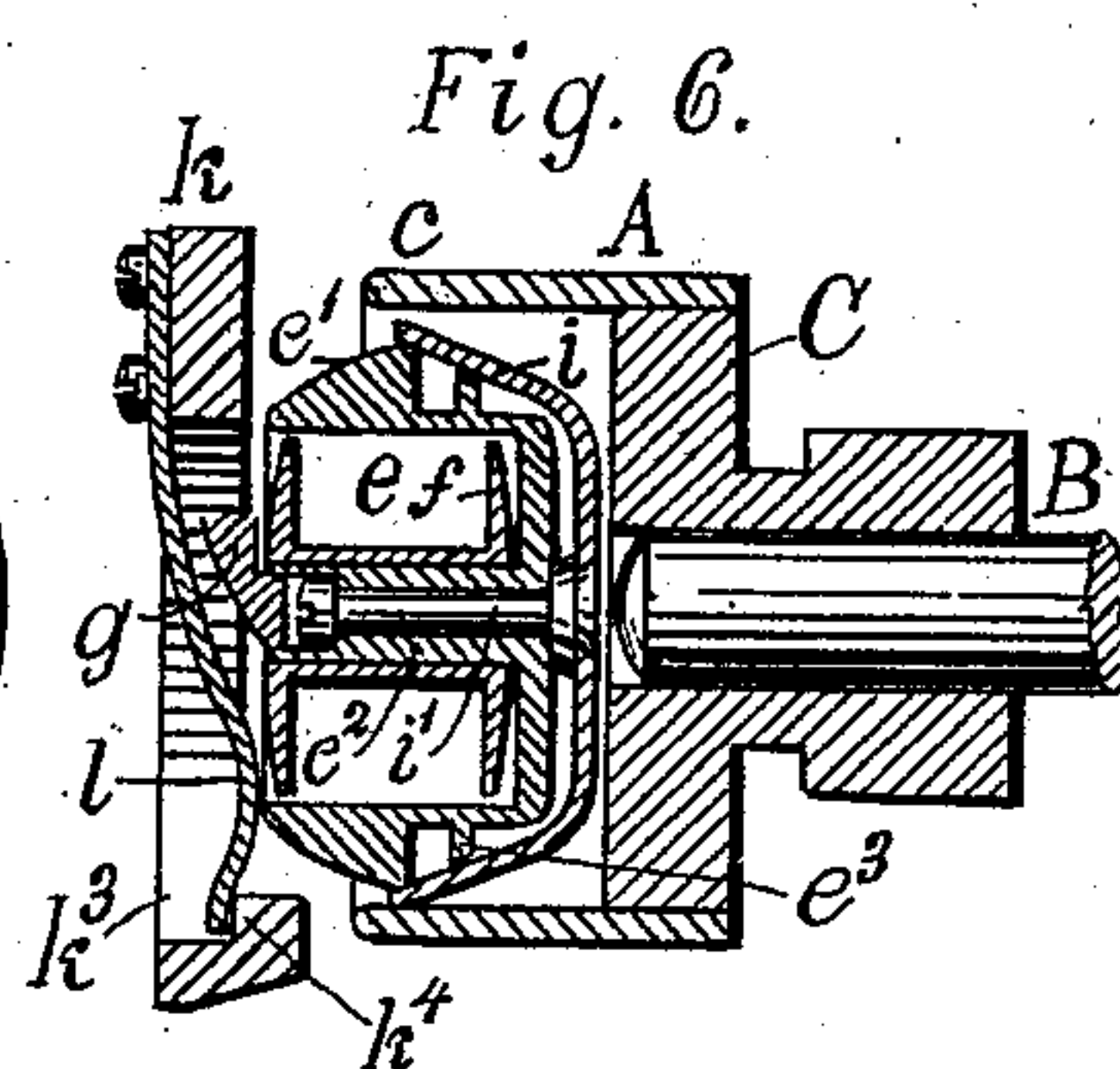
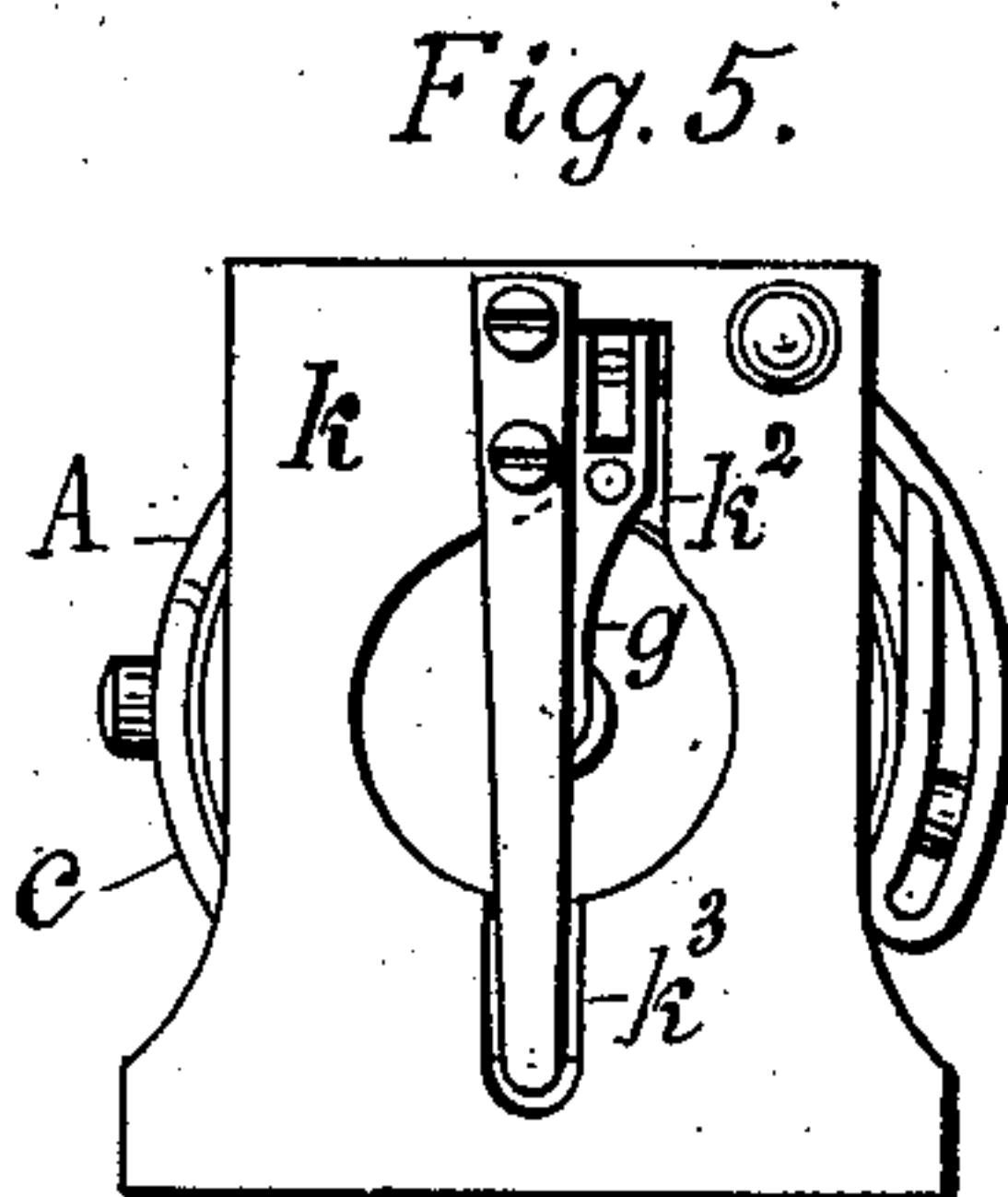
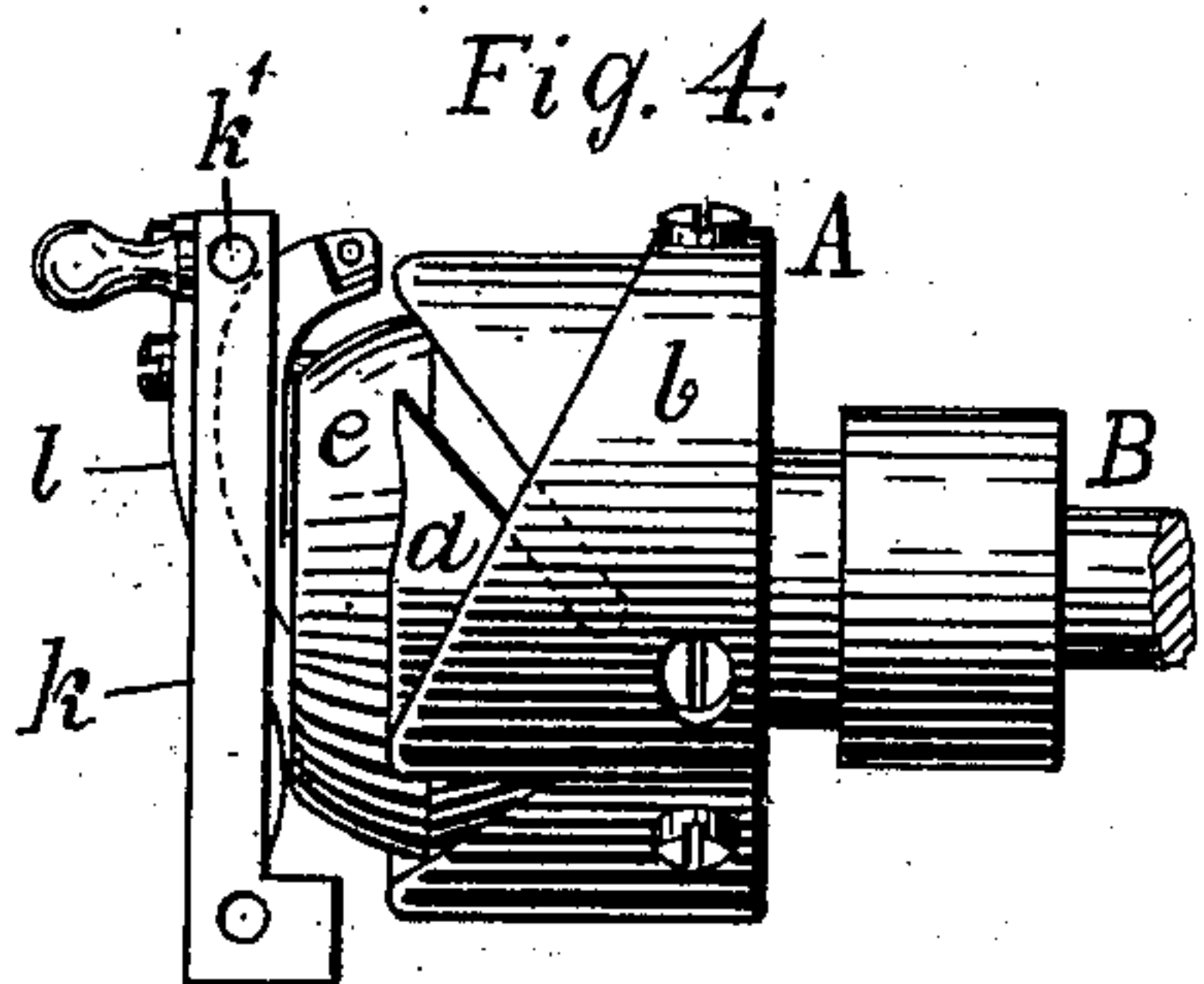
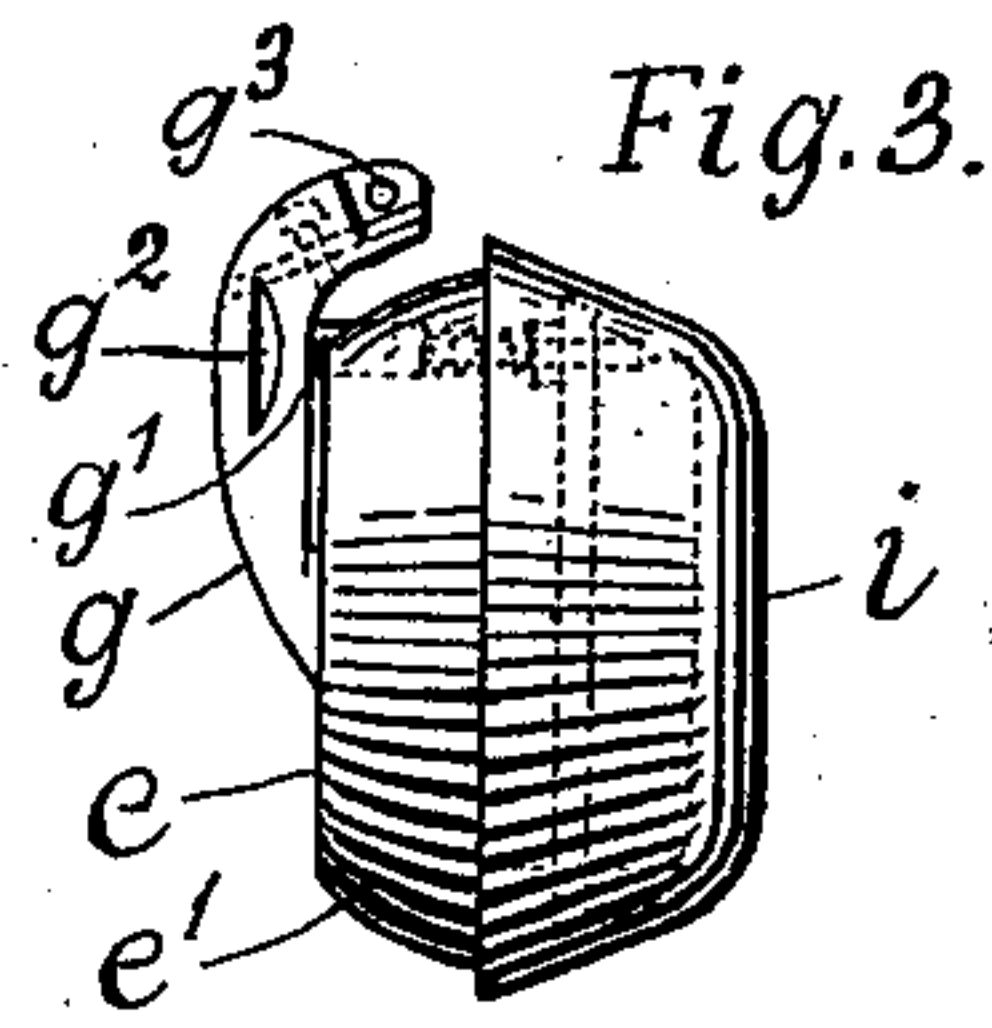
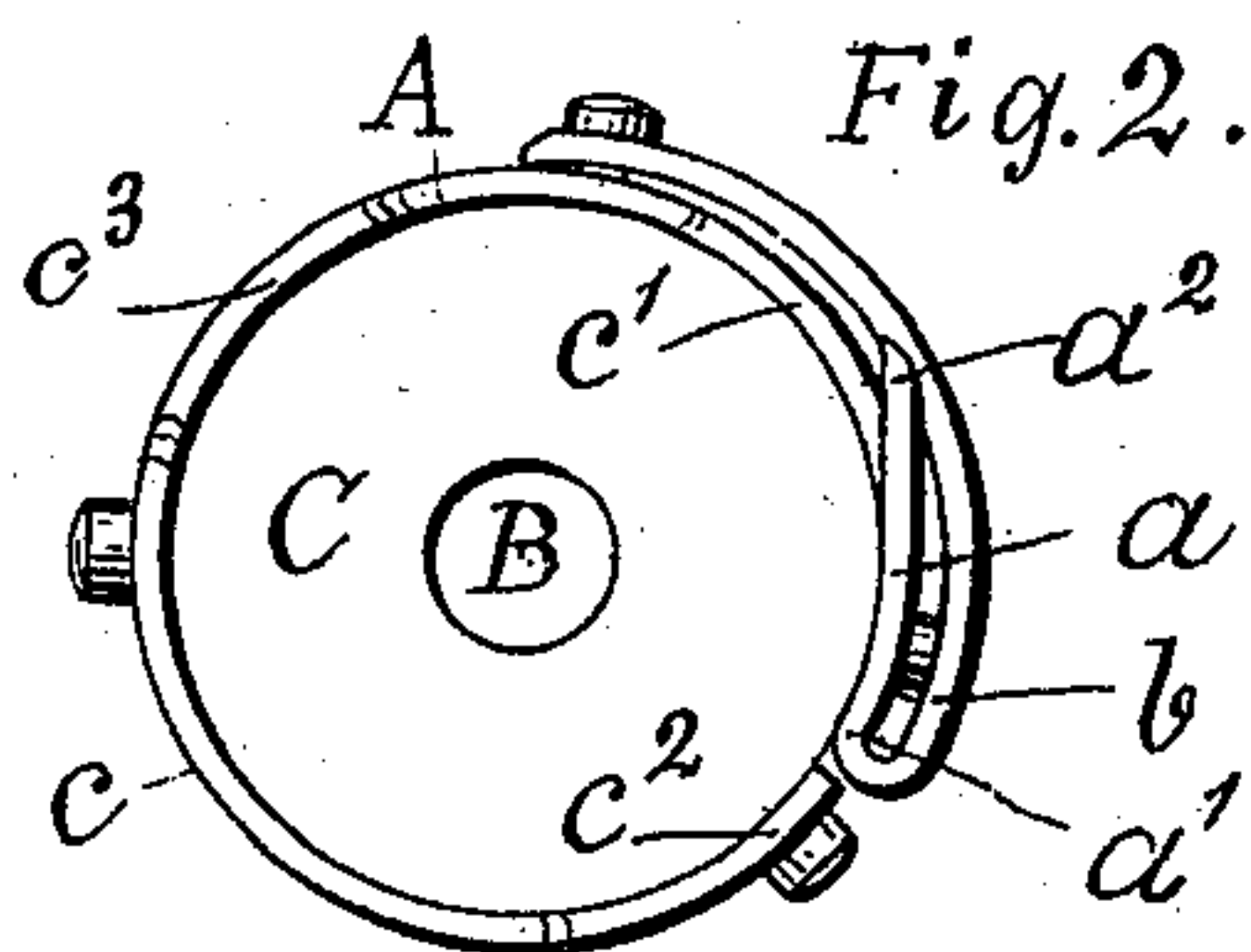
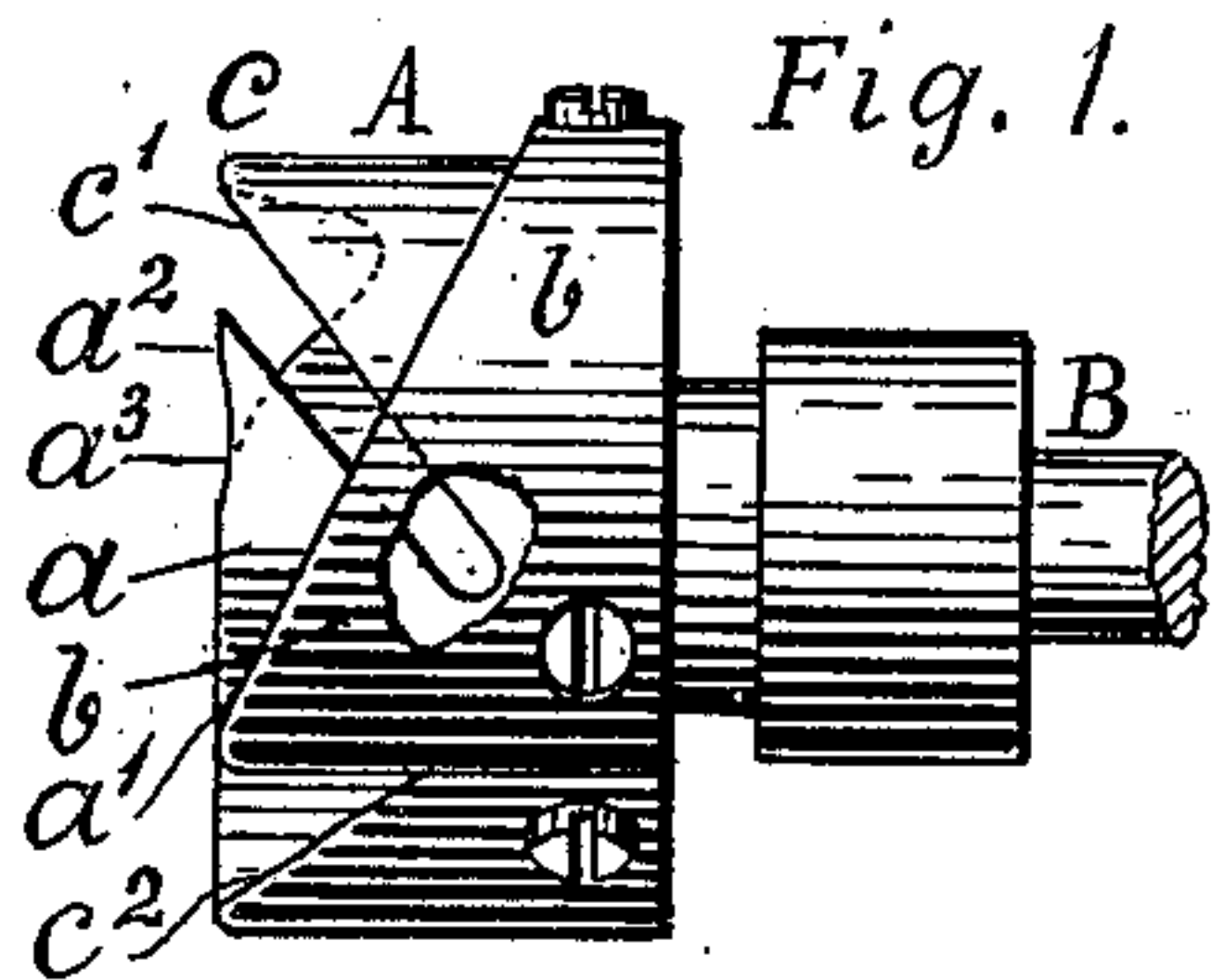


K. S. KLOGEL.
LOCK STITCH SEWING MACHINE.

(Application filed Sept. 12, 1899.)

(No Model.)



Witnesses.
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UNITED STATES PATENT OFFICE.

KARL S. KLOGEL, OF NEW YORK, N. Y.

LOCK-STITCH SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 708,771, dated September 9, 1902.

Application filed September 12, 1899. Serial No. 730,278. (No model.)

To all whom it may concern:

Be it known that I, KARL SIGURD KLOGEL, a citizen of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification.

My invention has for its object to improve that class of lock-stitch sewing-machines in which a revolving hook is used for passing the loop of needle-thread around a bobbin-case containing the under thread; and it consists in certain features of construction, principally of the revolving hook and bobbin-case, which will be hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a side view, and Fig. 2 a front view, of the hook. Fig. 3 is a side view of the bobbin-case. Fig. 4 is a side view of the hook, the bobbin-case, and the bobbin-case holder combined. Fig. 5 is a front view, Fig. 6 a central vertical section, and Fig. 7 a top view, of the said combination shown in Fig. 5. Figs. 8 to 11 are front end views of successive positions of the hook, and Fig. 12 is a front end view of the bobbin-case.

The hook A (see Figs. 1 and 2) is fixed to the end of a loop-taker shaft B of a sewing-machine operated in any suitable manner, imparting to the hook A a revolving motion. The hook A is provided with a loop-seizing beak a , having an outside guard or thread-guide b extending from the base a' of the beak toward its point a^2 , but retreating laterally, leaving the point a^2 free to seize the loop thrown out from the needle. The said guard or thread-guide b is at a distance from the outer side of the beak a , leaving a sufficient space for the loop of needle-thread to pass easily between the beak a and the outside guard b , and the said guard or thread-guide b is so connected to the base a' of the beak a that it constitutes a continuous track or guide to the outside of the beak a and to its front edge, whereby when the loop thrown out from the needle has been seized by the advancing beak one-half of the loop gliding between the beak a and the outside guard b is carried over to the outside front edge of the base a' of the beak and kept at the front edge, where

the guard b joins the beak, while the loop is pulled out and around the bobbin-case by the revolving hook. (See Figs. 8 to 10.) The hook A is also provided with an axially-projecting rim c , forming a cavity for the reception of a bobbin-case. The said rim is cut away in front of the point a^2 of the beak a to form a clearance c' for the loop thrown out from the needle and is also provided with a notch or recess c^2 in the rear of the beak, into which recess that half part of the loop that glides on the under or inner side of the beak a can slip in when the base of the beak has advanced past the needle-throat d' in the throat-plate d . (See Figs. 8 and 9.) There is also a notch c^3 (see Fig. 7) in the rim c diametrically opposite the beak a , or nearly so, out of which the loop of needle-thread is withdrawn when it is passed around the bobbin-case.

The loop-seizing beak a is laterally enlarged or broadened toward its base, thus giving a wide spread to the loop, and accordingly a large bobbin-case and bobbin can be used, the broad base also forming a more tapering beak, which causes an easy discharge of the loop when it is to be taken up. The beak a is slightly bent outward with its forward part and provided with a small notch a^3 on its front edge to prevent it from dropping the seized loop too early.

The beak a , the guard b , and the rim c being of the same thickness throughout the hook A can be manufactured out of a strip of metal properly cut and bent and then secured to the periphery of a disk C, as shown in the drawings.

The bobbin-case, adapted to be supported in the cavity of the hook, consists of a cup e , placed with the opening in front and provided with an outside circumferential rim e' on the front edge, which rim is gradually retreating rearward, forming a slanting surface for the loop of needle-thread. The cup e is provided with a central post e^2 for the reception of a bobbin f , which is journaled thereon and held in place axially in the bobbin-case by means of a bobbin-retaining latch consisting of a cross-piece g , mounted upon a pin or pivot g' in the circumferential rim e' , so that it can be pulled out a short distance and swung side-

wise when it is desired to put in or take out the bobbin *f*, (see Fig. 12,) the cross-piece *g* having a grip *g*² for that purpose. (See Fig. 3.) The cross-piece *g* extends with one end 5 to the central post *e*² in the cup *e* and is provided with a short stud or nipple fitting into a hole in the outer end of the said post, whereby the latch is held in place sidewise. It is held in place axially by a suitably-arranged 10 spring—for instance, by a spiral spring coiled around the pin or pivot *g*² on the back side of the circumferential rim *e*¹, pressing the pin *g*² rearward, as indicated by dotted lines in Fig. 3. The rearward end of the pin or pivot 15 *g*² is guided by passing through a hole in a rim or projection *e*³ on the cup *e*. The other end of the cross-piece *g* extends toward the throat-plate *d* of the machine and is at its upper end provided with an eye *g*³, through 20 which the bobbin-thread is passed, running through a slot *e*⁴ in the edge of the cup *e*. The back side or rearward half of the cup *e* is covered by an outwardly-flaring or conical shell *i*, extending its periphery forward to the circumferential rim *e*¹, which it is slightly overlapping. The said conical shell *i* is attached 25 to the bobbin-containing cup *e* by means of a central pin *i*¹, journaled in the post *e*², and thus the shell *i* is enabled to rotate. A recessed head in the end of the pin *i*¹ keeps the shell *i* in place axially. The bobbin-case is kept in place in the cavity of the hook *A* and prevented from wobbling by means of a flat latch or bobbin-case holder *k*, (see Figs. 4 to 35 7,) which is arranged parallel with the bottom of the hook *A* and near to the open front face of the bobbin-case, extending on all sides over the edge of the opening in the bobbin-case, but leaving a sufficient space for the loop to pass 40 easily between the flat latch *k* and the bobbin-case. The latch *k* is pivoted at its lower end and can be tilted backward for the purpose of putting the bobbin-case in place. It is held in a locked position by some suitable 45 device, as by a spring-pressed pin, (not shown in the drawings,) entering a hole *k*¹ in its edge, (see Fig. 4,) which device may be varied according to the shape of the under bed-plate of the machine. The latch *k* is provided 50 with a slot *k*², in which the bobbin-retaining latch or cross-piece *g* is loosely fitting, whereby the bobbin-case is held stationary while the hook is revolving. On the latch *k* is also arranged a spring *l*, extending downward into 55 a slot *k*³, where it is provided with a projecting curvature that is adjacent to the lower edge of the opening in the bobbin-case, but restrained from exercising any pressure thereon by its lower end coming against a rib *k*⁴ in 60 the bottom of the slot *k*³. This spring *l* is easily yielding when the loop is passed around the bobbin-case and serves to restrict the axial movements of the bobbin-case.

A tension device for the under thread may 65 be arranged in any suitable manner—as, for instance, by passing the thread from the bobbin under a small plate located and held by

a screw in a groove in the upper part of the cross-piece *g*, as indicated in the drawings. (See Figs. 3 and 7.) 70

The operation of this hook is shown in successive positions in Figs. 8 to 11. Fig. 8 represents the position of the hook when the loop has been seized by the beak and Fig. 9 the position when the loop is pulled out so far 75 that both its halves, extending straight from the extreme edges of the base of the beak, are in direct contact with the bobbin-case and in the proper position to be passed around the bobbin-case located within the 80 cavity of the hook by the advancing beak. Fig. 10 represents the position of the hook when the loop is passed around the bobbin-case and is ready to be taken up, and Fig. 11 the position when the loop is partly taken up 85 and just about to slip off from the point of the beak.

Having thus described my invention, I claim and desire to secure by Letters Patent— 90

1. In a sewing-machine a revolving hook having a loop-seizing beak provided with a laterally enlarged or broadened base and an outside guard or thread-guide connected 95 to the base of the beak and extending toward its point, the said hook having also an axially-projecting rim forming a cavity and which rim is provided with a notch or recess in the rear of the loop-seizing beak.

2. In a sewing-machine a revolving hook 100 having a loop-seizing beak provided with a laterally enlarged or broadened base and an outside guard or thread-guide connected to the base of the beak and extending toward 105 its point, the said hook having also an axially-projecting rim forming a cavity and which rim is provided with a notch or recess in the rear of the beak, and with another notch or recess diametrically opposite the beak or nearly so, through which the loop of needle-thread is 110 withdrawn.

3. In a sewing-machine, the combination with a revolving hook having a loop-seizing beak, and an axially-projecting rim forming a cavity, of a bobbin-case located in the 115 cavity of the hook and having an open front face, a radially-projecting circumferential rim on the front face, a central post for the reception of a bobbin and a bobbin-retaining latch consisting of a cross-piece mounted 120 upon a spring-pressed pin or pivot in the circumferential rim, the said cross-piece extending one end to the central post in the bobbin-case and provided with a stud or nipple fitting into a hole in the outer end of the 125 central post and the other end toward the throat-plate of the machine and means, substantially as set forth, engaging the said bobbin-retaining latch or cross-piece, whereby the bobbin-case is held stationary. 130

4. In a sewing-machine, the combination of a revolving hook having a loop-seizing beak, an axially-projecting rim forming a cavity, a bobbin-case located in the cavity

of the hook and having an open front face,
a bobbin-retaining latch or cross-piece piv-
oted on its front face and extending one
end upward or toward the throat-plate of the
5 machine, with a bobbin-case holder or flat
latch provided with a slot engaging the bob-
bin-retaining latch or cross-piece, whereby
the bobbin-case is held stationary while the
hook is revolving, the flat latch or bobbin-
10 case holder having also a spring or spring-

pressed device provided with a projecting
curvature that is adjacent to the lower edge of
the front opening in the bobbin-case but
restrained from exercising any pressure
thereon.

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