

(No Model.)

H. ALBERT.
WATCH.

No. 427,653.

Patented May 13, 1890.

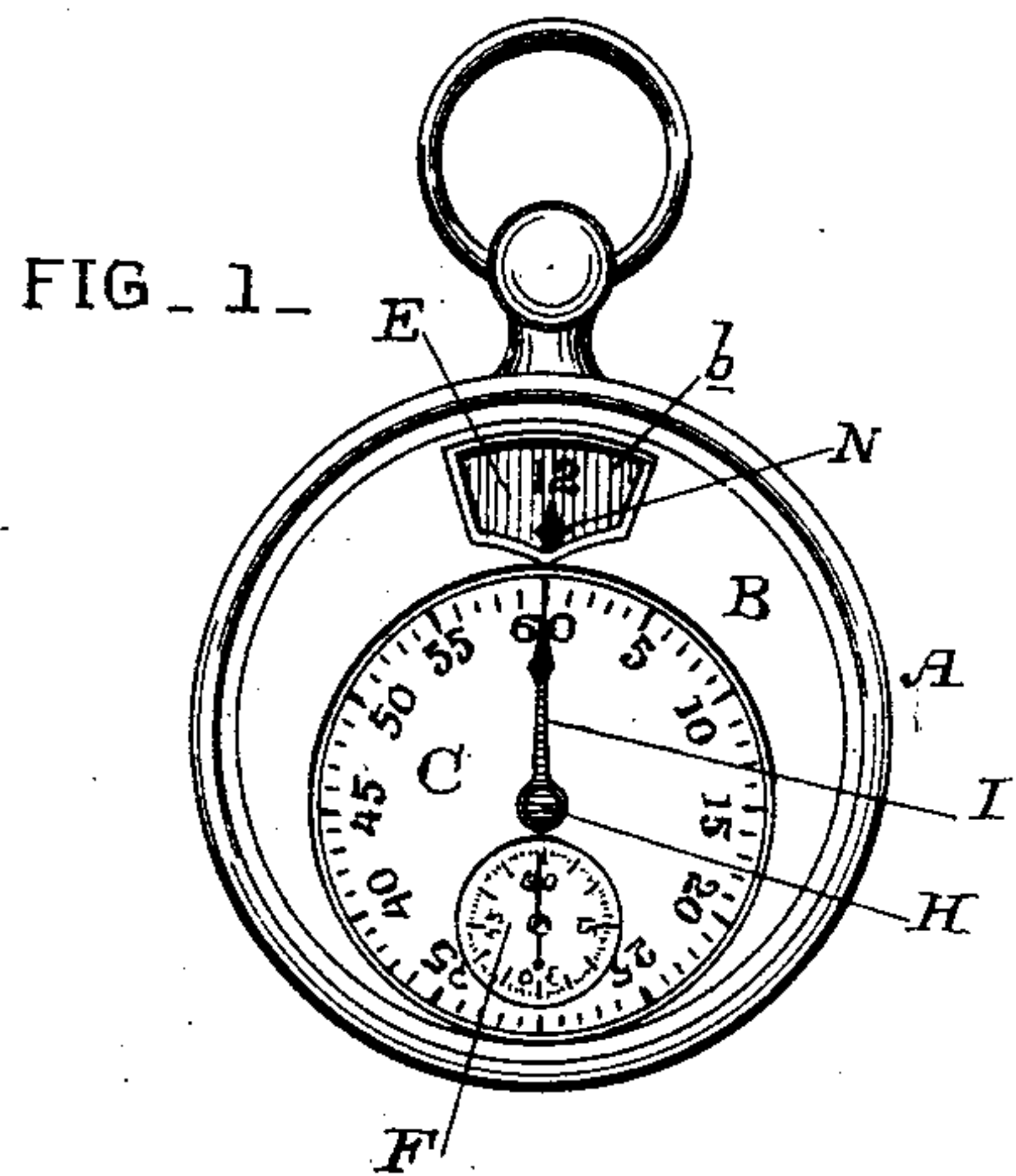


FIG. 2.

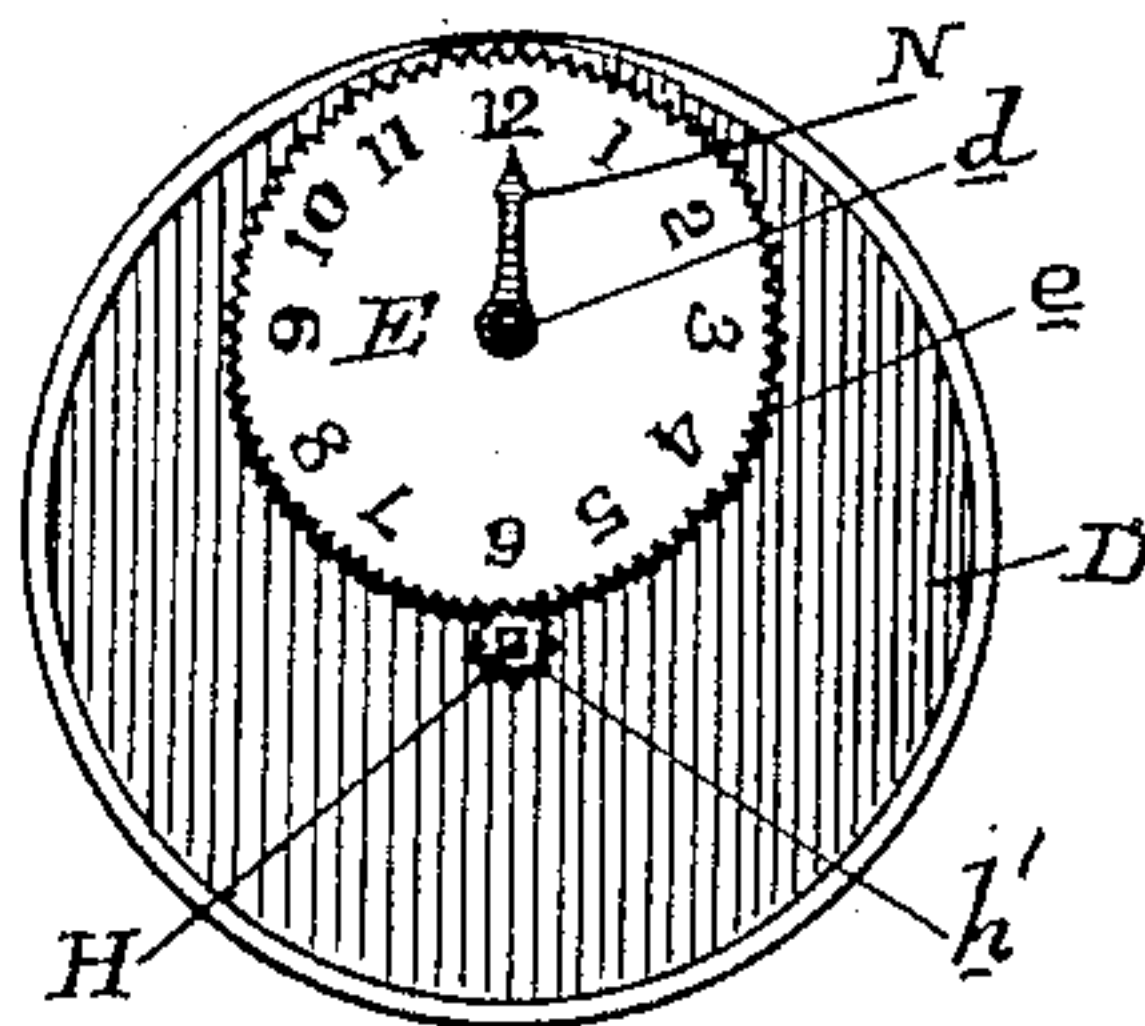
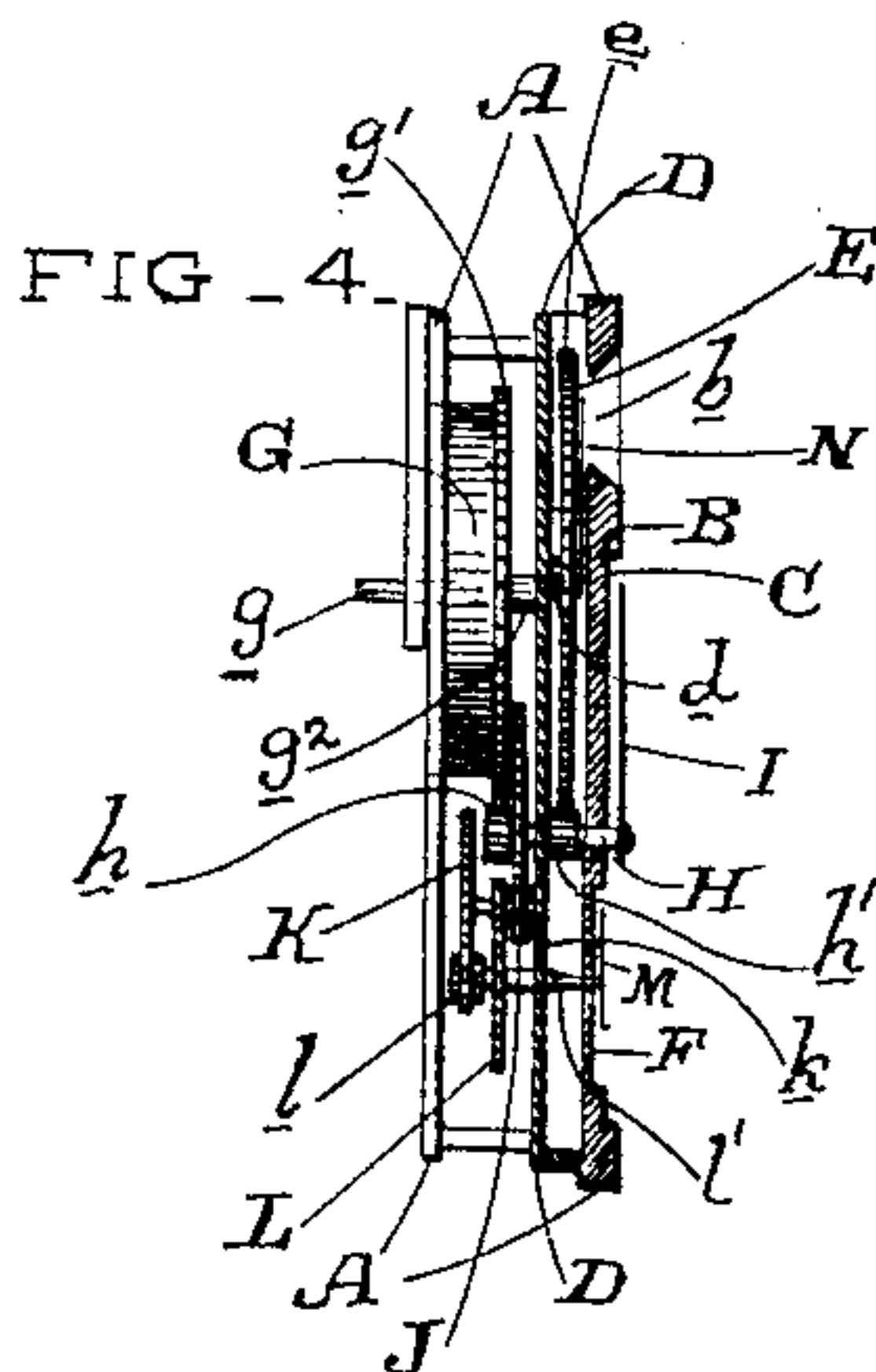
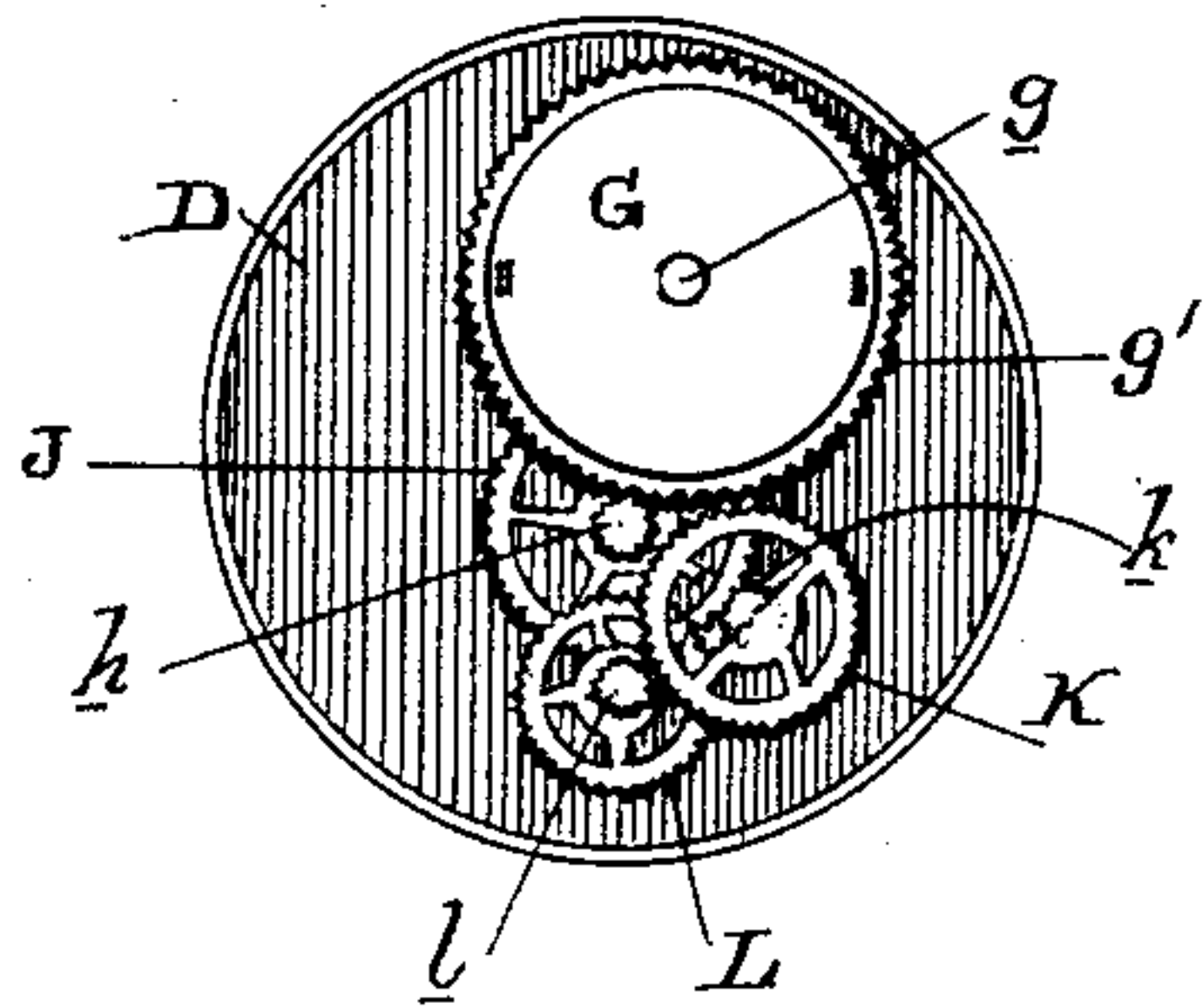


FIG. 3.



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UNITED STATES PATENT OFFICE.

HEINRICH ALBERT, OF LAUENSTEIN, GERMANY.

WATCH.

SPECIFICATION forming part of Letters Patent No. 427,653, dated May 13, 1890.

Application filed July 3, 1889. Serial No. 316,408. (No model.)

To all whom it may concern:

Be it known that I, HEINRICH ALBERT, of Lauenstein, Province of Hanover, Germany, have invented an Improvement in Watches; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of watches in which separate dials are provided for indicating the hours, minutes, and seconds; and my invention consists in the novel arrangements and combinations hereinafter described, and specifically pointed out in the claims.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a face view of my watch. Fig. 2 is a face view of the back plate, showing the rotary hour-dial and stationary hand. Fig. 3 is a view of the gear-train on the back plate. Fig. 4 is a section.

A is the case of my watch, which may be made either double or single, as may be desired, here shown as a single case. B is the face-plate which carries the minute-dial C, located eccentrically on the plate and slightly countersunk. The face-plate has a sight-aperture *b* in its top. D is the back plate secured to the face-plate, and having pivoted to it by the shaft *d* the rotary hour-dial E, the figures or numbers of which are by the motion of the dial brought successively into view behind the sight-aperture *b* in the face-plate. This hour-dial has a toothed periphery *e*. The minute-dial C has at its lower portion the usual countersunk second-dial F.

G is the drum or barrel which confines the mainspring, said spring being adapted to be wound by means of the usual key-shaft *g* or in any other manner. This barrel has a toothed or cogged periphery *g'* and is mounted on an axis *g²*, which is slightly to one side of the axis *d* of the hour-dial, so that said hour-dial and mainspring-barrel may be wholly independent of and separate from each other.

H is the arbor which carries the hand I of the minute-dial C. Upon this arbor, back of the back plate, is a pinion *h*, with which the toothed periphery *g'* of the mainspring-barrel G engages, and a second pinion *h'* between the back and face-plates, and which engages the toothed periphery *e* of the hour-dial E. Said arbor also carries the gear-

wheel J, which meshes with the pinion *k* of a gear-wheel K, which meshes with the pinion *l* of the gear-wheel L, the arbor *l'* of which carries the second-hand M.

N is a stationary hour-hand, which is frictionally mounted upon the axis *d* of the hour-dial E, and has its end projecting slightly above the sight-aperture *b* in the face-plate B and over the hour-dial, which rotates beneath it. These are the essential parts of my watch, remaining features being unnecessary herein to describe, such as the escapement and other parts of an ordinary watch.

The operation of my watch is as follows: It is wound in the ordinary manner and the power of the mainspring effects the rotation of the mainspring-barrel. This barrel engaging the pinion *h* of the minute-hand arbor H revolves the minute-hand I, and through the pinion *h'* rotates the hour-dial E, also through the pinions and wheels described the second hand is rotated. The number of teeth upon the several pinions and wheels is of course regulated to accomplish the proper movements of the several hands. Upon observing the face of the watch the hour will be seen through the sight-aperture *b*, as indicated, on the hour-dial by the stationary hour-hand N. The minute will be indicated by the movable minute-hand I and the second by its proper hand.

It is the intention of my watch to use a spring of a sufficient length to exert its power for a longer time than is usual. To employ such a long spring necessitates the use of a larger barrel; but a barrel larger than usual can only be employed by throwing the minute-hand arbor out of the center of the face-plate. This is the reason for the construction which I have shown, and by so moving the center of the minute-hand down I am able to provide space for a more than usually large mainspring-barrel. I can therefore use a spring long enough to provide for a continuous operation of the watch during any desirable length of time—as, for instance, four days or more.

The counter-sunk construction of the minute-dial allows me to use a much flatter crystal for the watch, and therefore have a thinner watch than usual. The independent dials and the separate hands indicating them,

as shown in my construction, entirely avoid the possibility of any interference of the hands, and the general arrangement of the several dials enables the user to readily and accurately determine the time by the watch. The parts are mounted so as to move with the least possible friction. The mainspring is rendered more durable by being wound upon a larger core and by not being required to be bent so closely and subject to extra strain. The hour-hand being mounted frictionally upon the axis of the hour-dial may be readily and perfectly adjusted to place, but remain firmly in position when adjusted. The flatness of the crystal avoids the liability to breakage.

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

1. In a watch, the combination of the face-plate carrying the minute-dial and having a sight-aperture, the rotary hour-dial behind and adapted to be seen through the sight-aperture of the face-plate, said dial having a toothed periphery, the mainspring-barrel having a toothed periphery, the hand of the minute-dial, the arbor carrying it and having a pinion meshing with the toothed periphery of the mainspring-barrel, and a pinion on said arbor meshing with the toothed periphery of the hour-dial, substantially as described.

2. In a watch, the combination of the face-plate carrying the minute-dial and having a

sight aperture in its top, the rotary hour-dial having a toothed periphery, said dial by its movement being adapted to present its figures successively behind the sight-aperture of the face-plate, the stationary hand over the hour-dial and exposed behind the sight-aperture, the hand playing over the minute-dial, the arbor carrying it, the mainspring-barrel having a toothed periphery, and the pinions on the minute-hand arbor engaging the toothed periphery of the barrel and the hour-dial, respectively, substantially as described.

3. In a watch, the combination of the face-plate having the sight-aperture, the minute-dial carried by the face-plate, and the second-dial on the minute-dial, the back plate, the rotary hour-dial pivoted thereto and moving behind the sight-aperture in the face-plate, said hour-dial having a toothed periphery, the stationary hand of the hour-dial, the mainspring-barrel having a toothed periphery, the minute-dial hand, the arbor carrying it, and the pinions on the arbor meshing with the barrel and the hour-dial, the second-dial hand, the arbor carrying it, and gearing for operating it from the minute-hand arbor, substantially as described.

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