

(No Model.)

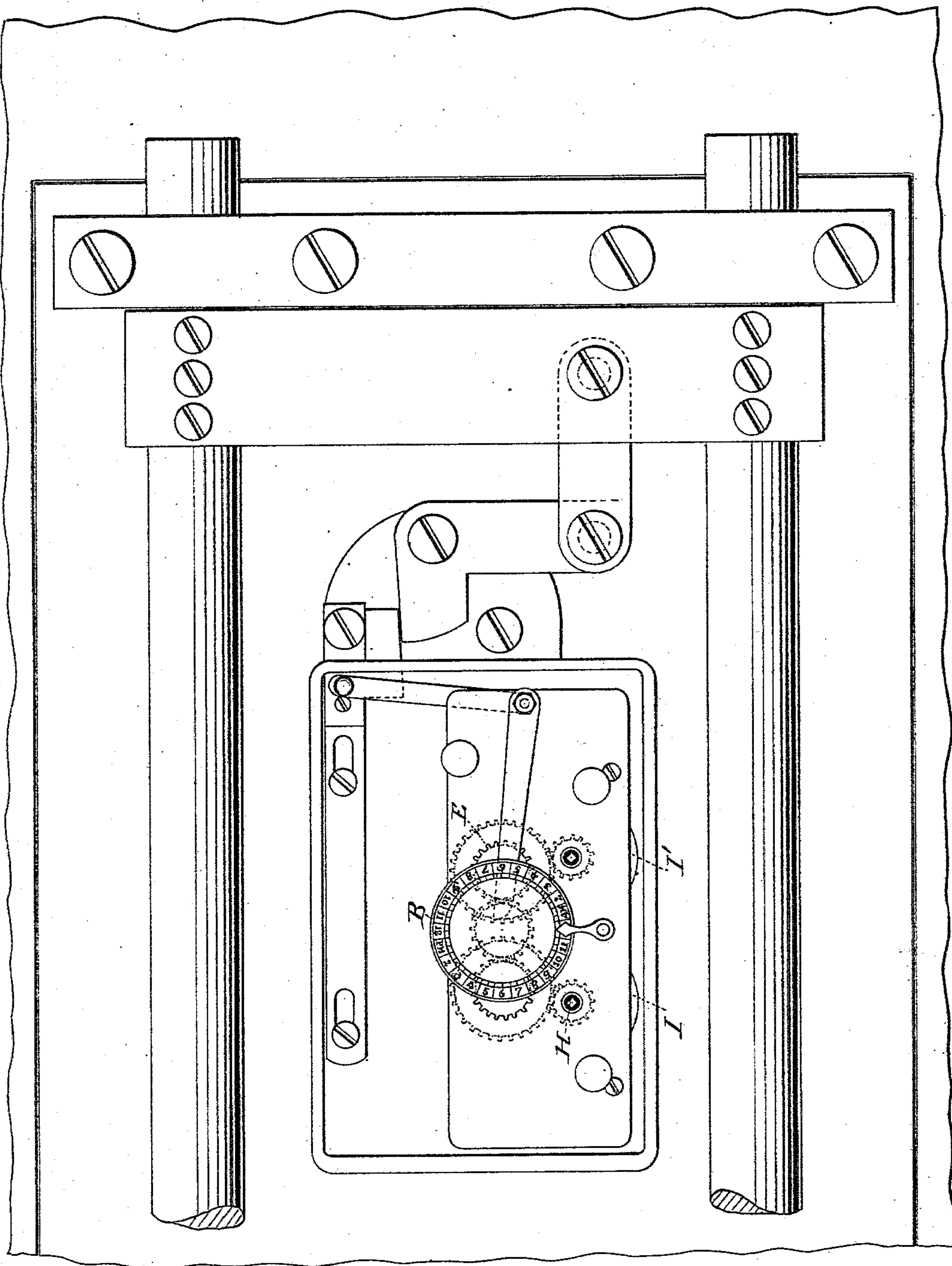
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H. F. NEWBURY.  
TIME LOCK.

No. 283,645.

Patented Aug. 21, 1883.

Fig. 1.



Witnesses:

*R. D. Gaylord*

*Sam. A. Duncan*

Inventor

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(No Model.)

2 Sheets—Sheet 2.

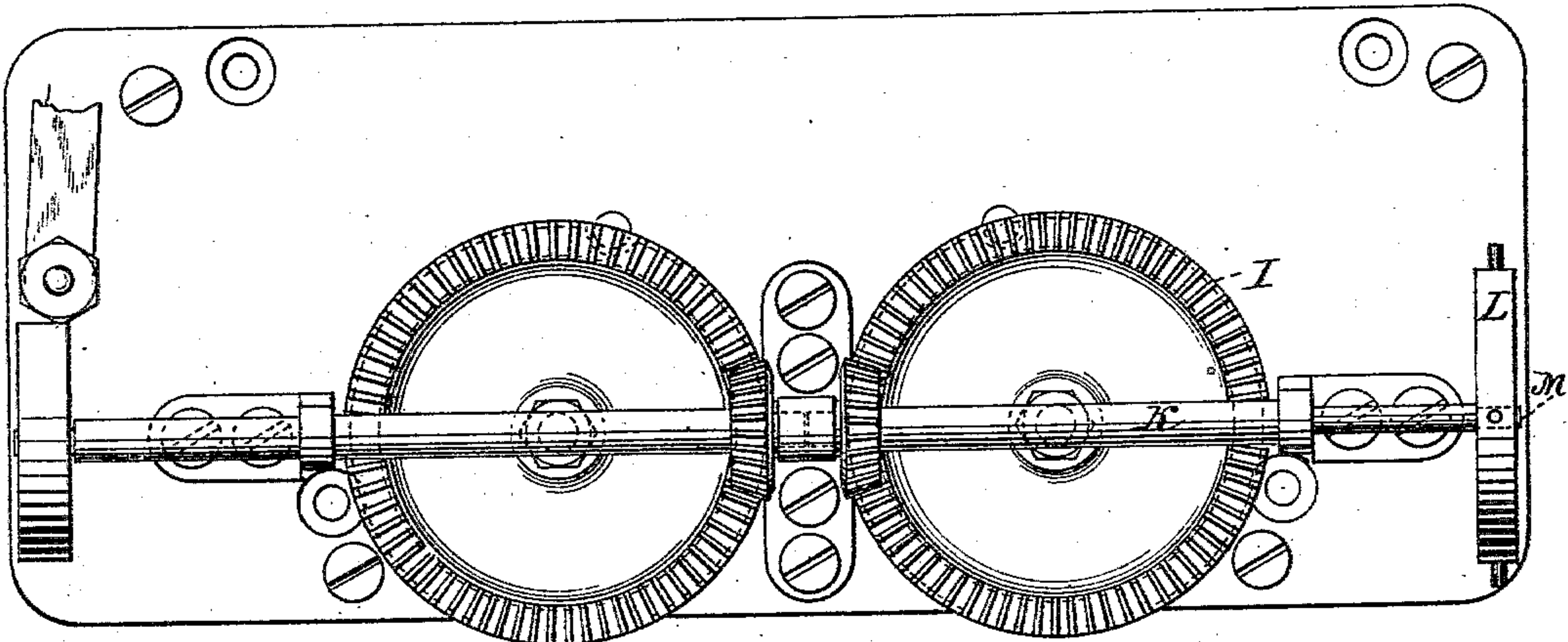
H. F. NEWBURY.

TIME LOCK.

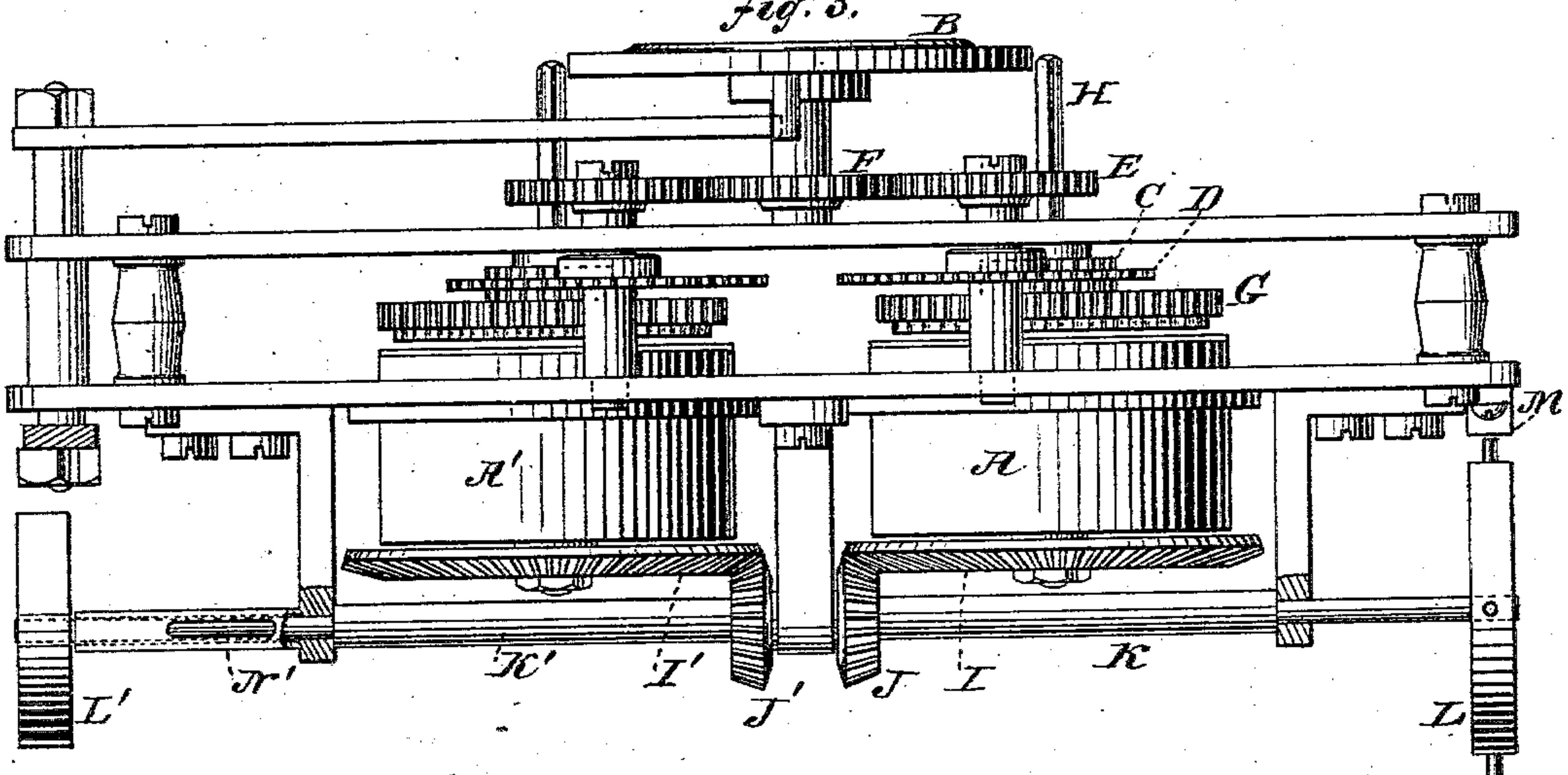
No. 283,645.

Patented Aug. 21, 1883.

*fig. 2.*



*fig. 3.*



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# UNITED STATES PATENT OFFICE.

HENRY F. NEWBURY, OF BROOKLYN, NEW YORK.

## TIME-LOCK.

SPECIFICATION forming part of Letters Patent No. 283,645, dated August 21, 1883.

Application filed April 23, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY F. NEWBURY, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Time-Locks, (Case W;) and I hereby declare that the following is a full, clear, and exact description of one division of my invention, and will enable others skilled in the art to make, construct, and use the same.

I have discovered that when a chronometric lock is provided with a time-movement of ordinary construction it is liable, unless peculiarly mounted, to be defeated by the simple explosion against the outside of the safe or vault in which the lock is used of a small charge of dynamite or other quick explosive. The sudden and heavy shock occasioned thereby, if properly directed, can be made to break or disarrange the more delicate parts of the clock-work. This releases the main wheel from the control of the escapement, and the time-movement immediately begins to "run down;" and as the dial or other device which acts upon the lock-bolt to withdraw it or to permit it to be withdrawn from the locking position is actuated by the same spring that drives the main wheel, its speed will be correspondingly accelerated, so that the lock will be unlocked almost instantly.

The object of the present invention is to provide a means whereby under the circumstances indicated the movement of the clock-work will be arrested and the door of the safe or vault will remain locked; and it consists in so constructing some part of the clock-work of the lock, or some auxiliary device driven thereby, that the force of an explosion sufficient to break or disarrange the clock-work will throw the part so constructed or such auxiliary device out of its normal relation to the adjacent parts and bring it into engagement with a stop, whereby the further unwinding of the mainspring will be prevented, or at least so far controlled as to prevent any dangerous acceleration of speed.

The invention is fully illustrated in the accompanying drawings, in which Figure 1 represents, in front elevation, a time-lock mounted on the inner face of a safe-door; and Fig. 2 is a rear elevation of a part of the works of the lock, showing two forms of the improvement applied as an auxiliary or supplementary de-

vice, Fig. 3 being a plan of the same, showing also the train of the wheels between the main springs and the unlocking dial.

The lock here shown contains two time-movements, represented by the mainspring-drums A A'. The mainsprings actuate the common dial B by the usual trains of wheels and pinions, being the main-wheel pinion C, the wheel D, pinion E, and wheel F.

G is the main wheel, and its revolution, and of course the unwinding of the mainspring, is controlled by the escapement.

The parts of the time-movement beyond the main wheel are omitted from the drawings as not necessary to the illustration of the invention.

The winding-arbor H is prolonged rearwardly from the drum A, and upon the extension there is mounted the bevel-wheel I. This meshes with a bevel-pinion, J, upon the shaft K. Upon the projecting end of this shaft, which is made slender so as to be easily bent, is mounted a heavy wheel, L, provided with pins projecting from its periphery. In the normal action of the mechanism this wheel is driven with a regulated motion as the mainspring unwinds, the pins in the periphery passing close to the fixed stop or stud M. In case, however, the lock is subjected to a sudden and heavy shock—such as would arise from an explosion of dynamite against the exterior of the safe in proximity to the lock—the inertia of the wheel L will cause the slender part of the shaft K to bend, and this in turn will cause one of the pins in wheel L to strike against the stud M, and thus arrest the further revolution of the bevel-gear I and the unwinding of the mainspring.

A slight modification of the foregoing construction is shown in connection with the other time-movement, A', of the lock. In this case, in lieu of pins on the periphery of the wheel I', the slender portion of the shaft which supports the wheel is made to run in the fixed sleeve N'. Any bending of the slender part of the shaft K' will also bend the sleeve N', and this will arrest the revolution of the shaft. Instead of thus using a device supplementary to the ordinary lock mechanism, one of the wheels of the lock itself might be so constructed as to change its form under the force of a shock sufficiently to stop the clock. If, for instance,



either the wheel D or the wheel E were to be made with a heavy rim, but with slight and easily-bent spokes, a sudden and heavy shock would cause the spokes to bend as the rim is thrown forward, and by the proper arrangement of a stop this change of form could be utilized to arrest the revolution of the winding-arbor. In like manner one of the wheels of the time-movement proper might be so constructed that by a change of its form under the force of a sudden shock it could be made to act as a stop to the mainspring. In such case the staffs of the movement should be supplied with supplemental bearings, in the manner described in Letters Patent of the United States No. 262,095, granted me August 1, 1882.

Instead of constructing one of the wheels of the lock so that it will change form under the force of an explosion, it might be so mounted that on the occurrence of a sudden and heavy shock of the character indicated it would be moved laterally and come into engagement with a stop, its face being made sufficiently broad so that at such time it will not be disengaged from the rest of the train. In like manner the dial might be so arranged as to be movable on its shaft against a stop, under the force of an explosion, without interrupting the continuity of its connection with the driving-pinion on the main arbor.

Instead of so constructing and arranging the revolving device to which this invention relates that when influenced by a sudden and

heavy shock, sufficient to cause it to change form or position it will bring up against a fixed stop, and thus absolutely arrest the unwinding of the mainspring, it may be so arranged that by its movement or change of form it will connect with some form of governing mechanism, which will thereby be brought into action and so far retard the unwinding of the mainspring that the lock-bolt will not be retracted until approximately its usual hour. Of course it is understood that in putting this invention into practice the lock must be secured in such manner that it will not be unseated by the shock to which it may be subjected. As various means for accomplishing this have been made public in patents heretofore granted me, it is unnecessary to refer to them in detail.

What is claimed as new is—

The combination, in a time-lock, of the mainspring of the time-movement, a revolving device driven thereby, and constructed and arranged to change its form or position under the force of a shock calculated to injure the works of the lock, and means for preventing the running down of the mainspring at an abnormal speed, substantially as and for the purpose set forth.

HENRY F. NEWBURY.

Witnesses:

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SAML. A. DUNCAN.