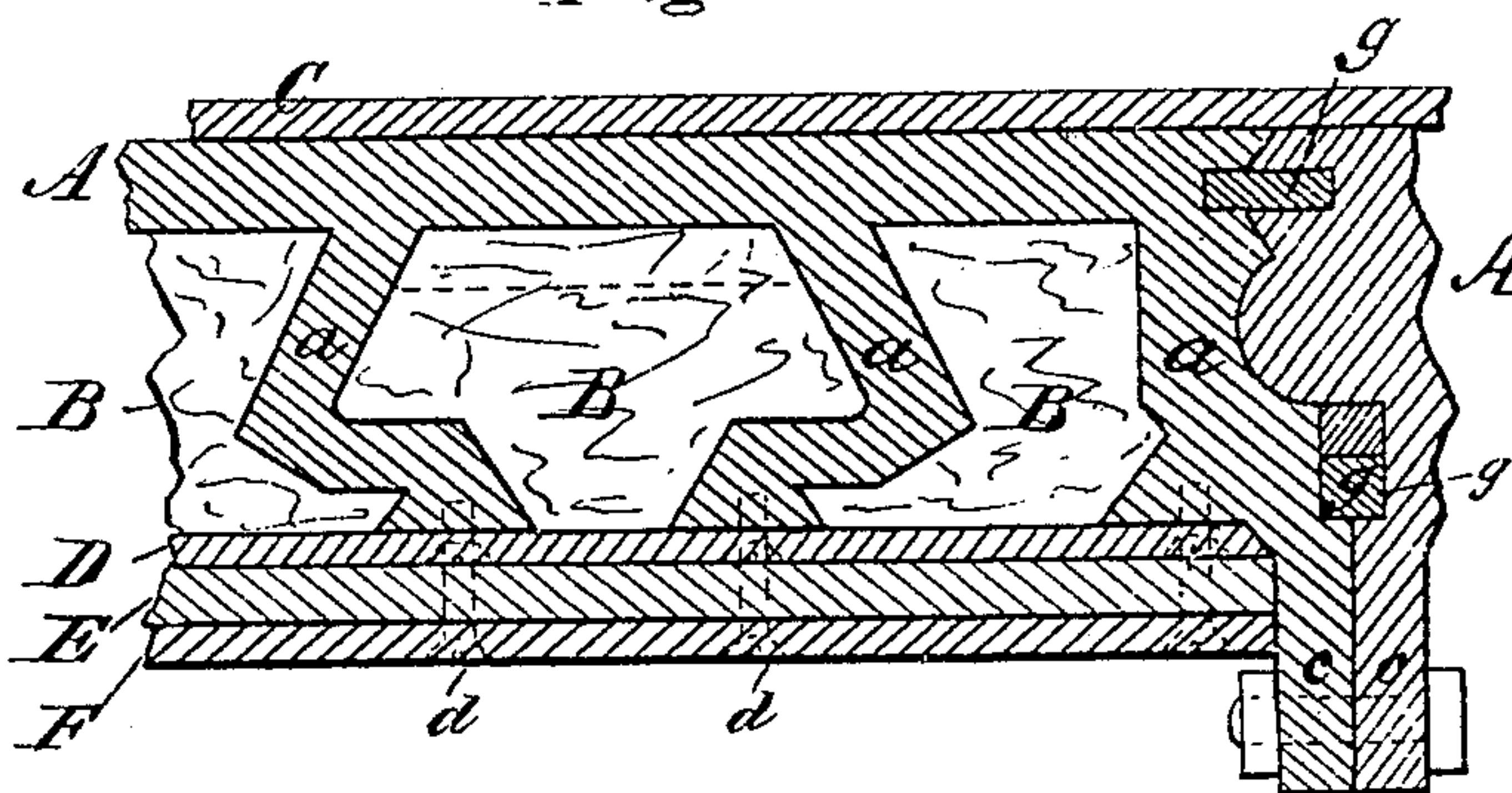


## Safes and Vaults.

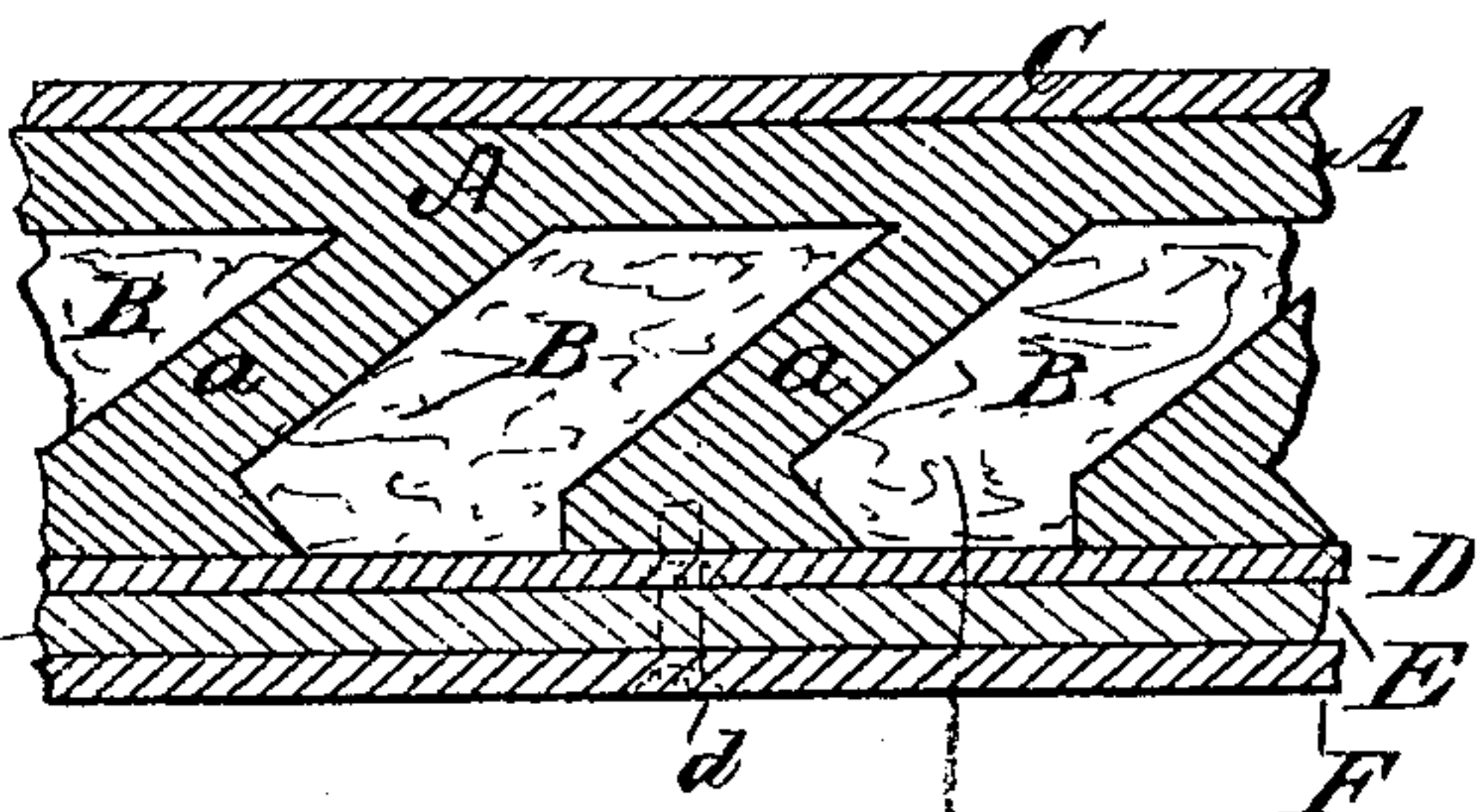
No. 146,047.

Patented Dec. 30, 1873.

*Fig 1.*



*Fig 2.*



*Fig 3.*

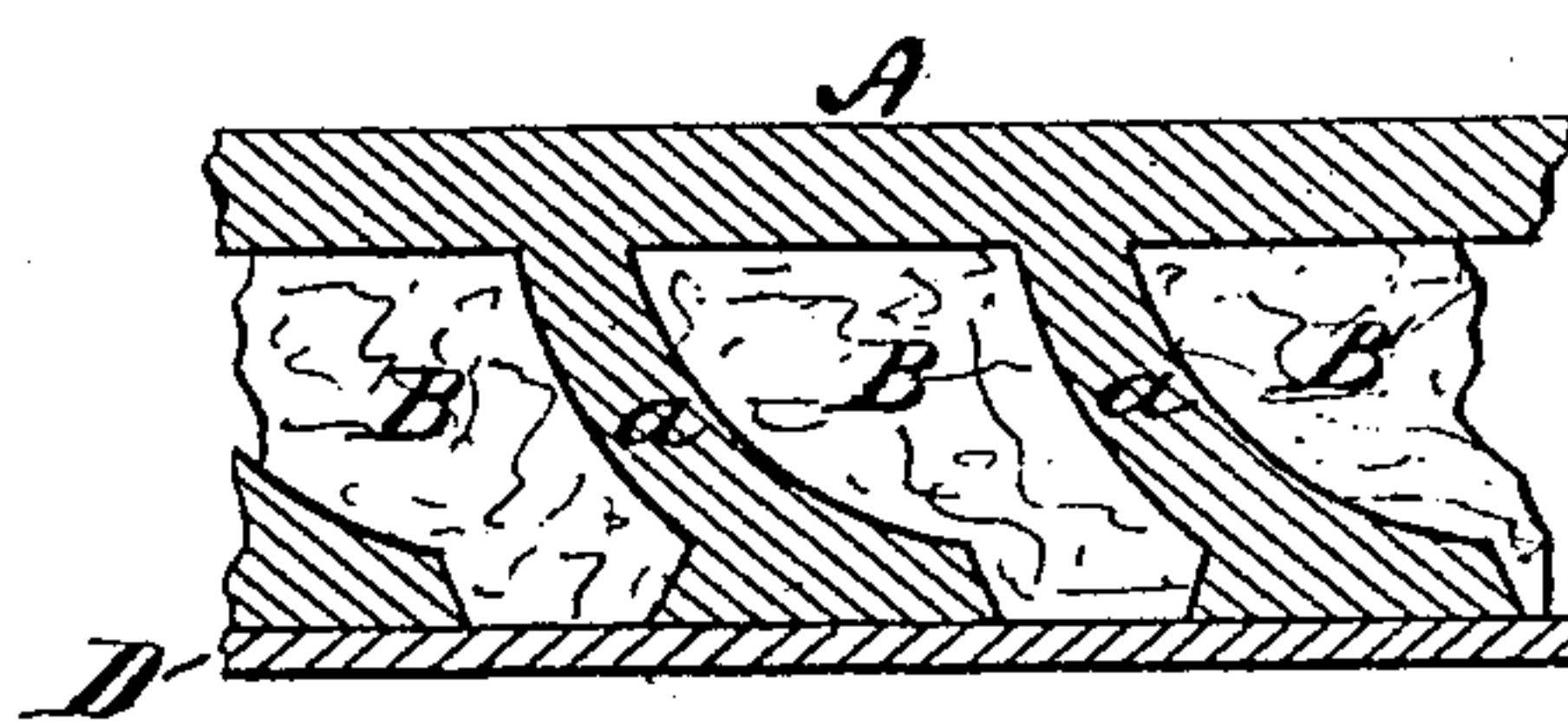
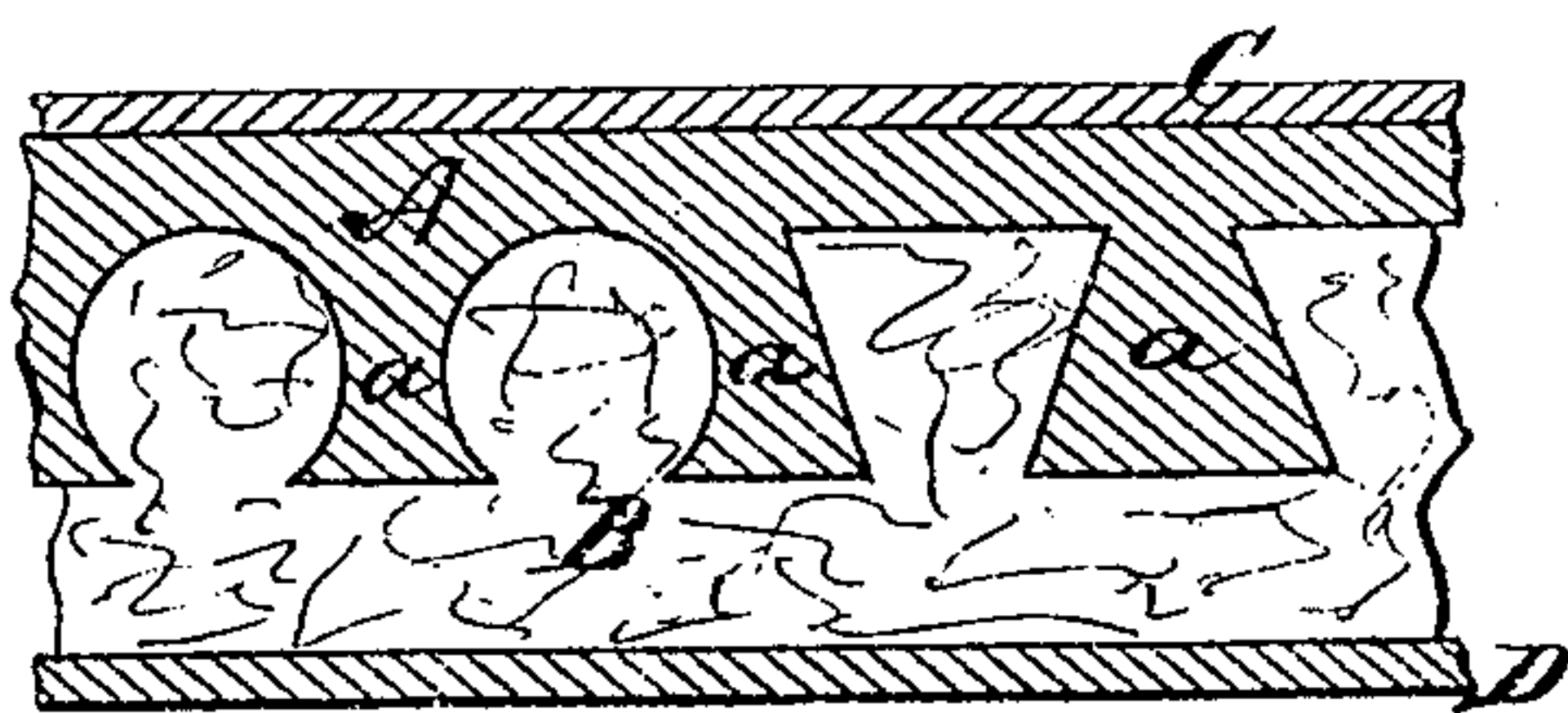
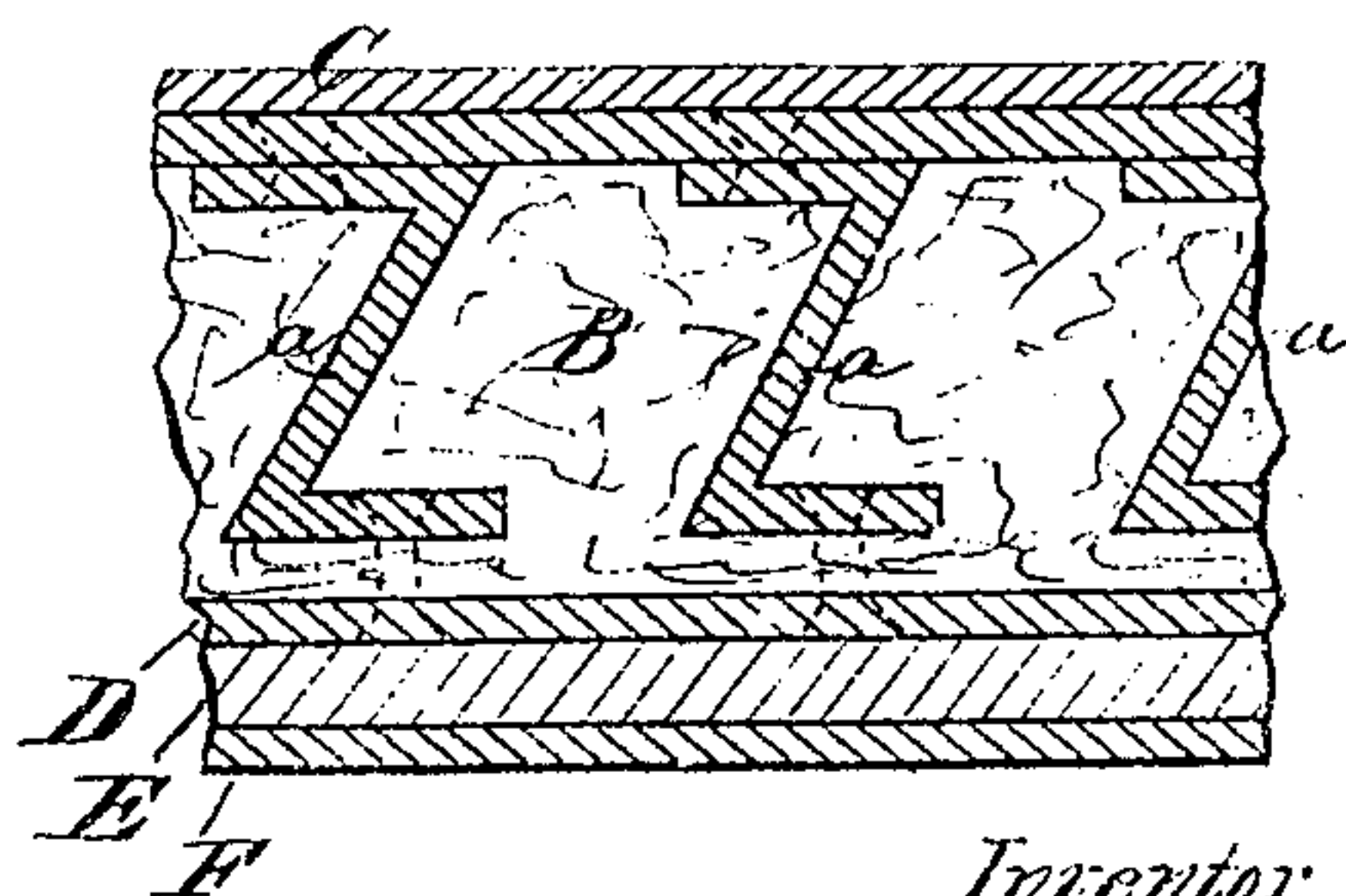


Fig 4.



*Fig 5.*



*Witnesses.*

Harry King.  
John Williams

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# UNITED STATES PATENT OFFICE.

JOHN CRUMP, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN SAFES AND VAULTS.

Specification forming part of Letters Patent No. 146,647, dated December 30, 1873; application filed April 8, 1873.

### CASE B.

*To all whom it may concern:*

Be it known that I, JOHN CRUMP, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Safes and Vaults, of which the following is a specification:

My invention consists in constructing a safe or vault body or door of an outside plate, having its inner face provided with transverse ribs, and an inside drill-proof backing, secured in place solely by the said ribs; in concealing and protecting the joints of the body-plates by an outside wrought-iron sheathing; and in combining with the body a lining of metal plates and non-conducting material, as hereinafter more fully explained.

Figures 1, 2, 3, 4, and 5 are sectional views, showing different forms or modifications of my device.

In Fig. 1, A A represent cast-iron plates, a series of which are usually bolted together through inside flanges on their edges to form the body of the safe or vault. The plates are provided on the inside with ribs or flanges *a*, which run parallel with each other across the plates, and which, in their cross-section, are of a zigzag form. The spaces or cells between the ribs are filled up flush with franklinite, chilled iron, or other drill-proof material, B, which may be poured or cast therein in a molten state, or inserted otherwise. Owing to the bent or crooked section of the ribs, it will be seen that the hard metals in the adjoining spaces overlap each other, so that a drill cannot be passed through from the outside of the body in any direction without coming in contact with and being stopped by the hard drill-proof substances, or passing obliquely through the entire thickness of the ribs, which is practically impossible. The whole outer surface of the cast-iron body-plates is covered with a plating of wrought-iron, C, which serves to conceal the joints between the cast-iron plates or sections, so as to prevent burglars from commencing operations at the joint, where they may think they can work to more advantage than elsewhere. The joints will also be protected by steel bars *g*, and other safeguards,

as described in my application for a patent bearing even date herewith. On the inside of the body-plates, over the hard-metal filling B, there is placed a plate of hardened steel or wrought-iron, D, to give additional strength and security. This inside lining, and also the outside covering C, is secured in place by screws passing through into the cast-iron. Inside of the lining D there is a layer or covering, E, of asbestos, alum, and plaster, or other like materials which are non-conductors of heat; and inside of the non-conducting material there is another iron or steel plate, F, to hold said material in place, this plate being held by screws or bolts, *d*, passing through into the cast-iron ribs or flanges of the body-plates.

In Fig. 2 the construction and arrangement of parts are the same as in Fig. 1, except that the ribs or flanges are of a different form, being all inclined to one side, and widened at the outer edge, instead of being made in the zigzag form shown in Fig. 1. In this case a drill can be passed obliquely through the body by following the ribs; but, owing to the great thickness of metal, this will be practically impossible; but even should the drill find its way through the rib, it will be stopped by the inside plate or plates.

In Fig. 3 the construction is essentially the same as in the two previous forms, the ribs being curved in cross-section and widened at the outer edge.

Fig. 4 shows still another arrangement, the cast-iron body-plates being provided with dovetail or rounded grooves, and the franklinite or chilled iron arranged to fill the grooves, and also form a plating or coating over the entire inside surface of the plates. The inside plate D is also used in this case to prevent the hard metal from being fractured by blows. The non-conducting material may or may not be used, as preferred.

Fig. 5 illustrates another form of wall, consisting of two outside plates, the inner one of which has Z-shaped ribs riveted to its inner face, the spaces between the ribs filled, and their inner faces covered with franklinite or



chilled iron, and the inside face of the latter covered with a plate of iron or steel, held by bolts or rivets passing through into the ribs. The rivets are inserted, and, if desired, the plate secured in place, before the hard metal is introduced. Inside of the whole there is a layer of non-conducting material, E, held in place by a covering-plate, F, as in the other arrangements hereinbefore described. The Z form of the ribs, and their being covered or inclosed in the hard metal, precludes the possibility of getting a drill through without penetrating said material. In Figs. 1, 4, and 5, the hard material is so disposed that a drill cannot possibly pass through without coming in contact therewith, while in the others a drill can be passed through clear of the hard metal, but only by passing through a great thickness of cast-iron obliquely. The hard metal may be arranged, however, in all cases, so as to obstruct the drill in whatever way it may be inserted.

Although, as before stated, the drill-proof material may be inserted while in a solid form, by sliding it endwise into the spaces, still it is considered preferable to pour it in in a molten condition and allow it to harden in place. In order to admit of the hard material being shoved into its place, it will be necessary to cut away a portion of the flange at one side or end of the body-plates, and this it is not desirable to do.

It is obvious that the ribs, and consequently the channels between them to hold the hard metal, may be made in any form desired to accomplish the desired end of having the hard metal obstruct the entrance of a drill. The hard metal may be extended outward to form a covering or plating over the edges of the ribs when they are shaped as in Figs. 1, 2, and 3, as well as when made in the other forms.

When it is considered desirable, and the form of the recesses will permit, plates of chilled iron or steel, or other like material, may be placed in the parallel grooves or spaces before the drill-proof filling is introduced.

It is obvious that my improvements may be

applied to safes and vaults of all sizes and forms, and to those having their walls made in a single piece, as well as to those made in parts or sections, and also that, if desired, the ribs or flanges may be arranged to intersect each other.

The ribs, when parallel, may be vertical, horizontal, or inclined, and, if desired, they may be made of a curved or irregular form. The only requisite is, that the drill-proof material shall be so arranged as to at least prevent a drill from passing through the thin portion of the body-plates and into the interior of the safe, although it is, of course, desirable to prevent also a drill from passing through the ribs.

Having thus described my invention, what I claim is—

1. A vault or safe body or door consisting of an outside plate, having its inner face provided with transverse ribs of an irregular cross-section, and of a backing or filling of frankinite, chilled iron, or like material, applied and held by the ribs, substantially as shown and described.

2. The cast-iron body-plates A, having the ribs formed solidly on their inner faces, in combination with the backing of frankinite, chilled iron, or like material, held in place solely by the ribs, the latter being made of such form in cross-section as to interlock with said material.

3. In combination with the cast-iron plates or sections A, provided with the drill-proof backing, and united at their edges, as set forth, the wrought-iron facing C, screwed or riveted to the cast-iron, for the purpose of concealing and protecting the joints therein.

4. The safe or vault-body consisting of the plates A, having the ribs a, filling or backing B, of frankinite or like material, hard-metal plate D, non-conducting material E, and inside plate F, all united and arranged as shown and set forth.

JOHN CRUMP.

Witnesses:

J. M. DOUGHERTY,  
W. W. DOUGHERTY.