

No. 614,421.

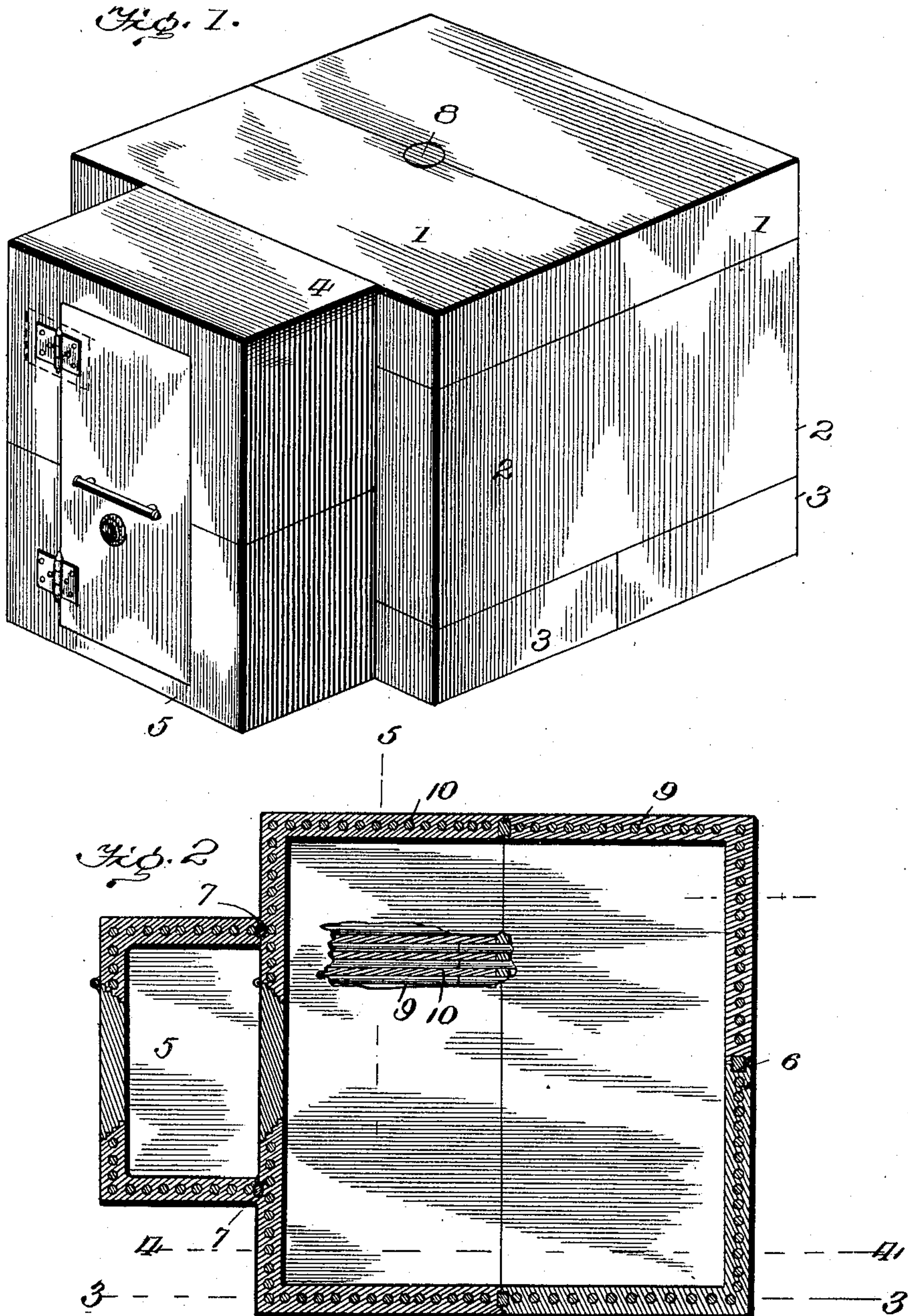
Patented Nov. 15, 1898.

G. L. DAMON.
SAFE.

(Application filed July 9, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

John J. Smith
Fred R. Proctor

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Inventor

George L. Damon
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His Attorneys

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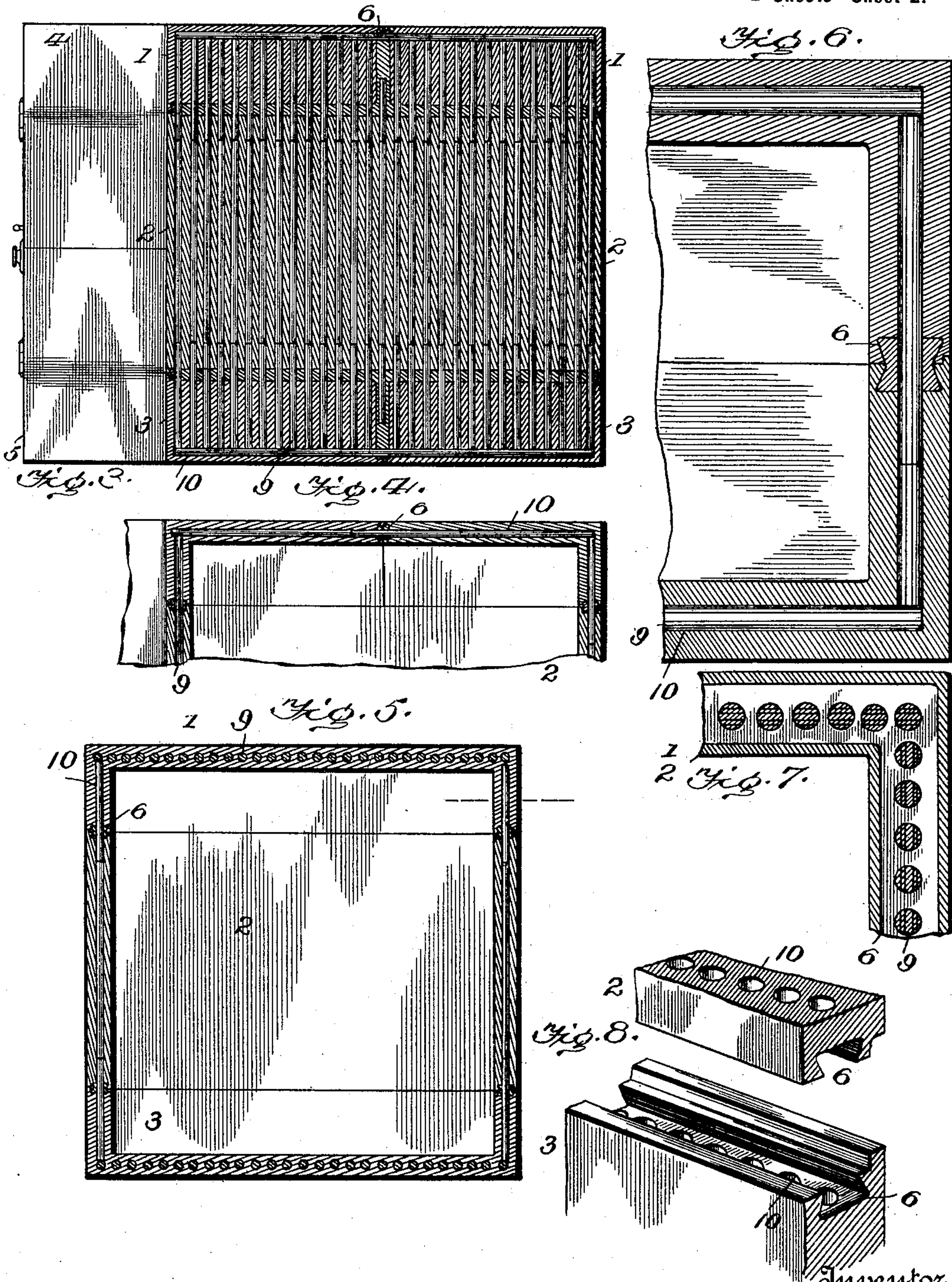
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

GEORGE L. DAMON, OF BOSTON, MASSACHUSETTS.

SAFE.

SPECIFICATION forming part of Letters Patent No. 614,421, dated November 15, 1898.

Application filed July 9, 1897. Serial No. 643,975. (No model.)

To all whom it may concern:

Be it known that I, GEORGE L. DAMON, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Burglar-Proof Safes, of which the following is a specification.

My invention relates to a vault or safe formed for the most part of chilled-iron sections cast in proper form and joined together in a novel manner.

My invention further relates to a particular manner of introducing into the walls steel bars which offer obstruction to attempts to drill through or destroy the wall.

My invention consists in certain novel features of construction, hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a vault constructed in accordance with my invention. Fig. 2 is a horizontal section of the same. Fig. 3 is a section on the line 3 3, Fig. 2. Fig. 4 is a partial section on the line 4 4, Fig. 2. Fig. 5 is a section on the line 5 5, Fig. 2. Fig. 6 is a vertical section, on an enlarged scale, showing a modification, and Figs. 7 and 8 are detail views.

According to the one part of my invention the vault is made up of top sections 1, side sections 2, and bottom sections 3, cast in suitable form and chilled and fitted together in the relations shown. The number and sizes of the parts will naturally vary with the capacity of the vault. The vestibule may be made of two sections 4 and 5, or of more sections than two, as may be found necessary. The sections having been made, their meeting faces are formed with dovetailed or undercut grooves 6, which correspond or register when the parts are put together. These double grooves thus formed are filled with molten iron or steel, the walls being previously warmed sufficiently to permit pouring of metal into the grooves, and the grooves are thoroughly filled in such a manner that when the filling cools the contraction of the metal is such as to leave the uniting-wedge under normal strains of tension within the limit of the elasticity of the metal forming said wedge. This draws the meeting edges of the sections

firmly together and makes a very rigid structure of the whole. The dimensions of the double grooves is calculated in such a manner as to insure this ultimate condition of the locking-wedge and prevent checking or cracking incident to its cooling. These locking-wedges are introduced progressively from the bottom up as the building of the structure advances, or they may be poured from a number of different places through runners applied to the interior of the vault after the sections are in place. If desired, the metal for uniting the top may be introduced through a central opening, which is afterward closed in any effective manner, as indicated at 8. The vestibule is joined onto the vault, and its respective parts are held together by the wedging-keys 7, as described with reference to the main body of the vault.

It has before been proposed to secure the parts of safes together by means of wedging-keys—that is to say, keys of double dovetail section—which have been driven in or otherwise introduced into the openings after being formed; but this is very much inferior to my present invention, for the reason that the ends of the keys are left exposed and there is not the same opportunity for placing them in under strains of tension distributed uniformly at all points, as may be done under my present invention.

The second feature of my invention consists in introducing, by pushing into place before the sections are put together, highly-tempered steel rods 9 into the walls and the ceiling and the floors of the vault in such a manner as to supplement the walls by a steel-bar grating embedded in the material of the walls and so as to leave their ends entirely obscured and without casting the sections around them, as has heretofore been proposed, but which is useless by reason of the fact that the heat of the metal draws the temper from the rods. I am enabled to introduce these rods into all parts of the vault and vestibule by reason of the fact that I have provided an effectual way of building the safe in solid integral sections. As will be obvious from an inspection of the drawings, these rods 9 may be in one or more pieces, the combined length of which is sufficient to reach through the parts, but to terminate

short of the outer surfaces, and thus leave the ends obscured and inaccessible. The vault-sections are cast with openings 10, which will admit of the rods being driven in, and as these rods pass through the section-joints they materially strengthen such joints. The rods intersect the undercut grooves, and the metal forming the locking-key passes around the rods and completely surrounds them.

As will be seen from Fig. 6, the vertical walls may be made of but two parts, which project integrally from the top and bottom. Even when it is necessary by reason of the size of the vault to have more than one joint in the side wall I prefer to have the corners solid and to have some vertical wall portion formed integral with every top or bottom portion.

Fig. 8 represents a modification in a joint wherein a rabbet-joint is employed for giving additional lateral stiffness.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a vault, safe or like structure constructed of sections fitted together having

undercut grooves in their meeting edges, and locking-keys formed in said grooves by casting molten metal therein, whereby the contraction of the metal is such as to leave the uniting-wedge under normal strain of tension within the limit of elasticity of the metal forming said wedge, thus drawing the meeting edges of the sections together, in combination with rods introduced into openings in said sections before they are put together, whereby the joint between the sections is overlapped by said rods, said rods being surrounded by the metal forming the wedge, substantially as and for the purpose set forth.

2. A safe, vault or like structure, comprising intermediate sections having bores passing entirely through them, and outer or corner sections having bores formed in but not entirely through them, and steel rods introduced into said bores in such manner as to project past the joints between the sections.

GEORGE L. DAMON.

Witnesses:

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