D. A. A. BUCK.
Watch-Plate.

No. 203,998. Patented May 21, 1878.

Fig. 1.

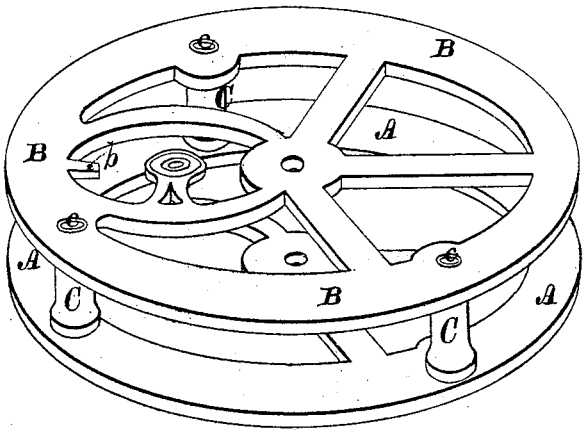

Fig. 2.

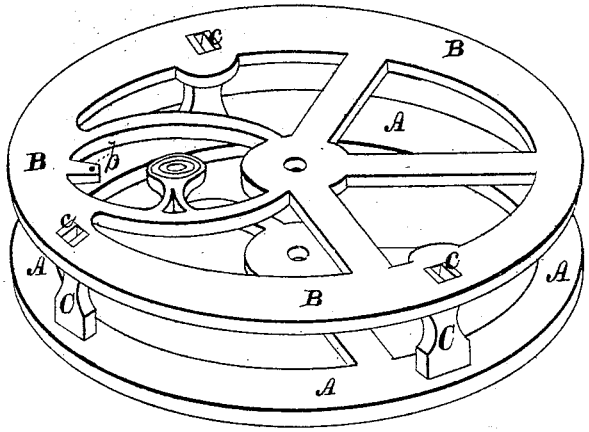

Fig. 3.

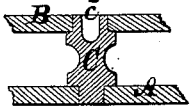

Fig. 4.

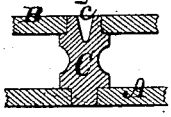

Fig. 5.

WITNESSES:
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UNITED STATES PATENT OFFICE.

D. AZRO A. BUCK, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN WATCH-PLATES.

Specification forming part of Letters Patent No. **203,998**, dated May 21, 1878; application filed January 4, 1878.

To all whom it may concern:

Be it known that I, D. AZRO A. BUCK, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Watches; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my improved plate as combined to form the frame of my train. Fig. 2 is a like view of the same, and shows a different method of confining the top plate in position upon the pillars. Figs. 3 and 4 are, respectively, vertical sections of said frames upon a line passing longitudinally through the center of one of the pillars of each frame; and Fig. 5 is a vertical section of one of the pivot bearings or openings of the top plate, showing the means employed for securing the cap in place.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to simplify the construction and lessen the cost of a watch-movement; and to this end it consists, principally, in upper and lower plates, cut each from a single piece of sheet metal, and having bearings for staff of balance-wheel so connected with other portions of the plate as to enable them to be bent to change the depth of engagement of said balance-wheel with the escape-wheel, substantially as and for the purpose hereinafter specified.

It consists, further, in the means employed for limiting end motion of the arbors, consisting of a steel cap placed within a suitable recess at the outer end of each pivot-opening, and secured in position by swaging or burnishing the contiguous metal of the plate inward over the edge of said cap, substantially as and for the purpose hereinafter set forth.

It consists, finally, in the means employed for uniting the upper and lower plates of the movement, consisting of pillars permanently secured within one plate, and having the opposite ends, which project through the second plate, enlarged laterally, so as to confine said parts together with sufficient firmness to prevent accidental displacement, substantially as is hereinafter specified.

In the annexed drawings, A represents the lower and B the upper plate of my watch-movement, which are connected together by means of three or more pillars, C, that are permanently secured within said lower plate A, and have their upper reduced ends *c* contained within corresponding openings in said upper plate B, the arrangement being such as to cause said plates to maintain the relative position shown in Figs. 1 and 2, their inner faces being parallel and their pivot-openings coincident with each other.

In order that the upper plate B may be held securely in position upon the pillars C, the reduced ends *c* of the latter are either made cylindrical and provided with a round axial opening, into which, when said plate is in position, a round tapering steel mandrel is driven, so as to spread said ends, as seen in Fig. 1, or the latter are made square and split, as shown in Fig. 2, so as to permit of their lateral expansion by means of a wedge-shaped tool driven into the opening of each.

After the mandrel or tool is withdrawn from the opening in the end of the pillar C, it will be found that said end has been sufficiently spread to cause it to engage with the contiguous portion of the plate B and confine the latter firmly in place; but should it become necessary to remove said plate, a slight upward pressure will easily release it from engagement with the pillars.

The plates A and B, which are formed by dies, have all surplus metal removed from their central portions, a sufficient quantity only being left to insure the necessary strength and cause the operative mechanism to be properly supported.

The portion of each plate which forms a bearing for the balance-wheel staff is so connected with said plate as to enable it to be bent toward or from the escape-wheel, by which means the depth of engagement of the escapement may be varied at will.

End motion of the staffs and arbors of the movement is prevented by means of steel caps D, which are circular in form, and are placed within corresponding recesses formed

in the plates A and B at the outer end of each pivot-hole, where they are secured in place by swaging or burnishing the contiguous metal of said plates over the edges of said caps.

Holes for the insertion of oil within the pivot-holes are formed at one side of the center of each cap.

The invention embodied in the formation of the hair-spring stud is not claimed herein, but forms the subject of a separate application.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. The upper and lower plates, each cut from one piece of metal, and having the bearings for the staff of the balance-wheel so connected with other portions of said plate as to enable them to be bent toward or from the escape-wheel, and thereby change the depth of engagement of said balance-wheel with said escape-wheel, substantially as and for the purpose specified.

2. As a means for limiting end motion of the arbor, a cap, D, placed within a recess at the outer end of each pivot-opening in the plates A and B, and secured in position by swaging or burnishing the contiguous metal of its said plate over the edge of said cap, substantially as and for the purpose set forth.

3. As a means for uniting the plates A and B, the pillars C, each permanently secured at one end within said plate A, and having its opposite reduced or shouldered end *c*, which projects through said plate B, and is provided with an axial opening, enlarged laterally by the use of a tapering-tool, so as to form a frictional spring-bearing within said plate B, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

D. AZRO A. BUCK. [L. S.]

Witnesses:

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J. HENRY MUZZY.