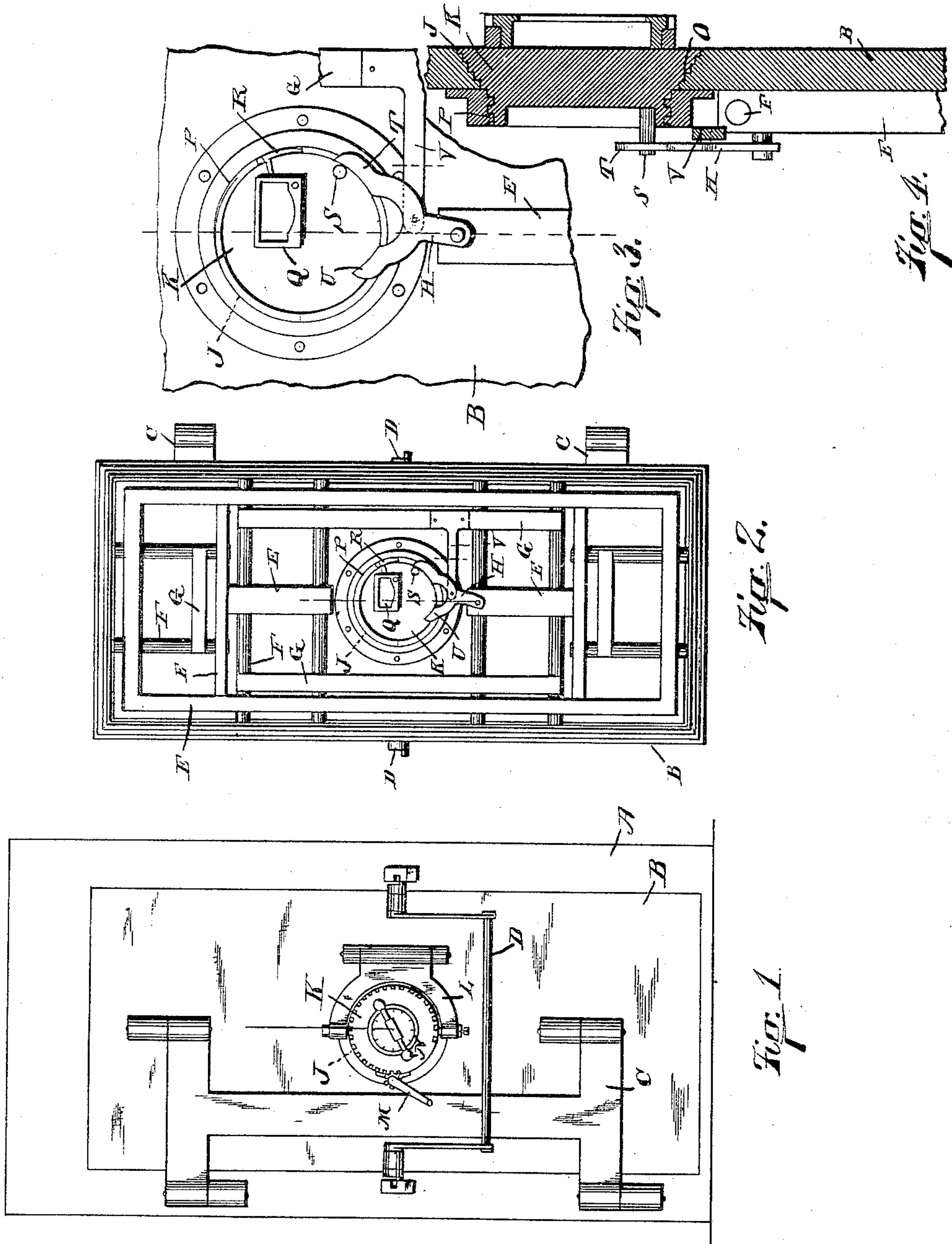


(No Model.)

P. F. KING.
SAFE OR VAULT.

No. 442,268.

Patented Dec. 9, 1890.



Witnesses:
A. C. Rogers.
C Crawford

Phineas F. King Inventor
by James W. See Attorney

UNITED STATES PATENT OFFICE.

PHINEAS F. KING, OF CINCINNATI, OHIO, ASSIGNOR TO THE MOSLER BANK
SAFE COMPANY, OF SAME PLACE.

SAFE OR VAULT.

SPECIFICATION forming part of Letters Patent No. 442,268, dated December 9, 1890.

Application filed April 18, 1890. Serial No. 348,582. (No model.)

To all whom it may concern:

Be it known that I, PHINEAS F. KING, of Cincinnati, Hamilton county, Ohio, have invented certain new and useful Improvements in Safes or Vaults, of which the following is a specification.

This invention pertains to improvements in safes or vaults designed for the protection of treasure, the object of the invention being to increase the security and the convenience of operation.

In carrying out my invention I provide the main door of the safe or vault with an opening through it, and I close this opening by means of a small door. A door peculiarly well suited for the purposes of this small door will be found set forth in my patent, No. 418,619, of December 31, 1889. In the present exemplification I employ the door of that patent, though I contemplate the employment of any door, as a sub-door, which will perform the required functions.

My invention will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a front elevation of a safe or vault provided with my improvements; Fig. 2, an elevation of the inside of the main door of the same with sub-door in place; Fig. 3, a similar elevation, on an enlarged scale, of the inner face of the sub-door and those features of the main door in its immediate neighborhood; and Fig. 4 a vertical section of the matter of Fig. 3 through the center of the sub-door.

In the drawings, A indicates the front of a safe or vault provided with the usual stepped door-opening to give access to the interior of the safe; B, the usual main door closing this opening and engaging the steps of the door-jamb, as usual; C, the usual crane-hinge on which the main door swings in opening and closing, this hinge permitting the door to swing open and shut in an arc, and also permitting the ultimate closing movement to take place in a right line at right angles to the front of the safe; D, the usual pressure-bar or closing-cam to permit the ultimate closing movement of the door to be forcibly effected; E, the usual bolt-frame secured upon

the inner face of the main door and providing the sockets in which the main bolts slide; F, the locking-bolts of the main door fitted to slide in the bolt-frame and arranged to operate in the usual manner—that is to say, simultaneously as to all the bolts; G, the usual carrying-bars uniting the bolts in groups and serving to unify the motion to the individual bolts of each group, all of the carrying-bars being connected by the usual mechanism, which does not appear, owing to its being masked behind frontal parts to cause all of the bolts to shoot at once when shooting movement is given to any one bolt or group of bolts, the arrangement being of ordinary character; H, a lever to serve as an intermediate instrumentality in shooting the bolts, this lever appearing as being pivoted to the bolt-frame and being connected with one of the carrying-bars by an arm projecting from the bar; J, an opening entirely through the main door, this opening being illustrated as circular and with inwardly-converging stepped jambs, as in the earlier patent referred to; K, a door fitting the opening J, this door in the exemplification being the same in construction as the door of the earlier patent, this door being hereinafter denominated the “sub-door;” L, a crane-hinge mounted on the outer face of the main door and carrying the sub-door; M, the crank carried by the sub-door and serving to revolve it, as in my earlier patent; N, the lock-handle of the sub-door, as in my earlier patent, this handle serving to operate a combination-lock located upon the outside of the sub-door and intended for locking the sub-door temporarily or in the day-time; O, the jamb-steps of the sub-door and its opening in the main door; P, the screw-jamb at the inner portion of the sub-door and its opening in the main door, as in my earlier patent; Q, a time-lock on the inner face of the sub-door; R, the latch of the sub-door, controlled by the time-lock, and when latched preventing the opening of the sub-door, as in my earlier patent; S, a pin projecting inwardly from the sub-door and serving as a means for actuating the bolt-throwing lever H when the sub-door is turned; T, a pallet on the upper end of lever H in a position to be engaged by the pin S; U, a second pallet on the lever H, also in

position engaged by the pin S; and V, the arm previously referred to as connecting the lever H with the bolt system.

The door of my earlier patent, with its general mechanism, is chosen for exemplification in the present connection because that door will in a most excellent manner fulfill all the requirements of the sub-door in my present invention. The earlier patent may be referred to for details; but it is sufficient here to indicate the general characteristics of that door. The door closes an opening tightly, being forcibly drawn to place by its inner jamb-screw. A time-lock inside the door throws the latch and prevents the door being opened until the time-lock goes off duty. The door is thereby securely locked by mechanism entirely within the safe, and the door is a tight-fitting one, free from any of the looseness essential in a moving spindle for communicating motion from outside the safe to mechanism inside the safe. The lock-handle N operates a combination-lock, which is secured outside the door, the office of this lock being to secure the door against easy tampering when the time-lock is off duty, as during the day-time or during business hours. Briefly, the security of the door-closure depends on the time-lock, and there is no crevice, as in the case of a spindle.

It will be obvious that the oscillation of the lever H will effect the shooting and drawing of the bolts of the main door. The sub-door is opened and closed by a rotary motion, and during this motion the pin S will engage the pallet U or the pallet T, according to the direction of motion of the sub-door. Figs. 2 and 3 show the sub-door as being tightly closed. In this position the pin S holds the lever H in the position corresponding with the locked position of the main bolts. When the sub-door is turned to open it, which must of course be when the time-lock is off duty, the pin S moves into engagement with pallet U and throws the lever H and draws the main bolts. As the sub-door continues its opening rotation, it withdraws outwardly, and the pin S will therefore not come the second time into engagement with any part of the lever H. Briefly, the opening motion of the sub-door effects the drawing of the main bolts. It is obvious that this function does not call for an actual entire opening of the sub-door. It is sufficient that sufficient opening motion be imparted to it to effect the throwing of the main bolts. A reverse motion of the sub-door—a closing motion—causes the pin to engage the pallet T, which results in the shooting of the main bolts. The pallet T has such length that the pin S does not pass beyond its range. Therefore the pin S, when the sub-door is tightly closed, holds the lever H in position corresponding with the locked position of the main bolts.

From my earlier patent it will be understood that there are two locking-positions for the rotary door, one the tightly-closed posi-

tion, in which it is locked by the time-lock inside and by the combination-lock outside, the other a less tightly-closed position, in which it is locked only by the combination-lock outside, the intention being that this latter position may be employed for temporary purposes. The engaging-surface of the pallet T is of such length that the pin S will effect the proper throwing of the main bolts when the sub-door shall have reached the day-locking position, and will do no more when the sub-door reaches the tightly-closed position. Therefore the sub-door may be employed in throwing and locking the main bolts temporarily by the outside day-lock, or more securely by the outside lock in conjunction with the inside time-lock.

While I employ the rotary door of my earlier patent in exemplifying my present invention, I do not wish to limit myself to that particular construction, nor to a time-lock, as distinguished from other automatic locks capable of being placed within the safe and operated without moving instrumentalities extending to the exterior of the safe, nor to such automatic inside lock placed directly on the sub-door; nor do I contemplate limiting myself to the lever shown as an instrumentality for connecting the sub-door with the main-bolt system, the pallet-lever illustrated being simply an example of such instrumentality; nor do I contemplate limiting myself to a main door of the form illustrated or having its bolts mounted in the manner indicated, these features being merely exemplifying details.

I claim as my invention—

1. The combination, substantially as set forth, of a safe or vault having an opening for access thereto, a main door engaging such opening and provided with a sub-door opening, main bolts within the main door, a sub-door fitting said sub-door opening, mechanism connecting the sub-door with said main bolts, and a lock within the safe or vault for automatically locking the sub-door.

2. The combination, substantially as set forth, of a safe or vault having an opening for access thereto, a main door provided with a sub-door opening, main bolts within the main door, a sub-door engaging said sub-door opening, mechanism connecting the sub-door with the main bolts, a lock within the safe or vault for automatically locking the sub-door, and a lock exterior to the safe or vault for locking the sub-door.

3. The combination, substantially as set forth, of a safe or vault having an opening for access thereto, a main door provided with a sub-door opening, main bolts within the main door, a sub-door engaging said sub-door opening, an automatic lock within the safe or vault for locking the sub-door in one position of closure, a lock exterior to the safe or vault for locking the sub-door in alternative positions of closure, and mechanism connecting the sub-door with said main bolts and serv-

ing to hold said main bolts locked when the sub-door is locked by either of its locks.

5 4. The combination, substantially as set forth, of a safe or vault having an opening, a main door thereto having a circular sub-door opening, main bolts within the main door, a sub-door closing the sub-door opening and operating by rotation, mechanism connecting the sub-door with the main bolts and caus-

ing the rotation of the sub-door to effect the movement of the main bolts, and an automatic lock within the safe or vault for locking the sub-door against rotation.

PHINEAS F. KING.

Witnesses:

J. W. SEE,

D. HEIMHEIMER, Jr.