M. W. BALDWIN.

Watch Attachment.

No. 20,403. Patented June 1, 1858.

Fig. 1.

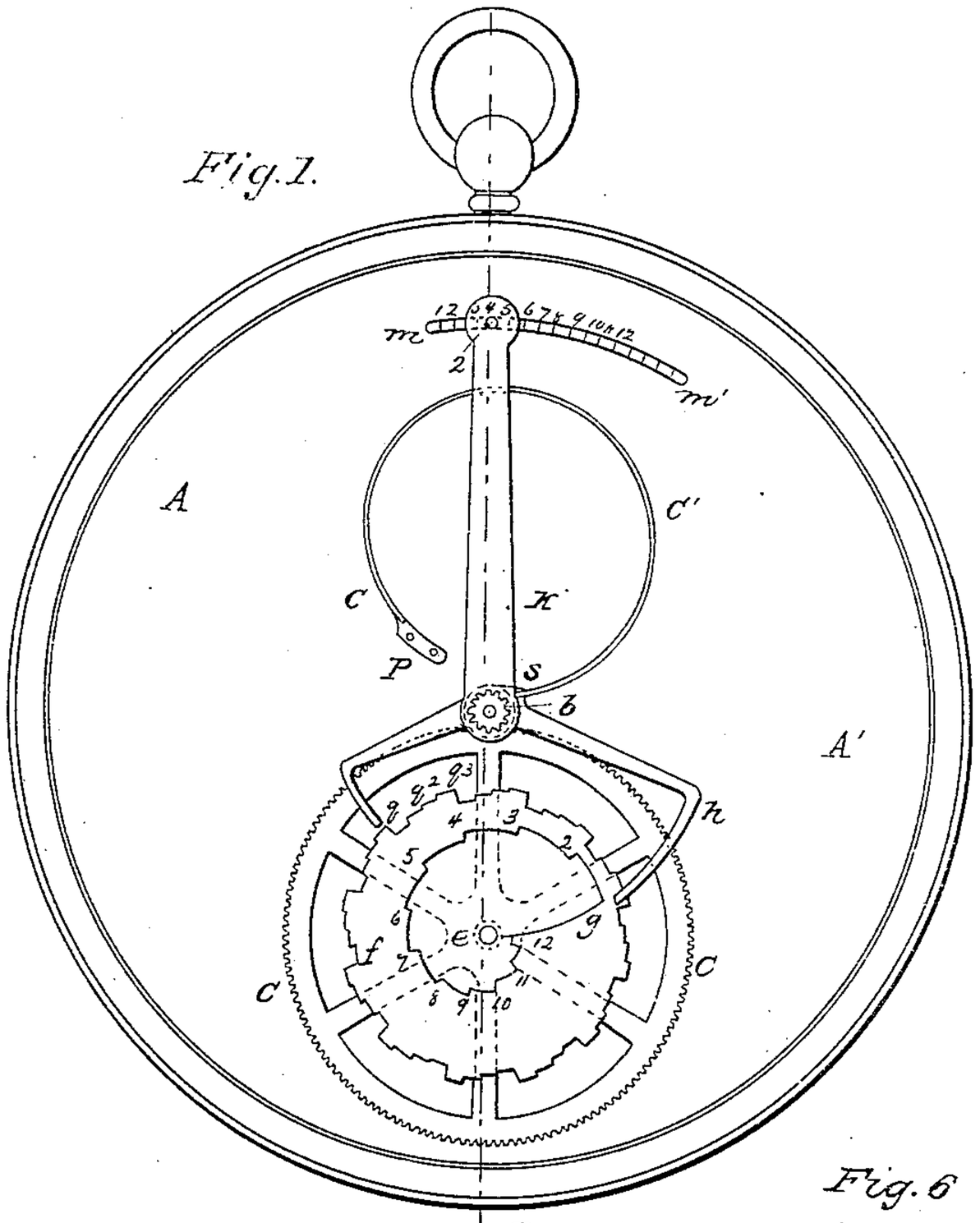


Fig. 2

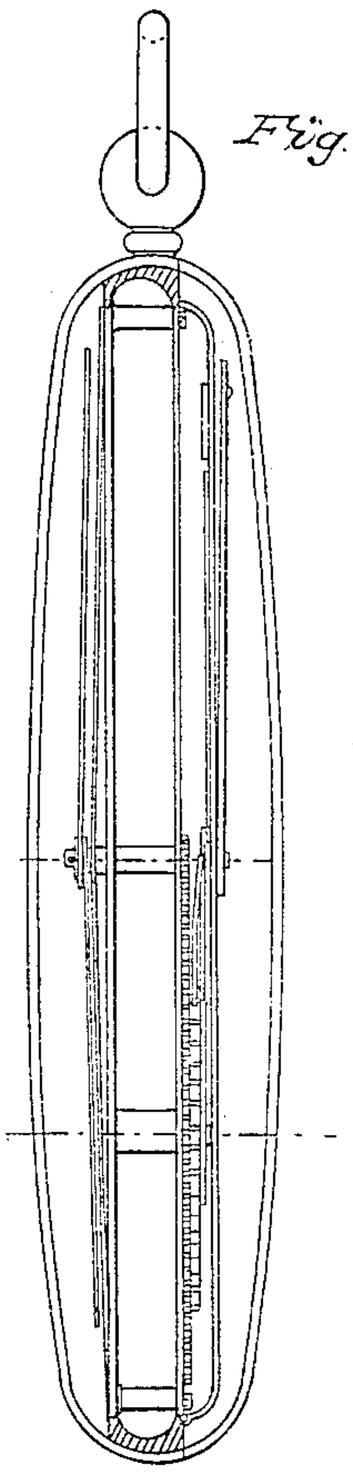


Fig. 3

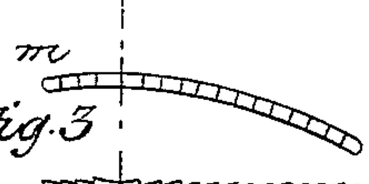


Fig. 4.

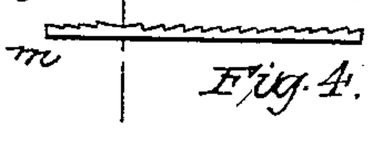


Fig. 5

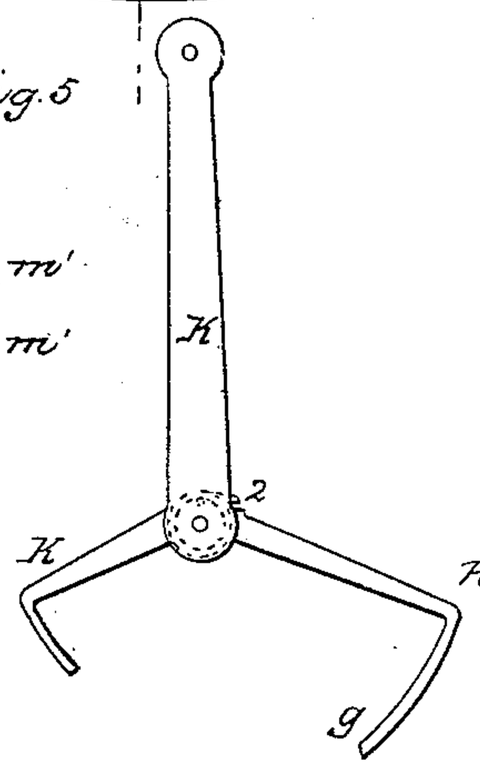
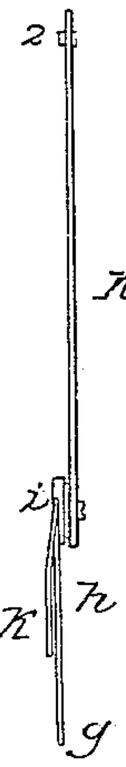


Fig. 6



Witnesses
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James C. Scott.

Inventor
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UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR WATCHES TO ASCERTAIN THE TIME WITHOUT LOOKING AT THE WATCH.

Specification of Letters Patent No. 20,403, dated June 1, 1858.

To all whom it may concern:

Be it known that I, MATTHIAS W. BALDWIN, of the city of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in the Construction of Watches; and I do hereby declare the following to be a full and exact description of the same, reference being had to the annexed drawing, making a part of this specification, in which—

Figure 1, is a view of the back plate of the watch, showing my improvement attached. Fig. 2 is a transverse vertical section through the back plate and my improvement. Figs. 3, 4, 5, and 6 are detached views of parts of Fig. 2, shown in various positions.

My improvement consists in an attachment applicable directly to the ordinary watch, for the purpose of striking the hours and half hours and quarter hours whenever it is desired.

In the accompanying drawings, A, A′, (Fig. 1,) represents the back plate of an ordinary watch; *b*, represents a small pinion wheel attached to the journal of the center wheel, or minute-hand wheel, which journal is prolonged beyond its bearing inside, for the purpose of holding this pinion-wheel *b*. This wheel, *b*, revolves with the minute hand. A larger spur-wheel, C, C, is centered and revolves on a stud, *d*, fastened to the back plate. This wheel, C, C, is geared into the wheel *b*, and the cogs or spurs on *b* and *c* are so proportioned in number that the wheel C, C, will revolve one twelfth as fast as the wheel *b*. Securely attached to the outer surface of C, C, are two snails, *e*, and *f*. The snail *f*, being under the snail *e*. The circumference of the snail *e*, is composed of a series of projections, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, each at a gradually decreasing radial distance from the center of the snail *e*. These twelve projections are successively made to pass under the point *g*, of the bent lever *h*, as the hour hand makes twelve successive revolutions. Then, if the hour hand be so adjusted that the projection passes under the point *g*, at one o'clock, the projection 2 would pass under the part *g* at two o'clock, and so on, so that at twelve o'clock, the projection 12 would pass under the point *g*, and then at one o'clock, again, the projection 1 would pass again under the point *g*.

g, *h*, *i*, is a bent lever shown detached in Fig. 3, and in section at Fig. 4. It is shaped as shown in Fig. 3, and is attached to the case at the point *h*, so as to permit it to vibrate through a variable distance, as hereafter explained. An arm, K, is attached to the bent lever, *g*, *h*, *i*, so as to vibrate with the lever *k*. At the outer extremity of a small pin *l*, projects. Beneath the pin *l*, there is a small segment rack, *m*, *m′*, which is subdivided from the point *m* toward *m′*, into twelve ratchet teeth, as indicated by the numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12. A spring, O, O′, is permanently attached to the case plate at the point *p*. The other extremity of this spring S, rests against the bent lever, and tends to cause the bent lever always to occupy the position shown in the drawing. If the point *l*, on the arm *k*, be moved toward *m′*, it will pass successively over the ratchets, 1, 2, 3, 4, 5, 6, &c., until the point *g* of the vibrating arm *g*, *h*, *i*, rests on one or the other of the projections, 1, 2, 3, 4, 5, 6, 7, &c., of the snail-wheel, *e*. If the hands on the face of the watch indicate one o'clock, then the projection 1, of the snail-wheel *e* will be under the point *g*, and the point *l* of the arm *k*, could only be moved over one ratchet on the segment *m*, *m′*, when it would be arrested by the point *g*, of the lever *g*, *h*, *i*, striking the projection 1 on the snail-wheel *e*. If the hands indicated 2 o'clock, the point *g* would not be arrested until it touched the projection 2 on the snail-wheel *e*. This would permit the point *l* to pass over two ratchets on the segment ratchet, *m*, *m′*. So, if the hands indicated three o'clock, the point *l* would be permitted to pass over three of the segment ratchets, *m*, *m′*, before being arrested, and so on, successively for each hour up to twelve o'clock, after which the point *l*, would be arrested by the projection 1, on the snail-wheel *e*, as first above mentioned. As the point *l*, passes over each of the twelve ratchets of the ratchet segment, *m*, *m′*, it makes a distinct clicking sound, so that the number of clicks heard indicate the hour which the hands would indicate on the face of the watch.

My improvement is of use in all cases when a person is unable, or unwilling to look at the face of his watch, and then he merely opens the back case, places his finger on the arm *k*, and moves it until he is un-

able to move it farther, and notices the number of clicks heard while moving it, and this gives him the exact number of the hour. The spring O always restores the lever *g*, *h*, *i*, and arm *k*, immediately back to its original position ready to be moved forward to determine the hour on a succeeding occasion.

The number of quarter hours after the hours clicked as above, which the hands would indicate as above, are shown by the similar arrangement of the snail-wheel *f*, and the part *i*, of the lever *g*, *h*, *i*, and the parts *o*, q^1, q^2, q^3, of the segment ratchet *m*, *m'*. The snail-wheel, *f*, is subdivided into 12 parts, and each of these twelfths is subdivided into four parts, *o*, q^1, q^2, q^3. The part *o*, corresponds to the exact hour, as for example, 1 o'clock. The part q^2 of the snail *f*, corresponding to the position of the hand indicating two quarters, (or half,) past. The part q^3 of the snail *f*, indicating three quarters past. After the point *l* of the arm *k* has been moved toward *m'* until the number of the hour has been ascertained by the number of clicks emitted before the point *g* is arrested by one of the projections on the snail *e*, and after the spring O has returned the point *l* to the point *n*, or *o*, on the segment ratchet, the person should then move the arm *k*, and point *l* from *n* toward *m*, until its further motion is arrested by reason of the point *i*, striking against one of the projections q^1, q^2, or q^3, and the person should note the number of clicks heard, and this will be the number of quarters of hours after the hour first struck. The point *l* does not rest on the ratchet segment, except when the weight or pressure of the finger is applied, hence in returning to its position at *n*, by the spring *s*, after having been moved from *n* toward *m*, or *m'*, it passes clear of the ratchets on the ratchet segment.

The advantage of this improvement is that it can be applied directly to any watch without deranging its existing machinery, and by means of it, any person can tell the hour and quarter-hour indicated on the face at night, in traveling, or under other circumstances, when desirable.

The pinion-wheel *b*, the spur-wheel, *c*, *c'*, and the two snail-wheels, *e*, and *f*, may be attached to the back plate, A, A', and the spring O, and lever *g*, *h*, *i*, may be attached to the inner side of the inner side of the inner casing, and the ratchet segment, *m*, *m'*, and arm *k*, may be attached to the outer side of the same casing; or all these parts may be placed on the back plate.

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

The snail-wheels, *e*, and *f;* (or either of them;) the lever *g*, *h*, *i*, the arm *k*, and the segment ratchet, combined, and arranged as above described.

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Witnesses:
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CHARLES D. FREEMAN.