No. 662,789. Patented Nov. 27, 1900.

W. H. HOLLAR & W. CORRY.

INTERLOCKING DEVICE FOR SAFE DOORS

(Application filed May 31, 1900.)

(No Model.) 2 Sheets—Sheet 1.

FIG. 1.

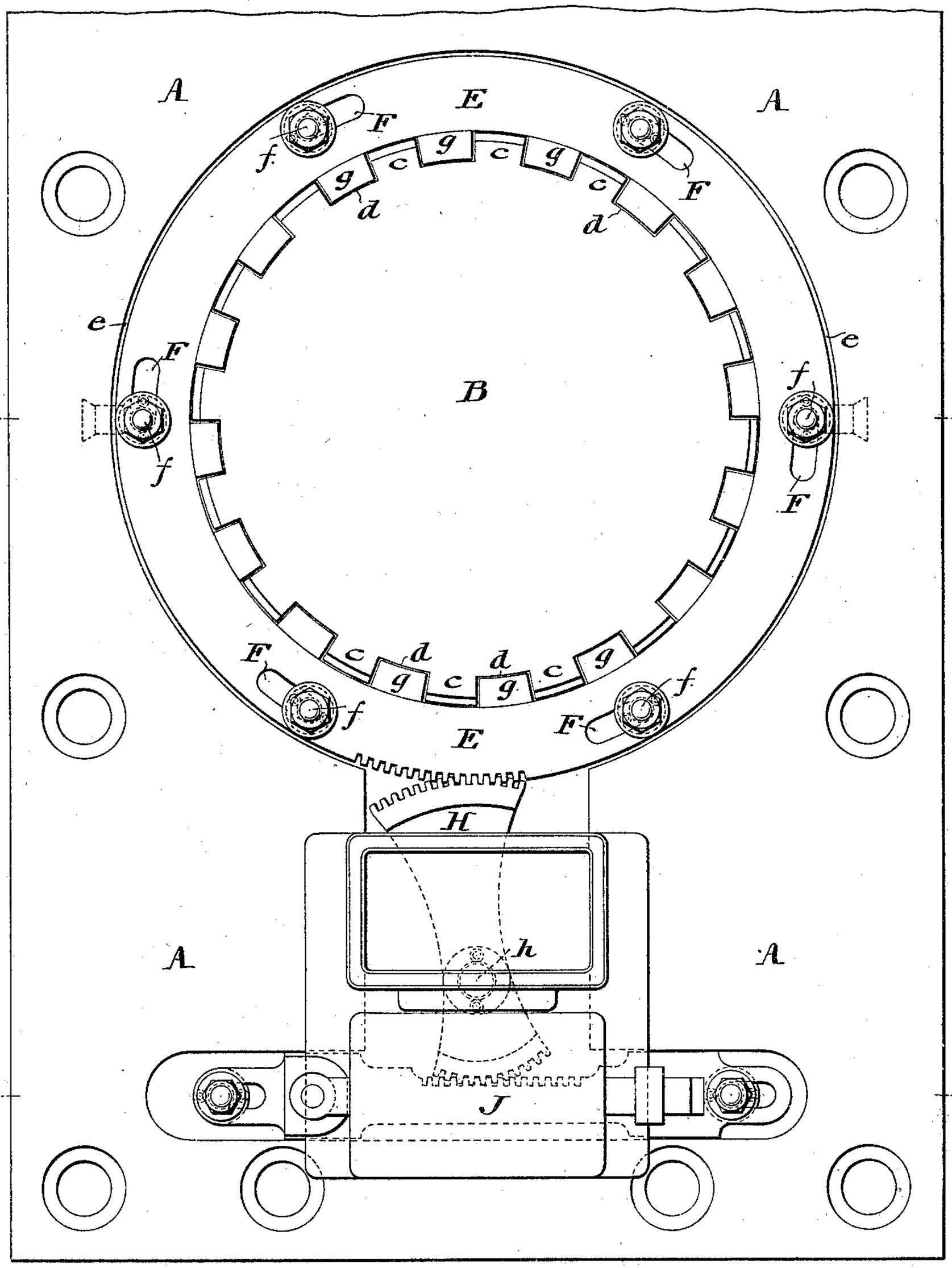

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FIG. 2.

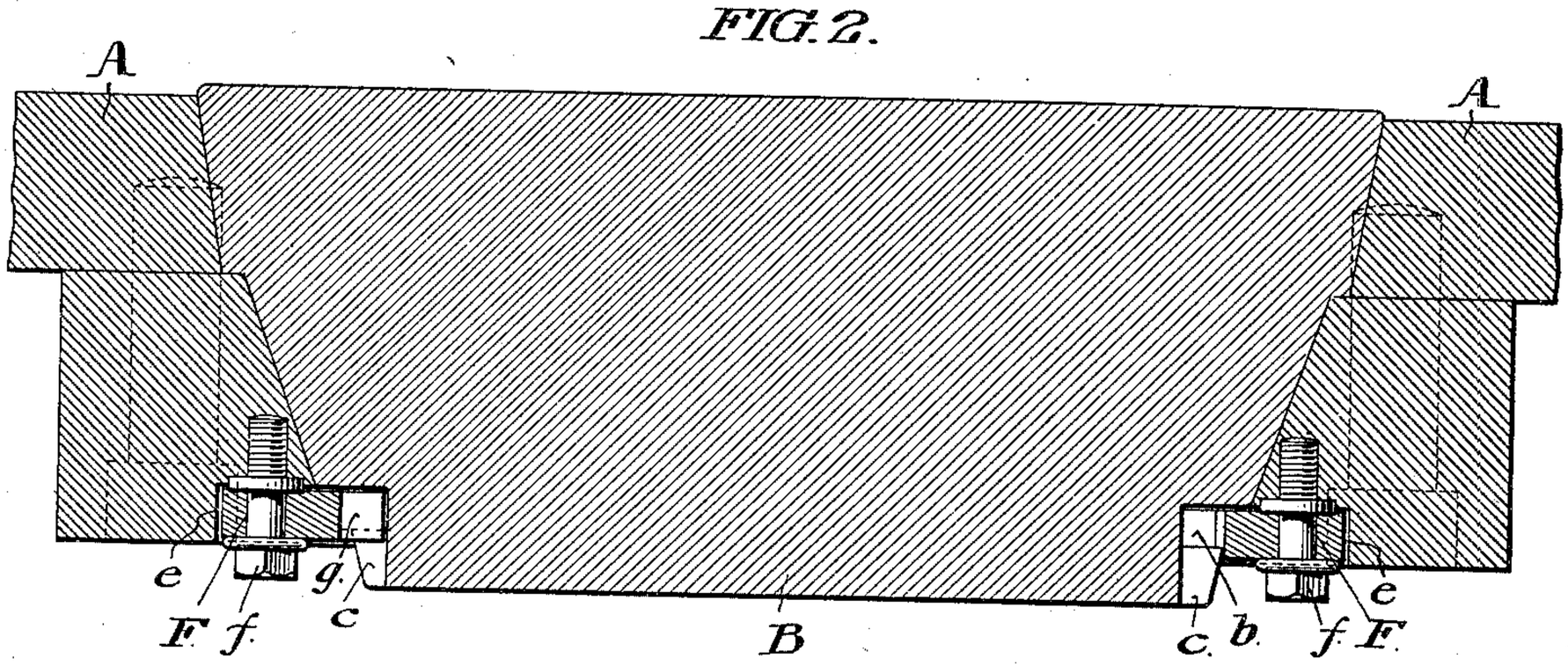


FIG. 3.

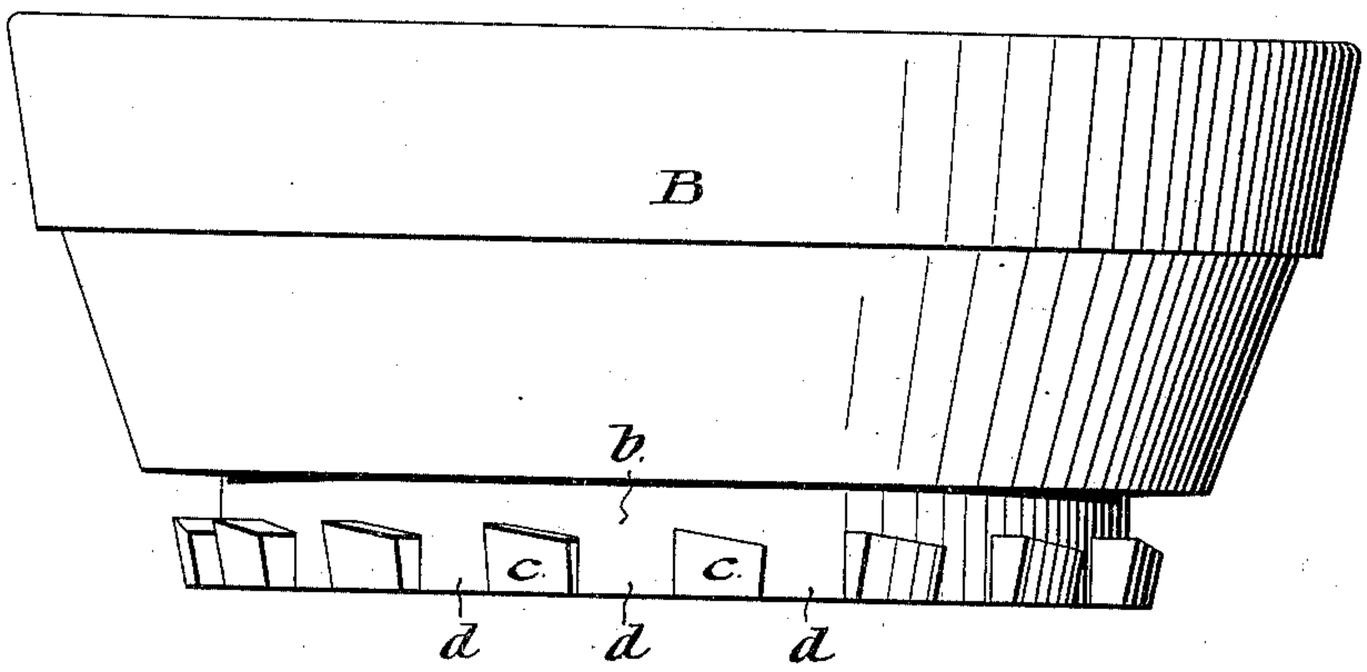
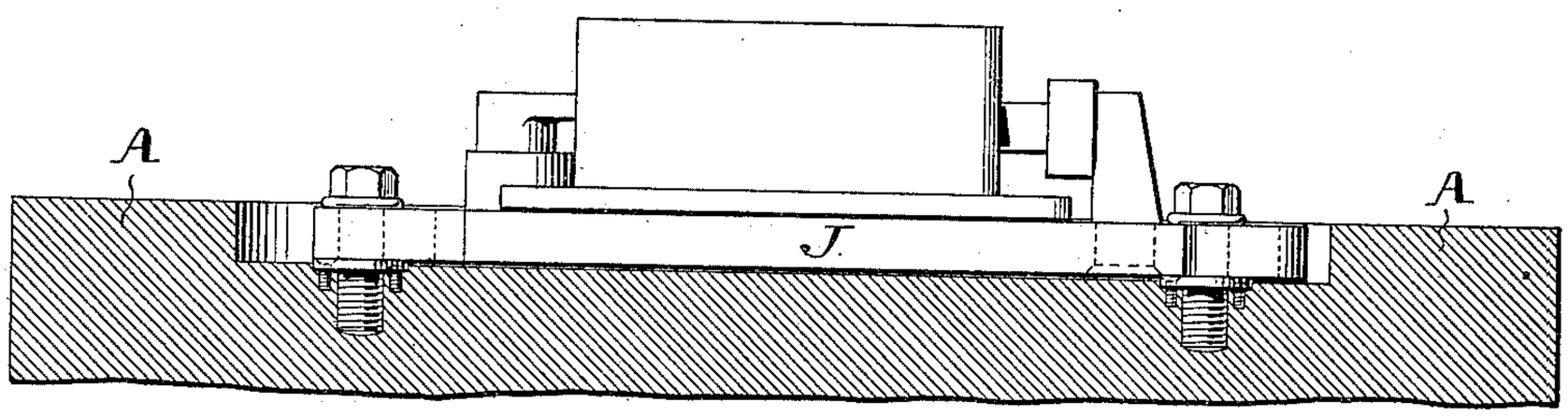


FIG. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM H. HOLLAR, OF PHILADELPHIA, PENNSYLVANIA, AND WILLIAM CORRY, OF CINCINNATI, OHIO; SAID CORRY ASSIGNOR TO SAID HOLLAR.

INTERLOCKING DEVICE FOR SAFE-DOORS.

SPECIFICATION forming part of Letters Patent No. 662,789, dated November 27, 1900.

Application filed May 31, 1900. Serial No. 18,480. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. HOLLAR, residing at No. 4,506 Chester avenue, in the city of Philadelphia, county of Philadelphia, and State of Pennsylvania, and WILLIAM CORRY, residing at Price's Hill, in the city of Cincinnati, county of Hamilton, and State of Ohio, citizens of the United States, have invented certain new and useful Improvements in Interlocking Devices for Safe-Doors, of which the following is a specification, reference being had to the accompanying drawings.

In said drawings, Figure 1 represents an interior elevation of the front wall of the safe fitted with a circular door. Fig. 2 is a section along the line 2 2, Fig. 1. Fig. 3 is an edge view of the circular door seen in Fig. 1. Fig. 4 is a section along the line 4 4 of Fig. 1.

Our invention relates to a safe construction applicable to safes with circular doors, and relates to an interlocking device whereby such a door may be locked in place after it has been shut by the rotation of a serrated annulus attached to the inner wall of the safe and without requiring the motion of any part connected with or attached to the door itself.

By the use of our invention we attain the following advantages:

First. The entire door with all its parts may be made of a single piece.

Second. The intertocking surfaces may be increased to the maximum of one-half of the entire edge of the door.

Third. The opposition to the opening of the door is not dependent upon any separable parts bolted or otherwise fastened to the door of the safe, but consists of a solid metallic resistance which may be equal to one-half of the edge of the door, so that the door can only be opened against the lock by a shearing action of this extent. We accomplish this result by forming around the inner edge of the door a series of projecting lugs with a groove behind them and by fitting the inner edge of the safe with a serrated annulus larger than the circle of the door, the serrations consisting of lugs capable of interspacing or interlocking with the lugs on the inner edge of the door according to its position of rotation.

A, Fig. 1, is the front wall of a safe as seen from the inside. As seen in section, Fig. 2, this may be formed of heavy metal plates bolted together; but the nature and construction of the safe itself form no part of this invention. In this wall A is cut a circular aperture, by which entrance is to be had to the safe. The edges of this aperture are beveled outwardly, and the incline of the bevel may preferably vary at one or more points with a shoulder interposed.

B is a circular non-rotatable door, formed in this instance of a single piece of metal having its edges beveled to correspond to the bevel of the aperture. The hinges or other means whereby this door is supported and swings into place are not shown, but may be of any approved type. Near its inner side a circular groove *b* is cut around the edge of the door. Between this groove and the inner side of the door the edge has formed upon it a series of lugs *c c*. As shown, these lugs are of the same width and depth. Their peripheral surfaces are beveled at a somewhat similar incline to the bevel of the edge of the door, and their outer surfaces—that is, those surfaces nearest the front of the door—are also beveled, the bevel of each lug being similar in direction and incline to that of all the others. The spaces *d d* between these lugs are cut away to a depth corresponding to the depth of the circular groove *b*, and these spaces *d* are preferably equal in width to the width of the lug *c*.

The inner face of the front wall of the safe carries an annulus E, immediately surrounding the aperture and larger than it. This is mounted in a recess *e*, cut into the wall at a plane which corresponds when the door is shut to the groove *b*. The thickness of the door is preferably such that the inner edge of the annulus is about flush with the inner surface of the front wall of the safe. Within this groove the annulus slides rotatively, the extent of said motion being controlled by the annular slots F, which receive the bolts *f*, set in the recess *e*. The inner edge of the annulus has formed upon it a similar series of lugs *g g*, which correspond to the spaces *d* between the lugs *c* on the annulus E. The inner sides of these lugs are preferably beveled to correspond to the bevels of the peripheral surfaces

of the lugs *c c*. When the door is inserted into the aperture, the annulus is in the position seen in Fig. 1. The lugs of the door pass between the lugs of the annulus until the annulus is coincident in plane with the circular groove *b*. A short rotation of the annulus throws the two sets of lugs into engagement with each other, and if, as is the case in the embodiment of the invention shown in the drawings, the spaces between the lugs and the lugs themselves have equal width the entire opposing surfaces of the two sets of lugs will be in close engagement, giving the maximum amount of resistance to an outward thrust. The mechanism by which the partial rotation of the annulus E is effected may vary and may be operated from without or from within.

As shown in Fig. 1, a portion of the outer periphery of the annulus E is fitted with teeth, which engage a toothed sector forming one end of the lever H, which is pivoted at *h*, and the opposite extremity of which (also toothed) is in engagement with a rack-bar J, which may be thrown by a set spring released by the action of a time-lock. The details of this part of the mechanism, however, form no part of this invention and need not now be described.

We are aware that it is not new to lock the circular door of a safe by means of interlocking lugs. Hitherto, however, this has been done by affixing a serrated circular plate to the inside of the door, by the rotation of which in one or the other direction the door is locked or unlocked. It is obvious, however, that in such an arrangement the resistance to the opening of the door and lock can only equal the resistance of the bolts or other means employed to hold this plate upon the inside of the door, and as the connection of this plate to the inside of the door must be one capable of admitting rotation it is evident that by this construction the advantage of the increased locking-surface which is afforded by the series of interlocking lugs such as we have described is done away with, since the point of least resistance is not the locking-surface, but the union between the rotatable disk and the door.

In our invention the employment of the serrated annulus larger than the door-aperture and rotating within it enables us to make the entire door and its lugs integral, and thereby to throw upon the interlocking surfaces themselves the resistance to the opening of the door, which, as we have explained, may, by making the lugs and the spaces between them equal, be increased to one-half of the length of the periphery of the door.

Having thus described our invention, we claim—

The locking mechanism for circular safe-doors, which consists in the combination of a circular non-rotatable door with a series of lugs formed integrally around the inner edge thereof; an internally-serrated annulus, fitted to the inner edge of the door-aperture, the serrations of which consist of a series of lugs projecting into the door-opening and capable of interlocking and interspacing with the lugs around the inner edge of the door according to the rotative position of the annulus; and means for rotating the annulus so as to lock or unlock the door, substantially as described.

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