my invention relates to new and useful improvements in the art of horology and more particularly to an improvement in watch movements, the primary object of the invention being to provide a structure in a watch movement which will enable a watch-maker to correct the beat, or evenness of the tick, of a watch without affecting the timing thereof and without the necessity of removing the balance bridge, the hair spring and adjutective parts.

a further object of the invention resides in providing separable regulator and stud rings, one fitted within the other, so as to be actuated simultaneously in one operation or separably, as may be desired, but without increasing the thickness of the movement of the watch.

a further object of the invention resides in the provision of a stud ring fractionally held between the jewel plate on a balance bridge and the regulator ring, with the arm of said stud ring disposed and movable within the same plane as the balance bridge.

a still further object of the invention resides in providing a structure which is simple and durable in construction, comparatively inexpensive to manufacture and one which will be very efficient and useful in operation.

with these and numerous other objects in view, my invention consists in the novel features of construction, combination and arrangement of parts as will be hereinafter referred to, and more particularly, pointed out in the specification and claim.

in the accompanying drawing forming a part of this application,

figure 1 is a plan view of a portion of a watch movement, with my improvements embodied therein;

figure 2 is a vertical sectional view there-through, as seen on line 2—2 of figure 1, looking in the direction of the arrows;

figure 3 is a vertical sectional view, as seen on line 3—3 of figure 1, looking in the direction of the arrows;

figure 4 is a fragmentary top plan view of the balance bridge with jewel plate applied, showing particularly the cutaway portion of the bridge;

figure 5 is a top plan view of the regulator removed;

figure 6 is a vertical sectional view there-through, as seen on line 6—6 of figure 5, looking in the direction of the arrows;

figure 7 is a top plan view of the stud ring removed, and

figure 8 is a vertical sectional view there-through, as seen on line 8—8 of figure 7, looking in the direction of the arrows.

ordinarily, when a watch-maker finds it necessary to correct the beat of a watch, he is required to remove the balance bridge and adjutective parts, with possible damage to the hair spring and, of course, with considerable loss of time. when disassembling the movement for this purpose, it is also possible that oil balance pivots may contact the hair spring making it necessary to clean the latter, which requires additional time, in addition to the fact that parts may be damaged. while the consumer may not be appreciative of these facts, same are well-known to watch-makers and dealers. therefore, a structure which will enable the beat of the watch to be corrected without disassembling parts of the movement and without affecting the timing of the watch will be of great value to the industry and my invention contemplates accomplishing this desired end.

in describing the invention, i shall refer to the drawing, in which similar reference characters designate corresponding parts throughout the several views and although i have not shown a complete watch movement, i have illustrated sufficient thereof to permit of an understanding of the application to use of my particular invention. the numeral 1 designates a balance bridge of the usual construction, with the exception that same is cut away to form a recess as shown at 2 adjacent the inner end thereof; for a purpose to be hereinafter and more particularly set forth. the oscillating balance or balance wheel is designated by the numeral 3 and positioned in the usual manner with respect to the bridge and the numeral 4 designates the hair spring.

mounted on the inner end of the balance bridge in the usual manner through the screws 5 is the jewel plate 6, the peripheral edge of which is bevelled inwardly from the upper to the lower edge thereof, said plate retaining in position on the bridge the usual jewel 7. frictionally mounted on the jewel plate 6 to surround the latter is a stud ring 8 which is split as shown at 9 and has the inner periphery bevelled coincident to the beveling of the periphery of said jewel plate with which the same frictionally contacts when applied, as clearly shown in figures 3 and 7 of the drawing. this stud ring has formed integral therewith and extended laterally therefrom, in a plane at right angles to the vertical plane of the split 9, the stud arm 10. this arm is formed integral with the lower edge of the ring 8 so as to be disposed in the same plane as the horizontal plane of the balance bridge 1, as clearly
shown in Figure 3 of the drawing and said arm 10 has the stud 11 formed thereon through which projects the pin 12, connecting in the usual manner with the hair spring 4.

Surrounding the stud ring 3 and separable therefrom is the regulator ring 13, which is split as shown at 14, the same being formed with the usual regulator arm 15 and the short arm 16, the latter being provided with the usual pins 17 contacting or engaging the hair spring 4. The inner periphery of the ring 13 is bevelled coincident to the bevel or inclination of the periphery of the stud ring 3 with which said regulator ring frictionally contacts, but it will be understood that the friction between the stud ring 3 and the jewel plate 6 is greater than the frictional contact between stud ring 3 and regulator ring 13. Thus, it is possible to oscillate the regulator ring without moving or affecting the stud ring but upon movement of the stud ring in one direction or the other, the regulator ring will necessarily be moved therewith, unless held against such movement by holding the regulator arm 15. When all parts move together, as for instance when the stud ring is moved by actuating the stud arm, the effective length of the hair spring remains the same and thus correction of the beat or the tick of the watch may be accomplished with the timing of the watch remaining substantially unaffected.

When it is desired to regulate the timing of the watch, the regulator arm 15 is moved in the usual manner. When it is desired to correct the beat of the watch, the stud arm 10 is moved which, as aforesaid, will move the regulator ring and all adjucative parts without changing the length of the hair spring and correspondingly without effecting a change in the timing of the watch.

By placing the stud ring between the jewel plate and regulator ring, the thickness of the movement is not increased, which is most desirable under present conditions where very thin watches are being produced for the wrist and otherwise. Placing the stud ring in this position necessarily requires the slight cutting away of the balance bridge so that the stud arm may be actuated within the cut-away portion and in the same plane as said bridge, in order not to increase thickness of the movement. Thus, the use of a separable stud ring with a stud arm formed in the fashion shown and hereabove described, to operate in a cut-away portion of and in the same plane with the balance bridge forms the essential feature of this invention.

From the foregoing description of the construction of my improved watch movement, the method of applying same to use and the actual operation thereof will be readily understood, and it will be seen that I have provided a comparatively simple, inexpensive and efficient means for carrying out the various objects of the invention. While I have particularly described the elements best adapted to perform the functions set forth, it is apparent that various changes in the form, proportion and in the minor details of construction may be resorted to, without departing from the spirit or sacrificing any of the principles of the invention.

Having thus described my invention, what I claim is:

In a watch movement, a bridge, a jewel plate mounted against the upper face of one end of the bridge, a stud ring fitting snugly about the jewel plate and frictionally gripping the same and resting against the upper face of the bridge, said bridge having an arcuate edge face extending circumferentially of the jewel plate, an arm extending radially from the stud ring in downwardly offset relation thereto opposite the arcuate edge face of the bridge and having its upper surface flush with the upper face of the bridge, and a regulator ring fitting snugly about the stud ring and frictionally gripping the same and resting against the upper face of the bridge and the upper surface of the arm of the stud ring and carrying an arm resting flat against the upper surface of the bridge.

HENRY LINE.

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