

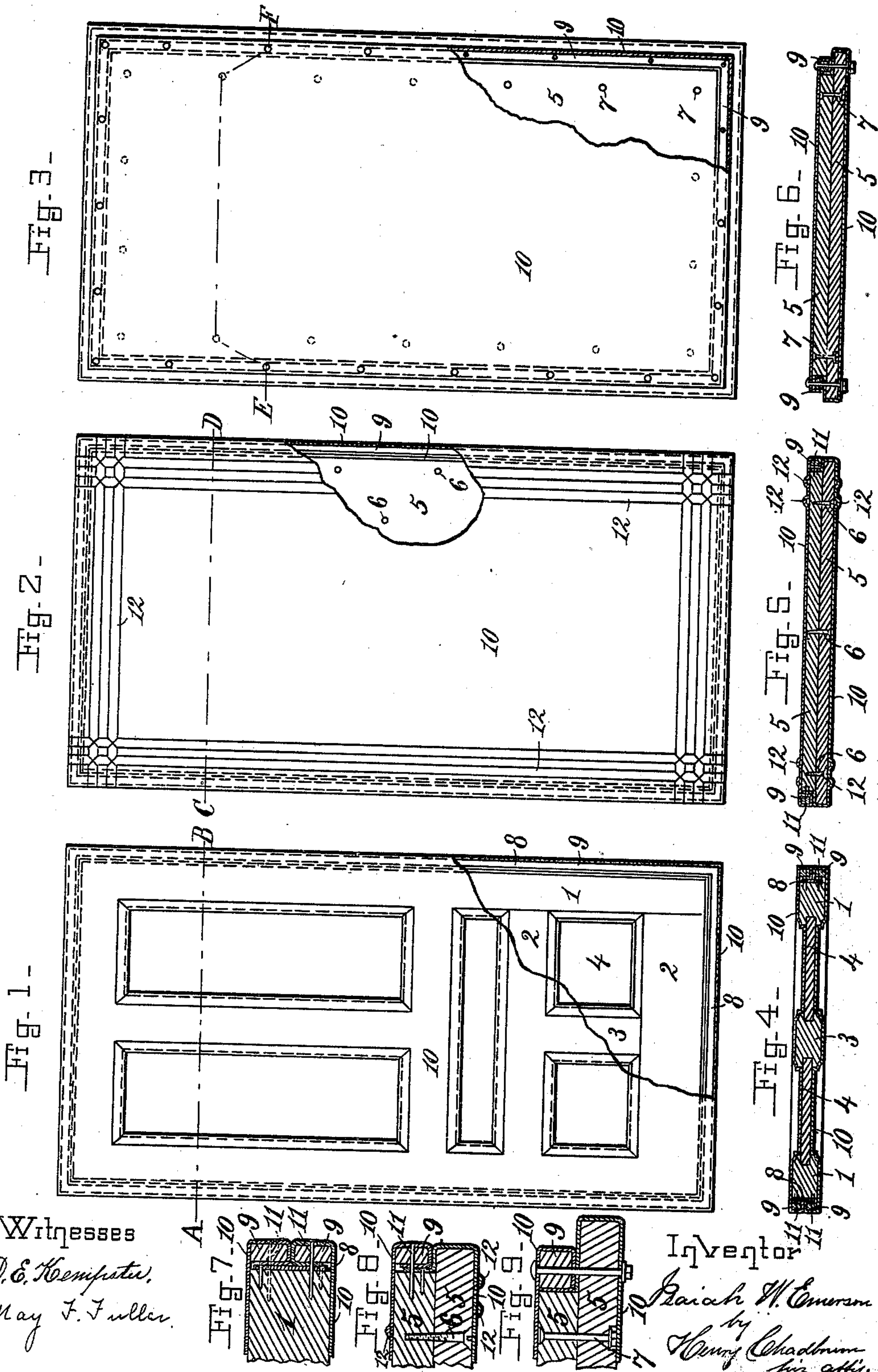
No. 670,858.

Patented Mar. 26, 1901.

I. W. EMERSON.
FIREPROOF DOOR OR SHUTTER.

(Application filed Aug. 9, 1900.)

(No Model.)



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UNITED STATES PATENT OFFICE.

ISAIAH W. EMERSON, OF MILFORD, MASSACHUSETTS.

FIREPROOF DOOR OR SHUTTER.

SPECIFICATION forming part of Letters Patent No. 670,858, dated March 26, 1901.

Application filed August 9, 1900. Serial No. 26,415. (No model.)

To all whom it may concern:

Be it known that I, ISAIAH W. EMERSON, of Milford, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Fireproof Doors or Shutters, of which the following is a specification.

This invention relates to improvements in fireproof shutters and doors, and particularly to that class of fireproof shutters and doors in which a wooden core or body is used, it being covered or incased with sheet metal, whereby it is practically impossible to burn the wooden core, and said core prevents the twisting and warping of the sheet metal, thus keeping the opening in the wall of a building or other place controlled by said shutter or door closed and preventing fire on one side of the shutter or door from being carried through said opening to the other side of the shutter or door. It is desirable that there should be as few joints in the inclosing casing of the shutter or door which are brought into direct contact with the flames as possible, and various devices intended to accomplish this result have been invented and patented; but whereas some of said devices have greatly reduced the exposed joints they have weakened the corners of the shutters or doors, so that the corners would be easily dented and the joints which are formed at the corners of the shutters or doors are thereby opened, so as to admit the flames to the core, or they have made it very difficult to insert a mortise-lock or to cut in and attach the hinges to the edges of the shutter or door.

It is the object of my present invention not only to reduce the exposed joints, but to strengthen the corners of the shutters or doors, and thus obviate the liability of opening the joint when said corners are dented and also to make it easy to attach the lock and hinges to the same.

It is also the object of my invention to improve the appearance of the shutter or door and to add to its strength.

My invention is carried out substantially as illustrated on the accompanying drawings, whereon—

Figures 1, 2, and 3 represent front elevations of my improved shutters and doors; showing various forms in which they may be

made and showing a part of the metal covering broken away to show the wooden cores. Figs. 4, 5, and 6 represent, respectively, cross-sections on the lines A B, C D, and E F in Figs. 1, 2, and 3. Figs. 7, 8, and 9 represent detail sections of the edge of the shutter or door, shown, respectively, in Figs. 1, 2, and 3.

Like characters of reference refer to like parts wherever they occur on the different parts of the drawings.

The wooden core may be made with stiles 1, rails 2, muntins 3, and panels 4, framed together in any common and well-known manner, as shown in Figs. 1 and 4, or they may be made from one or more thicknesses of boards 5 5, as shown in Figs. 5, 6, 8, and 9, and held together by screws or nails 6, as shown in Figs. 5 and 8, or by means of bolts 7, as shown in Figs. 3, 6, and 9.

When I use a framed core, as shown in Figs. 1 and 4, I prefer to make it somewhat smaller than the opening into which it is to fit and to make it with perfectly plain square edges. A strip of metal 8, forming a backing for the joint in the metal covering of the shutter or door, as hereinafter set forth, is attached to the edge of the core, substantially as shown.

Two frames 9 9, of wood, having inside dimensions slightly larger than the outer dimensions of the core and backing 8 and their outside dimensions a little smaller than the opening to be closed by the shutter or door, are covered by the sheet-metal coverings 10 10, the edges of the covering being bent around the frame, substantially as shown. These frames, with the metal coverings thereon, are forced upon the wooden core from opposite sides of the same, and they are of such a depth that their inner surfaces will meet, forming a joint at the middle of the edge of the core and entirely surrounding the core. The frames 9 9 are then firmly secured to the core by means of the screws or nails 11, driven through the frames and into the core, substantially as shown, or they may be secured in any other and well-known equivalent manner.

The metal coverings 10 10 are embossed to conform to the surface of the framed core against which they rest when in position on the core and the embossing of the covering

allows it to contract or expand when it is exposed to heat or cold. These coverings are preferably made from a single sheet of metal, as illustrated, in order to dispense with the lock-joints usually used in shutters and doors of this class; but they may be made with such joints, if found necessary, and especially when of extremely large size.

It will be seen that the joint on the edge of my improved door or shutter is the only joint through which the flames would be liable to reach the wooden core, and when the strip 8 is used it forms a backing for said joint and effectively prevents the flames from reaching the core. It will also be seen that the joint being in the middle of the edge of the door leaves a very strong square corner on the edge of the same, which is protected by the metal covering and it is not liable to be easily dented, broken, or knocked out of shape when coming into contact with objects. It will be understood also that the joint being on the edge further prevents the admission of the flames to the core on account of its being entirely within the jamb of the door when it is closed. Hinges and locks are easily applied to my improved shutter or door and will be held firmly in place, as the frames 9 are not of sufficient thickness to prevent the screws which hold them from entering the core of the same.

When I make a shutter or door, as shown in Figs. 2, 3, 5, 7, 8, and 9, I use a core made from two or even more thicknesses of boards 5 and hold them firmly together by means of nails or screws 6, as above set forth and as shown in Figs. 2 and 5, or by means of bolts 7, as shown in Figs. 3, 6, and 9. In such a construction I may dispense with one of the frames 9 and make one of the boards with its outside dimensions equal to that of the outside dimensions of the frame 9, which surrounds the other board, as shown in Figs. 5 and 8, or one of the boards may be made sufficiently large to project on all sides beyond the edges of the other, with the frame attached thereto, as shown in Figs. 6 and 9, and so as to form a rabbet on the edge of the shutter or door, as shown in said Figs. 6 and 9.

When I dispense with one of the frames 9, as above set forth and described, I may carry the covering on the side of the core which has no frame, sufficiently far around it to make a backing for the joint between the coverings, as is shown in Figs. 5, 6, 8, and 9.

In Figs. 3, 6, and 9 I have shown the coverings 10 as being made perfectly plain and

free from embossing or corrugations of any kind; but I may provide said coverings with one or more groups of corrugations 12 12, running both crosswise and lengthwise of the coverings, as shown in Figs. 2, 5, and 8, or they may run diagonally or in any other direction, and whereby due allowance will be made for any expansion or contraction of the coverings.

It will be seen that my improved shutters and doors are made very strong and effective and that they are neat in appearance on account of the lack of joints on the faces of the shutters and doors.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent and claim—

1. In a fireproof shutter or door of the class described, a wooden core, a frame around the edges of the core, and a metal covering stretched upon said frame and covering one of the sides of the core and the frame, being held in place with the frame upon the core, and forming only one exposed joint which is upon the edge of the shutter or door and entirely around the edge of the shutter or door, for the purpose set forth.

2. In a fireproof shutter or door of the class described, a wooden core, two frames around the edges of the core, and a metal covering stretched upon each of said frames and covering the opposite sides of the core and the frames, being held in place with the frames upon the core, and forming only one exposed joint which is upon the edges of the shutter or door and entirely around the edge of the shutter or door, for the purpose set forth.

3. In a fireproof shutter or door of the class described, a wooden core, two frames around the edges of the core, a metal covering stretched upon each of said frames and covering the opposite sides of the core and the frames being held in place with the frames upon the core, and forming only one exposed joint which is upon the edges of the shutter or door and entirely around the edge of the shutter or door, and a metal backing upon the edge of the core and across said joint, for the purpose set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

ISAIAH W. EMERSON.

Witnesses:

HENRY CHADBURN,
D. E. KEMPSTER.