S. W. FISH.

COMPOUND SAFE OR VAULT DOOR.

APPLICATION FILED NOV. 10, 1909.

997,772. Patented July 11, 1911.

Fig. 1.

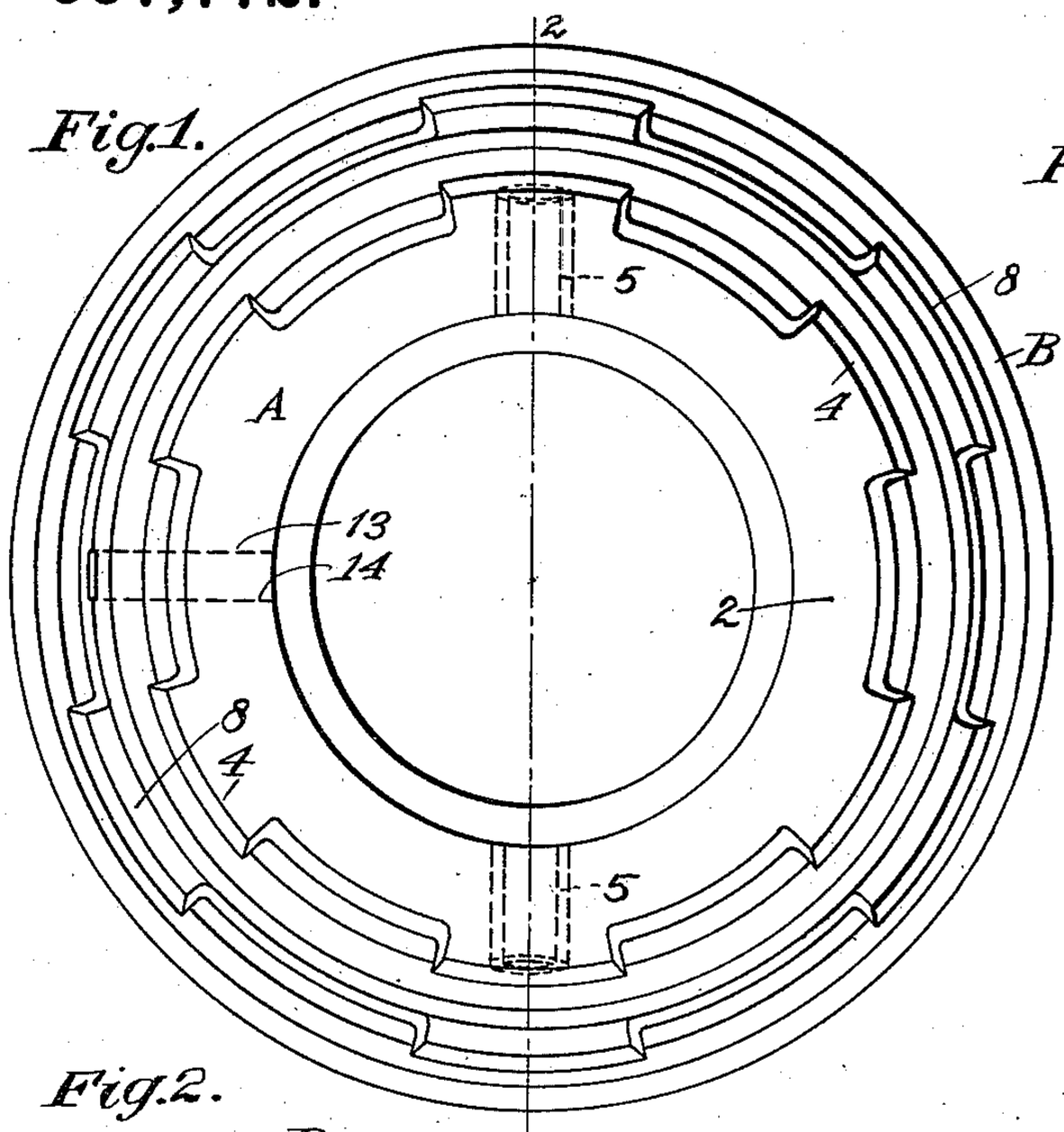

Fig. 3.

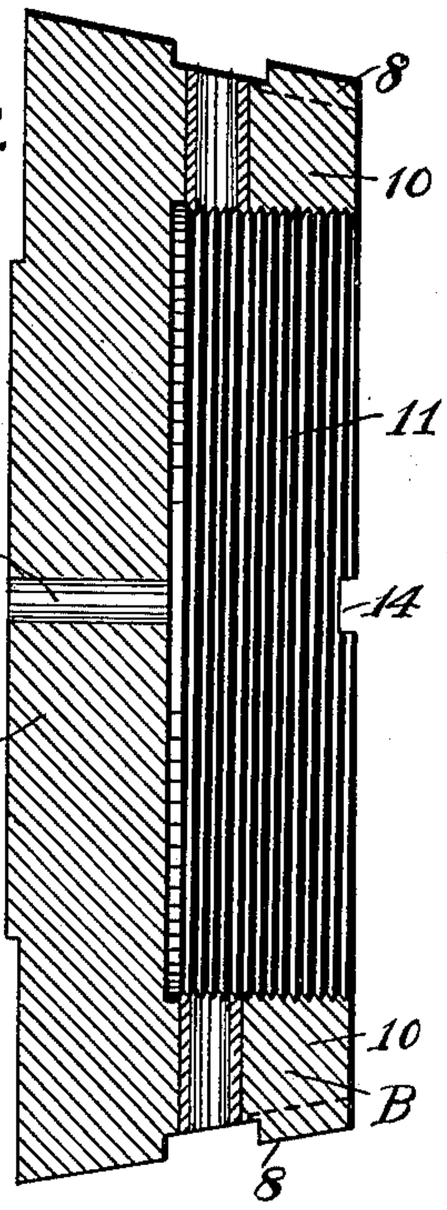

Fig. 2.

Fig. 4.

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COMPOUND SAFE OR VAULT DOOR.

997,772. Specification of Letters Patent. Patented July 11, 1911.

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To all whom it may concern:

Be it known that I, SAMUEL W. FISH, a citizen of the United States, and a resident of Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Compound Safe or Vault Doors, of which the following is a specification.

The present improvement relates to safes or vaults, and more particularly to the doors thereof, the object of the invention being to provide an improved double or compound door comprising a plurality of doors each a complete door in itself and each having means for securing it within the jamb of the safe or vault body, but which doors are very rigidly connected together in an improved manner so that the separation of one door from another will not only require the rupturing of the holding means between the doors, but also of the locking means of the outer door in the safe or vault body, the present invention being an improvement in part upon those shown and described in my co-pending applications, Serial No. 492,869, filed April 29, 1909, and Serial No. 526,486, filed Nov. 6, 1909. In the first of said improvements the doors were secured together by means of locking lugs interlocked by the rotation of one door relatively to the other, and in the last of said improvements the doors were secured together by sliding one door on to the other and bolting them together. In the present improvement, however, one door is secured on another by rotating it into position, to permit which opposed portions of each door are provided with screw-threads.

One of the advantages of a compound door made up of separate but rigidly connected doors is that a different form of spindle from the tapered spindle heretofore deemed essential may be used. In other words, in safes as heretofore constructed, when a spindle was used projecting inwardly from the front face of the door it was deemed necessary to taper this spindle to prevent it from being pushed inward, and to also in some way provide means for preventing it from being pulled outward. But the tapered formation of the spindle was in some respects a disadvantage. In the present improvement, however, by forming the doors in the manner set forth they may be spaced apart to form a chamber therebetween and thus enable a straight spindle to be used and to be inserted from the inside of the outer door before this door is placed in position, and to therefore be provided with an enlarged head which will prevent any possibility of the spindle being drawn through the door from the outer side thereof. The spindle may also be of such construction that it may engage the front face of the inner door, so that any possibility of forcing it inwardly is avoided.

In the drawings accompanying and forming part of this specification, Figure 1 is a rear view of this improved door; Fig. 2 is a cross-sectional view taken in line 2—2, Fig. 1; Fig. 3 is a cross-sectional view of the outer door; and Fig. 4 is a cross-sectional view of the inner door.

Similar characters of reference indicate corresponding parts throughout the figures of the drawings.

This improved compound door comprises two doors, an inner door A and an outer door B. The inner door comprises a body 2 preferably having a rearwardly extending flange 3 provided with the usual locking lugs 4 and bolt openings 5 for the reception of suitable bolts for securing the door against rotation, the locking lugs preventing the withdrawal of the door after its rotation into position in the usual manner. This inner door is also provided with a forwardly extending boss 6 having a recessed or chambered front portion 7. This boss or annular member is of less diameter than the inner door body, and is provided with threads around its periphery and also with openings 12 for the reception of the bolts. This annular member or boss 6 thus forms an annular space for the reception of the flange of the front or outer door hereinafter referred to. The space is of such size as to permit the tapered joint surfaces of the inner and outer doors to be continuous, in a manner which will be readily understood. The front or outer door B also comprises a flanged door having suitable lugs 8 adapted to coöperate with similarly formed lugs carried by the body jamb, so that both doors, when in the jamb, are each separately locked therein by these locking lugs. The inner flange 10 of the outer door fits on to the boss or annular member 6 of the inner door and is provided with interiorly located threads 11 adapted to mesh

with the threads of the annular member or boss 6 of the inner door, whereby the doors are interlocked together by rotating one on to the other. For rigidly securing the doors in this position they are keyed together by a key 13 which extends through the flange of the outer door and into the boss and body of the inner door, a suitable key-way 14 being provided for this purpose. The bolts which are located in the bolt openings 12 of the opposed flange and boss will also prevent the rotation of one door relatively to the other. In this manner the two doors are very rigidly locked together for rotation as a single structure within the jamb when made in the form of a rotary door.

When it is desired to use a spindle for any purpose, the outer door is provided with an opening 15 extending through the body portion 16 thereof for the reception of a straight spindle 17 provided with an enlarged head 18 and with an inner end portion 19 adapted to engage the front face 20 of the body of the inner door. This spindle may be inserted into position from the inside of the front door before the two doors are secured together, and consequently enables the provision of a spindle with an enlarged head which will positively prevent the withdrawal of the spindle outwardly and also enables the provision of a spindle which may have its inner end engaging the front face of the inner door, and thus prevent the forcing of the spindle inwardly, thereby doing away with the use of a tapered spindle.

This compound door, it will be observed, is made up of a pair of doors each of an integral structure, rigidly secured together and each having its separate locking means for locking the door within the jamb of the safe body, the doors being so formed that they are spaced apart to form a chamber between the rear of the outer door and the front of the inner door.

In practice the bolts which secure the two doors against rotation may also be utilized to project into the jamb to lock the door in the jamb against rotation, and for this purpose they would, of course, be connected with a suitable automatic or bolt operating means such as is usually provided for that purpose, and which would be located within the chamber formed between the two doors, these bolts in their normal unlocking position projecting through the openings provided in the forwardly extending flange of the rear door and the rearwardly extending flange of the front door.

By constructing the doors in the manner set forth the spindle may be provided with an integral head, thus obviating the necessity of providing any threads or other holding means for securing the part 18 to the spindle, and thus avoiding all danger of stripping the threads and thereby releasing the head from the spindle. In the construction shown this spindle will control the bolt operating means located in the chamber between the bodies of the doors when this form of bolt controlling means is used.

I claim as my invention:

1. In a safe or vault, a door formed of a plurality of doors comprising an inner and an outer door, each effective to close the doorway of the safe or vault and united by threads carried by integral opposed portions of such doors located in front of the body of the inner door.

2. In a safe or vault, a compound door formed of a plurality of doors, one or both thereof having integral locking lugs and said doors being united by threads carried by integral opposed portions of the doors located between the body portions of such doors.

3. In a safe or vault, a compound door formed of a plurality of doors each having integral locking lugs, said doors being united by threads and a key, said threads being carried by opposed portions of the doors located between the body portions of such doors.

4. In a safe or vault, a compound door formed of a plurality of doors having substantially parallelly located bodies, each of said doors being effective to close the doorway of the safe or vault and said doors being united by a key and threads, the latter carried by opposed portions of the doors.

5. In a safe or vault, a door formed of a plurality of doors having flanges and body portions, with the body portions thereof spaced apart, said doors being rigidly united by threads carried by opposed portions located between such body portions and one or both of the doors having locking lugs for securing the door within the body jamb.

6. In a safe or vault, a compound door comprising an inner door having a forwardly extending annular member or boss provided with exteriorly located threads, an outer door having a rearwardly extending flange provided with interiorly located threads engaging the threads of the boss, and means for securing the doors together against independent rotary movement.

7. In a safe or vault, a door formed of a plurality of doors each effective to close the doorway and rigidly united for movement as a single structure by interlocking means carried by the doors on the rotation of one of such doors, and a spindle projecting through the outer door and insertible into such door from the inner side thereof before its assemblage with the inner door and having an enlarged head in position to prevent the withdrawal of such spindle from the front of the door.

8. In a safe or vault, a door formed of a

plurality of separable doors rigidly united together to form a single structure and having a chamber therebetween, and a spindle projecting through the outer door and having an enlarged integral head located in said chamber to prevent the withdrawal of said spindle from the front of the door and insertible through such door from the inner side thereof before its assemblage with the inner door, and also having an end in position to engage a part of the rear door thereby to prevent the inward forcing of the spindle.

9. In a safe or vault, a door formed of a plurality of doors each effective to close the doorway and rigidly united for movement as a single structure by interlocking means carried by the doors on the rotation of one of such doors, and a spindle projecting through the outer door and insertible into such door from the inner side thereof before its assemblage with the inner door and having an enlarged head in position to prevent the withdrawal of such spindle from the front of the door, and also having means in position to engage the inner door to prevent the forcing of the spindle inward.

10. In a safe or vault, a compound door comprising a pair of integral doors each effective to close the doorway and rigidly united for movement as a single structure by interlocking means carried by peripheral opposed overlapping portions of the doors, and a spindle extending through the outer door and insertible through such door from the inner side thereof before its assemblage with the inner door, and having means relatively remote from its outer end for preventing either the withdrawal of the spindle through the outer door or the forcing thereof inward through such door.

11. In a safe or vault, a compound door comprising a pair of doors each effective to close the doorway and rigidly united together for movement as a single structure by interlocking means carried by the doors on the rotation of one of them, and a straight spindle extending through the outer door and insertible through such door from the inner side thereof before its assemblage with the inner door, and having integral means located between the bodies of the two doors for preventing either the withdrawal of the spindle through the outer door or the forcing thereof inward through such door.

12. In a safe or vault, a compound door comprising a pair of doors rigidly united together for movement as a single structure each effective to close the doorway and having the bodies thereof spaced apart, and a spindle extending through the outer door and insertible through such door from the inner side thereof before its assemblage with the inner door, and having means located between the door bodies for preventing either the withdrawal of the spindle through the outer door or the forcing thereof inward through such door.

13. In a safe or vault, a door formed of a plurality of doors and each having locking lugs for securing it in the jamb of the body, the doors being rigidly secured together for movement as a single structure by meshing threads and a key carried by the doors, and a spindle extending through the outer door and insertible through such door from the inner side thereof before its assemblage with the inner door and having means located between the doors for preventing its withdrawal outwardly or the forcing thereof inwardly.

14. In a safe or vault, a compound door comprising a pair of doors rigidly united together for movement as a single structure each effective to close the doorway and having the bodies thereof spaced apart, a spindle extending through the outer door and insertible through such door from the inner side thereof before its assemblage with the inner door and having means located between the door bodies for preventing either the withdrawal of the spindle through the outer door or the forcing thereof inward through such door, and means carried by the doors for interlocking them on the rotary movement of one of the doors after the positioning of the spindle.

15. In a safe or vault, a door formed of a plurality of doors and having means for locking it in the jamb of the body, the doors being rigidly secured together by means of threads and a key carried by the doors for movement as a single structure, and a spindle extending through the outer door and insertible through such door from the inner side thereof before its assemblage with the inner door and having means at the inner side of the outer door for preventing either the withdrawal of the spindle or the forcing thereof inwardly.

16. In a safe or vault, a door formed of a plurality of doors and having means for locking it in the jamb of the body, the doors being rigidly secured together by means of threads and a key carried by the doors for movement as a single structure, and a spindle extending through the outer door and insertible through such door from the inner side thereof before its assemblage with the inner door and having means at the inner side of the outer door for preventing either the withdrawal of the spindle or the forcing thereof inwardly, each of said doors having a rearwardly extending flange.

17. In a safe or vault, a door formed of a plurality of doors each having a rearwardly extending flange and the inner door also having a forwardly extending member for the reception of the flange of the outer

door, said doors being united by threads and a key carried by said member and flange, and one or both of said doors having locking lugs for locking the door in the jamb of the body.

18. In a safe or vault, a door formed of a plurality of doors each having a rearwardly extending flange and the inner door also having a forwardly extending annular member for the reception of the flange of the outer door, said doors being united by threads carried by said member and flange and a key, and one or both of said doors having locking lugs for locking the door in the jamb of the body, and a spindle projecting through the outer door and having means located between the two doors for preventing either the withdrawal or the forcing inwardly of the spindle.

19. A compound door for safes or vaults, comprising a pair of doors one having a rearwardly extending flange and the other a forwardly extending flange, the flange of one door fitting within the flange of the other, and one or more bolt openings extending through the adjacent flanges of the doors for the reception of bolts for locking the door against withdrawal from the safe body.

20. A compound safe or vault door, comprising a pair of doors the inner door having a forwardly extending flange and the outer door a rearwardly extending flange and provided with locking lugs for locking the door within the jamb of the body, the flange of the inner door fitting within the flange of the outer door and said adjacent flanges being provided with one or more bolt openings for the reception of door locking bolts.

21. A compound door for safes or vaults, comprising a pair of doors one having a rearwardly extending flange and the other a forwardly extending flange, the flange of one door fitting within the flange of the other, and one or more bolt openings extending through the adjacent flanges of the doors for the reception of a bolt or bolts.

22. In a safe or vault, a door formed of a plurality of doors each effective to close the doorway and each having locking lugs for securing it to the jamb of the body, said doors being rigidly secured together for movement as a single structure by interlocking means carried by the doors on the rotation of one of them, and a spindle extending through the outer door and insertible from the inner side thereof before the interlocking of said doors, said spindle having means located adjacent to the inner side of the outer door and the front side of the inner door for preventing either the withdrawal of the spindle or the forcing thereof inwardly.

23. In a safe or vault, a door comprising a pair of integral doors each effective to close the doorway and rigidly united for movement as a single structure by interlocking means carried by the doors on the rotation of one of them and having the bodies thereof spaced apart, and a spindle extending through the outer door and provided with integral enlarged means preventing the assemblage of the spindle with the door by the insertion of such spindle from the outer side of the door while permitting its assemblage with the door by the insertion of such spindle through the door from the inner side thereof before the doors are interlocked and in position to engage the bodies of both doors thereby to prevent either the withdrawal of the spindle or the forcing thereof inward when such doors are interlocked.

24. In a safe or vault, a door comprising a pair of integral doors each effective to close the doorway and rigidly united for movement as a single structure by interlocking means carried by the doors on the rotation of one of them and having the bodies thereof spaced apart, and a spindle extending through the outer door and provided with integral enlarged means preventing the assemblage of the spindle with the door by the insertion of such spindle from the outer side of the door while permitting its assemblage with the door by the insertion of such spindle through the door from the inner side thereof before the doors are interlocked and in position to engage the bodies of both doors thereby to prevent either the withdrawal of the spindle or the forcing thereof inward when such doors are interlocked, one or both of said doors having lugs for securing it to the body.

25. In a safe or vault, a door comprising a pair of integral doors each effective to close the doorway and rigidly united for movement as a single structure by interlocking means carried by the doors on the rotation of one of them and having the bodies thereof spaced apart, and a spindle extending through the outer door and provided with integral enlarged means preventing the assemblage of the spindle with the door by the insertion of such spindle from the outer side of the door while permitting its assemblage with the door by the insertion of such spindle through the door from the inner side thereof before the doors are interlocked and in position to engage the bodies of both doors thereby to prevent either the withdrawal of the spindle or the forcing thereof inward when such doors are interlocked, said doors having opposed peripheral overlapping portions having alined bolt openings for the reception of bolts.

26. In a safe or vault, a door formed of a plurality of doors each effective to close the doorway and rigidly united by inter-

locking means carried by the doors on the rotation of one of them for movement as a single structure, each of said doors having a bolt opening or openings and also having lugs for interlocking it with the safe body, and a spindle projecting through the outer door and insertible into such door from the inner side thereof before the assemblage of said outer door with the inner door and having integral means located to engage a portion of the outer door and the inner door for preventing either the withdrawal of the spindle or the forcing thereof inward.

27. In a safe or vault, a compound door formed of a plurality of doors each effective to close the doorway and rigidly united for movement as a single structure by interlocking means carried by the doors, said doors having a chamber between the bodies thereof for the reception of bolt operating means, and a spindle projecting through the outer door and insertible only from the inner side of such door prior to the interlocking of such doors and means for preventing its withdrawal or the forcing thereof inward.

28. In a safe or vault, a door formed of a plurality of doors, each effective to close the doorway and rigidly united for movement as a single structure by interlocking means carried by the doors, and a spindle projecting through the outer door and insertible only from the inner side of such door before the interlocking of such doors and having means for preventing either the withdrawal of such spindle or the forcing thereof inward, the inner end of such spindle terminating adjacent to the front of the inner door body.

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