

C. H. Warner
Time Alarm.

N^o 76,567.

Patented Apr. 7, 1868.

Fig. 1.

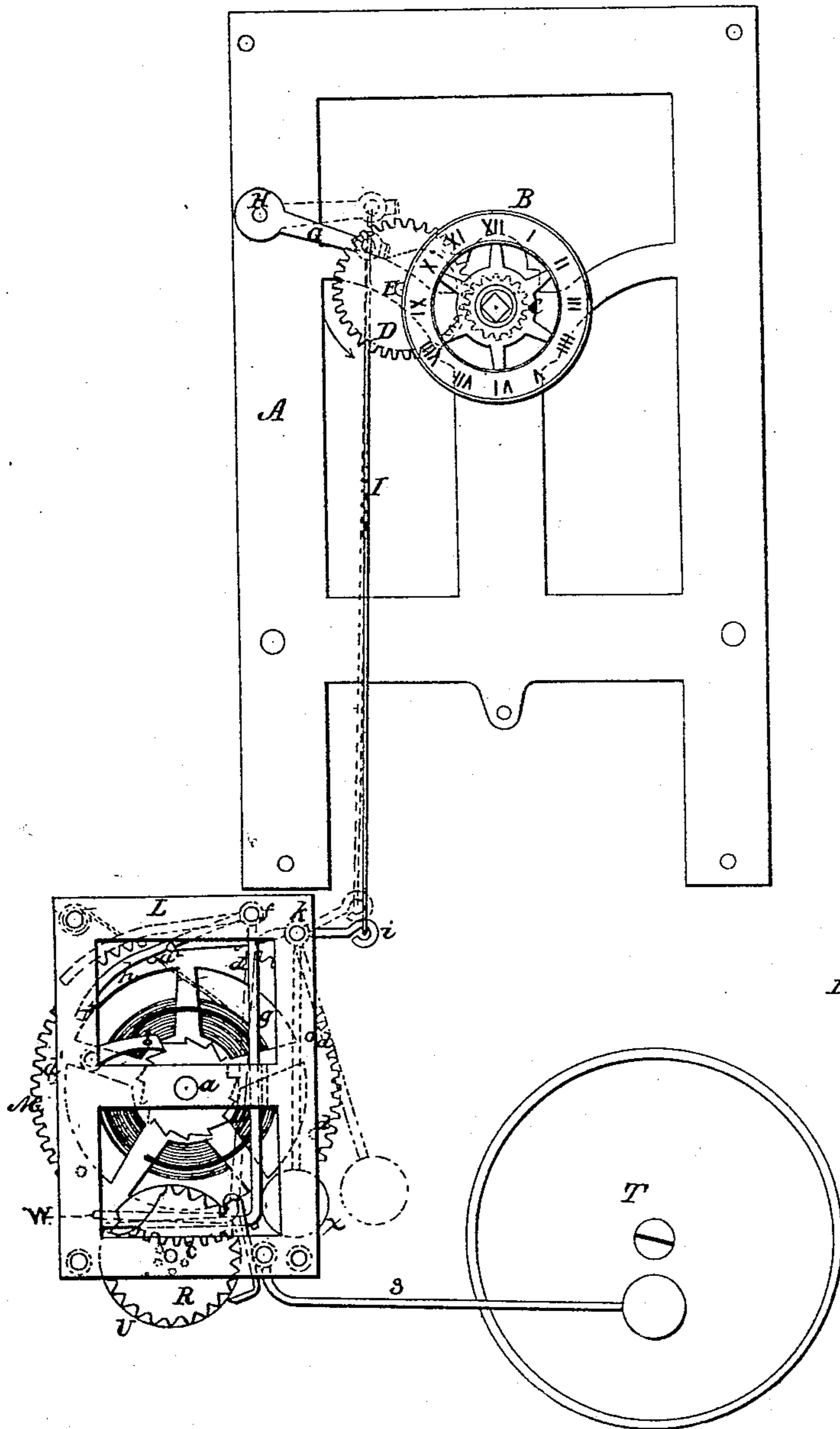
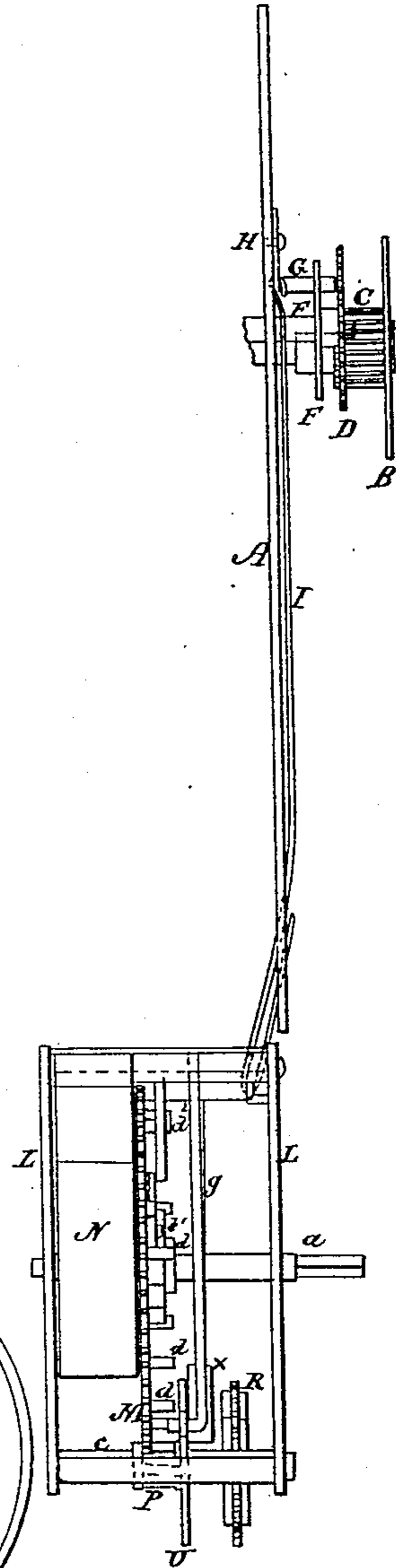


Fig. 2.



Witnesses:

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CHARLES H. WARNER, OF NEW HAVEN, CONNECTICUT.

Letters Patent No. 76,567, dated April 7, 1868.

IMPROVEMENT IN CLOCK-ALARMS.

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, CHARLES H. WARNER, of New Haven, in the county of New Haven, and State of Connecticut, have invented a new Improvement in Clock-Alarms; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a front view, and in

Figure 2 a side view.

This invention relates to an improvement in clocks which are constructed to run for eight days, more or less, and commonly called "eight-day clocks," and consists in the peculiar construction and arrangement of an alarm-attachment, which, being wound up at the same time the clock itself is wound, will automatically sound the alarm at a given hour, during the twenty-four hours of the day, and continue so to do, each day, during the time the clock is allowed to run.

Heretofore it has been necessary to wind the alarm each day, and this must be done after the twelfth hour from the time the alarm is given, inasmuch as the alarm would be sounded once every twelve hours, were the alarm wound up, and when once started, the alarm sounds until its power is exhausted. This, in eight-day clocks, is a great inconvenience, and, for an alarm-clock, deprives it of any advantage over a common "thirty-hour clock." By my improvement all the difficulties existing in the arrangement, as ordinarily produced, are entirely overcome.

To enable others to construct my improvement, I will proceed to describe the same, as illustrated in the accompanying drawings.

A is the front plate of a common eight-day-clock movement, and has fixed upon the hour-hand shaft the usual dial, B, which is set, in the usual manner, to indicate the time the alarm is to be sounded. On the same spindle is a pinion, C, working into a wheel, D, twice the size of the pinion C, causing the said wheel D to make one revolution in each twenty-four hours, in the direction denoted by the arrow. On the shaft E of the wheel D is arranged a cam, F, (see fig. 2,) denoted by broken lines, fig. 1, upon which rests one end of a lever, G, the other end being pivoted at H, and from the lever G a rod, I, connects with the alarm.

If this arrangement be used for an alarm of ordinary construction, the alarm may be wound at any time, but cannot be sounded until the twenty-four hours have passed, so as to permit the lever G to fall upon the cam, as denoted in fig. 1, the position in the drawing being that at the instant the alarm is sounded, and, in red, as raised, and waiting the revolution of the cam, so that the arm may fall off and sound the alarm. Below the movement, or at any convenient point for attachment to the lever G, I arrange the alarm-movement, the said movement being arranged between two plates, L L, in the usual manner of clock-movements.

The construction is as follows: Upon a shaft, *a*, I arrange a toothed wheel, M, and to the same shaft a spring, N, attached to the shaft or wheel, so that when the spring is wound up by the turning of the shaft, and locked by a pawl, *b*, in the usual manner, the action of the spring N is, when free, to cause the revolution of the wheel M, and the said wheel M has fixed upon its side several pins, *d*, more or less in number, but arranged so as to leave one space larger than the others, as from *d*¹ to *d*², the object of which will be hereafter described. The wheel M works into a pinion, P, on a shaft, *c*, and on the said shaft is arranged the striking-wheel R, (a portion of which is broken away in fig. 1,) which operates, by its revolution through the hammer S, so as to sound the alarm upon the bell T, which may or may not be the same bell upon which the hours are struck. On the shaft *c* is arranged a cam, U, which, at one point, has a notch, W, formed, and from a shaft, *f*, an arm, *l*, extends down, and its end arranged so as to rest upon the cam U, and so that when the notch in the cam is presented, the end will fall into the said notch, as denoted in fig. 1; and from the same shaft, *f*, an arm, *h*, extends forward, and lies so as to rest upon the pins *d* upon the wheel M, but so that when the space between the pins *d*¹ and *d*² arrives beneath the arm *h*, then the arm *h* falling thereinto, will permit the end of the lever *g* to fall into the notch W in the cam U; but when the lever *g* is raised from the notch in the cam U, the said cam will revolve by the action of the spring thereon, through the wheel M, and the several pins on the wheel M will hold the arm *h* up, as denoted in red, and consequently the lever *g* from the cam U, until the space on the wheel M

comes around by a full revolution; then the arm *h* and the lever *g* will fall into their first position, and arrest the further movement of the cam *U*. By this arrangement the alarm is sounded during one full revolution of the wheel *M*. This may be diminished by making more than one space on the wheel *M*.

I have mentioned the arrangement of the pins upon the wheel *M*, which serve as a cam to operate the lever *g* through the arm *h*, and this I prefer for economy, but a cam may be placed upon the shaft *a*, to operate in like manner the several pins, being practically a cam.

To set off the alarm at the proper time, a connection is formed by the rod *I* from the lever *G*, on to an arm, *i*, of a lever, which has its bearing at *k*, and to which is fixed a hammer, *X*, the said hammer being arranged relatively to the lever *g*, so that when the said hammer is raised and let fall, it will strike the lever *g*, and quickly throw it from the cam *U* and start the alarm, and yet so that when at rest the lever *g* may, at the proper time, fall back into its notch on the cam *U*, the elasticity of the hammer-arm permitting a little over-motion to the hammer, in the usual manner for common clock-hammers.

When the dial *B* is set at the proper point for sounding the alarm at the required hour, here represented as twelve o'clock, the movement in motion carries the dial *B* around in the usual manner, and causing the revolution of the wheel *D*, and the cam *F* connected thereto, and the said cam, in its revolution, raises the lever *G*, and with it the hammer *X*, to the position denoted in red, and there holds it suspended until the second revolution, or the last half of the twenty-four hours, and the dial *B* has a second time arrived at the position denoted, then the cam *F* has made a full revolution, and at the point of completing the second revolution the lever *G* quickly falls from the cam, giving to the hammer, in its fall, sufficient force to strike the lever *g* and throw it from its cam, to operate in the manner as before described, and so on, continuing to sound an alarm at the same hour, until the clock is run down; or, if a different hour is required, adjust the dial *B* to that hour in the usual manner. The spring *N* being wound, is sufficient to cause as many revolutions of the wheel *M* as will be required for the number of times the alarm is to be sounded during the natural time that the clock will run, and thus I have arranged an alarm which is practically self-operating, as it does not require attention any oftener than the clock itself, and is applied and arranged in like manner as in clocks running any length of time.

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

1. The cam *F* and lever *G*, with the dial *B*, when the said cam is arranged to operate the lever *G* once only during two revolutions of the dial *B*.
2. The combination of the lever *G* and the hammer *X* with the lever *g*, when arranged so that the hammer *X* operates the lever *g*, in the manner and for the purpose described.
3. The combination of the cam *U*, and the cam or pins upon the shaft *a*, with the lever *g* and its arm *h*, arranged so as to operate in the manner described.

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Witnesses:

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