

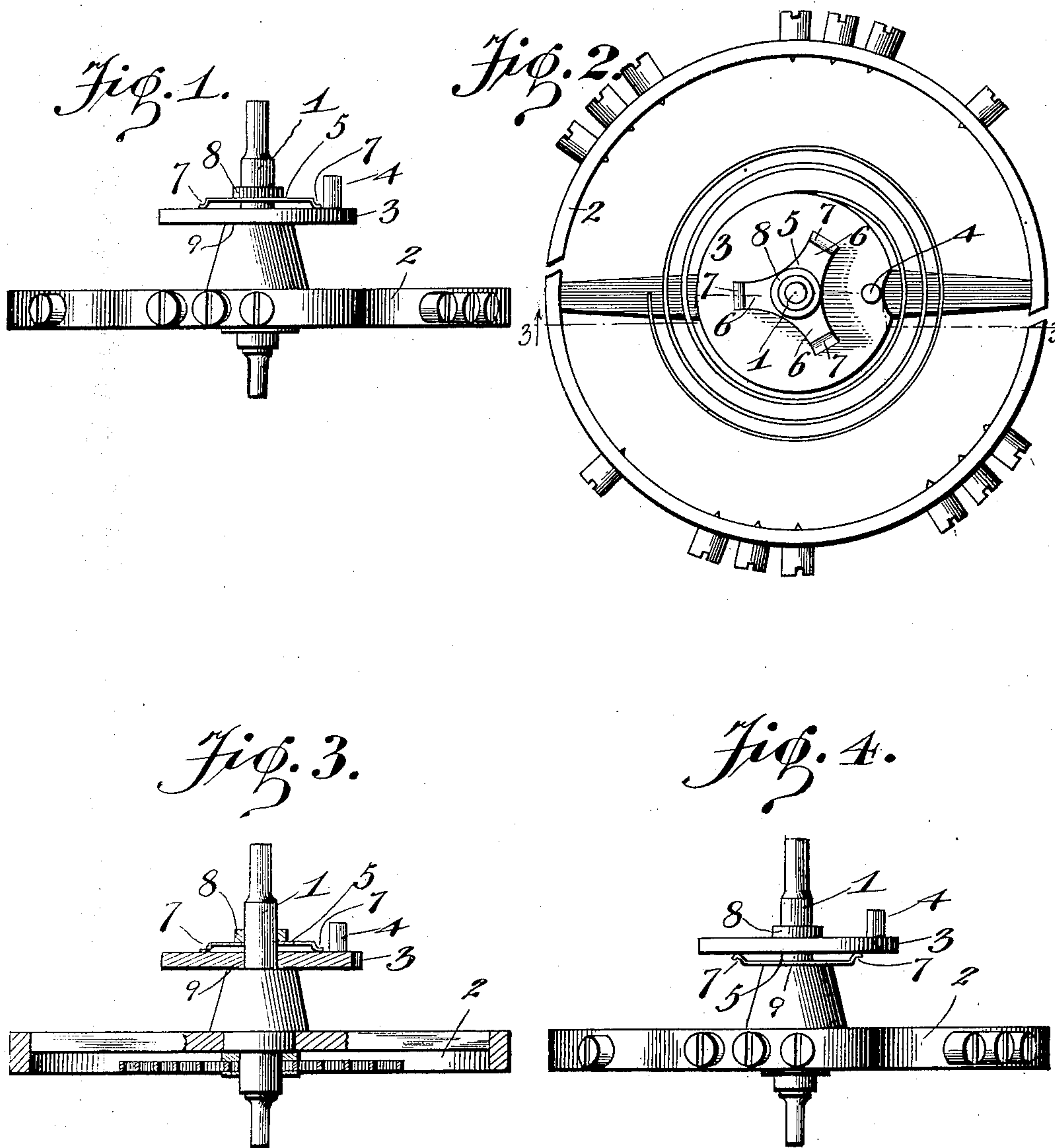
No. 653,131.

Patented July 3, 1900.

M. BURT.
BALANCE ESCAPEMENT.

(Application filed July 30, 1898.)

(No Model.)



Witnesses

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H. A. Bunker

By *his* Attorneys.

Merritt Burt,

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UNITED STATES PATENT OFFICE.

MERRITT BURT, OF JACKSONVILLE, FLORIDA.

BALANCE-ESCAPEMENT.

SPECIFICATION forming part of Letters Patent No. 653,131, dated July 3, 1900.

Application filed July 30, 1898. Serial No. 687,346. (No model.)

To all whom it may concern:

Be it known that I, MERRITT BURT, a citizen of the United States, residing at Jacksonville, in the county of Duval and State of Florida, have invented a new and useful Safety Roller-Table, of which the following is a specification.

The invention relates to improvements in roller-tables for watch-movements.

One object of the present invention is to improve the means for connecting the roller-table with the balance-staff and to provide a device which will operate to cushion the roller-table and prevent the breakage of the roller-jewel when a watch is subjected to a sudden jar or violent shake incident to dropping it.

A further object of the invention is to provide a device of this character which will facilitate putting the movement in beat and which will enable such operation to be effected by simply shaking a watch without even opening the case.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claim hereto appended.

In the drawings, Figure 1 is a side elevation, on an enlarged scale, of a watch-balance embodying the invention. Fig. 2 is a plan view of the same. Fig. 3 is a vertical sectional view. Fig. 4 is a side elevation illustrating a modification of the invention.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates the balance-staff. 2 is the balance-wheel. 3 is the roller-table, and 4 is the roller jewel-pin which is carried by the table. These elements are similar to the ordinary devices or lever watch-movements, in so far as their general construction and organization are concerned; but in order to enable the watch to be put in beat by simply shaking it and to prevent injury to the ruby or jewel pin 4 when the movement is subjected to a sudden jar or shock I mount the roller-table 3 loosely on the balance-staff to provide for a limited movement longitudinally thereof and an oscillatory movement, and employ a friction driving device which

forms a cushion and which is fast or loose with the shaft and has sufficient frictional engagement with the roller-table to make the latter practically fast with the staff and drive the watch-movement. By cushioning the roller-table in this manner it is free to play or move on the balance-staff when the watch is subjected to a shock or fall and breakage of the jewel or ruby pin 4 is obviated. The cushioning friction driving device which I prefer to employ is a spring 5, provided with a series of radial arms 6. The combined friction and cushioning spring 5 is slipped or pressed on the balance-staff in a position adjacent to the roller-table for the radial arm 6 of the said spring to engage one side or face of said table, and to insure proper engagement of the spring-arms with said table I prefer to bend the ends of the arms, as shown at 7, thus enabling the friction and cushioning spring to be held on the staff without coming in contact with the face of the roller-table, except at the extremity 7. This provides an intervening space and enables the spring to have the cushioning effect explained when the watch is subjected to a jar or sudden shock. The friction-spring is made fast or loose with the balance-staff by the employment of a collar 8, which is pressed tightly on the staff and engages with the spring to confine the latter firmly in place against any tendency to become displaced laterally with relation to the roller-table and to attach said spring to the staff. While I do not limit myself strictly to the employment of the three-arm spring, I desire to remark that the arms of the spring are arranged equidistant and engage with the roller-table at a number of equidistant points, thereby insuring uniformity in pressure of the friction and cushioning spring against the roller-table and obviating any tendency of the roller-table to cant or tilt on the balance-staff.

In Figs. 1 to 3, inclusive, of the drawings the combined cushioning and friction spring and the collar 8 are arranged above the roller-table, which lies next to the staff 1; but it is obvious that the friction-spring may be arranged on the lower side of the roller-table and be attached to the staff or a hub of the staff, as shown in Fig. 4, in which event the collar 8 operates to confine the loosely-mount-

ed roller-table between it and the friction and cushioning spring.

5 The invention has the following advantages: The cushioning and friction spring by having the outer ends of its arms bent, as shown, is offset from the roller-table to provide the necessary space to enable it to cushion the roller-table and prevent its jewel or ruby pin from becoming broken when the watch is
10 dropped or otherwise subjected to a jar or shock; also, the arrangement permits the movement to be readily placed in beat without removing any of the parts and by simply shaking the watch.

15 I am aware that escapements for watches have been constructed to permit an adjustment of the tables and hair-springs of the balance-wheels without removing any of the parts from their places and that springs have
20 been employed for providing a frictional engagement; but I am not aware that such parts have ever been arranged to cushion the roller-table to prevent the ruby or jewel pin from being broken when the movement is subjected

to a sudden jar or shock and also to permit
25 the movement to be placed in beat by simply shaking it.

What I claim is—

In a watch-movement, the combination with a balance-staff, a roller-table loosely arranged
30 on the staff to have a limited movement longitudinally thereof and provided with a jewel-pin, and a collar arranged on the balance-staff and retaining the roller-table on the balance-staff, of a cushioning and friction spring
35 mounted on the staff and engaging the roller-table, and adapted to yield and cushion the said roller-table and capable of enabling the watch-movement to be put in beat by simply
40 shaking it, substantially as and for the purpose described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

MERRITT BURT.

Witnesses:

WILLIAM L. GIBSON,
E. C. BUDD.