(Model.)

L. R. KAUFMANN.

ADJUSTING HAIR SPRINGS OF WATCHES.

No. 360,701. Patented Apr. 5, 1887.

Fig. 1.

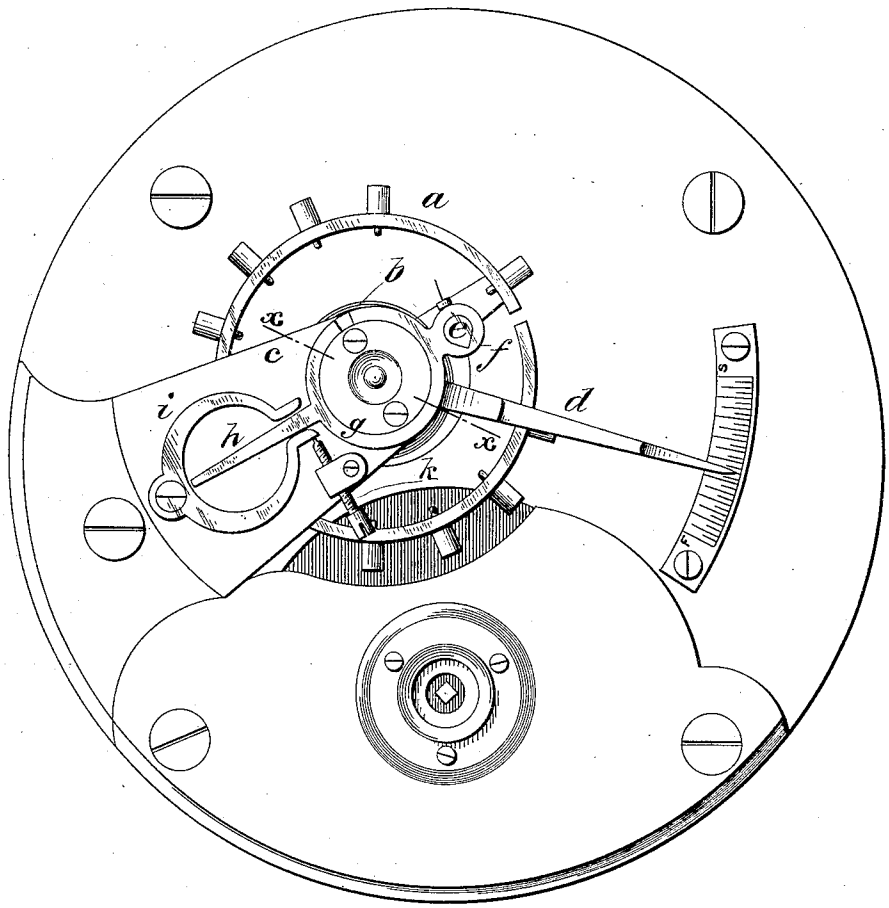
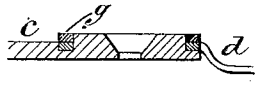


Fig. 2.



WITNESSES:

John A. Deemer

C. Sedgwick

INVENTOR:

L. R. Kaufmann

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

LOUIS R. KAUFMANN, OF LEXINGTON, MISSOURI.

ADJUSTING HAIR-SPRINGS OF WATCHES.

SPECIFICATION forming part of Letters Patent No. 360,701, dated April 5, 1887.

Application filed September 26, 1884. Serial No. 144,656. (Model.)

To all whom it may concern:

Be it known that I, LOUIS R. KAUFMANN, of Lexington, in the county of Lafayette and State of Missouri, have invented a new and Improved Adjustable Hair-Spring Fastening for Watches, of which the following is a full, clear, and exact description.

In all watches as heretofore constructed the plugs or studs which hold the outer ends of the hair-springs are fixed to the bridges or to the watch-plates, so that in order to shorten or lengthen the spring, or to set a watch in beat, the bridge and balance must be removed, and the adjustment is even then a matter of guess-work.

The object of my invention is to permit the ready and accurate adjustment of the hair-springs in watches either for bringing the lever in beat or when the spring needs adjustment with reference to the usual regulator, and to those ends I make the plug or stud adjustable, as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a plan view of a watch-plate with the balance and regulating devices; and Fig. 2 is a detail section on the line *x x*, Fig. 1.

The balance *a*, spring *b*, bridge *c*, and regulator *d* are as usual. The outer end of spring *b* is fastened to the stud *e*, that is fastened in a projection, *f*, from a ring, *g*, that is carried by the projection *c'* on the bridge, that also carries the regulator *d*. The ring *g* has also an arm, *h*, projecting between the ends of a spring, *i*, that tends to move the arm in one direction, while a screw, *k*, bearing on one end of the spring, limits the movement. By movement of arm *h* right or left the plug *e* is also moved, the adjustment being over a range of thirty degrees, so that in case a watch is out of beat all that is necessary is to move the arm and watch the action until the beat is correct.

If the watch is thirty degrees or more out of beat, the bridge and balance will be removed and the spring turned on the staff to about its proper point, and finely adjusted after the parts are put together again. Thus in either and all cases the adjustment is guided and is not a matter of guess-work or repeated trials, as is universally the case with watches having fixed plugs.

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

In a watch, the combination, with the bridge *c*, having the projection *c'*, the hair-spring *b*, and the regulator-arm *d*, carried by the projection *c'*, of the split ring *g*, also carried by the projection *c'*, and provided with the projection *f* and arm *h*, the stud *e*, carried by the projection *f*, and in which stud the outer end of the spring *b* is adjustably held, the spring *i*, held to the bridge and bearing upon the arm *h*, and the screw *k*, engaging a projection of the bridge and bearing upon the spring *i*, substantially as shown and described, and for the purpose set forth.

LOUIS R. KAUFMANN.

Witnesses:
HENRY SINAUR,
FRED W. FISCHER.