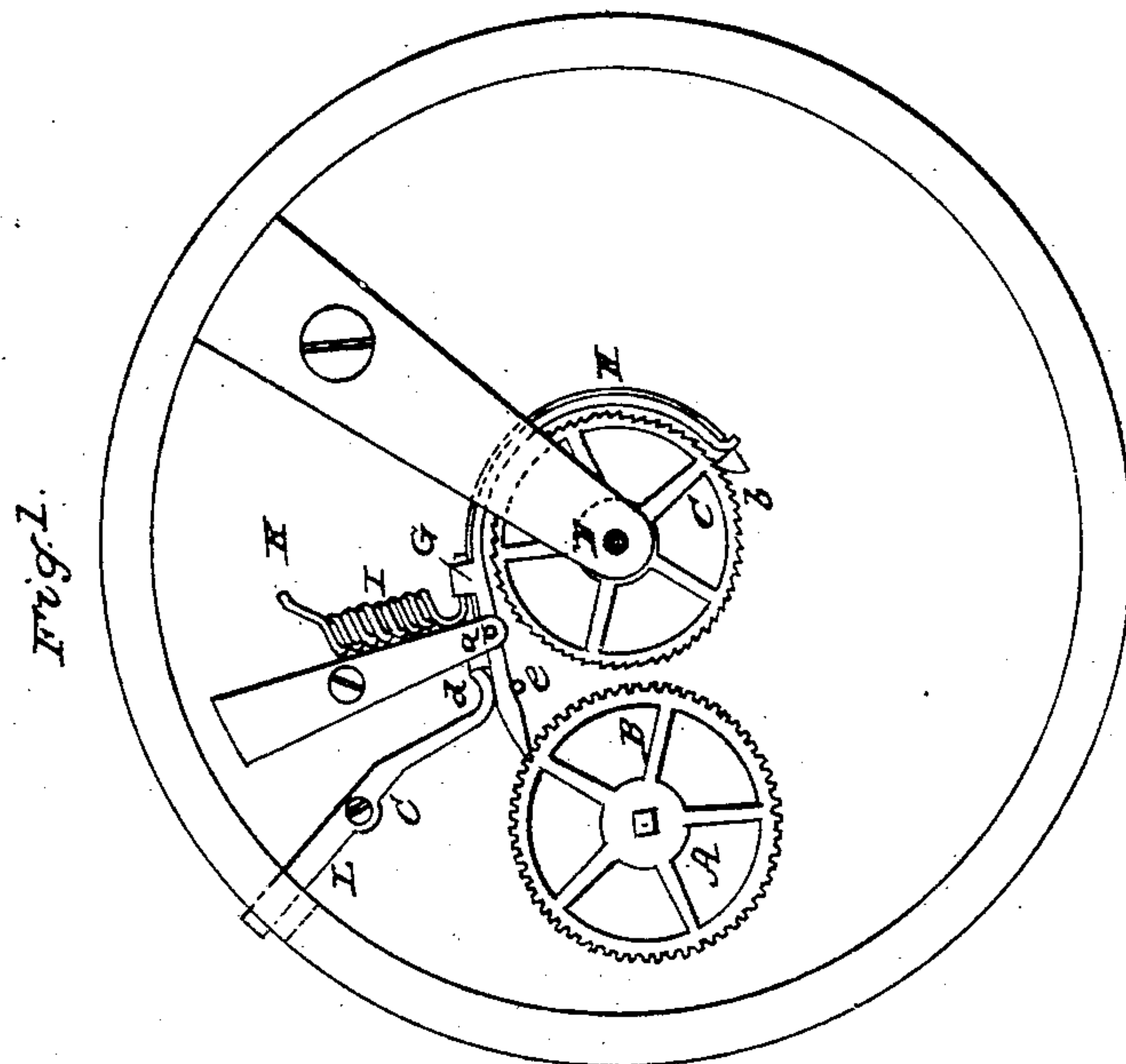
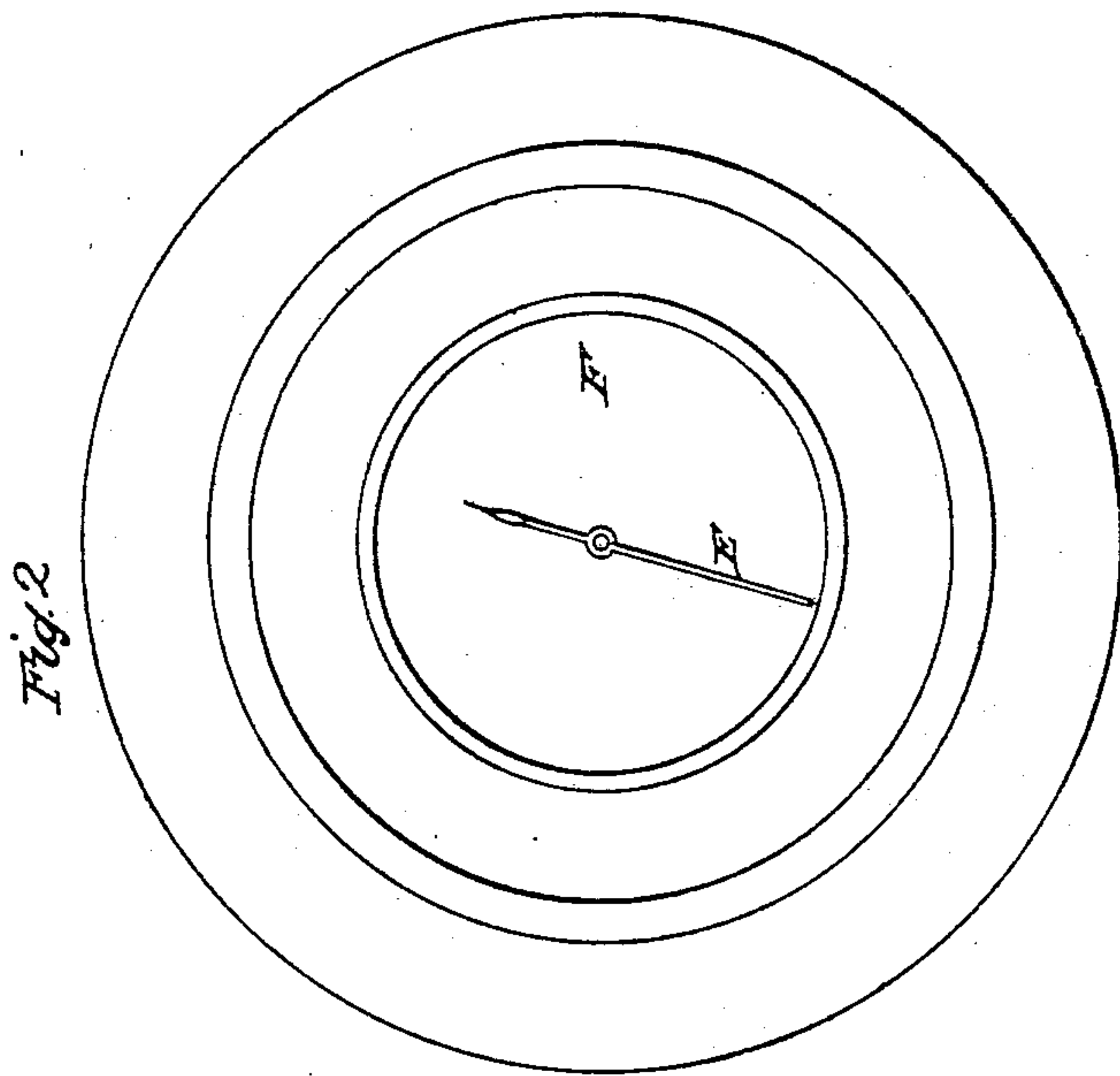


G. P. REED.

Watch.

No. 15,251.

Patented July 1, 1856.



# UNITED STATES PATENT OFFICE.

GEORGE P. REED, OF WALTHAM, MASSACHUSETTS.

## INDEPENDENT SECONDS-MOVEMENT FOR WATCHES.

Specification of Letters Patent No. 15,251, dated July 1, 1856.

*To all whom it may concern:*

Be it known that I, GEORGE P. REED, of Waltham, in the county of Middlesex and State of Massachusetts, have invented an  
5 Improvement in Watches or Timepieces; and I do hereby declare that the same is fully described and represented in the following specification and accompanying drawings, of which—

10 Figure 1, exhibits a view of my invention as applied to one of the plates or frame of a watch or time-piece, it being shown in said figure of a size much larger than what would be required in its application to a  
15 watch of an ordinary size, it being so made for the purpose of conveniently and clearly representing the several parts of said invention. Fig. 2, is a view of the opposite side of the plate and exhibiting the seconds  
20 hand, and its dial plate.

My invention or improvement has relation to what is usually termed "an independent second mechanism," that is to say, a mechanism which although it may be  
25 used for beating and indicating seconds of time, may be so detached from the mechanism for indicating hours and minutes, that its movements may be arrested, while those of the hour and minute hand mechanism are  
30 suffered to continue.

It is very common for "independent second mechanisms" for watches to be put in operation by a mainspring separate and distinct from the regular mainspring, by which  
35 the hour and minute hands are operated—each mainspring having to be wound up separately. An independent second mechanism so constructed and applied to a watch necessarily becomes very complicated, I  
40 have contrived one of very simple construction and to be combined with, and operated by the regular hour and minute train of a watch; the same being as hereinafter described.

45 In the drawings, A, exhibits the arbor of what is usually termed the 4th wheel of an ordinary watch mechanism. B is its said 4th wheel in case such is provided with 60 teeth. Otherwise said wheel is to be pre-  
50 vided with an extra row of 60 cogs or teeth extending around the arbor.

It is not always customary to make the 4th wheel with 60 teeth only, and therefore when such wheel has a different number of  
55 teeth, I apply to its arbor a row of teeth or another wheel having the required number

of teeth. Near the wheel, B, I arrange a ratchet C with 60 teeth, which has placed on its arbor D, a second hand E, to which a dial plate F, for indicating seconds may  
60 be applied in the usual way. In connection with the gear wheel, B, and the ratchet, C, I make use of a curved lever draw pawl G, which I arrange as seen in Fig. 1, and cause to turn on a fulcrum or pin, *a*, disposed as  
65 shown in said figure. The tail or short arm of said lever draw pawl, G, is to be acted on by the wheel, B, while its other arm is curved and extended partially around the ratchet, C, and has a delicate spring, H, ex-  
70 tended around its outer edge and terminating at its free end in a hook or catch as seen at, *b*, the spring at its other end being fastened to the curved lever. There is another or spiral spring, I, applied to the plate, K,  
75 (on which the works are placed,) and also to the curved lever, G, such spring being arranged with respect to the fulcrum and tail of said lever as shown in Fig. 1. There is also a detacher or lever, L, which turns  
80 upon a fulcrum, *c*, projecting from the plate, K, said detacher being made to operate against a stud, *d*, (extended from the tail of the lever G) and in such manner, that when this detacher is turned in one  
85 direction so as to come into contact with said stud, it may act against the same so as to turn the lever, G, on its fulcrum and in such manner as to force its tail arm out of engagement with the teeth of the 4th  
90 wheel. A movement, in reverse, of the detacher allows the spring, I, to return the lever, G, against a stud, *e*, and into engagement with the wheel, B. The said stud, *e*, should be so placed or arranged, as to stop  
95 the lever in its backward movement, after it may have passed a tooth of the wheel, B, and before it can have time to come in contact with the next succeeding tooth. Consequently it will be seen that by means of such  
100 stud, much wear of the tail of the lever, which would otherwise occur will be prevented.

The detacher lever should extend through the watch case, so as to be capable of being  
105 moved by the finger nail when pressed against it. I construct the pawl lever, G, and its spring, H, in separate pieces and apply them together as described in order that there may be great delicacy of action  
110 of the spring, and the lever be used simply to move the spring catch backward and for-



ward, while the spring permits it to rise and engage with each ratchet tooth in succession.

Were the lever and spring formed in one piece of metal, although, it might operate, yet, at the same time there would be more or less uncertainty in its operation, and, certainly not that delicacy of action which takes place, when the catch of the lever pawl is applied to a spring made separate from, fastened to, and extending around one arm of the pawl lever as described.

When the wheel, B, is put in rotation a regular, intermittent vibratory motion will be imparted to the lever pawls, in consequence of its tail being caused to slide from one tooth to the other of the wheel, B, and every time it is so moved by a tooth the catch, *b*, will be moved forward over a tooth of the ratchet wheel, and will also be drawn back by the action of the spring, I, so as to turn said ratchet and its second hand a sector corresponding with  $\frac{1}{60}$  part of a circle. Thus an intermittent rotary motion will be imparted to the arbor of the second hand, and so as to indicate seconds on its dial

provided such dial be suitably divided and marked.

I do not claim applying to a watch or time-piece an "independent second mechanism" operated or driven by a motor or mainspring and train of gears separate from the mainspring and train of gears for imparting motion to the hour and minute hands of such watch or time-piece but

What I do claim is—

The combination of the gear wheel, B, the ratchet, C, curved lever draw pawl, G, the spring, I, and the detacher, L, the whole constituting a mechanism, applicable to the arbor of the index hand of a dial, and for imparting to the same an intermittent rotary movement in manner and for the purpose as specified.

In testimony whereof, I have hereunto set my signature this twenty seventh day of March A. D. 1856.

GEO. P. REED.

Witnesses:

R. H. EDDY,  
F. P. HALE, Jr.