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F. W. HARGRAVE

1,680,987

DOOR

Filed March 21, 1927

Fig. 1.

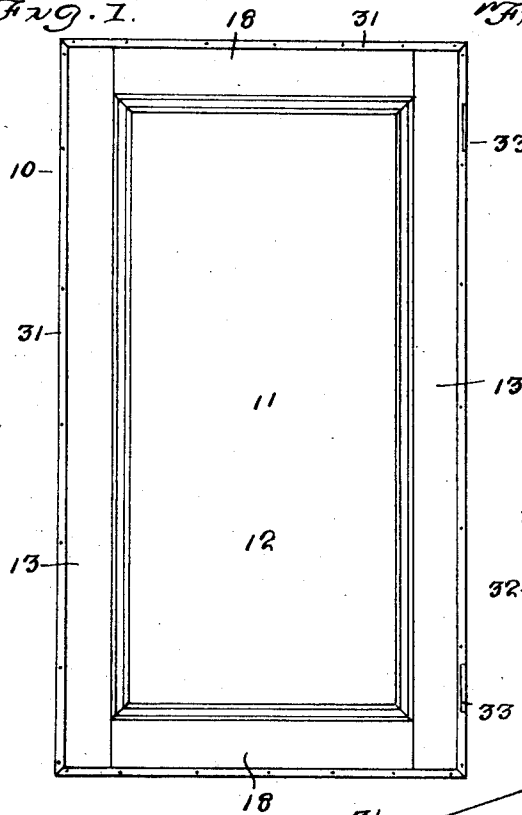


Fig. 3.

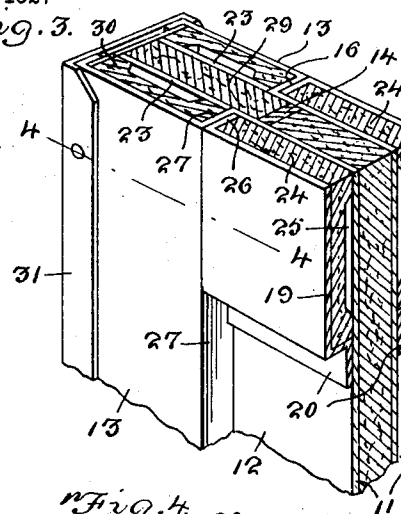


Fig. 4.

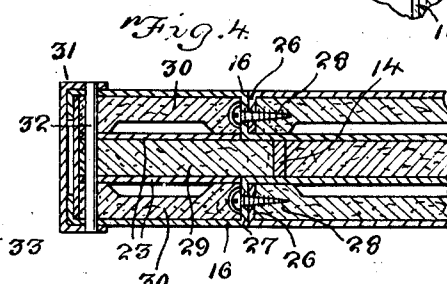


Fig. 2.

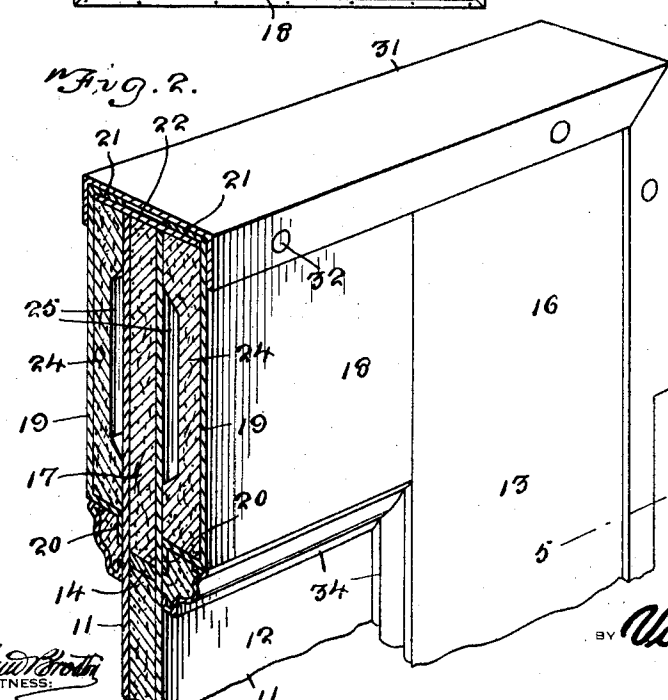


Fig. 6.

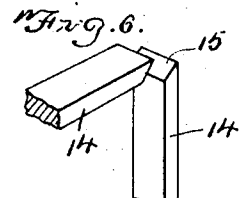
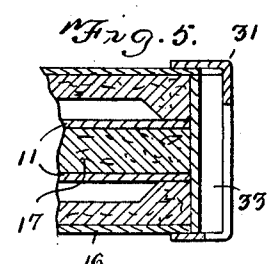


Fig. 5.



Witness

Fred W. Hargrave
INVENTOR
BY Victor J. Evans
ATTORNEY

UNITED STATES PATENT OFFICE.

FRED W. HARGRAVE, OF SOUTH RIVER, NEW JERSEY.

DOOR.

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This invention relates to improvements in doors and has particular reference to a fireproof door.

The primary object of the invention resides in a door constructed of fireproof material capable of withstanding intense heat without collapsing.

Another object of the invention is the provision of a fireproof door in which the panel and side rails on each side of the door are constructed of a single piece of flat sheet metal to which the top and bottom rails are connected and any intermediate rails should the same be desired for ornamental purposes.

A further object of the invention is to provide a fireproof door which is simple in construction, inexpensive of manufacture, light in weight and strong and durable for the purpose intended.

With these and other objects in view, the invention resides in certain novel construction and combination and arrangement of parts, the essential features of which are hereinafter fully described, are particularly pointed out in the appended claims, and are illustrated in the accompanying drawing, in which:—

Figure 1 is a front elevation of my improved fireproof door.

Figure 2 is a fragmentary sectional perspective view.

Figure 3 is a sectional perspective view of the corner construction.

Figure 4 is a detail horizontal sectional view on the line 4—4 of Figure 3.

Figure 5 is a detail horizontal sectional view on the line 5—5 of Figure 2.

Figure 6 is a detail perspective view showing the joint between the panel spacing bars.

Referring more particularly to the drawing, the reference numeral 10 designates my improved door in its entirety and which includes a pair of sheet metal sections 11 which constitute the front and back panels 12 of the door and the outer walls of the stiles 13. The sections 11 extend the full height of the door and are held in spaced relation by metal bars 14 which are disposed a suitable distance inward of the top and sides of the sections. The meeting ends of the bars 14 are bevelled as at 15 to provide co-acting faces and which bars may be welded together at their joints to form a rectangular spacing frame for the sections 11.

The vertical side edges of the sections 11 are offset as at 16 and constitute the outer faces of the vertical stiles. Interposed between the sections 11 and filling the space therebetween are layers of fireproof material 17 such as gypsum, asbestos or like composition and which are adhesively secured to the inner faces of the sections by silicate soda or the like.

The cross rails 18 at the top and bottom of the door are each formed of a pair of sheet metal sections 19 having flanges 20 which fit against the sections 11 to hold the sections 19 in spaced relation with the sections 11. The sections 19 are each provided with an inwardly extending flange 21 for overlying plates 22 which extend about the sections 11, and spaced plates 23 are disposed within the stiles and in the same plane as the panel portion of the sections 11 as clearly shown in Figure 4 of the drawing. The plates 22 and the bars 14 respectively strengthen the door and hold the metal sections 11 against shifting with respect to the cross rails 18. The space between the sections 11 and the sections 19 are filled with layers of fireproof material 24, similar to the material 17, and which material is reduced in thickness to provide air spaces 25 within the top and bottom rails.

The sections 19 have end flanges 26 which fit against the shoulders 27 formed by the offset portions 16 of the sections 11 and are connected with said sections by Parker screws or the like 28, which screws pass through aligned openings in the meeting parts.

The space between the plates 23 is filled with fireproof material 29 while the space between the plates 23 and the walls of the offset portions 16 are filled with layers of fireproof material 30 similar to the material 17 and 24 hereinbefore mentioned and attached in a similar manner.

Encircling the edges of the door are U-shaped channel members 31 which are bevelled at their meeting corners and secured by pins 32 which pass through the parts as clearly shown in Figure 4 of the drawing, and which pins are spot-welded to withstand intense heat without working loose.

One of the sides of the door is recessed at suitable points as at 33 to accommodate the hinges for swingingly mounting the same upon a supporting structure.

The joints between the sections 11 and 19 and the shoulder 27 are normally concealed from opposite sides of the door by molding strips 34.

5 From the foregoing description, it will be seen that the door is easily constructed as the sections 11 serve to form the panel and outer walls of the vertical stiles, and to form the cross rails, it is only necessary to add the sections 19 at the top and bottom thereof. 10 If desired, a rail could be placed intermediate the top and bottom rails by simply adding additional sections 19. This would give the door the appearance of having a pair of panels but in reality the same is only 15 constructed of but one.

In practice, a door of the foregoing description will withstand intense heat without collapsing as the outer sections are all 20 constructed of sheet metal and firmly braced. Insulating or fireproof material between the sections reduces the penetration of heat from one side of the door to the other and provides a solid wall structure.

25 While I have described what I deem to be the most desirable embodiment of my invention, it is obvious that many of the details may be varied without in any way departing from the spirit of my invention, and 30 I therefore do not limit myself to the exact details of construction herein set forth nor to anything less than the whole of my invention limited only by the appended claims.

What is claimed as new is:—

35 1. A fireproof door comprising a pair of sheet metal sections extending the length of the door, and constituting the panel thereof, the vertical side edges of said sections being offset to provide the outer walls 40 of the stiles, sections constituting the cross rails and fitting against the offset portions and flush therewith, plates co-extensive with the panel portion of said first sections and disposed within the offset portions thereof 45 and extending the length of the same, and layers of fireproof material interposed between the sections and plates and adhesively secured thereto.

50 2. A fireproof door comprising a pair of sheet metal sections extending the length of the door, and constituting the panel thereof, the vertical side edges of said sections being offset to provide the outer walls of the stiles, sections constituting cross rails and fitting

53 against the offset portions and flush therewith, plates co-extensive with the panel portion of said first sections and disposed within the offset portions thereof and extending the length of the same, and layers of fireproof material interposed between the sections and plates and adhesively secured thereto, and securing elements passing through the shoulders formed by the offset portions of said cross rail sections. 60

3. A fireproof door comprising a pair of 65 sheet metal sections extending the length of the door and constituting the panel thereof, the vertical side edges of said sections being offset to provide the outer walls of the stiles, sections constituting cross rails 70 and fitting against the offset portions and flush therewith, plates co-extensive with the panel portion of said first sections and disposed within the offset portions thereof and extending the length of the same, and layers 75 of fireproof material interposed between the sections and plates and adhesively secured thereto, means for securing said first mentioned and last mentioned sections together at their meeting ends, and reinforcing 80 plates concealed within the outer walls of said stiles and rails.

4. A fireproof door comprising a pair of sheet metal sections extending the length 85 of the door and constituting the panel thereof, the vertical side edges of said sections being offset to provide the outer walls of the stiles, sections constituting cross rails and fitting against the offset portions and flush therewith, plates co-extensive with the panel portion of said first sections and disposed within the offset portions thereof and extending the length of the same, and layers 90 of fireproof material interposed between the sections and plates and adhesively secured thereto, means for securing said first mentioned and last mentioned sections together at their meeting ends, reinforcing plates 95 concealed within the outer walls of said stiles and rails, channel members enclosing the edges of cross rails and stiles, and retaining elements passing through said channel members and the respective rails and stiles for securing the same thereon. 100

In testimony whereof I have affixed my 105 signature.

FRED W. HARGRAVE.