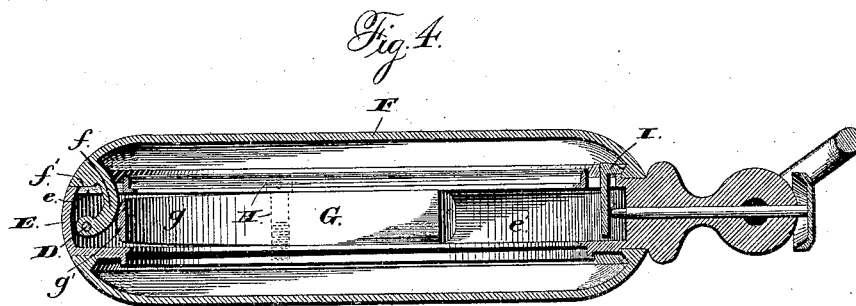
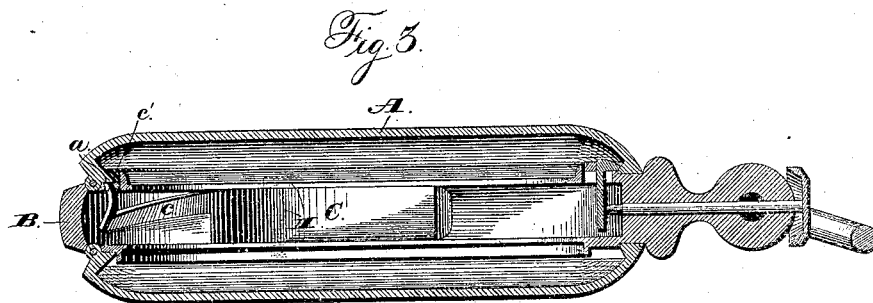
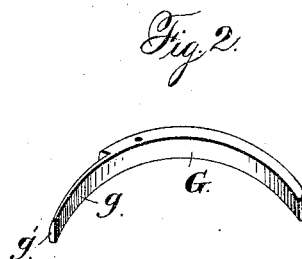
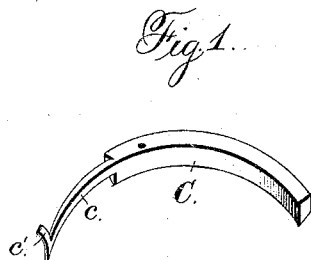


(No Model.)

R. J. QUIGLEY.
WATCH CASE SPRING.

No. 306,954.

Patented Oct. 21, 1884.



Witnesses:
Jas. C. Hutchinson
Henry C. Hazard

Inventor:
Robt. J. Quigley, by
Prindle and Russell, his Attys

UNITED STATES PATENT OFFICE.

ROBERT J. QUIGLEY, OF TORONTO, ONTARIO, CANADA.

WATCH-CASE SPRING.

SPECIFICATION forming part of Letters Patent No. 306,954, dated October 21, 1884.

Application filed March 24, 1884. (No model.)

To all whom it may concern.

Be it known that I, ROBERT J. QUIGLEY, of Toronto, in the county of York, and in the Province of Ontario, Canada, have invented certain new and useful Improvements in Watch-Case Springs; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of an ordinary lifting-spring separated from its case. Fig. 2 is a like view of my lifting-spring. Fig. 3 is an axial section of a watch-case containing the spring shown in Fig. 1, and Fig. 4 is a like view of a case containing my improved lifting-spring.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to simplify the construction and action and to lessen the expense of lifting-springs for watch-cases; to which end said invention consists, principally, in combining with the hinged cover of a watch-case a spring whose free end is movable only in a direction parallel to the plane of the case-center, adapted to open the cover by pressure radial with reference to the case-center, substantially as hereinafter shown and described.

It consists, further, in combining with the hinged cover of a watch-case a spring adapted to open the same by pressure direct, outward, and radial with reference to the case-center, substantially as hereinafter shown and described.

In cases as heretofore constructed the cover A is hinged to the center B, as shown in Fig. 3, and is opened by means of a spring, C, that is secured within the interior of said center, and provided with a reduced portion, *c*, which has an upward and outward curving end, *c'*, that engage with the hinge-lug *a* at its point of attachment to said cover, and by a torsional strain is enabled to open said cover. The spring thus constructed is expensive in construction, easily broken, and from the fact that it acts upon the cover at a point so near to the pivotal bearing of the same its effect is to exert an injurious lifting strain upon said bearing, and not only materially increase the

wear at such point, but also operate to lift said cover from its seat upon the center whenever said pivotal bearing becomes slightly worn, and thereby permit of the ready introduction of dust and dirt to the interior of the case.

In the carrying into effect of my invention a pin, D, is placed within a case-center, E, in such position as to be parallel with the faces thereof, and at a right angle to the radius of the same, where it operates as a pivotal or hinge pin for connecting one or both of the covers or the bezel with said center. The front cover, F, is provided with a lug, *f*, which is secured to its inner face at a point just inside of the bearing-edge *f'*, and from thence extends in a curve forward, downward, and outward, and terminates at a point slightly farther from the axial center of said part than is its said point of attachment thereto. The lug *f* is inserted through a corresponding opening, *e*, in the side of the case-center E, and has its outer end journaled upon the pin D, in which position it operates as a pivotal or hinge connection between the cover A and said case-center, and permits the former to be opened or closed in the usual manner. The convex side of said hinge-lug *f* has a convolute form and constitutes a cam, of which the smallest diameter is at the pivotal end, and its largest diameter at or near the point of attachment of said cover F.

Secured within the circumferential recess *c'*, formed in the interior of the case-center E, is a spring, G, which has its body conformed to the longitudinal and transverse shapes of said recess, and is held therein by means of a screw, H, that passes through a contiguous portion of said center, and has its threaded end contained within a correspondingly-threaded opening in said spring. The portion *g* of the spring G adjacent to the hinge of the cover F is reduced in thickness, as shown, and upon its outer side, at its end, is provided with a bearing, *g'*, that conforms to and rests upon the periphery of the hinge-lug *f* in front of and slightly above the pin D, and is arranged to exert a radially-outward pressure upon the same, which pressure, when said cover is liberated from the catch I, causes the latter to automatically turn upward and outward to the usual position.

The operation of the spring end *g* upon the hinge-lug *f* is twofold, viz: As such pressure is exerted at a point above the pivotal bearing of said lug, the effect is by direct pressure to cause the latter, with its cover *F*, to turn upward and outward, while in consequence of the convolute or cam shape of the periphery of said lug an outward pressure of said spring upon its inclined face produces the same effect by forcing the largest portion of said cam upward, and consequently outward. It will therefore be seen that while in the construction shown both of the causes named operate to produce the desired result, either will alone effect the desired result.

The spring *G* is easily and cheaply constructed, and as it operates in a direct line and its range of motion is comparatively small little liability for breakage exists in comparison with lifting-springs of ordinary construction.

The spring as shown and described in this application differs from that shown, described, and claimed in my application filed March 24, 1884, No. 125,346, in that the spring in this case acts by pressure direct, outward, and radial with reference to the watch-case center, while the spring covered in the other application referred to acts by an inward pressure.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. In combination with the hinged cover of a watch-case, a spring whose free end is movable only in a direction parallel to the plane of the case-center, adapted to open the cover by pressure radial with reference to the case-center, substantially as shown and described. 35

2. In combination with the hinged cover of a watch-case, a spring adapted to open the same by pressure direct, outward, and radial with reference to the case-center, substantially as shown and described. 40

3. In combination with the hinged cover of a watch-case, a spring which is located within the watch-case center, and is arranged to exert an outward pressure upon the pivotal or hinge lug between its pivotal bearing and the point of its attachment to said cover, substantially as and for the purpose shown. 45

4. In combination with a cam-shaped hinge-lug which is attached to and forms a pivotal connection between the cover and center of a watch-case, a spring that, by a radially-outward pressure upon the periphery of said lug, operates to open said cover, substantially as and for the purpose set forth. 50 55

In testimony that I claim the foregoing I have hereunto set my hand this 8th day of March, A. D. 1884.

R. J. QUIGLEY.

Witnesses:

GEO. S. PRINDLE,
HENRY C. HAZARD.