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WATCHMAKER'S BALANCE-WHEEL-TRUING TOOL.

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To all whom it may concern:

Be it known that W. HERRMANN and JARE B. BURNETT, citizens of the United States, and residing at Ferguson, county of St. Louis, Missouri, have invented the new and useful Improvement in Watchmakers' Balance-Wheel-Trueing Tools, of which the following is a specification.

This invention relates to watchmakers' tools and more particularly to a tool for balancing and truing balance wheels and other watch wheels.

In the ordinary watch wheel truing device the wheel is mounted by its pivots in a caliper or holder where it is turned to examine it for trueness and such caliper or holder is also used to hold the wheel by its pivots while bending or otherwise adjusting it. When this method is used in the case of a wheel having a light staff and a comparatively heavy wheel body, the bending operation is liable to bend the staff or pivots instead of the wheel.

One of the objects of this invention, therefore, is to provide a tool for holding a watch wheel while truing which will support the wheel in such a way that there will be no danger of bending the staff or pivots.

Another object of this invention is to provide a tool for holding a watch wheel during the truing operation which will support the staff.

Another object of this invention is to provide such a tool which will be simple and cheap to make and which shall be adjustable to various sizes of wheels.

Further objects will appear from the detailed description taken in connection with the accompanying drawings, in which:

Figure 1 is a plan view of a tool embodying this invention;

Figure 2 is a section on line 2—2, Figure 1;

Figure 3 is an axial section of one of the chuck elements for holding the staff; and

Figure 4 is a section on line 4—4, Figure 3.

Referring to the accompanying drawing, the tool comprises a pair of side members 1 each provided with arms 2 and 3 at opposite ends thereof. One of these members 1 is provided with a pair of fixed guide rods 4 adapted to engage guide ways 5 in the other member 1 whereby said members may be guided in their movement toward and from each other so as to remain in parallel relation. A double-ended screw 6 provided with right and left hand threads engages both the members 1 so that by turning said screw, said members 1 may be moved to approach or recede from one another. By these means the pairs of arms 2 and 3 may be collapsed or separated.

Each of the arms 2 carries a stud 7 provided in the end thereof with a pivot-engaging socket. These studs form centers in which a watch wheel may be mounted by its pivots for balancing the centers being closed upon the pivots by collapsing the arms 2 by means of the screw 6.

Each of the arms 3 is provided with a cylindrical head 8 carrying a chuck element 9 adapted to engage the staff of a watch wheel. Each element 9 has a cylindrical body and tapered ends 10 adapted to engage a correspondingly tapered seat 11 in the head 8. The tapered ends of the members 9 are slotted as shown at 12, each having two slots at right angles as shown in Figure 4. The slots in opposite ends of each member 9 are of different widths so that staffs of widely different diameters may be accommodated, while within a certain range each end will accommodate a number of sizes.

Each of the heads 8 is internally threaded to engage an adjusting screw 13, said screw being provided with a socket coaxial therewith adapted to receive one end of the element 9. With the element 9 inserted in the socket in the screw 13, said screw may then be inserted in the head 8 and screwed up until the tapered end 10 of the element 9 engages the tapered seat 11 in said head. This arrangement then forms a chuck which is adapted to grasp the staff of a watch wheel, the staff being inserted in the slotted end of the element 9 which, when the screw 13 is screwed up, will be collapsed upon said staff to firmly grasp the same. In truing a watch wheel, one end of the staff thereof may be inserted in the chucking element 9 and the screw 13 screwed up so that said staff will be firmly held. The arms 3 are then collapsed by operating the screw 6 so as to bring the other chucking element 9 into engagement with the other end of the staff.

The staff may then be firmly grasped by operating the screw 13. The arms 3 are moved together so that the elements 9 may grasp the staff close up to its base at the body of the wheel so as to firmly support said staff at its base and along an extended
portion thereof during the bending operations on the wheel by which adjustments are made.

The tool may also be provided with a gage comprising a slotted bar 14 adapted to be clamped under a screw 15 with which one of each of the arms 2 and 3 is provided. Pivot to the arm or bar 14 is a support 16 having pivoted thereto an index 17. The adjustable connection of the bar 14 with the arm 3 and the pivotal mounting of the members 16 and 17 make it possible to adjust the index 17 to such relation with the watch wheel 18 being operated upon that by turning said wheel 18, any inaccuracy thereof may be easily detected. Thus it is possible to use the chucking members 9 as bearings in which the wheel 18 may be rotated for testing and also as supports for holding the wheel during adjustment, and said supports will firmly grasp the staff and support the same to prevent bending thereof.

It is obvious that various changes may be made in the details of construction without departing from the spirit of this invention; it is, therefore, to be understood that this invention is not to be limited to the specified details shown and described.

Having thus described the invention, what is claimed is:

1. A watchmaker's balance wheel truing tool, comprising, a pair of arms, and means on said arms for holding a watch wheel comprising a pair of chucks adapted to engage the staff of the wheel along an extended portion thereof in order to support the same against distortion.

2. A watchmaker's balance wheel truing tool, comprising, a pair of oppositely disposed and relatively adjustable arms, and chucks on said arms adapted to grasp the staff of a watch wheel at its base and along an extended portion thereof to support the same against distortion.

3. A watchmaker's balance wheel truing tool, comprising, a pair of oppositely disposed and relatively adjustable arms, and chucks on said arms adapted for adjustment to various sizes of staffs for releasably grasping the staff of a watch wheel at its base and along an extended portion thereof in order to support the same against distortion.

4. A watchmaker's balance wheel truing tool, comprising, a pair of oppositely disposed arms, means for causing said arms to approach or recede from each other, and means on said arms for holding a watch wheel comprising a pair of chucks adapted to engage the staff along an extended portion thereof, whereby the staff is supported against bending while truing the wheel.

In testimony whereof we affix our signatures this 15th day of April, 1921.

PAUL W. HERRMANN.
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