

C. TESKE.

INDIVIDUAL HAIR SPRING STUD INDEX FOR WATCHES AND CLOCKS.

APPLICATION FILED APR. 9, 1909.

940,750.

Patented Nov. 23, 1909.

FIG. 1.

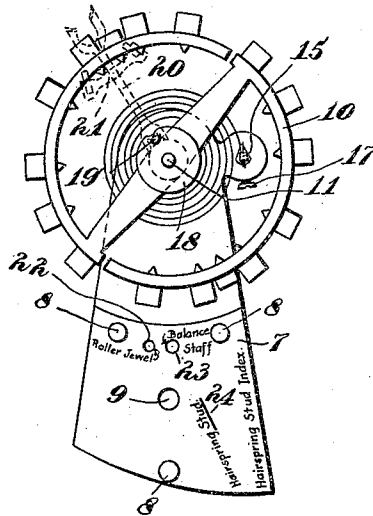


FIG. 2.

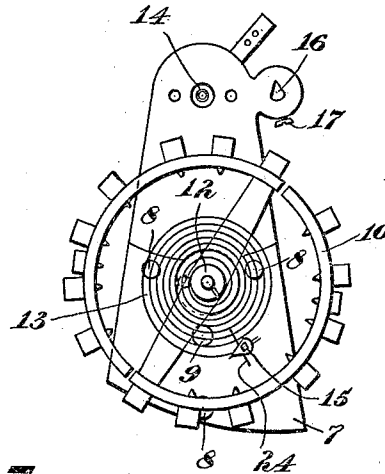
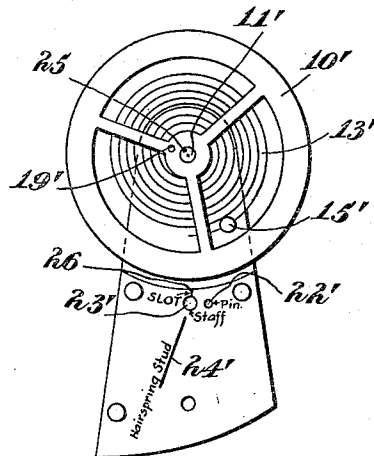


FIG. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

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INDIVIDUAL HAIR-SPRING-STUD INDEX FOR WATCHES AND CLOCKS.

940,750.

Specification of Letters Patent.

Patented Nov. 23, 1909.

Application filed April 9, 1909. Serial No. 488,843.

To all whom it may concern:

Be it known that I, CHARLES TESKE, a citizen of the United States, residing in Ray, in the county of Williams and State of North Dakota, have invented certain new and useful Improvements in Individual Hair-Spring-Stud Indexes for Watches and Clocks, of which the following is a specification.

10 This invention relates to hairspring stud indexes for time pieces, and is particularly adapted for providing an index for determining the proper angular position of the hairspring stud of each individual watch
15 or clock relative to the roller jewel for the engagement of the escapement lever and by means of which index the proper relative positions of these parts may be reestablished upon replacing the hairspring with its stud
20 and collect upon the balance staff after their removal.

This invention has reference to an index to be permanently applied to some part of each watch or clock movement, and by which
25 the positions of the roller jewel and hairspring stud relative to each other and to the balance staff may be indicated. So that in the event of its becoming necessary to remove the hairspring with its stud from the
30 balance or to replace a broken balance staff with a new one or if for any other cause any of the parts of the balance wheel mechanism are taken apart the position of the stud upon the hairspring may be so positioned in
35 relation to the impulse pin, which is generally the roller jewel, that when the parts are replaced there will be no tension upon the hairspring when the impulse member is in alignment with the balance staff and the axis
40 of the escapement lever.

In the drawings accompanying and forming a part of this specification Figure 1 illustrates the under side face of a balance
45 cock carrying the balance wheel and showing the escapement lever in dotted line position. Fig. 2 is a similar view of the balance cock, the balance wheel being shown inverted and the stud removed from its bearing in the cock; this illustrates the practical
50 application of my invention to a watch move-

ment; and Fig. 3 is a view similar to Fig. 1 but showing the form of balance wheel which is known as the "duplex balance."

Manufacturers of watches and clocks have heretofore made no provision whereby the
55 exact relative positions of the roller jewel and hairspring stud can readily be reestablished in case the hairspring with its stud and collet is removed from the balance staff for any cause by the repairer after these
60 time pieces have left the factories. In the event that it becomes necessary for any cause to remove the hairspring with its stud from the balance staff, such as testing the parts of the balance for poise each time the
65 watch is cleaned, or it becomes necessary to replace a broken balance staff by a new one, or if a new hairspring is to be put on or a new collet is to be put in place and a new roller jewel put in, or any of the other re-
70 pairs to this part, the watch repairer has to deal with points of nicety in which he has to expend a considerable amount of time to replace the hairspring with its stud on the
75 staff so that the roller jewel will correctly interline with the lever slot in order that the time piece may be in correct beat again. In most cases the watch repairer has to correct
80 several times the hairspring with its stud on the balance staff before he finally reestablishes the exact position of the stud to make the time piece beat evenly, thus wasting considerable valuable time, and as a
85 matter of fact but few repairers are able to get the correct adjustment.

While a watch with a balance that is out of beat may run and take a good motion, it is the observation of experienced watch makers that an out of beat balance acts on the timing of a watch equivalent to an un-
90 poised balance, disturbing its equilibrium in certain positions and thus upsetting a very essential requirement in watches, which have taken time and care for the manufacturer to accomplish, namely the adjustment
95 for various positions. The out of beat error is often neglected because the great importance of having a balance in perfect beat is not always realized. Besides being an impediment to the timing for various posi-
100

tions, the balance that is out of beat always remains at a standstill when run down, and must always be started off when rewound; whereas the balance that is in perfect beat
 5 will begin its oscillations immediately after the main spring is brought into action.

To overcome the above mentioned objections I have provided my improved individual hairspring stud index. Each time piece
 10 will carry in itself a hairspring stud index absolutely correct for itself and made by the manufacturer as a part of the time piece which shall remain with it.

The index will be placed on some member
 15 of the framing of the time piece and in watches it is most convenient to place this index on the underside face of the balance cock 7, that is the face of this cock which will engage the main plate of the watch
 20 movement. This cock is shown in the present instance as provided with the usual studs 8, 8, 8 for positioning the cock upon the plate, and it is also provided with the usual screw hole 9 by which it may be secured in
 25 position. The balance wheel, now having reference to Figs. 1 and 2, is designated by the reference character 10, and its balance staff 11 is shown as provided with a collet 12 to which is fastened a hairspring 13. The
 30 balance staff will be seated in the usual bearing 14 in the balance cock, and the hairspring stud 15 will, when the balance wheel is in proper position, be seated in a socket 16 and held in position therein by means of the
 35 set screw 17. The collet and hairspring are carried upon one side of the balance wheel and a roller table 18 is carried upon the other side of the wheel. The roller table carries a roller jewel 19 which engages a
 40 lever 20. When the parts are in their proper position the roller jewel 19 will be in alignment with the axis of the balance staff 11 and the axis 21 of the lever, that is when there is no tension on the main spring. This
 45 will afford proper beat for the watch.

In Figs. 1 and 2, the balance cock 7 is shown provided with a pair of sockets 22 and 23 for receiving the roller jewel and the
 50 balance staff respectively of the particular balance wheel of such cock. The cock also carries an index in the form of a line 24 to indicate the proper position of the hairspring stud relative to the staff and jewel of that particular balance wheel when such
 55 staff and jewel are accurately positioned by such sockets. The roller jewel sockets and the balance staff sockets are located for accurately positioning the staff and jewel each in respect of the other and this in connection
 60 with the means provided therefor will indicate the position which should be occupied by the hairspring stud of that particular time piece in respect of the staff and roller jewel thereof.

When the parts have been placed in the
 65 sockets of the index, as indicated in Fig. 2, the collet and hairspring are then uppermost, and if any adjustment of the collet or of the stud has to be made there will be
 70 nothing in the way of the workman to prevent his effecting the proper adjustment, that is such an adjustment as will bring the center of the hairspring stud over the index
 line 24.

In Fig. 3 a form of duplex escapement
 75 balance wheel 10' is shown, which is provided with a hairspring 13' having a hairspring stud 15' and an impulse pin 19', which must always in each individual watch bear the same relative angular relation to
 80 each other, having the balance staff 11' for the center. In this instance there are shown sockets 22' and 23' for the pin and staff respectively, and an index line 24' for indicating the position of the stud, and a line 26
 85 for showing the position of the slot 25 in the staff.

It is self evident now that in case the hairspring with its stud has to be separated for
 any cause from the balance staff, whereby
 90 the correct beat of the balance is lost, that the same can be easily and absolutely correctly reestablished by simply placing the balance staff and roller jewel in the designed
 holes and taking the hairspring with its
 95 collet and stud and placing them in such a position upon the balance staff that the hairspring stud will be above the index line, and then pressing the collet down upon the balance
 staff. The collet until the parts are
 100 properly secured in position may be adjusted about the balance staff until the correct position of the stud relative to the index line is established.

Time pieces provided with such indexes
 105 carry in themselves the absolutely correct means whereby the correct beat of such time pieces can be readily reestablished if disturbed for any cause.

Having described my invention I claim: 110

1. A hairspring stud index for time pieces, embodying a balance cock, a socket in the
 balance cock for receiving and accurately
 positioning the particular balance staff of
 said cock, a socket in said cock for receiving
 115 and engaging the roller jewel of said cock, and an index on said cock for the hairspring stud.

2. A device of the character specified, embodying a balance cock, an index on the
 120 cock for the hairspring stud, and sockets in the balance cock respectively located for receiving and accurately positioning the balance staff and the roller jewel of the particular balance wheel of said cock in respect of
 125 said hairspring stud index.

3. A hairspring stud index for a time piece embodying a framing member of the time

piece, a pair of sockets in the said member
for receiving the balance staff and the roller
jewel of such time piece and located for ac-
curately positioning each in respect of the
5 other, and means on the said member prop-
erly located in respect of said sockets for
indicating the position of the hairspring

stud of that time piece in respect of the staff
and roller jewel thereof.

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Witnesses:

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