

No. 788,107.

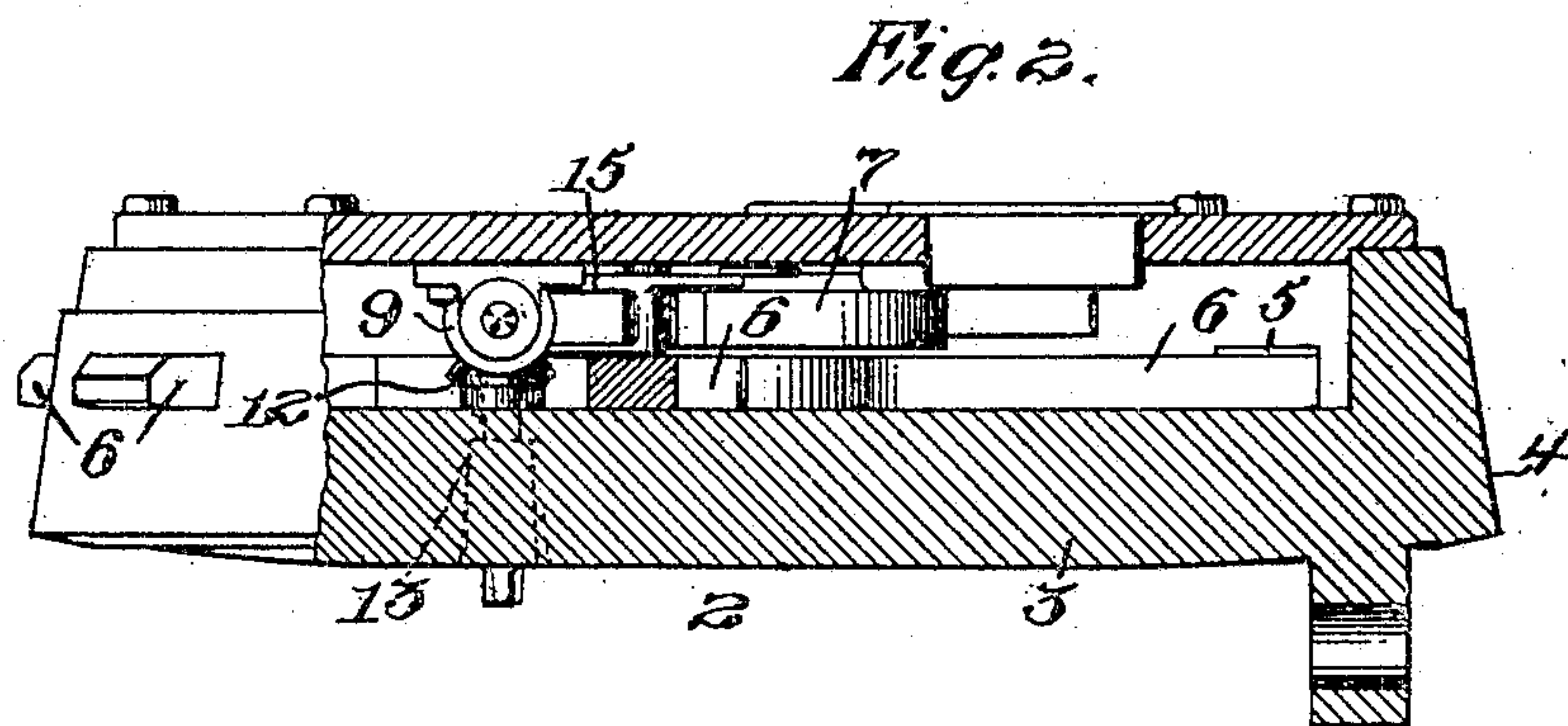
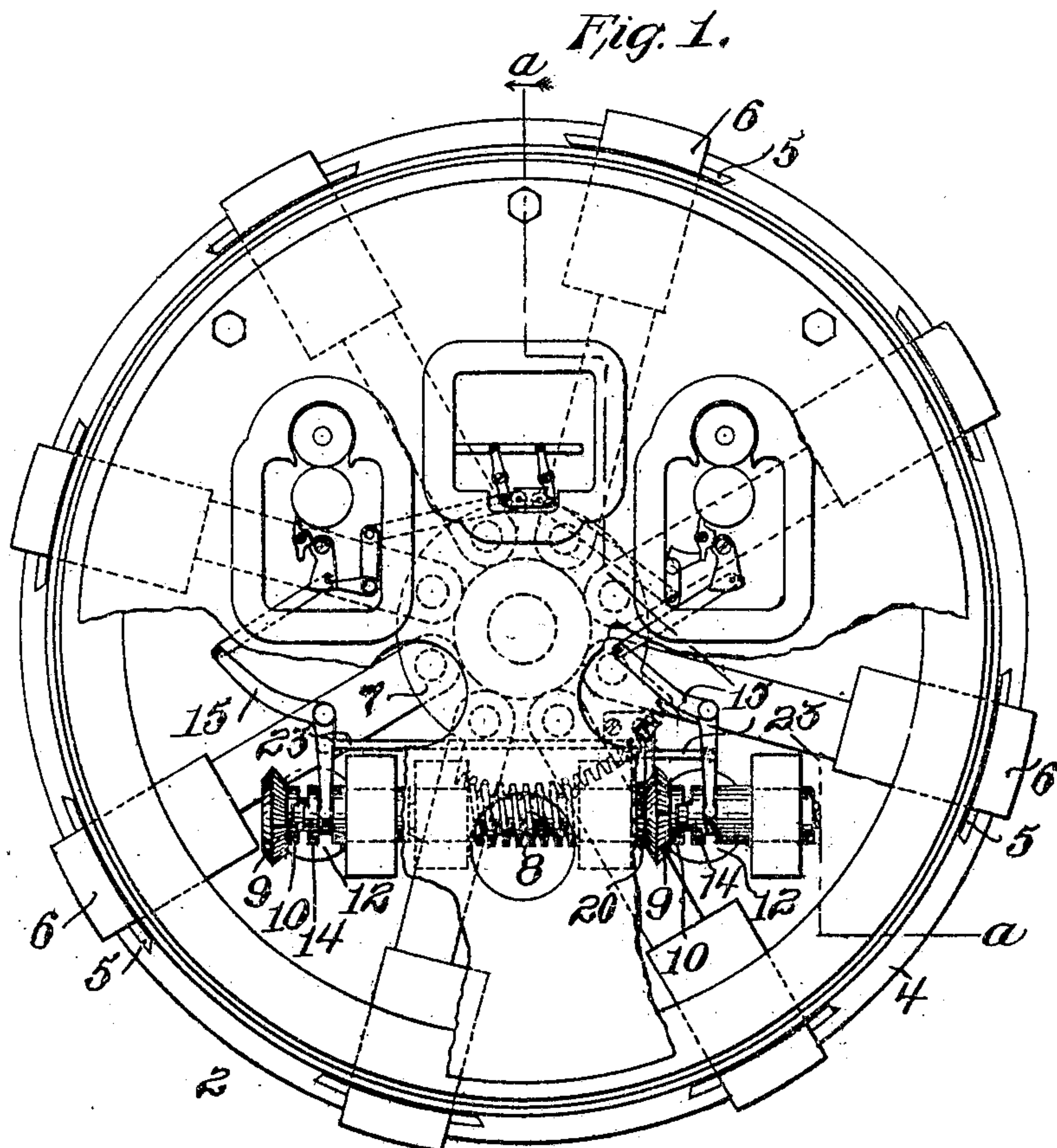
PATENTED APR. 25, 1905.

H. D. HIBBARD & W. C. PECK.

ACTUATOR LOCKING MEANS FOR SAFES OR VAULTS.

APPLICATION FILED DEC. 4, 1903.

2 SHEETS—SHEET 1.



Witnesses:

*C. H. Stone.*  
*C. A. Jarvis.*

Inventors:

*Henry D. Hibbard.*  
*William C. Peck.*

By their Attorney,

*F. W. Richards.*

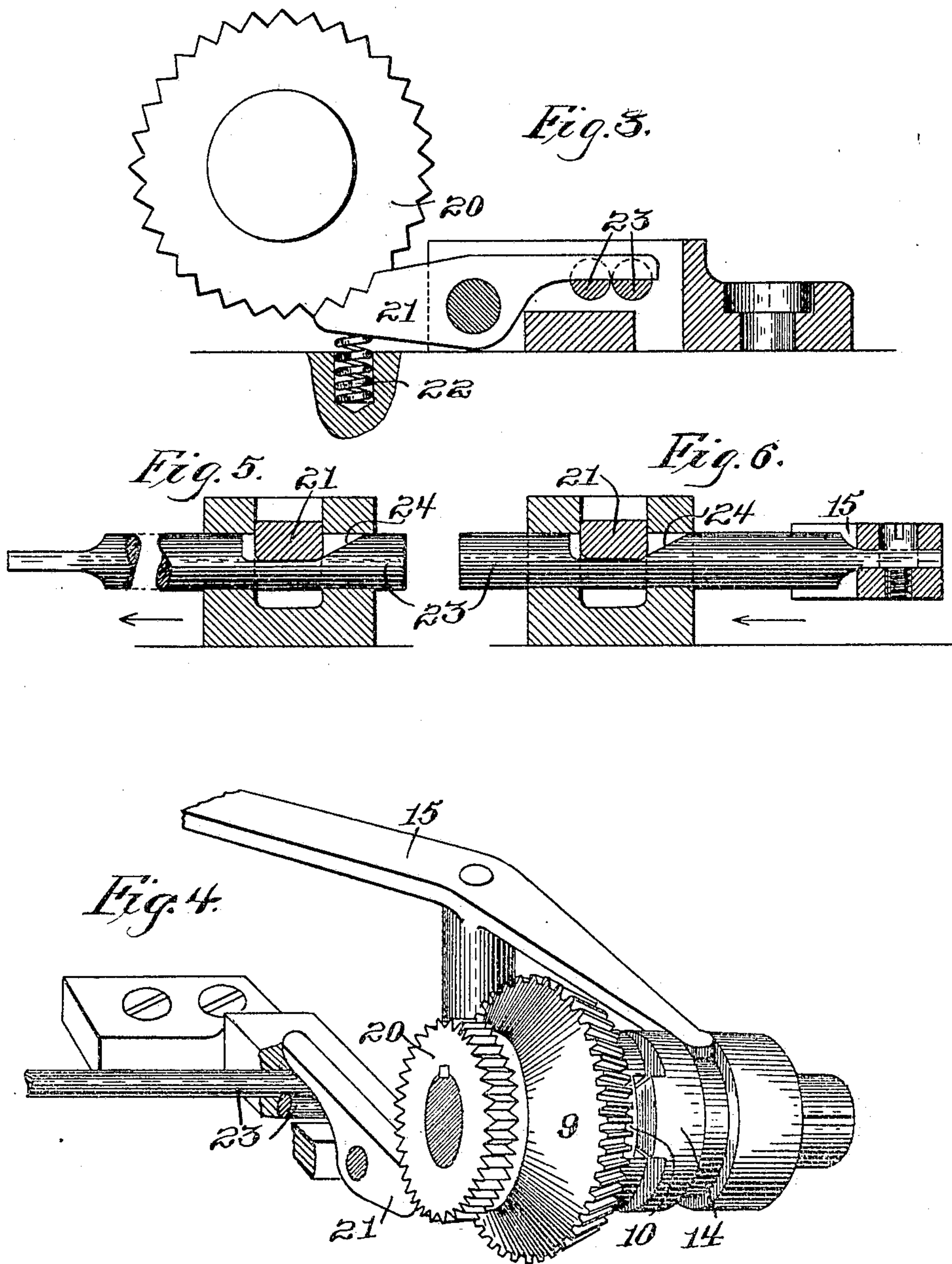
No. 788,107.

PATENTED APR. 25, 1905.

H. D. HIBBARD & W. C. PECK.  
ACTUATOR LOCKING MEANS FOR SAFES OR VAULTS.

APPLICATION FILED DEC. 4, 1903.

2 SHEETS—SHEET 2.



Witnesses:  
Robert A. Adt  
C. A. Jarvis

Inventors,  
Henry D. Hibbard,  
William C. Peck.  
By their Attorney,  
F. A. Richards.



# UNITED STATES PATENT OFFICE.

HENRY D. HIBBARD AND WILLIAM C. PECK, OF PLAINFIELD, NEW JERSEY, ASSIGNORS TO MANGANESE STEEL SAFE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

## ACTUATOR-LOCKING MEANS FOR SAFES OR VAULTS.

SPECIFICATION forming part of Letters Patent No. 788,107, dated April 25, 1905.

Application filed December 4, 1903. Serial No. 183,706.

*To all whom it may concern:*

Be it known that we, HENRY DEMING HIBBARD and WILLIAM C. PECK, citizens of the United States, residing at Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Actuator-Locking Means for Safes or Vaults, of which the following is a specification.

This invention relates to the bolting mechanism of safes or vaults, the object of the invention being to provide improved means for locking or dogging the bolts by locking the actuating mechanism against movement when idle.

The present organization is an improvement in part upon that shown and described in an application, Serial No. 173,237, filed September 15, 1903, of Henry D. Hibbard, but more particularly upon that shown and described in an application, Serial No. 182,952, filed November 28, 1903, of said Henry D. Hibbard.

While the present organization may be easily adapted for use in connection with a bolting system embodying one combination-lock, it is shown here assembled in combination with a pair of combination-locks, or, in other words, it is shown organized for use in connection with a two-spindle safe or vault.

In the drawings accompanying and forming part of this specification, Figure 1 is an interior view of a vault-door with its bolting mechanism provided with this improvement. Fig. 2 is a cross-sectional view taken in the line *a a* of Fig. 1. Fig. 3 is an enlarged partly-sectional view of the locking or dogging mechanism. Fig. 4 is a perspective view thereof, and Figs. 5 and 6 are detail views of the means for controlling or actuating the locking mechanism.

Similar characters of reference indicate corresponding parts in the different figures of the drawings.

The door 2, which may be of any desired formation, is shown herein as an integral structure comprising a body 3 and a flange 4, the flange having bolt-openings 5 for the pas-

sage of the bolts 6, which are pivotally connected at their ends to a worm-wheel 7 in mesh with a worm-shaft 8, suitably mounted upon the door and carrying a pair of loosely-mounted bevel-gears 9, the hubs of which are formed as clutch members 10. In mesh with each bevel-gear is a similar bevel-gear 12, mounted on the inner end of a spindle 13, passing through the door. On the rotation of either spindle, provided its combination-lock has been properly set, the worm-shaft will be turned to shift the bolts. For connecting the loosely-mounted bevel-gears 9 with the worm-shaft to permit such shaft to be rotated a pair of splined clutch members 14 are mounted upon said shaft, one in position to engage each clutch member 10, and each is thrown into and out of engagement with such companion clutch member 10 by a suitable clutch-shifter 15, connected with its combination-lock. From the foregoing it will be seen that two sets of clutch mechanism, two sets of bevel-gearing, and two combination-locks are shown, whereby one or the other combination-lock may be operated to permit the worm-shaft to be rotated by one or the other of the spindles; but when only one combination-lock is provided one set of each of these mechanisms may be done away with. To prevent the worm-shaft constituting part of the actuating means being rotated by vibration when the splined clutch members are disassembled from the loosely-mounted clutch members carried by the bevel-gears, suitable means are provided, which in the present instance comprises a member having a circular series of locking faces or teeth and a locking member in engagement therewith and which members will be designated herein as "ratchet mechanism," shown comprising a ratchet pinion or disk 20, fixedly secured to the worm-shaft, and a pawl 21, maintained in engagement therewith by a suitable spring 22. When the pawl is in engagement with the ratchet-pinion, it will be obvious that the worm-shaft cannot be rotated, and consequently the bolts cannot be retracted. In order, however, that the worm-shaft may be turned when either combination-lock has been properly set and a



splined clutch member thrown into engagement with its companion member, suitable means is provided for unlocking this worm-shaft, and which in the present instance comprises reciprocatory means in the form of rods 23. When the safe is provided with one spindle, one rod is sufficient; but when the safe or vault is a two-spindle structure a pair of rods are provided, one connected with each of the clutch-shifters 15. The inner ends of these rods are provided with inclined or cam faces 24, formed in the present instance by recessing the rods. The inner ends of the rods are supported by a suitable bearing, through which the rods are shown passing. This bearing is shown recessed to receive the free end of the pawl under which the rods project, such pawl extending transversely across the recesses of the two rods, so that when either clutch-shifter is moved to shift the splined clutch member into engagement with the bevel-gear clutch member that rod which is connected with such clutch-shifter will be shifted or reciprocated so that its inclined face will move under the pawl and lift the outer end thereof and force the opposite end away from the teeth of the ratchet, thus releasing the ratchet-wheel. The operation of either of the clutch-shifters will effect this result, as will be readily seen, so that on the operation of the proper spindle the worm-shaft can be turned to retract the bolts.

Having thus described our invention, we claim—

1. In a safe or vault door the combination of bolting mechanism, means, other than time or combination lock mechanism, effective to lock such bolting means against movement at a predetermined time, and reciprocatory means for controlling the operation of said locking means.

2. In a safe or vault door the combination of bolting mechanism, ratchet means effective to lock such bolting means against movement at a predetermined time, and reciprocatory means for controlling the operation of said ratchet-locking means.

3. In a safe or vault door the combination of bolting mechanism, actuating means therefor, means, other than time or combination lock mechanism, effective to lock such actuating means against movement at a predetermined time, and reciprocatory means for controlling the operation of said locking means.

4. In a safe or vault door the combination of bolting mechanism, actuating means therefor, ratchet means for locking said actuating means against movement at a predetermined time, and reciprocatory means for controlling the operation of said ratchet-locking means.

5. A safe or vault door bolting mechanism comprising bolts and actuating means therefor including a spindle, lock-controlled means for connecting up or disconnecting said spindle with another part of said actuating means

thereby to permit or prevent the shifting of the bolts by means of said spindle, a lock, means for dogging a part of said bolt mechanism to prevent the premature retraction of the bolts after the disconnection of the parts by said lock, and reciprocatory means controlled by said lock for controlling the operation of said locking means.

6. In a safe or vault door, the combination of bolting mechanism, actuating means therefor, a combination-lock, clutch mechanism in operative connection therewith, locking means for locking said actuating means against movement, and reciprocatory means in operative connection with said clutch mechanism for controlling the effectiveness of said locking means.

7. In a safe or vault door, the combination of bolting mechanism, actuating means therefor, means for locking such actuating means and comprising pawl-and-ratchet mechanism, and a rod for controlling the operation of said pawl.

8. In a safe or vault door, the combination of bolting mechanism, actuating means therefor including a worm-shaft, a pair of clutch mechanisms mounted thereon, a pair of clutch-shifters, a ratchet fixedly secured to said worm-shaft, a pawl in engagement with said ratchet, and reciprocatory means connected with said clutch-shifters for controlling the operation of said pawl.

9. In a safe or vault door, the combination of bolt mechanism, actuating means therefor including a worm-shaft, a pair of clutch mechanisms mounted thereon, a pair of clutch-shifters, a ratchet fixedly secured to said worm-shaft, a pawl in engagement with said ratchet, and a pair of reciprocatory rods connected with said clutch-shifters for controlling the operation of said pawl.

10. In a safe or vault door the combination of bolt mechanism, actuating means therefor including a worm-shaft, a pair of clutch mechanisms mounted thereon, a pair of clutch-shifters, a ratchet fixedly secured to said worm-shaft, a pawl in engagement with said ratchet, and a pair of reciprocatory rods connected with said clutch-shifters for controlling the operation of said pawl, each of said rods having a cam-face cooperating with said pawl.

11. In a safe or vault door, the combination of bolt mechanism, actuating means therefor including a worm-shaft, a clutch, a clutch-shifter for controlling the clutch, a ratchet secured to said shaft, a pawl in engagement with said ratchet for preventing the movement of said shaft when idle, and a reciprocatory rod connected with said clutch-shifter for controlling the movement of said pawl.

12. In a safe or vault door, the combination of bolt mechanism, actuating means therefor including a worm-shaft, a clutch, a clutch-shifter for controlling the clutch, a ratchet



secured to said shaft, a pawl in engagement with said ratchet for preventing the movement of said shaft when idle, and a reciprocatory rod connected with said clutch-shifter for controlling the movement of said pawl, said rod having a cam-face.

13. In a safe or vault door, the combination of bolt mechanism, actuating means therefor, locking means other than time or combination lock mechanism effective to prevent movement of the bolts during a predetermined period, a combination-lock and reciprocatory means controlled thereby for controlling the operation of said locking means.

14. In a safe or vault door the combination of bolt mechanism, actuating means therefor, ratchet mechanism effective to prevent movement of the bolts during a predetermined period, a combination-lock, and reciprocatory means controlled thereby for controlling the operation of said ratchet mechanism.

15. A safe or vault door having bolt mechanism, actuating means therefor including a rotary shaft, a member having a circular series of locking faces or teeth fixedly secured thereto, a locking member in engagement with said toothed member for preventing movement of said shaft when the bolts are protracted, a cam-faced reciprocating rod operative to raise or lower said locking member, and means for controlling the operation of said rod and embodying lock mechanism.

16. A safe or vault door having bolt mechanism, actuating means therefor including a rotary member having a series of locking faces or teeth fixedly secured thereto, a locking member in engagement with said toothed member for preventing movement of said rotary member when the bolts are protracted, a reciprocating member operative to shift said locking member, and means for shifting said reciprocating member, the organization being

such that the locking of the rotary member prevents retraction of the bolts.

17. A safe or vault door bolting mechanism, comprising bolts, actuating means including worm-gearing for shifting said bolts, means for rendering said worm-gearing ineffective to shift the bolts, means comprising a toothed member and a locking-pawl for preventing movement of said worm-gearing when idle, thereby to prevent retraction of the bolts by vibration, and means including a reciprocatory member effective to shift said locking-bolts.

18. A safe or vault door bolting mechanism, comprising bolts, a worm for shifting said bolts, locking or dogging means for said worm and comprising one or more locking faces or teeth carried by and rigid with said worm, and a locking-pawl for engagement therewith, and means including a reciprocatory rod for shifting said pawl to permit the retraction of the bolts.

19. A safe or vault door bolting mechanism comprising bolts and actuating means therefor including a pair of spindles, lock-controlled means for connecting up or disconnecting each of said spindles with another part of said actuating means thereby to permit or prevent the shifting of the bolts by means of either of said spindles, a pair of locks, means for dogging a part of said bolt mechanism to prevent the premature retraction of the bolts after the disconnection of the parts by either of said locks, and a pair of reciprocatory devices controlled by said locks and either effective to control the operation of said locking means.

HENRY D. HIBBARD.

WILLIAM C. PECK.

Witnesses:

CHARLES A. WESTERFIELD,  
DANIEL HERBERT POUND.