June 23, 1925. 1,543,088

B. H. BALLARD

BALANCE WHEEL SUPPORT

Filed May 13, 1924

Fig. 1.

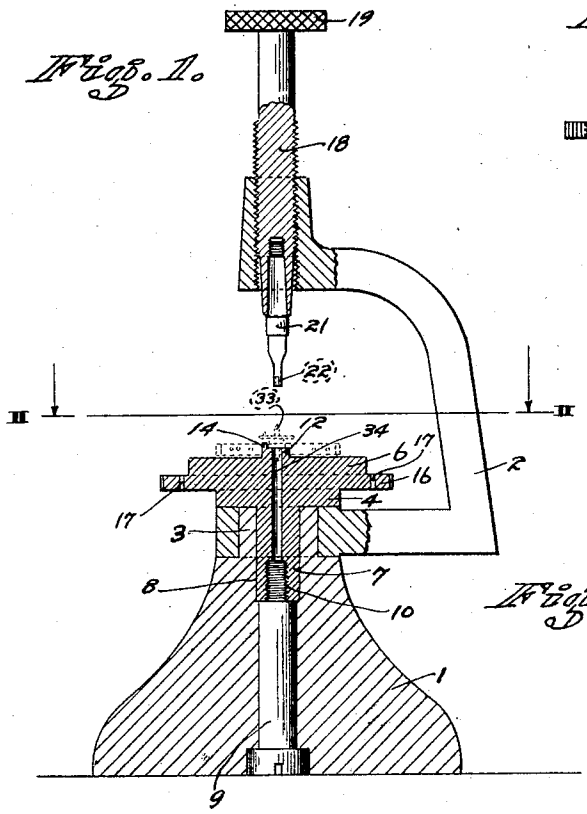



Fig. 3.

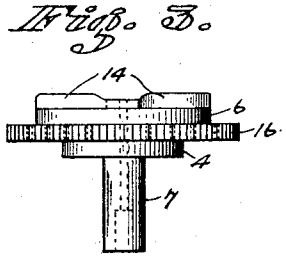



Fig. 4.

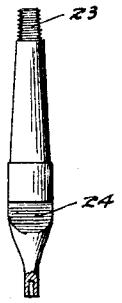
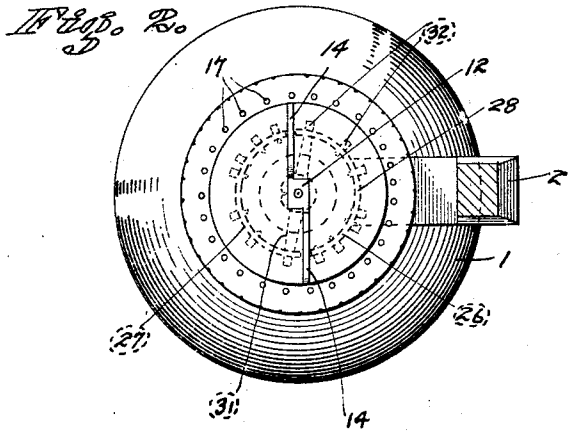



Fig. 2.




Inventor
BLAND H. BALLARD

By Munn & Co.

Attorneys

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# UNITED STATES PATENT OFFICE.

BLAND H. BALLARD, OF BERKELEY, CALIFORNIA, ASSIGNOR OF ONE-HALF TO GEORGE W. SCHOFIELD, OF SAN FRANCISCO, CALIFORNIA.

## BALANCE-WHEEL SUPPORT.

Application filed May 13, 1924. Serial No. 713,063.

*To all whom it may concern:*

Be it known that I, BLAND H. BALLARD, a citizen of the United States, and a resident of Berkeley, county of Alameda, State of California, have invented a new and useful Balance-Wheel Support, of which the following is a specification.

The present invention relates to improvements in means for supporting the balance wheel of a watch while the same is worked on in such a manner that the working on the balance wheel does not affect or bend the rim of the same. The rim of a balance wheel is made in two semi-circular sections, the ends of which are slightly distant from one another so that a split is left between the two rim sections. Two opposing end portions of the rim sections are fixed to a diametrical element and this is the only support that each of the two sections has, so that a slight pressure on the free or intermediate portion of each section is apt to bend the said section out of its circular form. Each section is provided with a plurality of balancing and timing screws which are threaded into the outer face of the sections and these screws have to be adjusted in order to time the watch. The adjustment of these screws has to be done very carefully so as not to bend the rim, and the principal object of my invention is to support the rim in such a manner that the bending effect caused by the manipulation of the screws does not affect the rim sections.

For this purpose it is proposed to provide a face plate allowing the balancing wheel to be placed thereon and to be centered relative thereto and to have flanges project from the face plate adapted to extend into the splits formed between the two sections, so that each section is firmly confined to its place and cannot move relative to the other. Further objects and advantages of my device will appear as the specification proceeds.

The preferred form of my invention is illustrated in the accompanying drawing, in which Figure 1 shows a vertical section through my device, Figure 2 a sectional view taken along line II—II of Figure 1, Figure 3 a detail side elevation of the face plate, and Figure 4 a detail side elevation of a centering element. While I have shown only the preferred form of the invention, I wish to have it understood that various changes or modifications may be made within the scope of the claims hereto attached without departing from the spirit of the invention.

A suitable base (1) of any desired form has a brace (2) rotatable on a shoulder (3) formed in its upper end and is held in place by means of a shoulder (4) of the face plate (6), a downward extension (7) of the face plate projecting into a cavity (8) in the base and being fastened by means of a screw (9) introduced into the base from the bottom and engaging the projection (7) as shown at (10).

The face plate (6) is formed with a central embossment (12) and with upwardly extending flanges (14), the flanges being disposed on opposite sides of a diameter of the face plate and running parallel thereto.

The face plate proper is surrounded by a border (16) arranged to form a ledge with the face plate and provided with a plurality of perforations (17), the function of which will be explained later. The flanges (14) are preferably made slightly higher than the projection (12) from which they emanate.

The brace (2) is formed to support in axial alinement with the face plate the threaded member (18) which may be advanced toward the face plate by manipulating the handle (19). The member (18) forms a chuck at its bottom end which is adapted to receive the centering element (21) formed with a recess (22) in the bottom thereof and threaded as shown at (23) to be screwed into the body portion of the member (18).

The centering element is flattened as shown at (24) to allow of its easy manipulation by means of a small wrench or a pair of pinchers.

The balancing wheel (26), which in itself forms no part of this invention, is made of two sections (27) and (28) each of which is substantially semi-circular in form but cut short slightly so as to leave a split between the two sections. A diametrical bar (31) is used to unite the two sections into one circular unit, the two sections being fixed to the bar near their ends so that the support of the other end of each section is very weak and allows the latter end to be bent out of shape by a very slight pressure.

A plurality of timing and balancing screws (32) are threaded into the outer face of the rim, and it is for the purpose of supporting the balancing wheel while these

screws are adjusted that my apparatus has been designed.

The diametrical member supporting the two sections is very thin and while being flush with one edge of the rim, does not extend through to the other edge. It is provided with a central staff (33) extending in both directions.

When it is desired to work on the balancing wheel by adjusting the timing screws, the pin is introduced into the central perforation (34) in the face plate with the two splits being arranged so as to be received in the two flanges (14) rising from the face plate. When in this position the diametrical member (31) holding the two sections of the balancing wheel will rest on the projection (12). The member (18) may then be screwed downward into engagement with the top of the staff (33) whereby the balancing wheel is firmly held in place, the two flanges (14) being formed to completely fill the splits and the staff (33) being held vertically in the two recesses (22) and (34).

The two rim sections may now be worked on, the timing screws adjusted, removed and replaced without affecting the curve of the two sections and without running any risk of getting the balance wheel out of alinement.

When an adjusting screw has been removed and is not to be replaced immediately, it may be introduced in one of the perforations (17) and if placed in the proper perforation, the place from which it has been removed may be readily located.

I claim:

1. Means for mounting a balance wheel having a rim split into sections comprising a support for the balance wheel having flanges extending into the splits for preventing relative movement of the sections.

2. Means for mounting a balance wheel having a rim split into sections comprising a support for the balance wheel having elements extending from the face thereof into the splits for preventing relative movement of the sections.

3. Means for mounting a balance wheel having a rim split into sections comprising a support for the balance wheel having elements extending from the face thereof into the splits for preventing relative movement of the sections, the said elements being arranged to run parallel to the confronting end faces of the sections.

4. Means for mounting a balance wheel having a rim split into sections comprising a support for the balance wheel having elements extending from the face thereof into the splits for preventing relative movement of the sections, the said elements being disposed on opposite sides of and running parallel to a diameter of the balance wheel.

5. Means for mounting a balance wheel having the end portion of two rim sections fixed to a diametrical element so as to leave splits between the sections and having a pin extending through the center thereof, comprising a face plate formed to receive one end of the pin and having flanges extending therefrom adapted to be engaged with the splits for preventing relative movement of the two sections.

6. Means for mounting a balance wheel having the end portion of two rim sections fixed to a diametrical element so as to leave splits between the sections and having a pin extending through the center thereof, comprising a face plate formed to receive one end of the pin and having flanges extending therefrom adapted to be engaged with the splits for preventing relative movement of the two sections, and reciprocable means adapted to be tightened upon the other end of the pin for holding the same in place.

7. Means for mounting a balance wheel having the end portion of two rim sections fixed to a diametrical element so as to leave splits between the sections and having a pin extending through the center thereof, comprising a face plate formed to receive one end of the pin and having flanges extending therefrom adapted to be engaged with the splits for preventing relative movement of the two sections, and a brace rotatably mounted in coaxial relation with the pin having an axially reciprocable element therein adapted to be tightened upon the other end of the pin for holding the same in place.

8. Means for mounting a balance wheel having the end portions of two rim sections fixed to a diametrical element so as to leave splits between the two sections and having balancing elements threaded into the rim thereof, comprising a face plate adapted to support the wheel having flanges extending therefrom adapted to be engaged with the splits for positioning the same and a rim plate surrounding the face plate and being formed with perforations arranged to receive the balancing elements when the same are temporarily removed from the wheel.

BLAND H. BALLARD.