W. W. MOREY.

METAL COVERED DOOR.

APPLICATION FILED SEPT. 20, 1907.

899,422. Patented Sept. 22, 1908.

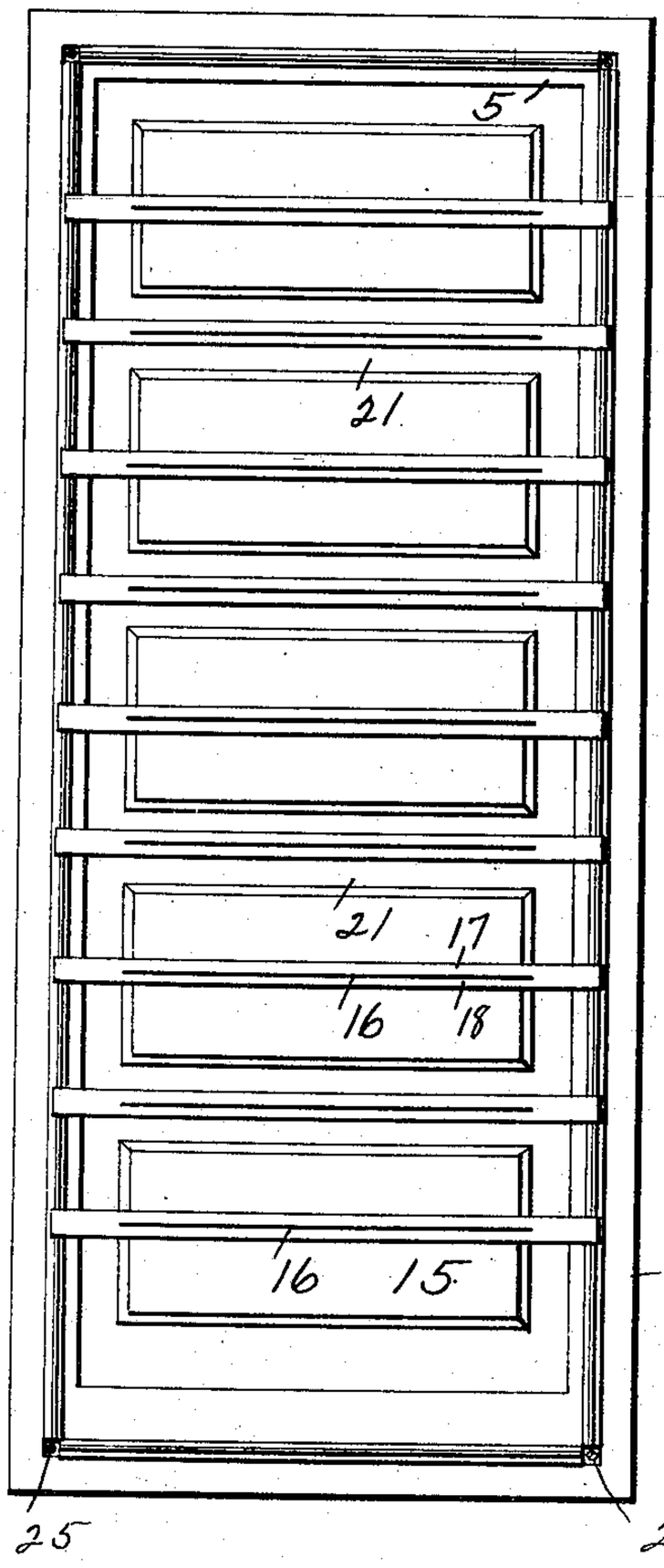


Fig. 1.

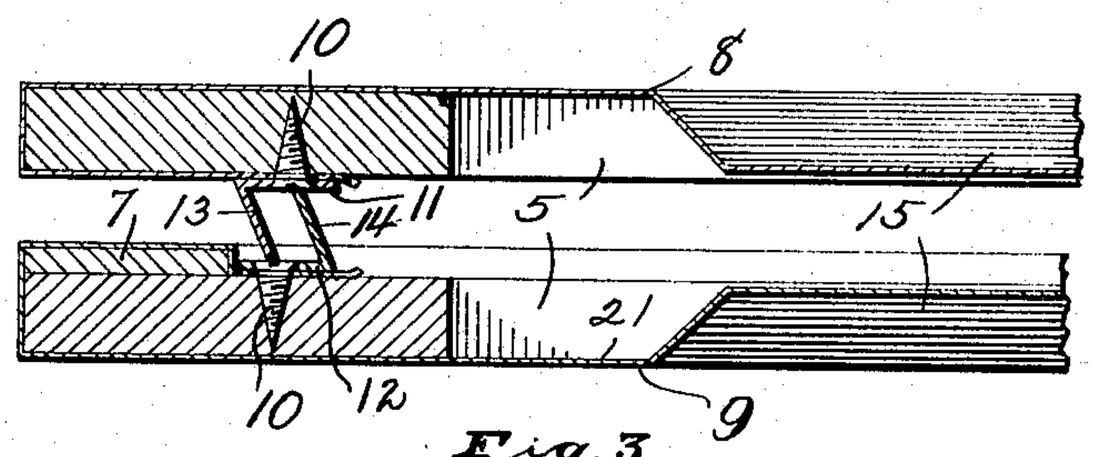


Fig. 3.

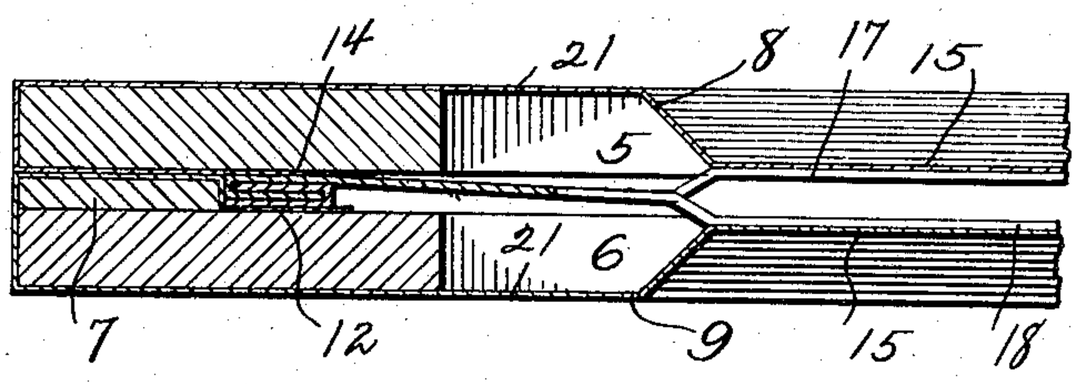


Fig. 4.

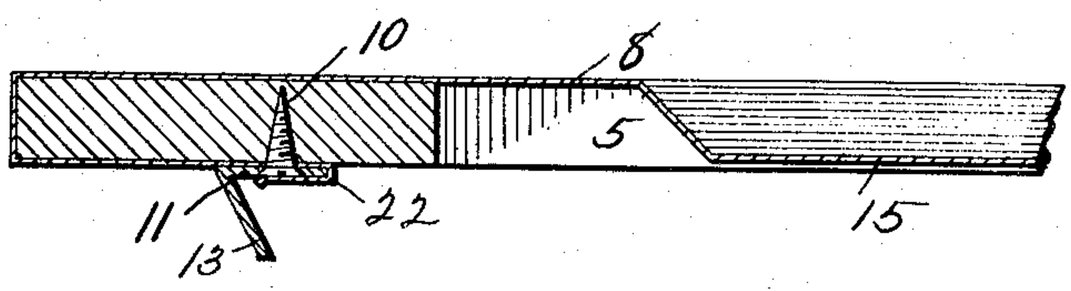


Fig. 5.

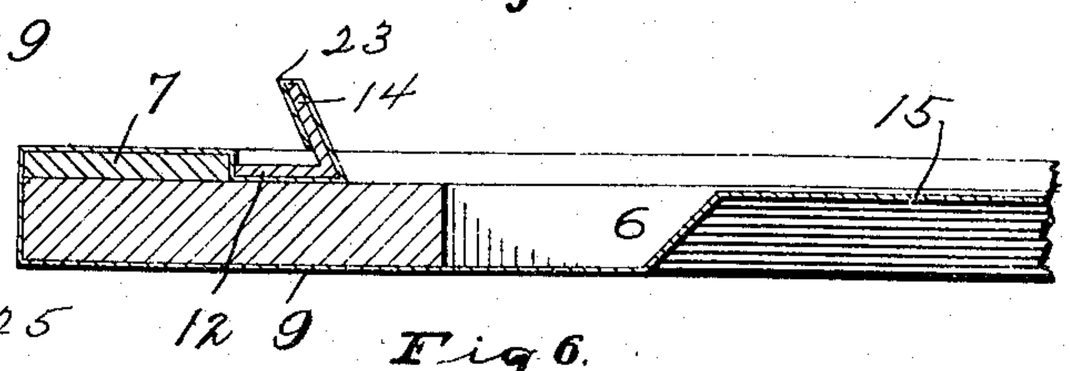


Fig 6.

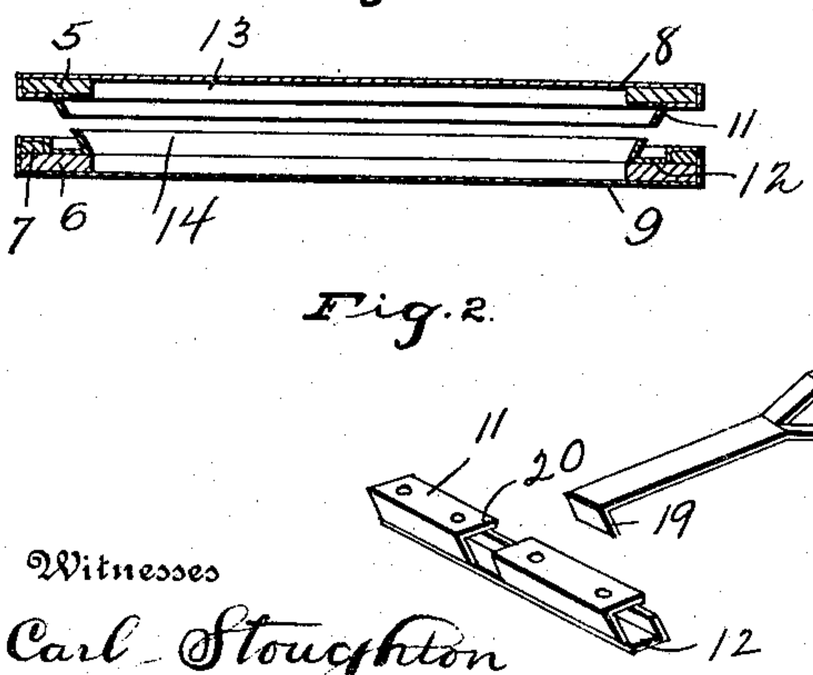


Fig. 2.

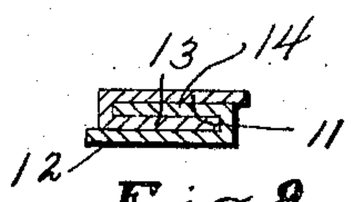


Fig. 8.

Fig. 7.

Witnesses

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METAL-COVERED DOOR.

No. 899,422. Specification of Letters Patent. Patented Sept. 22, 1908.

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To all whom it may concern:

Be it known that I, WORTHIE W. MOREY, citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Metal-Covered Doors, of which the following is a specification.

My invention relates to doors of that class known as fire doors and designed to effectually resist the action of fire. It is common in constructing doors of this character to employ a framework of wood which is covered with sheet metal and it is desirable that the edges of the sheet metal be secured to the frame in as neat a manner as possible and if the edges can be entirely concealed, so much the better.

To provide a fire door having the edges of the sheet metal covering entirely concealed, I construct my improved fire door in two parts adapted to be brought face to face with each other, the abutting faces being provided with interlocking members adapted to engage with each other to lock the sections firmly together. By virtue of this construction, the edges of the sheet metal covering are concealed within the body of the door and by reason of this fact it is not necessary to trim these edges to a predetermined size as is the case where the edges of the metal covering lie upon the exterior of the door.

Further objects and advantages of the invention will be set forth in the detailed description which now follows.

In the accompanying drawing: Figure 1 is a view in elevation illustrating the inner face of that portion of the door illustrated at the lower side of Fig. 3, Fig. 2 is a horizontal section through the two halves of the door before said halves are forced together, Fig. 3 is an enlarged sectional view illustrating the interlocking members in the position they occupy before the sections are forced together, Fig. 4 is a like view illustrating the parts in the position they occupy after the parts have been forced together, said sections being taken on the line of one of the brace rods hereinafter described, Fig. 5 is a detail sectional view illustrating a method of bending the inner edge of the metal covering around one of the clamping members, Fig. 6 is a like view illustrating the method of bending the inner edge of the sheet metal covering around the other of said clamping members, Fig. 7 is a detail perspective view of one of the brace rods hereinafter described, and, Fig. 8 is a view of the interlocking members after they have been forced into engagement with each other.

Like numerals designate corresponding parts in all of the figures of the drawing.

Referring to the drawing, the numerals 5 and 6 designate a pair of rectangular and preferably wooden frames, though it is to be understood that frames constructed of other material than wood, may be here utilized if desired. The frame 6 has a sub-frame 7 secured thereto, said sub-frame extending entirely around the frame 6. The frames are covered with sheet metal coverings 8 and 9, these sheet metal coverings being stamped out to the form of the door and their inner edges being secured by screws 10 to the frames 5 and 6. These screws also secure the interlocking members to the frames, said interlocking members being formed by angle bars which comprise the body portions 11 and 12 through which the screws 10 pass and the inwardly directed flanges 13 and 14 which are adapted to engage with each other as will be hereinafter described.

When the two sections of the door are forced together by a power press, the sub-frame 7 is forced up against the frame 5 and the inwardly directed flanges 13 and 14 are forced into engagement with each other as is illustrated in Fig. 8, thereby effectually locking the two portions of the door together and leaving but a faint seam around the outer edge of the door, the inner edges of the sheet metal coverings 8 and 9 being concealed within the door. Since these edges are thus concealed within the door, it follows that they may be cut to fit very roughly.

When the sheet metal coverings are pressed out into the form of a door, panels 15 are pressed into them. The provision of the sub-frame 7 spaces the two halves of the door from each other in such manner as to provide a space for the reception of the interlocking members after the parts have been brought together. This results in spacing the two metal coverings from each other and it is desirable to brace the door internally so that blows upon the exterior of the door will not unduly dent and disfigure it. To accomplish this, brace bars such as are shown in Fig. 7 are provided. These brace bars are slit longitudinally as at 16 and one side of the bar is bent upwardly as at 17 and the other side is bent downwardly as at 18.

The outer ends of the bar are provided with hooks 19 adapted to engage over the flanges 14 upon opposite sides of the door and the flanges 13 are cut out as at 20 (see Fig. 7) for the reception of the ends of these brace bars, then when the two halves of the door are forced together, the ends of the brace bars are pressed firmly into engagement with the flanges 14 (see Fig. 4). Since these ends lie in the cut out portion of the flanges 13, the brace bars are prevented from slipping sidewise and the engagement of the hooked ends 19 with the flanges 14, of course, prevent endwise movement of the bars. When these bars are arranged between opposed panels, the portion 17 rests against the indented face of one panel and the portion 18 rests against and braces the indented portion of the opposed panel. These bars may be arranged only between the panels or only between the rail portions 21 of the door, or they may be arranged both between the rail portions and the panel portions.

If desired, the inner ends of the sheet metal coverings may be bent over the interlocking members as illustrated at 22 and 23 in Figs. 5 and 6. It will of course be understood that where the brace bars are arranged between the rail portions of the doors instead of between the panel portions, the members 17 and 18 of the brace bars will have to be bent farther apart than is the case when the bars lie between the panels, for there is more space between the rail portions of the doors, than between the panel portions.

It may be found desirable to indent the panel portions of the doors so deeply that when the two halves of the door are forced together, the panel portions will rest against each other. This will obviate the necessity of bracing them, and in this case the brace bars would only be used between the rail portions of the doors.

The body portions 11 and 12 of the interlocking members are overlapped at the corners of the door and secured together by screws 25. It will therefore be seen that the interior skeleton frame formed by these angle bars and the brace bars is complete in itself, so that even if all of the wood-work be burned out of the interior of the door, the skeleton frame will still support the door.

A still further important point of novelty and advantage, resides in the fact that the inner edges of the metal covering pass beneath the body portions of the interlocking members and the screws 10 passing through these members and through the metal covering, tie these parts together and make a connected metal structure that will stand up of itself, even though the core be destroyed. It will also be seen that by virtue of this construction, a metal barrier consisting of the interlocking members lies at the base of the seam between the parts to effectually resist any tendency of the flame to enter through this seam and find its way to the wooden core of the door.

A door constructed as herein shown and described, may be very easily and cheaply made and it combines great strength and rigidity with extreme lightness. This is an important feature when it is remembered that these doors must be shipped from the factory to all parts of the country and that the freight rates are in many instances very high.

It is to be understood that the term "door" where used throughout this specification and the claims appended thereto, is to be construed in a broad sense. A closure constructed in accordance with the invention may be used to close a doorway, or to close a window after the manner of the usual fireproof shutters employed. I wish it to be clearly understood therefore that my invention is not limited to the use of closing doorways alone but that closures constructed in accordance therewith may be used in the place of, or as, shutters.

From the foregoing description, it will be seen that the present invention comprises means for constructing a fire resisting door that will be very neat in appearance and which will be effectually braced and strengthened throughout, but while the elements shown and described are well adapted to serve the purposes for which they are intended, it is to be understood that the invention is not limited to the precise construction set forth, but includes within its purview such changes as may be made within the scope of the appended claims.

What I claim is:

1. A closure of the character described made in sections and covered with sheet metal, said sections being secured face to face with each other, the edges of the sheet metal cover lying upon the inner face of each of said sections and interlocking members carried by the inner face of each of said sections and engaged with each other, said members being adapted to automatically engage with each other to lock the sections together when said sections are forced towards each other.

2. A closure made in sections, said sections being secured face to face with each other and interlocking members carried by the abutting faces of said sections and engaged with each other, said members being adapted to automatically engage with each other to lock said sections together when said sections are forced towards each other.

3. A closure made in sections said sections being secured face to face with each other and interlocking members carried by the abutting faces of said sections and engaged with each other, said members being adapted to automatically lock said sections

together when said sections are forced towards each other, each of said sections being covered with sheet metal, the edge of which lies within the door when the said sections are locked together.

4. A closure of the character described made in two sections secured face to face with each other, each of said sections comprising a frame-work and a sheet metal covering for said frame-work and interlocking members carried by the inner faces of said sections and engaged with each other said members being adapted to be locked into engagement with each other when said sections are forced together.

5. A closure of the character described made in two sections, secured face to face with each other each of said sections comprising a frame-work and a sheet metal covering for said frame-work, interlocking members carried by the inner faces of said sections and engaged with each other when said sections are forced together, and means for spacing said sections slightly apart, said interlocking members lying within the space between said sections when the said members are brought together.

6. A door of the character described made in sections, a sheet metal covering for said sections, interlocking members carried by the inner faces of said sections and engaged with each other, and brace members which lie within the door and brace said sheet metal covering.

7. A door of the character described made in sections, a sheet metal covering for said sections, interlocking members carried by the inner faces of said sections and engaged with each other, and brace members which lie within the door and brace said sheet metal covering, said brace members being engaged with the interlocking members to thereby lock said brace members in position.

8. A door of the character described made in sections, a sheet metal covering for said sections, interlocking members carried by the inner faces of said sections and engaged with each other, and brace members which lie within the door and brace said sheet metal covering, said brace members being engaged with the interlocking members to thereby lock said brace members in position, said brace members comprising bars longitudinally slit and spread, substantially as described.

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

WORTHIE W. MOREY.

Witnesses:
FRANK G. CAMPBELL,
L. CARL STOUGHTON.