No. 864,177. PATENTED AUG. 27, 1907.

G. L. MANTARAS.

WATCH.

APPLICATION FILED MAR. 22, 1904.

Fig. 1.

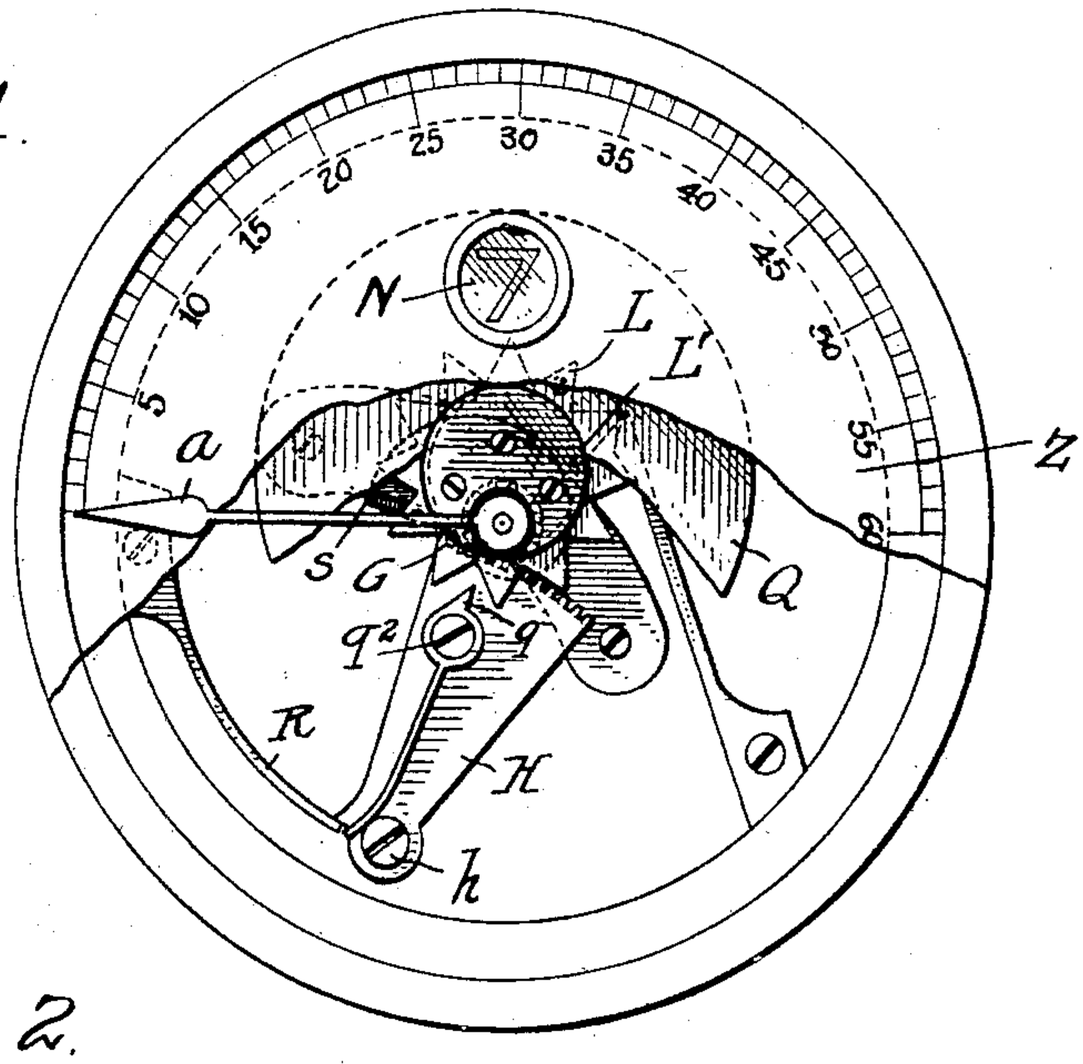


Fig. 2.

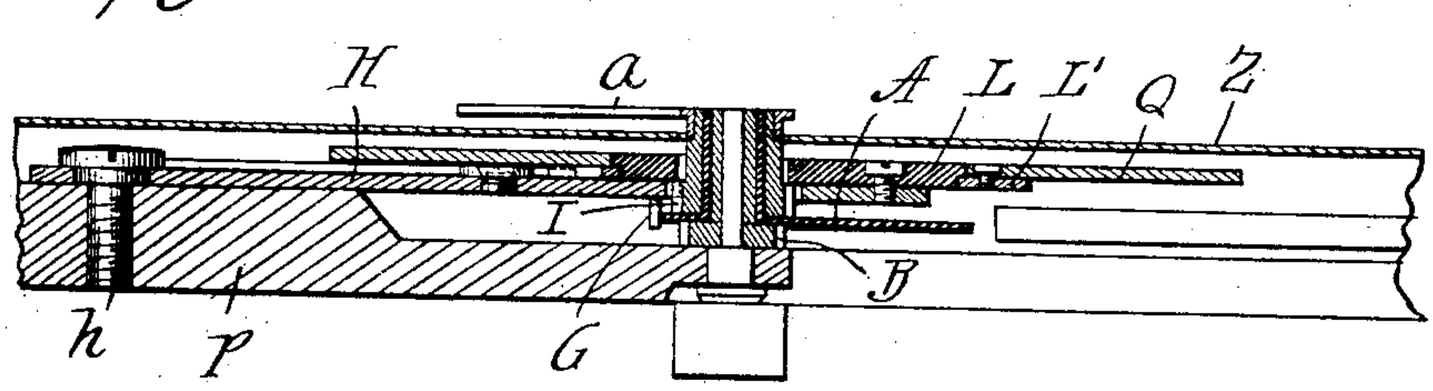
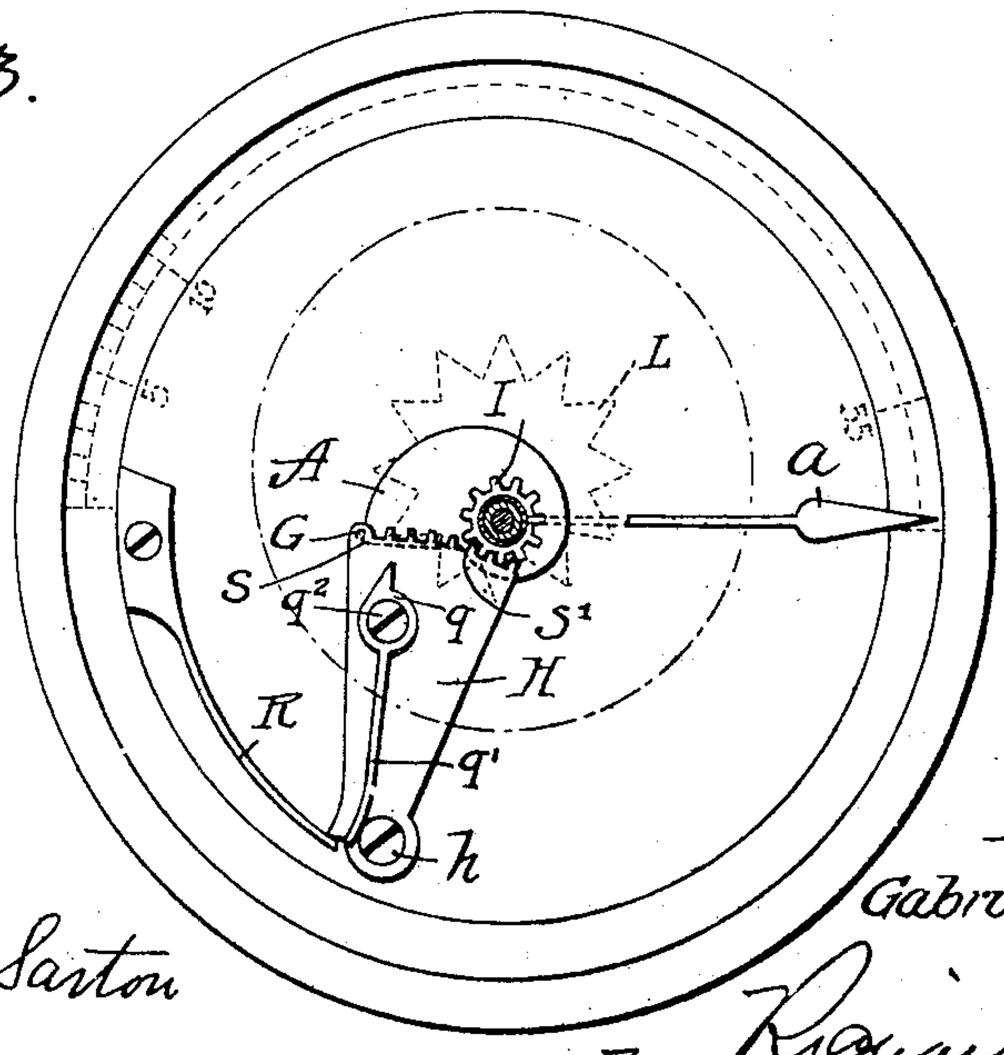


Fig. 3.



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UNITED STATES PATENT OFFICE.

GABRIEL LOPEZ MANTARAS, OF SARAGOSSA, SPAIN.

WATCH.

No. 864,177. Specification of Letters Patent. Patented Aug. 27, 1907.

Application filed March 22, 1904. Serial No. 199,397.

To all whom it may concern:

Be it known that I, GABRIEL LOPEZ MANTARAS, a subject of the Kingdom of Spain, and a resident of Saragossa, Spain, have invented new Improvements in Watches, of which the following is a specification.

This invention relates to a watch in which the hour is shown by means of a disk moving behind an opening in the dial and the minutes by means of a hand which describes an arc of a circle and moves in front of an arc divided into 60 minute graduations, this hand returning suddenly to the zero point when it has reached the sixtieth minute.

One form of watch constructed according to this invention is illustrated in the accompanying drawing, in which

Figure 1 is a plan view with parts broken away. Fig. 2 is an enlarged sectional view, and Fig. 3 is a plan view with parts removed to show the snail segment and gear more clearly.

On the cannon pinion B is fixed a cam or snail A against which bears a pin G fixed to one end of a toothed sector or rack H. The rack is pivoted at h on the plate p and engages with a pinion I which carries the minute hand a. A spring R bearing against the rack H maintains the pin G against the cam A.

A pawl q is pivoted at q^2 to the rack H and is provided with a spring extension q' which bears against the head of the screw h on which the rack H is pivoted, thus permitting the pawl q to turn on its pivot in a forward direction but allowing only a limited rearward movement. As the rack H moves forward the nose of the pawl q engages one of the twelve teeth on the star wheel L rotatably mounted on a fixed eccentric L′ and rotates the same for space of a single tooth. When the rack H is released and returns to its original position the pawl q turns on the pivot q^2 and rides over the teeth of the star wheel L. Secured to the star wheel L and turning therewith is an hour-disk Q. Thus as the rack H moves the minute hand over the space of 60 minutes the star wheel and hour disk are moved a single space and the disk registers the next succeeding hour.

A dial Z covers the mechanism and bears the minute graduations from 0 to 60 which are marked over an arc of a circle on the one-half of the circumference of the dial. In addition, an opening N formed in the said dial exposes the figures for the hours marked on the disk Q.

The hour disk and the minute hand are actuated by the barrel in the following manner:—The cam A, turning from left to right and bearing against the pin G moves the rack H from right to left, causing the minute hand a to gradually move over the 60 minute graduations. At the moment when the hand a is about to reach the sixtieth minute the nose s of the cam is in contact with the pin G and, as soon as the hand reaches the sixtieth minute, the pin G drops on to the lowest part s^1 of the cam, causing the rack to recoil to the same extent under the action of the spring R and the hand a to return or spring back instantly to the zero point. During this sudden return movement of the rack the pawl q comes against one of the teeth on the star-wheel L and causes this to turn with equal suddenness to the extent of one-twelfth of a revolution corresponding to the figure of the hour on the disk which is visible through the opening N in the dial Z.

During the forward movement of the hand a the pawl q readily turns about its pivot and slides past the teeth of the star-wheel without actuating it.

A watch of this kind may be made of any dimensions; the arrangement, forms and dimensions of the various parts may vary; the setting mechanism may also differ from that described. The hour disk likewise may be divided into ten or twenty-four hours; in this case the star-wheel will be furnished with a similar number of teeth.

Having now described my invention, I claim as new and wish to secure by Letters Patent:—

1. In a watch, the combination with the cannon pinion, an hour disk, a toothed wheel for operating the same, and a minute hand, of a rack adapted to operate said minute hand, a pawl carried by said rack and engaging said toothed wheel and means for operating said rack, substantially as described.

2. In a watch, the combination with the cannon pinion, an hour disk, a toothed wheel for operating the same, and a minute hand, of a rack for operating said minute hand, a pin on said rack, a cam on said cannon pinion and engaging said pin and a pawl carried by said rack and adapted to engage said toothed wheel on the forward movement of said rack, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

GABRIEL LOPEZ MANTARAS.

Witnesses:

ADOLPHE DANZIGEN,

LUIS SCENTOS PEREZ.