No. 679,372. Patented July 30, 1901.

H. D. HIBBARD.

SAFE OR VAULT.

(Application filed Oct. 31, 1900.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

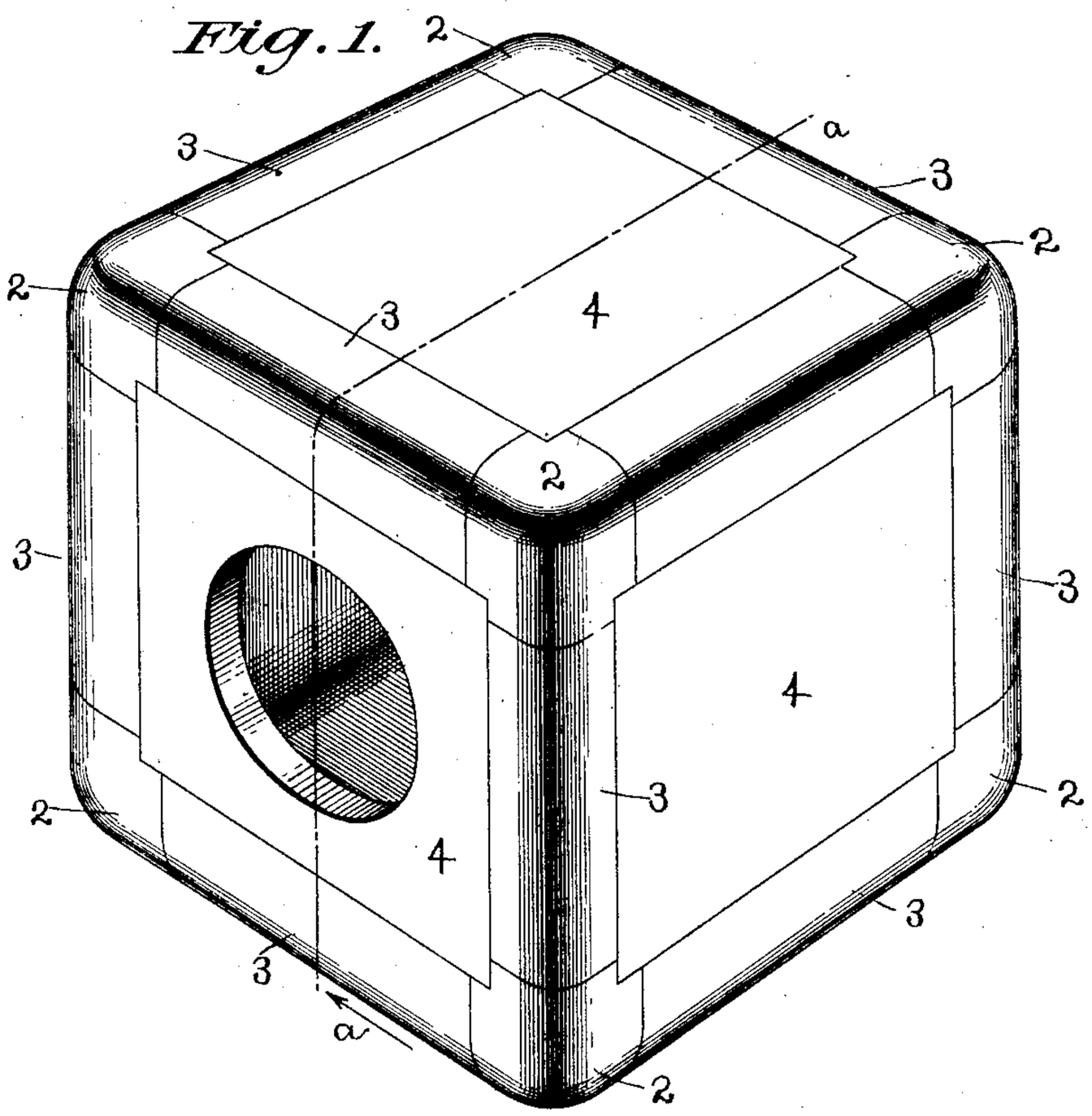
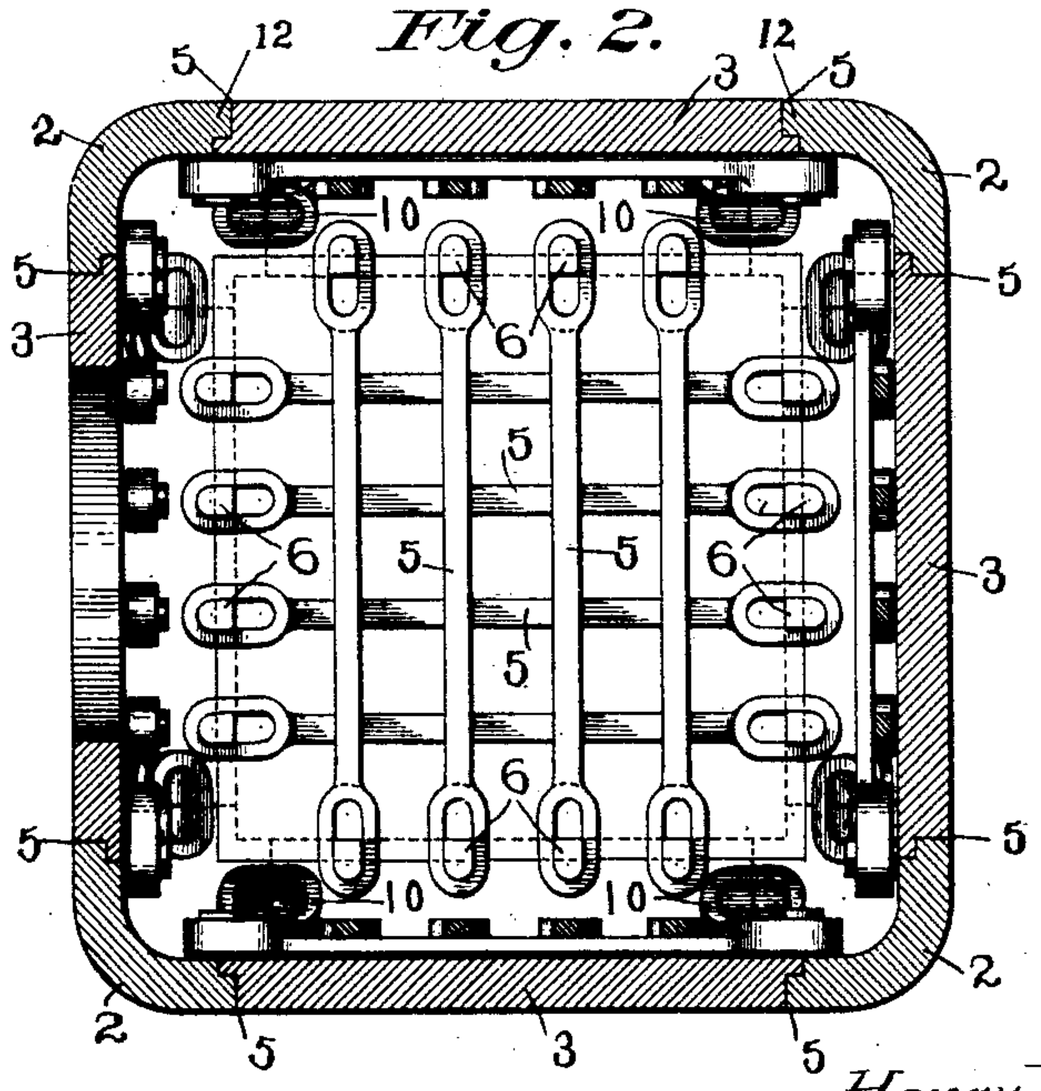


Fig. 2.



Witnesses:
C. W. Smith
R. H. Pittman

Inventor:
Henry D. Hibbard
By his Attorney
F. H. Richards.

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Fig. 3.

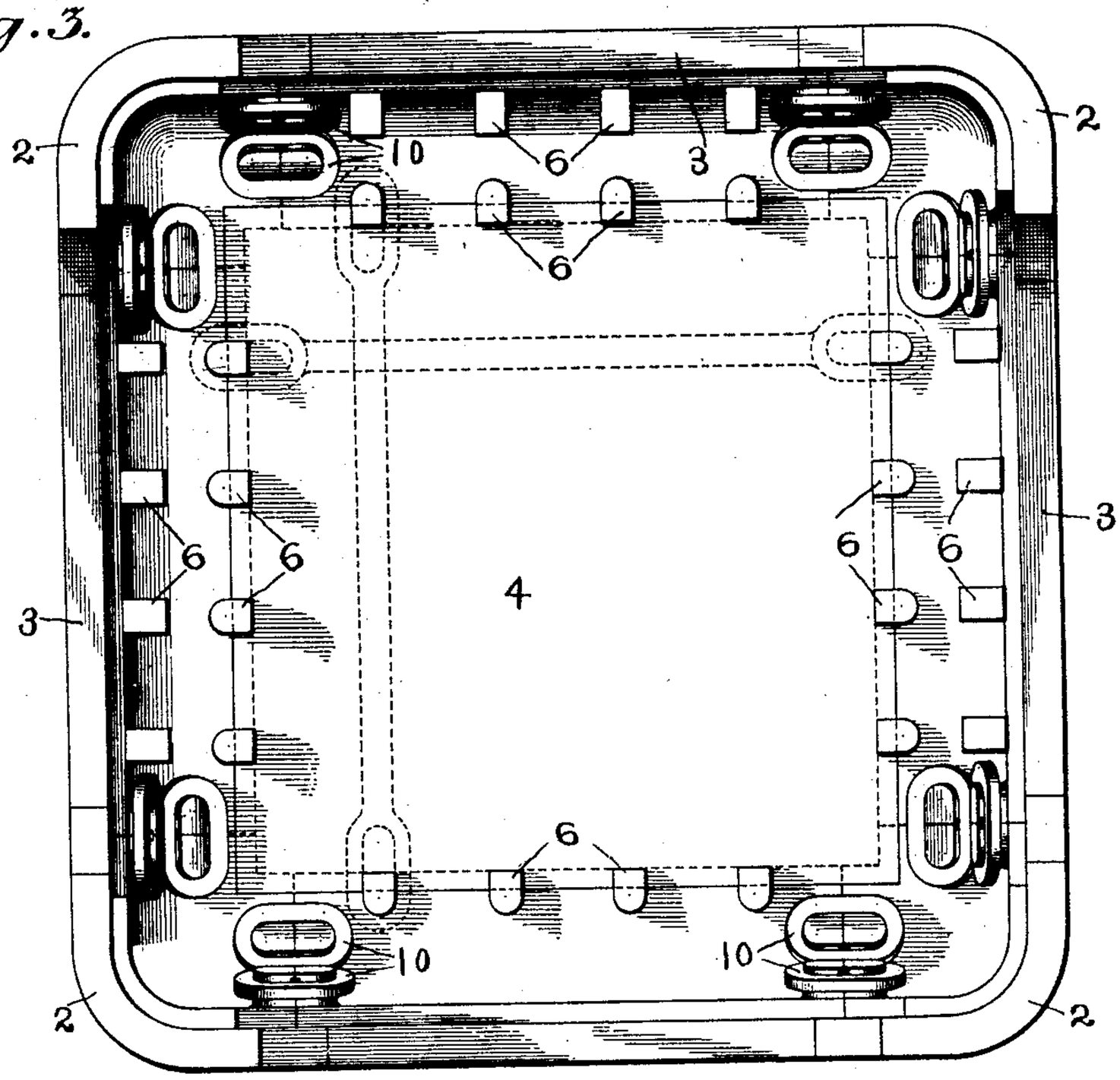
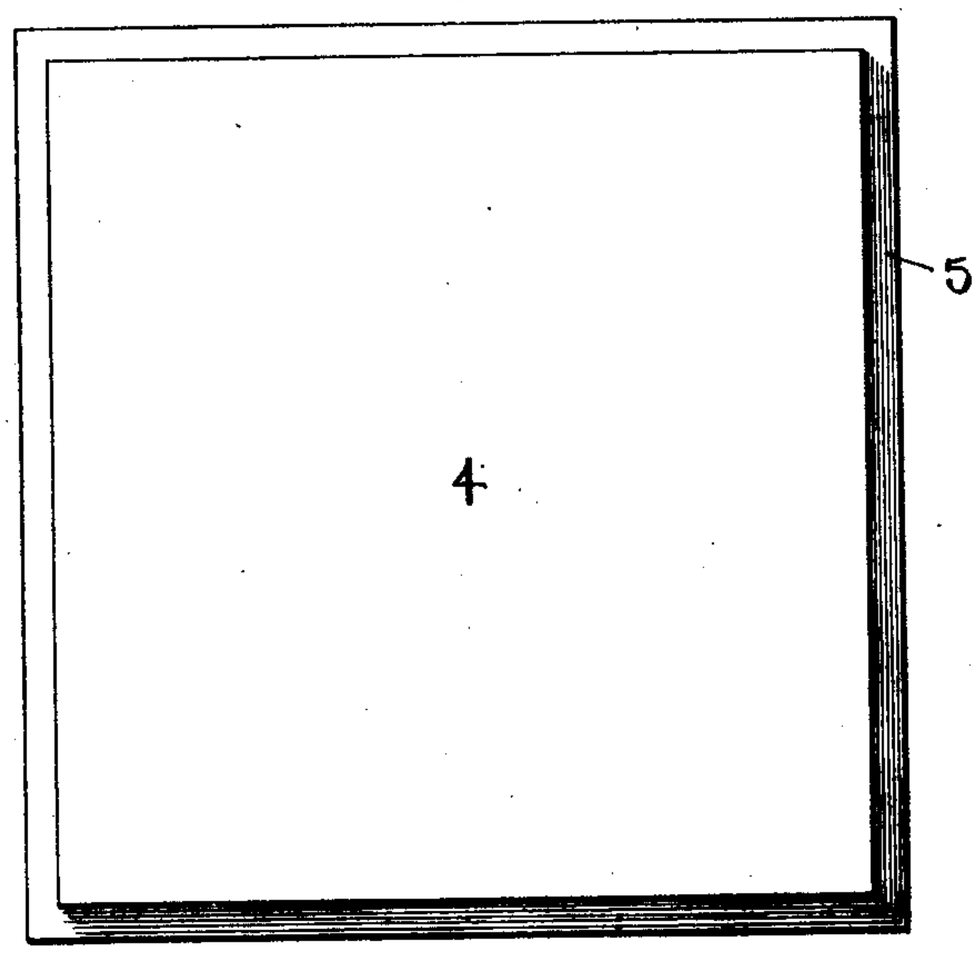


Fig. 4.



Witnesses:
C. W. Smith
R. H. Littman

Inventor:
Henry D. Hibbard
By his Attorney
F. H. Richards

No. 679,372. Patented July 30, 1901.

H. D. HIBBARD.

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(No Model.) 3 Sheets—Sheet 3.

Fig. 5.

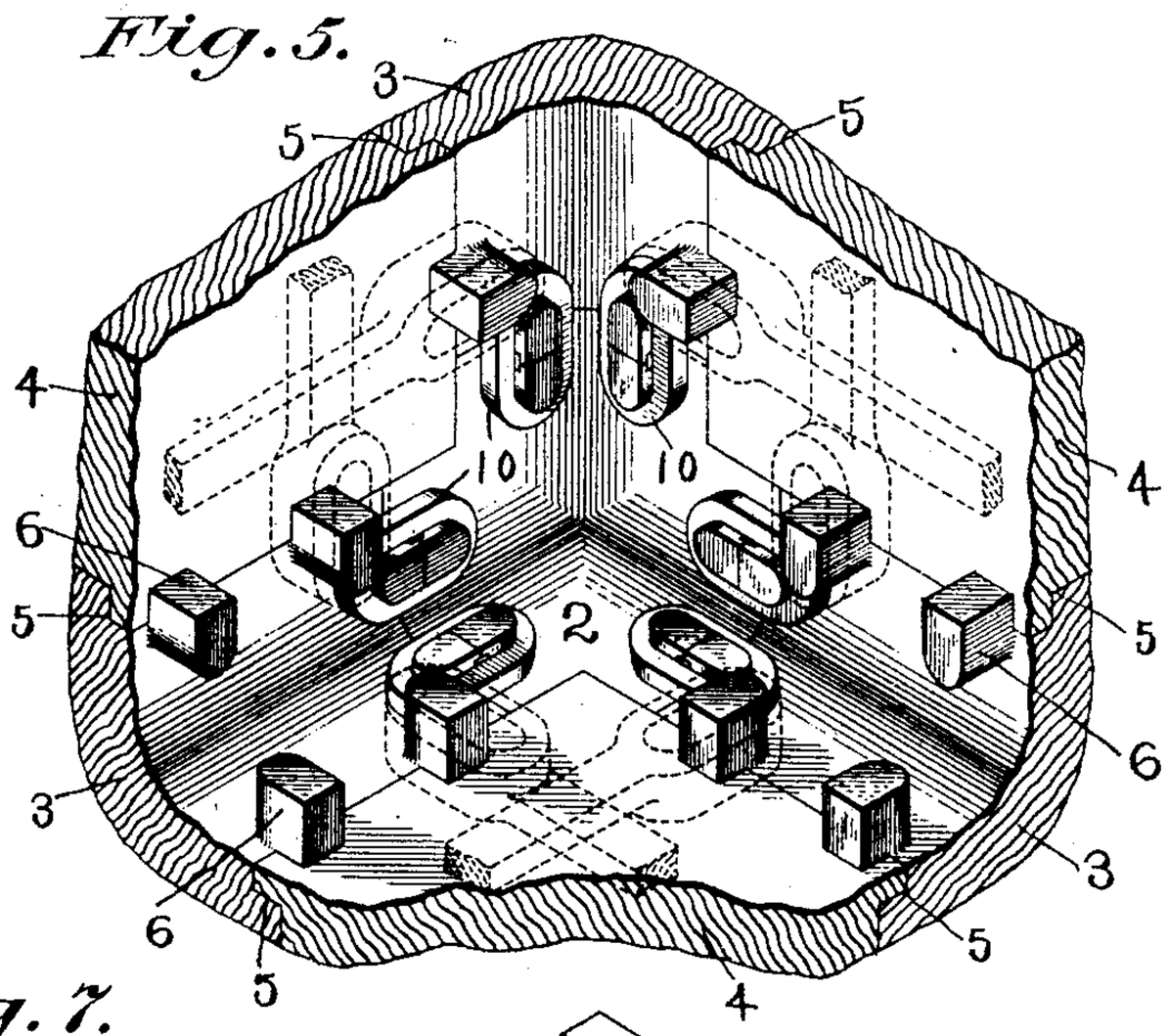

Fig. 7.

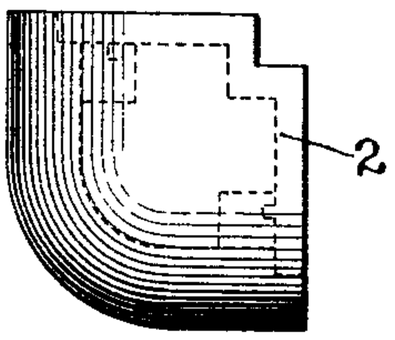

Fig. 9.

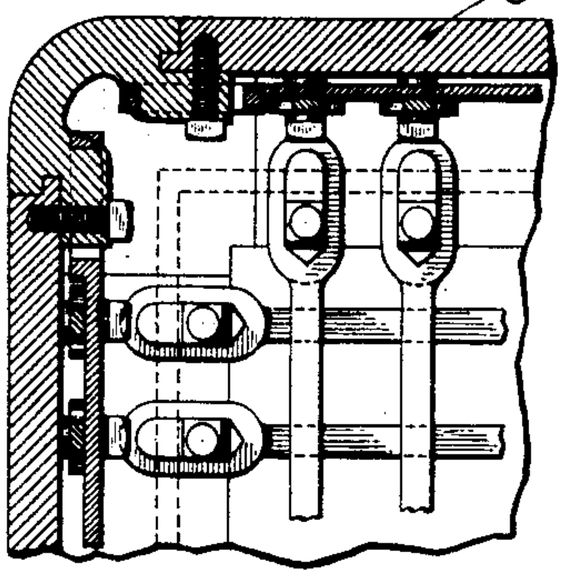

Fig. 6.

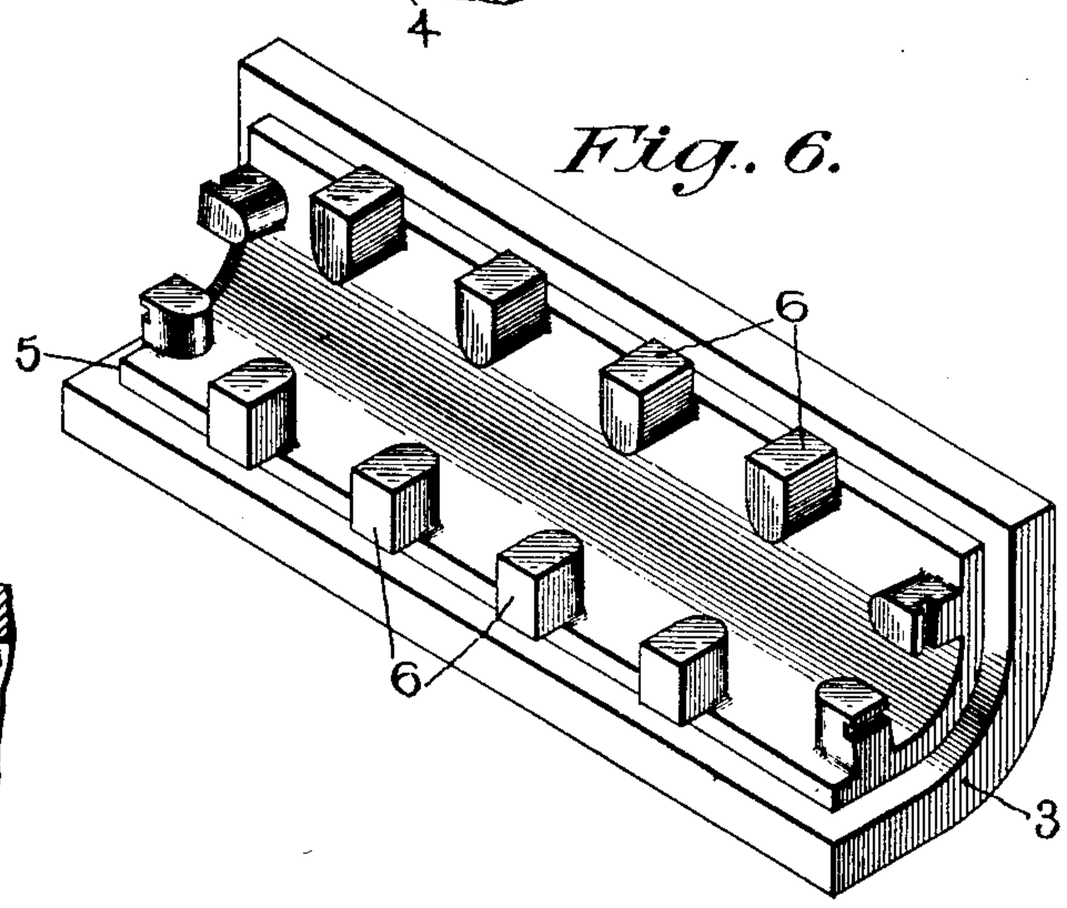

Fig. 8.

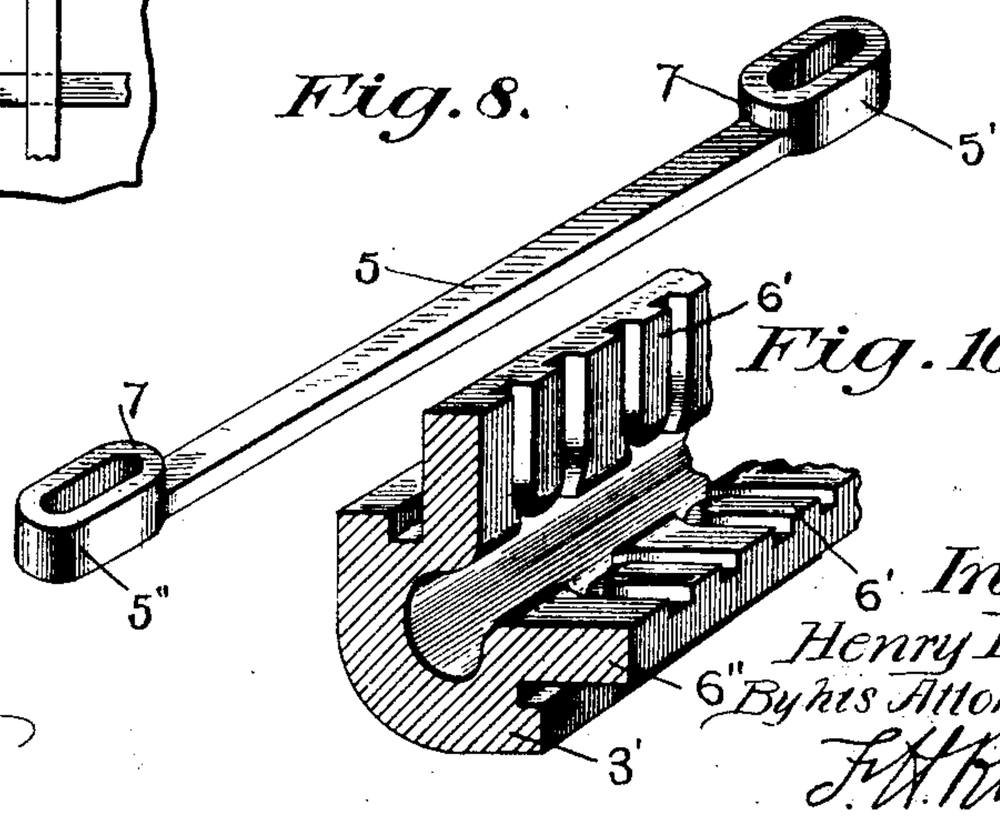

Fig. 10.

Witnesses:
C. W. Smith
R. W. Pittman

Inventor:
Henry D. Hibbard
By his Attorney
F. H. Richards

UNITED STATES PATENT OFFICE.

HENRY D. HIBBARD, OF PLAINFIELD, NEW JERSEY, ASSIGNOR TO THE HIBBARD, RODMAN, ELY SAFE COMPANY, OF NEW YORK, N. Y.

SAFE OR VAULT.

SPECIFICATION forming part of Letters Patent No. 679,372, dated July 30, 1901.

Application filed October 31, 1900. Serial No. 34,989. (No model.)

To all whom it may concern:

Be it known that I, HENRY D. HIBBARD, 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.

This invention relates to safes or vaults, the object being to provide an improved safe or vault the body of which may be composed of a number of wall plates or sections clamped or secured together in an improved manner.

In the drawings accompanying and forming part of this specification, Figure 1 is a perspective view of this improved safe or vault. Fig. 2 is a cross-sectional view thereof, taken in line *a a*, Fig. 1. Fig. 3 is an interior view of one of the sides of the safe, a pair of the coupling members being shown in dotted lines. Fig. 4 is a view of one of the side or intermediate plates or sections. Fig. 5 is an interior view of one corner of the structure. Fig. 6 is a perspective view of one of the edge plates. Fig. 7 is a view of one of the corner-plates. Fig. 8 is perspective view of one of the long coupling members or bars, and Figs. 9 and 10 illustrate a somewhat different form of edge plate and a somewhat different mode of securing such edge plates in position in the structure.

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

While the present improved means for clamping several plates together may be used in connection with various kinds of safes or vaults, it is, however, shown used in connection with that form of safe or vault which constitutes the subject-matter of my contemporaneously-pending application, Serial No. 7,967, filed March 9, 1900, and which eventuated in a patent dated November 27, 1900, No. 662,430, and is therefore made up of a series of angular and non-angular wall components or plates comprising corner-plates 2, edge plates 3, and relatively flat or non-angular intermediate plates 4, the edge and corner plates having the general shape of those shown in my said contemporaneously-pending case.

Each of the plates of the vault is rabbeted at its edges 5, whereby the edges of the plates overlap each other. For the purpose of preventing the separation of the plates in a direction transversely thereof some of such plates are provided on the inner sides thereof with means overlapping the edges of their companion plates, whereby there is formed recesses for the reception of the edges of such companion plates, so that the plates of the structure are interlocked together against separation in a direction transversely thereof. In the present instance this overlapping means comprises projections 6, located adjacent to the edges of the plates on which they are carried, a part of each projecting so as to overlap the edge of a companion plate. In the form of vault shown the projections 6 are carried by those plates which are located at the edges of the structure and herein designated as the "edge plates," the intermediate or non-angular plates being free of such projections. In the present organization the primary means for clamping the plates together to prevent the separation thereof in a direction other than a transverse one comprises coupling members, shown herein as bars 5′, having a pair of link-formed ends 5″, each located on one of the projections 6 of an edge plate 3, whereby the edges of such edge plates are drawn into tight engagement with the edges of the intermediate plates 4. The link bars or members 5′, connecting a pair of edge plates 3 with each other at one side of the vault, extend transversely of the link-bars which connect the other pair of edge plates together at the same side of the structure—that is to say, the link-bars which connect the top and bottom edge plates at one side of the structure extend transversely of the link-bars which connect the front and rear edge plates at the same side of the structure, and for this purpose the bars preferably have the links thereof at one side raised above the surfaces of the bars, as at 7, Fig. 8, whereby the bars can be properly assembled, Fig. 5, so that one set will extend crosswise of the other and yet have the links thereof level with the links of the other set.

From the foregoing it will be seen that each set of link-bars running in the same direction clamp together three plates, in the present

instance comprising a pair of edge plates 3 and an intermediate plate 4, two sets of such link-bars connecting four edge plates and an intermediate plate together. At those points where the link-bars cannot be readily used—as, for instance, at the corners of the structure—the corner-plates 2 may be secured to the other plates—as, for instance, the edge plates—by short links 10, similar to those shown and described in my contemporaneously-pending applications, Serial Nos. 7,967, 7,968, and 7,969, filed March 9, 1900, and Serial No. 10,471, filed March 28, 1900, and now Patents Nos. 662,430, 662,431, 662,432, and 662,433, respectively, and all dated November 27, 1900, and therefore need no further description herein. In the said applications just referred to each plate of the structure is provided along its edges with projections, a retaining device connecting a plurality of contiguous projections of a pair of plates together. In the present instance, however, the plates carrying the projections are separated by one or more intermediate plates, the edges of such intermediate plate or plates being clamped in engagement with the edges of such separated plates by the long coupling-bars 5′, the links of which are preferably shrunk onto such projections. When the short links are used at the corners or other parts of the structure, the means shown and described in my said contemporaneously-pending applications for locating the plates in fixed alinement may be used; but this object is accomplished at those points where the long links are used by the projections 6, which overlap the edges of the intermediate plate, thus maintaining the edges of the plates interlocked and in fixed alinement.

In the structure shown in Figs. 9 and 10 a somewhat different form of edge plate 3′ is provided, the plate in this construction having its projections 6′ formed by recessing a pair of flanges 6″, which overlap the edges of an intermediate plate, the link-formed ends of the bars fitting into said recesses and extending around the projections 6′.

The organization shown in this case is particularly adapted for use with machineable metals—such, for instance, as face-hardened plates—whereby the rabbeted edges may be readily formed, and whereby also, in the form shown in Figs. 9 and 10, the plates may be tapped on the interior thereof for the reception of bolts which will assist in maintaining the link-bars in position on their projections 6′.

By shrinking the retaining devices on the projections the edges of the separated plates are drawn into tight engagement with the edges of the intermediate plate, so that the joints are formed under high pressure, since such edges are drawn together with great force, thereby giving a high initial resistance which must be first overcome before the components can be separated in the slightest degree in any attempt to force an entrance into the joints.

In conclusion, it will be seen that in the present instance those plates the edges 12 of which overlap the edges of an intermediate plate, whereby such intermediate plate is prevented from movement in one transverse direction, also carry the projections for the links, although this organization may be reversed, if preferred, and which projections overlap the edges of such intermediate plate and prevent the movement thereof in an opposite transverse direction, whereby the edges of the assembled plates are interlocked against movement transversely of such plates, while the shrunk-on link-bars clamp the edges of the plates together under high tension, so that the separation of the plates in any direction is prevented.

I claim as my invention—

1. A safe or vault, the body of which comprises a plurality of wall components or plates, the edges of which are rabbeted, some of such plates having means rigid therewith and located on the interior thereof for overlapping the edges of a companion plate; and means in engagement with such overlapping means for securing the plates in position.

2. A safe or vault, the body of which comprises a plurality of wall components or plates, the edges of which are rabbeted, some of such plates having means rigid therewith and located on the interior thereof for overlapping the edges of a companion plate; and means shrunk onto parts of some of said plates for clamping them in position.

3. A safe or vault, the body of which comprises a plurality of plates or components, the edges of which are rabbeted, some of such plates having means located at intervals on the interior thereof for overlapping the edges of a companion plate; and means shrunk on said overlapping means of a pair of plates for clamping them in position.

4. A safe or vault, the body of which comprises a plurality of plates or components, including an intermediate plate the edges of which plates are rabbeted, some of such plates having means located at intervals on the interior thereof for overlapping the edges of a companion plate; and means located around the said means of a pair of plates for drawing the edge faces of such plates in position.

5. A safe or vault, the body of which comprises a plurality of plates or components including an intermediate plate, the edges of which plates are rabbeted, some of such plates having means located at intervals on the interior thereof for overlapping the edges of a companion plate; and link-bars shrunk onto the said means of a pair of plates for clamping the edge faces of such plates in position.

6. A safe or vault comprised of a plurality of sections or plates, the edges of which are

interlocked and maintained in position under high resistance by means shrunk onto parts of said plates.

7. A safe or vault, the body of which comprises a plurality of sections or plates, the edges of which are interlocked; and link-bars shrunk onto parts of some of said plates for clamping all of them in position.

8. A safe or vault, the body of which comprises a plurality of plates or sections including an intermediate plate, the edges of which plates are interlocked, a plurality of separated plates having inwardly-extending projections; and means located on or secured to said projections for drawing the edge faces of said plates into engagement with an intermediate plate.

9. A safe or vault, the body of which comprises a plurality of plates or sections, the edges of which are interlocked, a plurality of separated plates having inwardly-extending projections; and shrunk-on link-bars located on said projections for drawing the edge faces of said plates into engagement with an intermediate plate.

10. A safe or vault comprising a plurality of plates or sections including an intermediate plate and secured together by means shrunk onto parts of some of said plates.

11. A safe or vault comprising a plurality of plates or sections secured together by link-bars shrunk onto parts of some of such sections.

12. A safe or vault comprising a plurality of plates or sections secured together by short and long links in engagement with parts or projections of such plates.

13. A safe or vault comprising a plurality of plates or sections secured together by short and long links shrunk onto parts of such sections.

14. A safe or vault comprising a plurality of plates or sections, the edges of which are rabbeted and secured together by means shrunk onto parts of said plates.

15. A safe or vault comprising a plurality of plates or sections, the edges of which are rabbeted, and secured together by link-bars shrunk onto parts of some of said plates.

16. A safe or vault comprising a plurality of plates or sections, and means for clamping the edges of said sections together, the means located at each side of the structure crossing each other.

17. A safe or vault comprising a plurality of plates or sections, and means shrunk onto parts of some of said sections for securing them together, the means located at each side of the structure crossing each other.

18. A safe or vault comprising a plurality of plates or sections having their edges interlocked, and link-bars for clamping said sections together, the bars located at each side of the structure crossing each other.

19. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge, a part or projection rigid with each of the two separated plates and located on the interior thereof when said plates are assembled, and a coupling device located around said projections and effective to draw the edge faces of the two separated plates into engagement with the intermediate plate.

20. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge, a part or projection rigid with each of the two separated plates and located on the interior thereof when said plates are assembled, and means shrunk onto said projections and effective to draw the edge faces of the two separated plates into engagement with the intermediate plate.

21. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge, a part or projection rigid with each of the two separated plates and overlapping the inner side of the intermediate plate, and means in engagement with such overlapping part or projection for clamping the separated plates in engagement with said intermediate plate.

22. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge, a part or projection rigid with each of the two separated plates and overlapping the inner side of the intermediate plate, and a shrunk-on link-bar for clamping the separated plates in engagement with said intermediate plate.

23. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge with such edges interlocked, a part or projection rigid with each of the two separated plates and located on the interior of the safe or vault when the plates are assembled, and a retaining device located on said projections for clamping said separated plates in engagement with the intermediate plate.

24. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge with such edges rabbeted, a part or projection rigid with each of the separated plates, and a coupling device shrunk onto said projections for drawing said separated plates in engagement with the intermediate plate.

25. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge, a part or projection rigid with each of the two separated plates and located on the interior thereof when said plates are assembled; a coupling device located around or secured to said projections and effective to draw the edge faces of the two separated plates into engagement with the intermediate plate; and means for maintaining said coupling device in position.

26. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge, a part or projection rigid with each of the two sepa-

rated plates and overlapping the inner side of the intermediate plate; a shrunk-on link-bar for clamping the separated plates in engagement with said intermediate plate; and means for maintaining said link-bar in position.

27. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge with the edges of the two separated plates of the series overlapping the edges of the intermediate plate, and means in engagement with the overlapping parts of such plates for drawing the two separated plates into engagement with said intermediate plate.

28. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge with the edges of the two separated plates of the series overlapping the edge of the intermediate plate; means for drawing the two separated plates into engagement with said intermediate plate and comprising link-bars; and bolts for maintaining said link-bars in position.

29. A safe or vault plate having a flange recessed to form projections for the reception of coupling devices.

30. A safe or vault plate having a flange recessed to form projections for the reception of coupling devices, and have a recess formed in the edge of such plate.

HENRY D. HIBBARD.

Witnesses:
C. A. WEED,
CHARLES FINKLER.