F. W. BUCKINGHAM.

BALANCE WHEEL HOLDER.

APPLICATION FILED MAY 20, 1911.

1,003,132. **Patented Sept. 12, 1911.**

Fig. 1.

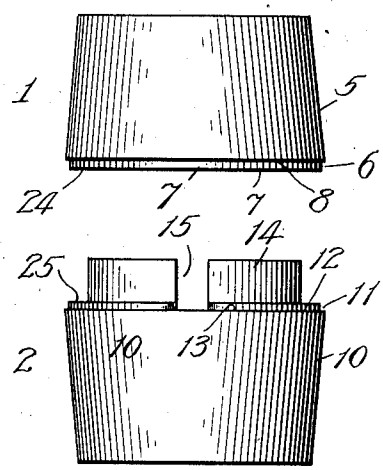


Fig. 3.

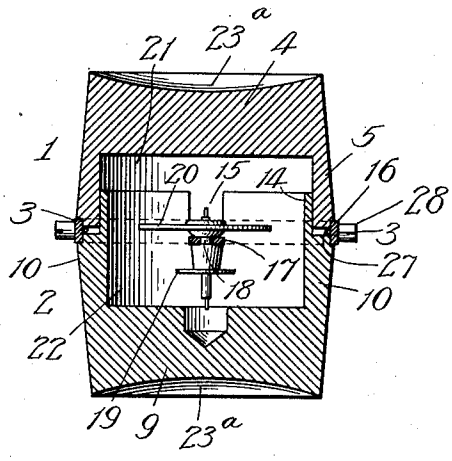


Fig. 2.

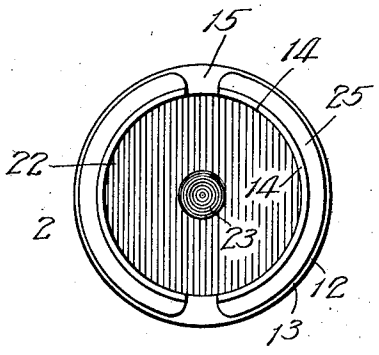
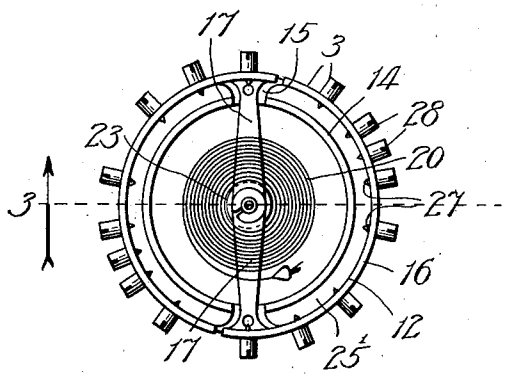


Fig. 4.



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BALANCE-WHEEL HOLDER.

1,003,132. Specification of Letters Patent. **Patented Sept. 12, 1911.**

Application filed May 20, 1911. Serial No. 628,388.

To all whom it may concern:

Be it known that I, FRANK W. BUCKINGHAM, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Balance-Wheel Holders, of which the following is a specification.

My invention relates particularly to means for holding the balance-wheel of a watch or time-piece, when it is desired to adjust the screws with which the rim is equipped for balancing purposes.

My primary object is to provide a device which will serve to securely hold a balance-wheel during an operation of the character indicated, or during cleaning and which will preserve the balance-wheel against distortion or other injury during adjusting or repair operations.

The invention is illustrated in its preferred embodiment in the accompanying drawing, in which—

Figure 1 represents a view, on an enlarged scale, of a balance-wheel holder embodying my invention, the two members being shown separated; Fig. 2, a plan view of the lower member shown in Fig. 1; Fig. 3, a sectional view showing a holder with a balance-wheel in place, the section being taken, as indicated, at line 3 of Fig. 4; and Fig. 4, a plan view of the member shown in Fig. 2, with the balance-wheel in place.

The holder comprises a pair of cup-shaped members 1 and 2 having complemental or telescopic flanges which are externally recessed adjacent their edges to receive the rim of the balance-wheel, the flange of one of the members being transversely or diametrically recessed to accommodate the spokes or arms of the wheel 3.

The cup-shaped members are adapted to be held between a thumb and finger and to clamp the rim of the wheel, the rim of the wheel at the same time embracing the reduced circumferential surfaces afforded by the circumferential recessing of the flanges. The member 1 comprises a disk or end 4 and a flange 5 having an external circumferential recess 6, which affords a reduced circumferential surface 7 and an annular clamping shoulder 8. The member 2 comprises a disk or end 9 and a flange 10 which has an external circumferential recess 11, which is complemental to the recess 6 and affords a circumferential bearing surface 12 and an annular clamping edge or shoulder 13. The flange 10 has a reduced inner extension 14 whose outer surface is fitted accurately by the inner surface of the flange 5 of the member 1. The flange 14 as well as the reduced portion of the flange 10 bounded by the surface 12 are cut by a transverse or diametrical slot 15 which is adapted to receive the arms or spokes of the balance-wheel.

The wheel 3 as shown comprises a rim 16; two spokes or arms 17 supporting said rim; a shaft 18 equipped with a flange or escapement disk 19; and a hair-spring 20.

The cup-shaped members 1 and 2 have interior chambers 21 and 22 adapted to accommodate the shaft and hair-spring of the balance-wheel. The chamber 22 is further recessed centrally at its bottom, as indicated at 23, to accommodate the lower end of the shaft. Preferably the ends or finger-portions of the cup-shaped members 1 and 2 are made concave on their outer surfaces, as indicated at 23^a, to enable the members to be more securely gripped between the thumb and finger.

When the wheel is in position, clamped between the members 1 and 2, the rim 16 embraces the circumferential surfaces or bearings 7 and 12, while the edges of the rim are clamped between the shoulders 8 and 13. The spokes or arms 17 extend through the slots 15, and the hair-spring, shaft, etc. are protected within the chamber afforded by the telescopic cup-shaped members. In this condition the shoulders or edges 24 and 25 of the two cup-shaped members are separated by a space 26, which accommodates the inner ends or points 27 of the small screws 28 which are connected with the rim 16 and serve as a means for balancing the wheel. It will thus be understood that the telescopic flanges of the cup-shape members 1 and 2 are so recessed externally as to permit the wheel-rim to embrace the circumferential bearing-surfaces 7 and 12, while the annular clamping shoulders 8 and 13 engage the edges of the wheel-rim. The recesses 6 and 11 should be of less combined depth (parallel with the axis) than the width of the wheel-rim, in order that the clamping may result, and the space 26 be left to accommodate the screw-points.

My device enables a balance-wheel to be held securely with the delicate parts housed and with the split-rim backed by the surfaces 7 and 12, so that the screws can be adjusted, removed, replaced, or washered, according to necessity without distortion of the rim or injury to the other parts. Moreover, the wheel can thus be operated upon without injury from perspiration which might result from an attempt to operate without the use of the improved implement.

The foregoing detailed description has been given for clearness of understanding only, and no undue limitation should be understood therefrom, but the appended claims should be construed as broadly as permissible in view of the prior art.

What I regard as new, and desire to secure by Letters Patent, is—

1. A balance-wheel holder, comprising a pair of wheel-clamping members adapted to be held between thumb and finger, said members having complemental flanges with external marginal recesses affording reduced circumferential bearing surfaces adapted to be embraced by a wheel-rim, and said recesses affording, also, wheel-clamping shoulders, one of said flanges having transverse spoke-receiving recesses.

2. A balance-wheel holder, comprising a pair of cup-shape members, having telescopic flanges with rim-clamping portions having circumferential complemental recesses affording an inner rim-surface bearing and annular clamping shoulders adapted to engage the wheel-rim edges, one of said flanges having spoke-receiving recesses.

3. A balance-wheel holder, comprising a pair of cup-shape members, one of said members having a flange carrying a reduced extension, and the other of said members having a flange fitting over said extension, said flanges having concentric edges with external circumferential complemental recesses adapted to accommodate a wheel-rim, one of said flanges and the reduced extension thereof having spoke-receiving recesses.

4. A balance-wheel holder, comprising a pair of members adapted to be held between thumb and finger, said members having means for guiding them together, having, also, external circumferential means for receiving and clamping a wheel-rim, and having also spoke-receiving means.

5. A balance wheel holder, comprising a pair of cup-shape members having ends provided with concaved outer surfaces and flanges provided with complemental rim-receiving external recesses and transverse spoke-receiving recesses.

6. A balance-wheel holder, comprising a pair of complemental thumb and finger supported members shaped to house a balance-wheel shaft and spring and having arm-receiving recesses and external flange-receiving means, for the purpose set forth.

FRANK W. BUCKINGHAM.

In presence of—
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