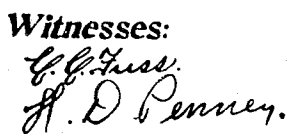


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# UNITED STATES PATENT OFFICE.

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SAFE.

1,056,016.

Specification of Letters Patent.

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*To all whom it may concern:*

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

This invention relates to safes or vaults, the object of the invention being to provide, in connection with a chambered, or what may be construed as a compound, door for safes, an auxiliary locking or securing means effective under certain contingencies to prevent the door from being separated from the body.

In the drawings accompanying and forming part of this specification, Figure 1 is a side, partly sectional, view of this improved safe; Fig. 2 is a cross sectional view taken in line *a-a* Fig. 1; Fig. 3 is a perspective view of one of the ring sections or segments hereinafter described; and Fig. 4 is an illustrative view showing the manner in which it is apprehended a ring section would be distorted under an explosive charge so as to lock the door to the safe body.

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

The safe body 2 in the present embodiment may be made up of any desired shape or size, and is provided with a relatively long jamb 3, usually of tapered circular formation, this jamb being formed partly by an inwardly or rearwardly extending flange 4 having a recess 5 between it and the adjacent side walls of the body, whereby the uniformity of the metal, when the body is made of unmachineable metal and heat treated, is maintained. This flange is provided with a series of door locking lugs or locking surfaces 6, shown in the present embodiment at the inner end of the flange. Between these lugs or locking surfaces and the outer terminus of the jamb a chamber 7, shown as of annular formation, is located, this chamber opening into the jamb. This chamber may conform at its inner portion to the shape of the side walls. The adjacent boundary walls of this chamber may be connected to each other and to the body proper by a series of ribs 8, if preferred.

The door, 20, which is shown as a rotary one, comprises a front 21 and a rear section 22 rigidly, as for instance integrally, united

so as to form a chamber 23, between such sections opening at the edge of the door and in juxtaposition to the chamber in the jamb. In practice these door sections may be connected by a plurality of partitions which in the present instance are illustrated in the form of ribs 10 dividing the chamber into several compartments or spaces 24 which may communicate one with another by openings in the partitions, if preferred. These ribs preferably terminate short of the edge of the door for the purpose hereinafter specified. The rear section of the door, which is shown somewhat thicker than the front section, is chambered as at 13 to form a rearwardly extending flange 14 having lugs 15 adapted to cooperate with the locking lugs of the body when the door is rotated into position.

Any suitable hinge may be used for supporting the door on the body, and any suitable locking means may be used for preventing rotary movement of the door. As these features, however, do not constitute a part of my present invention they have not been shown in the drawings.

For closing the chamber between the door sections at the edge of the door suitable means is provided in the form of a relatively heavy metal member, which is not only of such size, but is so rigidly secured in position that it is not ordinarily destructible. In fact, in the present embodiment it is shown so supported by the ribs between the front and rear door sections that it could not readily be destroyed even by an explosive charge of nitro-glycerin, it being so formed as to enable it to be distorted but not destroyed, since its destruction would interfere with the locking efficiency herein pointed out. In the present embodiment it is shown as a ring 25 made in a plurality of sections 26, herein illustrated as four in number, the ends 27 of which are preferably located in juxtaposition to the ends of the partitions or ribs, these ring sections being located in such position that they are adjacent to the annular chamber formed in the jamb of the body.

In practice the adjacent chamber walls in proximity to the edge of the door are provided with raised surfaces 18 for positioning and holding the chamber closing means, which, as hereinbefore stated, consists of a series of sections each of which is

of substantial size so that they can be forced into position and retained therein against separation from the door in any ordinary manner. The outer edges 28 of these sections constitute a part of the door edge and are shaped to conform thereto.

As burglarious attacks on safes made of unmachineable metal, especially when made of an integral body and an integral door, are usually attempted at the door joint, it will be observed that should a burglar be successful in getting liquid nitro-glycerin into the joint of the door it would tend to run down and be trapped in the chamber of the jamb, and if he should be successful notwithstanding this in exploding it the result would be that the explosive force exerted would naturally take the path of least resistance, and consequently would so act upon the ring sections as to distort them at one or more points in some such manner as is shown in Fig. 4, and this would cause parts of the ring sections while yielding inwardly at some points to bulge outwardly at other points and cause them to enter the chamber in the jamb and thus form an effective auxiliary locking means for holding the door in the jamb, thus materially interfering with the separation of the door from the jamb. Thus a considerable portion of the time which a burglar would have at his disposal would be used up without any appreciable result. Should, however, a further and larger charge of nitro-glycerin be inserted into the door joint and exploded within the chamber of the door the only result would be to separate the outer section, which is shown as somewhat thinner than the main section of the door, from such main section, the latter being still locked and securely held in the body by its locking lugs. Should a burglar be successful in accomplishing this he would still find it necessary to remove the ring sections which were projected into the receiving chamber of the jamb in order to remove this door locking medium, and this would probably require some time, since they were forced into the chamber of the jamb by the explosive force of nitro-glycerin, and thus further time would be taken up before the burglar would be able to attack the main part of the door itself.

It will be observed that the ribs located in the chamber of the jamb not only act to secure the adjacent walls rigidly together, but are so positioned that the entrance of the ring sections wholly within the jamb chamber is prevented, so that a part of such ring sections would project both into the chamber of the door at the edge thereof and into the chamber of the jamb.

By forming the door chamber closure wall of some substantial body and rigidly securing it in position between the front

and rear sections of the door, and also by supporting it on the ends of the ribs connecting the front and rear sections of the door, it will be readily perceived that the first effect of nitro-glycerin would be to distort the ring sections in the manner described and thus force a part thereof into the chamber of the jamb, which latter acts to a certain extent as an expansion chamber to take up the force of the explosive charge. It will also be observed that the jamb chamber not only constitutes a receiving means for the ring sections, but also constitutes an efficient means of insuring uniformity in the metal of the body around the doorway, so that should it be desired to form the body casting of unmachineable or manganese steel, which, as is well understood, it is desirable to heat treat in order to toughen it, this can be more effectively done without the setting up of internal strains in the metal at the jamb portion, thus enabling a much larger mass of metal to be located at the jamb if for any reason this is desirable.

From the foregoing it will be observed that a very efficient auxiliary locking means is obtained which is effective only when a burglarious attempt is made to open the safe.

It will, of course, be obvious that this same construction may be used in connection with a vault, and when large vaults are constructed the jamb portion of the body may have the construction set forth herein, although it may be made of a casting adapted for attachment to other castings to form the body.

The various details may be more or less modified without departing from the spirit and scope of this invention.

I claim as my invention:

1. In a safe, a body and a door, one of such parts having means effective under an explosive charge to be itself forced by such charge and without the coaction therewith of any moving part or mechanical element into position to engage a part of the other thereby to lock or secure the door to the body.

2. In a safe, a body and a door, the door carrying means effective under an explosive charge to be itself forced by such charge and without the coaction therewith of any moving part or mechanical element into position to engage a part of the body thereby to lock or secure the door to the body.

3. In a safe, a body and a door, having chambers in juxtaposition and one of said parts carrying within its chamber means adapted to be forced under an explosive charge into the chamber of the other part thereby to lock or secure the door to the body.

4. In a safe, a body and a door, having chambers in juxtaposition and said door

carrying means within its chamber and adapted to be forced under an explosive charge into the chamber of the body thereby to lock or secure the door to the body.

5 5. In a safe, a body and a door, said body having a jamb provided with a chamber communicating therewith, and the door fitting said jamb and having means adapted to be forced, under an explosive charge, into the chamber of the jamb thereby to secure the door to the body.

15 6. In a safe, a body and a door, the body having a jamb provided with an annular chamber communicating with such jamb and the door comprising a pair of rigidly connected sections having a chamber therebetween, and means carried within such chamber and adapted, under an explosive charge, to be forced into the chamber of the body thereby to secure the door to the body.

20 7. In a safe, a body and a door, each of an integral construction and made of un-machineable metal, the body having a jamb provided with an annular chamber and the door comprising a pair of sections integrally connected with a chamber between such sections, and means carried within the chamber and adapted, under an explosive charge, to be forced into the chamber of the body thereby to secure the body and door together.

30 8. In a safe, a body and a door, each of an integral construction and made of un-machineable metal, the body having a jamb provided with an annular chamber and the door comprising a pair of sections integrally connected with a chamber between such sections, and a plurality of ring sections carried within the chamber and adapted, under an explosive charge, to be forced one or more into the chamber of the body thereby to secure the body and the door together.

45 9. In a safe, a body and a door, the body having an integral jamb portion provided with a chamber communicating with the jamb and the door comprising a pair of rigidly connected sections having a chamber therebetween, and means rigidly secured within said chamber and adapted, under an explosive charge, to be forced into the chamber of the body thereby to secure or lock the door to the body.

55 10. In a safe, a body and a door, the body having an integral jamb portion provided with a chamber communicating with the jamb and the door comprising a pair of rigidly connected sections having a chamber therebetween, and means rigidly secured within said chamber and adapted, under an explosive charge, to be forced into the chamber of the body thereby to secure or lock the door to the body, the jamb chamber having means therein for limiting the movement of such door locking means.

65 11. In a safe, a body and a door, the body

having an integral jamb portion provided with a chamber communicating with the jamb and the door comprising a pair of rigidly connected sections having a chamber therebetween, and means rigidly secured within said chamber and adapted, under an explosive charge, to be forced into the chamber of the body thereby to secure or lock the door to the body, the jamb chamber having ribs therein for limiting the movement of such door locking means.

12. In a safe, a body and a door, the body having a jamb provided with an annular chamber therein and the door comprising a pair of sections rigidly connected by one or more partitions forming a chamber or chambers between such sections, and means located within such chamber or chambers and at the outer ends of the partition or partitions and adapted to be forced, under an explosive charge, into the chamber of the body thereby to lock or secure the door to the body.

13. In a safe, a body and a door, the body having a jamb provided with a chamber and the door comprising a pair of sections rigidly connected and having therebetween a chamber, and means located within the chamber of the door for closing it at the edge of the door.

14. In a safe, a body and a door, the body having a jamb provided with a chamber and the door comprising a pair of sections rigidly connected and having therebetween a chamber, and means located within the chamber of the door for closing it at the edge of the door, said means being rigidly secured in position throughout its length.

15. In a safe, a body and a door, the body having a jamb provided with a chamber and the door comprising a pair of sections rigidly connected and having therebetween a chamber, and means located within the chamber of the door for closing it at the edge of the door, said means comprising a plurality of ring sections.

16. In a safe or vault, a body and a door, the body having a jamb provided with a chamber and the door comprising a pair of sections rigidly connected and having therebetween a chamber, means located within the chamber of the door for closing it at the edge of the door, said means comprising a plurality of ring sections, and one or more ribs connecting the sections of the door and dividing the chamber into a plurality of compartments.

17. In a safe or vault, a body and a door, the body having a jamb provided with a chamber and the door comprising a pair of sections rigidly connected and having therebetween a chamber, means located within the chamber of the door for closing it at the edge of the door, said means comprising a plurality of ring sections, and one or more

- ribs connecting the sections of the door and dividing the chamber into a plurality of compartments and having the end or ends thereof in position to support the ring sections.
18. An integral unmachineable metal safe body having an inwardly or rearwardly extending flange forming a relatively long jamb surface and having in front of such flange an annular chamber for the reception of an explosively operated locking member.
19. An integral unmachineable metal safe body having an inwardly or rearwardly extending flange forming a relatively long jamb surface and having in front of such flange an annular chamber, and a rib or ribs connecting the adjacent walls of such chamber.
20. A safe body having an inwardly or rearwardly extending flange thereby forming a relatively long jamb, locking lugs carried by the jamb, and a chamber located within the jamb in front of such lugs.
21. A safe body having an inwardly or rearwardly extending flange thereby forming a relatively long jamb, locking lugs carried by the jamb, a chamber located within the jamb in front of such lugs, and a rib or ribs located within said chamber and connecting the adjacent walls of the chamber.
22. A safe body having an inwardly or rearwardly extending flange thereby forming a relatively long jamb, locking lugs carried by the jamb, a chamber located within the jamb in front of such lugs, and a rib or ribs located within said chamber and connecting the adjacent walls of the chamber with the body.
23. A safe body having an inwardly or rearwardly extending flange thereby forming a relatively long jamb, locking lugs carried by the jamb, a chamber located within the jamb in front of such lugs, and a rib or ribs located within said chamber and connecting the adjacent walls of the chamber with each other and with the body.
24. A safe body having an interiorly located recess forming a flange constituting a part of the jamb and in front of said recess an annular chamber opening into the jamb for the reception of an explosively operated locking member.
25. A safe body having an interiorly located recess forming a flange constituting a part of the jamb and in front of said recess an annular chamber opening into the jamb, and one or more ribs located in said annular chamber.
26. A safe door formed of rigidly connected front and rear sections and having a chamber between such sections, said chamber extending outwardly toward the edge of the door, and a non-readily destructible wall closing the chamber at the edge of the door.
27. A safe door formed of rigidly connected front and rear sections and having a chamber between such sections, said chamber extending outwardly toward the edge of the door, and a plurality of ring sections closing the chamber at the edge of the door.
28. A safe door formed of rigidly connected front and rear sections and having a chamber between such sections, said chamber extending outwardly toward the edge of the door, the adjacent walls of said chamber having raised surfaces, and means rigidly secured in position between said raised surfaces for closing the chamber at the edge of the door.
29. A safe door formed of rigidly connected front and rear sections and having chambers between such sections formed by a plurality of ribs forming partitions, and means located between said sections and in engagement with said partitions for closing the chambers at the edge of the door.
30. An integral unmachineable metal safe door comprising a front and a rear section connected by a radial rib or ribs forming a chamber or chambers therebetween, and a plurality of non-readily ruptured ring sections closing the chamber or chambers at the edge of the door.
31. An integral unmachineable metal safe or vault door comprising a front and a rear section connected by a radial rib or ribs forming a chamber or chambers therebetween, and a plurality of ring sections closing the chamber or chambers at the edge of the door, said ring sections being in engagement with the outer ends of the rib or ribs.
32. An integral unmachineable metal safe door comprising a front and a rear section connected by a radial rib or ribs forming a chamber or chambers therebetween, and a plurality of ring sections closing the chamber or chambers at the edge of the door, said ring sections having their ends terminating in juxtaposition to the outer ends of the rib or ribs.
33. A circular safe door formed of integrally connected front and rear sections having a chamber between said sections extending outwardly to the edge of the door, and non-readily destructible means rigidly secured in the chamber adjacent to the edge of the door for closing the chamber at the door edge and effective under certain conditions to secure the door to a body.
34. In a safe, an integrally formed body having a jamb, said jamb having a chamber formed of front and rear sections connected by one or more ribs forming a chamber or chambers between such sections, and means located between such sections at the edge of the door for closing such chamber or chambers.

35. In a safe, an integrally formed body having a recess forming a rearwardly extending flange forming part of the jamb of the body, said jamb having a chamber around the same, an integral door formed of front and rear sections connected by one or more ribs forming a chamber or chambers between such sections, and means located between such sections at the edge of the door for closing such chamber or chambers.

36. In a safe, an integrally formed body having a jamb, said jamb having a chamber around the same, an integral door formed of front and rear sections connected by one or more ribs forming a chamber or chambers between such sections, means located between such sections at the edge of the door for closing such chamber or chambers, and ribs located within the chamber of the jamb.

37. In a safe, an integrally formed body having a recess forming a rearwardly extending flange forming part of the jamb of the body, said jamb having a chamber around the same, an integral door formed of front and rear sections connected by one or more ribs forming a chamber or chambers between such sections, means located between such sections at the edge of the door for closing such chamber or chambers, and ribs located within the chamber of the jamb.

38. In a safe, an integral body and an integral rotary door, the body having a circular jamb provided with a chamber around the same and opening at the jamb, the door formed of a front and a rear section connected by one or more ribs forming a chamber or chambers between such sections, means located within such chamber or chambers for closing the same at the edge of the door, said means being located adjacent to the chamber of the jamb, and cooperating locking means carried by the door and jamb.

39. In a safe, an integral body and an integral rotary door, the body having a circular jamb provided with a chamber around the same and opening at the jamb, the door formed of a front and a rear section connected by one or more ribs forming a chamber or chambers between such sections, means located within such chamber or chambers for closing the same at the edge of the door, said means being located adjacent to the chamber of the jamb, and cooperating locking lugs carried by the door and jamb.

40. In a safe, an integral body and an integral rotary door, the body having a circular jamb provided with a chamber around the same and opening at the jamb, the door formed of a front and a rear section connected by one or more ribs forming a chamber or chambers between such sections, means located within such chamber or chambers for closing the same at the edge of the door, said means being located adjacent to the

chamber of the jamb, and cooperating locking means carried by the door and jamb in the rear of the door chamber or chambers.

41. In a safe, an integral body and an integral rotary door, the body having a circular jamb provided with a chamber around the same and opening at the jamb, the door formed of a front and a rear section connected by one or more ribs forming a chamber or chambers between such sections, means located within such chamber or chambers for closing the same at the edge of the door, said means being located adjacent to the chamber of the jamb, and cooperating locking lugs carried by the door and jamb in the rear of the door chamber or chambers.

42. In a safe, an integral body and an integral rotary door, the body having a circular jamb provided with a chamber around the same and opening at the jamb, the door formed of a front and a rear section connected by one or more ribs forming a chamber or chambers between such sections, means located within such chamber or chambers for closing the same at the edge of the door, said means being located adjacent to the chamber of the jamb, and cooperating locking lugs carried by the door and jamb at the inner terminus of the door joint.

43. In a safe, a body and a compound door comprising a pair of sections rigidly connected one to the other and having means located at its edge and adapted to be projected, under an explosive charge, into position to engage a part of the body and more securely lock the door in position.

44. In a safe, a body and a door, the door having located within its edge a sectional ring adapted to be forced, under an explosive charge, into position to engage a part of the body thereby to more securely lock the door in position.

45. In a safe an integral body having a jamb, said jamb having a chamber therein, and a door formed of front and rear sections connected together and having a chamber between such sections, said chamber opening toward the edge of the door and in juxtaposition to the chamber in the jamb when the door is seated in the jamb said chambers being co-extensive.

46. In a safe, an integral body having a jamb, said jamb having a chamber around the same, and a door formed of front and rear sections connected together and having a chamber between such sections, said chamber opening toward the edge of the door and in juxtaposition to the chamber in the jamb when the door is seated in the jamb.

47. In a safe, an integral body and an integral rotary door, the body having a circular jamb provided with a chamber around the same and opening at the jamb and the door formed of a front and a rear section connected by one or more ribs forming a

chamber or chambers between such sections and opening toward the edge of the door and in juxtaposition to the chamber of the body.

48. In a safe, an integral unmachineable metal body and an integral unmachineable metal rotary door, the body having a circular jamb and provided with an annular chamber opening at the jamb and the door formed of a front and a rear section connected by one or more ribs forming a chamber or chambers between such sections and opening toward the edge of the door and in juxtaposition to the chamber of the jamb.

49. An unmachineable metal safe door comprising a front and a rear section connected by a partition or partitions forming radially arranged chambers therebetween, and a plurality of ring sections closing the chambers at the edge of the door.

50. A safe door formed of rigidly connected front and rear sections and having chambers between such sections formed by a plurality of partitions, and a plurality of ring sections located between said front and rear sections and in engagement with such partitions for closing the chambers at the edge of the door.

51. A safe door formed of rigidly connected front and rear sections and having chambers between such sections formed by a plurality of partitions, and a plurality of ring sections located between said front and rear sections and supported by the outer ends of said partitions for closing the chambers at the edge of the door.

52. In a safe, a body and a rotary door, the body having a circular jamb provided with a chamber around the same and opening at the jamb, the door formed of a front and rear section connected by one or more partitions forming a chamber or chambers between such sections, means located within such chamber or chambers for closing the same at the edge of the door, said means being located adjacent to the chamber of the jamb, and cooperating locking means carried by the door and jamb.

53. In a safe, a body and a rotary door, the body having a circular jamb provided with a chamber around the same and opening at the jamb, the door formed of a front and a rear section connected by one or more partitions forming a chamber or chambers between such sections, means located within such chamber or chambers for closing the same at the edge of the door, said means being located adjacent to the chamber of the jamb, and cooperating locking lugs carried by the door and jamb.

54. In a safe, a body and a rotary door, the body having a circular jamb provided with a chamber around the same and opening at the jamb, the door formed of a front and a rear section connected by one or more

partitions forming a chamber or chambers between such sections, means located within such chamber or chambers for closing the same at the edge of the door, said means being located adjacent to the chamber of the jamb, and cooperating locking means carried by the door and jamb in the rear of the door chamber or chambers.

55. In a safe, a body and a rotary door, the body having a circular jamb provided with a chamber around the same and opening at the jamb, the door formed of a front and a rear section connected by one or more partitions forming a chamber or chambers between such sections, means located within such chamber or chambers for closing the same at the edge of the door, said means being located adjacent to the chamber of the jamb, and cooperating locking lugs carried by the door and jamb in the rear of the door chamber or chambers.

56. In a safe, a body and a rotary door, the body having a circular jamb provided with a chamber around the same and opening at the jamb, the door formed of a front and rear section connected by one or more partitions forming a chamber or chambers between such sections, means located within such chamber or chambers for closing the same at the edge of the door, said means being located adjacent to the chamber of the jamb, and cooperating locking lugs carried by the door and jamb at the inner terminus of the door joint.

57. In a safe, a body and a rotary door, the body having a circular jamb provided with a chamber around the same and opening at the jamb and the door formed of a front and a rear section connected by one or more partitions forming a chamber or chambers between such sections and opening toward the edge of the door and in juxtaposition to the chamber of the body.

58. In a safe, an unmachineable metal body and an unmachineable metal rotary door, the body having a circular jamb and provided with an annular chamber opening at the jamb and the door formed of a front and a rear section connected by one or more partitions forming a chamber or chambers between such sections and opening toward the edge of the door and in juxtaposition to the chamber of the jamb.

59. A safe or vault door formed of rigidly connected front and rear sections and having a chamber between such sections a plurality of ribs therein forming spaces therebetween, and a plurality of ring sections located between said front and rear door sections and in engagement with such ribs for closing the chamber at the edge of the door.

60. In a safe or vault, a body and a door, the body having a jamb provided with a chamber and the door comprising a pair of sections rigidly connected and having there-

between a chamber, ribs connecting the sections of the door and forming spaces therebetween, and means located within the chamber of the door for closing it at the edge of the door and received across said spaces.

61. In a safe or vault, a body and a door, the body having a jamb provided with a chamber and the door comprising a pair of sections rigidly connected and having therebetween a chamber, ribs connecting the sections of the door and dividing the chamber into a plurality of peripheral or edge spaces, and means located within the chamber of the door for closing it at the edge of the door and received about said spaces, the said means having support upon the outer ends of said ribs.

62. In combination, a safe body having a jamb and provided with an inwardly and rearwardly extending flange carrying holding or locking lugs and a chamber in the jamb in front of such lugs, a door comprising a front and a rear section connected by ribs forming chambers therebetween, and a closure member or members between such sections closing said chambers at the edge of the door and in juxtaposition to the

chamber in the jamb when the door is seated in the jamb.

63. In combination, an integral safe body having a jamb and provided with an inwardly and rearwardly extending flange carrying holding or locking lugs and a chamber in the jamb in front of such lugs, an integral door comprising a front and a rear section connected by ribs forming chambers therebetween, and a closure member or members between such sections closing said chambers at the edge of the door and in juxtaposition to the chamber in the jamb when the door is seated in the jamb.

64. A safe or vault door formed of rigidly connected front and rear sections and having chambers between such sections formed by a plurality of ribs, and a plurality of ring sections located between said front and rear sections and supported by the outer ends of the ribs for closing the chambers at the edge of the door.

SAMUEL W. FISH.

Witnesses:

E. F. CONNOLLY,  
A. F. TRIMMER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."