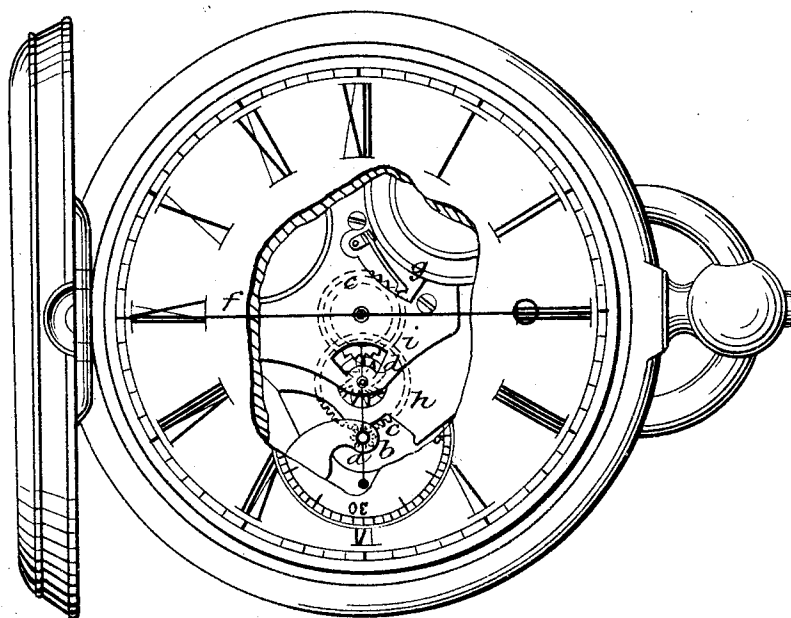


H. STAUFFER.

Watch.

No. 104,371.

Patented June 14, 1870.



Witnesses:

Gustave Distarch

David Misell

Inventor:

Henry Stauffer

per Murray
Attorney

United States Patent Office.

HENRY STAUFFER, OF PONTS-MARTEL, SWITZERLAND, ASSIGNOR TO
NORDMANN BROTHERS, OF NEW YORK CITY.

Letters Patent No. 104,371, dated June 14, 1870.

IMPROVEMENT IN WATCHES.

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

To all whom it may concern:

Be it known that I, HENRY STAUFFER, of Pons-Martel, in Switzerland, have invented a new and useful Improvement in Watches; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

This invention relates to improvements in watches, and consists in an arrangement of the large second hand, commonly called "dead-second," to beat full seconds at one beat, instead of making several beats to a second, as they now do.

It also consists in arranging it to beat in unison with the quarter second, the same being connected together by gearing, arranged in a novel manner, as hereinafter more fully specified.

The drawing represents a face view of a watch arranged according to my improvements, and having a part of the dial broken out to show the arrangement of the connecting gears.

The post of the quarter second, *a*, is geared by a small pinion, *b*, with a large wheel, *c*, called the fourth wheel of the train, and receives its motion thereby, in the usual way.

The shaft of the wheel is provided with a star-wheel, *d*, of eight teeth, which gears with a wheel, *e*, of sixty teeth, on a small spindle in the axis of the shafts, which carry the hour and minute hands, and on which, at the top, the "dead-second," *f*, is supported.

The teeth of the wheel *e* are pointed, and the pitch is much less than that of the star-wheel, whose teeth are also pointed, and are also set tangentially to a small circle surrounding the axis, and so adjusted, relatively to the teeth of the wheel *e*, that, while the wheel *d* has a constant motion, its teeth will only touch those of wheel *e* at the point, moving said

wheel *e* a short distance, and then escaping, and allowing it a period of rest until the next tooth of *d* comes, the said period of rest being due to the difference in pitch of the teeth of the two wheels.

The motion of the wheel *d* is such as to impart sixty movements to wheel *e* in a minute, and the movements of the latter carry the dead second full second beats.

The wheel *e* is provided with a spring pawl, *g*, having a triangular-shaped bit, which engages with the teeth, and stops and holds it at the end of each movement. This spring may have a friction roller in the face or point, which acts on the teeth of the wheel, if preferred. A friction bar being on a smooth rim may be used in place of the spring.

In making this arrangement, the shaft of the fourth wheel, *c*, of the train is raised above the plate *h*, where it is commonly journaled, and is supported in the upper end in a plate, *i*, introduced for the purpose, and also for the rest of the lower ends of the shafts which carry the hands.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

1. The combination, with the spindle of the "dead second," and the shaft of the wheel *C* of the star-wheel *d*, and the wheel *e*, arranged to cause the "dead second" to beat seconds, and in unison with the quarter-second hand, all substantially as specified.

2. The combination, with the wheel *e* on the spindle, of the dead second, and the star-wheel of the spring pawl *g*, or equivalent, substantially as specified.

The above specification of my invention signed by me this 31st day of December, 1869.

HENRY STAUFFER.

Witnesses:

JULES PHORENS,
PAUL BENGUEREL.