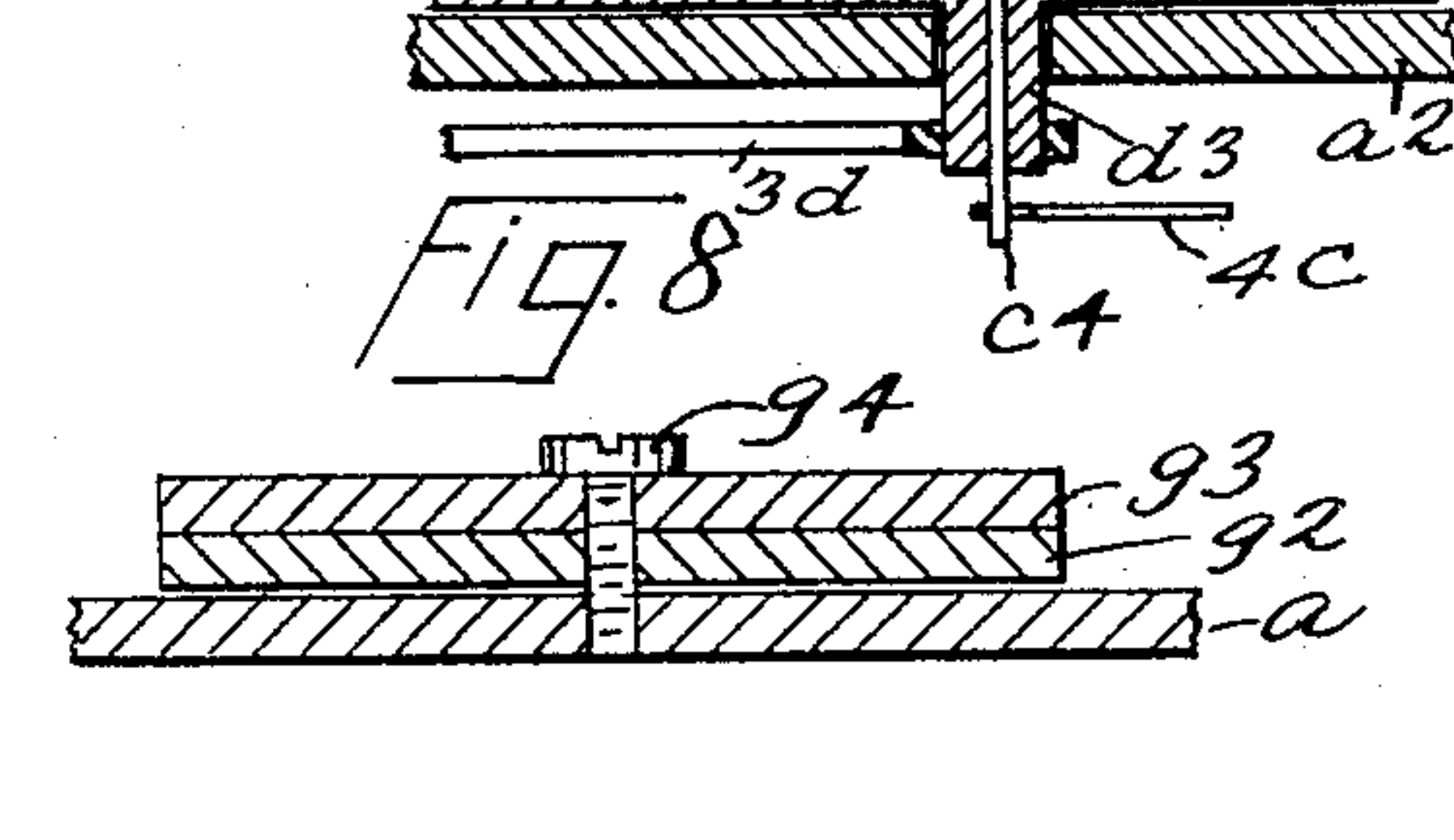
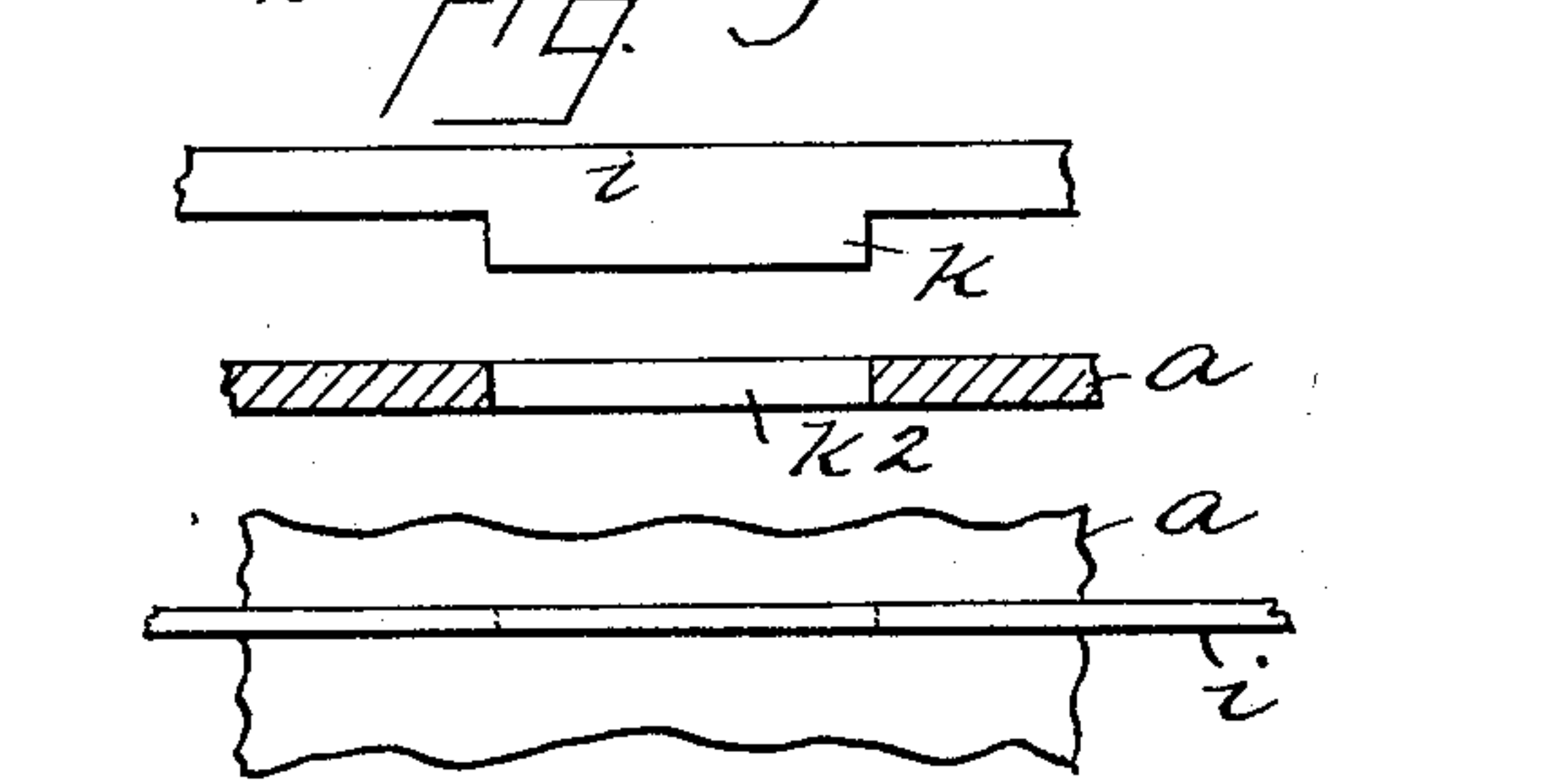
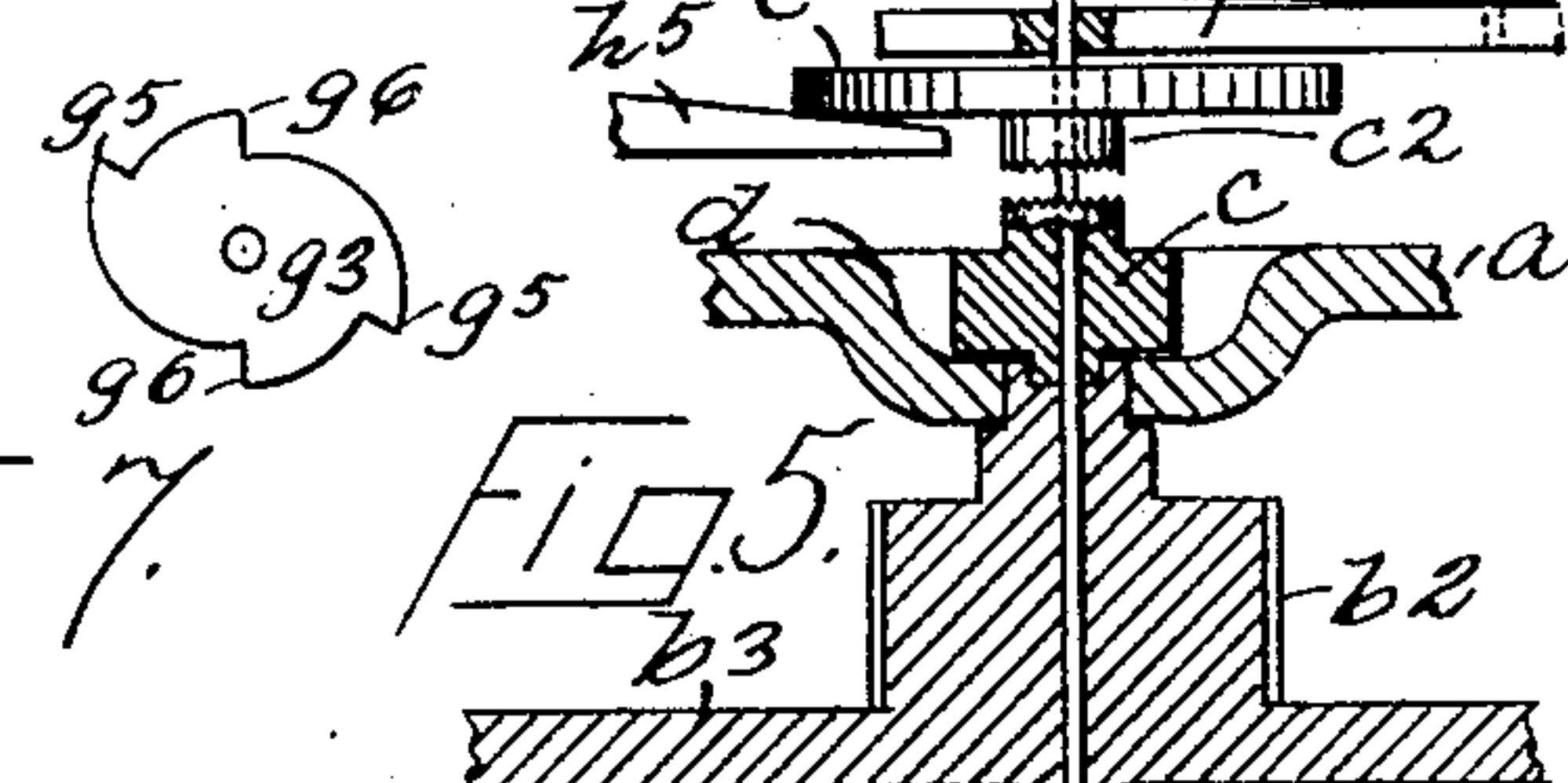
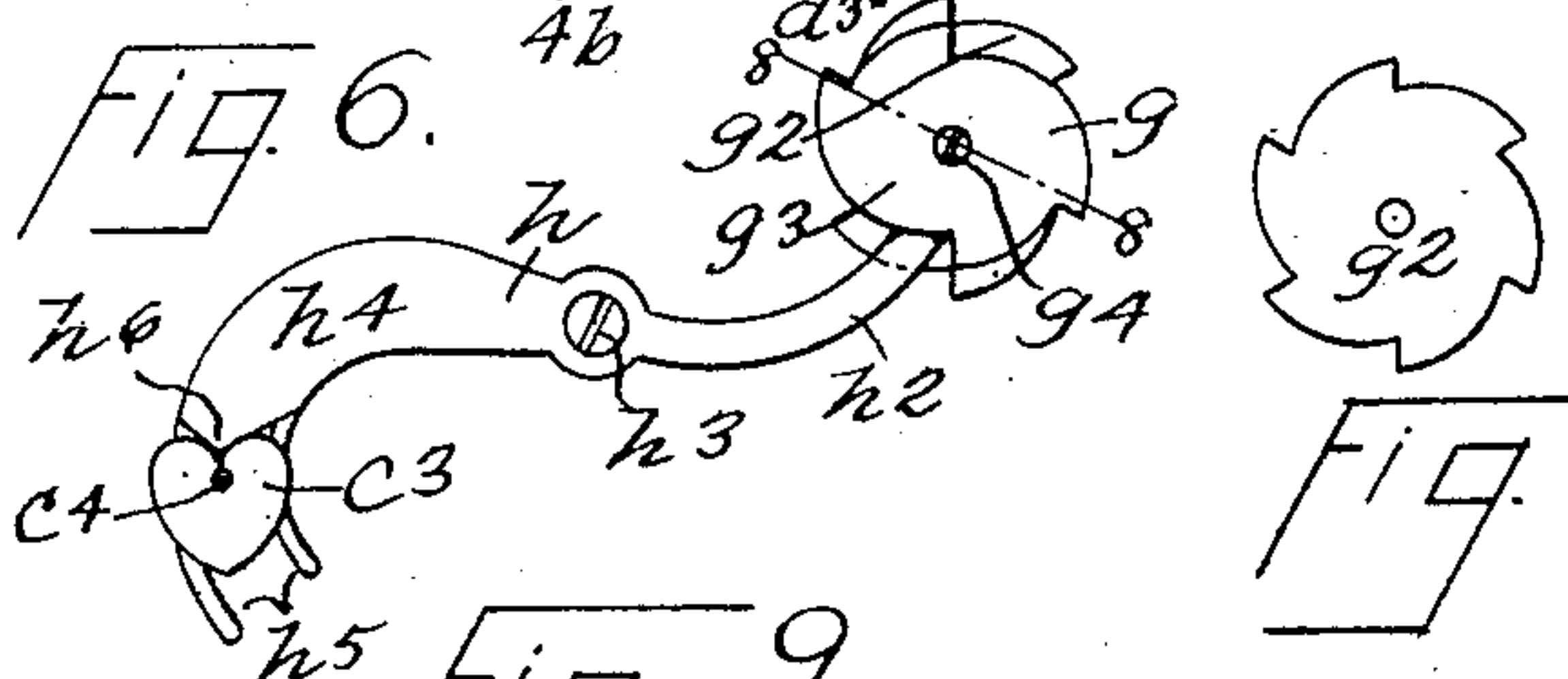
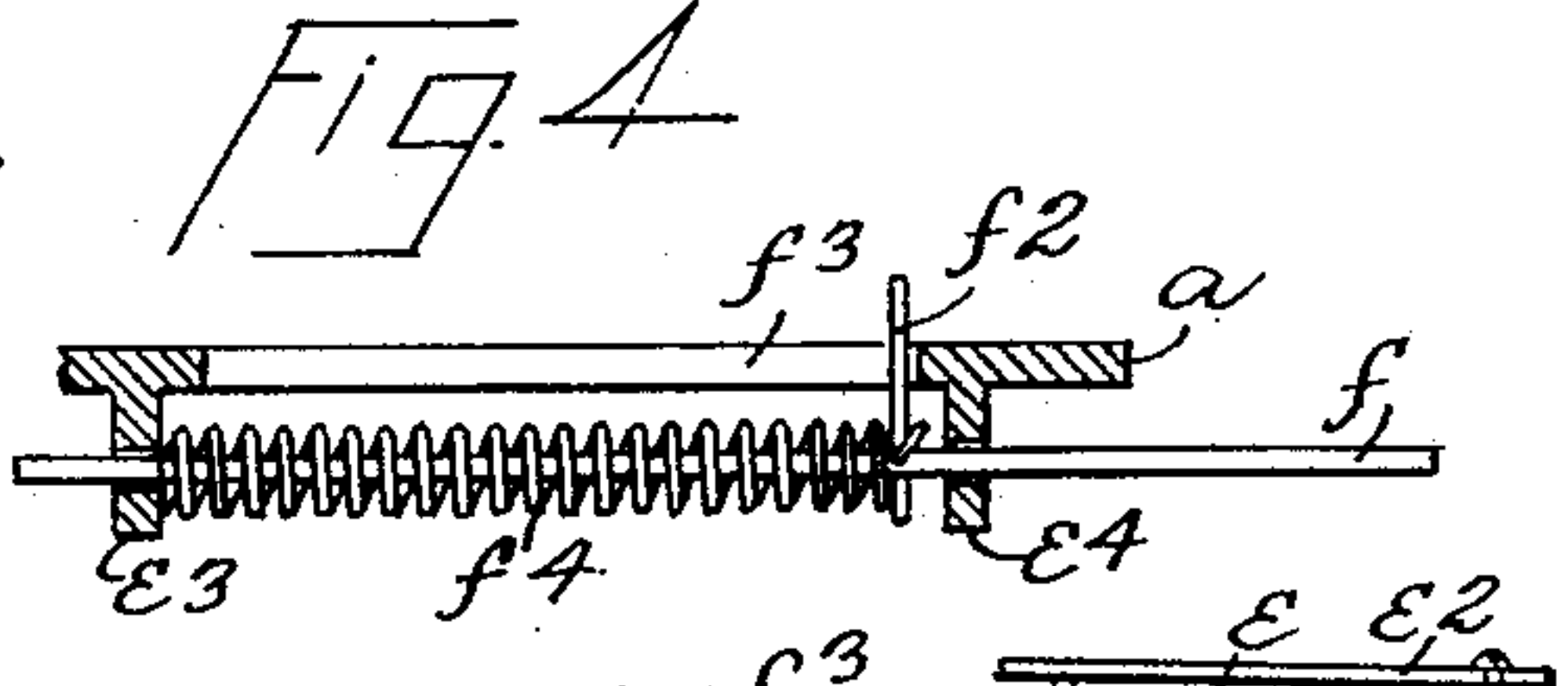
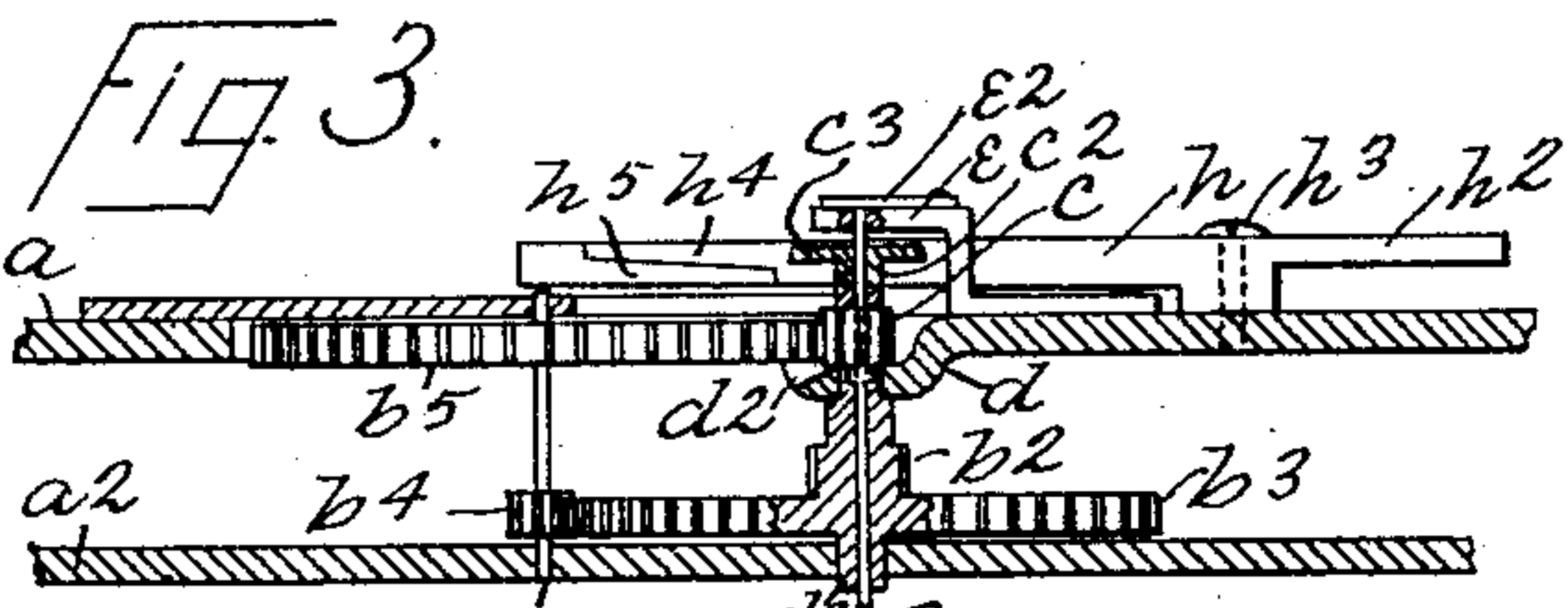
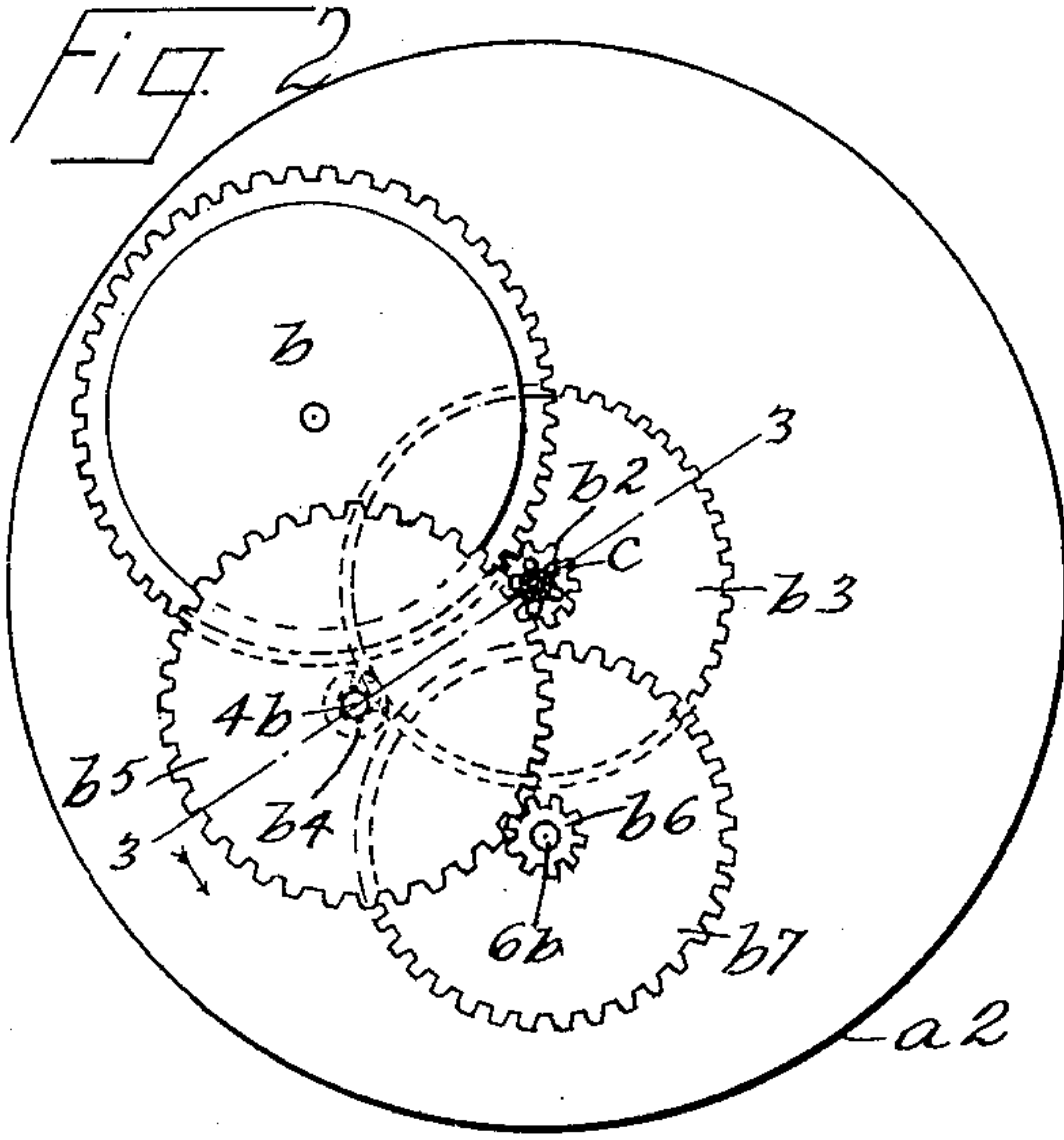
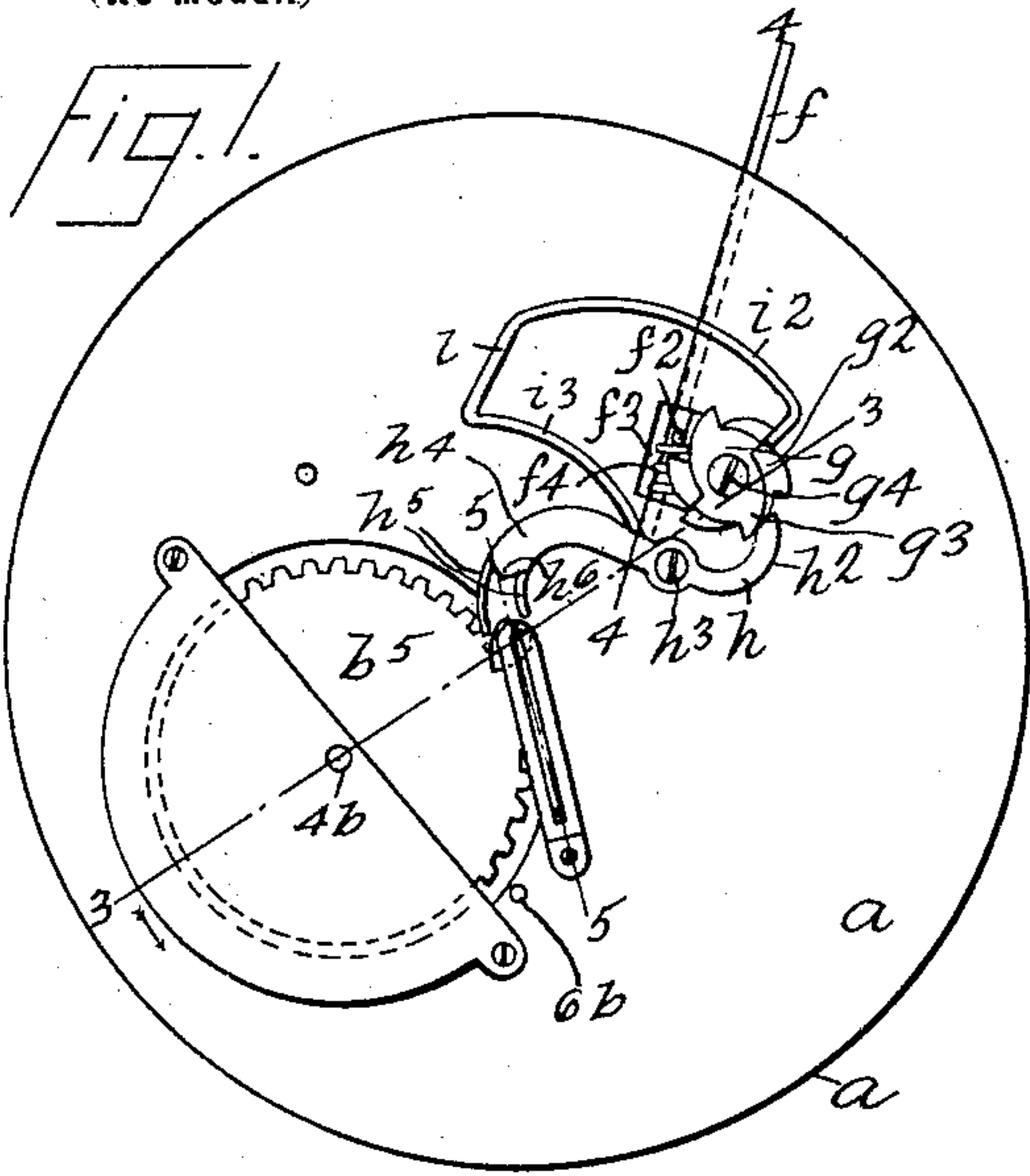


M. BASSOFF.
STOP WATCH.

(Application filed May 12, 1902.)

(No Model.)



WITNESSES

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MORRIS BASSOFF, OF BROOKLYN, NEW YORK.

STOP-WATCH.

SPECIFICATION forming part of Letters Patent No. 708,986, dated September 16, 1902.

Application filed May 12, 1902. Serial No. 106,872. (No model.)

To all whom it may concern:

Be it known that I, MORRIS BASSOFF, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Fly-Back Attachments for Watches, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

The object of this invention is to provide an improved fly-back attachment for watches for use in connection with what is known as a "sweep seconds-hand" and for the purpose of stopping and starting said hand whenever desired and for returning said hand at the expiration of any period of time to the point from which it was started without in any way interfering with the regular mechanism or movement of the watch.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by the same reference characters in each of the views, and in which—

Figure 1 is a plan view of one side of a watch mechanism and showing one of the outside plates of the framework thereof and the parts of my improvement connected therewith; Fig. 2, a view similar to Fig. 1, showing the outside frame-plate of Fig. 1 removed and showing the opposite side plate and the parts of the operative mechanism of the watch which are necessarily used in connection with my improvement; Fig. 3, a partial section on the line 3-3 of Fig. 1, showing both of the side plates of the frame of the watchwork mechanism and showing a part of said mechanism and the parts of my improvement, all of said parts being on an enlarged scale; Fig. 4, a partial section on the line 4-4 of Fig. 1, on an enlarged scale; Fig. 5, a partial section on the line 5-5 of Fig. 1 and on an enlarged scale; Fig. 6, a plan view of a part of the construction shown in Fig. 1 on an enlarged scale, and showing an operating-lever and a cam-disk forming part of said mechanism and in a different position from that shown in Fig. 1; Fig. 7, a plan view of the separate parts of the cam-disk shown in Fig. 6, said parts in practice being secured

together, as shown in Fig. 8; Fig. 8, an enlarged section on the line 8-8 of Fig. 6, and Fig. 9 a detail view of certain parts of the construction shown in Fig. 1.

In the drawings I have shown a watchwork frame or casing of the usual form and construction and comprising side plates a and a^2 , connected in any desired manner, and in the practice of my invention I form in the plate a a cavity d , of a depth about equal to the thickness of said plate and one side of which is cut away, as shown at d^2 , to allow the internal mechanism of the watch to have direct connection with the parts of my improvement which are arranged above the plate a . I also provide the usual barrel b and drive-wheel connected with a pinion b^2 , formed upon a main arbor d^3 , which is also provided with a gear-wheel b^3 , which actuates the pinion b^4 , mounted upon a staff 4^b , which also carries a gear-wheel b^5 , and this gear-wheel is connected with a pinion b^6 , which is secured to a staff 6^b , also carrying a gear-wheel b^7 , which in practice is connected with a balance-wheel or escapement and hair-spring in the usual manner, these parts being not shown. The gear-wheel b^5 also actuates a pinion c , loosely mounted on the end of the main arbor d^3 , as shown in Fig. 5, and the pinion c has the same number of teeth as the pinion b^6 , and each being connected with the gear-wheel b^5 their movement is therefore the same. The main arbor d^3 carries the minute-hand 3^a , and upon the staff 6^b of the pinion b^6 is mounted the usual seconds-hand, which is not shown, and, as will be readily understood, when the pinion b^6 and the staff 6^b make a complete revolution the pinion c also marks a complete revolution. The upper end of the pinion c is provided with small radial teeth, which engage with corresponding teeth on a clutch-sleeve c^2 , to which is secured a disk or cam c^3 , which is heart-shaped, and both the clutch-sleeve c^2 and the cam c^3 are secured on a center arbor c^4 , near one end thereof, said center arbor being passed loosely through the main arbor d^3 , and on the center arbor c^4 is mounted a sweep seconds-hand 4^c . Above the cam c^3 is a bridge e , in which the inner end of the staff c^4 revolves, and said guide is secured to the plate a , and mounted upon the bridge e and exerting pressure upon the

center arbor c^4 is a spring e^2 , the force of which tends to keep the contiguous ends of the clutch-sleeve c^2 and pinion c in close connection.

5 In the inner side of the plate a are two hangers or supports e^3 and e^4 , in which is slidably mounted a rod f , which extends beyond the outer end of the plate a and near the center of which is set at right angles thereto a
10 pin f^2 , which passes through a slot f^3 in the plate a , and the pin f^2 projects slightly above the plate, and mounted upon the rod f and between the hangers or supports e^3 and e^4 is a coil-spring f^4 , the function of which is to
15 force the pin f^2 and rod f back to their normal position after the said pin and rod have been pushed inwardly by means of the force applied to the outer end of the rod f . Adjacent to the slot f^3 and pin f^2 and upon the
20 outer side of the plate a is mounted a double cam-disk g , which consists of two parts g^2 and g^3 , (shown in Fig. 7,) and the lower or inner member g^2 of which is provided with six radial teeth in the same concentric circle,
25 each of which has a radial face on its right-hand side and calculated to be engaged by the pin f^2 when the rod f is forced inwardly. The upper or outer member g^3 of the cam-disk g is also provided with four teeth or pro-
30 jections arranged in two different concentric circles, this member of said disk being oblong in form and the teeth being in different concentric circles, and said pairs of teeth are designated by the reference characters g^5 and
35 g^6 , respectively, and all of said teeth have radial faces on the right-hand side thereof, and these two cam-disk members g^2 and g^3 are secured together in any desired manner or may be made integrally and are revolubly mount-
40 ed on a screw g^4 . I also provide an operating-lever h , which is preferably S-shaped in form and is pivotally secured to the plate a by means of a screw h^3 , and one end h^2 of this lever engages with the teeth of the upper cam-disk member g^3 . The other end h^4 of the lever h
45 is provided with two projections h^5 , placed far enough apart to allow of the free passage between the same of the drum c^2 , and the upper or outer faces of these projections
50 are preferably inclined from their inner ends to their outer ends, as shown in Figs. 3 and 5. I also provide a double-ended spring i , which is secured at its center to the plate a and which is yoke-shaped in form and the end i^2
55 of which engages the teeth of the lower cam-disk member g^2 of the cam-disk g and prevents too great or too free movement thereof, and the other end i^3 of the spring i exerts pressure upon the end h^4 of the operating-lever h , so as to keep the end h^2 thereof in
60 close contact with the cam-disk member g^3 .

As will be understood, the turning of the cam-disk g by means of the pin f^2 and rod f will cause the arm h^2 of the lever h to ap-
65 proach or recede from the center of said cam, thereby giving the other arm h^4 of the lever h a greater movement, thus causing it

to approach or recede from the drum c^2 . The arm h^4 is provided at its base or the inner ends of the projections h^5 with an outwardly-
70 directed V-shaped portion h^6 , which is slightly higher than the inner ends of the projections h^5 , and the object of which is to force the heart-cam c^3 into a predetermined position
75 whenever the V-shaped portion h^6 comes in contact therewith, as is clearly shown in Fig. 6.

The extreme outer position of the parts just described is shown in Fig. 1, and the extreme inner position of these parts is shown in Fig. 80
6. When the watch is in operation, the seconds-hand on the staff 6^b of the pinion b^6 and which is not shown and the sweep seconds-hand 4^c upon the center arbor c^4 are moving in the same direction and with the same speed
85 when the operating parts of my invention are in their normal position, as shown in Fig. 1, and pressure applied to the rod f causes the cam-disk g to make one-sixth of a revolution, and the pin f^2 and rod f , being loosely
90 mounted in the hangers or supports e^3 and e^4 , are forced back to their normal position by the spring f^4 , and the arm h^2 of the operating-lever h , by means of pressure exerted by the spring i^3 , drops into engagement with the
95 concentrically-arranged teeth on the cam-disk g^3 , and as the arm h^4 approaches the clutch-sleeve c^2 the projections h^5 pass under the heart-cam c^3 , which cause their inclined shape to operate to raise the cam c^3
100 and the clutch-sleeve c^2 and center arbor c^4 , secured thereto, thereby engaging the surfaces of the clutch-sleeve c^2 and pinion c , and this operation stops the motion of the cam c^3 , clutch-sleeve c^2 , and center arbor c^4 , together
105 with the sweep seconds-hand secured thereto, although the pinion c and the other parts of the watch continue to operate in the usual manner. The rod f being again forced inwardly, the cam-disk g is again turned one-
110 sixth of a revolution, and the arm h^2 of the operating-lever drops into engagement with the innermost tooth on the cam-disk member g^3 , and the arm h^4 is at its extreme inward movement, and, as hereinbefore described, the
115 heart-shaped cam c^3 is turned to the position shown in Fig. 6. When the heart-cam c^3 is in this position, the sweep seconds-hand is at its starting-point, and as the heart-cam is always forced back into the position shown in
120 Fig. 6 when the operating-lever h is in its extreme inward position it will be seen that the sweep seconds-hand will always fly back when the parts are in their proper position. The rod f being again forced inwardly, the
125 lever h is forced back to its extreme outer position, as shown in Fig. 1, and the heart-cam c^3 is released and the spring e^2 forces the clutch-sleeve c^2 into operative connection with the pinion c , and the sweep seconds-hand
130 again starts upon its regular movement. When an event is to be timed, the rod f is pushed twice and the sweep seconds-hand flies back to its starting-point, the watch still con-

tinuing to run in the usual manner. As soon as the beginning of the event—say a horse-race, boat-race, or other event—is made the rod *f* is again pushed and the sweep seconds-hand starts on its regular revolution and continues to move until the rod *f* is again pressed, when the sweep seconds-hand stops, as hereinbefore described, and the event is thus timed. When it is desired to start the sweep seconds-hand, one push on the rod *f* causes the hand to fly back to its starting-point and another push on said rod releases the cam *c*³, and thereby the sweep seconds-hand, and its movement is again resumed. The spring *i* may be secured to the plate *a* in any desired manner; but I prefer to employ the means shown in Fig. 9 for this purpose, and in this construction I provide the spring *i* with a longitudinal projection *k* and form in the plate *a* a slot *k*², adapted to receive said projection, and the width of the said projection is slightly greater than the thickness of the plate *a*, and when the parts have been connected by passing the projection *k* through the slot *k*² a few taps of a hammer will secure the projection in said slot and securely connect the spring with said plate.

This improvement is simple in construction and operation and perfectly adapted to accomplish the result for which it is intended, and changes in and modifications of the construction described may be made without departing from the spirit of my invention or sacrificing its advantages, and it will also be apparent that the fly-back attachment of the sweep seconds-hand of the watch, hereinbefore described, may be applied to any form of construction of watch now in use.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a fly-back attachment for watches, the combination with one of the plates of the frame of a watch mechanism, of a yoke-shaped spring secured to said plate at the middle thereof, a double cam-disk mounted on said plate, one member of which is in operative connection with one arm of said spring, and a lever adapted to engage with the other member of said cam-disk, said lever being in operative connection with the other arm of said spring, substantially as shown and described.

2. In a fly-back attachment for watches, the combination with one of the plates of the frame of the watch mechanism, of a yoke-shaped spring secured to said plate at the middle thereof, a double cam-disk mounted on said plate, one member of which is in operative connection with one arm of said spring, and a lever adapted to engage with the other

member of said cam-disk, said lever being in operative connection with the other arm of said spring, and means for operating said double cam-disk, substantially as shown and described.

3. In a fly-back attachment for watches provided with a hollow main arbor, a center arbor longitudinally and rotatably movable therein and provided at one end with the usual sweep seconds-hand and at the other end with a heart-shaped cam and means for locking said center arbor to said main arbor as well as releasing the same; an operating-lever pivotally mounted at or near its center and adjacent to said center arbor, and provided with two curved projecting members which are wedge-shaped in longitudinal vertical section, and which are adapted to pass one on each side of said center arbor and engage, with their inclined surfaces, the under side of said heart-shaped cam, said operating-lever being also provided between the inner ends of said curved wedge-shaped members with a thickened projecting member which is wedge-shaped in transverse horizontal section, and adapted to engage the recess in the periphery of said heart-shaped cam, and means for operating said lever, substantially as shown and described.

4. In a fly-back attachment for watches provided with a main arbor, a center arbor movable therein and provided at one end with a sweep seconds-hand and at the other with a heart-shaped cam, and means for locking said center arbor to said main arbor and releasing it therefrom; a double cam-disk, an operating-lever one end of which is provided with wedge-shaped projecting members adapted to operate in connection with said heart-shaped cam and the other end of which is in operative connection with the outer member of said double cam-disk, a yoke-shaped spring one end of which operates on one end of said lever and the other end of which operates on the inner member of said double cam-disk, a spring-operated rod loosely mounted adjacent to said double cam-disk, and a pin secured at right angles thereto, and adapted to operate on the inner member of said double cam-disk, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 10th day of May, 1902.

MORRIS BASSOFF.

Witnesses:

F. A. STEWART,
C. E. MULREANY.