

No. 679,380.

Patented July 30, 1901.

H. D. HIBBARD.
SAFE OR VAULT.

(Application filed Nov. 2, 1900.)

(No Model.)

2 Sheets—Sheet 1.

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2 Sheets—Sheet 2.

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Fig. 3.

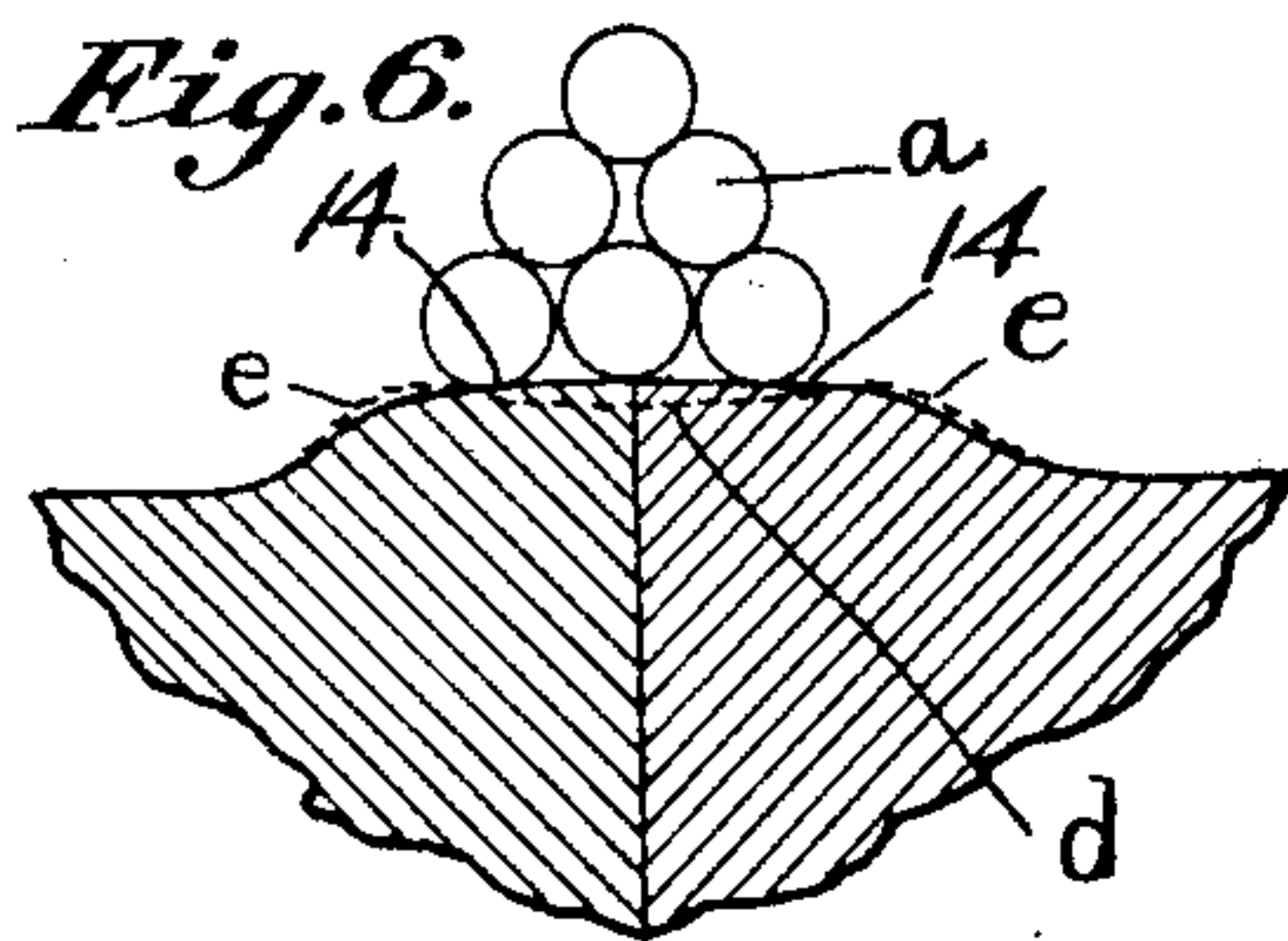
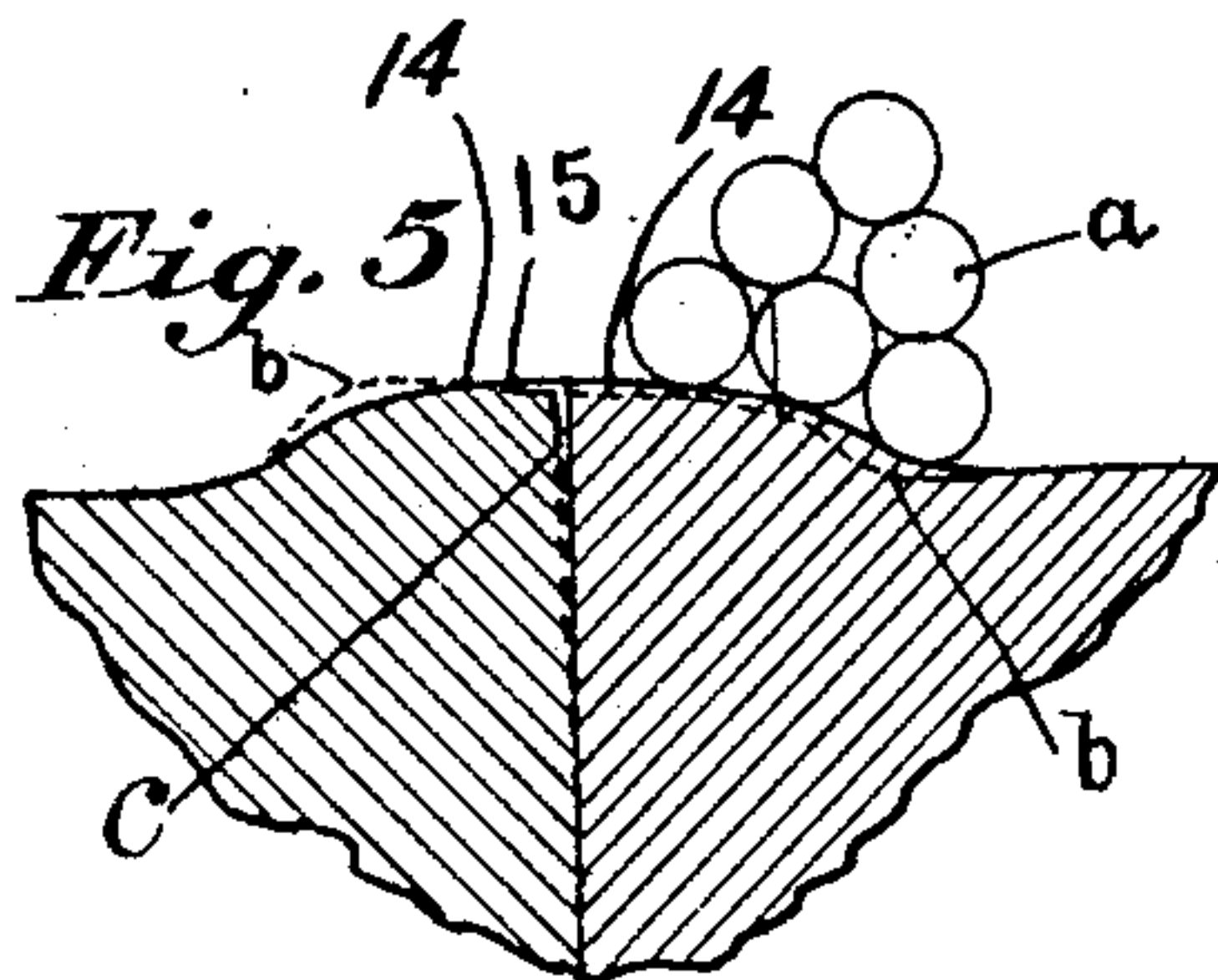
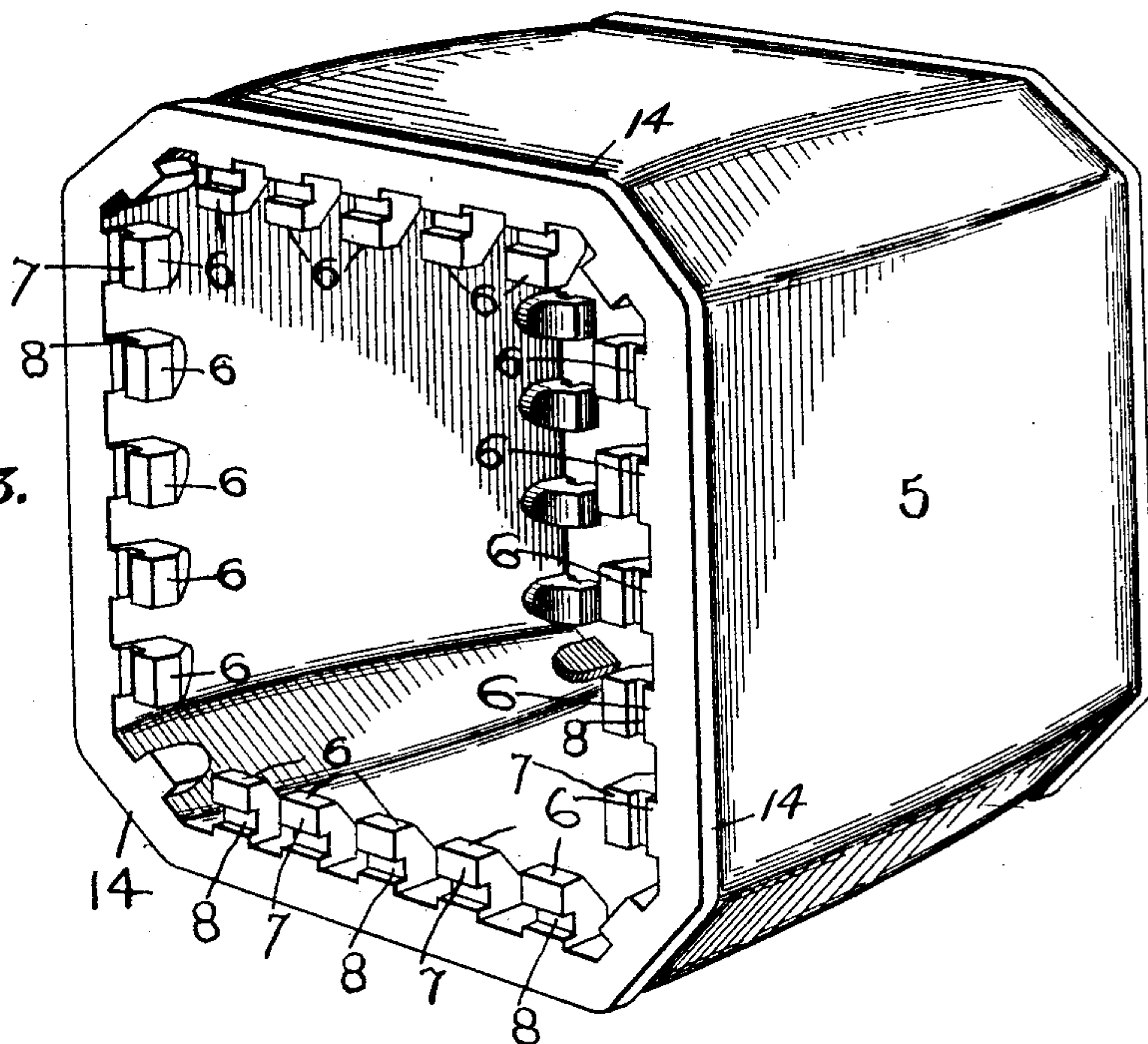
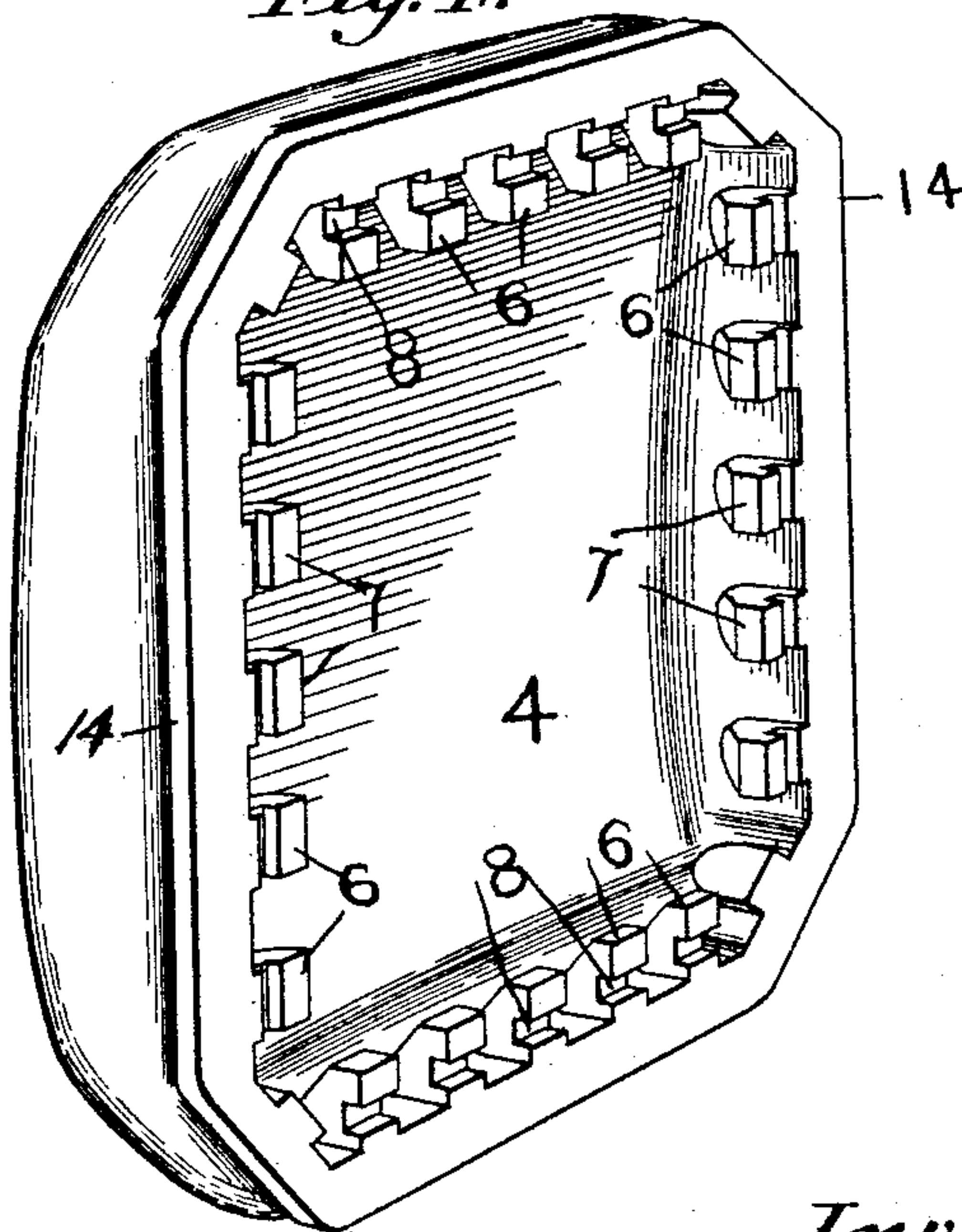


Fig. 4.



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UNITED STATES PATENT OFFICE.

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SAFE OR VAULT.

SPECIFICATION forming part of Letters Patent No. 679,380, dated July 30, 1901.

Application filed November 2, 1900. Serial No. 35,199. (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 for the reception of valuables, one object of the invention being to provide an improved structure of this character formed of sections and having many of the advantages present in an integral safe or vault, whereby a structure of any desired size can be readily furnished, this not being practicable or possible with an integral safe or vault, since the size of the latter is limited by the conditions under which the entire casting must be made.

A further object of the invention is to provide a safe or vault formed of sections, one or more of the intermediate members of which is hoop or band shaped and carries means whereby it may be assembled with its companion sections by the means and in the manner substantially 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 which applications have now eventuated in Letters Patent Nos. 662,430, 662,431, 662,432, and 662,433, respectively, dated November 27, 1900.

A further object of the invention is to provide each section of a safe or vault having the construction shown and described with an exteriorly-located projection or flange adjacent to each free edge similar to that shown and described in an application for a fastening filed by me of even date herewith, whereby when such sections are assembled there is formed around each joint an increased portion or bead of metal capable of yielding under an explosive charge, thereby to prevent the opening of the joint, as set forth in connection with the flange or projection located around the doorway in my contemporaneously-pending application, Serial No. 696,394, filed November 14, 1898, now Patent No. 662,429, dated November 27, 1900.

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

side elevation of one form of this improved sectional safe or vault with the door removed. Fig. 2 is a longitudinal sectional view thereof. Fig. 3 is a perspective view of one of the intermediate sections. Fig. 4 is a perspective view of that section which is adapted to constitute the back of the safe or vault; and Figs. 5 and 6 are diagrammatical views illustrating the action of the protecting-bead formed by the flanges located around the exterior free edges of each section.

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

Heretofore when it has been desired to construct safes with curved formations—such, for instance, as circular—or of shapes approximating such a formation it has been usually necessary to form the structure of an integral casting, which has not always been found practicable, and therefore the object of the present invention is to provide a sectional safe or vault of the general character just set forth, the members of which are united by means which is particularly adapted for the purpose and which is shown and disclosed in my prior applications above referred to, whereby I am able to provide a safe or vault of any desired size having any desired shape, circular or otherwise, without the necessity of constructing the same of an integral casting, while at the same time there are present many of the advantages of an integral casting.

This improved safe or vault body 2 may be constructed of any desired number of members or sections; but in the present instance it is shown comprising three sections or plates—a front section 3, a back section 4, and one intermediate member or section 5, which intermediate section may be of any desired shape, circular or otherwise; but as shown herein it is formed as an octagon, whereby it resembles a band or hoop and is shown preferably curved in the direction of its length, whereby when united with its companion sections there will be formed a longitudinally-curved structure. This band or hoop shaped member is provided at each of its ends, on the interior thereof, with a plurality of projections 6, each of which is substantially similar to that shown and described in my prior con-

temporarily - pending applications, and therefore needs only a general description herein. In the construction shown those faces 7 of the projections 6 which engage corresponding faces of the projections of a companion section are shown flat and provided with a slot 8 for the reception of a key 9, while the outer faces of the projections are preferably curved. Each of the front and rear sections 3 and 4 is likewise provided along its free edge with a plurality of projections 6, similar to those just described, the projections of the front plate or section being located to register with the projections located at one end of said intermediate section, while the projections of the rear plate or section are located to register with the projections at the opposite end of such intermediate section. To connect the projections, suitable means is provided, shown herein as a coupling device or member. In the preferred form shown a coupling device or member is located around each pair or plurality of registering projections of a pair of members, and in the present instance each coupling device comprises a link 10, shrunk onto such projections, whereby the joints are formed under high pressure—that is to say, the edge faces of the plates or sections forming the safe are drawn or clamped 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 said joint. This improved method of uniting the sections is particularly adapted for use with "unmachineable metal," by which I mean that character of metal which cannot be readily drilled or cut—such, for instance, as "manganese steel"—by which is meant the steel produced and treated in accordance with the Hadfield patented processes.

By shrinking the links onto the projections the edges of the sections are so drawn together that the insertion of nitroglycerin in appreciable quantities, sufficient to be effective on the joints, is practically impossible, and since it is not possible when the structure is formed of unmachineable metal to drill an opening in or at the sides of the joints for the insertion of such a material it follows that this improved safe or vault has all the burglar-resisting qualities of an integral safe or vault, while there is present the additional advantage of being able to provide a safe or vault of any desired size and shape.

For the purpose of locating the sections in position relatively to one another a key 12 is placed in each keyway 13, formed by the slots 8 of the projections, by which means the plates are fixed in proper alinement, and by means of which one section cannot be moved inward independently of the other.

Each section or plate has located around its free edge on its outer side an increased portion or flange 14, forming with a similar flange of a companion section a yieldable pro-

jection or bead 15, whereby when an explosive charge is fired on or adjacent to the joint for the purpose of opening the same to permit the insertion of nitroglycerin the metal of this bead will yield, so that the effect of the explosive charge acts on and is taken up by the bead, and consequently has little appreciable effect on the main wall of the sections. This action is clearly illustrated in Figs. 5 and 6, the full lines illustrating the normal position of the metal before the charge is fired and the dotted lines the position after such firing. In Fig. 5 the charge is shown in position to be fired at one side of the joint. The action of this explosive charge when fired, and which usually consists of sticks of dynamite *a*, is to compress or slightly flatten the yieldable metal at one point and bulge it at another, as shown, for instance, by dotted lines *b*, whereby the metal of the bead constituting the joint-surfaces *c* is forced laterally, yielding under such explosive charge, such surfaces, however, yielding together, so that although the joint is carried out of its normal position into a new position the metal of such joint-surfaces still preserves a metal-to-metal contact.

In Fig. 6 the charge is shown fired directly on the joint, with the result that the metal of the bead is depressed, as at *d*, and bulged, as at *e*, while the joint is still liquid-tight.

By the provision of the yielding flanges, forming in the present instance what might be considered a "duplex bead," there is provided a means which will nullify the effect of the explosive charge on or adjacent to the joint of the sections. This means thus materially assists the links in preventing the opening of the joint, and when the safe or vault is constructed of unmachineable metal it will, it is believed, positively resist burglarious attack by any means heretofore found practicable by burglars.

I claim as my invention—

1. A safe or vault body comprising a plurality of sections, one or more of which comprises a band or hoop shaped member, each of said sections having a plurality of projections located along its edges and adapted to register with similar projections carried by its companion sections; a key located in a keyway formed in the engaging faces of each plurality of registering projections for locating said sections in alinement; and means for securing the sections together.

2. A safe or vault comprising a plurality of sections, one or more of which comprises a band or hoop shaped member, each of said sections having a plurality of inwardly-extending projections located along each of its free edges registering with similar projections carried by its companion sections, and means located around each plurality of registering projections for securing the sections together.

3. A safe or vault comprising a plurality of sections, one or more of which comprises a band or hoop shaped member, each of said

sections having a plurality of inwardly-extending projections located along each of its free edges registering with similar projections carried by its companion sections, and a link shrunk on each pair of registering projections for securing the sections together under high tension.

4. A safe or vault comprising a plurality of sections including one or more hoop or band shaped sections, and means shrunk onto parts or projections located on the interior of said sections for securing them together.

5. A safe or vault comprising a plurality of sections including one or more hoop or band shaped sections; means shrunk onto parts or projections located on the interior of said sections for securing them together; and means for locating said sections in proper alinement.

6. A safe or vault comprising a plurality of sections, one or more of which comprises a band or hoop shaped member, each of said sections having a plurality of inwardly-extending projections located along each of its free edges registering with similar projections carried by its companion sections; means securing under tension the projection of one section with the projection of another section; and a key located in each pair of registering projections for locating said sections in alinement.

7. A safe or vault body comprising a plurality of sections embodying one or more octagonal sections, each of said sections having a plurality of inwardly-extending projections located along its free edges, the projections of one section registering with those of a companion section, and means located around such projections for securing them together.

8. A safe or vault comprising a plurality of sections embodying one or more band or hoop shaped sections, each of said sections having an exteriorly-located increased portion or flange disposed adjacent to its free edge and forming with a corresponding flange of a companion section a yielding bead effective under an explosive charge to yield while preserving a tight metal-to-metal joint.

9. A safe or vault section comprising a band or hoop shaped member having along each of its free edges a plurality of inwardly-extending projections, each of said projections having a key-receiving slot in one of its faces.

10. A safe or vault section comprising a band or hoop shaped member having on its outer side adjacent to its edge an increased portion or flange adapted to form with a simi-

lar flange of a companion section a yielding bead.

11. A safe or vault section comprising a band or hoop shaped member having on its outer side adjacent to its edge an increased portion or flange, and having on its inner side a plurality of inwardly-extending projections located adjacent to such edge.

12. A safe or vault section comprising a band or hoop shaped member having on its outer side adjacent to its edge an increased portion or flange, and having on its inner side a plurality of inwardly-extending projections located adjacent to such edge, each of such projections having a recess in one of its faces.

13. A safe or vault comprising a plurality of sections embodying one or more band or hoop shaped sections, each of such sections having on the interior thereof a part or projection rigid therewith, and means for clamping a plurality of projections of a plurality of sections together thereby to draw the edge faces of such sections together with great force to hold said sections under high initial resistance, each of said sections having an exteriorly-located increased portion or flange disposed adjacent to its free edge and forming with a corresponding contiguous flange a yielding bead effective, under an explosive charge, to yield while preserving a tight metal-to-metal joint.

14. A safe or vault comprising a plurality of sections embodying one or more band or hoop shaped sections, each of such sections having on the interior thereof a part or projection rigid therewith; means for clamping a plurality of projections of a plurality of sections together thereby to draw the edge faces of such sections together with great force to hold said sections under high initial resistance, each of said sections having an exteriorly-located increased portion or flange disposed adjacent to its free edge and forming with a corresponding contiguous flange a yielding bead effective, under an explosive charge, to yield while preserving a tight metal-to-metal joint; and means for locating said sections in fixed alinement thereby to maintain the outer faces of said flanges flush with each other.

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Witnesses:

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