(No Model.)

W. B. HAYDEN.

TIME LOCK MOUNTING.

No. 312,119. Patented Feb. 10, 1885.

Fig. 1.

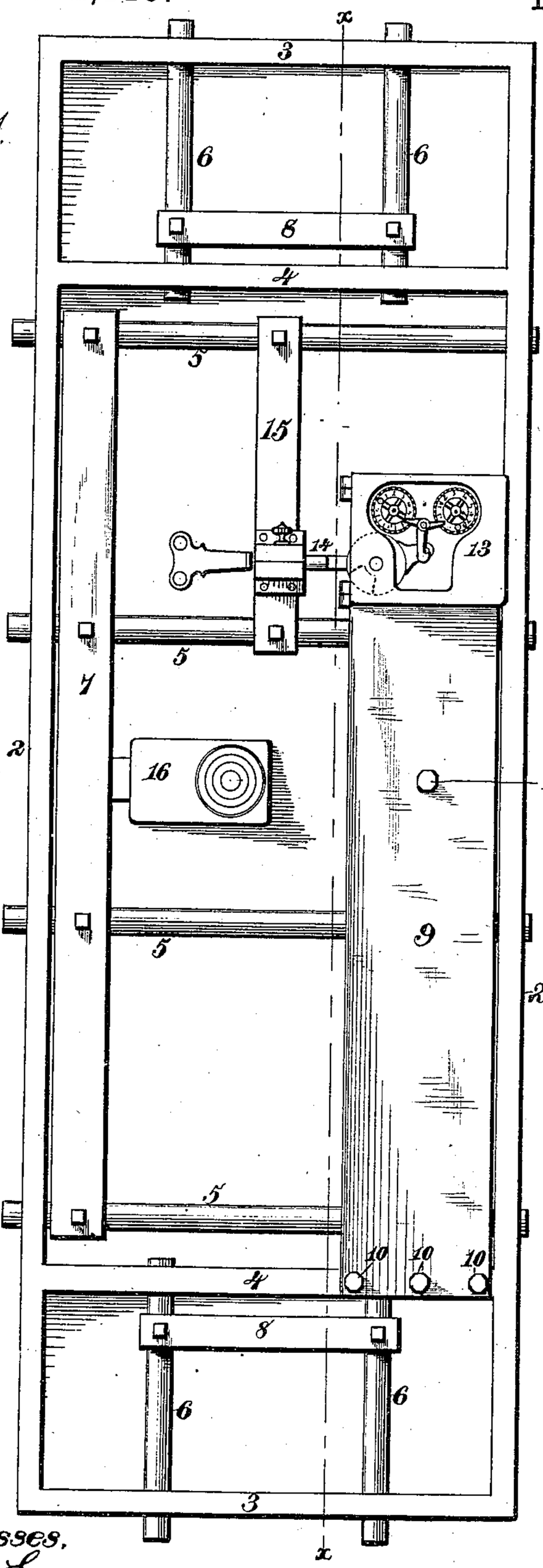
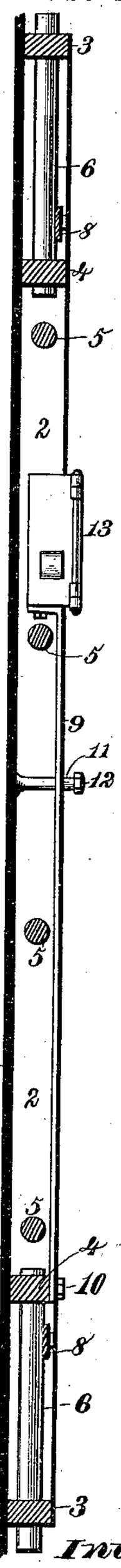


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM B. HAYDEN, OF COLUMBUS, OHIO.

TIME-LOCK MOUNTING.

SPECIFICATION forming part of Letters Patent No. 312,119, dated February 10, 1885.

Application filed February 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. HAYDEN, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented new and useful Improvements in Modes of Mounting Time-Locks in Safes or Vaults, of which the following is a specification.

This invention has for its object to provide improved means for mounting or supporting what are known as "time-locks," such locks being employed for the purpose of preventing the unlocking or retraction of the bolt-work until a predetermined hour. This class of locks as most generally arranged are secured by bolts or screws directly to the inner wall of the safe or vault, and co-operate with a tongue-piece connected with the bolt-work, which is dogged by the bolt of such time-lock until the time arrives at which the time mechanism is set to release its bolt, and thereby cease its dogging action on the tongue-piece, thereby permitting the bolt-work to be unlocked. It has been found that where the time-lock is mounted or attached as above alluded to an explosion of a small charge of dynamite or other quick explosive outside the walls of the safe or vault, but in proximity to and directed against that part of the door or wall to which the lock is secured, creates such a sudden shock or concussion as to violently vibrate the door or wall, and thereby directly communicate such vibrations to the lock, which results in the disarrangement or breakage of the delicate and sensitive parts of the chronometer movement, more especially the pallet and escape-wheel staffs, thereby permitting the movement to immediately run down, which obviously brings the several coacting devices quickly into the position required to unlock the bolt-work, causing the bolt of the time-lock to cease its dogging action on the bolt-work and offer no obstruction to gaining access to the safe or vault other than the usual non-time or combination lock. To remedy this defect and prevent the possibility of masked burglars opening a safe or vault which is protected by a time-lock in the manner referred to is the essential object of my invention, and this I accomplish by supporting or mounting the time-lock on a yielding or flexible support, combined with means to maintain proper relation between the parts thus supported or mounted and the adjacent tongue-piece of the bolt-work, whereby the chronometer movement of the lock is held at such distance from the wall or door of the structure in which it is employed as to protect it from injury under the force of an explosion directed against the exterior of said structure, and of a character to break or disarrange the parts of the movement, the control of the lock over the bolt-work being thereby maintained.

The manner of carrying my invention into effect is illustrated in the accompanying drawings, in which Figure 1 is a plan view of the frame of a safe or vault door, showing the bolt-work, combination or key lock, and the manner of supporting the chronometer-lock; and Fig. 2, a longitudinal sectional view of the same on the line *x x* of Fig. 1, looking in the direction of the arrow thereon.

In order to enable others skilled in the art to carry my invention into effect, I will now proceed to describe the same in detail, reference being had to the accompanying drawings, in which—

1 indicates a safe or vault door, which may be of any usual construction, suitably connected or built upon a frame-work composed of longitudinal metal bars 2 2, joined at the extreme ends by transverse bars 3 3, and at a short distance from each end by transverse bars 4, the said longitudinal and transverse bars serving, respectively, as supports and guides for the horizontally and vertically movable door-bolts 5 6, which constitute what is known as the "bolt-work" of a safe or vault door. The horizontal bolts are joined by a tie-bar, 7, and the vertical bolts by tie-bars 8, and usually all will move simultaneously, as usual.

The flexible or yielding support here illustrated, on which the chronometer-lock is supported or mounted, consists of a broad flat plate or spring, 9, of steel, firmly attached at its extreme lower end to the transverse bar 4 of the frame through the medium of screw-bolts 10, which are passed through apertures in the plate or spring and tightly screwed into threaded apertures in the said bar. The plate or spring is otherwise unsupported or unattached to the door or its frame, except by a stud or bolt, 11, which is firmly secured to

the inner side of the door 1, and projects through an orifice in the plate or spring, its free end being provided with a head, 12, such bolt or stud being for a purpose which I will hereinafter explain. The upper end of the plate or spring is provided with a broad flange, the upper side of which is at right angles to the plate or spring, such flange projecting toward the door and serving as a seat or bearing to receive the chronometer-lock 13, which is firmly retained in proper position thereon by screw-bolts passed up through the flange, Fig. 2, and screwed tightly into the bottom wall of the lock-casing. The chronometer-lock 13 and the adjustable tongue-piece 14 here illustrated are of the type known as the "Sargent Time-Lock," and it is not deemed essential to describe their construction and mode of operation further than to say that when the chronometer-lock is locked its bolt dogs the tongue-piece, and as the latter is connected with the bolt-work by a tie-piece, 15, it will be obvious that the bolt-work cannot be retracted or unlocked until the recess in the bolt is brought into coincidence with the tongue-piece, which occurs on the arrival of the time at which the chronometer movement is set to unlock the bolt of its lock. The tongue-piece is adjustable, as in Sargent's time-lock alluded to, for the purpose of permitting the bolt-work to remain retracted until the door is closed without interfering with the setting of the time mechanism.

It will be observed that by arranging the flexible or yielding support in the manner shown and described the chronometer-lock will, under all circumstances, be maintained at a distance from the door or wall of the structure in which it is used, thus creating a free space between the lock and door or wall. Consequently, if a charge of dynamite or other explosive be discharged outside the walls of the structure and in proximity to that part of the door or wall where the chronometer-lock is located, no injurious effects will result, for the reason that the vibrations of the door or wall will not be received directly by the lock, but, on the contrary, the door will be free to vibrate without jarring or disturbing the lock to an appreciable degree, or to such an extent as would likely disarrange or break any of the delicate or sensitive parts of the chronometer movement.

The extent of movement which a lock mounted as described will have relative to the safe or vault door, or the extent of movement which the door will have relative to the lock, in the event of a heavy shock communicating vibration to the door, renders it desirable to provide some means for maintaining the proper relative and operative position of the chronometer-lock and the bolt-work; and to this end I provide the bolt or stud 11, before alluded to, the head of which prevents the upper portion of the flexible or yielding support from bounding or being forced away from the door to such an extent as to throw the chronometer-lock out of proper relation with the bolt-work; but such head of the bolt or stud is sufficiently far from the lock-support not to interfere with vibratory movements of the door, but permit the door and support to freely play back and forth, thus preventing the transfer of such vibrations to the flexible or yielding support at this point. By this means the lock-bolt of the chronometer movement is not liable to be thrown out of alignment with the adjacent parts—that is, the tongue-piece of the bolt-work. The door will be provided with a combination or key lock, 16, suitably arranged to operate in the usual manner.

Having thus described my invention, what I claim is—

1. The combination, with the time mechanism of a chronometer-lock, of a flexible or yielding support therefor, and means for maintaining the proper relative and operative position of the connection between the parts thus mounted and the adjoining parts, substantially as described, whereby the time mechanism of the lock is held at such a distance from the door-wall of the structure in which it is employed as to protect it from injury under the force of an explosion directed against the exterior of the structure, and of a character to break the parts of the time movement of the lock.

2. The combination, with the door or wall of a safe or vault, of a metallic plate firmly attached at one end and otherwise unattached, and a chronometer-lock mounted on the free end of the plate, whereby it is held at a distance from the door or wall of the safe or vault and protected from injury by the force of an explosion or other shock, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WM. B. HAYDEN.

Witnesses:
H. M. BUTLER,
E. K. STEWART.