

(No Model.)

C. O. YALE.
BURGLAR PROOF SAFE.

No. 428,240.

Patented May 20, 1890.

Fig. 1.

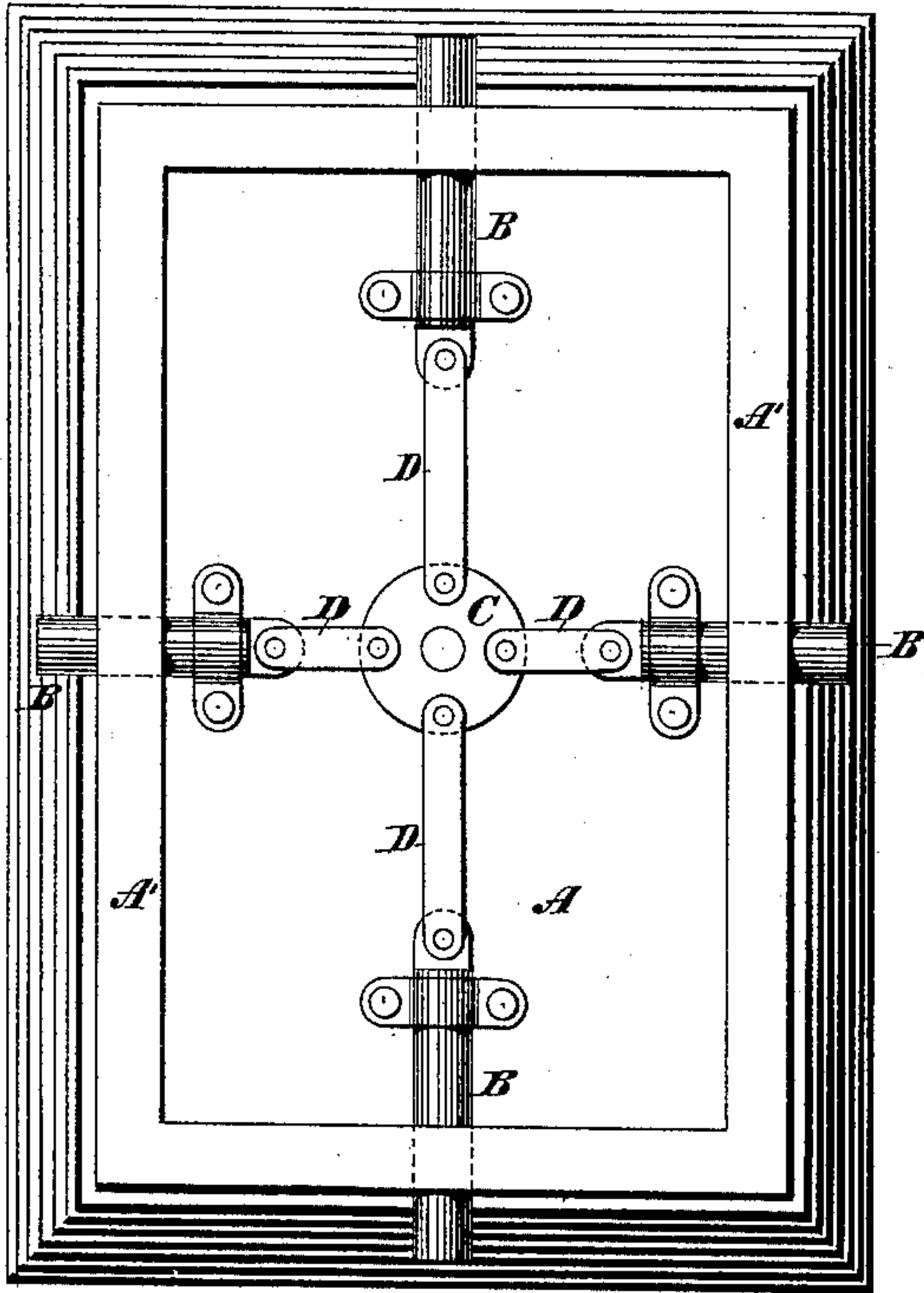


Fig. 3.

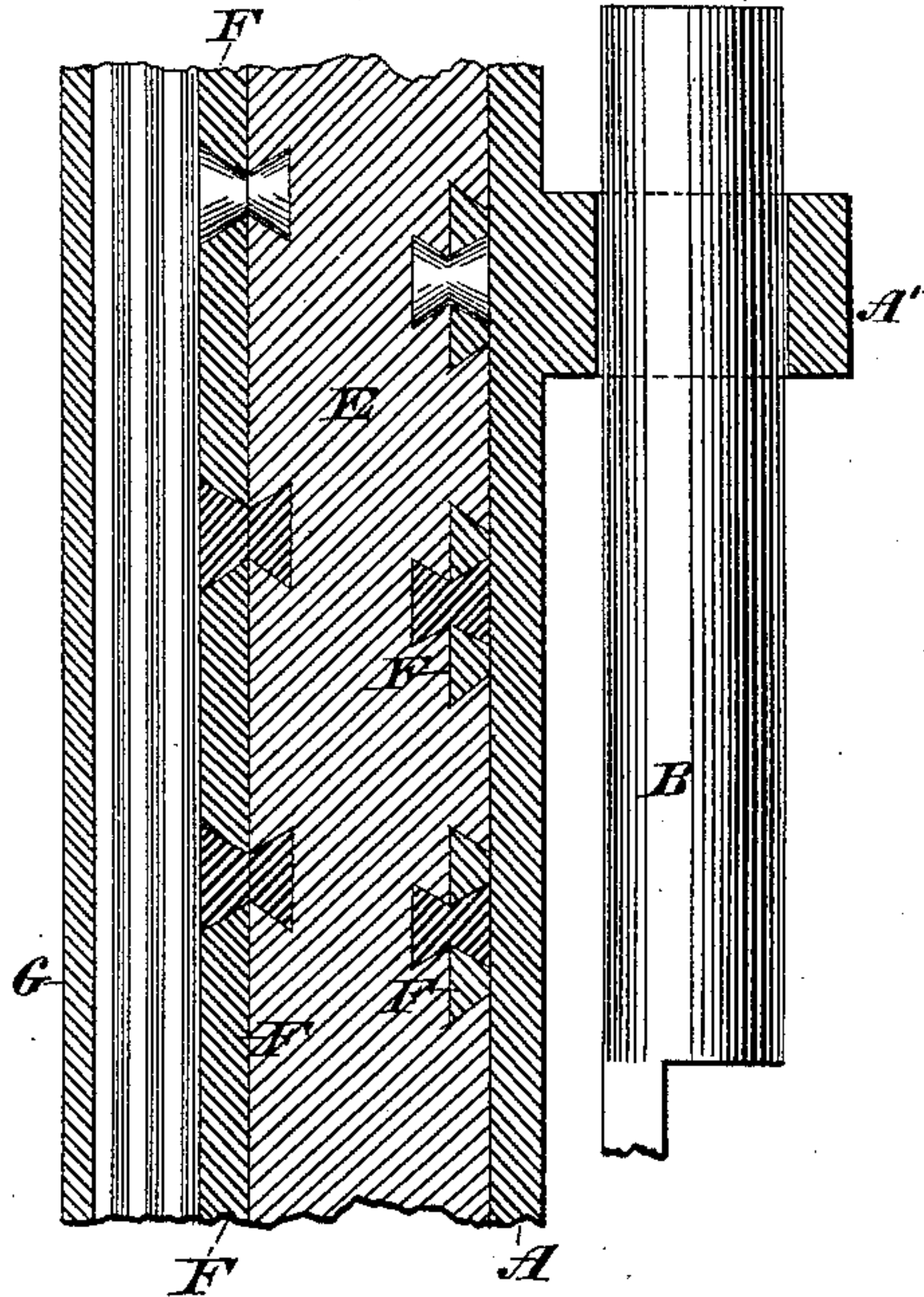


Fig. 4.

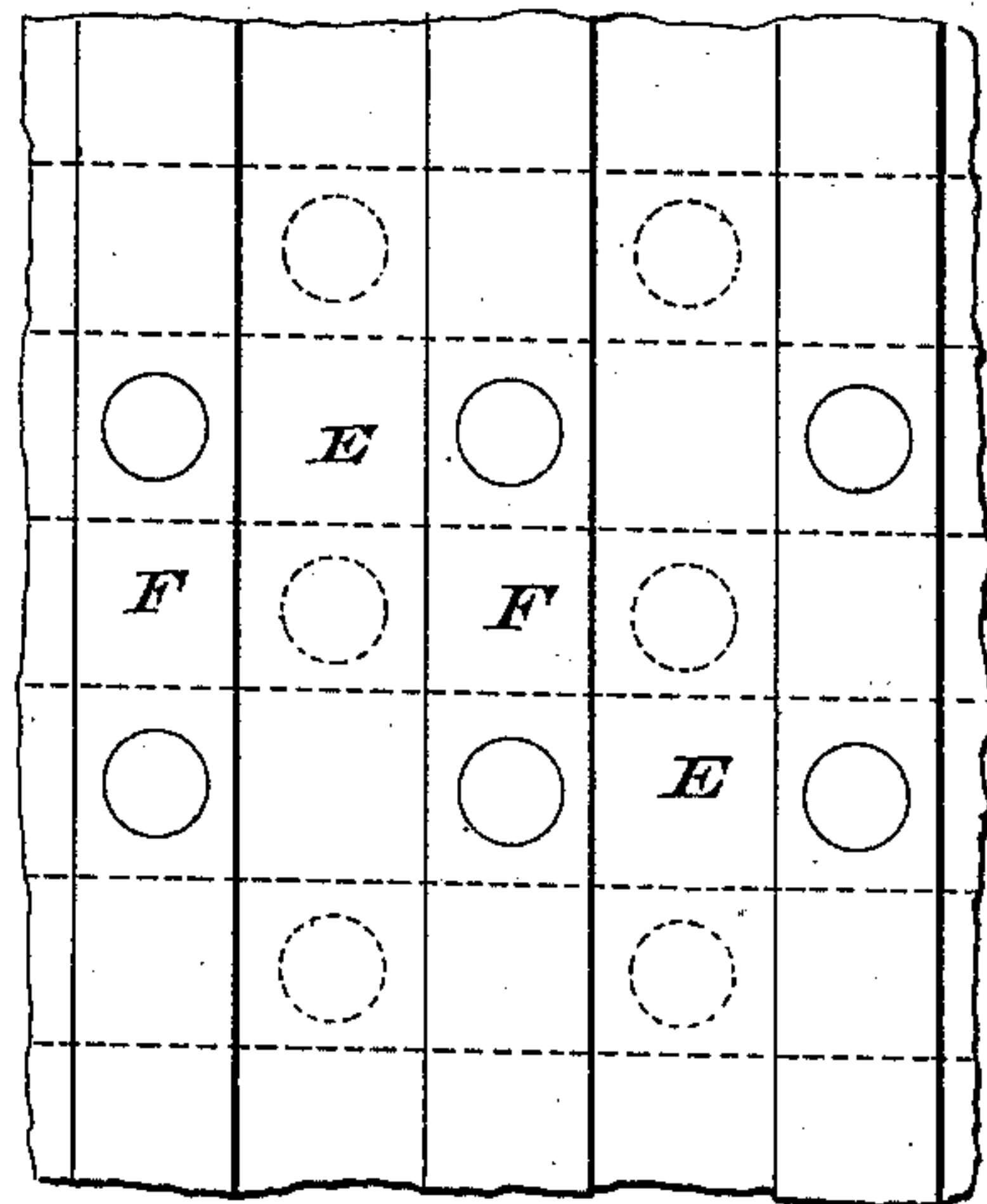
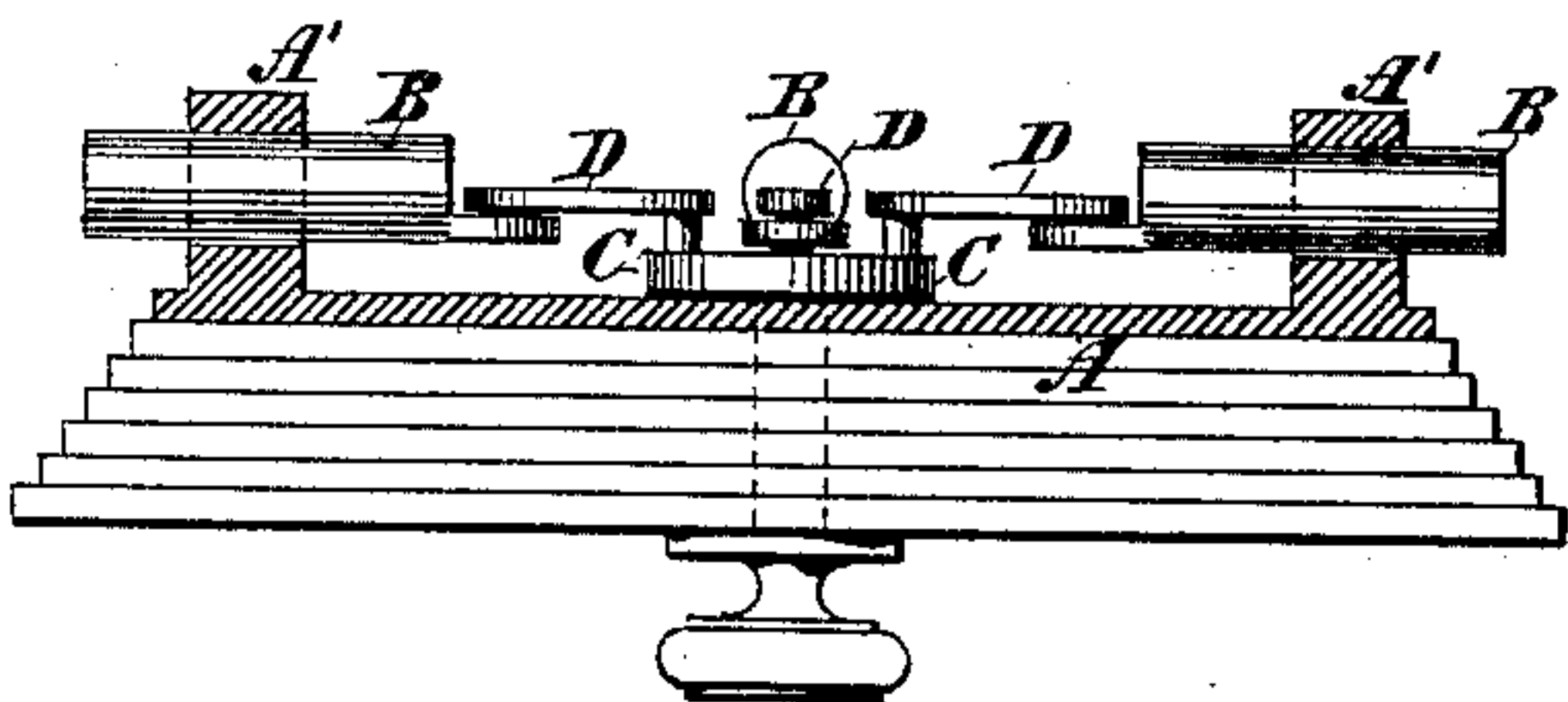


Fig. 2.



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BURGLAR-PROOF SAFE.

SPECIFICATION forming part of Letters Patent No. 428,240, dated May 20, 1890.

Application filed March 9, 1889. Serial No. 302,688. (No model.)

To all whom it may concern:

Be it known that I, CHARLES O. YALE, of the city, county, and State of New York, have invented certain new and useful Improvements in Burglar-Proof Safes, whereof the following is a specification.

The improvements are directed to the structure of the walls, the door, and the locking-bolt work of the door, with the object of enhancing the power of resistance to explosives ignited from within the safe. The force of such explosion is mainly against the door, and the tendency is to bulge out the walls, rendering them susceptible to other modes of attack, and to tear off the bolt-work of the door, or loosen its anchorage therefrom.

Heretofore the laminæ of which the walls and the body of the door are constructed—consisting, for instance, of cast metal, as franklinite, wrought-iron, and welded steel and iron, (called “homogeneous” steel)—have been secured to each other by screw-bolts and rivets—a method adopted on account of the non-welding nature of the contiguous surfaces of the wrought steel or iron next to the cast metal. Such method of joining is imperfect, as it is impossible to bring all parts thereof into immediate contact with each other on account of the unevenness of the adjoining surfaces, so that the seams are more or less open, and, moreover, the bolt-work frame on the inner side of the door secured in the same manner is liable to be torn away. According to my invention an intimate union is formed between the adjoining surfaces of the non-welding metals, the seams are thoroughly closed throughout, the whole conglomerate wall (or door) is made a solid mass of metal, and the bolt-work is permanently secured to the door.

To enable others skilled in the art to practice my invention, I have shown in the annexed drawings the door of a burglar-proof safe embodying my said improvements, and also sections or parts of the wall or door, illustrating the structure thereof.

Figure 1 in said drawings is a face view of the safe-door as seen from within. Fig. 2 is an edge view of the door, showing the inner face-plate and bolt-work frame in section. Fig. 3 is a section of the door or wall, showing the different layers of metal as united.

Fig. 4 shows part of a slab of the cast metal or franklinite as prepared with wrought bars cast therein before dressing off.

A is the face-plate of the door. A' is the frame around the margin of said plate, which holds the locking-bolts B of the door.

C is the usual disk, connected with the knob without, for throwing the several bolts at once, as by connection therewith by links D or otherwise.

In carrying my invention into practice I first prepare slabs of franklinite E, with bars of wrought-iron F cast therein, so as to leave a protruding surface, the bars being made wedge form in cross-section, as shown, so as to be held securely in the cast metal E. A row of these bars is cast into each side of the slab E, and at right angles one to the other, as indicated by the full and dotted lines in Fig. 4. These slabs with the wrought bars therein are placed in a suitable machine and the bars dressed down to the level about of the slab. Having thus obtained wrought-metal surfaces, I take the plates of welded iron and steel, and having well cleansed the surface (as by immersion in acid solution or otherwise) the plates are laid on the slab of franklinite, arranged transversely to the wrought bars therein, and a fusible coherent metal or alloy placed between with a proper flux. The whole is then placed in a furnace and brought to a temperature sufficient to fuse and melt the interposed metal or alloy, whereby the seams are all filled and the said plates caused to cohere to the franklinite slab through the agency of the wrought-iron bars therein, to the surface of which bars such plates are thus united. A plate of wrought-iron G is usually united to the opposite side of the franklinite slab at the same time and in substantially the same way.

In making up the safe-door on this plan of union I first take the wrought-iron plate that is to form the inside face-plate A and join the bolt-work frame A' thereto, preferably by forging and welding the two together, so as to form one solid piece. I then make a pile composed of all the plates of all the metals of which the door is composed, with the outside plate of the door downward, and then lay on top of all, temporarily fastened in place,

the plate and frame A', which is to hold the locking-bolts of the door. The entire pile is then placed in the furnace, with the coherent metal introduced in all the seams, as before
5 set forth, and the whole converted by heat into one solid mass.

I claim as my invention—

1. The improvement in laminated walls of burglar-proof safes and safe-doors, consisting
10 in forming an intimate union between the several laminæ composing the wall, which consists in fusing an interposed coherent metal between them, as set forth, whereby the whole is converted into a solid body, substantially
15 as described.

2. The method of forming a union between a slab of cast metal, as franklinite, and a layer of wrought iron or steel by casting bars of wrought metal in the franklinite, so as to
20 leave a protruding surface, dressing down the exposed surface of wrought-iron about on a level with the cast metal, and then uniting the layer of steel or iron to the exposed wrought

bars in the franklinite by the interposition of a coherent metal, as specified. 25

3. In a metallic wall composed in part of franklinite or like cast metal having wrought-metal bars cast therein, so as to protrude from the surfaces, the arrangement of said bars on opposite sides of the franklinite at right an- 30 gles to each other.

4. A laminated metallic wall for burglar-proof safes, comprising layers of wrought-iron, franklinite, and welded steel and iron plates united by means of an interposed co- 35 herent metal, substantially as described.

5. In a burglar-proof safe-door comprising layers of franklinite, steel, and iron, the combination of the inner face-plate formed integrally with the bolt-work frame and such 40 frame and face-plate united integrally with the door, as set forth.

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Witnesses:

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