H. C. HUNTER.

LOCKING DEVICE FOR SAFE AND VAULT DOORS.

APPLICATION FILED NOV. 18, 1910.

995,007.

Patented June 13, 1911.

2 SHEETS—SHEET 1.

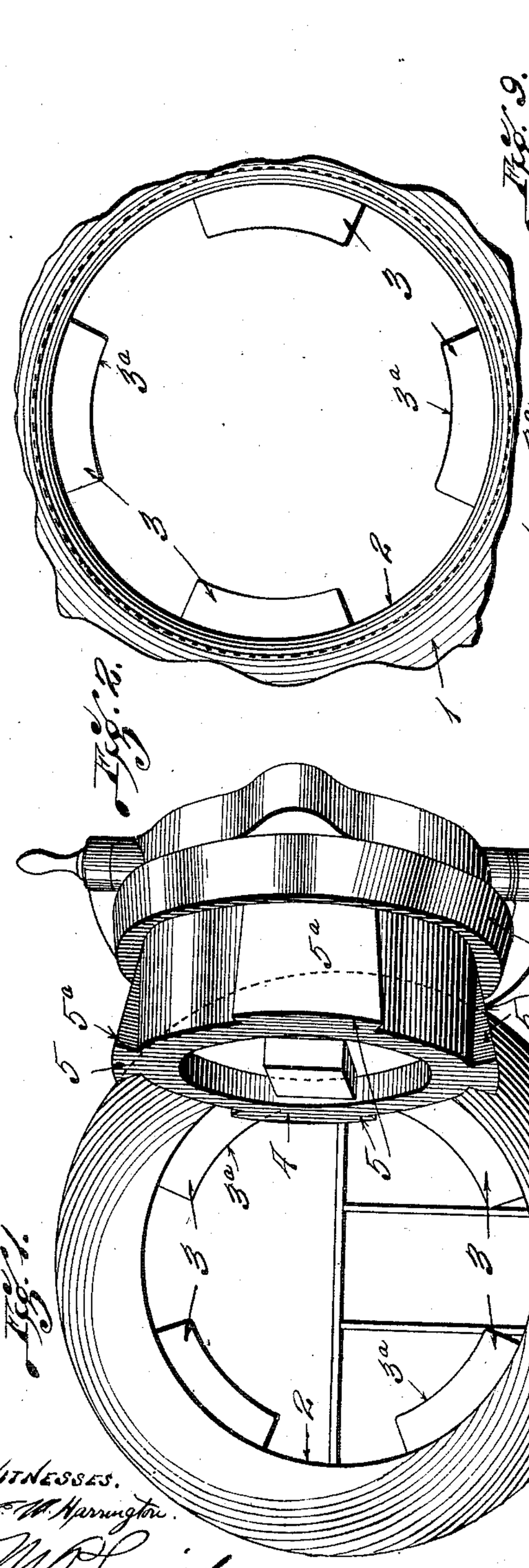

Fig. 1.

Fig. 2.

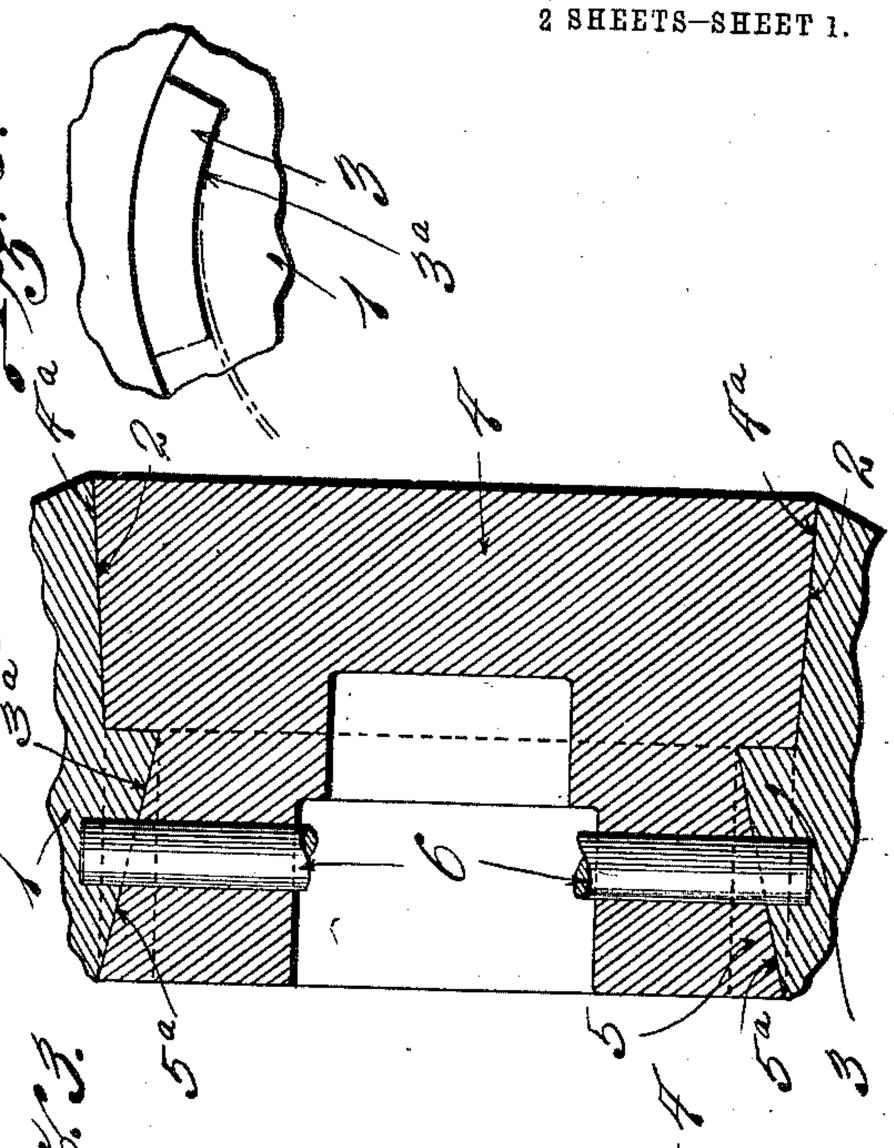

Fig. 3.

Fig. 4.

Fig. 5.

WITNESSES.

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2 SHEETS—SHEET 2

Fig. 3.

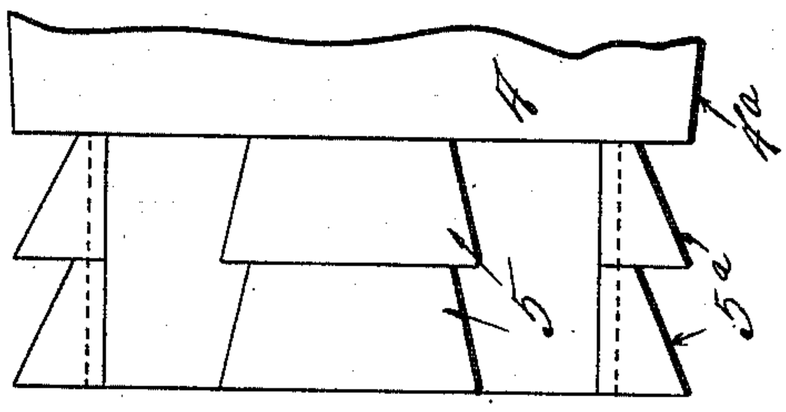


Fig. 4.

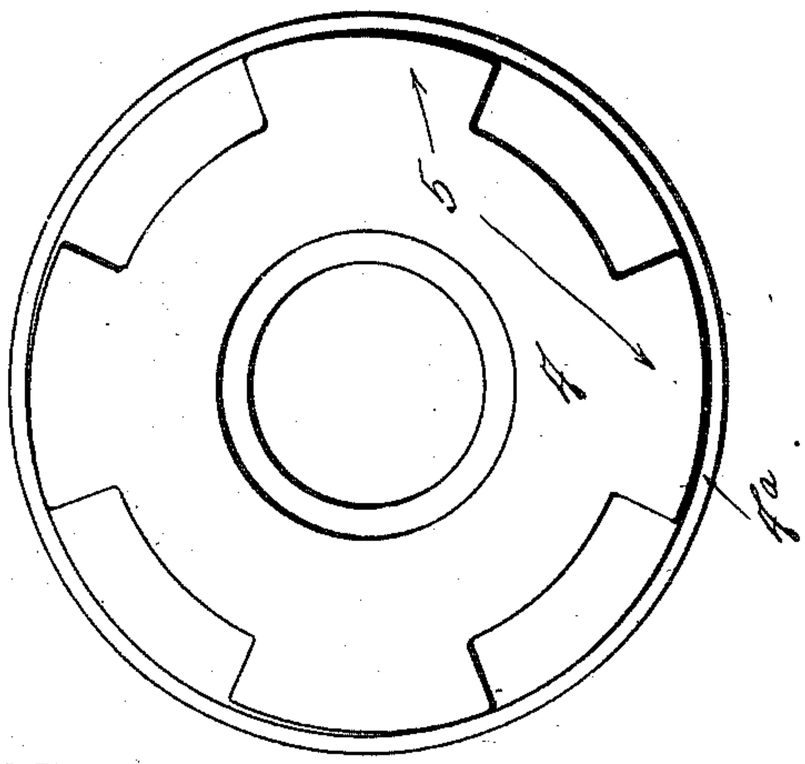


Fig. 6.

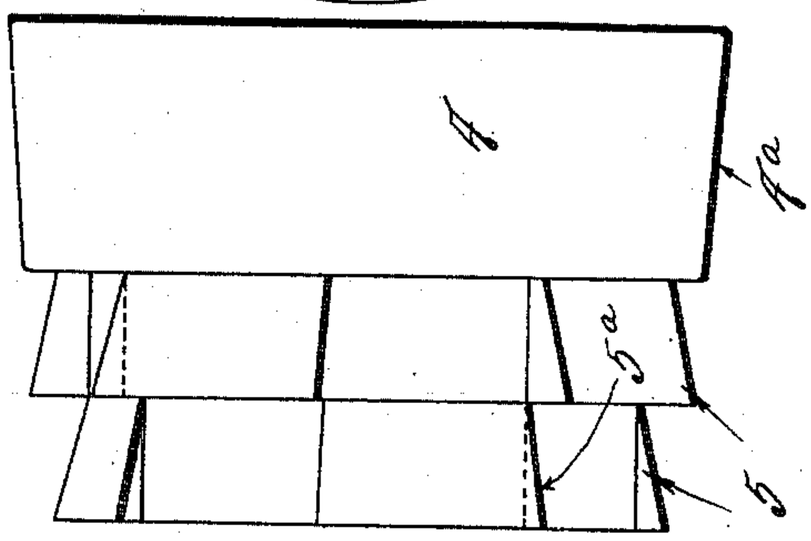
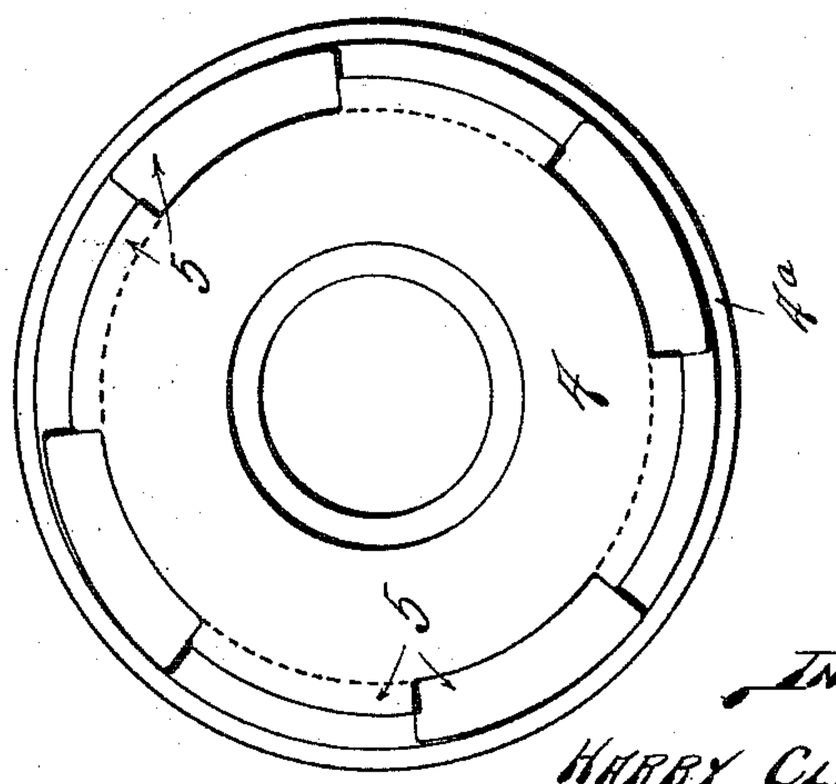


Fig. 5.



WITNESSES.

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UNITED STATES PATENT OFFICE.

HARRY CLAY HUNTER, OF ST. LOUIS, MISSOURI, ASSIGNOR TO LALLA HUNTER, OF ST. LOUIS, MISSOURI.

LOCKING DEVICE FOR SAFE AND VAULT DOORS.

995,007. Specification of Letters Patent. **Patented June 13, 1911.**

Application filed November 18, 1910. Serial No. 593,037.

To all whom it may concern:

Be it known that I, HARRY CLAY HUNTER, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Locking Devices for Safe and Vault Doors, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevational view of a safe showing my improved door in open position; Fig. 2 is a detail view of the door opening; Fig. 3 is a vertical sectional view of the same showing the door in position; Fig. 4 is a detail sectional view of a modified form; Fig. 5 is a front elevational view of the door showing a staggered arrangement of lugs; Fig. 6 is a side elevational view of the structure shown in Fig. 5; Fig. 7 is a front elevational view of a tandem arrangement of lugs, and Fig. 8 is a side elevational view of the same. Fig. 9 is a detail front elevation of one of the lugs on the safe body and illustrating the eccentric curvature of the engaging face of said lug.

This invention relates to a new and useful improvement in locking devices for the doors of safes, vaults, etc., of that type wherein the door is provided with a circular breech known in the art as a cannon breech, said door being provided with lugs, which are wedge shaped in longitudinal cross section, and which interlock with corresponding lugs extending inwardly from the door rim when the door is closed and partially rotated.

In the drawings I have shown several forms of my invention, but in each instance the same principle of operation obtains with respect to the locking and interlocking movement of the door in its opening, to wit, a partial rotation of the door is necessary to cause the engagement of the wedge shaped or inclined interlocking lugs.

In Figs. 1, 2 and 3, 1 indicates the walls of the safe or vault which may be of any desired or approved form, and formed in one of said walls is a door opening 2. 3 designates lugs which are preferably formed integral with the wall of the safe around the door opening, and which lugs project inwardly or toward the center of the door opening from the inner portion thereof. These lugs are approximately wedge-shape in longitudinal section, and are provided with tapered or inclined faces 3^a. These lugs are preferably placed equi-distantly around the door opening, and while I have shown four of such lugs in the drawings having a space between them substantially equal to the width of each lug, it is obvious that a greater or fewer number of lugs may be employed and that the space through which the interlocking lug passes may be increased if desired. 4 is the door proper whose edge 4^a is preferably tapered slightly so as to fit snugly into the slightly flaring door opening 2 formed in the wall of the safe or vault. This door 4 preferably closes against the flat faces constituting the heel portions of the interlocking lugs 3. The inwardly extending portion of the door may be cylindrical if desired, but at points around its periphery there are provided lugs 5 whose outer faces are inclined as at 5^a so as to coöperate with the inclined faces 3^a of the lugs 3. 6 designate locking bolts, operated by any suitable or appropriate mechanism, which preferably extend through the lugs 5 and fit into suitable openings in the lugs 3 which register therewith when the door is rotated to its locked position.

From the above it will be seen that a secure and effective interlocking is obtained between the door and wall of the safe which is substantially proof against explosion from the inside; that is, the coöperating wedges formed by the lugs 3 and 5 will prevent the door from moving outwardly while they are in interlocking engagement unless the walls are either burst asunder or the inwardly extending portion of the safe door is collapsed.

In Fig. 4 I have shown the interlocking lugs provided with screw threads 7, which coöperate with each other, and, being given a slight pitch, will tend to draw or seat the door firmly in position.

In Figs. 5 and 6 I have shown a modified form in which there are two series of interlocking lugs staggered with relation to each other whereby there is provided a substantially continuous and unbroken contact of the door with the face of the door opening throughout its entire circumference.

In Figs. 7 and 8 the interlocking lugs are

arranged in tandem, the increase in the angle of the wedge thus provided affording a firm and secure lock, and in addition, in this form, I have illustrated the coöperating faces of the interlocking wedges eccentric (this eccentricity being exaggerated in the drawings for purposes of illustration only), whereby the door, in being turned to its home or locked position, will be drawn inwardly to its seat so as to have a tight fit. (See Fig. 9.)

In all forms of my invention, any suitable locking bolts and time or other locking mechanism may be employed, and as such are well-known and common in the art I have not deemed it necessary to here illustrate the same.

It will be readily understood that the cooperating faces 3^a and 5^a instead of being straight as shown can be formed curved in longitudinal section and accomplish the same result.

Minor changes in the size, form and construction of the various parts of my improved safe or vault door can be made and substituted for those herein shown and described without departing from the nature and principle of my invention.

I claim:

1. In a device of the class described, a wall provided with a door opening, lugs on the wall around the door opening therein, which lugs are substantially wedge-shaped in longitudinal section and decrease in thickness toward the inside of the wall, a door adapted to close the door opening and lugs formed on the edge of the door, which lugs are substantially wedge-shaped in longitudinal section and increase in thickness toward the inner face of said door.

2. In a device of the character described, the combination with a wall having a door opening, lugs formed on said wall around the opening, which lugs gradually decrease in thickness toward their rear ends to form inclined faces on said lugs, a door adapted to close the door opening, lugs on the edge of said door, which lugs gradually increase in thickness toward their rear ends to form inclined faces, corresponding to the inclined faces on the lugs of the wall, said door being capable of rotation whereby the inclined faces of the two sets of lugs are brought into coöperative relation to each other and transversely disposed threads formed on the inclined faces of both sets of lugs.

3. In a device of the character described, the combination with a wall having a door opening on the inner edge of which is formed two series of lugs, all of which lugs gradually decrease in thickness toward the inner face of the wall to form inclined faces on said lugs, a door having a corresponding plurality of series of lugs, which last mentioned lugs gradually increase in thickness toward their rear ends to form inclined faces adapted to coöperate with the inclined faces on the lugs of the wall when the door is closed.

4. In a device of the class described, the combination with a wall having a door opening, two staggered series of lugs formed on the edge of said opening, which lugs gradually decrease in thickness toward their rear ends to form inclined faces on said lugs, a door adapted to close the opening in the wall, a corresponding plurality of staggered lugs on the edge of said door, which last mentioned lugs gradually increase in thickness toward the inner face of the door to form inclined faces adapted to coöperate with the inclined faces of the first mentioned lugs when the door is closed and partially rotated.

5. In a device of the class described, the combination with a wall having a door opening, lugs formed on the wall around the opening therein, which lugs gradually decrease in thickness toward the inner face of the wall to form inclined faces, which faces are eccentrically disposed relative to the door opening, a door adapted to close the door opening, lugs on the edge of the door, which lugs gradually increase in thickness toward the inner face of the door to form inclined faces, which are eccentrically disposed whereby, when the door is closed and rotated to bring the inclined faces of the lugs into coöperative relation, the eccentric faces of the lugs will engage each other and tend to draw the door into the door opening.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this 16th day of November, 1910.

HARRY CLAY HUNTER.

Witnesses:
LALLA HUNTER,
M. P. SMITH.