

(No Model.)

R. A. LUCAS & C. F. PHELPS.

SAFETY ATTACHMENT FOR STEM WINDING WATCHES.

No. 458,911.

Patented Sept. 1, 1891.

Fig. 3.

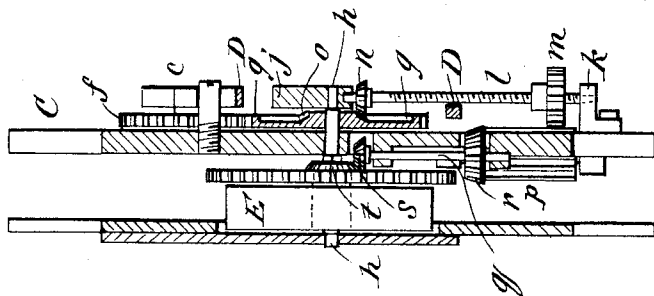


Fig. 1.

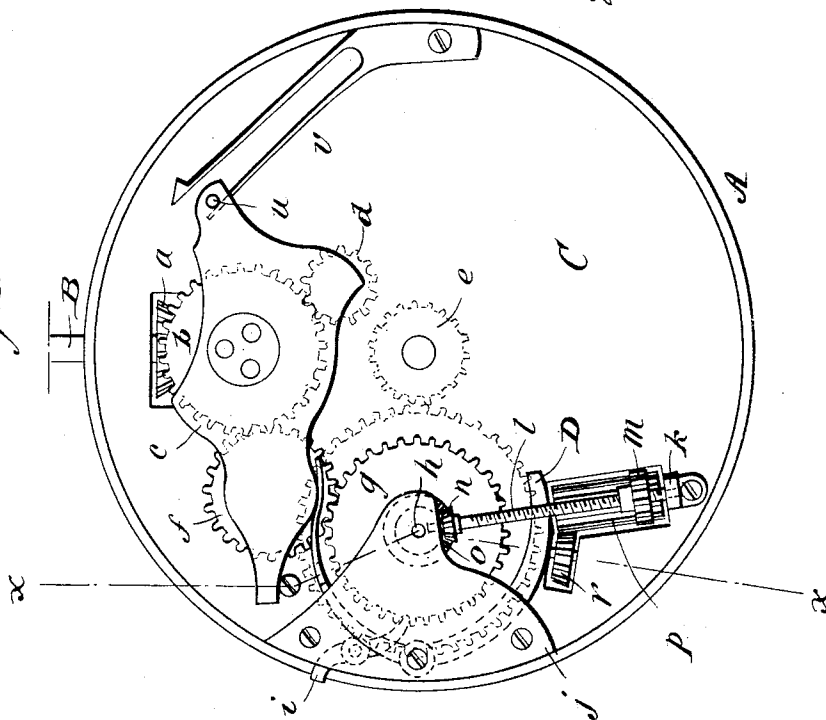
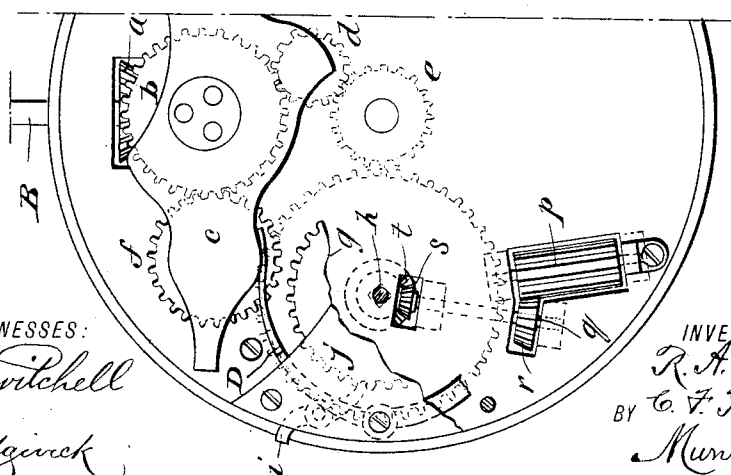


Fig. 2.



WITNESSES:

Down Twitchell
to Sedgwick

INVENTOR:

R. A. Lucas
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UNITED STATES PATENT OFFICE.

RAYMOND A. LUCAS AND CASPER F. PHELPS, OF KOHALA, HAWAII.

SAFETY ATTACHMENT FOR STEM-WINDING WATCHES.

SPECIFICATION forming part of Letters Patent No. 458,911, dated September 1, 1891.

Application filed January 29, 1891. Serial No. 379,592. (No model.)

To all whom it may concern:

Be it known that we, RAYMOND A. LUCAS and CASPER F. PHELPS, of Kohala, Hawaii, Hawaiian Islands, have invented a new and
5 Improved Safety Attachment for Stem-Winding Watches, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a front view of a watch-movement provided with our improvement. Fig. 2 is a partial front view with parts broken away to show the internal construction, and Fig. 3 is a transverse section taken on line *xx* in Fig. 1.

15 Similar letters of reference indicate corresponding parts in all the views.

The object of our invention is to provide an attachment for stem-winding watches by means of which the winding-gear will be dis-
20 engaged when the spring is wound.

Our invention consists in the combination, with the winding mechanism, of a bevel-wheel attached to the winding-wheel, a threaded spindle provided with a bevel-pinion engaging the bevel-wheel on the winding-wheel, an
25 internally-threaded pinion placed on the threaded spindle, a wide-faced pinion journaled in a mortise in the front plate of the movement and engaging the internally-threaded
30 pinion, a bevel-wheel secured to the spring-barrel, and an arbor provided at one end with a pinion engaging the bevel-wheel on the barrel and furnished at the opposite end with a bevel-wheel engaging the wide-faced pinion,
35 all as will be hereinafter more fully described.

The watch-movement A is provided with a winding-stem B of the usual description, carrying a bevel-pinion *a*, which engages the bevel-wheel *b*, pivoted concentrically with the
40 lever *c* to the front plate C of the movement.

To the lever *c* is pivoted the hand-setting pinion *d*, which is continually in engagement with the wheel *b* and is capable of engaging the spur-wheel *e* on the minute-hand arbor
45 when the watch is adjusted for setting. To the lever *c* is also pivoted a spur-wheel *f*, which continually engages the wheel *b*, and which may be thrown into engagement with the spur-wheel *g* on the barrel-arbor *h*. The
50 lever *c* is moved by drawing out the winding-stem B, or in any other well-known way.

To the front plate of the watch-movement is pivoted a spring-pressed click *i*, which engages and retains the spur-wheel *g* so as to prevent it from retrograde movement. A
55 bridge *j*, attached to the front plate of the movement, supports the upper end of the barrel-arbor.

To the under surface of the bridge *j* is pivoted a U-shaped lever D, one end of which
60 touches the lever *c*, while the other end reaches round to the opposite edge of the wheel *g*. In the bridge *j* and the bracket *k*, attached to the front plate of the movement, is journaled a screw *l*, upon which is mounted an internally-
65 threaded pinion *m*. The screw *l* also carries a bevel-pinion *n*, which is engaged by a bevel-wheel *o*, secured to the face of the wheel *g*.

In a mortise in the plate C is journaled a wide-faced pinion *p*, which engages the pin-
70 ion *m* on the screw *l*.

In supports projecting from the inner face of the front plate of the movement is journaled an arbor *q*, provided at its outer end with a bevel cog-wheel *r*, which engages the
75 wide-faced pinion *p*. The opposite end of the arbor *q* carries a bevel-pinion *s*, which is engaged by a bevel-wheel *t* on the head of the spring-barrel E. A stud *u*, projecting from the inner face of the lever *c*, is engaged by a
80 spring *v*, which presses the stud forward, so as to hold the wheel *f* normally in engagement with the wheel *g*. When the spring is wound by turning the stem B in the usual way, the turning of the screw *l*, by virtue of its con-
85 nection with the barrel-arbor *h*, results in the moving of the pinion *m* forward toward the arbor *h*, the said pinion being prevented from turning by the wide-faced pinion *p*, and the parts are so proportioned that as the spring
90 is wound sufficiently the boss of the pinion *m* is brought into contact with the lever D, which lies in its path, and the forward movement of the lever D forces the lever *c* away from the wheel *g*, thus disengaging the wheel *f* from
95 the said wheel *g*, so that the continued turning of the stem B results only in the movement of the wheels *a*, *b*, and *f*. As the watch runs down the turning of the barrel E turns the wide-faced pinion *p* through the medium
100 of the bevel-wheel *t*, carried by the barrel, the pinion *s*, arbor *q*, and pinion *r*, and the

said wide-faced pinion *p* turns the pinion *m* on the screw *l*, causing the pinion to return to the position of starting.

It is obvious that if the watch is wound when only partly run down the pinion *m* will advance through a shorter distance to throw the winding mechanism out of gear, so that the length of the screw-threaded arbor to be traversed by the pinion *m* is always proportional to the amount of spring unwound.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination, with the winding-wheel and barrel of a stem-winding watch, of a screw-threaded arbor arranged to take motion from the winding-wheel, a threaded pinion placed on the threaded arbor, a wide-faced

pinion moved by the barrel and engaged by the threaded pinion, and a lever placed in the path of the threaded pinion and adapted to disengage the winding mechanism, substantially as specified.

2. The combination, with the stem-winding mechanism of a watch, of the bevel-wheel *o*, the bevel-pinion *n*, the screw-threaded arbor *l*, the threaded pinion *m*, placed on the threaded arbor, the wide-faced pinion *p*, the arbor *q*, the pinions *r* *s*, and the bevel-wheel *t*, mounted on the spring-barrel, substantially as specified.

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Witnesses:

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