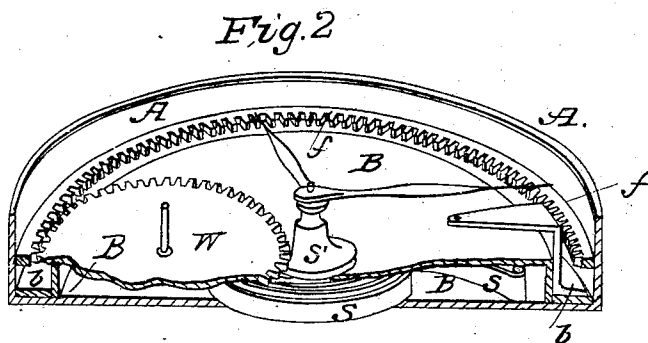
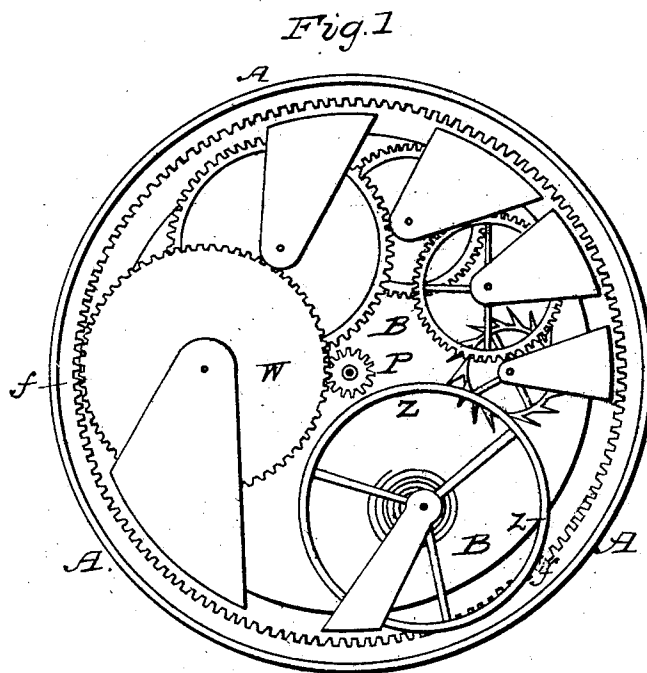


T. NELSON.
Watch Barrel.

No. 9,749.

Patented May 24, 1853.



UNITED STATES PATENT OFFICE.

THOMAS NELSON, OF TROY, NEW YORK.

IMPROVEMENT IN WATCHES AND CHRONOMETERS.

Specification forming part of Letters Patent No. 9,749, dated May 24, 1853.

To all whom it may concern:

Be it known that I, THOMAS NELSON, of the city of Troy, and State of New York, have invented a new and useful Improvement in the Construction of Watches and Chronometers; and I declare the following specification, with the drawings hereto appended as part of the same, to be a full and accurate description of said improvements.

In the arrangement and construction of the engines of watches as usually made the parts thereof consist of a spring inclosed in a barrel and a train of wheel-work connecting the movements of said spring with the balance-wheel and with a central revolving axis, the spring and train being placed around said axis, the principal part of the apparatus lying between two circular plates of metal placed a small distance apart from each other, the axes of the wheel-work being pivoted in the two plates or between one of the plates and metal standards attached thereto for that purpose. The central axis is the shaft of the minute-hand movement, and is pivoted at bottom on the lower plate, its upper end passing the upper plate and being fitted at its upper extremity to carry the minute-hand, its lower extremity being fitted to a small pinion-wheel driven by the train of wheels between it and the spring-barrel. From the nature of this arrangement it will be perceived that the barrel containing the spring can only occupy the space between the central axis and the outer edge of the circular plates, or, in other terms, that the size of the spring-barrel can never quite equal in diameter the semi-diameter of the plates. This fact makes the construction of accurate time-keepers of small dimensions a matter of great difficulty, because it limits the size of the spring and reduces it to a substance of such tenuity that it surpasses the skill of man to give it that equable structure and elasticity which insure accurate performance; hence "chronometers" (so called) and watches of reliable qualities must be made of a size inconveniently large for wearing about the person.

The object of my invention is to remedy this difficulty of construction, so as to permit the employment of a spring-barrel of nearly the full diameter of the watch-frame, and so use a spring of more than double the size of

those usually employed with a watch of given size.

I accomplish this by the following arrangement of the movements, as shown in plan at Figure 1, and in a perspective section at Fig. 2.

Similar letters in each figure designate the same parts.

A A represent the external casing or cylinder which surrounds the engine-work of the watch.

B B represent the barrel, which contains the mainspring S, Fig. 2. It is a cylindrical box open at bottom. From its lower edge a flange or ledge *bb* extends outwardly to near the outer casing for the purpose of supporting the feet of the standards, which carry the upper pivots of the wheel-work train, all of which lies on the top of the barrel B B. The mainspring is arranged within the barrel in the usual manner to cause it to revolve.

The manner by which the motion of the barrel is communicated to the wheel-train is as follows: The casing A A has a flange *ff*, turning inward and forming a ring, on the inner edge of which teeth are cut entirely round its inner circumference. The wheel-train, as stated, is set on the top of the barrel, as shown in the plan, Fig. 1, and a portion in perspective in Fig. 2. *p* shows the small pinion-wheel on the foot of the minute-hand shaft, which shaft passes up through a hollow sleeve *s'* and terminates above it in a square head for the minute-hand's socket. The sleeve *s'* carries the hour-hand, and is a hollow shaft with a broad and chambered foot fastened to the center of the top of the barrel B. The chamber has room for the pinion-wheel *p* to move freely in, and is cut out on one side to permit the teeth of the pinion to take into the teeth of the wheel *w*, which also gears into the teeth of the flange *ff*. It will be seen that when the barrel, impelled by its spring, turns from the left to the right the wheel *w* will be turned by the teeth of *f* from right to left, and will itself turn *p* from left to right. The numbers of the teeth in *f* and *p* are so proportioned to each other that *p* shall make one entire revolution while B B makes one-twelfth of a revolution, B B noting hours, *p* minutes. The wheel *w* is also connected with the usual train of wheels, with the balance-wheel *z z*.

The advantages of this method of constructing watches I conceive to be: It affords the opportunity of making watches of very small diameter and yet securing to them the advantages of an efficient mainspring, or it affords in watches of the ordinary size the employment of a long spring, so as to make them run several days without winding up.

In case of watches used for nice chronometrical operations the use of a long and large-sized spring will allow, by daily winding up the central portion of the spring, the employment of that (the central) part of the spring which will give a more uniform impulse to the machinery than any other part thereof of similar length.

In the above specification and drawings the barrel B is described as moving round the fixed ring *f*. It is manifest that for some purposes the process may be reversed and the box containing the spring be stationary and the spring itself drive round the ring, from

the teeth of which the movements would then take their motion.

What I claim is—

The method of constructing watches or chronometers of any kind so as to permit the employment of a spring-barrel of a size that shall occupy nearly the entire interior diameter of the watch case or frame, and which I effect by placing the movements upon the top of the barrel and communicating the motion of the barrel to them by means of a ring fixed on the interior of the case or frame with teeth on its inner edge concentric with the barrel, into which teeth the teeth of one or more wheels of the movements may cog or take, substantially as set forth in the above specification.

November 11, 1852.

THOMAS NELSON.

Witnesses:

RICHD. VARICK DEWITT,
T. W. GUST.