

(No Model.)

C. HOLES.
CLOCK ESCAPEMENT.

No. 577,753.

Patented Feb. 23, 1897.

Fig. 1.

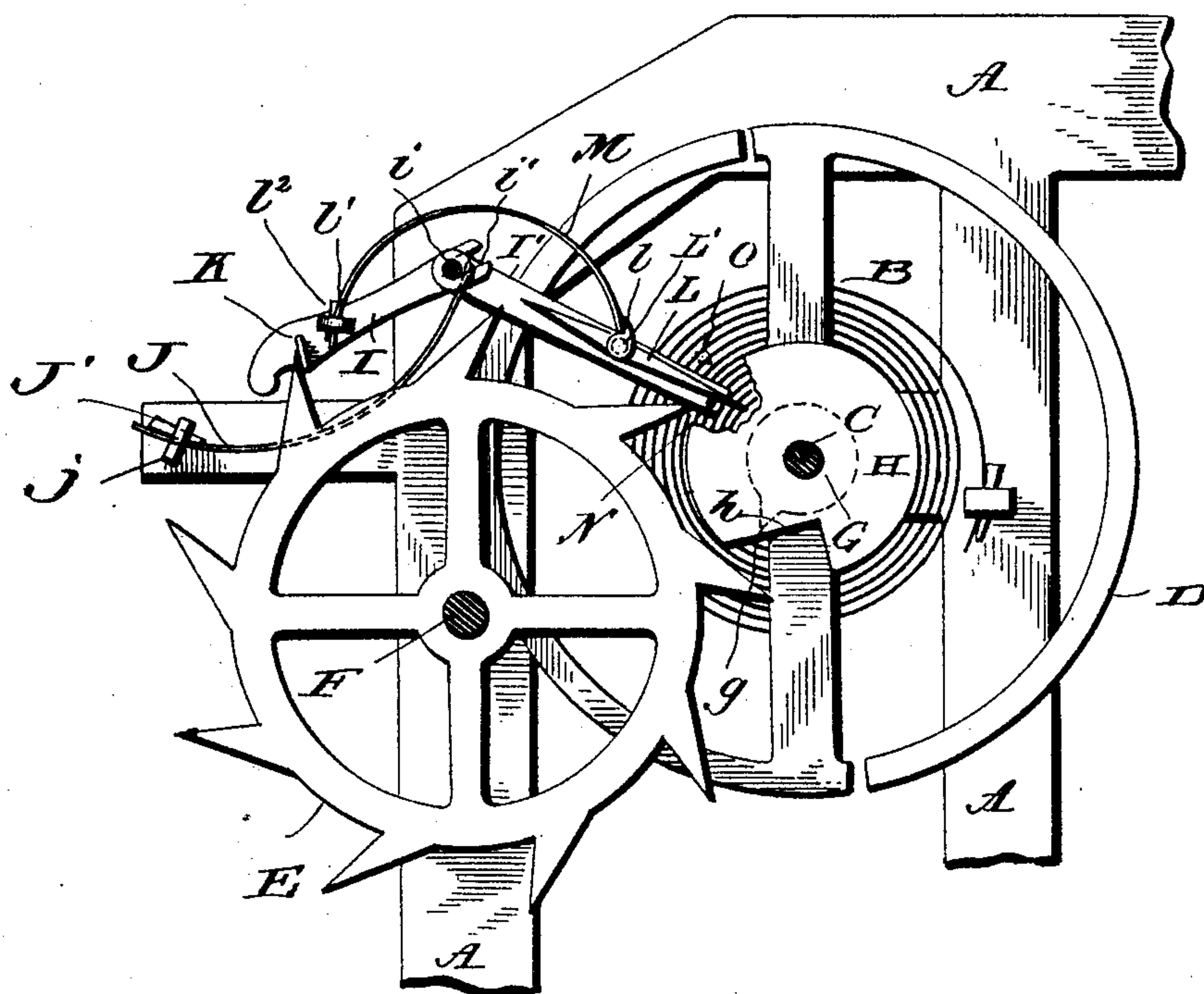
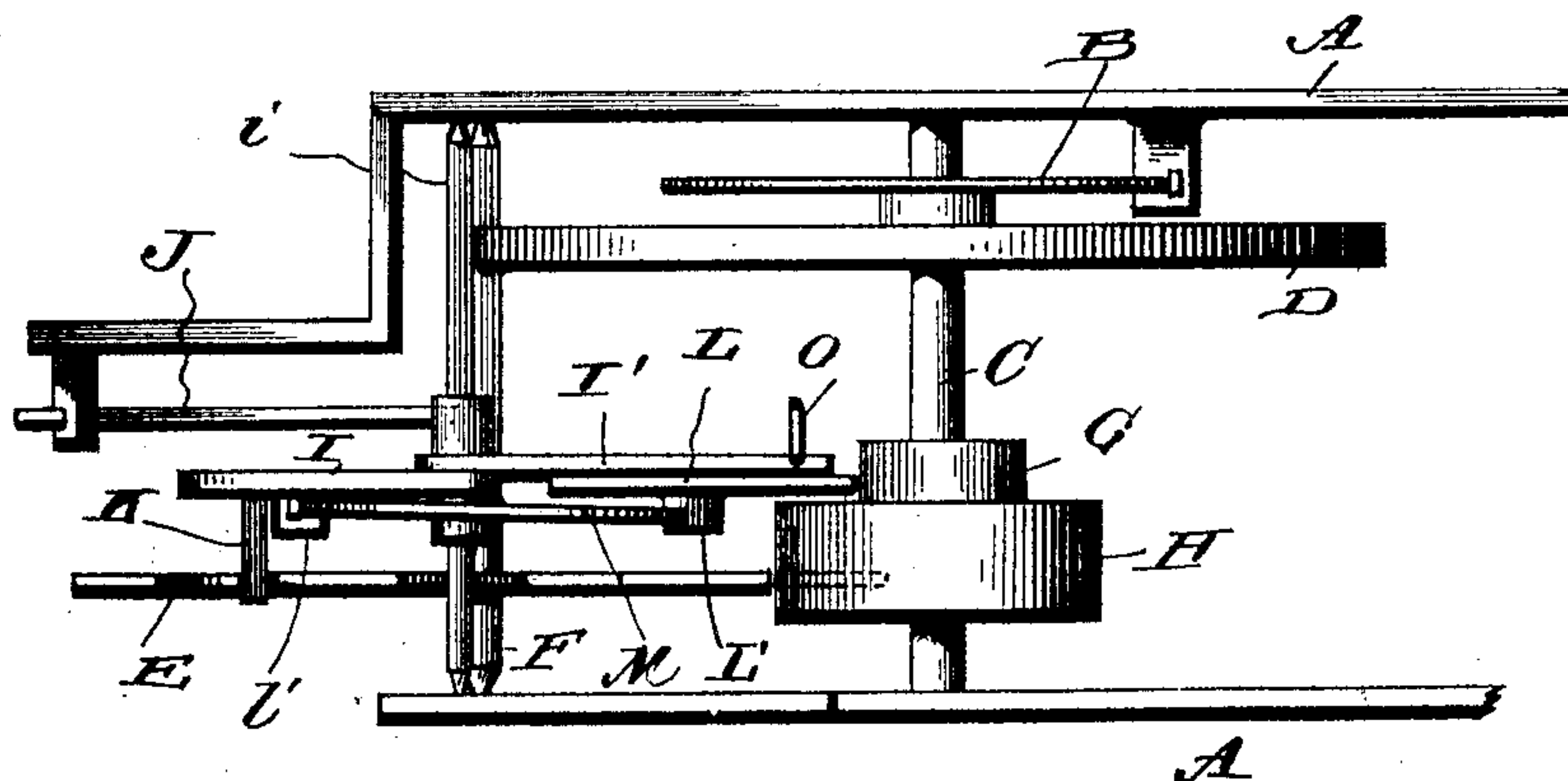


Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES HOLES, OF RIDGWAY, PENNSYLVANIA.

CLOCK-ESCAPEMENT.

SPECIFICATION forming part of Letters Patent No. 577,753, dated February 23, 1897.

Application filed March 18, 1896. Serial No. 583,779. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HOLES, a citizen of the United States, residing at Ridgway, in the county of Elk, State of Pennsylvania, have invented certain new and useful Improvements in Clock-Escapements, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in clocks; and it pertains more particularly to the escapement; and it has for its object, among others, to provide an improved form of escapement composed of few parts, but those positive and reliable in their action, capable of manufacture at small cost, and not liable to get out of order.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be particularly pointed out in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is an enlarged detail in elevation with a portion broken away, showing the escapement, and the shafts shown in section; and Fig. 2 is a top plan.

Like letters of reference indicate like parts throughout both views.

Referring now to the details of the drawings by letter, A designates a frame; B, the hair-spring; C, the shaft; D, the balance-wheel thereon, and E the ratchet or escape wheel, mounted on the shaft F, and all of which parts may be of any well-known or approved form of construction. Fast on the shaft C is a collar G, having a tooth or projection *g*, which constitutes the unlocking-point, while fast upon the same shaft is the impulse-wheel H, having on its lower side a notch *h*, as seen in Fig. 1.

I I' is a double detent-lever, pivotally mounted on a shaft *i*, the one part being forked, as at *i'*, and embracing the shaft, as seen in Fig. 1, whereby adjustment can be had, when desired.

J is a spring, held at one end to a fixed part of the frame in any suitable manner, as, for instance, by having its end passed through an

opening in the lug *j* and adjustably held therein by a wedge or key *J'*, as seen in Fig. 1, the other end of the spring bearing against a lug or projection on the detent-lever near its pivot. This spring holds the detent-lever in position, and the spring is preferably made from ordinary watch hair-spring material, the tension thereof being adjusted by taking up or letting out the spring, as occasion may require. The arm or portion I of this double lever carries a lateral projection K, which extends into the path thereof and is designed to engage the teeth of the escape-wheel E, as seen in Figs. 1 and 2.

L is the unlocking-lever, pivotally mounted on a suitable pivot *l* on the portion I' of the double lever, the said unlocking-lever being tapered at both ends and the pivot L carrying a cam-shaped lug L', against which is engaged one end of the spring M, which, like the spring J, is of watch hair-spring material, its other end being held in any suitable manner, as by being passed through a lug *l'* and held in position by a wedge or key *l''*, the tension of the spring being adjusted by taking up or letting out the same, as occasion may require.

N is a lug or pin projecting from the free end of the portion I' of the detent-lever, as shown, and forming a stop for the downward movement of the unlocking-lever.

O is a pin or projection mounted on any stationary part of the frame and serving to limit the upward movement of the unlocking-lever. The detent and unlocking levers should be suitably poised.

In practice the tendency of the spring M is to push the unlocking-lever against the stop of the pin N.

In operation, when the unlocking-point *g* comes back to pass the detent-lever, the unlocking-lever L opens to let the unlocking-point pass and then closes through the action of its spring, and when the unlocking-point comes back it strikes against the unlocking-lever and actuates the double detent-lever to move the projection K away from and unlock the escape-wheel E, and as the escape-wheel moves the tooth thereof, which is in proximity to the impulse-roller, will strike against the notch of said roller, thereby giving the balance a push around the hair-spring B, swinging it back, and as this motion or movement

is repeated at each movement of the collar G and roller H the balance is caused to oscillate.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

It is evident that while the invention has hereinbefore been described in connection with clocks it is applicable to all forms of clocks and also to watches.

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

1. The combination with the balance-wheel and its shaft, of a collar fast upon said shaft
15 and having a projection, an impulse-wheel fast upon said shaft and having a notch upon its under side, the escape-wheel mounted to coöperate with the impulse-wheel, a double detent-lever jointed between its ends, an un-
20 locking-lever pivotally mounted on one portion of the double detent-lever, a spring connected with one part of the double lever, and its free end acting upon a lug pivotally mounted on the unlocking-lever; substantially as
25 described.

2. The combination with the balance-wheel and its shaft, of a collar fast upon said shaft and having a projection, an impulse-wheel fast upon said shaft and having a notch upon
30 its under side, the escape-wheel mounted to coöperate with the impulse-wheel, a double

detent-lever jointed between its ends, an unlocking-lever pivotally mounted on one portion of the double detent-lever, a spring connected with one part of the double lever, and
35 its free end acting upon a lug pivotally mounted on the unlocking-lever, said lug being cam-shaped and the unlocking-lever being tapered toward each end; substantially as described.

3. The combination with the balance-wheel and its shaft, of a collar fast upon said shaft
40 and having a projection, an impulse-wheel fast upon said shaft and having a notch upon its under side, the escape-wheel mounted to coöperate with the impulse-wheel, a double
45 detent-lever jointed between its ends, an unlocking-lever pivotally mounted on one portion of the double detent-lever, a spring connected with one part of the double lever, and its free end acting upon a lug pivotally mounted
50 on the unlocking-lever, said lug being cam-shaped and the unlocking-lever being tapered toward each end, and a spring having its free end arranged to act upon a lug on the detent-lever near its joint; substantially as described.
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In testimony whereof I affix my signature in presence of two witnesses.

CHARLES HOLES.

Witnesses:

WM. J. MAXWELL,
J. C. LUTHER.