

(No Model.)

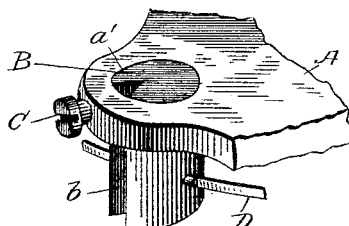
L. AEBY.

WATCH HAIR SPRING STUD.

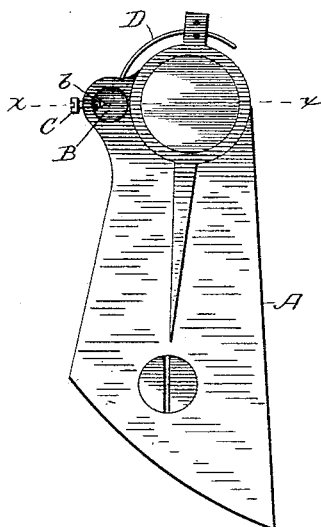
No. 384,668.

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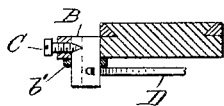
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Witnesses:*

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# UNITED STATES PATENT OFFICE.

LEO AEBY, OF COLUMBUS, OHIO.

## WATCH HAIR-SPRING STUD.

SPECIFICATION forming part of Letters Patent No. 384,668, dated June 19, 1888.

Application filed January 10, 1888. Serial No. 260,341. (No model.)

*To all whom it may concern:*

Be it known that I, LEO AEBY, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Hair-Spring Studs for Watches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of watches or other time-keepers in which the well-known balance or hair spring is employed; and the object of my said invention is to provide a simple, durable, and efficient construction and arrangement of parts, whereby the balance or hair spring and its stud may be readily displaced for the purposes of repairing and cleaning, &c., and as readily and easily replaced in position for work, thus dispensing with the usual labor of readjusting the spring for length and tension and avoiding the inaccuracy usually consequent upon reassembling such parts in watches or other time-keepers of this class as heretofore constructed.

Previous to my invention it has been customary to key balance or hair springs to arms, or studs rigidly connected to the balance-bridges of watches or to the frames of clocks; so, therefore, in order to release the springs, it was necessary to withdraw the keys, and to return the springs they had to be again keyed in place, which, to get them back in their normal positions, was a difficult and unhandy operation, and resulted in considerable inaccuracy of adjustment of the parts, since it was practically impossible to accurately locate the springs in their original positions; also, prior to my invention projecting tubes or sockets have been rigidly secured to the frame-work of clocks for receiving and adjusting spring-holding studs; but these sockets or tubes have been found unsatisfactory in practice, in that they were liable to become broken or detached from their supports and insecurely held the spring-studs in place, the latter being cylindrical in form and held in said tubes by ordinary set-screws pressing upon their peripheries; also, prior to my invention spring-holding studs have been formed with prismatic upper ends fitted into correspondingly-shaped holes in the balance-

bridges of watches and held by set-screws; but this construction necessitates the formation of prismatic holes in the balance-bridges, which is a difficult and time consuming operation, and, also, the insertion of the ends of such studs into such holes is difficult to effect, thus rendering the manufacture of these parts of a watch expensive and inexpedient. To overcome these defects in former devices of the kind in question is the design of my present invention, which will be first fully described in connection with the drawings, and then definitely pointed out in the claim.

In the drawings, wherein the same reference letters indicate the same parts, Figure 1 represents a broken perspective view of a balance-bridge with my improved hair-spring stud in position therein; Fig. 2, a plan view of the balance-bridge, showing the regulator and hair-spring stud in operative position; and Fig. 3, a transverse section of the same on the dotted line *x x* of Fig. 2.

In the drawings, A represents a balance-bridge formed with an annular stud hole or bearing, *a*'; B, a cylindrical stud fitted in said hole or bearing and formed with a vertical, angular, or V-shaped groove, *b*'; C, a set-screw tapped into the side of the balance-bridge, radially with respect to the stud hole or bearing, and provided with a conical point adapted to fit into said angular or V-shaped groove in the stud, and D the hair-spring or part of the same. The stud B is also provided with a collet, *b'*, adapted to rest against the under side of the balance-bridge, and thus insure the retention of the hair-spring at a uniform distance therefrom.

The operation of the parts is obvious, but may be briefly stated as follows: The hair-spring D is fastened to the stud B by a pin or key in the ordinary manner. The said stud is firmly held in place in the bridge A by the screw C, pressing the same against the sides of the hole or bearing *a*, in which it is fitted. When it is desired to remove the hair-spring for repairing, adjusting, cleaning, or other purpose, the screw is loosened, the stud released, and the latter then removed from the bridge. To restore the parts to their original positions, the stud is first reinserted in the hole or bearing in the bridge, and the screw is then turned

until its conical point enters between and forcibly presses against the sides of the vertical, angular, or V-shaped groove in said stud. In this manner compactness of parts is secured, 5 the bearing for the stud does not project beyond the face of the bridge, and the groove in the stud permits the conical point of the screw to hold said stud and the spring connected thereto in an unyielding manner, and also allows them to be restored to their exact original positions after removal. 10

It will be evident from the foregoing that with this construction the spring-supporting stud may be inserted into the hole with comparative ease, and that the conical end of the set screw 15 will bring said stud into its proper registering position when it is screwed in, even if its point only touches one side of the V-shaped groove.

It is obvious that minor modifications in the form and location of the parts of my invention 20 can be made without departing from the principle thereof. As constructed it is simple, inexpensive to manufacture, easy to be located, affords a firm and unyielding bearing for the

hair-spring-supporting stud, is not liable to breakage or disarrangement, and requires very little change in the arrangement of parts to be used in watches or other time-keepers as now constructed. 25

Having thus fully described the construction, operation, and advantages of my invention, what I claim as new is— 30

In a watch, the combination of a balance-bridge formed with an annular hole or bearing, a cylindrical hair-spring-supporting stud provided with a collet and a vertical V-shaped 35 groove, and a set-screw tapped through the side of said balance-bridge and provided with a conical point adapted to fit within said V-shaped groove, substantially as and for the purpose described. 40

In testimony whereof I affix my signature in presence of two witnesses.

LEO AEBY.

Witnesses:

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J. ALFRED AEBY.