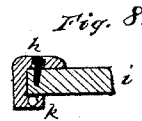
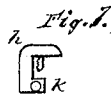
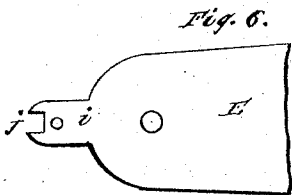
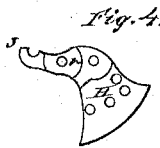
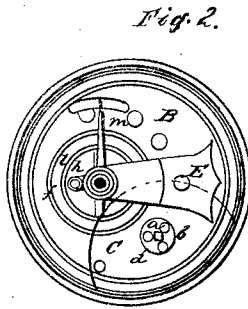
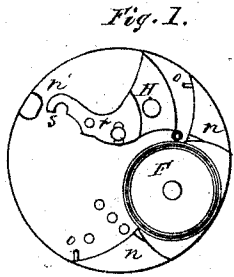


E. CHAPIN.
 Watch-Balances.

No. 157,154.

Patented Nov. 24, 1874.



WITNESSES:
 P. C. Dietrich
 Wm. Miller

INVENTOR
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per C. H. Watson
 ATTORNEYS

UNITED STATES PATENT OFFICE.

EARL CHAPIN, OF FREEPORT, ILLINOIS.

IMPROVEMENT IN WATCH-BALANCES.

Specification forming part of Letters Patent No. **157,154**, dated November 24, 1874; application filed June 30, 1874.

CASE C.

To all whom it may concern:

Be it known that I, EARL CHAPIN, of Freeport, in the county of Stephenson and State of Illinois, have invented certain new and useful Improvements in Watches; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of my invention is to improve the construction of a watch-balance, whereby the watch is simplified and cheapened; and to this end the nature of my invention consists in the construction of the hair-spring stud, and in providing the lever with a bridge, so that it can be properly secured to the upper plate before it is connected with a train, all as hereinafter more fully set forth.

In the accompanying drawing, Figure 1 is a bottom view of the upper plate. Fig. 2 is a top or plan view. Fig. 3 is a side elevation, showing the lever-bridge. Fig. 4 is a plan view of the lever-bridge. Fig. 5 is a side view of the same. Figs. 6, 7, and 8 are enlarged details, showing the devices for fastening the hair-spring.

A represents the bottom plate, usually called the pillar-plate. B is the upper plate; C, the barrel-bridge; E, the balance-wheel bridge; F, the mainspring-barrel; and H, the lever-bridge. *a* represents the winding-arbor; *b*, the ratchet-wheel; *d*, screws for connecting the ratchet-wheel and barrel together; *h*, the hair-spring stud; *i*, a projection at the end of the balance-wheel bridge; *j*, recess in projection *i*; *k*, hole in the stud for inserting the hair-spring; *l*, balance-wheel; *m*, the regulator; *n n'*, projections or pillars; and *r*, the lever-bearing. On the under side of the plate B I attach a lever-bridge, H, for the purpose of placing and holding the lever in position before the watch is set up, and thereby avoid-

ing the difficulty which has heretofore been experienced in setting up watches or taking them apart for the purpose of repairs, as it has been difficult to keep the lever in place during that operation, as heretofore the lever-arbor has extended to and been connected with each plate. By the use of the bridge H I am enabled to shorten the lever-arbor and permanently connect it with the upper plate, so that it is not disturbed when the watch is taken apart or put together. The bearing of the lever-arbor in this bridge is shown at *r*. The lever-bridge H is extended out, so as to form a hook, *s*, which extends partly around the escape-wheel arbor, so as to hold it in position while the watch is being taken apart or put together. The hair-spring stud is made as shown in Fig. 7, and is held in place by the notch in the end of the arm *i* of the bridge E, and a screw, as shown. The hair-spring is passed through the hole *k*, and secured there in the usual manner. By the use of this stud, constructed and attached as shown, the hair-spring can be disconnected and replaced without losing its adjustment.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The lever-bridge H, for giving the lever-arbor two bearings separate from and independent of the lower or pillar plate, substantially as specified.
2. The lever-bridge H, provided with the hook or projection *s*, for holding the escape-wheel in position, substantially as set forth.
3. The balance-wheel bridge E, having projection *i* and recess *j*, in combination with stud *h*, having perforation *k* and a hair-spring, as and for the purpose herein specified.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

EARL CHAPIN.

Witnesses:

W. W. MONTELIUS,
W. G. FORD.