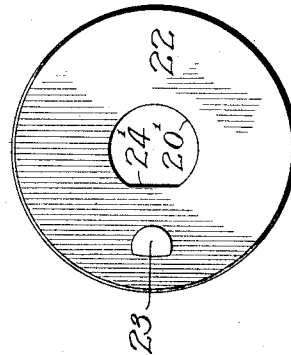
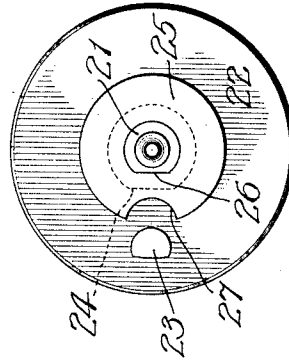
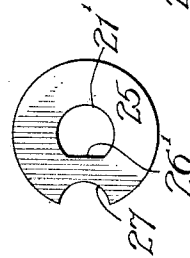
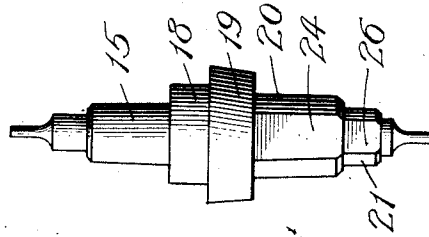


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Patented Dec. 12, 1911.



John Enders
Chas. A. Buell.

Frank J. Reaves.
By Sheridan, Wilkinson & Pratt,
Attys.

UNITED STATES PATENT OFFICE.

FRANK J. REAVES, OF SOUTH BEND, INDIANA, ASSIGNOR TO SOUTH BEND WATCH COMPANY, OF SOUTH BEND, INDIANA, A CORPORATION OF INDIANA.

TIMEPIECE.

1,011,246.

Specification of Letters Patent.

Patented Dec. 12, 1911.

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To all whom it may concern:

Be it known that I, FRANK J. REAVES, a citizen of the United States, residing at South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Timepieces, of which the following is a specification.

The principal object of my invention is to provide a new and improved escapement and balance wheel mechanism to be used in watches and other time pieces.

Another object of my invention is to provide a balance wheel and structurally associated elements that may be removed and reassembled always in a certain definite relation.

Still another object of my invention is to provide a balance wheel staff and roller thereon with means for assembling these parts in one and only one definite angular relation.

These objects will be made readily apparent in the following specification and claims, taken in connection with the accompanying drawings in which one specific embodiment of my invention has been illustrated by way of example.

Other objects of my invention will become apparent to those skilled in the art on reading this specification.

Figure 1 is a transverse section of the balance wheel and fork showing the staff in elevation. Fig. 2 is an elevation of the staff when viewed from the left in Fig. 1. Fig. 3 is a bottom view of the rollers, the fork being removed. Fig. 4 is a detached view of the safety roller, and Fig. 5 is a detached view of the impulse roller.

The staff 15 has rigidly mounted thereon the balance wheel 16 with the peripheral screws 17 for adjusting the poise. The balance wheel 16 is mounted on the shoulder 18, being secured in place by upsetting or staking the shoulder 18.

The staff 15 has two shoulders 20 and 21 on which are mounted the respective rollers 22 and 25, the roller 22 abutting closely against the collar 19 on the staff 15. The roller 22 is the impulse roller and it has the roller jewel 23 fixed near its periphery, so as to be engaged by the fork 28. On one side, the shoulder 20 is flattened in a plane parallel to the axis of the shaft 15, as indicated by the reference numeral 24, and the central hole 20' in the roller 22 has a

correspondingly flattened portion 24' to engage the flat face 24 of the staff 15. Similarly, the shoulder 21 has a flat face 26, and the safety roller 25 has its central hole 21' provided with a flattened inner face 26' to engage the flat face 26 on the staff 15. The safety roller 25 has the usual passing hollow 27 on its periphery. The flat faces already described 24, 24' and 26, 26' are so disposed as to place the roller jewel 23 and the passing hollow 27 in alinement, that is in the same angular position around the axis of the staff 18.

The fork 28 is pivotally mounted in the usual manner on the pallet staff 29. At its extremity are the prongs 30 adapted to engage with the roller jewel 23. The dart 31 projects from the collar 32 near the end of the fork 28 and is adapted to cooperate with the passing hollow 27 in the well known manner.

It will be seen that the impulse roller 22 and the safety roller 25 can be assembled with the balance wheel 16 on the staff 15 in only one definite angular relation. After being so assembled, the entire structure will be poised in the usual manner by adjusting the screws 17. Thereafter, if for any cause it becomes desirable to remove either or both of the rollers 22 and 25, then it becomes assured that when these parts are reassembled, they will go back exactly in their former angular position and thus the poise of the balance wheel will not be disturbed. It will be apparent that if these rollers were either or both of them to be reassembled on the staff 15 in an angular position different from their original one, then the entire structure comprising the balance wheel, the staff, and the rollers might be thrown out of poise and a complete readjustment of the screws 17 would become necessary.

I claim:

1. In a device of the class described, a balance wheel, a staff on which said wheel is fixed, a roller removably mounted on said staff, and inter-engaging means on the staff and the roller to locate the roller on the staff in a definite angular relation to the balance wheel.

2. In a device of the class described, a balance wheel, a staff on which said wheel is fixed, a roller removably mounted on said staff, the staff having a non-circular portion, and the roller having a correspondingly

shaped hole to engage the same whereby the roller can be mounted on the staff in only one definite position with relation to the balance wheel.

5 3. In a device of the class described, a balance wheel, a staff on which such wheel is fixed and provided with another portion having a cylindrical contour flattened on one side thereof, and a roller having a central hole or perforation shaped to fit closely
10 upon the said flattened cylindrical contour of the said staff and secured thereon.

4. In a device of the class described, a balance wheel, a staff on which said wheel
15 is fixed, an impulse roller independently and removably mounted on said staff, a safety roller also independently and removably mounted on said staff, a roller jewel fixed in the impulse roller near the periphery thereof, the safety roller having a passing hollow
20 in its periphery, and means which locates said rollers on the staff so as to preserve the alinement of the roller jewel and the passing hollow and a definite angular position on the staff with respect to the balance
25 wheel.

5. In a device of the class described a balance wheel, a staff on which said wheel is fixed, an impulse roller independently
30 and removably mounted on said staff, a safety roller also independently and removably mounted on said staff, a roller jewel fixed in the impulse roller near the periphery thereof, the safety roller having a pass-

ing hollow in its periphery, and inter-engag- 35
ing means on said staff and rollers to locate both said rollers on said staff so as to preserve the alinement of the roller jewel and the passing hollow.

6. In a device of the class described, a 40
balance wheel, a staff at the upper end of which said balance wheel is rigidly secured, a lower staff portion having two cylindrical portions of different diameters, each of which has one portion thereof flattened, an 45
impulse roller having a central perforation conforming to and adapted to fit one of said flattened cylindrical portions of said staff and independently and removably secured thereto, a safety roller having a central per- 50
forated portion adapted to fit the other flat cylindrical portion of said staff and independently and removably secured thereto and provided with a passing hollow, an impulse or roller jewel secured in the impulse 55
roller, all of said parts being so constructed and arranged as to preserve the alinement of said roller jewel and passing hollow and a definite angular relation of said parts with the balance wheel, substantially as 60
described.

In testimony whereof, I have subscribed my name.

FRANK J. REAVES.

Witnesses:

CHAS. T. HIGGINBOTHAM,
S. D. RIDER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."