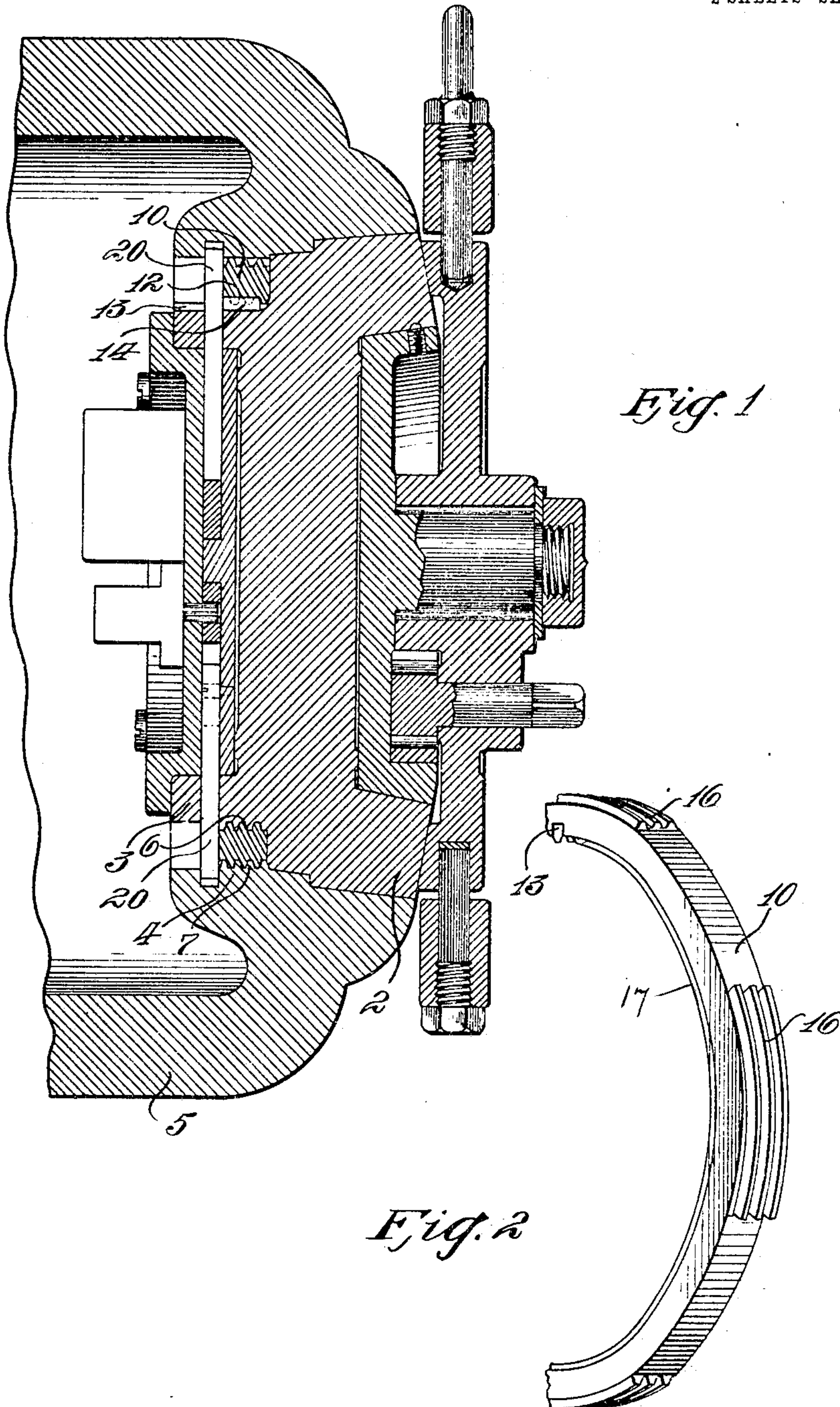


No. 793,105.

PATENTED JUNE 27, 1905.

S. L. SMITH.
ROTARY DOOR SAFE.
APPLICATION FILED AUG. 25, 1903.

2 SHEETS—SHEET 1.



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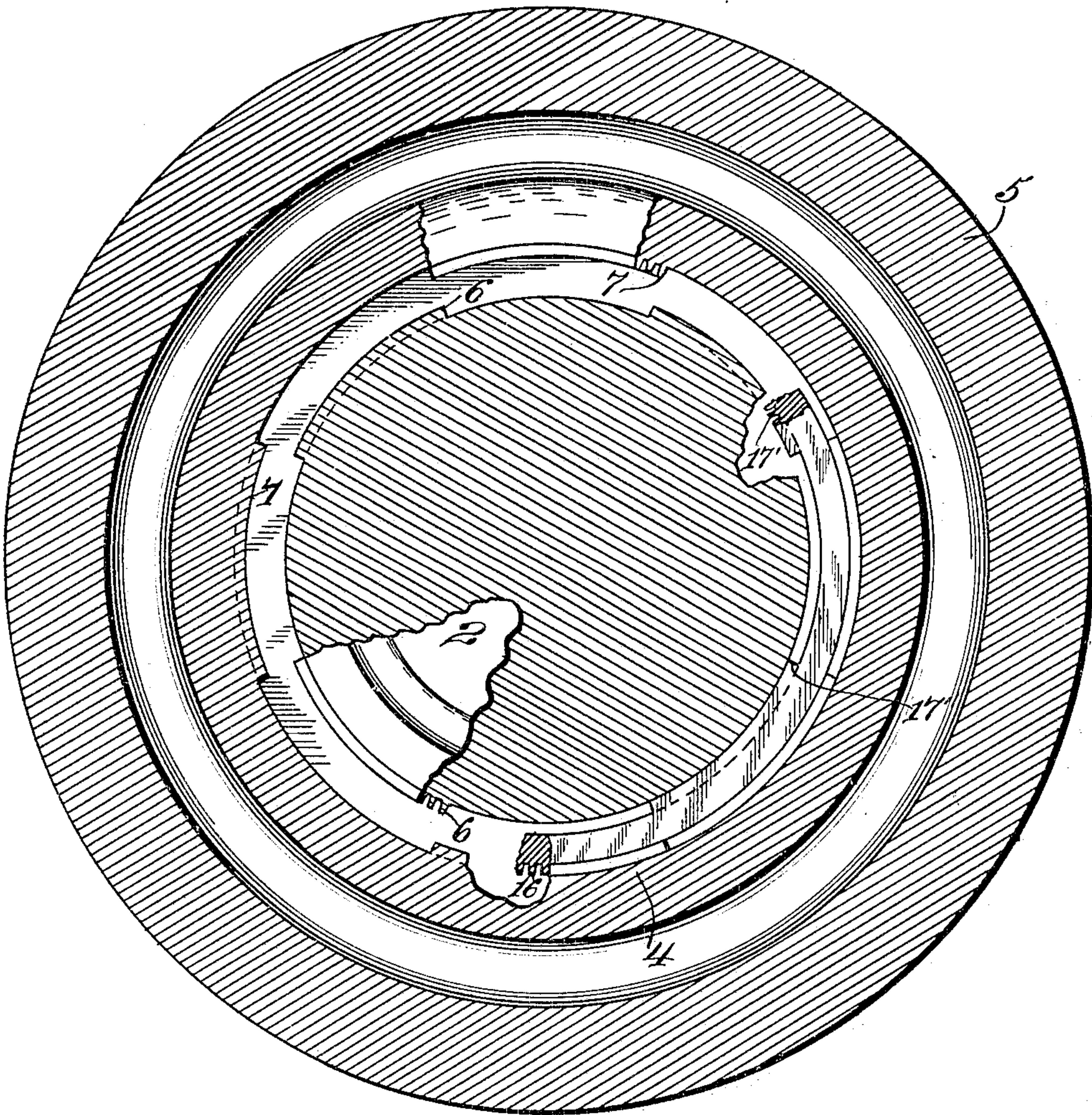
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2 SHEETS—SHEET 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

SYDNEY L. SMITH, OF BAYONNE, NEW JERSEY, ASSIGNOR TO MANGANESE STEEL SAFE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

ROTARY-DOOR SAFE.

SPECIFICATION forming part of Letters Patent No. 793,105, dated June 27, 1905.

Application filed August 25, 1903. Serial No. 170,670.

To all whom it may concern:

Be it known that I, SYDNEY L. SMITH, a citizen of the United States, residing in Bayonne, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Rotary-Door Safes, of which the following is a specification.

This invention relates to burglar-proof screw or rotary door safes or vaults, the object of the invention being to provide a structure so organized that the door will be maintained in its seat through the medium of an independent member carrying locking-faces secured in position without the use of bolts or other similar fastening means, whereby certain advantages hereinafter set forth can be obtained, the present improvement being one form of means which will secure some of the advantages set forth in the application of Henry D. Hibbard, Serial No. 169,961, filed August 19, 1903.

In the drawings accompanying and forming part of this specification, Figure 1 is a cross-sectional view of a part of the safe-body with the door therein closed. Fig. 2 is a perspective view of the means for locking the door to the body. Fig. 3 is a cross-sectional view looking from the inner side of the door, illustrating the sets of interrupted threads on the body-jamb, door-periphery, and exterior and interior of the removable ring.

The safe body and door may be similar to those heretofore patented by Henry D. Hibbard and referred to in the application herebefore noted.

In the preferred form of this improvement the door 2 is shown provided with an interiorly-extending integral circular flange 3, the exterior diameter of which is considerably less than the door way or jamb 4 of the body 5 at this point, forming an annular recess, and this flange is provided with locking-faces 6, which in the present instance are shown as interrupted threads, although such locking-faces may be in the form of continuous threads or parallelly-located lugs. The threads may be formed wholly on the flange or partly thereon and partly on the body of the door, as may

be found most desirable in practice. In the present instance the inner wall of the flange 50 is of less depth than the outer wall thereof, so that at the periphery of the door where the threads are located they are formed on that part of the flange which extends rearwardly of that part of the body which has been cut away to form the flange, and thereby the annular chamber between it and the jamb. The jamb 4 of the body is also provided with locking-faces 7, preferably similar to those carried by the door-flange, although this is not necessary, since they do not mesh with each other. Whether the threads are located in sections as interrupted threads or formed as continuous threads it will be seen that the door may be ground to its seat by a continuous rotary movement of the door, since the threads of the door flange and jamb do not come in contact at any time, and there is therefore no impediment to this continuous rotation. Where, however, the locking-faces are formed on the door and jamb so that they engage each other, it is not practicable to properly grind the door to its seat, since the door can be rotated only a predetermined distance, and, further, the threads also will be ground, and thus be worn and permit play and backlash of the door.

To provide means for preventing the withdrawal of the door except by a rotary movement, I provide a machineable member in the form of a duplex-threaded ring 10—that is, a ring having threads on its inner and outer sides. This ring is turned onto the threaded edge of the door after the same has been properly ground to its seat, and for this purpose it may have a continuous thread or rather threads 17, as shown in Fig. 2, to engage similarly-formed threads on the door-periphery, or it may have, as shown in Fig. 3, sets of interrupted threads 17' to engage similarly-formed sets of threads on the door-periphery, and is maintained in such position by any suitable means—as, for instance, by means of a spline-and-groove connection 12, a registering groove or recess 13 being formed in the door-flange and in the ring for the re-

ception of a spline or key 14. As there is no strain upon this key, it will be seen that one of these devices is sufficient, since it is only used to prevent the ring from turning with relation to the door or jamb. When the ring is secured in position on the flange of the door, and which ring, as stated, is of machineable metal, whereby it may be readily worked, the threads 16 on the periphery thereof form locking-faces coöperating with the locking-faces 7 formed in the jamb, whereby the door may be rotated and held to its seat in the usual manner.

For preventing the door from being rotated after it is turned home suitable means may be provided, shown in the present instance as a plurality of locking-bolts 20, which are automatically tripped when the door is seated and retracted by suitable automatic or time-lock mechanism similar, if desired, to that shown and described in the application hereinbefore referred to. It will be seen, however, that the bolts work in openings formed in the door-flange which, as hereinbefore stated, is integral with the door and project directly into the solid metal of the body, so that they not only prevent the rotation of the door after it is seated, but they will also assist the locking-threads in holding the door to its seat, which would not be the case if the bolts were carried by a ring merely bolted to the door at the inner side of such door. Similar means for supporting and rotating the door to that shown and described in said application may also be used. Further reference thereto in the present application is not deemed necessary.

Having thus described my invention, I claim—

1. A safe or vault comprising an integral body and an integral rotary door each provided respectively on its jamb and periphery with integral locking faces or threads, and a single annular ring intermediate said body and door, removable therefrom but normally fixed thereto against movement independently of the door, and having locking faces or threads corresponding to the locking faces or threads of the body and door, the organization being such that said door is securely fixed against separation from the ring without the use of bolts or similar fastening means.

2. A safe or vault comprising an integral body and an integral rotary door having a rearwardly-extending circular flange, said body and door-periphery each having integral locking faces or threads, and a single annular removable ring intermediate said body and door and carrying corresponding locking faces or threads to the faces or threads of the body and door, and means for preventing the rotation of the ring independently of the door, the organization being such that said door is securely fixed against separation from the ring

without the use of bolts or similar fastening means.

3. A safe or vault comprising an integral body and an integral rotary door, said door and body having an annular recess therebetween, the jamb of said body and the periphery of the door having opposing parallelly-located locking faces or threads free of engagement with each other thereby to permit the door to be ground to a matching fit without the engagement of one set of faces or threads with the other, and means for locking the door into the jamb and comprising a single annular removable ring having interiorly and exteriorly located locking faces or threads corresponding to the opposing locking faces or threads of the jamb and door, means for securing said ring against movement independently of the door, and means for preventing rotation of the door.

4. A safe or vault comprising an integral body having its jamb provided with sets of parallelly-located interrupted threads or locking-faces, a rotary integral door having an integral rearwardly-extending circular flange constructed to form an annular recess intermediate said door and jamb said door having its periphery at said recess likewise provided with sets of parallelly-located interrupted threads or locking-faces, the organization being such that the door may be ground to its seat without the engagement of one set of threads or locking-faces with the other, and an annular removable ring having interiorly and exteriorly interrupted sets of parallelly-located threads or locking-faces corresponding to the sets of threads or locking-faces of the body and door, for locking the door to its seat against withdrawal, means for holding said ring against movement independently of the door, and means for preventing rotation of the door.

5. An integral safe or vault door having a rearwardly-extending, integral, circular flange, the periphery of said door having parallelly-located threads or faces, a ring removable therefrom having similar locking threads or faces coöperating with the threads on the door, and also having on its exterior parallelly-located faces or threads adapted to mesh with similar threads or faces formed in the body, and means for maintaining the ring against rotation with relation to the door.

6. A safe or vault door having a flange provided with parallelly-located locking threads or faces, a ring having a series of locking threads or faces coöperating with the threads of the door and also having on its exterior a series of locking faces or threads and means for maintaining the ring against rotation with relation to the door, said means comprising a key-and-slot connection.

7. A safe or vault comprising an integral body and an integral door each formed of man-

ganesse steel, and provided with oppositely-located threads at the jamb; and an intermediate member also having threads coöperating with the threads of the door and the body and fixedly secured to one of said members, the organization being such that without bolts or other fastening means the door is secured against withdrawal from the body except by rotating the same.

8. A safe or vault comprising a body and a rotary door and means for locking the door to its seat and comprising a member rotatively secured to one of said parts, against movement independently thereof and means for preventing the rotation of the door said means comprising a plurality of locking-bolts located in juxtaposition to said intermediate member and shiftable into the jamb of the body.

9. A safe or vault comprising a body and a door each formed as an integral structure of manganese steel, and an intermediate member formed of machineable metal rotatively locked to the door against movement independently thereof and effective to prevent the removal of the door from the body except on the rotation of the door, and locking-bolts working in openings formed in the integral door and shiftable into the integral jamb of the body for preventing rotation of the door after it is seated.

10. A safe or vault comprising a body and a rotary door, said door having a portion projecting rearwardly of the main part thereof, the said body and projecting part carrying locking-threads, and a separable ring intermediate said body and door and carrying locking-threads complementary to the locking-threads of the body and projecting part of the door, and means for preventing the rotation of the ring independently of the door.

11. A safe or vault comprising a body and a rotary door, said door having a part projecting rearwardly of the main part thereof, the said body and projecting part having sets of

parallelly-located locking faces or threads, and a separable ring intermediate said body and door and carrying locking faces or threads complementary to the locking faces or threads of the body and projecting part of the door, and means for preventing the rotation of the ring independently of one of said parts.

12. A safe or vault, comprising a body and a rotary door, having means for securing said door against withdrawal and comprising a part projecting rearwardly of the main part of such door, the said body and projecting part having locking faces or threads, a separable ring intermediate said body and door and carrying locking faces or threads complementary to the locking faces or threads of the body and projecting part of the door, means for preventing the rotation of the ring independently of the door, and means comprising bolts working in said projecting part of the door and extending into the jamb of the door to prevent the rotation of such door.

13. A safe or vault, comprising a body and a rotary door, having means for securing said door against withdrawal and comprising a part projecting rearwardly of the main part of such door, the said body and projecting part having locking faces or threads, and a separable ring intermediate said body and door and carrying locking faces or threads complementary to the locking faces or threads of the body and projecting part of the door, means for preventing the rotation of the ring independently of one of said parts, and means comprising bolts working in said projecting part of the door and into the jamb of the door to prevent the rotation of the door.

Signed at Jamestown, Rhode Island, this 21st day of August, 1903.

SYDNEY L. SMITH.

Witnesses:

EDWARD W. SCOTT,
W. B. CONNER.