W. B. GERVAIS.

FIREPROOF DOOR.

APPLICATION FILED FEB. 21, 1917.

1,257,476.

Patented Feb. 26, 1918.

2 SHEETS—SHEET 1.

Fig. 1

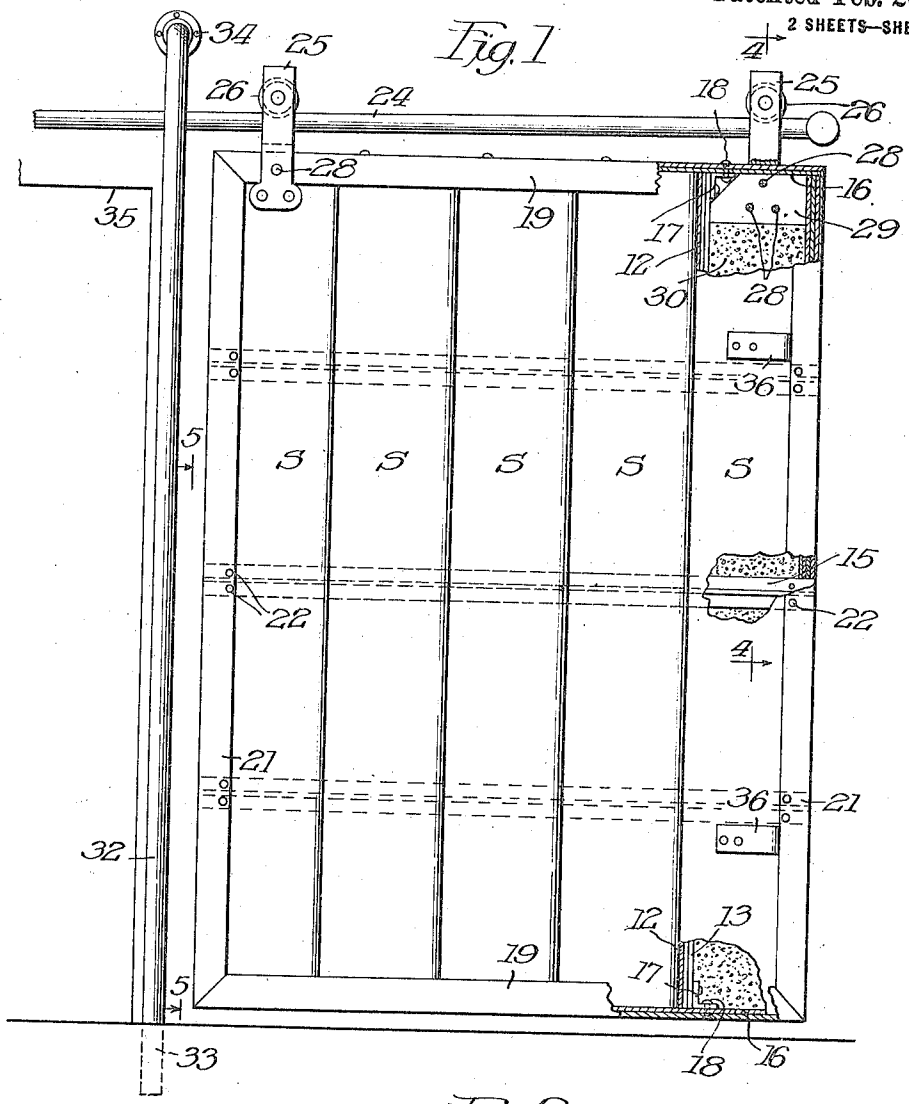
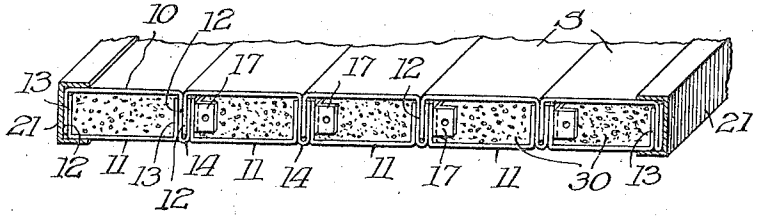


Fig. 2



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2 SHEETS—SHEET 2.

Fig. 3

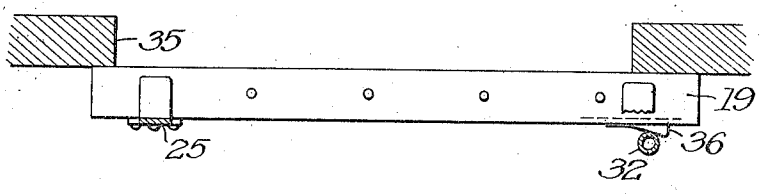


Fig. 5

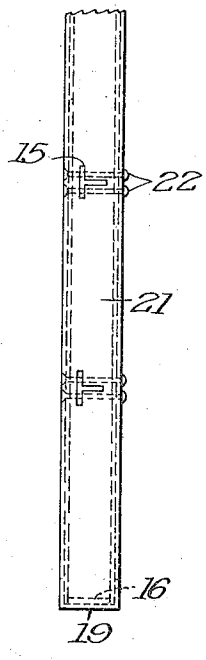
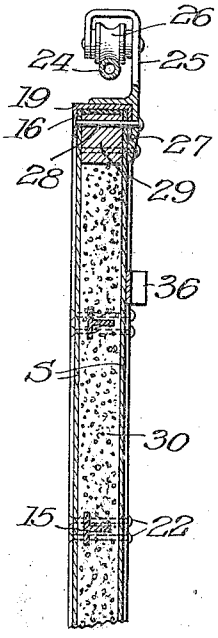


Fig. 4



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FIREPROOF DOOR.

1,257,476. Specification of Letters Patent. Patented Feb. 26, 1918.

Application filed February 21, 1917. Serial No. 150,259.

To all whom it may concern:

Be it known that I, WAINWRIGHT B. GERVAIS, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Fireproof Doors, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

The present invention relates to fire proof doors.

An object of my invention is to provide a novel, simple and improved fire proof door which may be cheaply manufactured, capable of quick and easy assemblage, may be quickly and easily installed and economically maintained and is effective in operation.

Other objects of my invention not hereinbefore set forth will appear from the following detailed description and the claims, taken with an inspection of the accompanying drawings, in which—

Figure 1 is a front elevational view of a door embodying the improvements of my invention, parts thereof being broken away;

Fig. 2 is a fragmental isometric view of one end of the door;

Fig. 3 is a top plan of the door in closed position;

Fig. 4 is a vertical section taken on the line 4—4 of Fig. 1; and

Fig. 5 is a similar section taken on the line 5—5 of Fig. 1.

Referring more particularly to the drawings, wherein similar characters of reference designate like and corresponding parts throughout the various views, S designates the sections of which my improved door is composed, said sections preferably being formed of sheet metal troughs or channels.

The troughs or channels are designated 10 and 11, the channels 11 being received within the channels 10, the end flanges 12 thereof embracing the end flanges 13 of the troughs 11. In order to connect adjoining sections of the door one of the flanges 12 of each section is formed to provide a channel as indicated at 14, said channel being adapted to receive the plain flange 12 of the adjoining trough 10. The intermediate plain channels 11 are slightly less in width than the endmost channel at one end of the door in view of the fact that at the plain end no channeled flange is necessary and hence the space taken up thereby in the outer section must be filled by making the inner channel of the section wide enough to fit snugly within its respective outside channel.

In order to strengthen the sections and prevent any longitudinal relative movement of the same I provide a plurality of transversely extending metallic stringers 15, said stringers extending through alining openings in the flanges of the various sections. The stringer referred to may be an ordinary T-iron, as best shown in Figs. 1, 4 and 5.

The opened ends of the sections S are closed off by means of end plates 16, angle brackets 17 being carried by the flanges of the inner cross-sections 11, said brackets being riveted as at 18 to the plates 16. The plates are reinforced and protected by channel irons 19 arranged at the top and bottom of the door, said channel irons embracing the plates and the ends of the sections S. The rivets 18 pass through said channel irons as well as the plates. The sides of the door are strengthened by channel irons 21, said channel irons embracing the sides of the end sections S. The channel irons 21 are connected to the sections by rivets or in any other desired manner. To prevent endwise movement of the strengthening T-iron 15, a plurality of bolts 22 are arranged to pass through said T-iron adjacent the end and through the flanges of the channel iron 21, as well as through the trough portions 10 and 11 of the sections S.

The door is suspended on an inclined trackway 24 by means of the brackets 25 which latter carry rollers 26 adapted to ride on the trackway 24. The brackets are provided with feet-portions 27 through which pass bolts 28, said bolts passing through the troughs 10 and 11 of the endmost sections of the door, through the flanges of the top channel iron 19, and through filling blocks of wood 29 or the like arranged within the section adjacent the upper end thereof. Each of the sections is filled with some heat insulating substance 30 such as asbestos or the like.

In order to seal the door when moved into the closed position, I provide a vertical bar 32 embedded in the floor as at 33, the upper end of the bar being bent laterally and connected as at 34 with the wall of the

building. The opening to be closed is designated 35 and is formed in the wall. The door is adapted to move between the wall and the bar 32, said door having a pair or more of wedge members 36 on the outer face thereof, so that when the door moves by gravity into the closed position, the wedges 36 engage the inner surface of the bar 32 forcing the door into snug engagement with the wall. Various mechanisms are employed for moving the door to closed position, my invention residing principally in the novel construction of the door and the provision of the sealing wedges.

It is, of course, to be understood that I do not limit myself to the structure as applied, since the combination of elements employed may be as readily embodied in a railway car structure, metallic building structure, or in fact in any structure wherein a fire proof wall is desired or necessary. I desire to emphasize particularly the facility with which the door may be assembled, all of the sections being stamped from sheet metal and adapted to accurately aline. A door may be made as wide or as narrow as desired, and the heat insulating material may be used or omitted as desired. However, it is preferable that the showing of the strengthening and protecting channel irons 19 and 21 be adhered to in practice in view of the valuable function performed by the same. The provision of the T-irons plays an important part in the construction of a door of this character, said T-irons taking up end-thrusts on the door when the same moves into closed position so as to prevent distortion or buckling of the sections. The T-irons will also prevent warping of the door during changes in temperature, and this function is assisted by the provision of the top and bottom channel bars 19. The connection of the channel flanges 14 with the flanges 12 is such that ample expansion and contraction of the sections is permitted to accommodate various changes in temperature.

While I have described and shown a fire proof door and lay particular stress on a device of this character I, of course, do not limit myself to its adaptation to this use or to the details of construction as shown but reserve the right to make such changes therein as do not depart from the spirit and scope of the invention as claimed.

I claim:

1. In combination, a plurality of independent structural units composed of opposed inner and outer trough sections, one of the side walls of each outer trough section being formed to provide a channel and the contiguous wall of the outer trough section of the adjacent units being receivable in said channel to interlock the units and prevent pulling apart of the same.

2. A door including a plurality of independent structural units composed of outer and inner trough sections in opposed relation, one of the side walls of each outer trough section being folded upon itself to form a channel, and the contiguous wall of the outer trough section of the adjoining units engaging in said channel.

3. In combination, a plurality of independent structural units composed of opposed inner and outer trough members, one of the side walls of each outer trough member being formed to provide a channel to receive the contiguous wall of the outer trough section of an adjoining unit, a plurality of T-bars extending through and arranged transversely to said units, channel bars for reinforcing the sides of said door, and ends of said units, and rivets extending through the units, said channel bars, and said T-bars to prevent transverse movement of the latter in the door.

4. In combination, a door constructed of a plurality of independent structural units composed of opposed trough sections having interlocking flanges to connect adjacent units, U-bars along the sides and ends of the door to reinforce and protect the units, a plurality of reinforcing T-bars in said door extending transversely of the sections, and means to connect the side channels to the endmost sections and to said T-bars to retain the latter.

5. In combination, a plurality of structural units composed of opposed independent inner and outer trough sections, the outer trough sections having channeled flanges to receive the contiguous walls of the adjoining outer trough, end plates closing the open ends of the sections, protecting and reinforcing channel members along the sides and ends of the section, and T-bars extending transversely of the structural units and being riveted to said side reinforcing channel members.

6. A structural unit for doors composed of a pair of opposed inner and outer trough sections, one of the side walls of the outer section being folded to form a channel, the other wall of said section being receivable in the channel of an adjoining unit when assembled in a door.

In witness whereof, I hereunto subscribe my name this 10th day of February, A. D. 1917.

WAINWRIGHT B. GERVAIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."