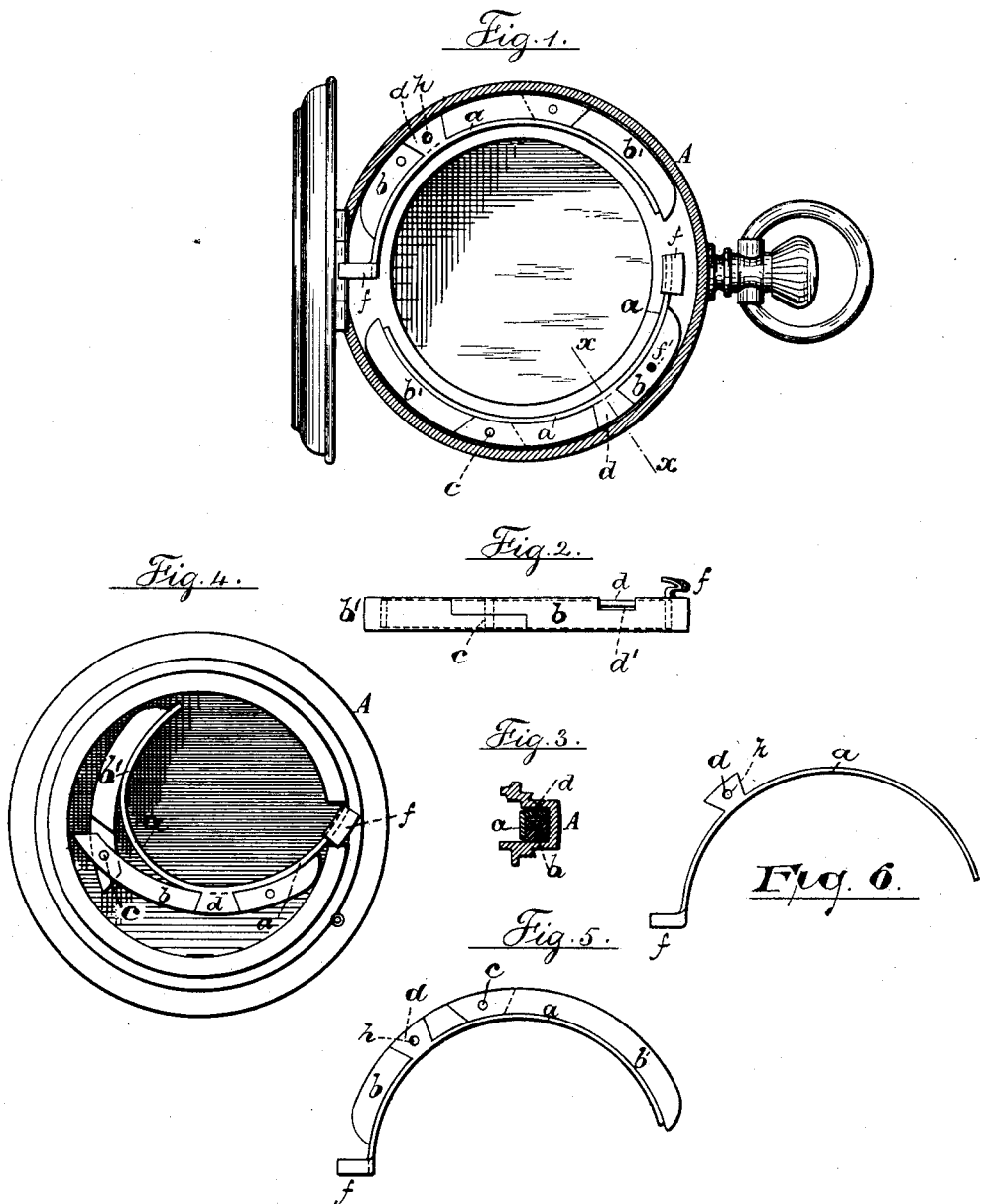


(Model.)

J. H. FLEMING.
WATCH CASE SPRING.

No. 465,593.

Patented Dec. 22, 1891.



—Witnesses—

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UNITED STATES PATENT OFFICE.

JAMES H. FLEMING, OF NEWARK, NEW JERSEY.

WATCH-CASE SPRING.

SPECIFICATION forming part of Letters Patent No. 465,593, dated December 22, 1891.

Application filed September 5, 1890. Serial No. 364,022. (Model.)

To all whom it may concern:

Be it known that I, JAMES H. FLEMING, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Watch-Case Springs; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is more particularly to avoid perforating and thus weakening the watch-case spring in securing the same to its back, thus rendering the said spring better able to resist the tendency to fracture when being bent in removing the spring and backing from the case or inserting it therein or when said spring is exerting its power in connection with the lid or cover of the watch-case.

Further objects are to enable the spring to be easily removed from its backing when the latter is undergoing the dressing or adjusting operations to more perfectly conceal the said backing when arranged in said case and to secure other advantages and results, some of which will be hereinafter set forth.

The invention consists in the improved watch-case spring and in the arrangements and combinations of parts, substantially as will be hereinafter set forth, and finally embodied in the clauses of the claims.

Referring to the accompanying drawings, in which like letters indicate corresponding parts in each of the several figures, Figure 1 is a plan showing an open watch-case with the springs arranged therein. Fig. 2 is an elevation showing the convex side of the backing and portions of the spring. Fig. 3 is a section through line *x*, Fig. 1. Fig. 4 is a plan illustrating the method of operating the spring and backing when inserting it into the watch-case, and Figs. 5 and 6 are details showing the spring arranged in connection with the backing and detached therefrom.

In said drawings, *a* indicates a spring having a fly or lock spur *f*, adapted for use in connection with the cover or lid of a watch-

case and adapted to operate in its relation to said lid in any ordinary manner.

b b' is a backing for the watch-case spring. This is made in sections adapted to be moved one in relation to the other and is curved to conform to the concave curve of the watch-case center. Said backing-sections are united at their contiguous ends, so as not to be separated and lost from one another when disconnected from the watch-case center and the spring, and are preferably thus united by a hinge-pin *c*, employed in connection with overlapping hinge-ears, such as are employed in ordinary pivotal hinges. Any other suitable connection or coupler other than the spring itself, adapted to allow of a movement of one of said sections independent of the other, may be employed, whereby the ends of the said sections may be brought toward one another out of a true circle or line of the watch-case center to allow the said backing to be placed in position within the said watch-case center, as will be understood.

As before intimated, the spring *a* is detachably, removably, or separably secured to the backing, so as to allow of ready and easy manipulation in taking the spring from its backing or adjusting it thereon and to allow said parts to be trimmed, dressed, or fitted to the watch-case independent of one another. They are held together by means which allow of such ready removal or separation without injury to the spring or backing, such as would be occasioned by riveting, or such trouble and loss of time and injury to the spring as would be occasioned in soldering the parts together, it being understood that when said parts are united by solder or rivets in the usual manner they are permanently united and not removable.

In Figs. 1, 4, 5, and 6 the spring *a* is shown to be provided on its convex side with a dovetailed lug *d*, which fits into a notch *d'* in the backing, so as to prevent detachment of the spring by pressure or force exerted in a direction parallel with the plane of the watch-case lid, the opposite ends of the said spring being free to slide on the backing, so that the latter may be worked at the hinge joint or union, in the manner illustrated in Fig. 4. The lug may be perforated and be held in place by a pin or screw *f'*, which passes through said

lug from the watch-case center and thus holds the backing and spring in proper operative position. In that event the lug may not necessarily be dovetailed or be in the form of a keystone, although under certain conditions I prefer to employ the perforated dovetail or keystone-shaped lug. By simply pressing the spring, which is normally straight or of a curve of larger diameter than the curve of the sectional backing, against the concave face of the said back and forcing the lug into the recess prepared to receive it, the parts are joined and are adapted to be inserted into the watch-case center. The depth of the notch *d'* in the backing is preferably greater than the thickness of the lug, so that the said lug may be raised or lowered therein and the spring, to which the lug is attached, be correspondingly raised or lowered in its relation to the backing, so as to be easily fitted into the center. Thus hand-work in making a perfect fit or in adjusting the spring to the case-center is avoided entirely or greatly reduced. By the construction last described the spring can be arranged in position in the backing before being placed in position in the watch-case center.

In the operation of securing the improved device in position the hinged sections are turned on the hinge-pin *c* in the manner shown in Fig. 4, and the spring *a*, held to one of said sections by the lug *d*, (if the keystone or dovetail form be employed,) slides at its extremities on the concave surface of the sections to allow of the hinge movement. The diameter of the backing is thus reduced, so that it can be inserted within or through the normally diametrically smaller watch-case center *A*, as will be readily understood. The backing is then held in proper relation to the center by the pin or screw *f'*, extending into the shell of said center. The spring *a* throws the opposite ends of the hinged sections outward into a normal position concentric with the curve of the watch-case center, as will be understood.

Having thus described the invention, what I claim as new is—

1. The improved watch-case spring herein described, combining an imperforate spring *a*, having a lock or fly spur, and a backing of hinged sections, substantially as and for the purposes set forth.

2. In combination with the spring *a*, having a spur *f*, a backing composed of hinged sections *b b'*, substantially as set forth.

3. In combination with the spring *a*, having fly or lock spur *f*, curved backing-sections having hinge-ears, and hinge-pin *c*, substantially as and for the purposes set forth.

4. The combination, with the watch-spring backing-sections, hinged together as described, of a spring *a*, having a fly or lock spur and being secured to one of said sections of the backing and free at the extremity to slide on the other, substantially as set forth.

5. The combination, with the hinged sections composing the backing, of an imperforate watch-case spring having a lock or fly spur, and a device connected to and forming part of said spring and adapted to removably engage the backing, substantially as and for the purposes set forth.

6. The combination, with the hinged sections composing the backing, of an imperforate watch-case spring having a lock or fly spur, and a device connected to or forming part of said spring adjacent to said spur or lock and adapted to removably engage with one section of the backing, so that the free end of the spring can be bent by the movement of the hinged sections, substantially as set forth.

7. The combination, with the hinged sections composing the backing, of a watch-case spring having a lock or fly spur, a dovetailed or keystone lug connected to or forming part of the spring and adapted to hold the spring to the backing, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 2d day of September, 1890.

JAMES H. FLEMING.

Witnesses:

CHARLES H. PELL,
OSCAR A. MICHEL.