J. ELSON.

Attaching Hands to Watches.

No. 90,647. Patented June 1, 1869.

Fig. 1

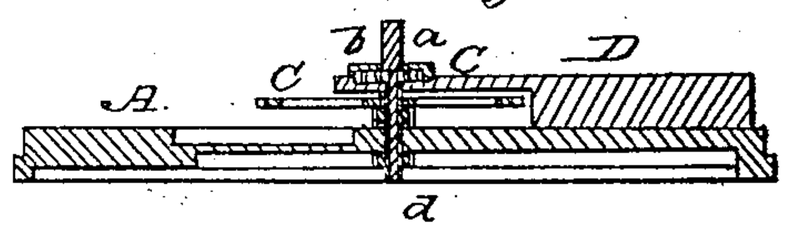

Fig. 2

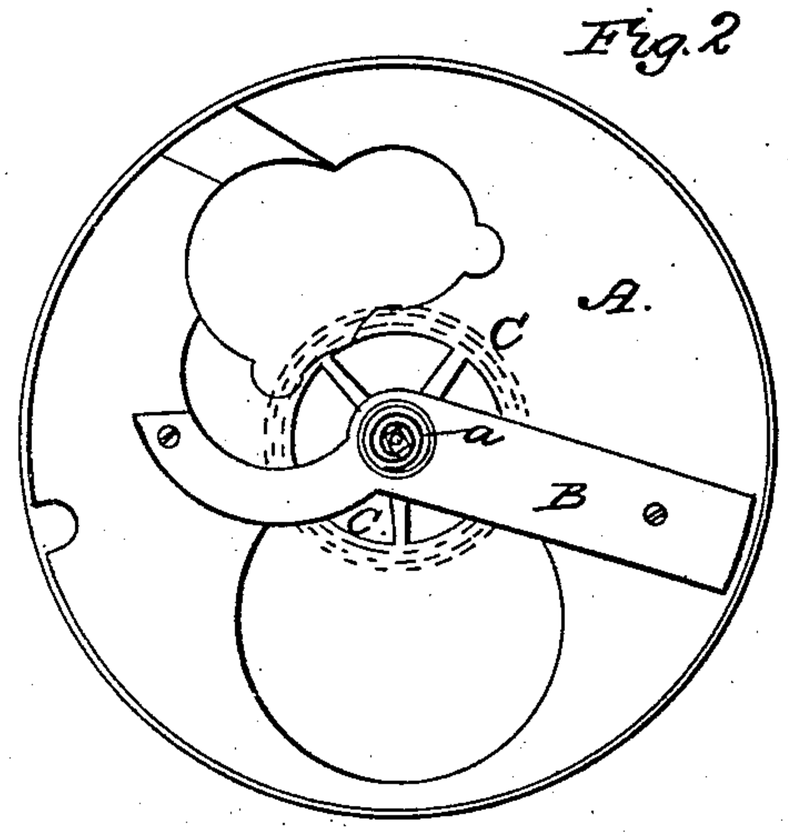

Fig. 3

Witnesses
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JULIUS ELSON, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 90,647, *dated June* 1, 1869.

IMPROVEMENT IN ATTACHING HANDS TO WATCHES.

The Schedule referred to in these Letters Patent and making part of the same.

To all persons to whom these presents shall come:

Be it known that I, JULIUS ELSON, of Boston, in the county of Suffolk, and State of Massachusetts, have invented a new and useful Improvement in Watches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical section of a part of a watch with my improvement.

Figure 2 is a top view of the same.

Figure 3 is a spiral spring, drawn on an enlarged scale.

The object of my invention is to produce an equal and constant friction, which is sufficient to carry the minute-hand along with the centre pinion, without being liable to get either too loose, so as to leave the hands behind while the watch is going on, or too tight, so that the hands cannot be set without the risk of injuring the watch.

My invention consists in employing a spiral spring, emanating from a more solid centre, represented in fig. 3, fitted snugly on the centre arbor, its taper-end pressing against the inside of a cup, and being tightly held in its place by the cannon-pinion, thus producing an equal and constant friction on both ends or pivots of the centre pinion.

By referring to the drawings—

A is a watch-plate; B, the bridge of the centre wheel and pinion C, the latter rotating freely on two pivots between the plate A and the bridge B.

The drawings represent a hollow centre pinion.

a is the square and arbor, which reaches or passes through the hollow part of the centre pinion C, snugly fitted in said pinion, but so as to run perfectly free, like a pivot in its hole.

The arbor *a* passes in the same manner through the cup *b* and the spiral spring *c*.

On the face-side of the watch, this same arbor *a* carries the cannon-pinion *d* and the minute-hand, both of them tightly fitted to said arbor *a*.

The spiral spring is bent in an upward direction toward the cup.

It will be readily seen that by this arrangement an equal and constant pressure against both ends of the pinion is obtained, which is not liable to the derangements which the present and usual mode adopted in watches is subject to.

The spring *c*, as constructed by me, is not what is technically known as a "volute spring," for such a one, in the usual mode of its construction, could not be practically applied in the manner described by me.

This spring *c* is a flat piece of metal, with a solid centre, and the grooves or curves, as represented therein, cut out by a suitably-constructed die, or a tool adapted for the purpose, so that, when made, it will adjust itself within the cup *b*, or within a cup formed upon the cannon-pinion *d*, one or both, as may be desired.

A volute spring, I would not apply, for the reason, that to render it operative there must necessarily be a pressure upon the same to induce action, and if such a spring were constructed so that its lower coil would fit within and fill the cup referred to, the pressure would create so much friction as to render it inoperative, as well as requiring more space or room than the small compass of a watch would warrant.

What I claim as my invention, and desire to secure by Letters Patent, is—

The spiral spring *c*, in combination with the centre wheel and pinion C, and cup *b*, on spindle *a*, as described.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JULIUS ELSON.

Witnesses:

M. S. G. WILDE,

CHAS. O. WILDE.