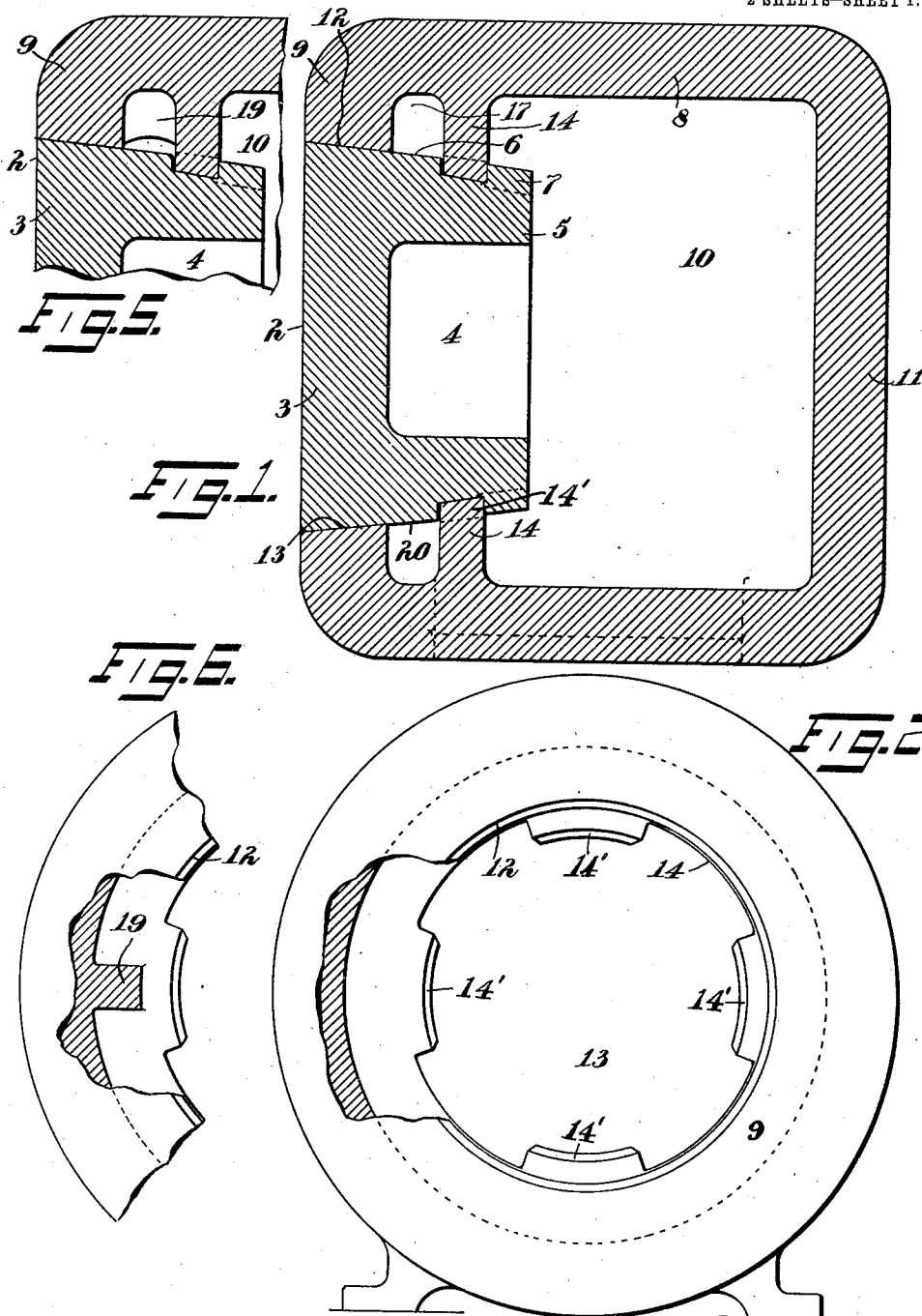


1,056,015.

S. W. FISH.
SAFE OR VAULT.
APPLICATION FILED APR. 24, 1909.

Patented Mar. 18, 1913.

2 SHEETS-SHEET 1.



Witnesses:

G. C. Fuss,
H. J. Penney

Inventor:

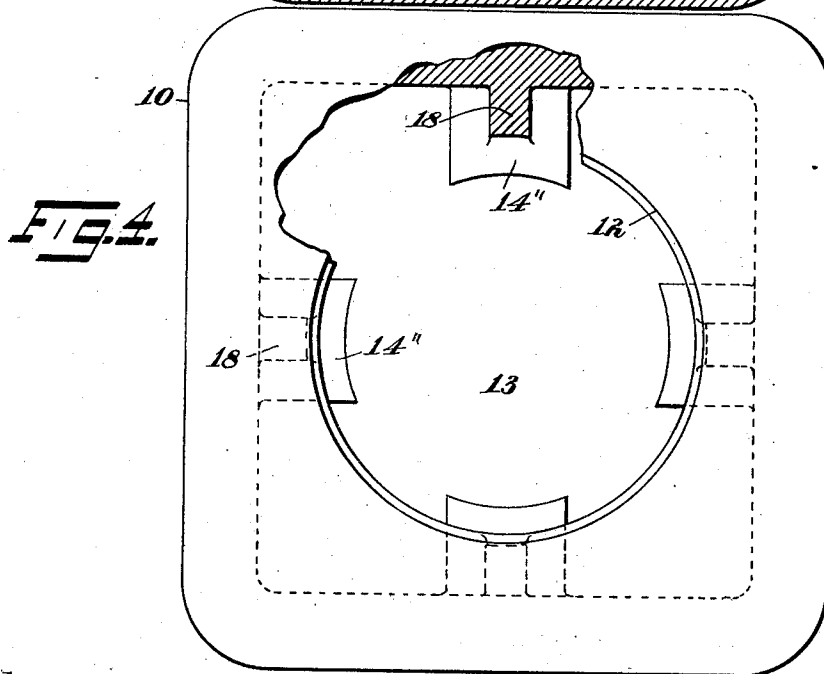
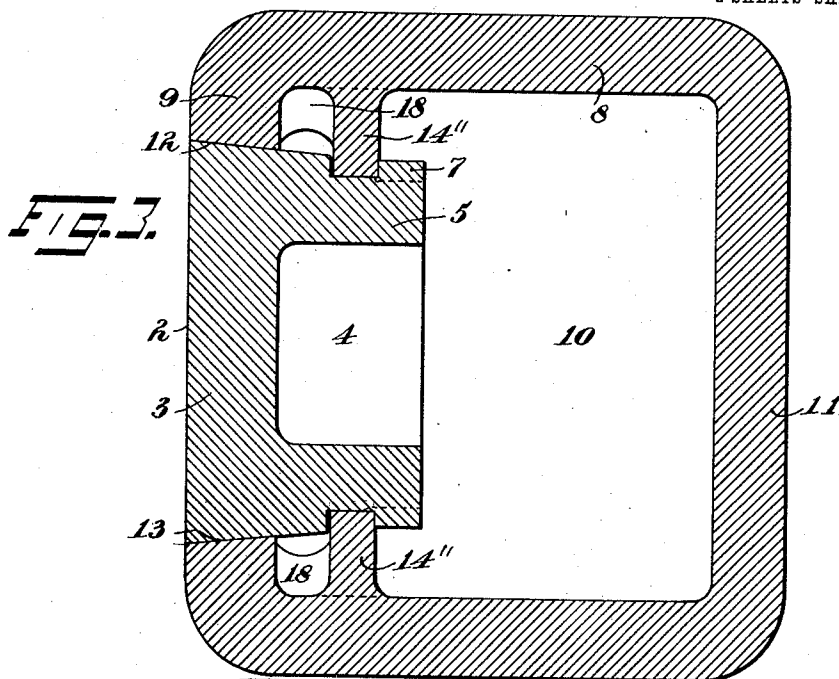
Samuel W. Fish,
By his Attorney, F. A. Richard.

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2 SHEETS—SHEET 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

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SAFE OR VAULT.

1,056,015.

Specification of Letters Patent.

Patented Mar. 18, 1913.

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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 or Vaults, of which the following is a specification.

The present improvement relates to safes or vaults, the object of the invention being to provide an improved safe or vault having a chambered joint so formed that a door having relatively great depth at its joint surface may be used without the necessity of forming a flanged and recessed jamb as heretofore.

A further object of the invention is the provision of an improved safe body and rotary door each, when in the form of a safe, of an integral structure, having coöperating holding lugs or locking surfaces, those carried by the body being located in the rear of and spaced from the jamb, whereby the necessity of forming a long jamb surface is avoided. In the manufacture of safes and vaults, especially when the safe is made as an integral structure, it is now the practice to make these castings of an unmachineable metal, such for instance as manganese steel. To do this it is necessary to heat treat the casting in order to toughen it, and to permit this it is necessary that the walls of the safe or casting shall be substantially uniform, since otherwise if the casting is too thick at any point the heat treatment is not so effective. It has also been necessary in practice to provide a relatively long jamb surface in order that the jamb could carry locking surfaces or lugs to coöperate with those carried by the door and have them relatively remote from the outer terminus of the joint. But to provide this long jamb surface and at the same time maintain the walls of the casting adjacent thereto substantially uniform has been found practically impossible except by providing a recessed jamb, that is, a jamb formed by an interiorly or rearwardly extending flange having a recess between it and the adjacent side walls of the body.

The object, therefore, of the present improvement is to do away with the necessity of providing the safe body with a long flanged jamb surface for the purpose of car-

rying the lugs without, however, interfering with the location of such lugs at a relatively remote distance from the outer terminus of the joint, and to also so locate the lugs that they will be free entirely from the jamb without interfering with the provision of a relatively great depth of door, whereby the door may have a jamb engaging surface and a lug engaging surface without the necessity of such door having a metal to metal fit with the jamb surface throughout its entire depth, and whereby the wall forming the jamb may not only be made in substantial uniformity with the side and rear walls of the casting, but a much simpler form of casting be provided, which is helpful in the manufacture of the safe body. To accomplish this one set of the locking surfaces or lugs, which in the embodiment shown are integral with the safe body, is spaced rearwardly from the jamb by the provision of an intermediate chamber, of a formation corresponding as a rule with the interior form of the body, but in some forms of annular formation and extending around the door, and between these locking surfaces and the jamb, whereby a comparatively short jamb may be provided without interfering with the efficiency of the means which may be used for holding the door into the body and without the necessity of doing away with a long door joint surface for distributing the shocks of an explosion over a comparatively large area. In fact, by forming the structure in the manner herein shown and described, the shocks of an explosion are, it is believed, more effectively distributed and the explosive force nullified, owing to the provision of an explosion chamber for the gases between the holding lugs or surfaces of the door and body and the jamb itself, since should a burglar be successful in getting nitrogen into the joint surface at the door it would run into the chamber, where it would not only be difficult to explode it, but should it be exploded such explosion would occur in front of the locking lugs instead of in the rear thereof, so that it would have no material effect upon the locking surfaces except to more thoroughly wedge the door into its seat.

In the drawings accompanying and forming part of this specification, Figure 1 is a

vertical sectional view of this improvement as applied to a safe; Fig. 2 is a front view of the safe body with the door removed, a part thereof being shown in section; Fig. 3 is a sectional view of a part of the door and body illustrating a modified construction from that shown in Figs. 1 and 2; Fig. 4 is a front view, partly in section, of the structure shown in Fig. 3; Fig. 5 is a detail sectional view of Fig. 1, but showing a holding or locking lug connected by a rib with the jamb; and Fig. 6 is a front view thereof partly broken away and in section.

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

It will be understood, of course, that any suitable form of door supporting means such as usually provided may be used for carrying the door for rotary movement on the body, and such means is not herein shown since it forms no part of the present invention.

The rotary door 2, shown in the present embodiment, although in some forms of the improvement the door might be simply a swinging door, comprises a body portion 3 having an interiorly located chamber 4 forming a rearwardly extending flange 5 integral with the body of the door, thereby providing a long door joint surface 6 carrying holding or locking surfaces or lugs 7 shown as integral with the door and preferably located adjacent to the rear of the flange, these lugs being located in the embodiment shown,—although various forms of holding or locking surfaces or lugs might be used,—in circular alinement one with another around the door flange and spaced a sufficient distance apart to permit the entrance of the door lugs past the locking surfaces or lugs of the body, whereby, on the rotation of the door by the usual means provided for this purpose, these door lugs will coöperate with the lugs on the body to hold the door in the body. Of course, some suitable means will be provided for preventing the rotation of the door except in the proper manner and at the proper time, this means usually consisting of an automatic and time lock controlling one or more bolts projected from the door into the jamb, but as this means does not constitute a part of the present improvement it is not herein shown. In practice, however, this automatic and time lock would be carried in the chamber of the door and supported in some suitable manner, while the bolts would project through the flange of the door and into position to engage either the rear faces of the body lugs or into the chamber between the lugs and the jamb, as may be found most desirable in practice.

The safe body 8, which may be of any suitable or desired form, is shown as an integral structure, although this same improvement could be used for vault purposes without the necessity of making the entire body integral, since the jamb and the locking lugs could be carried by an integral casting secured to other plates or castings forming the remaining portion of the body, having its front wall in the present embodiment inturned, as at 9, and substantially uniform with the side and rear walls 10 and 11 of the body to form the jamb 12 of the door opening or doorway 13. Located in the rear of this jamb and spaced therefrom are the holding or locking lugs or surfaces 14', shown as integral with the body. These lugs or surfaces, corresponding in number with those carried by the door, in one form of the improvement, are carried by a flange 14 projecting from and corresponding to the interior shape of the body walls, but terminating in a surface conforming to the shape of the jamb or door, and therefore described here as annular or ring shaped. In another form of the improvement, Figs. 3 and 4, these holding or locking lugs 14'' are carried by the body, but separate one from another without the provision of a flange or ring for supporting them. Between the lugs, or the flange carrying the same, and the inner surface of the front wall forming the jamb an expansion chamber 17 is located.

In some forms of the improvement, as shown for instance in Figs. 5 and 6, the flange may be braced or connected to the body or to the front wall of the body by means of ribs or braces 19 located preferably one adjacent to each of the locking lugs, or, in the form of the improvement shown in Figs. 3 and 4, the independent lugs or locking surfaces of the body may be connected to the body or to the front wall of the body by ribs 18, or, if preferred, these ribs could be located in the rear of the lug flange or lugs. This expansion chamber 17 thus separates the body lugs or the flange and lugs carried thereby from the front wall of the body, and therefore from the door jamb, and as it terminates at the joint of the door, it is closed, when the door is in position, by the door, and in the present embodiment, in the form of door shown, by the outer surface of the door flange, as 20.

In the form shown the door is of circular formation and tapered or coned in the usual manner, the jamb surface being formed likewise. The opposing faces of the ring or flange intermediate the lugs, as well as the opposing faces of the body lugs themselves, are also preferably tapered or coned to have substantially the same taper as that of the jamb and door, although this is not

essential. The cooperating locking surfaces of the door and body lugs may be formed in any desired manner, as straight or tapered, as found most desirable in practice.

5 From the foregoing it will be seen that by means of the present improvement the locking lugs on the body are carried in the rear of and spaced relatively remote from the jamb of the body, so that it would be
10 extremely difficult, if not entirely impossible, to convey an explosive fluid into position to materially affect these lugs, for if it were possible to explode nitro-glycerin within the chamber between the lugs and jamb,
15 this would simply act to push the lugs rearwardly and so force the door more firmly into its seat rather than to throw the door outward.

By forming the chamber between the
20 jamb and the locking lugs of the body substantial uniformity of the metal is obtained in a manner which will be readily apparent, since the jamb need only be of a depth corresponding to the thickness of the safe walls,
25 so that when the safe is made of that character of metal which requires heat treatment this can readily be done.

I claim as my invention:

30 1. A safe or vault comprising a body and a door, said body having an expansion chamber closed by the door and in front thereof a jamb surface, said structure having in the rear of such chamber holding or locking means for the door.

35 2. A safe or vault comprising a body and a door, said body having an expansion chamber around the doorway and in front thereof a jamb surface, and the structure having in the rear of such chamber cooperating means for holding the door in the
40 body.

3. A safe or vault comprising a body and a door, said body having an expansion chamber opening into the doorway and in
45 front of such chamber a jamb surface and in the rear thereof holding surfaces, and said door having relatively great depth, one part thereof to engage the jamb surface, another part to extend across the expansion
50 chamber, and another part carrying holding surfaces cooperating with the holding surfaces of the body.

4. A safe or vault comprising a body and a door, the latter of integral formation and
55 having relatively great depth and the former having an expansion chamber around the doorway.

5. A safe or vault comprising a body and a door, the latter of integral formation and
60 having relatively great depth and the former having an expansion chamber around the doorway and in front thereof a jamb surface, and the structure having in the rear of such jamb surface holding or

locking means carried by the door and body 65 for holding the door into the body.

6. A safe or vault body having an expansion chamber adjacent to the doorway and in front thereof a jamb surface and in the rear thereof door holding lugs. 70

7. A safe or vault body having an expansion chamber adjacent to the doorway and in front thereof a jamb surface and in the rear thereof a plurality of integral holding or locking lugs located in circular 75 alinement.

8. A safe or vault body having an expansion chamber adjacent to the doorway and in front thereof a jamb surface, and in the rear thereof a flange carrying locking 80 lugs.

9. A safe or vault body having an expansion chamber adjacent to the doorway and in front thereof a jamb surface, and in the rear thereof an annular flange carrying 85 a plurality of circularly arranged alined holding lugs.

10. A safe or vault body having an expansion chamber adjacent to the doorway and in front thereof a jamb surface and in 90 the rear thereof door holding lugs, and ribs connecting said lugs with the body of the safe.

11. A safe or vault body having an expansion chamber adjacent to the doorway 95 and in front thereof a jamb surface and in the rear thereof a plurality of integral holding lugs, and ribs connecting said lugs at the forward sides thereof with the body of the safe. 100

12. A safe or vault body having an expansion chamber adjacent to the doorway and in front thereof a jamb surface and in the rear thereof a flange carrying locking 105 lugs, and ribs connecting said flange with the body of the safe.

13. A safe or vault body having an expansion chamber adjacent to the doorway and in front thereof a jamb surface and in the rear thereof an annular flange carrying 110 a plurality of circularly arranged alined locking lugs, and ribs connecting said flange with the body of the safe.

14. A safe or vault body having an expansion chamber adjacent to the doorway 115 and in front thereof a jamb surface and in the rear thereof door locking lugs, and ribs connecting said lugs with the body of the safe and located in the expansion chamber. 120

15. A safe or vault body having an expansion chamber adjacent to the doorway and in front thereof a jamb surface and in the rear thereof a flange carrying locking 125 lugs, and ribs connecting said flange with the body of the safe and located in the expansion chamber.

16. A safe or vault body having an ex-

pansion chamber adjacent to the doorway and in front thereof a jamb surface and in the rear thereof an integral annular flange carrying a plurality of circularly arranged integral locking lugs, and ribs connecting said flange with the body of the safe and located in the expansion chamber.

17. A safe comprising an integral body and an integral rotary door, said body having a circular doorway and provided with an expansion chamber around the doorway and in the rear thereof with a plurality of integral holding or locking lugs and in front thereof with a jamb surface, and said door having a plurality of integral holding or locking lugs cooperating with the body lugs.

18. A safe comprising an integral body and an integral rotary door, said body having a circular doorway and provided with an expansion chamber around the doorway and in the rear thereof with a flange carrying a plurality of integral locking lugs and in front thereof with a jamb surface, and said door having a plurality of locking lugs cooperating with the body lugs.

19. A safe comprising an integral body and an integral rotary door, said body having a circular doorway and provided with an expansion chamber around the doorway and in the rear thereof with an integral annular flange carrying a plurality of integral locking lugs and in front thereof with a jamb surface, and said door having a plurality of integral locking lugs cooperating with the body lugs.

20. A safe comprising an integral body and an integral rotary door, said body having a circular doorway and provided with an expansion chamber around the doorway and in the rear thereof with a plurality of integral locking lugs and in front thereof with a jamb surface and said door having a plurality of integral locking lugs cooperating with the body lugs, and a rib between each of said body lugs and the body.

21. A safe comprising an integral body and an integral rotary door, said body having a circular doorway and provided with an expansion chamber around the doorway and in the rear thereof with a plurality of integral locking lugs and in front thereof with a jamb surface and said door having a plurality of integral locking lugs cooperating with the body lugs, and a rib between each of said body lugs and the body and located in the expansion chamber.

22. A safe comprising an integral body and an integral rotary door, said body having a circular doorway and provided with an expansion chamber around the doorway and in the rear thereof with a flange carrying a plurality of integral locking lugs and in front thereof with a jamb surface, and

said door having a plurality of locking lugs cooperating with the body lugs, and a rib or ribs connecting the flange with the body.

23. A safe comprising an integral body and an integral rotary door, said body having a circular doorway and provided with an expansion chamber around the doorway and in the rear thereof with an annular flange carrying a plurality of integral locking lugs and in front thereof with a jamb surface and said door having a plurality of locking lugs cooperating with the body lugs, and a rib or ribs connecting the flange with the body and located in the expansion chamber.

24. A safe comprising an integral body and an integral rotary door, said body having a circular doorway and provided with an expansion chamber around the doorway and in the rear thereof with an annular integral flange having a plurality of integral locking lugs and in front thereof with a jamb surface, and integral ribs connecting said flange with the body, said door having a plurality of integral locking lugs cooperating with the lugs of the body and said door having a part thereof closing said expansion chamber and a part thereof in engagement with the jamb.

25. A safe comprising an integral body and integral rotary door, said body having a circular doorway and provided with an expansion chamber around the doorway and in the rear thereof with an annular integral flange having a plurality of integral locking lugs and in front thereof with a jamb surface, and integral ribs connecting said flange with the body and located in the expansion chamber, said door having a plurality of integral locking lugs cooperating with the lugs of the body and said door having a part thereof closing said expansion chamber and a part thereof in engagement with the jamb.

26. A safe or vault body having a jamb, and a plurality of holding or locking lugs carried by the body in the rear of and spaced from the jamb.

27. A safe or vault body having a jamb, a plurality of locking lugs or surfaces carried by the body in the rear of and spaced from the jamb, and ribs connecting said lugs with the body.

28. A safe or vault body having a jamb, and an integral flange located in the rear of and spaced from the jamb and carrying door holding or locking lugs.

29. A safe or vault body having a jamb, a plurality of holding or locking surfaces or lugs carried by the body in the rear of and spaced from the jamb, and an integral door having a part thereof adapted to engage the jamb and provided rearwardly thereof with holding or locking surfaces or lugs for engaging the holding or locking surfaces or lugs of the body.

30. A safe or vault body having a jamb, a plurality of holding or locking surfaces or lugs carried by the body in the rear of and spaced from the jamb, and an integral flanged door having a part thereof adapted to engage the jamb and having its flange provided with holding or locking surfaces or lugs for engaging the locking surfaces or lugs of the body.

31. A safe or vault body having a jamb, a plurality of holding or locking surfaces or lugs carried by the body in the rear of and spaced from the jamb, and an integral chambered door having a part in engagement with the jamb and provided rearwardly thereof with holding or locking surfaces or lugs for engagement with the holding or locking surfaces or lugs of the body.

32. A safe or vault body having a jamb, a plurality of locking surfaces or lugs carried by the body in the rear of and spaced from the jamb, an integral chambered door having a part in engagement with the jamb and provided rearwardly thereof with locking surfaces or lugs for engagement with the locking surfaces or lugs of the body, and ribs connecting the safe body and its lugs.

33. An integral safe or vault body having a jamb, a plurality of holding or locking surfaces or lugs integral with the body in the rear of and spaced from the jamb, and an integral rotary chambered door having a part in engagement with the jamb and provided rearwardly thereof with integral holding or locking surfaces or lugs for engaging the holding or locking surfaces or lugs of the body.

34. An integral safe or vault body having a jamb, a plurality of locking surfaces or lugs integral with the body in the rear of and spaced from the jamb, an integral rotary chambered door having a part in engagement with the jamb and provided rearwardly thereof with integral locking surfaces or lugs for engaging the locking surfaces or lugs of the body, and ribs connecting the body and its lugs.

35. A safe body, having a jamb, and spaced inwardly therefrom a plurality of holding or locking lugs.

36. An integral unmachineable metal safe body, substantially uniform throughout and having a jamb and spaced inwardly therefrom a plurality of holding or locking lugs, and an integral unmachineable metal rotary door having lugs cooperating with the lugs of the body.

37. An integral unmachineable metal safe body made substantially uniform throughout and having a jamb the depth of which corresponds substantially with the thickness of the safe wall, and having spaced inwardly therefrom a plurality of holding or locking lugs.

38. An integral unmachineable metal safe body made substantially uniform throughout and having a jamb the depth of which corresponds substantially with the thickness of the safe wall, and having spaced inwardly therefrom an annular flange having a plurality of holding or locking lugs.

39. An integral unmachineable metal safe body made substantially uniform throughout and having a jamb, and spaced inwardly therefrom an integral annular flange having integral locking lugs.

40. An integral unmachineable metal safe body made substantially uniform throughout and having a jamb, and spaced inwardly therefrom an integral flange projecting from the body walls and having its inner or free edge conforming to the shape of the door and having integral holding or locking lugs, and an integral unmachineable metal rotary door having integral holding or locking lugs cooperating with the lugs of the body.

41. An integral unmachineable metal safe body made substantially uniform throughout and having a jamb, and spaced rearwardly therefrom and projecting from the body walls a plurality of holding or locking lugs, and an integral unmachineable metal rotary chambered door having a plurality of integral lugs cooperating with the lugs of the body.

42. An integral unmachineable metal safe body having a jamb, and spaced rearwardly therefrom a plurality of locking or holding surfaces, and an integral unmachineable metal rotary door having a depth at least equal to the combined depth of the jamb, body lug and the space between the lug and the jamb.

43. A safe body having a jamb, and spaced and separated inwardly therefrom by a chamber, a plurality of holding or locking lugs or surfaces.

44. A safe body having a jamb, and spaced and separated inwardly therefrom by a chamber, a plurality of holding or locking lugs or surfaces, said chamber extending entirely around the doorway.

45. A safe body having a jamb, and spaced and separated rearwardly therefrom by a chamber a flange located around the doorway and carrying holding lugs or surfaces.

46. A safe or vault comprising a body and a door, the latter having a relatively great depth and the former having an expansion chamber around the doorway.

47. A safe or vault comprising a body and a door, the latter having relatively great depth and the former having an expansion chamber around the doorway and in front thereof a jamb surface, and the structure having in the rear of such jamb surface holding or locking means carried by the

door and body for holding the door in the body.

48. A safe comprising a body and a rotary door, said body having a circular doorway and provided with an expansion chamber around the doorway and in the rear thereof with a plurality of integral locking or holding lugs and in front thereof with

a jamb surface, and said door having a plurality of integral holding or locking lugs co- 10
operating with the body lugs.

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