J. STEPHENSON.

Time Keeper.

No. 47,998. Patented May 30, 1865.

Fig. 2.

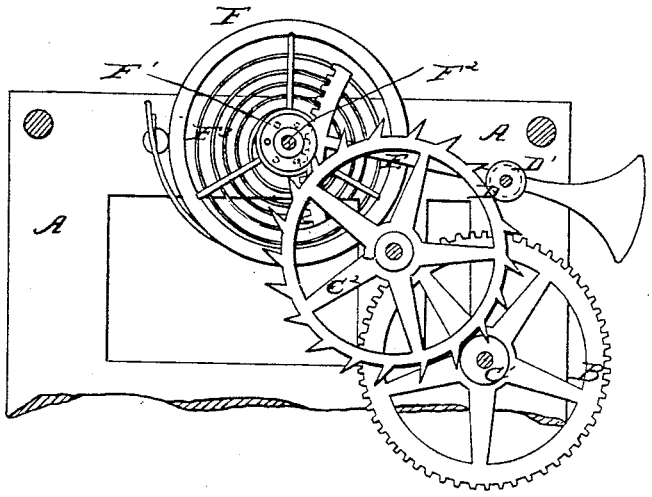


Fig. 1.

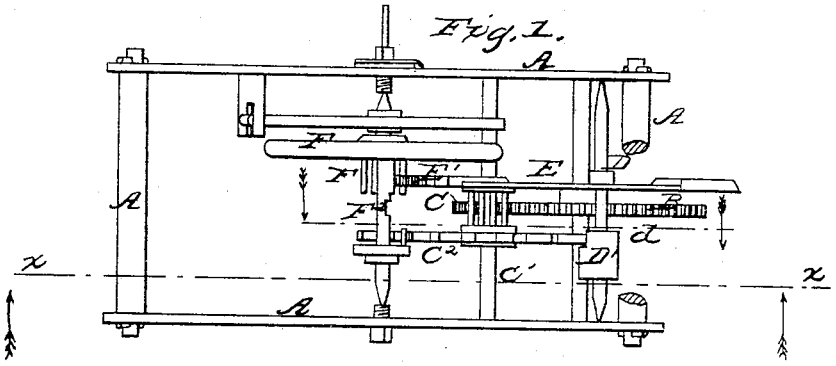


Fig. 3.

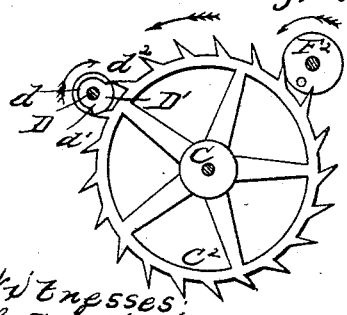
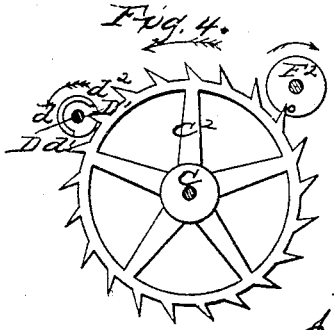


Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES STEPHENSON, OF CANANDAIGUA, NEW YORK.

IMPROVEMENT IN TIME-KEEPERS.

Specification forming part of Letters Patent No. **47,998**, dated May 30, 1865.

To all whom it may concern:

Be it known that I, JAMES STEPHENSON, of Canandaigua, in the county of Ontario and State of New York, have invented a new and useful Improvement in Time-Keepers; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of the operating mechanism of a clock illustrating my invention. Fig. 2 is a vertical section in the line *x x*, Fig. 1. Figs. 3 and 4 are sections in the line *y y*, Fig. 1, showing the escape-wheel in different positions relatively to the detent and balance-wheel.

Similar letters of reference indicate corresponding parts in the several figures.

The objects of this invention are to provide novel means for transmitting motion from the escape-wheel to the balance-wheel, and a detent of such construction as will reduce friction between itself and the escape, and adapt the parts to work more freely and perfectly.

To enable others skilled in the art to which my invention appertains to fully understand and use the same, I will proceed to describe its construction and operation.

In the accompanying drawings, A may represent the frame, and B a wheel receiving motion from the mainspring through the medium of cog-wheels in customary manner, and gearing with a pinion, C, on the shaft C′ of the escape-wheel C^2.

The detent, which is secured upon the shaft D, consists of a small cylindrical block, D′, formed with a rim or prolongation, *d*, part of which is cut away to allow the teeth of the escape-wheel C^2 to successively enter the recess *d′*, which is bounded by said rim *d*. Upon the shaft D is mounted a lever, E, one end of which carries a segmental rack, E′, which works in a pinion, F′, on the shaft F^2 of the balance-wheel F. The successive teeth of the escape-wheel C^2 are checked by alternately entering the recess *d′*, so as to bear against the inner surface of the rim *d*, and coming in contact with the outer surface of the rim at a point near the upper terminus, d^2. The point of action of each escapement-tooth entering the recess *d′*, and striking the inner surface of the rim *d*, is such that the power of the balance-wheel F, derived from the hair-spring, will rotate the cylinder D, and this movement serves to depress the segmental rack, contract the hair-spring F^3, and thereby store or accumulate power in the balance-wheel F. As soon as the cylinder D′ has been thus rotated until the rim *d* no longer affords a bearing for the impelling-tooth of the escape-wheel C^2, the point d^2 of the rim *d* will have been brought to a position to intercept the escapement-tooth next above or following. The power which has been stored in the balance-wheel, as above mentioned, gives a reverse motion to the cylinder D′, and the tooth resting upon the point d^2 is allowed to move around with the escape-wheel till it strikes the inner side of the rim *d*, when the cylinder D′, turned in the proper direction to produce the contraction of the hair-spring F^3, and thus effect the storing of power in the balance-wheel F, for the purpose explained, and thus the operation of the escapement continues.

It will be seen that the peculiar construction of the detent D′ *d d′* prevents a great deal of friction, and the whole power of the driving mechanism being thrown upon the shaft F^2 of the balance-wheel F at the proper moment insures a perfectly free and regular movement of the escapement.

f represents a pin carried by a disk, F^4, on the shaft of the balance-wheel F, and employed to give a definite impulse to the escape-wheel C^2, to cause the proper tooth thereof to move with sufficient rapidity to meet and be checked by the point d^2 on the rim of the cylinder D′.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A detent consisting of a cylindrical block, D′, formed with a rim, *d*, and adapted to operate in connection with a balance-wheel, F, to regulate the escape-wheel, substantially as and for the purpose set forth.

2. Communicating motion from the detent to the balance-wheel, and vice versa, through the medium of a segmental rack, E′, and pinion F′, substantially as and for the object specified.

JAMES STEPHENSON.

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