

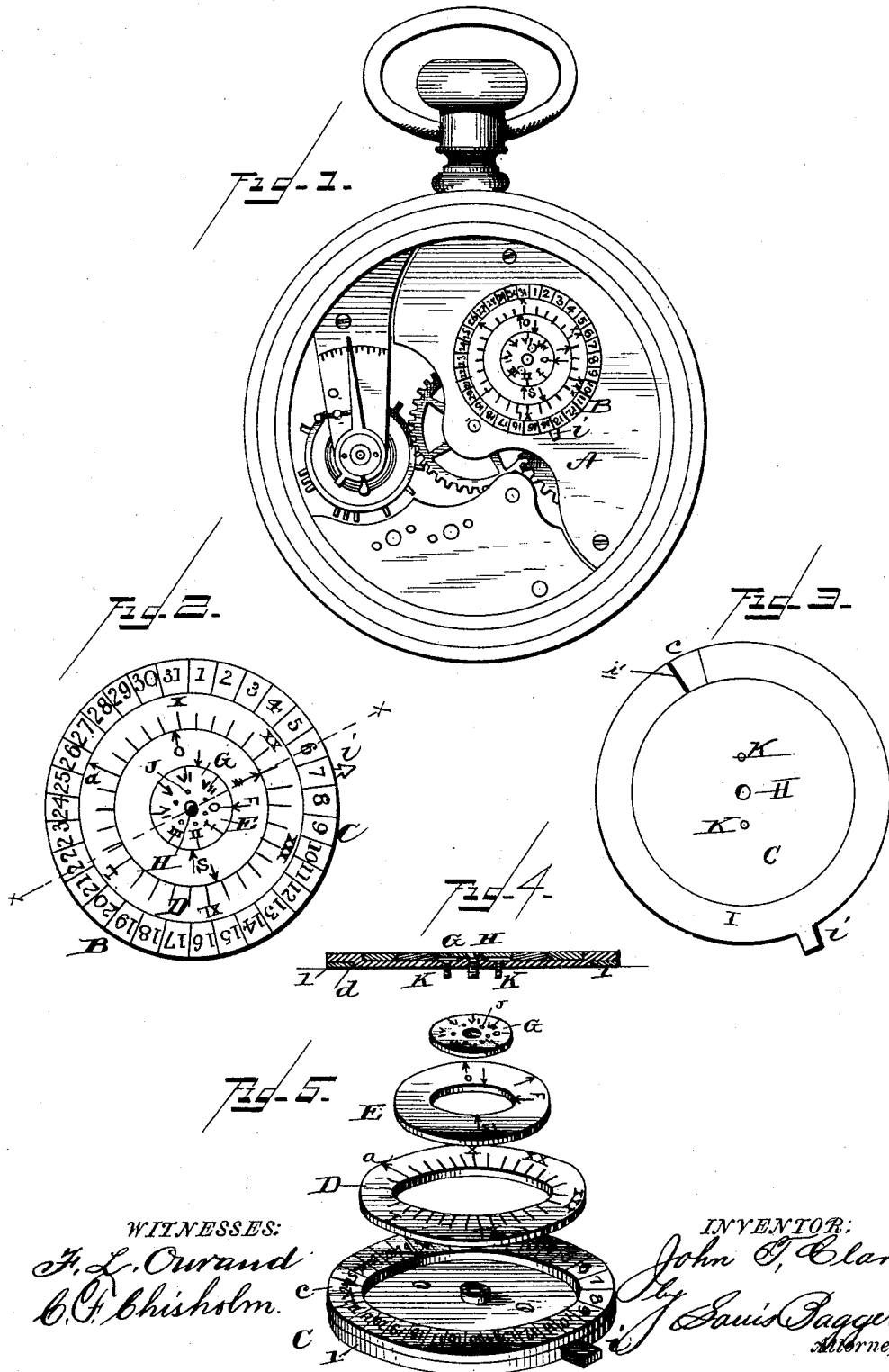
(No Model.)

J. T. CLARK.

REGULATION INDICATOR FOR TIME PIECES.

No. 417,987.

Patented Dec. 24, 1889.



# UNITED STATES PATENT OFFICE.

JOHN T. CLARK, OF COLUMBIA, SOUTH CAROLINA.

## REGULATION-INDICATOR FOR TIME-PIECES.

SPECIFICATION forming part of Letters Patent No. 417,987, dated December 24, 1889.

Application filed August 15, 1889. Serial No. 320,880. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN T. CLARK, a citizen of the United States, and a resident of Columbia, in the county of Richland and State of South Carolina, have invented certain new and useful Improvements in Devices for Indicating the Regulation of Time-Pieces; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a plan view of a watch-movement provided with my device for indicating the regulation of the watch. Fig. 2 is a plan or top view of the device itself removed from the watch and showing it on an enlarged scale. Fig. 3 is a view of the under side of the device removed from the watch. Fig. 4 is a transverse sectional view through the center of the device, on the line denoted by the broken line marked *x x* in Fig. 2; and Fig. 5 is a view showing in perspective the several parts which constitute the device separated from one another.

Like letters of reference denote corresponding parts in all the figures.

My invention relates to time-pieces generally, being equally well adapted for use in clocks and watches; and it has for its object to provide a simple and convenient means whereby the regulation of the time-piece may be properly adjusted and controlled. In regulating clocks or watches, as usually practiced, it is more or less a matter of guess-work to adjust the regulator properly, and only by chance, as a rule, will the regulator be "set" correctly, except after repeated trials to properly regulate the watch. Now the object of my invention is to overcome this difficulty and make the regulation of a watch or clock approximately certain, and this I accomplish by providing each time-piece with an indicating device, by referring to which the watch-maker or other operator undertaking the regulation of the time-piece may see at a glance precisely how to adjust the regulator in a proper manner.

Reference being had to the accompanying

drawings, in which I have shown my device as applied to a watch, the letter A designates a watch-movement, and B the indicating device, which is fastened upon the movement or case of the watch or clock at any convenient place where it is out of the way. This device, which is in the nature of a flat disk, consists of six separate parts, as follows: a flat circular disk C, of any suitable metal, having a raised flange *c*, the top of which is marked with numerals from 1 to 31, the numerals from 1 to 12 being used to indicate the months, and the entire circle of numerals the days of the month, as will appear more clearly by reference to Fig. 2 of the drawings. The flange *c* of this disk or dial is fitted to receive the inner ring D, the inner periphery of which is provided with a scale graduated from 0 to 60, said circular scale being divided up into sections of five scale-marks, denoting two seconds each, and marked, respectively, with the Roman numerals X, XX, XXX, and so on, an arrow *d*, the head of which points against the numerals on the outside scale on disk C, marking the zero-point. Each mark or division upon this annular disk or ring D denotes two seconds, and the Roman numerals therefore indicate the number of seconds from the zero or starting mark (indicated by the arrow) to the end of the scale, which also coincides with the arrow-mark. Thus it will be seen that this second disk or ring D contains thirty equidistant scale-marks or divisions, each of which represents two seconds. Inside of the annular disk or ring D, just described, and working in the same horizontal plane, is another similar but smaller annular disk or ring E, which is marked on its face simply with three sets of two arrows each, each set or pair of two pointing in opposite directions—i. e., one pointing toward the marks on the graduated ring D and the other inwardly toward the center of the disk. One of these sets or pairs of arrows is marked with the letter F, the second with the letter S, and the third with an O-mark, indicating zero. These arrow-marks are so arranged upon the disk relative to one another that when any one of them points to or is aligned with one of the marks on disk D all the others will "break joints," so to speak, or be be-

tween the marks on this scale and another series of marks on the inside circular disk G, which I call the "minute-disk," and which is marked with Roman numerals from O to VII, each mark indicating a number of minutes corresponding to the numeral with which it is marked.

The outer rim of the disk C is undercut on its under side, as shown at *d* in Fig. 4, to adapt it to receive another ring I on its under side, which is provided with a projecting stud *i*, extending beyond the flange or periphery of the fixed disk or dial C. This ring I has its periphery split at *i'*, as indicated clearly in Fig. 3 of the drawings, so as to adapt the same to be readily placed around the undercut portion of the ring C and beneath the flange *c*. This split not only facilitates the placing of the ring in position, but also facilitates its retention, adding elasticity to the ring and causing the ends to come together after having been spread apart in placing the ring in its proper position. Finally, in the center of the fixed dial C, and within and concentric to the graduated rings D and E, is placed the small circular disk or minute-disk G, hereinbefore referred to, which is held in place by means of a central headed screw H, yet in such a manner that it may readily be rotated around said screw. This inner disk G is, as we have seen, provided with a series of minute-marks, and it may also be provided with a series of recesses or depressions J, into which the point of a fine drill, pencil-point, or pin may be inserted when it is desired to rotate this inner ring around its central screw or axis H.

As will be seen by reference to Fig. 4, the several parts constituting the device are, when put together as hereinbefore described, perfectly flush or even with one another, so as to constitute a flat circular disk B of even thickness, which is fastened permanently upon the movement or case of the watch or clock by means of small screws K K, inserted through countersunk holes in the disk C below its superimposed movable parts and covered by said parts.

Having in the foregoing described the construction of my device, I shall now proceed to describe the manner of using it, which is as follows: The watch-maker or other person who desires to regulate the watch or clock first sets the same going, and after a reasonable time compares it with a standard clock for the purpose of ascertaining whether it has "lost" or "gained." If the watch or clock to be regulated has gained time, he indicates the day and month when he commenced to regulate by pushing the removable ring C around, by means of its projecting stud *i*, until said stud or indicator comes opposite to the numeral indicating the number of the month, and he then moves the ring D in the same manner until its arrow-head *a* points to the numeral indicating the day of the month. For example, in the position in which these

parts are illustrated on the drawings the device is so adjusted as to show that this regulation took place on the 26th of July—viz., the 26th day of the seventh month. If, now, the time-piece has been gaining time—we will say, for example, no minutes and twenty-two seconds—then the inner ring E is rotated until that one of its pairs of arrows marked F, which points toward disk D, is aligned with the mark on said disk which denotes "twenty-two seconds," (see the drawings,) in which position all the other arrows or markers on the ring E break joints with the marks both on the outer ring D and the inner disk G; but if, on the other hand, the watch had lost, we will say, one minute and sixteen seconds, then this would be indicated by first turning ring E until its outwardly-pointing arrow, (marked S,) became aligned with the scale-mark indicating sixteen seconds on ring D, and then rotating the inner or "minute" disk G until its mark denoting one minute (and marked with the Roman numeral I) becomes aligned with the inwardly-pointing arrow on ring E, (marked S.) Having thus set the indicator and regulated the watch by pushing its regulator in the direction of "fast" a reasonable time is again permitted to pass, after which the operator again inspects the time-piece and compares it with any standard clock. Should it now be found that it was still losing time, the operator can readily by comparing the number of minutes and seconds, or seconds, lost with the number of minutes and seconds, or seconds, which the watch was slow the last time it was inspected and regulated, so readjust the regulator as to bring this approximately into the proper position, the markers indicating the day and month being again so adjusted as to show at a glance when this last inspection and regulation took place. If upon the next inspection and comparing of the watch it is found to run true, the marker or indicator-ring E is so adjusted as to have its outwardly-pointing arrow (marked O) point in the direction of the zero-mark upon the graduated seconds-scale; but if, on the other hand, it is now found to run fast, the indicator-ring E is so adjusted that one of the arrows (marked F) will point against the mark on that one of the scales D or G which indicates the exact number of seconds or minutes (or both) it is fast, and the regulator is moved towards "slow" a little. In this manner, and by inspecting the indicator at each regulation of the watch or clock, the operation of properly regulating the same may be effected with much more accuracy than in the ordinary way, inasmuch as the operator not only knows by simply glancing at the indicator the exact day when he last regulated the watch, but he also learns at the same time exactly how much the watch was running fast or slow at the last regulation, and accordingly he can adjust the regulator with a much greater nicety and a much

greater degree of accuracy than if this is only done from recollection or by guess-work.

5 Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

10 1. The device for indicating the regulation of time-pieces herein shown and described, the same comprising the fixed disk or dial-plate C, and the movable disks or rings D, E, G, and I, provided with graduated scales and markers, and combined substantially in the manner and for the purpose herein shown and set forth.

15 2. The combination of the fixed disk or dial-plate C, provided with a raised rim or flange c, marked on its upper face with the numerals from 1 to 31, the concentric ring D, marked on its face with a graduated scale  
20 corresponding to the number of seconds in the minute, the concentric ring E, provided on its face with three sets or pairs of markers F, S, and O, arranged as described, the

central minute-disk G, the split indicator-ring I, provided with a projecting stud i, and 25 the central screw H, all constructed and combined to operate substantially in the manner and for the purpose herein shown and set forth.

3. The combination, in an indicating device 30 of the described class, with a fixed and graduated disk adapted to be mounted upon the movement or casing of a time-piece, of a series of movable disks or rings secured concentrically upon the fixed disk, and provided 35 with suitable graduated scales and markers, combined and arranged substantially as and for the purpose herein shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature 40 in presence of two witnesses.

JOHN T. CLARK.

Witnesses:

J. E. PHYSIOC,  
S. G. SAWYER.