

(No Model.)

J. VILLON.

JEWEL SUPPORT FOR BALANCE STAFFS OF WATCHES.

No. 448,896.

Patented Mar. 24, 1891.

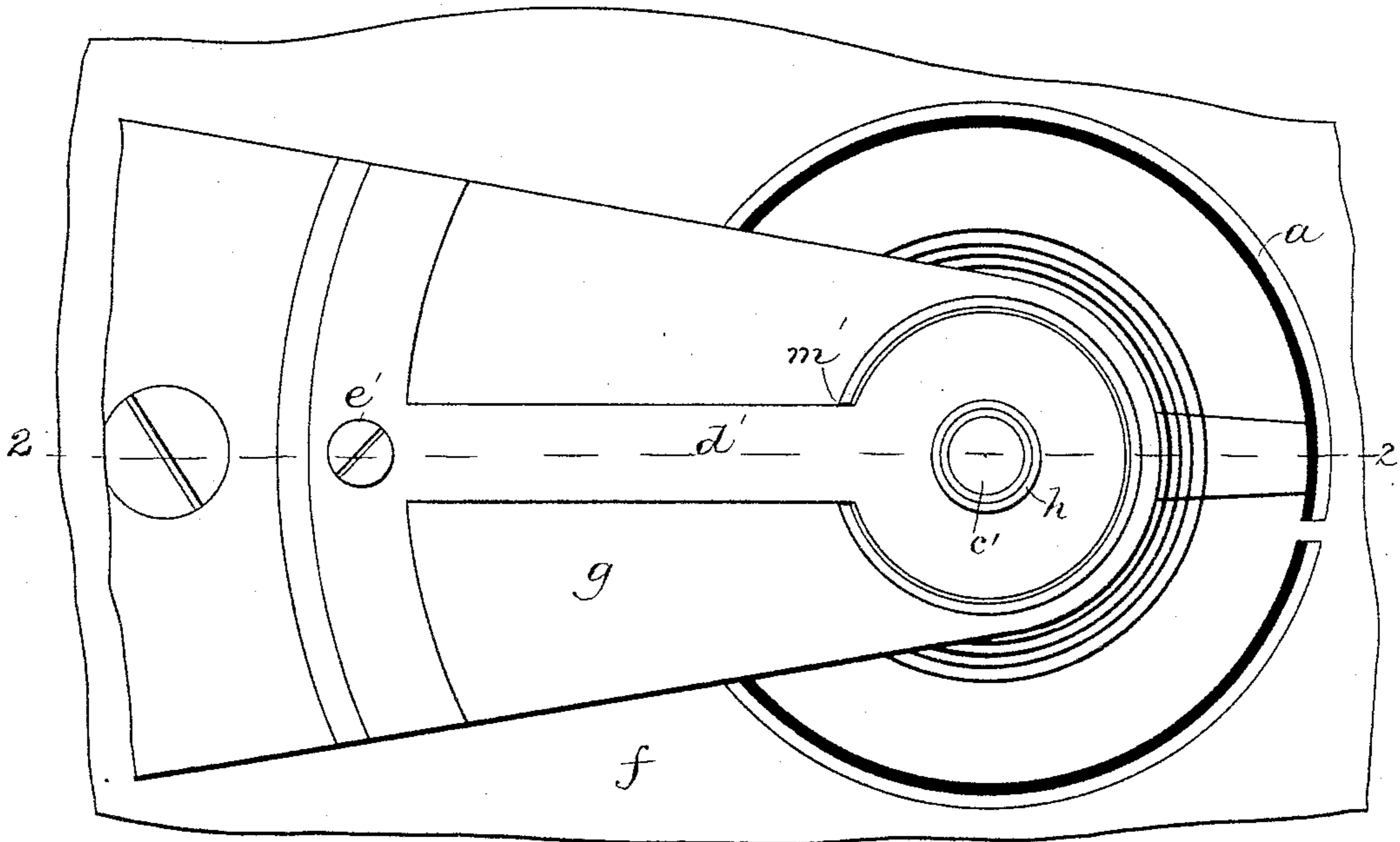


FIG. 1.

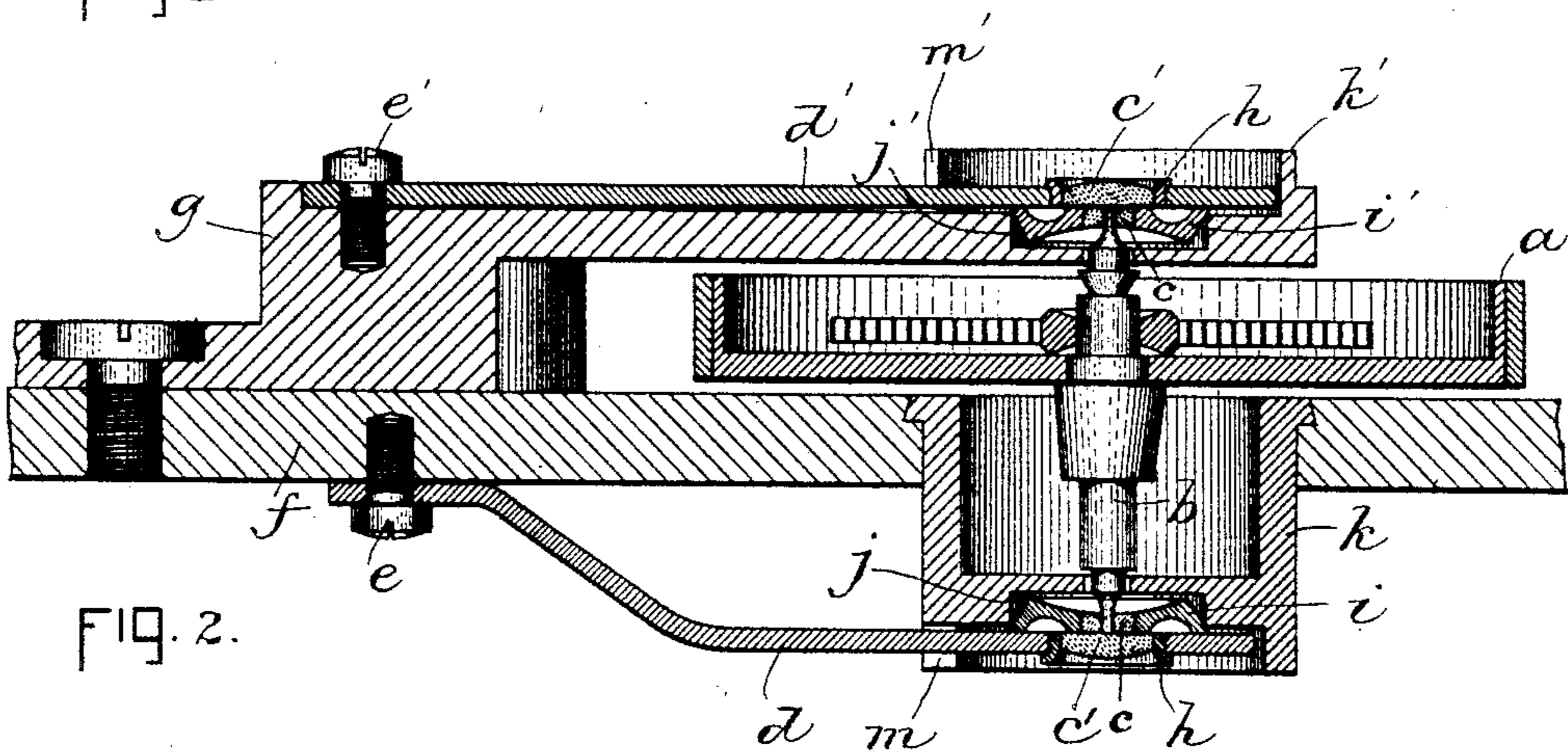


FIG. 2.

WITNESSES:

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JULES VILLON, OF LIMA, PERU.

JEWEL-SUPPORT FOR BALANCE-STAFFS OF WATCHES.

SPECIFICATION forming part of Letters Patent No. 448,896, dated March 24, 1891.

Application filed February 13, 1890. Serial No. 340,268. (No model.)

To all whom it may concern:

Be it known that I, JULES VILLON, of Lima, in the Republic of Peru, have invented certain new and useful Improvements in Watches, of which the following is a specification.

This invention has for its object to prevent injury to the pivot of a watch-balance by shocks or jars to which the watch-movement may be subjected when accidentally dropped or otherwise given a violent blow; and it consists in the improvements hereinafter described and claimed, whereby all the jewels supporting the pivots of the staff are enabled to move endwise of the staff, and the hole-jewels are enabled to move independently at right angles to or crosswise of the direction of the length of the staff.

In the accompanying drawings, forming a part of this specification, Figure 1 represents a plan view of a portion of the balance-bridge of a watch and the compensation-balance arranged in its usual relation to said bridge. Fig. 2 represents a section on line 2 2 of Fig. 1.

The same letters of reference indicate the same parts in both of the figures.

In the drawings, *a* represents the compensation-balance of a watch, the same being of the usual or any suitable construction.

b represents the staff which supports the balance and has its ends reduced and formed as pivots in the usual way.

c c and *c' c'* represent the jewels which support the pivots of the staff, the jewels *c* being socketed to receive the pivots, while the jewels *c'* are formed to bear on the ends of the pivots. Said jewels are yieldingly held in place or supported by the springs *d d'*. The spring *d*, which supports the jewels *c c'* at one end of the staff, is attached by a screw *e* or other suitable means to the plate *f*, and the spring *d'*, supporting the jewels *c c'* at the other end of the staff, is attached by a screw *e'* to the balance-bridge *g*. The end or cap jewels *c'* and the socketed or hole jewels *c* are not rigidly connected, but are separable from each other, although normally held in contact with each other, as shown in Fig. 2, by the springs *d d'*, the cap-jewels *c'* being affixed to settings *h h*, which are rigidly attached to said springs, while the hole-jewels *c* are affixed to independently-movable settings *i i'*, which are normally held by the pressure of the

springs *d d'* in circular recesses *j j'*, formed, respectively, in a cylindrical box *k*, attached to the plate *f*, and in a circular flange *k'* on the balance-bridge *g*. The settings *i i'* are disks having beveled peripheries, which rest on the angular shoulders or seats constituting the outer ends of the recesses *j j'*. The beveled form of the peripheries of the settings *i i'* and the absence of positive connection between the said settings and the springs *d d'* and cap-jewels *c' c'* enable the settings *i i'* and their jewels *c c* to move edgewise or laterally to a sufficient extent to prevent injury to the pivots when a shock or jar is experienced, which exerts a strain on said pivots in a direction at right angles to their length. It will be seen that in case the watch is dropped and strikes on the periphery of the case-center the beveled settings *i i'*, yieldingly supported, as described, will yield edgewise or laterally to a sufficient extent to prevent injury to the pivots, said beveled settings slipping on their seats and displacing the springs *d d'* to the slight extent required to permit the edgewise yielding of the settings. If the watch in falling strikes on one of the sides of the case, one of the springs and both jewels *c c'* supported thereby yield in the direction of the length of the staff *b*, both jewels yielding together. Provision is therefore made for the prevention of injury to the pivots by strains exerted thereon, either crosswise or lengthwise of the staff *b*.

I am aware that it is not new to support the jewels of a balance-staff by springs, so that said jewels may yield in various directions, and I do not claim, broadly, the combination, with a balance-staff, of jewels yieldingly supported. I am the first, however, so far as I am aware, to provide the hole-jewels with settings having beveled peripheries which are yieldingly supported on annular seats formed on the supporting portions or frame of the watch-movement.

An advantage of my improved construction is that the jewels normally have a rigid support and do not yield excepting to unusual or excessive shocks, such as would be sufficient to injure the pivots, the settings *i i'*, held against their seats by the springs, being uninfluenced by lighter jars, which are not sufficient to cause injury to the pivots. In all in-

stances of the use of yielding jewels of which I am aware the jewels have been supported entirely by the springs and have no lateral bearing on seats on the supporting-frame of the movement, so that there is an objectionable absence of a sufficiently-positive support for the jewels under normal conditions. This objection is overcome by my improvement. I prefer to guide the springs by means of the slots $m m'$, formed, respectively, in the box k on the plate f and in the flange k' on the balance-bridge g , the walls of said slots being in close proximity to the edges of the springs.

I claim—

1. In a watch-movement, the combination, with the compensation-balance and its staff, of the socketed jewels receiving the pivots of the staff, the settings containing said jewels and provided with beveled peripheries, the supports having circular recesses which present annular seats on which said beveled peripheries bear, and springs arranged to hold the settings on their seats with a yielding pressure, as set forth.
2. In a watch-movement, the combination, with the compensation-balance and its staff, of yielding cap-jewels movable endwise of the staff, the hole-jewels contained in settings, which are independently movable crosswise to the movement of the cap-jewels, springs yieldingly supporting said jewels, said springs

being positively attached to the cap-jewels and bearing on the settings of the hole-jewels without positive connection therewith, whereby the hole-jewels are adapted to yield or move independently, and the supports having circular recesses presenting annular seats on which the beveled peripheries of the hole-jewels are yieldingly held by the springs, as set forth.

3. In a watch-movement, the combination, with the compensation-balance and its staff, of the cap-jewels movable endwise of the staff, the springs holding said cap-jewels in their free ends, the hole-jewels socketed to receive the pivots of the staff, the beveled settings holding the hole-jewels and movable edgewise therewith, and the supports having the recesses $j j'$ constituting seats which support the beveled peripheries of said settings, the said springs bearing loosely at their free ends on the settings of the hole-jewels and holding the same yieldingly against their seats, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 19th day of November, A. D. 1889.

JULES VILLON.

Witnesses:

ROBERT TSCHAUTRE,
C. F. BROWN.