

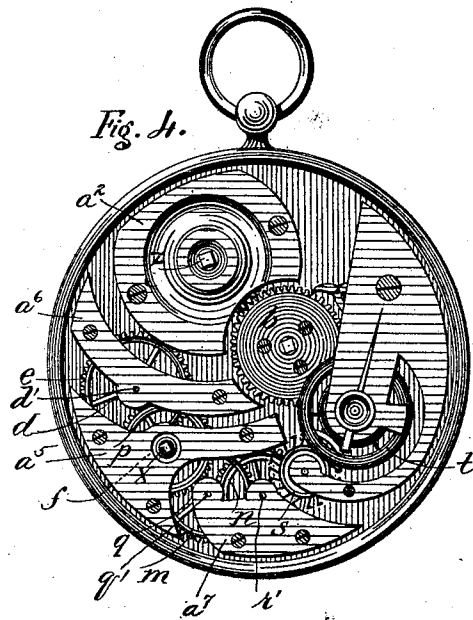
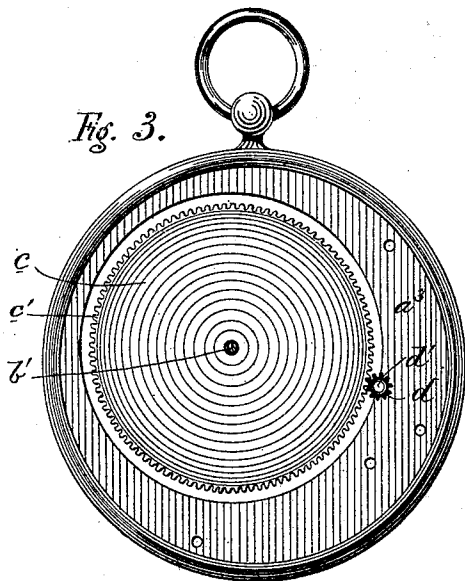
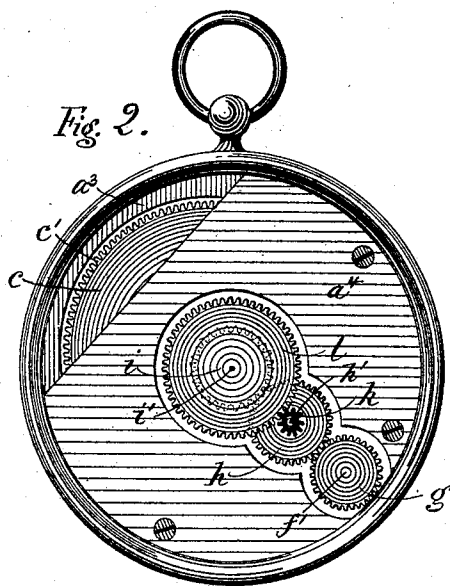
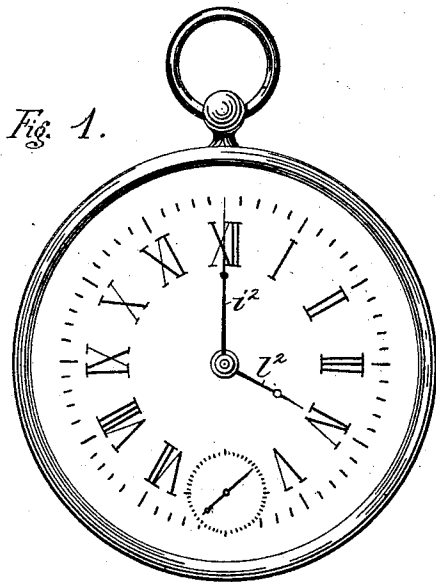
(No Model.)

2 Sheets—Sheet 1.

A. AMARON.  
WATCH.

No. 442,301.

Patented Dec. 9, 1890.



Witnesses:  
A. S. Korchup,  
H. E. Walker,

Inventor:  
Auguste Amaron,  
by William D. Bultin,  
his attorney.

(No Model.)

2 Sheets—Sheet 2.

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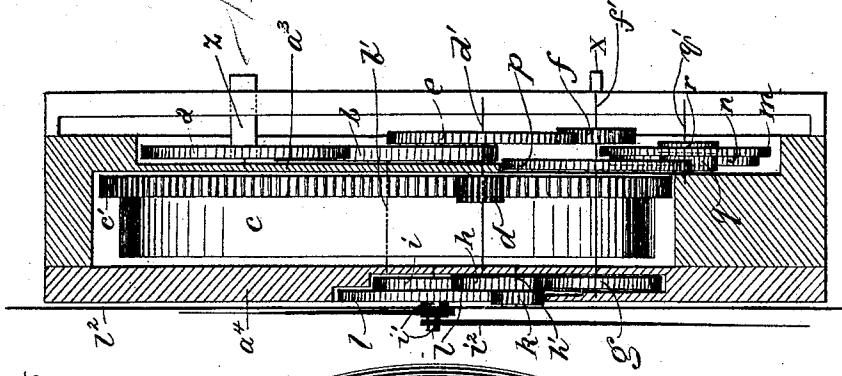


Fig. 6

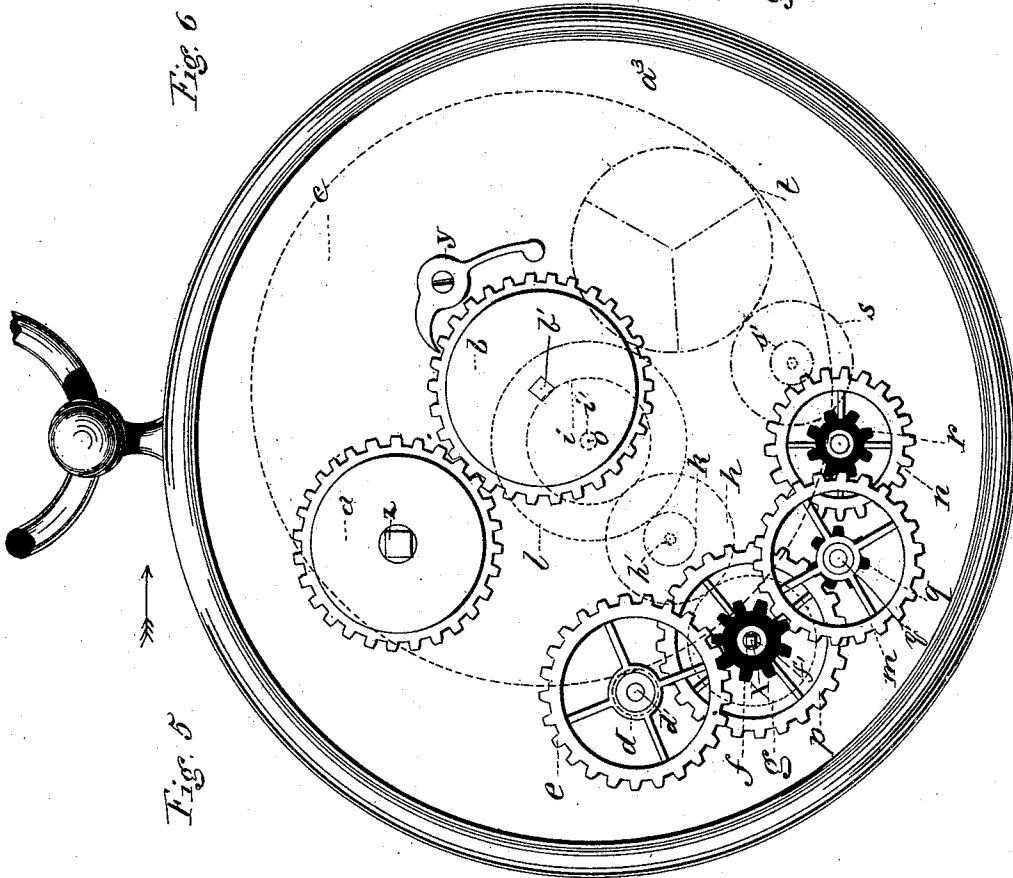


Fig. 5

Witnesses:-  
C. G. Northrup,  
H. E. Walker,

Inventor:-  
Auguste Amaron,  
by William O. Joulter,  
his attorney.

# UNITED STATES PATENT OFFICE.

AUGUSTE AMARON, OF DENENS, SWITZERLAND.

## WATCH.

SPECIFICATION forming part of Letters Patent No. 442,301, dated December 9, 1890.

Application filed April 11, 1889. Serial No. 306,905. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTE AMARON, a citizen of the Republic of Switzerland, residing at Denens, in Switzerland, have invented certain new and useful Improvements in Watches, of which the following is a full, clear, and exact description.

My invention has relation to watches, and has for its object to produce a watch which shall be capable of running from eight to ninety days before it becomes necessary to rewind the same, and to produce a novel arrangement of the parts constituting the movement of the watch, as well as to simplify the same, all as hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the appended claim.

In the drawings, Figure 1 is a front view of the watch; Fig. 2, a like view with the dial removed to show the gearing that actuates the hands; Fig. 3, a like view with said gearing and the front pillar-plate removed to show the arrangement of the spring-barrel and the pinion *d*. Fig. 4 is a rear view showing the complete works. Fig. 5 is a like view with the bridges removed to more plainly show the arrangement of gearing. Fig. 6 is an edge view of Fig. 5, looking in the direction of the arrow, a portion of the casing being removed to clearly show the parts therein.

In the above-described drawings, *c* indicates the spring-barrel, which is confined between the pillar-plates *a*<sup>3</sup> *a*<sup>4</sup>, and is of sufficient internal diameter to accommodate the mainspring, which I make of a length equal to about sixty-five inches (1.65 millimeter.) One end of the spring is attached to the interior surface of the barrel and its other end to the barrel-arbor *b*<sup>1</sup>, upon which said barrel is loosely mounted, said arbor having its bearings in the pillar-plates.

Instead of winding the spring directly from the barrel-arbor, as ordinarily, I provide a pinion *a*, which is keyed to the winding-shaft *Z*, mounted in the bridge *a*<sup>2</sup> and the pillar-plate *a*<sup>3</sup>, and to prevent backward rotation of shaft *b*<sup>1</sup>, I provide a pawl *y*, pivoted to the plate *a*<sup>3</sup>, which engages the teeth of the pinion *b*.

Motion is communicated to the hands of the watch by the following-described means: Upon an arbor *d*<sup>1</sup>, passing through and hav-

ing its bearings in plate *a*<sup>4</sup> and bridge *a*<sup>6</sup>, is rigidly mounted a pinion *d*, which gears with the teeth of the great-wheel *c*<sup>1</sup> upon the barrel *c*, and also rigidly mounted upon the forwardly-projecting end of this arbor is the larger wheel *e*, which meshes with a pinion *f*, mounted on arbor *f*<sup>1</sup>, passing through plate *a*<sup>4</sup> and bridge *a*<sup>5</sup>. Upon the forward end of the arbor *f*<sup>1</sup> is mounted the pinion *g*, which meshes with another pinion *h*, mounted on arbor *h*<sup>1</sup>, having a bearing in plate *a*<sup>4</sup>, said pinion *h* meshing with the center pinion *i*, the arbor *i*<sup>1</sup> of which carries at its forward end the minute-hand *i*<sup>2</sup>. The hour-hand is actuated by means of the pinion *k*, rigidly mounted upon arbor *h*<sup>1</sup>, and which meshes with the large pinion *l*, loosely mounted on arbor *i*<sup>1</sup>, and having a sleeve *l*<sup>1</sup>, to which is fixed the hour-

The watch-movement is connected with the ordinary escapement by the following means: Upon arbor *f*<sup>1</sup> in rear of pinion *f* is rigidly mounted the gear-wheel *p*, which meshes with the pinion *q*, rigidly mounted on arbor *q*<sup>1</sup>, which has its bearings in plate *a*<sup>4</sup> and bridge *a*<sup>7</sup>. The arbor *q*<sup>1</sup> carries the gear-wheel *m*, which meshes with pinion *r* on arbor *r*<sup>1</sup>, carrying the second-hand and having its bearings in plate *a*<sup>4</sup> and bridge *a*<sup>7</sup>, which arbor also carries the gear-wheel *n*, which gears with the pinion *s*<sup>1</sup> on the arbor of the scape-wheel *s*.

*t* is the ordinary balance-wheel.

For the purpose of setting the hands the rear end of the arbor *f*<sup>1</sup> is squared, as shown at X, for the reception of a key.

Having described my invention, what I claim is—

In a watch-movement, the combination, with the spring-barrel *c*, loosely mounted upon the arbor *b*<sup>1</sup> and confining the mainspring, the great-wheel *c*<sup>1</sup>, carried by said spring-barrel, the pinion *b*, mounted on the barrel-arbor, and the pinion *a*, mounted on the winding-shaft *Z* and gearing with the pinion *b*, of gearing for communicating motion to the minute and hour hands from the barrel, consisting of the pinion *d*, mounted on the arbor *d*<sup>1</sup> and gearing with the wheel *c*<sup>1</sup>, the wheel *e* on said arbor *d*<sup>1</sup>, the pinion *f* on arbor *f*<sup>1</sup> and gearing with wheel *e*, the pinion *g* on said arbor *f*<sup>1</sup>, the pinion *h* on arbor *h*<sup>1</sup>, gearing with said

pinion *g*, the center pinion *i* on arbor *i'*, with  
which gears the pinion *h*, the pinion *l*, loosely  
mounted on arbor *i'* and gearing with pinion  
*k* on arbor *h'*, and having a sleeve *l*, loosely  
5 fitting over the arbor *i'*, and the minute and  
hour hands *i<sup>2</sup> l<sup>2</sup>*, respectively mounted on the  
arbor *i'* and barrel *l'*, substantially as and for  
the purpose specified.

In testimony that I claim the foregoing I  
have hereunto set my hand this 15th day of 10  
January, 1889.

AUGUSTE AMARON.

Witnesses:

FREDERIC MATRAY,  
MATHIEU VILLEPONTON.