No. 793,176. PATENTED JUNE 27, 1905.

W. BRINTON.

AUTOMATIC LOCKING MEANS FOR ROTARY SAFE OR VAULT DOORS.

APPLICATION FILED OCT. 3, 1904.

2 SHEETS—SHEET 1.

Fig. 2.

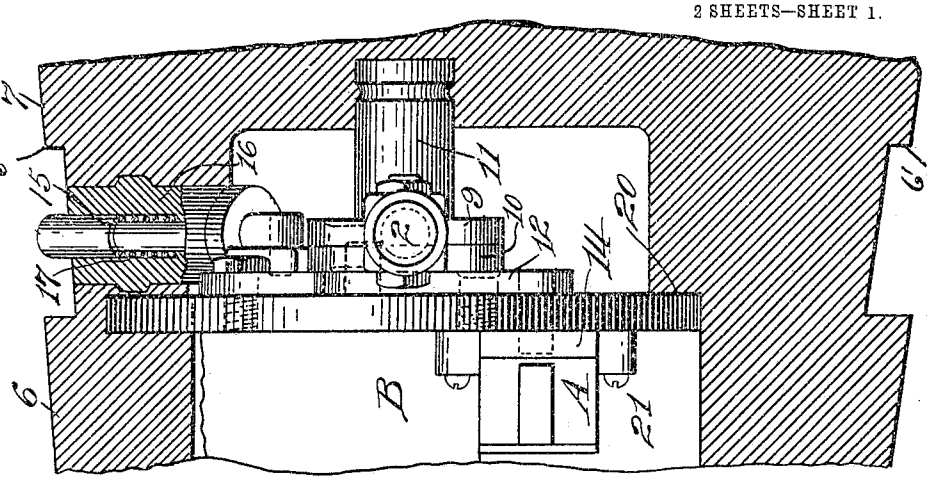
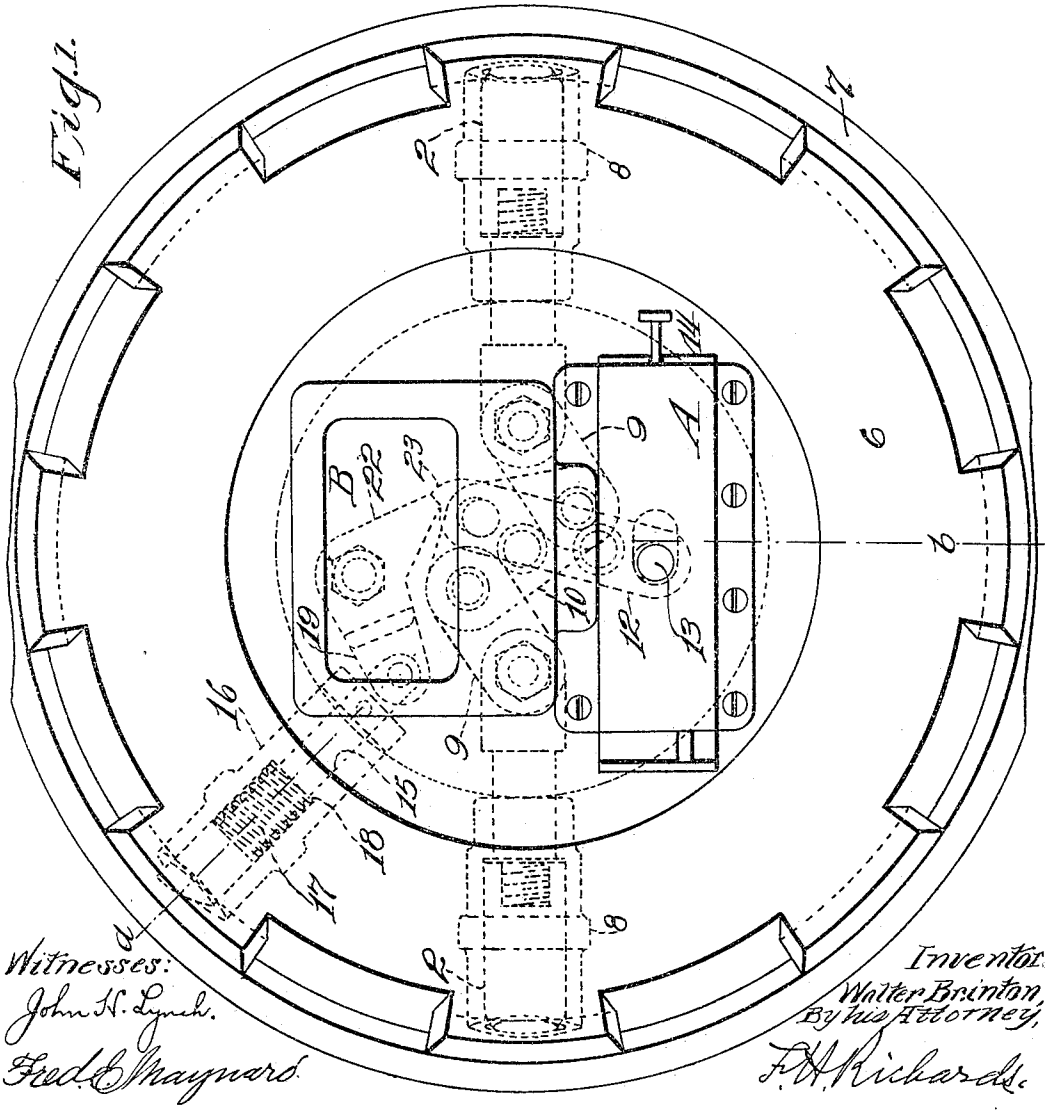



Fig. 1.




Witnesses:
John N. Lynch.
Fred'k Maynard.

Inventor
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By his Attorney,
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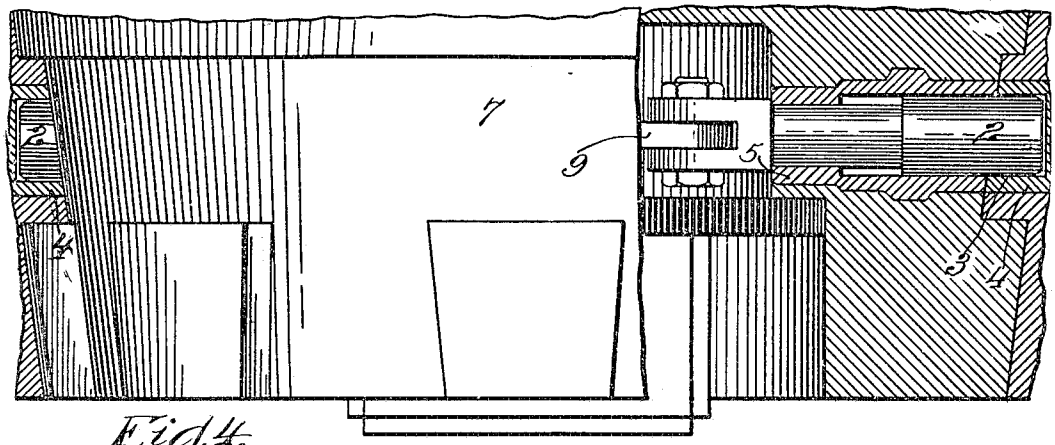
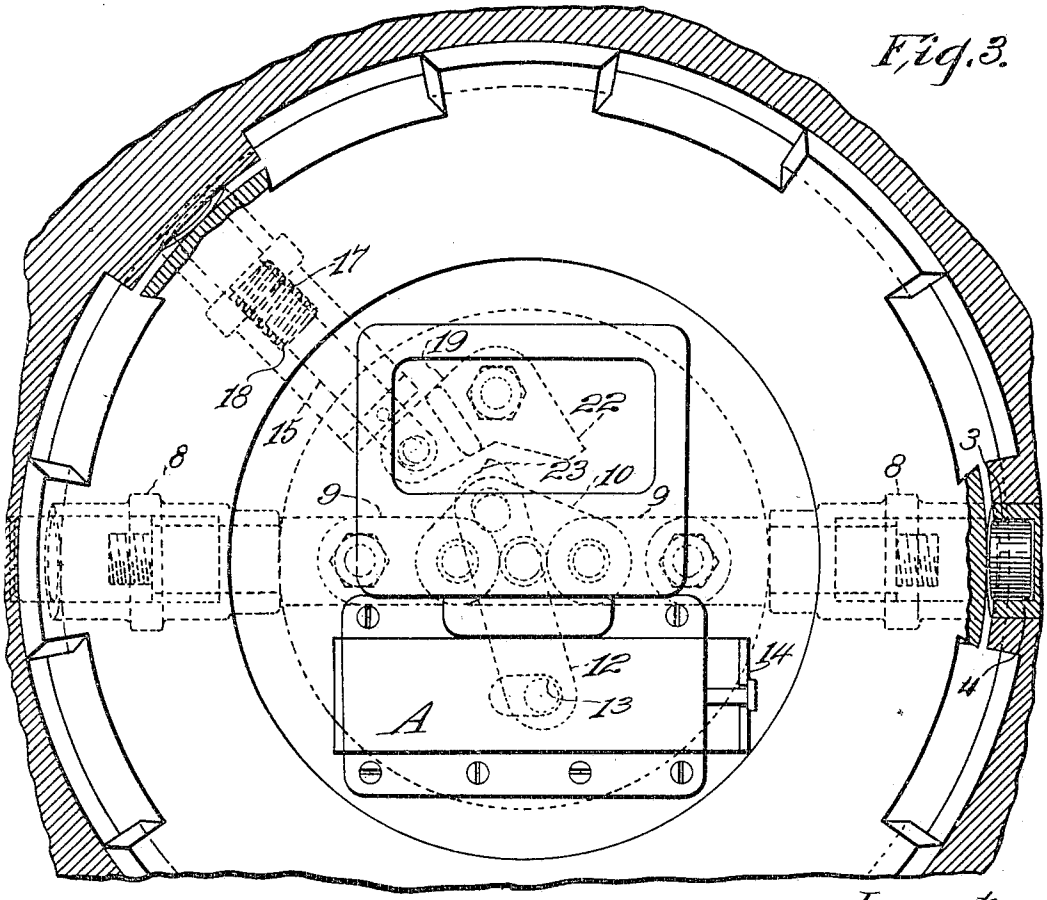



Fig. 4.

Fig. 3.

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# UNITED STATES PATENT OFFICE.

WALTER BRINTON, OF HIGHBRIDGE, NEW JERSEY, ASSIGNOR TO TAYLOR IRON AND STEEL COMPANY, A CORPORATION OF NEW JERSEY.

## AUTOMATIC LOCKING MEANS FOR ROTARY SAFE OR VAULT DOORS.

SPECIFICATION forming part of Letters Patent No. 793,176, dated June 27, 1905.

Application filed October 3, 1904. Serial No. 226,907.

*To all whom it may concern:*

Be it known that I, WALTER BRINTON, a citizen of the United States, residing in Highbridge, in the county of Hunterdon and State of New Jersey, have invented certain new and useful Improvements in Automatic Locking Means for Rotary Safe or Vault Doors, of which the following is a specification.

The present invention relates to automatic locking means for rotary safe or vault doors, the object of the invention being to provide an improved mechanism of this character which is readily attachable to the ordinary timing and automatic mechanism, such as a Yale & Towne device, for use therewith without change thereof and which is effective without the addition of other springs or motive power than those provided in the automatic itself.

The present invention is particularly designed for use in connection with that form of safe shown and described in my contemporaneously-pending applications, Serial No. 194,655, filed February 23, 1904, now Patent No. 771,704, dated October 4, 1904, and Serial No. 226,442, filed September 29, 1904, where it is desired to lock such a door against rotary movement without the provision of a spindle for controlling the locking-bolts, as shown and described in my contemporaneously-pending application, Serial No. 226,742, filed October 1, 1904—that is to say, the present rotary-door-locking means is intended to be entirely automatic.

In the drawings accompanying and forming part of this specification, Figure 1 is a rear view of a safe or vault door, illustrating this improved locking means in readiness to be protracted when the door is finally seated. Fig. 2 is a cross-sectional view thereof, taken in line *a a*, Fig. 1. Fig. 3 is a view substantially similar to that shown in Fig. 1, but showing the door seated in its jamb with the bolts fully protracted into such jamb, and Fig. 4 is a partly-sectional view of the door seated in its jamb with the bolts protracted.

Similar characters of reference designate corresponding parts in the several figures of the drawings.

As hereinbefore stated, the present improved locking means is particularly well adapted for use in connection with that form of door shown in my said contemporaneously-pending applications, in which the body and rotary door are provided with locking-lugs having straight or plane faced or meeting ends. For locking the door to its seat against rotary movement after such door has been inserted and rotated to have the lugs of the door engage the lugs of the body a pair of oppositely-shiftable bolts 2 are provided, the jamb of the body being provided with openings 3, into which soft-metal or steel inserts 4 are located, which may be fitted to snugly inclose the ends of the bolts, the ends of which may be slightly beveled or tapered to facilitate the starting of the bolts into the jamb. These bolts, which are shown as cylindrical in form, are shiftably mounted each in an insert 5, carried by the metal of the door, which inserts in the present instance are shown located in a rearwardly-extending flange 6, projecting from the body 7 of the door, the insert being located in position during the casting of the door and having one or more annular ribs or shoulders 8 for locking it in position with the metal of the door.

The inner ends of the bolts are pivotally connected to a pair of links 9, which are pivoted in turn to a toggle member 10, pivotally supported by a stud or pin 11, projecting from the body of the door. This toggle member is of angular formation, and to the apex is connected a connector or link 12, the opposite end of which is secured to the end of the pin or stud 13, which projects from the plunger or carriage 14 of the automatic A and by means of which the bolts are shifted. This construction provides a toggle mechanism, so that when the bolts are shot home they are locked, by means of the toggle-levers, against retraction other than by the proper manipulation of the automatic, since, as will be seen, the position of the toggle member 10 when the bolts are shot out with relation to each link 9 is such that the line of its pivotal axis passes through the pivotal axes of the links 9, so that the bolts are on a dead-center and form a con-

tinuous straight bolt. For operating the toggle member, thereby to shoot the bolts when the door is properly seated in its jamb, a suitable bolt or tripper 15 is provided, which is carried in a sleeve 16, substantially similar to the sleeves through which the bolts project, and located in the door-flange in a similar manner. This bolt is spring-pressed outwardly by means of a spiral spring 17, encircling the same in the rear of the head of such bolt. The other end of said spring engages a shoulder 18 on the sleeve. The inner end of this bolt is connected to a bell-crank or angle lever 19, pivotally supported on a plate, which may also be used to support the automatic A and timing mechanism B and which in the present instance is shown secured to an annular shoulder 20, located within the chamber 21, formed by the rearwardly-extending flange of the door. The nose 22 or free end of this angle-lever is in position to engage a projection or tooth 23 of the connector or link 12 and is effective not only to release the same to permit the bolts to be shot when the door is properly seated, but also acts to prevent the shooting of the bolts until the door has been properly seated—that is to say, in practice of course the automatic and timing mechanisms are set before the door is closed—and the setting of the locking-levers and latch (not shown) of the automatic tends to shift the carriage or plunger of said automatic outwardly, which of course, owing to its connection with the toggle member, would shoot the bolts, and thus prevent the door from closing, owing to the projection of such bolts beyond the periphery of the door. To prevent this, the locking device is in such position when the door is opened that it engages a projection of the toggle-connector 12, so that when the automatic is set its carriage or plunger 14 is prevented from moving, notwithstanding the levers and latch which are intended to lock it in its protracted position may be set. When, however, the door is finally seated in its jamb, the end of the plunger, which will be beveled, comes into engagement with a lug of the body as the door finally rotates to its proper position, and such plunger is gradually, owing to its beveled end, pressed inwardly and shifts the locking device free from the tooth of the toggle-connector 12, whereupon the carriage or plunger 14 of the automatic under the action of its springs shoots outwardly, swinging the toggle-connector 12 with it, and thereby the toggle-links, and shooting the bolts into their proper openings in the jamb. When the timing mechanism B has run down and the automatic tripped in the usual manner, the retraction of the plunger or carriage of such automatic moves the toggle-connector 12 into the position shown in Fig. 1, thereby shifting the toggle-links and retracting the bolts in a manner which will be readily understood.

In practice the bolts may be made as a single member or the heads may be connected to the shank by means of threads, as shown herein.

The door is provided with an annular shoulder or step 6′, which engages the outer or front faces of the body-lugs, and thus limits the inward movement of the door.

By the term "automatic" as used herein is intended to mean a power device now well known to and called by the trade an "automatic," which is a means such as or similar in organization or operation to the Yale & Towne device heretofore referred to.

Having thus described my invention, I claim—

1. A safe or vault comprising a body and an integral door, each having integral locking-lugs provided with plane-faced meeting ends, and the door having a shoulder or step for engagement with a corresponding step of the body, and automatically-controlled bolt mechanism comprising one or more bolts carried by the door and projected intermediate the shoulder and a lug thereof for locking the door against rotary movement.

2. A safe or vault comprising a body and an integral door, each having integral locking-lugs provided with plane-faced meeting ends, and the door having a shoulder or step for engagement with a corresponding step of the body, and automatically-controlled toggle-shifted bolt mechanism comprising one or more bolts carried by the door and projected intermediate the shoulder and a lug thereof for locking the door against rotary movement.

3. An unmachineable-metal safe or vault door having a machineable-metal insert located therein during the casting of such door, and provided with one or more projections or shoulders for interlocking it with the metal of the door, and having an opening therethrough for the passage of a member or bolt.

4. An unmachineable-metal safe or vault door comprising a body and a rearwardly-extending integral flange having a machineable-metal insert transversely located therein during the casting of such door, and provided with one or more annular projections or shoulders for interlocking it with the metal of the door, and having an opening therethrough for the passage of a member or bolt.

5. A safe or vault door bolting mechanism comprising a plurality of oppositely-movable bolts, links pivotally connected thereto, a toggle member connected to said links, an automatic having a plunger or carriage, and a connector connecting said toggle member with the plunger or carriage and effective through the automatic to both protract and retract the bolts.

6. A safe or vault door bolting mechanism comprising a plurality of oppositely-movable bolts, links pivotally connected thereto, a toggle member connected to said links, an automatic having a plunger or carriage, and a con-

nector connecting said toggle member with the plunger or carriage and effective through the automatic to both protract and retract the bolts, and means for preventing the protraction of the bolts by the automatic until the door is seated and rotated to its final position.

7. A safe or vault door bolting mechanism comprising a pair of oppositely-movable bolts, a pair of links pivotally connected thereto, a pivotally-supported toggle member connected to said links with its axial pivot in line with the pivotal connections between said toggle member and links and said links and bolts, so that when the bolts are shot out they will be in their dead-center position, and automatic means for protracting and retracting said bolts.

8. A safe or vault door bolting mechanism comprising a pair of oppositely-movable bolts, a pair of links pivotally connected thereto, a pivotally-supported toggle member connected to said links with its axial pivot in line with the pivotal connections between said toggle member and links and said links and bolts, so that when the bolts are shot out they will be in their dead-center position, and means for protracting and retracting said bolts, said means comprising a time-locked tripped automatic.

9. A safe or vault door bolting mechanism comprising a pair of oppositely-movable bolts, a pair of links pivotally connected thereto, a pivotally-supported toggle member connected to said links with its axial pivot in line with the pivotal connections between said toggle member and links and said links and bolts, so that when the bolts are shot out they will be in their dead-center position, means for protracting and retracting said bolts comprising an automatic connected with said toggle member, and means for preventing the protraction of the bolts after the automatic is set and until the door is finally seated and comprising a locking device engaging a part of said mechanism, and a spring-pressed plunger in position to be operated when the door is finally seated and rotated.

10. An integral, unmachineable-metal safe or vault door having a plurality of machineable-metal inserts located therein each having its outer end terminating adjacent to the edge or jamb surfaces of the door, one of said parts having one or more projections or shoulders for inlocking such insert with the metal of the door, and each of said inserts having an opening therethrough for the passage of a member or bolt.

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