

No. 621,664.

Patented Mar. 21, 1899.

E. F. HEFFERNAN.
STEM WINDING AND SETTING WATCH.

(Application filed Dec. 14, 1898.)

(No Model.)

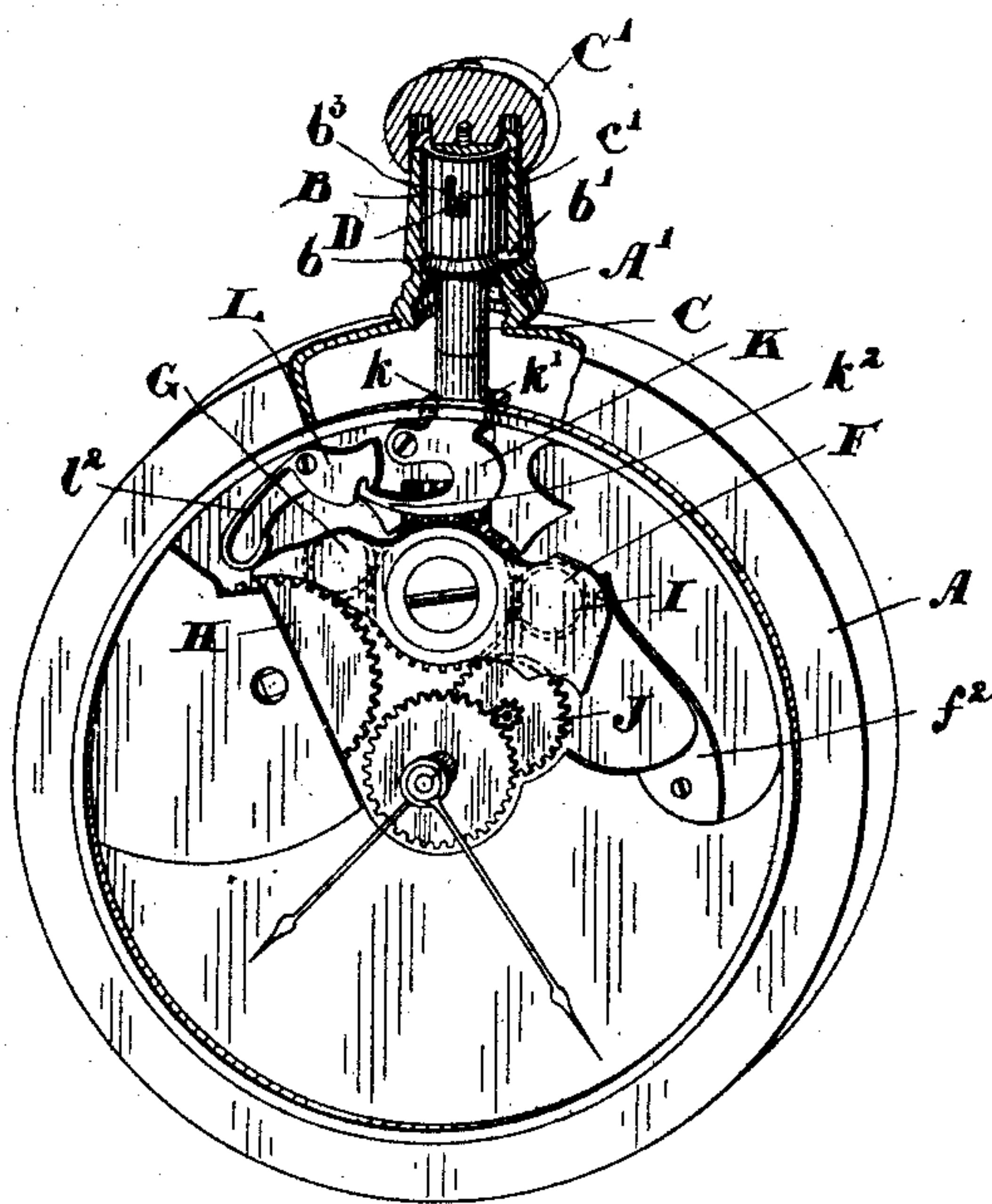


Fig.1.

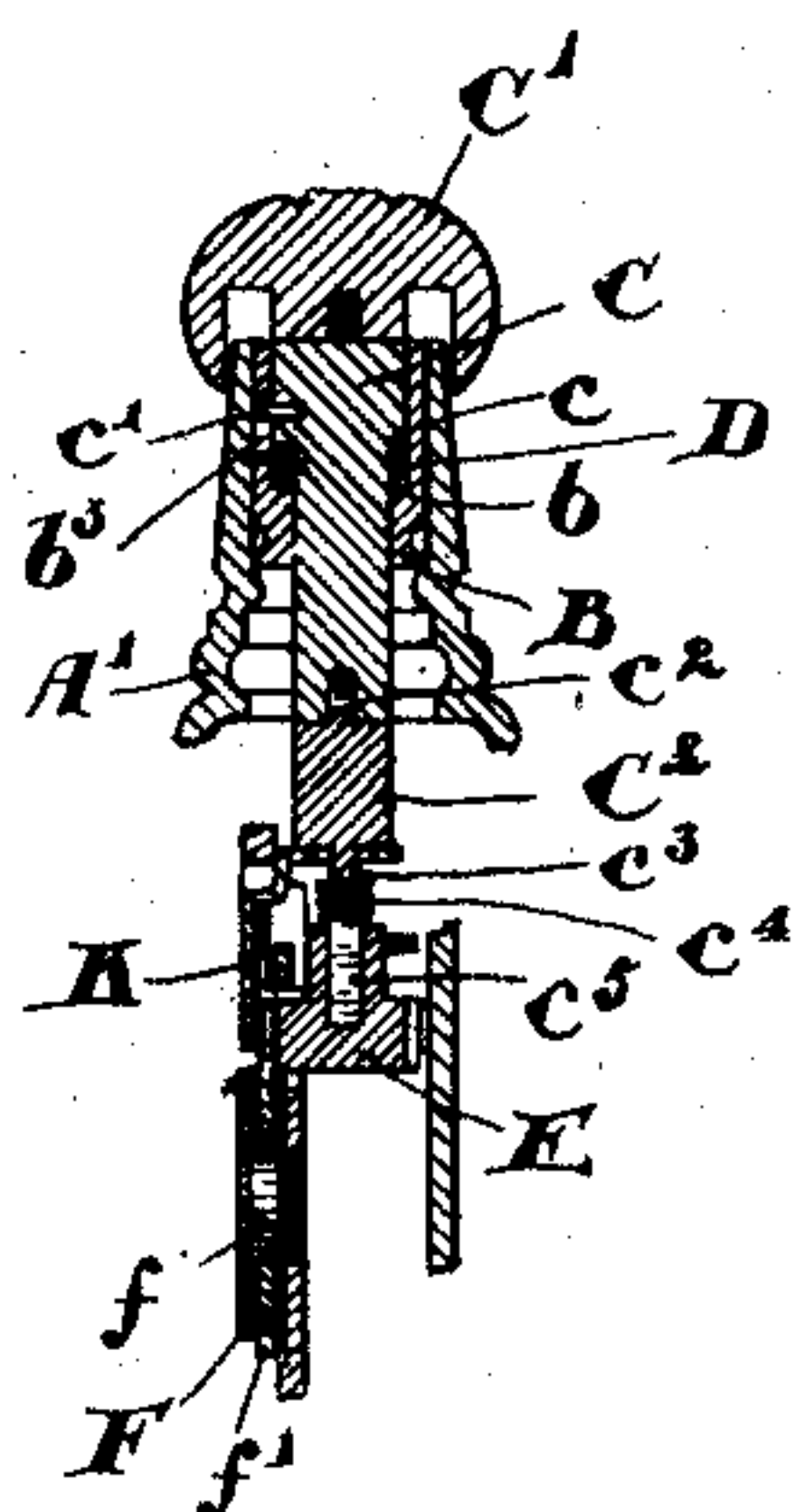


Fig. 3.



Fig. 5.

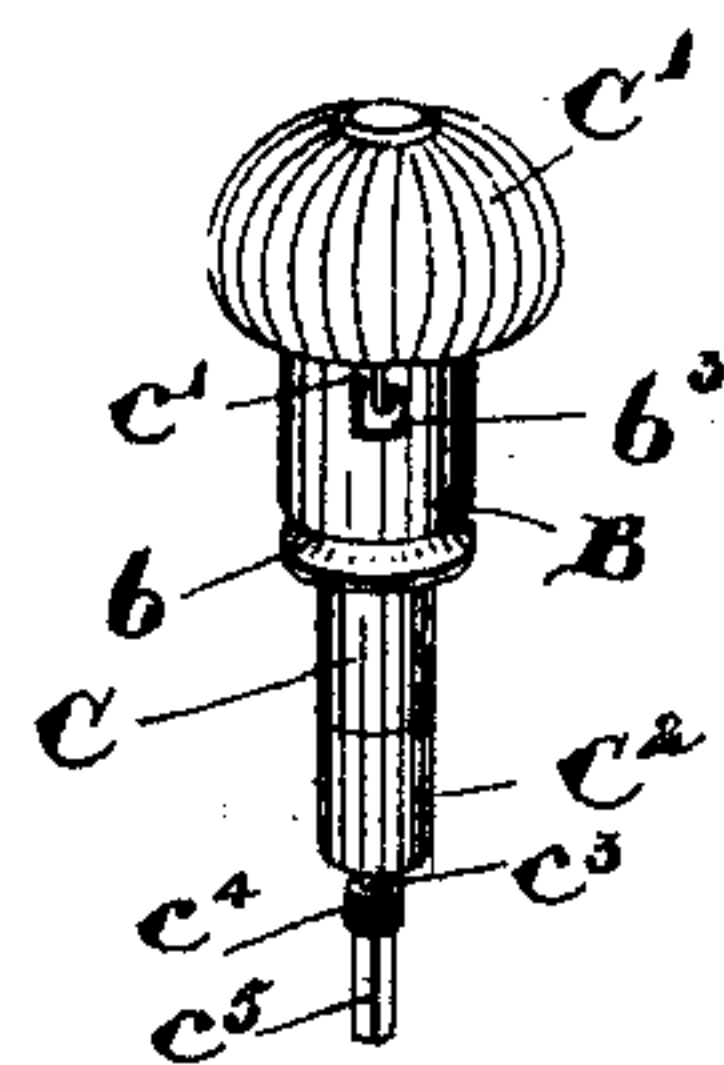


Fig. 4.

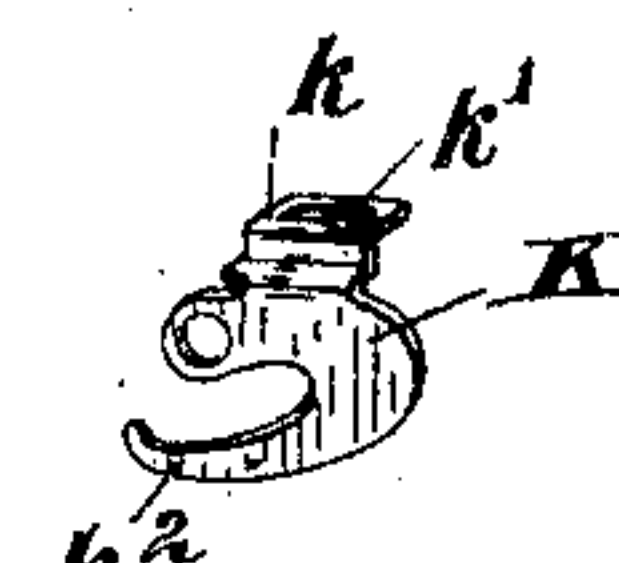


Fig. 6.

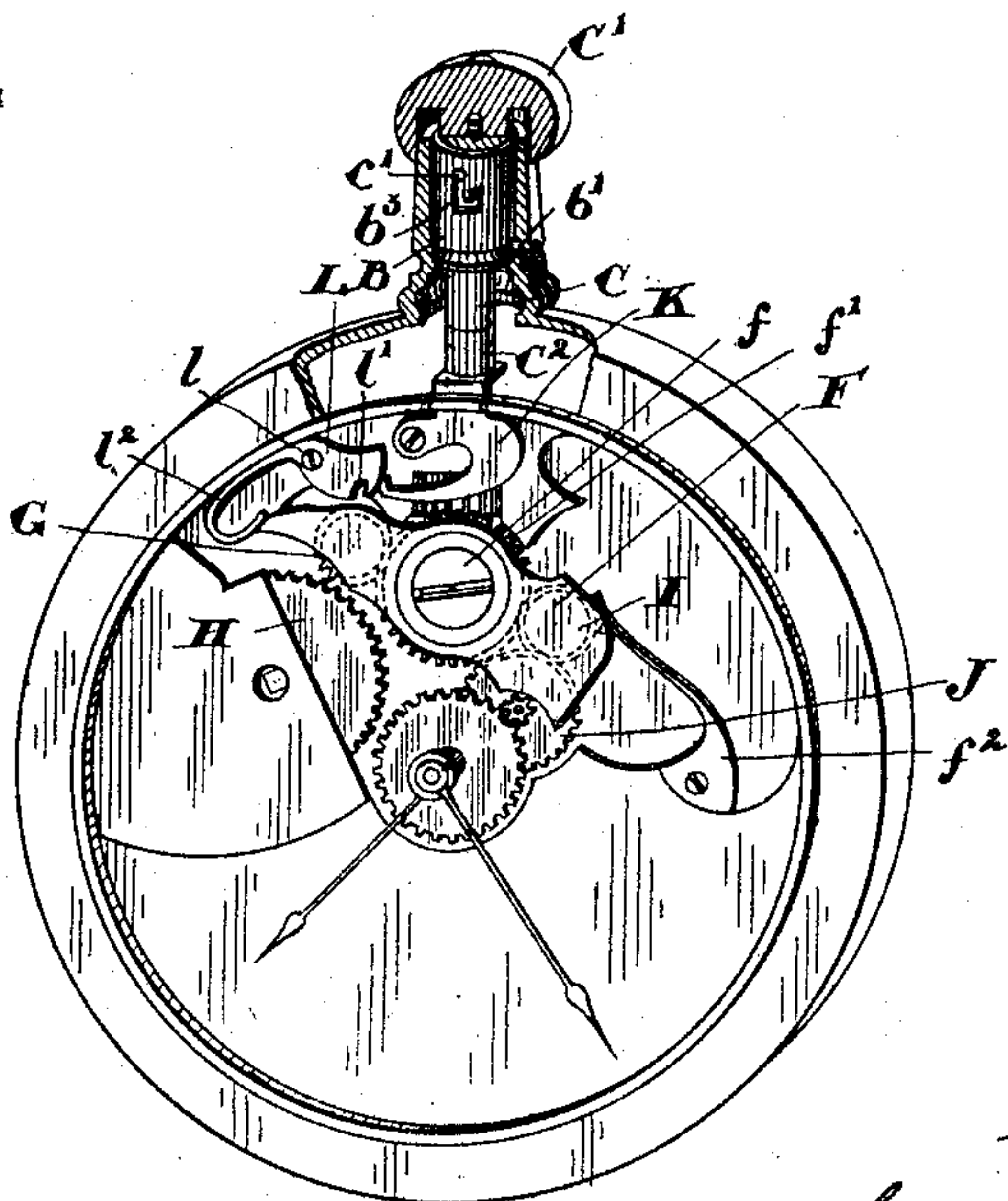


Fig. 2.

Witnesses.

A. Harrison.

C. H. McAdams.

Inventor:

E. F. Heffernan.

By *Fetherstonhaugh & Co*
Attys.

UNITED STATES PATENT OFFICE.

EDWARD FRANCIS HEFFERNAN, OF TORONTO, CANADA.

STEM WINDING AND SETTING WATCH.

SPECIFICATION forming part of Letters Patent No. 621,664, dated March 21, 1899.

Application filed December 14, 1898. Serial No. 699,264. (No model.)

To all whom it may concern:

Be it known that I, EDWARD FRANCIS HEFFERNAN, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in a Combined Stem-Winding and Stem-Lever Set for Watches, of which the following is a specification.

My invention relates to improvements in a combined stem-winding and stem-lever set for watches; and the object of the invention is to devise a simple combined mechanism operating on the lever principle, whereby the watch may be wound through the stem or set, as desired; and it consists, essentially, of providing the stem with an extension-stem, preferably round at the outer end and provided intermediately with a screw-collar and square at the inner end to fit into the sockets of the winding-pinion, such stem being screwed into position so that the collar passes through a key-slot in a pivoted lever having a hooked end designed to coact with the notched spring-held plate, the parts being manipulated so as to wind or set in the manner hereinafter more particularly explained.

Figure 1 is a perspective view of a watch-case with the dial-plate and bezel and parts broken away to show the stem mechanism in position for winding. Fig. 2 is a similar view showing the stem mechanism in position for setting. Fig. 3 is a longitudinal section through the stem crosswise of the case. Fig. 4 is a perspective detail of the stem. Fig. 5 is a detail of the notched plate. Fig. 6 is a detail of the lever.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is the case of the watch, which is provided with an ordinary stem-sleeve A'.

B is an internal sleeve situated in the stem-sleeve and provided with an annular groove b, into which extends a screw-pin b', so as to hold it in position.

C is the stem, which is provided with a knurled turning knob C'. The stem C has a shoulder c, between which shoulder and the shoulder b of the sleeve B fits a spiral spring D.

b³ is a slot in the sleeve B, and c' is a pin extending through the slot into the stem C. The slot b³ is provided with two notches, a

long one and a short one, as indicated in Figs. 1, 2, and 4.

C² is an extension-stem which is provided with a reduced outer end c², which is suitably threaded and screws into a corresponding hole in the lower portion of the stem C.

c³ is the reduced round inner portion of the extension-stem c².

c⁴ is the threaded enlargement or collar situated inside the reduced round portion c³, and c⁵ is the square end of the extension-stem, which fits into a corresponding socket in the winding-pinion E.

F is a lever pivoted on the screw-pin f and provided with a face-gear f' at the inner end next the casing, such face-gear meshing with the winding-pinion E through a slot in the casing.

G is the gear-pinion meshing with the teeth of the gear-wheel f', as this pinion has both face and edge teeth. The pinion G is designed to be brought into engagement with the pinion H to wind.

I is a pinion meshing with the peripheral teeth of the gear-wheel f' on the opposite side to that of the pinion G and also meshing with one of the setting-gears J. It is not necessary any further to describe this operation of the mechanism, as the lever, with its pinions, is of the ordinary construction.

K is a lever pivoted on the face-plate inclosing the works. The lever K is of hooked form and is provided with a lateral extending portion k, having a key-shaped slot k'.

In order to secure the stem in position, it is screwed through the round end of the key-slot k', which is threaded, until it assumes the position shown in Fig. 3, when the reduced end c³ will be free to move endwise in the key-slot k'.

It will be noticed that it is not necessary to have accuracy of adjustment when putting the stem-set in place, as as soon as the square end c⁵ enters the socket of the pinion E it will start to set, and this, too, without affecting the mechanism or requiring any nicety of adjustment.

When once in place, as shown in Figs. 1, 2, and 3, the stem will be in proper position for both setting and winding, as hereinafter will appear. The lever K has a hooked lower

end k^2 , the point of which is designed to co-act with the spring-plate L, pivoted at l and provided with a notch l' and a spring-hooked end l^2 , designed to normally press against the end of the lever F.

In order to wind the watch, the mechanism is set in position, as shown in Fig. 1—that is, it is pressed to the inner position, so that the pin c' fits into the shorter notch of the slot b^3 , in which it is securely held by the spring D. In this position the lever K is tilted on its pivot, so as to force the point of the hooked end past the point of the plate L into the notch l' , thereby in so doing tilting the plate on its pivot, so as to force by means of the hooked spring l^2 the lever F close to the winding-wheel H, and consequently the winding-pinion G, into engagement with such winding-wheel H. When the stem is now turned, it will be seen that the watch will be wound. By slightly pressing down on the stem, so as to withdraw the pin c' from the lower notch of the slot b^3 and then turning and allowing the spring to force it up into the long notch of such slot the point of the hooked end of the lever K is withdrawn from the notch l' of the pivoted plate L, and the spring f^2 forces the opposite end of the lever, and consequently the pinion I, into engagement with the setting-pinion J.

It will thus be seen that the watch may be set or wound at will through the medium of the lever K, thereby insuring accuracy of adjustment for both setting and winding and dispensing with the lever-set which is now so commonly used and which is actuated entirely independent of the stem-winding mechanism. It will also be seen that on account of the lower portion of the stem being removable a different form of supplemental stem may be substituted, so as to perform the function of winding in different makes of watches and without departing from the spirit of my invention. It will also be seen in the operation of my mechanism that the inner sleeve in the pendant or case sleeve will necessarily rotate with the winding-stem when the watch is being either wound or set, and yet is always held from longitudinal displacement.

What I claim as my invention is—

1. The combination with the winding-pinion and the lever pivoted on the face-plate and having a gear-wheel meshing with such winding-pinion and the end-meshing gear-pinions designed to be brought to engage with either the winding or setting gear as the lever is swung, of the stem-setting lever pivoted in the face-plate and provided with a hooked end having a tooth or point and the plate pivoted on the face-plate and provided with a notch and a spring designed to abut one end of the lever provided with the gear, a stem and means for connecting such stem to the

lever and to the winding-pinion as and for the purpose specified.

2. The combination with the winding-pinion having a socket, and the lever pivoted on the face-plate and having a gear-wheel meshing with such winding-pinion and the end-meshing gear-pinions designed to be brought to engage with either the winding or setting gear as the lever is swung, of the stem-setting lever pivoted in the face-plate and provided with a hooked end having a tooth or point and a lateral right-angular projection having a key-slot and the plate pivoted on the face-plate and provided with a notch and a spring designed to abut one end of the lever provided with the gear, a stem provided with a reduced round inner end fitting in the key-slot, a threaded annular enlargement or collar fitting to the inside of the key-slot and of greater diameter than the same and a square end fitting in the socket in the winding-pinion as and for the purpose specified.

3. The combination with the winding-pinion and the lever pivoted on the face-plate and having a gear-wheel meshing with such winding-pinion and the end-meshing gear-pinions designed to be brought to engage with either the winding or setting gear as the lever is swung, of the stem-setting lever pivoted in the face-plate and provided with a hooked end having a tooth or point and the plate pivoted on the face-plate and provided with a notch, a spring designed to abut one end of the lever provided with the gear, a stem, means for connecting such stem to the lever and to the winding-pinion, a sleeve fitting within the pendant in the case provided with a slot having a long and short notch, a pin extending through the notch into the stem and a spiral spring encircling the stem between shoulders on the stem and in the sleeve as and for the purpose specified.

4. The combination with the winding-pinion and the lever pivoted on the face-plate and having a gear-wheel meshing with such winding-pinion and the end-meshing gear-pinions designed to be brought to engage with either the winding or setting gear as the lever is swung, of the stem-setting lever pivoted in the face-plate and provided with a hooked end having a tooth or point and the plate pivoted on the face-plate and provided with a notch, a spring designed to abut one end of the lever provided with gear, a stem, means for connecting such stem to the lever, a sleeve fitting within the stem-pendant and surrounding the stem, an annular groove in such sleeve and a pin extending through the stem sleeve or pendant into the annular groove of the inner sleeve as and for the purpose specified.

EDWARD FRANCIS HEFFERNAN.

Witnesses:

B. BOYD,
A. MCADAM.