C. FASOLDT.

Chronometer.

No. 46,652. Patented March 7, 1865.

FIG. 1

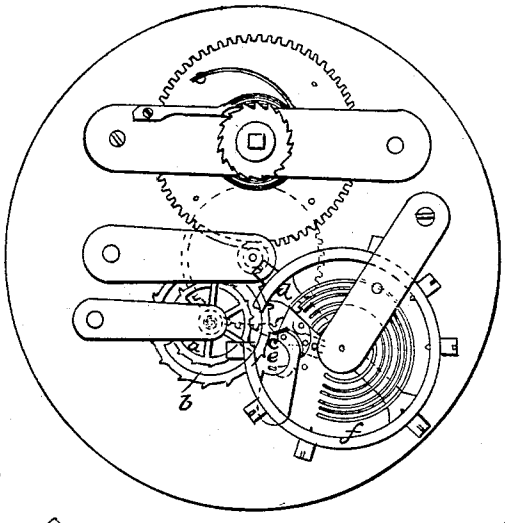


FIG. 2

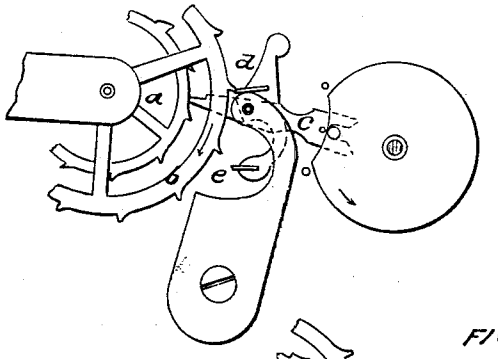


FIG. 3

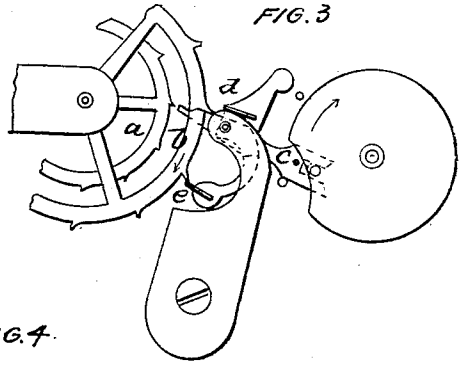
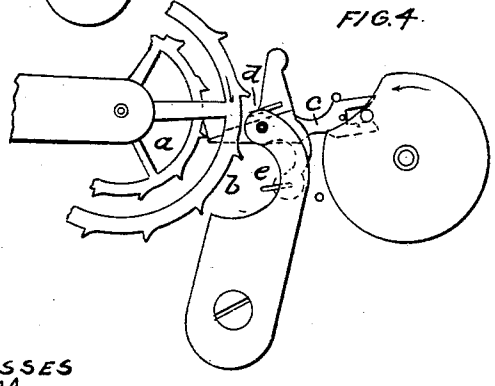


FIG. 4



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UNITED STATES PATENT OFFICE.

CHARLES FASOLDT, OF ALBANY, NEW YORK.

IMPROVEMENT IN CHRONOMETER-ESCAPEMENTS.

Specification forming part of Letters Patent No. **46,652**, dated March 7, 1865.

To all whom it may concern:

Be it known that I, CHARLES FASOLDT, of Albany, in the county of Albany and State of New York, have invented a new and Improved Escapement for Chronometers; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a plan of this invention. Figs. 2, 3, and 4 show the escapement in various positions, the several parts being illustrated in a larger scale than the previous figure.

Similar letters of reference indicate corresponding parts.

This invention relates to an improvement on an escapement described in Letters Patent granted to me February 1, 1859; and the object of this invention is to produce a positive stop of the escape-wheel at either end of the stroke of the balance, while at the same time an impulse is given to the balance by the action of the teeth of the escape-wheel on the end of a lever during one-half the stroke of the balance, the other half of said stroke being completed by the momentum of the balance and by the action of the hair-spring. In order to effect this purpose I use a double escape wheel, *a b*, or, in other words, two escape-wheels of equal or unequal diameter and mounted on the same shaft. In practice the diameter of the two escape-wheels are unequal, as shown in the drawing and described in the Letters Patent above referred to, and they connect with the main driving-wheel by a train of wheels in the usual manner. The teeth of the small escape-wheel, *a*, act on the lever *c* and impart to the balance an impulse during one half of its stroke, the other half of the stroke being completed by the momentum of the balance and the power of the hair-spring. The teeth of the large escape-wheel *b* are caught by the pallets *d e*, which are brought into action at the opposite ends of the stroke of the balance *f*. These pallets are secured to an anchor, which swings on the same pivot with the lever *c*, and the pallet *d* is much nearer to the fulcrum than the pallet *e*, and it is brought into action immediately after the tooth of the small escape-wheel clears the point of the lever *c* at the point when the balance has completed its rotation, or nearly so, in the direction of the arrows marked on it in Figs. 3 and 4. Fig. 3 shows the lever and pallets in the position which they occupy at the beginning of the rotation of the balance in the direction of said arrows; and Fig. 4 shows them in the position which they occupy when the tooth of the small escape-wheel is just on the point of clearing the lever *c*. If the balance returns and rotates in the direction of the arrow marked on it in Fig. 2, the pallet *d* remains in contact with the tooth of the large escape-wheel until the motion of the balance in this direction is nearly completed, and just before the balance begins to return the position of the anchor changes and the pallet *e* drops in front of the tooth of the escape wheel *b*, thus allowing the escape wheels to turn only a very small distance during that half of the stroke of the balance. At that moment the position of the lever and of the pallets is that shown in Fig 3, and the balance begins to rotate in the direction of the arrow marked thereon in said figure, and as soon as this takes place the pallet *e* releases the tooth of the wheel *b* and the lever *c* catches in front of the tooth of the wheel *a*, thereby imparting an impulse to the balance sufficient to make up for the loss of motion by friction and resistance of the air.

By this arrangement the pallets are simply used as stops, and the friction between them and the teeth of the escape-wheels has no effect on the motion of the balance or of the watch. If the teeth of the escape-wheels wear off, the motion of the watch is not affected. No oil is required to make the escapement work smooth, and the injurious effects of such use are not felt. The watch keeps correct time as well after it has been in use for years as it does when new, and it is not affected by counter motion or sudden jars.

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

The pallet *e*, arranged in combination with the pallet *d*, lever *c*, wheels *a b*, and balance *f*, in the manner and for the purpose substantially as herein shown and described.

CHARLES FASOLDT.

Witnesses:

H. P. NUGENT,

THOMAS SILSBY.