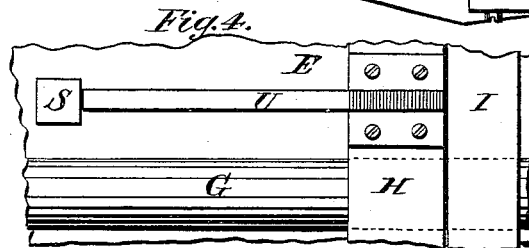
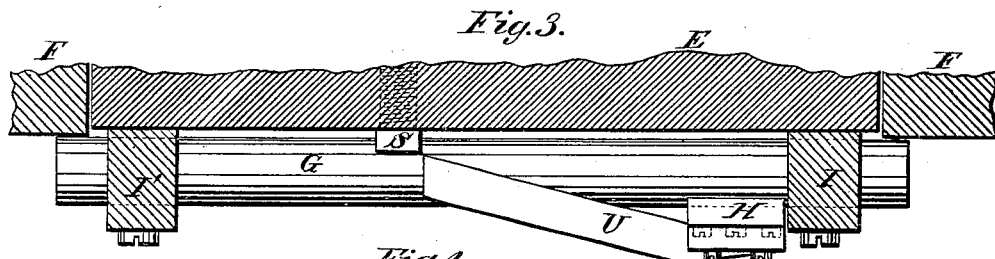
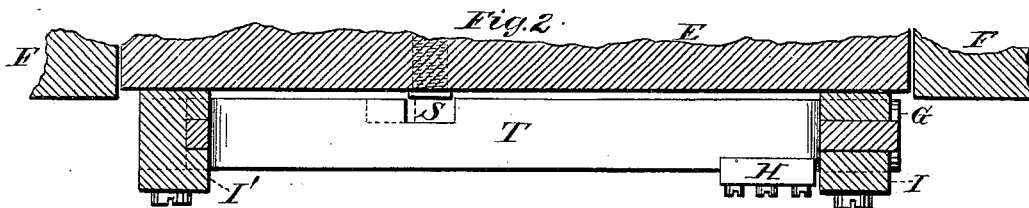
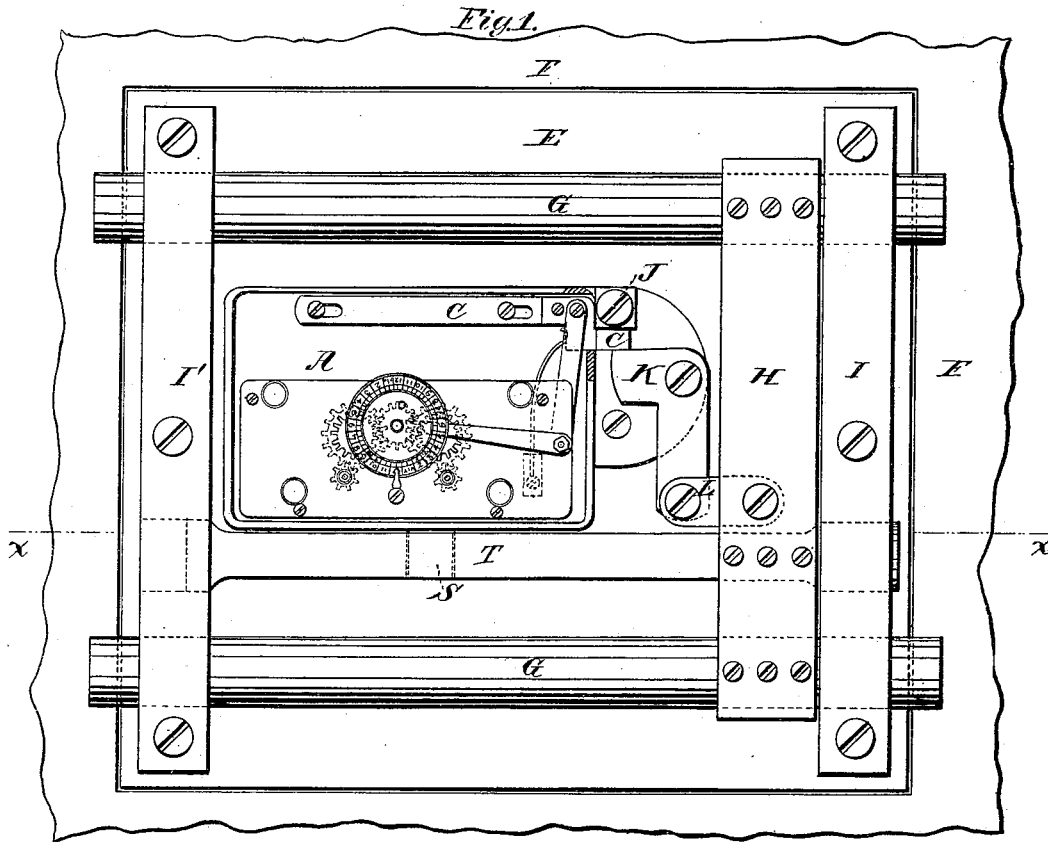


(No Model.)

H. F. NEWBURY.
TIME LOCK.

No. 262,103.

Patented Aug. 1, 1882.



WITNESSES:

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TIME-LOCK.

SPECIFICATION forming part of Letters Patent No. 262,103, dated August 1, 1882.

Application filed May 5, 1882. (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 Locks and the Mode of Mounting the Same, (Case K;) and I do hereby declare that the following is a full, clear, and exact description of my invention, and will enable 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, 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at least, under the control of a time-movement capable of withdrawing it automatically or of permitting it to be withdrawn from the locking position upon the arrival of the hour for which the mechanism has previously been set.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 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 violence calculated to force the walls of the safe or vault. I have discovered, however, that the security thus afforded is apparent only, and that any of the time-locks now upon the market, when mounted in the established way, can be defeated by the burglar without difficulty and without resort to force to break or 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 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 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 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 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 journals of these staffs as ordinarily constructed are made exceedingly small, for the purpose of reducing the surfaces of contact, and thus the friction, to a minimum, and the finer the workmanship of the lock the slighter and more frangible are these parts likely to be. Any material increase in the extent of the bearings, whereby the strength of the parts would be augmented, would correspondingly increase the friction and impair the time-keeping properties of the movement. Time-locks with jeweled movements, also, are especially exposed to 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 intensity in close proximity to them. The destruction of any of the parts intermediate between the balance-wheel and the main wheel at once releases the main wheel from the control of the escape-ment, and the movement immediately begins to "run down," a movement which otherwise would continue to run for several days now running down in as many seconds. 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 rather shock, leaving the safe or vault, so far as the time-lock is concerned, entirely under the control of the burglar. I have also discovered that when time-locks are mounted in the ways heretofore practiced an explosion directed against the exterior of the safe and of far less intensity than would be required to destroy or break through the door or wall of the safe might de-

tach the lock from its fastenings, and by thus moving it from its proper position cause it to release its dogging action upon the door-bolts. So, likewise, in the case of ordinary combination or dial locks, as also with key-locks, when mounted in the ways heretofore practiced, such an explosion would be likely to tear the locks from their fastenings, and thus release the bolt-work from the protection of the lock-bolts.

10 In any of these cases the burglar, having by this simple means defeated the lock or locks of the safe, can at once effect an entrance by merely turning the handle of the spindle, which communicates from the outside with the bolt-work within, and thus retract the bolts.

15 The object of the present invention is to prevent the retraction of the door-bolts of the safe or vault when the lock or locks designed for guarding them have been broken or displaced by an excessive shock or vibration arising from an explosion or other cause; and it consists in arranging a supplemental dog or check upon the door of the safe in proximity to the lock and in such relation to the bolt-work that if the door is bulged inward by the force of a shock the supplemental check will thereby be moved into the path of some part of the bolt-work.

20 The invention is fully illustrated in the accompanying drawings, in which Figure 1 is a front view of the inner face of the door of a safe furnished with the ordinary multiple bolt-work and a lock, the particular lock here shown being the well-known Holmes time-lock; and Fig. 2 is a horizontal section of the same. Figs. 3 and 4 illustrate an obvious modification of the connection between the supplemental check and the bolt-work.

25 Referring to the drawings more in detail, A represents the lock; C, the lock-bolt; E, the door of the safe; F, the frame of the door; G, the door-bolts; H, the carrying or tie bar; I I', the bolt-bars; J, a stud, which serves as an abutment for the end of the lock-bolt C; 45 K, an angle or bell-crank lever, and L a link connecting this angle-lever to the tie-bar H.

When the end of the lock-bolt or dog is interposed between the abutment J and the head of the angle-lever K the bolt-work is locked. 50 When the lock-bolt is retracted the door-bolts G G can be thrown back and the door opened. It is manifest that any shock transmitted

through the door, if of sufficient violence to unseat the lock, would unlock the bolt-work. The same result would follow from such a derangement of the time mechanism of the lock, if a time-lock, as would produce an undue acceleration of its action, as above explained. The retraction of the door-bolts, when thus abnormally released from the dogging action of the lock, may be prevented by the means shown in Figs. 1 and 2. A stud, S, rigidly attached to the inner face of the door in the vicinity of the lock, is so arranged that on any inward movement of the adjacent parts of the door, as under the force of an explosion, it will take into a recess in a transverse bar, T, which is bolted to the carrying-bar H and has its bearings in the bolt-bars I I'. Instead of using a transverse bar reaching from the one bolt-bar to the other, a simple tongue-piece, U, rigidly fastened to the tie-bar H, may be used, as shown in Figs. 3 and 4. This should be so arranged as to just clear the stud S under the normal action of the parts. Then any disturbance of the door which will bend it in will project the stud into the path of the tongue-piece, and thus effectually prevent the backward movement of the door-bolts.

It is manifest that this invention does not depend upon any peculiar form of the stop used, as this may be constructed variously; nor does it depend upon the kind of lock. It is only necessary that the stop be arranged near the lock, so as to be brought into operative connection with the bolt-work, as indicated, whenever the lock is subjected to a shock calculated to derange or dislodge it.

What is claimed as new is—

The combination of the bolts of a safe or vault door, a lock for guarding the same, and a supplemental guard or check attached to the door in proximity to the lock and the bolt-work, whereby such supplemental check is caused to lock the door independently of the lock by being forced into engagement with the bolt-work when the door is subjected to a sudden and heavy shock calculated to break or displace the lock, substantially as and for the purpose set forth.

HENRY F. NEWBURY.

Witnesses:

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