(No Model.)

C. R. KINEHAN.

Device for Adjusting Balance Spring of Watches.

No. 232,276. **Patented Sept. 14, 1880.**

Fig. 1

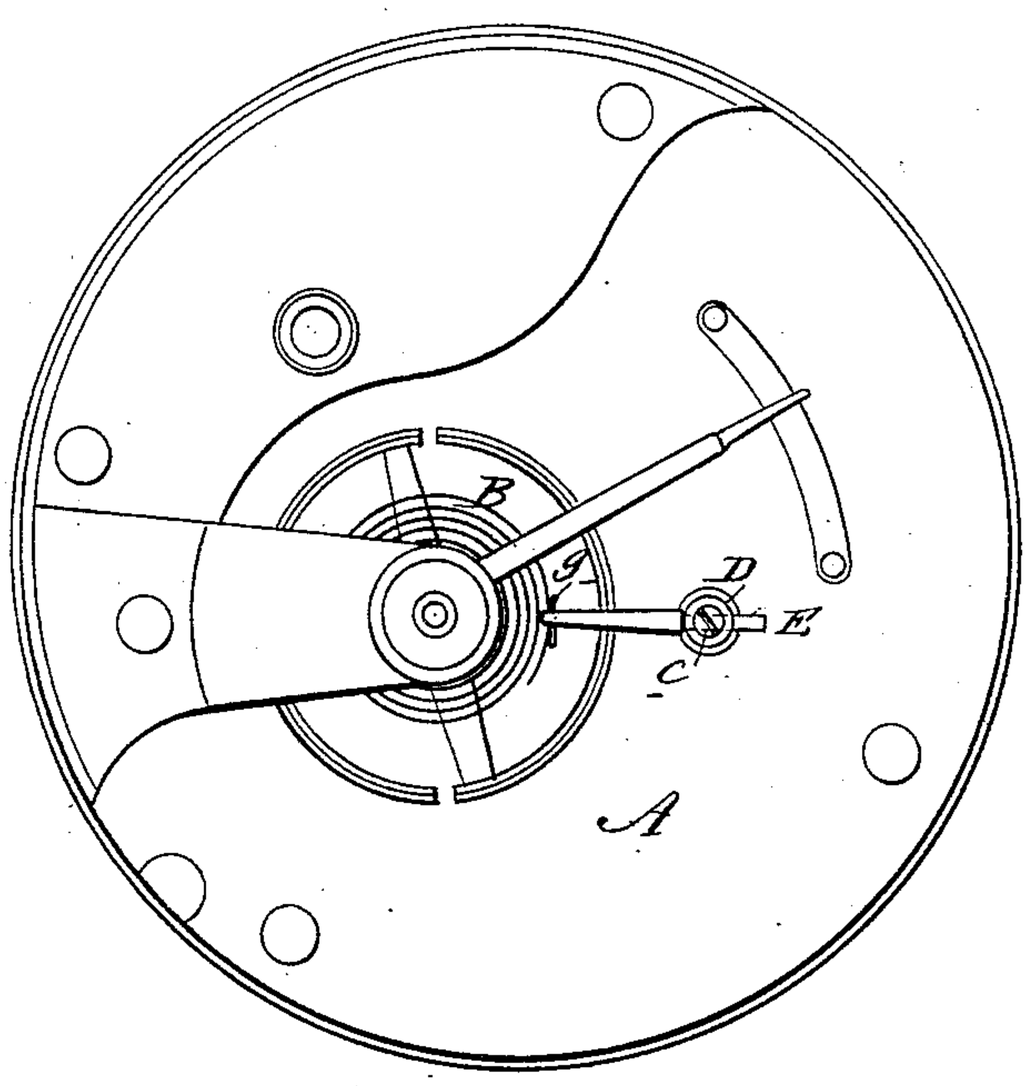


Fig. 2

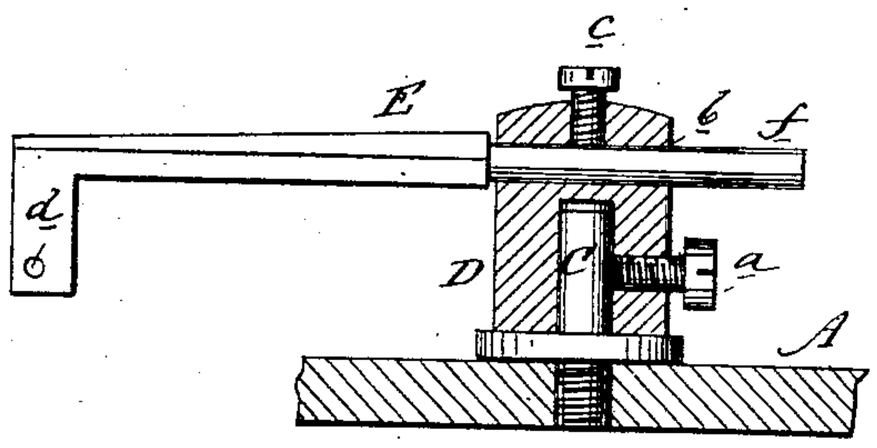


Fig. 3

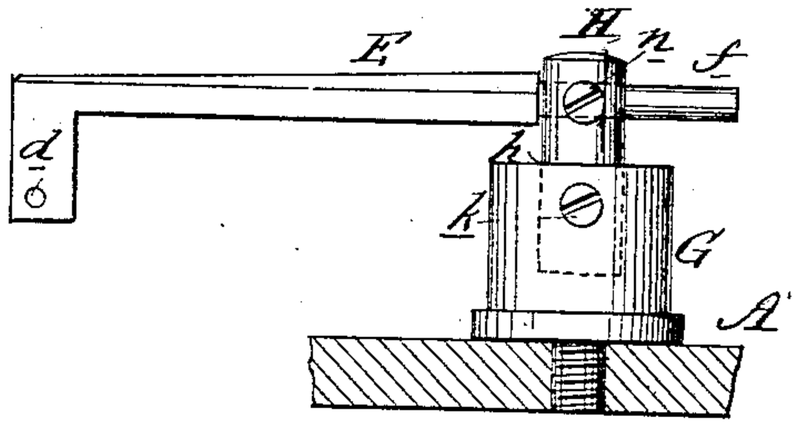
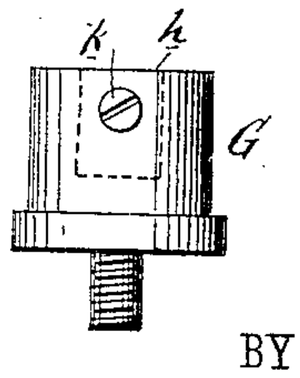


Fig. 5

Fig. 4



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UNITED STATES PATENT OFFICE.

CHARLES R. KINEHAN, OF SPRINGFIELD, ILLINOIS.

DEVICE FOR ADJUSTING BALANCE-SPRINGS OF WATCHES.

SPECIFICATION forming part of Letters Patent No. 232,276, dated September 14, 1880.

Application filed May 10, 1880. (No model.)

To all whom it may concern:

Be it known that I, CHARLES R. KINEHAN, of Springfield, in the county of Sangamon and State of Illinois, have invented a new and useful Improvement in Watches, of which the following is a specification.

The object of this invention is to provide a simple device for more readily and accurately circling and leveling the hair-springs of watches.

The invention consists of a sliding and rotating rod holding the spring and fixed adjustably in a vertically-adjustable stud or pillar that is connected with the top plate of the watch.

Figure 1 is a plan of a watch-plate, showing the sliding rod in position. Fig. 2 is an enlarged vertical sectional side elevation, representing the adjustable stud in position and holding the sliding rod. Fig. 3 is an enlarged side elevation, representing a modification of the device supporting the sliding rod. Fig. 4 is an enlarged elevation of a portion of the rod-supporting device shown in Fig. 3. Fig. 5 is an enlarged elevation of another portion of the rod-supporting device shown in Fig. 3.

Similar letters of reference indicate corresponding parts.

In the drawings, A represents the top plate of a watch. B is the hair-spring of the watch.

C represents a pillar that is screwed fast to the top plate, A, and has fitted over it and held to it by means of a screw, *a*, a shell, D, said screw *a* being entered at the back part of shell D in a line parallel with the sliding rod E, and the shell D is vertically adjustable on the pillar C by means of said screw *a*, so that the sliding rod E may be elevated or depressed, and on loosening said screw may be rotated in either direction. The sliding rod E is passed horizontally through the hole *b* in the shell D, and is held in position therein by the screw *c* that passes down through the top of said shell D, so that by loosening the screw *c* the rod E may be moved forward or back or turned to either side; hence it will be seen that said rod E is capable of movement in eight directions. This rod E, in order that it may be turned or tipped on its axis to either side, has a rounded shank, as shown at *f*, and the end of said rod E is bent downward at right angles and provided with a hole, *d*, through which the outer end of the hair-spring B is passed, and wherein it is held by the pin *g* or other suitable device. The hair-spring B is "circled"—its extent of circular motion is enlarged or restricted—by rotating the shell D or by the longitudinal movements of the rod E, while the leveling of the said spring B is effected by the vertical adjustment of the shell D or the turning or tipping of the rod E on its own axis.

In Fig. 3 is shown a modification of the hereinbefore-described device, in which G is a shell provided with a perpendicular socket, *h*, screwed into the top plate, A.

H is a post fitting into the socket *h*, wherein it is adjustably secured by a screw, *k*, and provided with a hole, *m*, through which the sliding rod E is passed horizontally, and wherein it is secured by the screw *n*, that enters through said post H at right angles to said rod E.

The post H, it will be seen, is capable of both rotary and vertical adjustment on loosening the screw *k*, and in this modification the sliding rod E is adjustable in the same manner and directions as in the device first shown and described herein.

In both instances the operating parts are round instead of angular, and hence work more easily and accurately, and can be produced at less cost than others.

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

1. The combination, with the watch-plate A, of the pillar C, adjustable shell D, and adjustable sliding rod E, substantially as herein shown and described.

2. In a device for adjusting the hair-springs of watches, the adjustable round-shanked sliding rod E, substantially as herein shown, and for the purpose described.

3. In a device for adjusting the hair-springs of watches, the combination, with the pillar C, of the adjustable shell D and screw *a*, substantially as herein shown and described.

4. In a device for adjusting the hair-springs of watches, a rotating shell or support supporting an adjustable sliding rod, to an end of which the hair-spring is secured, substantially as herein shown and described.

CHARLES R. KINEHAN.

Witnesses:
FRED. F. IDE,
JAS. F. MCNEILL.