A. L. DENNISON.

Watch.

No. 22,550. Patented Jan'y 11, 1859.

Fig: 1.

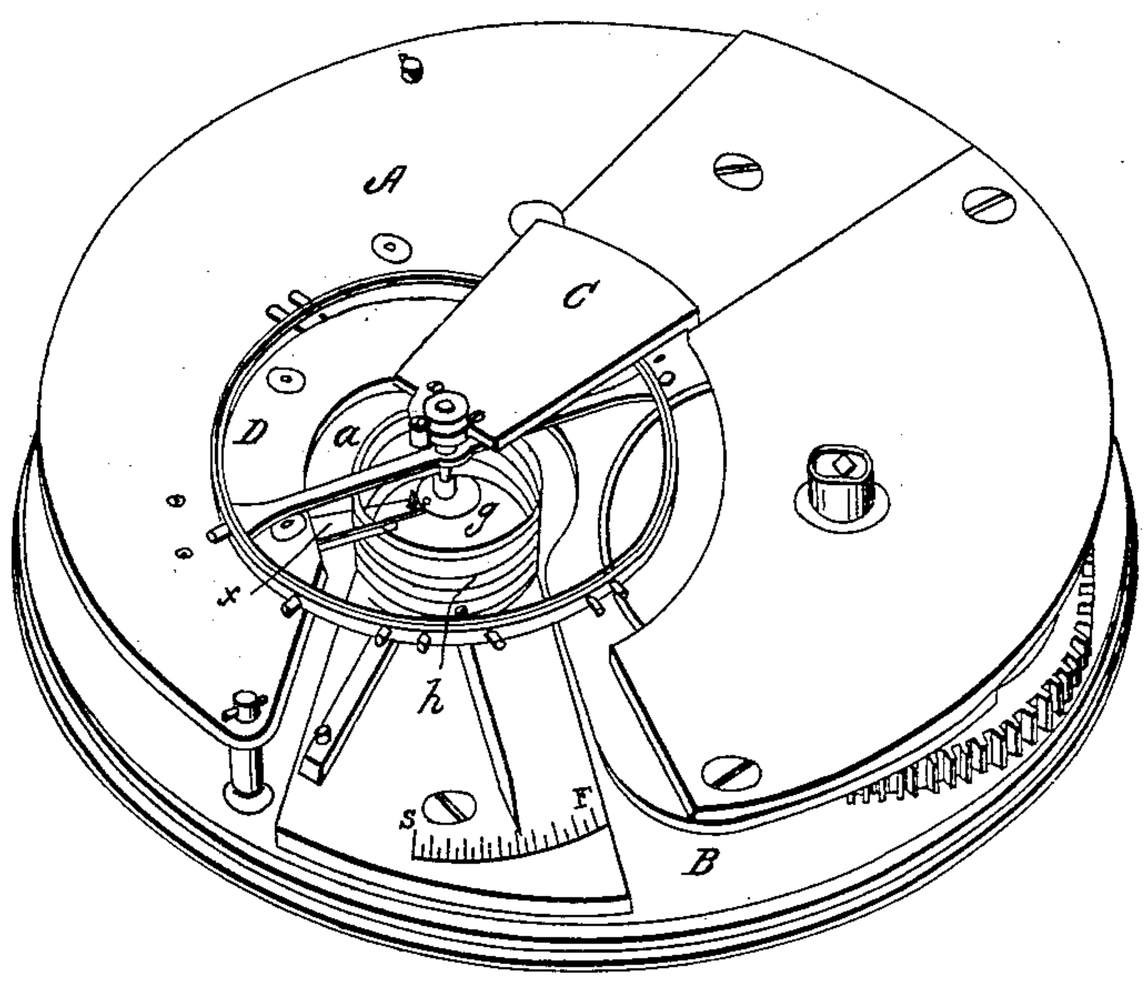

Fig: 2.

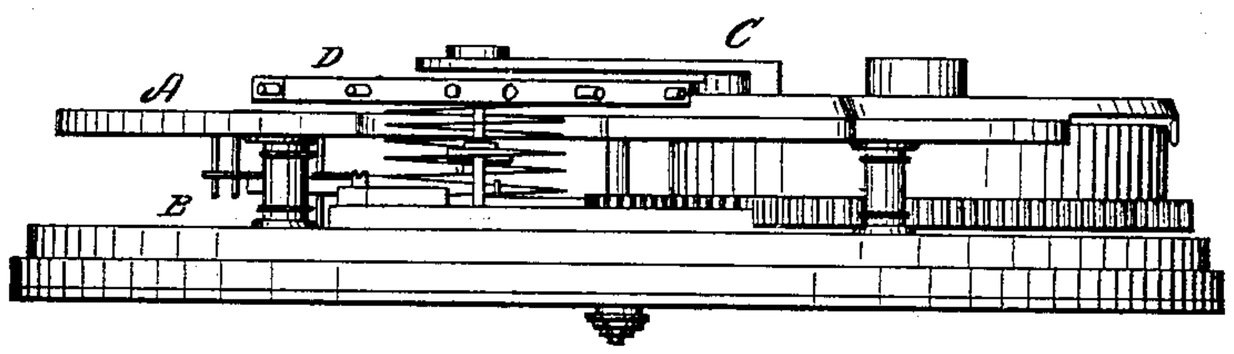

Fig: 4.

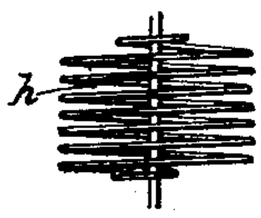

Fig: 3.

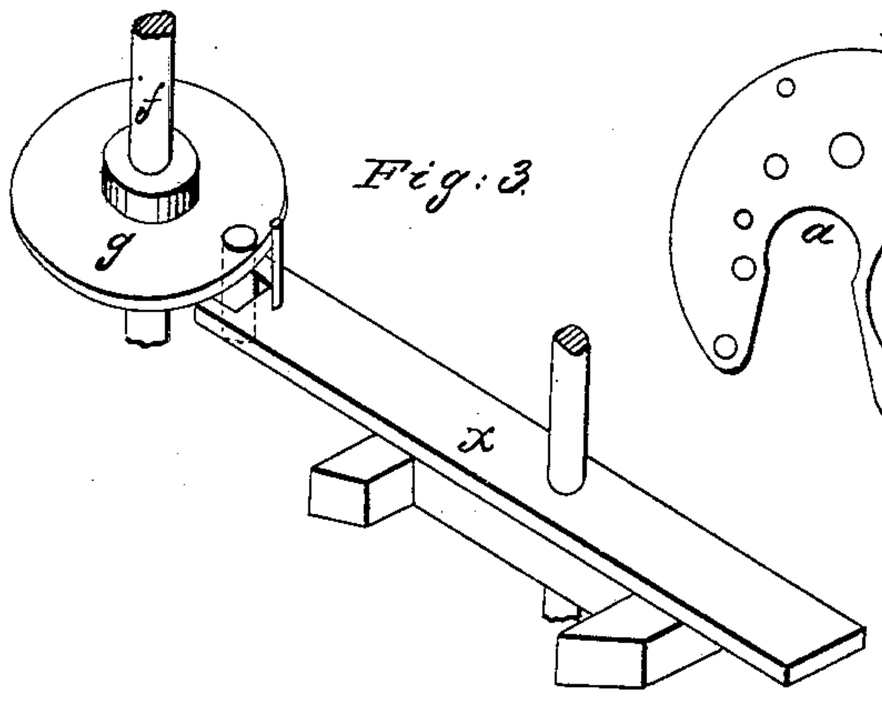

Fig: 5.

UNITED STATES PATENT OFFICE.

A. L. DENNISON, OF WALTHAM, MASSACHUSETTS.

METHOD OF SECURING THE CYLINDRICAL BALANCE-SPRINGS OF WATCHES.

Specification of Letters Patent No. 22,550, dated January 11, 1859.

To all whom it may concern:

Be it known that I, A. L. DENNISON, of Waltham, in the county of Middlesex 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 part of this specification, in which—

Figure 1 is a perspective view enlarged of the interior of a watch having my improvements attached. Fig. 2 an enlarged side elevation of the same. Fig. 3 an enlarged view of the shaft *f* of the balance, with its collet *g*, and of the fork detached. Fig. 4 a view of the cylindrical spring enlarged. Fig. 5 a plan of the top plate, full size.

In the manufacture of portable time keepers of a high order, it is of the first necessity that the balance spring be capable of adjustment so as to vibrate isochronally. This isochronism is admitted by the most experienced makers to be more perfectly and more easily attained by the use of the cylindrical balance spring than when any other form of spring is employed. Thus far however it has not been found practicable to employ this spring, in the class of watches in most common use, owing to the great length of the spring, and the considerable addition which it makes to the thickness of the watch, these springs having been applied above the balance and outside the top plate, there being no room for it between the two plates of the watch and above the fork (*x* Fig. 3) which must be left free to vibrate unobstructed.

My present improvement has for its object to enable me to apply the cylindrical spring to pocket watches without increasing their thickness, and thus to give to such watches the advantages resulting from its use, advantages heretofore only enjoyed by marine chronometers and the heavier species of chronometer watches.

My invention consists in a peculiar construction of top plate and in connection therewith, in placing the cylindrical spring beneath the balance and between it and the fork as will now be more fully set forth and described.

Those parts of the watch which form no part of my present invention need not be further referred to or described.

The top plate A (seen detached in Fig. 5) is cut away at *a* immediately beneath the balance, the shaft *f* of which is supported by the cock C and the lower plate B; at the bottom of the shaft *f* is the collet *g* which is vibrated by the fork *x* in the customary manner. Immediately above the roller is placed the cylindrical spring *h* one end of which is attached to the balance and the other to a stud which is attached to the "potence" or to the pillar or lower plate. A sufficient space is thus afforded for the accommodation of the cylindrical balance spring without in the least increasing the thickness of the watch, and I am thus enabled to apply it, even to the thinnest pocket watches, and to gain for them all the advantages resulting from its use.

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

Placing the cylindrical spring *h* beneath the balance, and between it and the fork, and cutting away the upper plate to furnish room for its accommodation as set forth.

A. L. DENNISON.

Witnesses:

F. M. STONE,

DANL. EMERSON.