

H. F. NEWBURY.
MODE OF MOUNTING TIME LOCKS.

No. 284,142.

fig. 1. Patented Aug. 28, 1883.

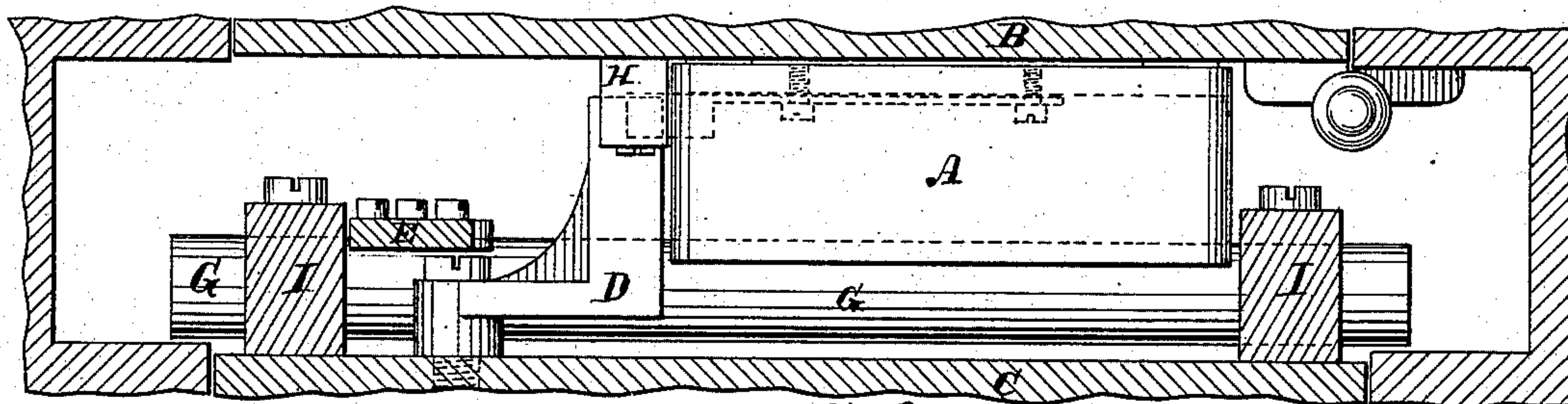
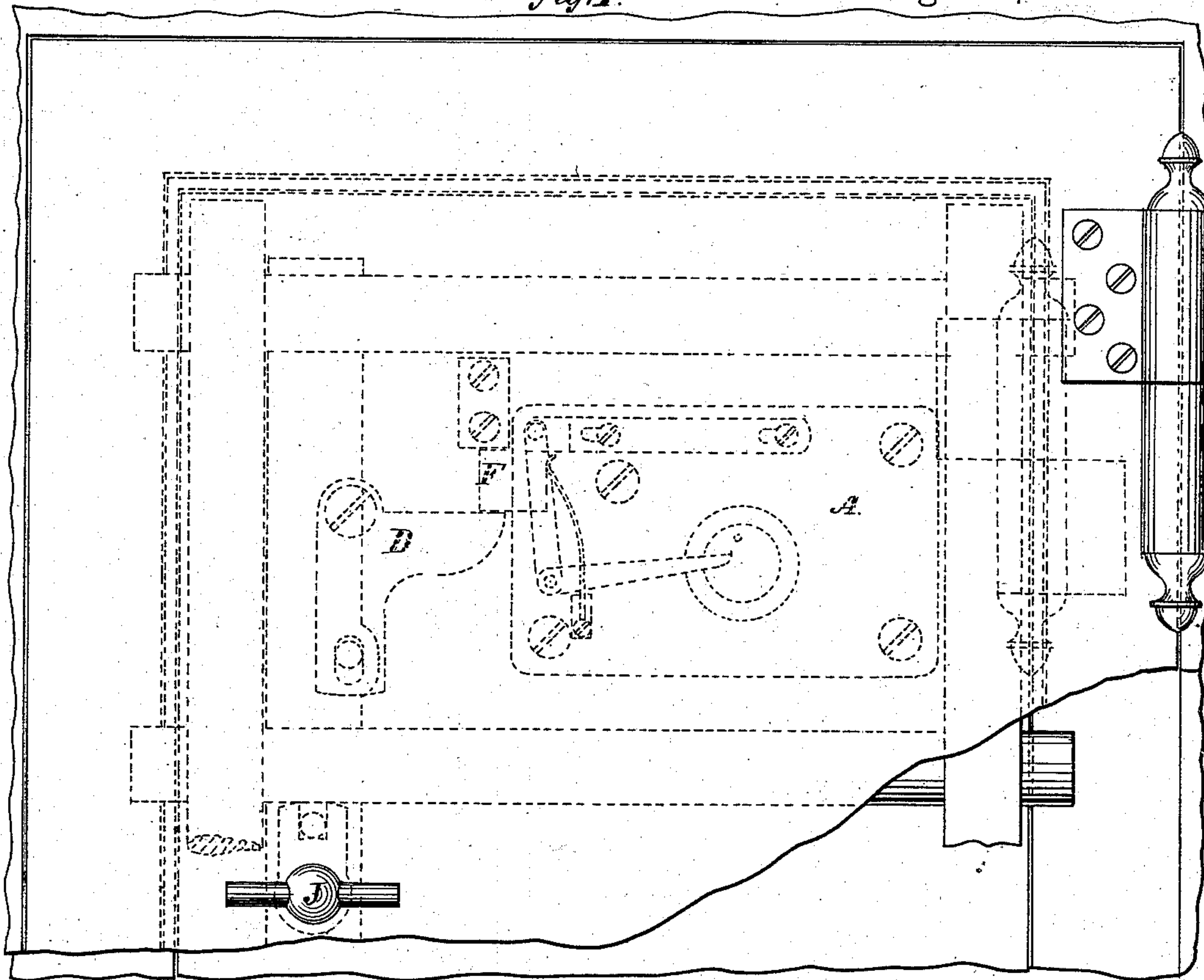


fig. 2.

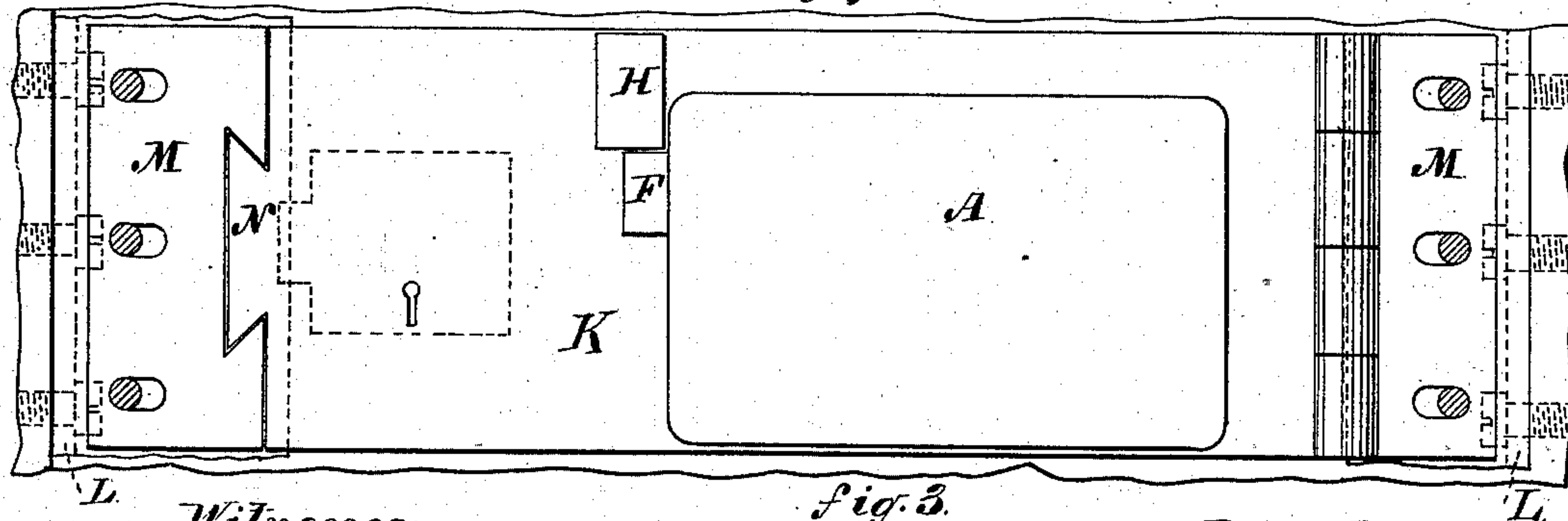


fig. 3.

Witnesses:
Henry S. Perkins
R. S. Gaylord

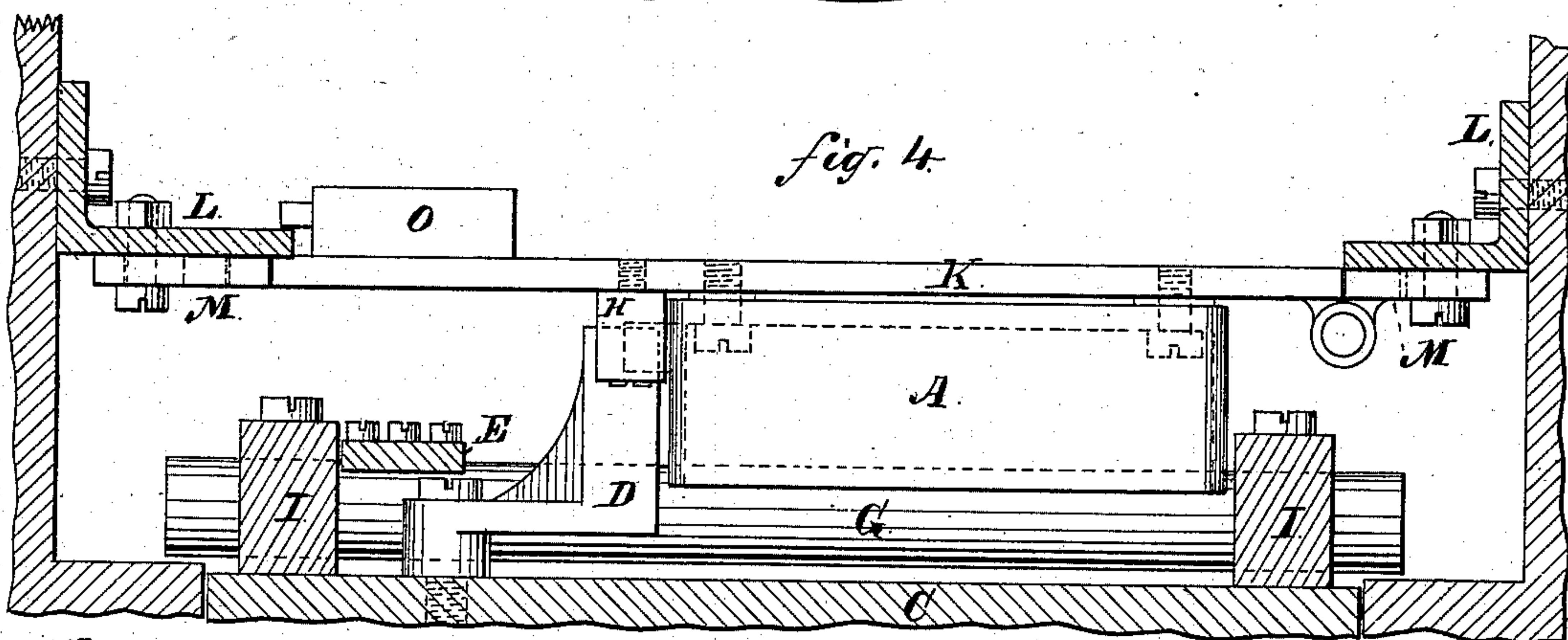
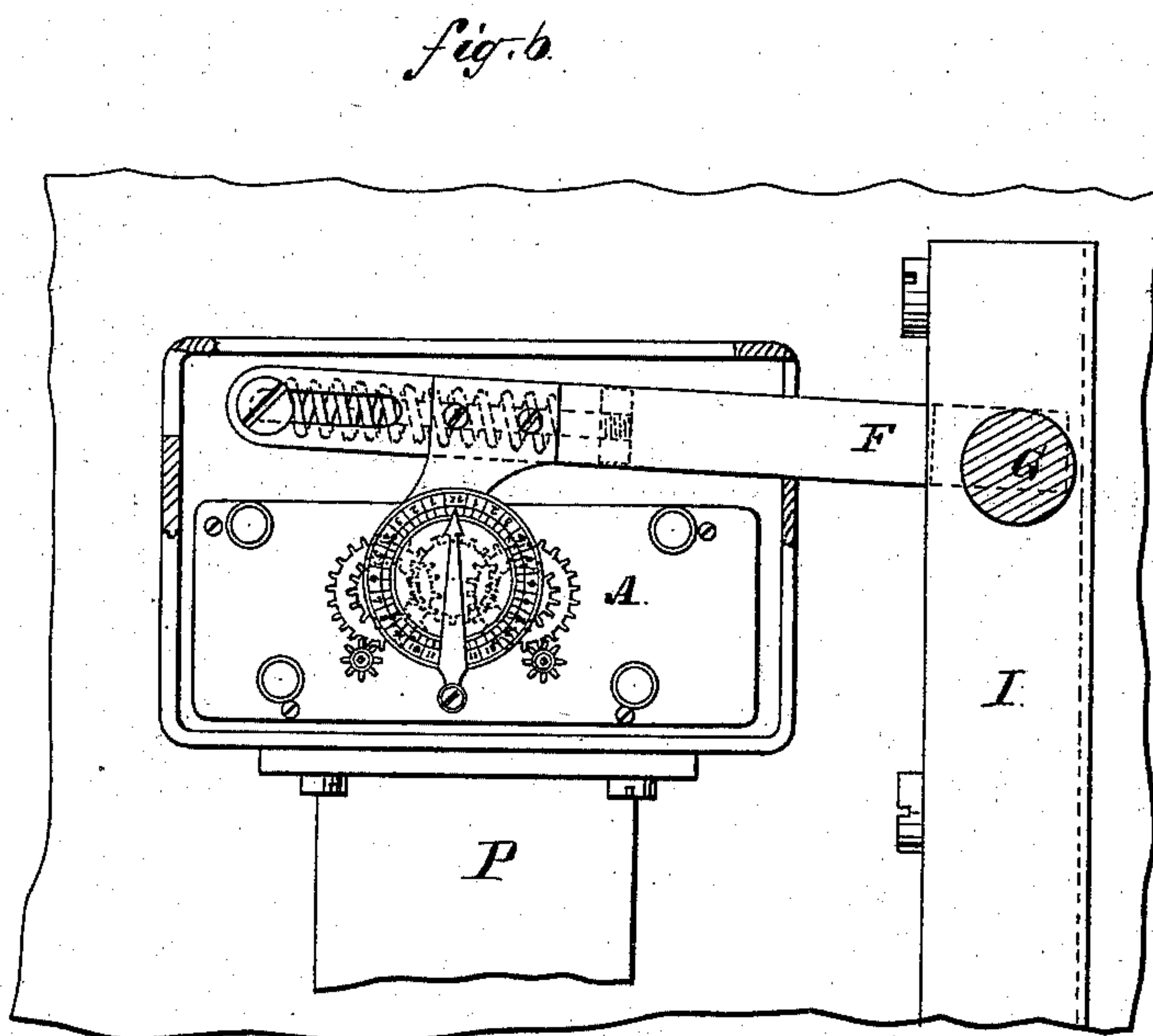
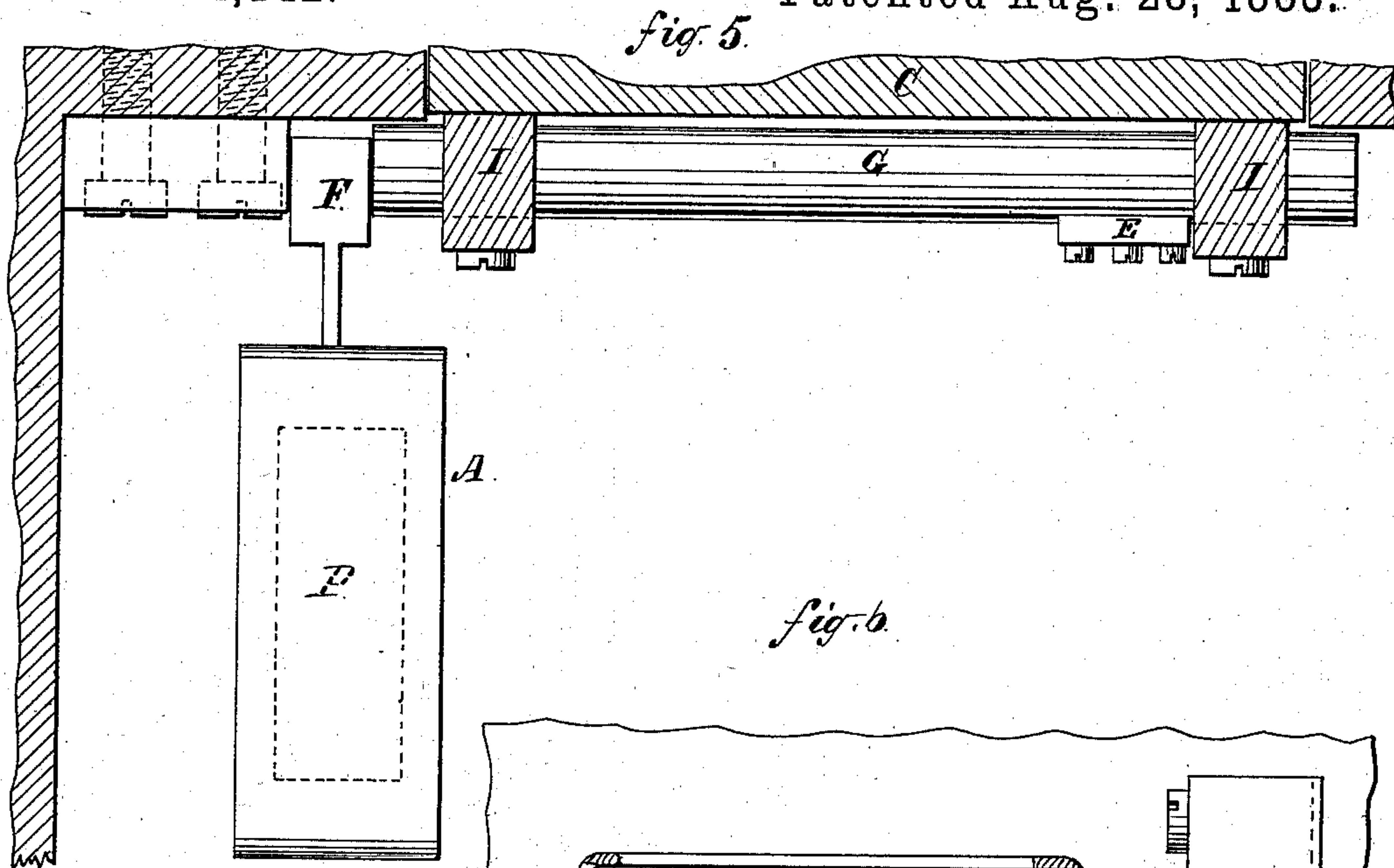
Inventor
Henry F. Newbury

H. F. NEWBURY.

MODE OF MOUNTING TIME LOCKS.

No. 284,142.

Patented Aug. 28, 1883.



Witnesses:
Henry G. Schilling
R. F. Gaylord

Inventor
Henry F. Newbury

UNITED STATES PATENT OFFICE.

HENRY F. NEWBURY, OF BROOKLYN, NEW YORK.

MODE OF MOUNTING TIME-LOCKS.

SPECIFICATION forming part of Letters Patent No. 284,142, dated August 28, 1883.

Application filed August 31, 1882. (No model.) Patented in England August 2, 1882, No. 3,683, and in Canada August 19, 1882, No. 15,309.

To all whom it may concern:

Be it known that I, HENRY F. NEWBURY, of the city of Brooklyn, in the county of Kings and State of New York, have invented certain
5 new and useful Improvements in the Mode of Mounting Time-Locks; and I do hereby declare that the following is a full, clear, and exact description of my invention, and will enable
10 others skilled in the art to which it appertains to make and use the same.

A chronometric or "time" lock, as the term is understood in the art of safe and vault protection, is a lock whose bolt or checking device (sometimes technically called "dog") is,
15 for the purpose of unlocking at least, under the control of a time-movement, capable of withdrawing it automatically, or of permitting it to be withdrawn from the locking position upon the arrival of the hour for which the
20 mechanism has previously been set. By placing such locks upon the interior of the structures to be protected, and without mechanical connection with the exterior thereof, it has
25 been supposed that an efficient security is provided against what are known as "masked burglaries," and that thus locks of this class afford complete protection against the operations of the burglar, except when he resorts to
30 violence, calculated to force the walls of the safe or vault. The ordinary mode of mounting such locks has been to bolt them directly and rigidly to the door or wall of the safe. I
35 have discovered that when they are thus mounted the security afforded is apparent only, and that any of the time-locks now upon the market can be defeated by the burglar without difficulty, and without resort to force to break or
40 penetrate the walls of the structure in which the lock is used. From this it results that practically a safe or vault guarded by a combination-lock has its security increased but
45 little, if any, by the addition of any of the existing time-locks, and that the protection afforded by such time-lock alone is far less reliable than that afforded by an ordinary combination-lock alone. This defect in the existing
50 chronometric locks as heretofore mounted arises from the frangible character of certain parts of the time-movement, which in all fine work are made so slight and delicate as to be broken readily by a sudden shock,

such as might be communicated to them through the walls of the safe or vault by the explosion of a small charge of dynamite, nitro-glycerine, or other quick explosive outside
55 the walls of the structure but in proximity to that part of the walls against which the lock is secured. The parts of a time-movement which are the farthest removed from the main
60 wheel are the most delicate, and therefore the most easily broken, this being the case especially with the staff of the third wheel, and with the pallet and escape-wheel staffs. The
65 journals of these staffs as ordinarily constructed are exceedingly small, for the purpose of reducing the surfaces of contact and thus the
70 friction to a minimum and the finer the workmanship of the lock the slighter and more frangible are these parts likely to be. Any
75 material increase in the extent of the bearings, whereby the strength of the parts would be augmented, would correspondingly increase
80 the friction and impair the time-keeping properties of the movement. Time-locks with jeweled movements, also, are especially exposed to
85 injury in the manner indicated, since the jewels, by reason of their brittleness, might easily be broken by the force of an explosion of great
90 intensity in close proximity to them. The destruction of any of the parts intermediate between the balance-wheel and the main wheel
95 at once releases the main wheel from the control of the escapement, and the movement immediately begins to "run down," a movement which otherwise would continue to run for
100 several days without rewinding, now running down almost instantly. As the dial or other device arranged to act upon the lock bolt or dog to withdraw it or permit it to move from the locking position is actuated from the same
spring that drives the main wheel, its speed will be correspondingly accelerated, so that the dog, instead of being withdrawn from engagement with the bolt-work of the door at the regular hour for which the lock has been set,
will be withdrawn immediately upon the explosion or other shock, leaving the safe or vault, so far as the time-lock is concerned, entirely under the control of the burglar. If there are other locks on the door, (either combination or key locks,) the burglar will probably have effected the unlocking of them in ad-

vance of his attack upon the time-lock, either by picking them or forcing them, or by threats compelling the co-operation of the custodian of the key or combination. In whatever way this
5 may be done, the subsequent unlocking of the vault of the time-lock in the manner indicated (and repeated experiments show that this can be readily done with a charge of dynamite so small as to make but little noise, and not even
10 indent or otherwise appreciably affect the walls of the safe) removes all obstructions to free access to the valuables placed under the protection of such lock.

The present invention seeks to overcome
15 this difficulty connected with the use of existing time-locks as heretofore mounted; and it consists, primarily, in mounting the lock in such way that it will be isolated or removed from those parts of the door or wall of the
20 safe or vault which a burglar would be likely to attack in the manner indicated, and thereby protected against any destructive shock arising from such source.

Various methods may be adopted for iso-
25 lating the lock for the purpose above set forth. For instance, in the case of a vault it may be mounted on a solid standard rising from the bottom of the structure. So, also, if the vault or safe have double doors, the lock which is
30 used to guard the bolt-work of the outer door may be attached to the face of the inner door, with such space between it and the outer door that the lock will not be affected by any vibrations imparted to the latter by a shock less
35 than what would be necessary to set the door-bolts. So, again, instead of placing the lock upon a fixed standard, or upon an inner door, it may be secured to a bar spanning the space behind the door, and arranged to support the
40 lock at the required distance from such door.

The invention is illustrated in the accompanying drawings, in which Figures 1 and 2 show in elevation and plan, respectively, a
45 well-known Holmes time-lock, A, secured to the inner door, B, of a safe or vault, and guarding the door-bolts of the outer door, C.

It will be seen by reference to Fig. 2 that there is a space left between the front of the lock and the outer door, so that the latter will
50 be capable of considerable inward movement without being brought into contact with the lock. As here mounted the angle-lever or jaw D, which, together with the tie-bar E, forms the connection between the sliding lock-
55 bolt F and the door-bolts G G, is pivoted to the outer door, while the stud H, which forms an abutment to resist the backward thrust of the door-bolts, is bolted to the inner door. Both of these pieces, however, might be at-
60 tached to the other door.

I I are the ordinary bolt-bars, in which the bolts G G have their bearing.

J is the spindle for operating the door-bolts.

As seen in Fig. 1, the lock, bolts, &c., are
65 shown in dotted lines, since they are represented as being behind the other door. The

construction of the time-lock itself is not shown in detail, being well known, and because, also, the present invention is not limited as regards the particular kind of time-
70 lock to which this mode of mounting is to be applied.

Figs. 3 and 4 show a lock mounted upon a hinged metal bar, K, Fig. 4 showing in plan the position of such lock and bar relatively
75 to the door of the safe. This bar K is supported at its ends by means of angle-irons L, bolted to the sides of the safe. To these angle-irons are attached the supporting-strips M M, the bar K being hinged to one of these
80 strips, and being prevented from sagging by the tongue N, which enters a recess in the other one. The object in hinging the bar K is to enable the lock to be swung out of the way when the safe-door is opened, thereby giving
85 free access to the interior of the safe. The strips M M should be made with slots, through which to pass the bolts that secure the strips to the angle-irons L. This will be a safeguard against an explosion or other sudden and
90 heavy shock directed against either side of the safe opposite the angle-iron L. By reason of these slots the side of the safe might be bulged in to a considerable extent without communicating any serious shock to the lock. 95

O is a small lock or catch for holding the bar K in its proper position when the safe-door is locked.

In Figs. 5 and 6 there is shown in plan and elevation, respectively, a time-lock mounted
100 on a rigid standard, P, detached from the door which the lock is designed to guard. This standard is set at such distance from the adjacent walls that the body of the lock is not exposed to concussion by the inward move-
105 ments of such walls unless produced by a force sufficient to make an absolute breach therein, and by this isolation of the lock any vibration or shock given to the adjacent walls less than
110 what would be necessary to break them in will produce little or no effect upon the lock. As in the particular construction here shown the dogging end of the lock-bolt F is brought
115 near to the wall of the safe, it may be found advisable to slot the other end of this bolt, as shown in Fig. 6. A spring arranged behind the bolt and bearing against the pivot on which the bolt swings in locking and unlock-
120 ing will serve to keep the dog in its advanced position for work. If, now, at any time a shock should be communicated to the wall of the safe in front of the lock and be transmitted to the lock-bolt, it would only tend to force such bolt back upon its pivot, (the spring yielding for this purpose,) without materially
125 disturbing the lock itself or the time-movement forming a part of it. An opening in the rear end of the lock-case will permit the heel of the lock-bolt, if necessary, to pass through the case. This construction of the lock-bolt,
130 as, in fact, any other construction which will permit the bolt to give back relatively to the

lock and then automatically restore itself, may be found useful not only when the lock is mounted on a standard, as shown in Fig. 6, but when it is otherwise mounted in an isolated position.

I am aware that heretofore it has been proposed to isolate the clock-work of a time-lock from the door and door-frame of a safe in order to protect it against derangement and consequent stoppage from blows and jarring inflicted upon said door or door-frame. This was proposed by Charles E. Chinnoek in Letters Patent No. 197,826 of the United States, dated December 4, 1877. The present invention, however, is distinguished from Chinnoek's in that it is now proposed to isolate the lock-bolt as well as the clock. In Chinnoek's patent the lock-bolt D of the time-lock and the electro-magnet and armature, by means of which it is operated, are all secured directly to the door of the safe, and therefore are in a situation to be dislodged by the force of an explosion of dynamite or other similar material placed against the exterior of the door. Manifestly if these parts should be thus displaced it would be of no substantial importance that the clock had been placed where it would not be stopped by a jar or concussion. In no fair sense can it be said that Chinnoek's lock was "isolated," or that it was "protected against any destructive shock" arising from the use of dynamite, &c., against the exterior of the safe.

The danger now under consideration is one that was not contemplated by Chinnoek, and against which, therefore, his said patent did not attempt to provide. By isolating the lock-bolt as well as the clock, as now proposed, security is afforded against the new danger which I have discovered.

I do not propose to claim herein the particular mode of isolating a time-lock, which consists in supporting it behind and independently of the safe-door and upon a movable support, nor the mounting of the lock upon an independent support behind the safe-door, and with yielding connections between such support and the walls of the safe, nor the use, in an isolated lock, of a yielding lock-bolt, as these matters are made the subject of a special application for Letters Patent.

What is claimed as new is—

In combination with a safe, vault, or similar structure, a lock having a locking-bolt and a time-movement connected therewith, placed within such structure, and having both its bolt and its time movement isolated from the door and walls thereof, substantially as and for the purpose set forth.

HENRY F. NEWBURY.

Witnesses:

R. F. GAYLORD,
HENRY EICHLING.