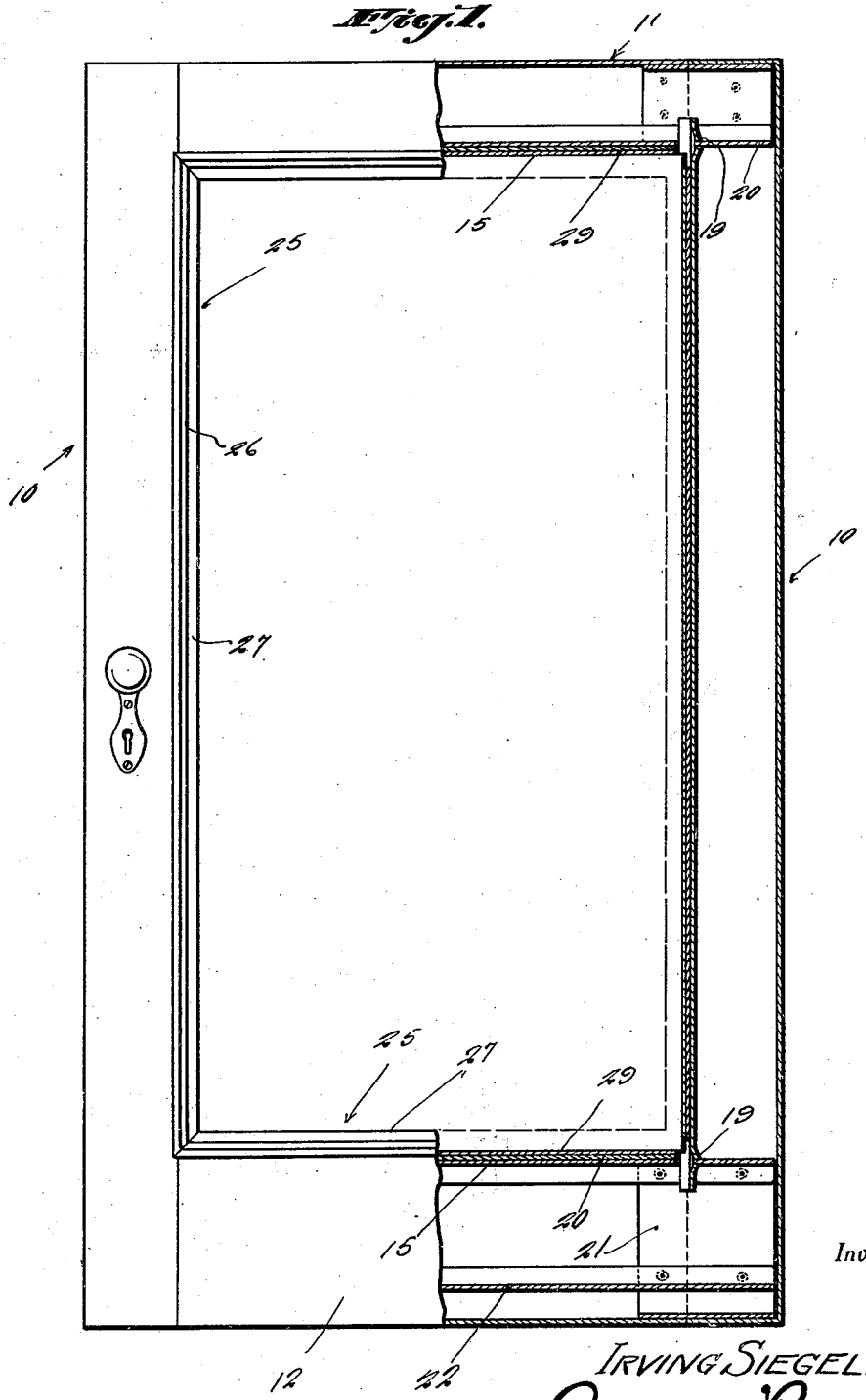
July 1, 1930. I. SIEGEL 1,769,757

FIREPROOF DOOR

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Fig. 1.



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FIREPROOF DOOR

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Fig. 3.

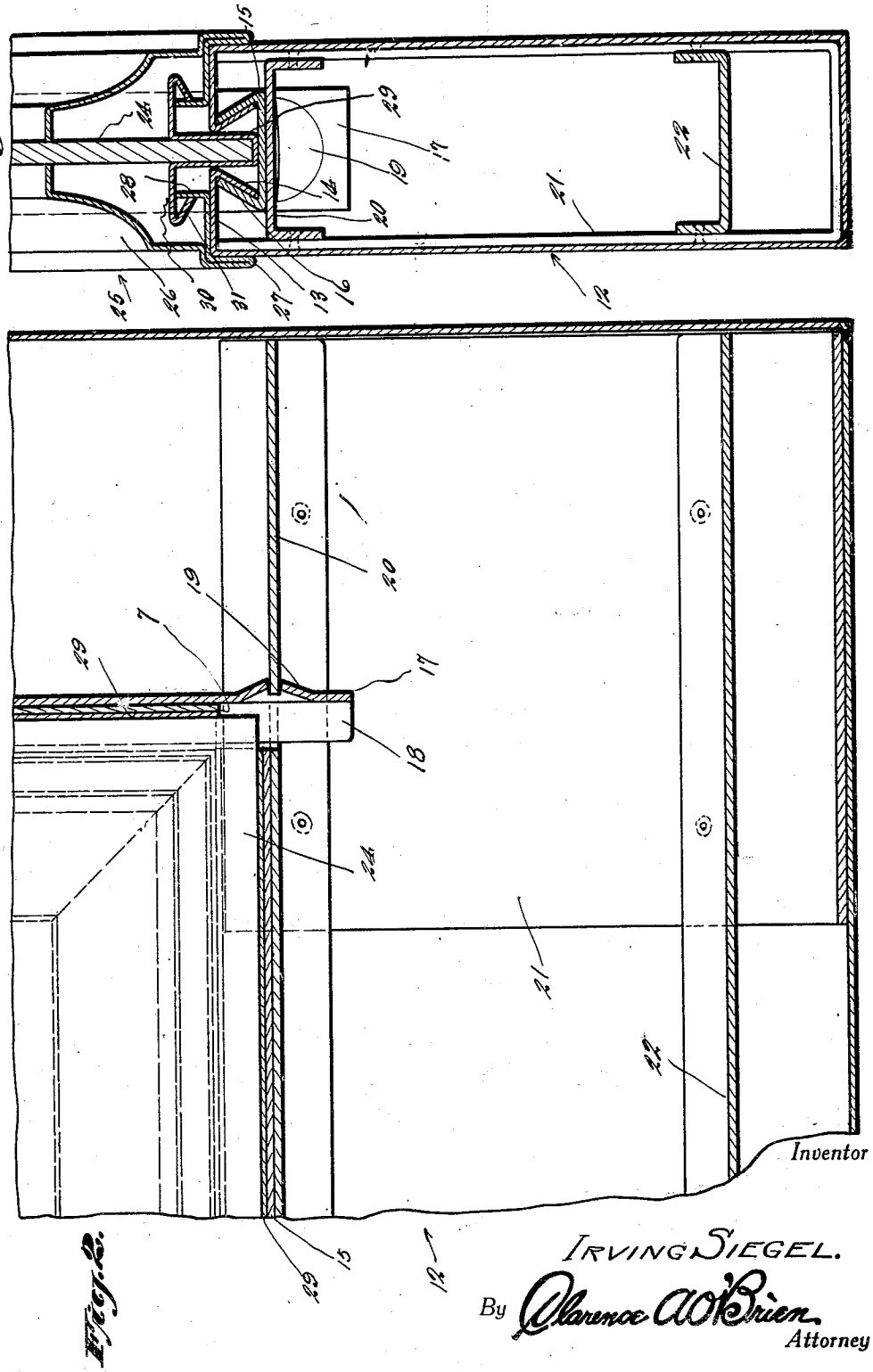


Fig. 2.

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Fig. 4.

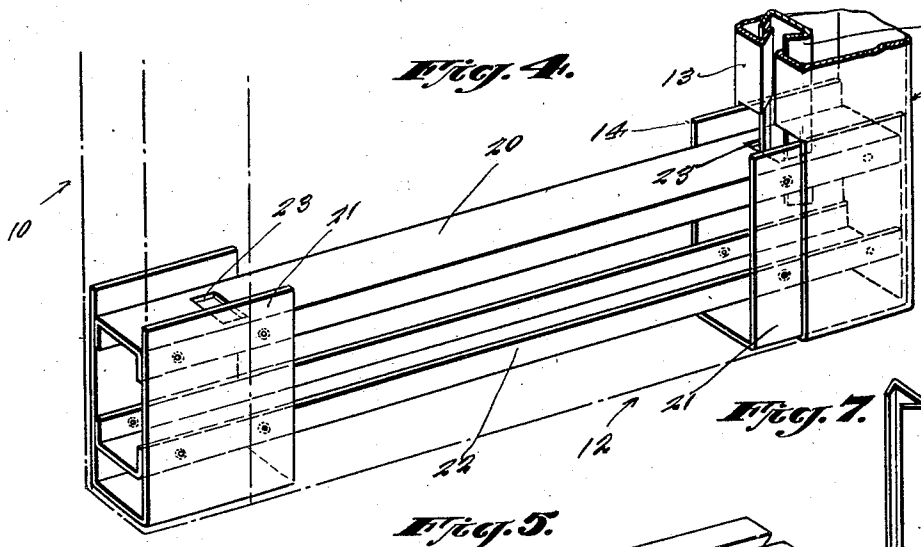


Fig. 7.

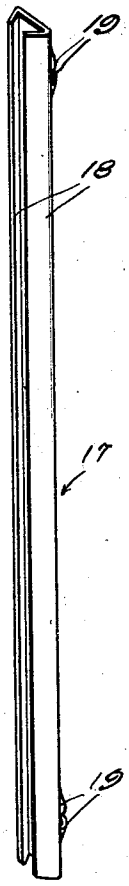


Fig. 5.

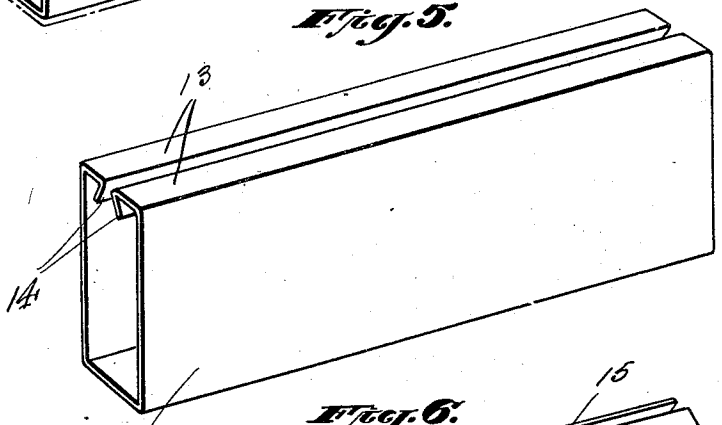


Fig. 6.



Fig. 9.

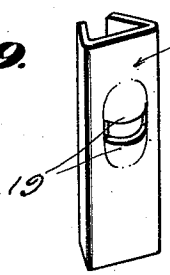
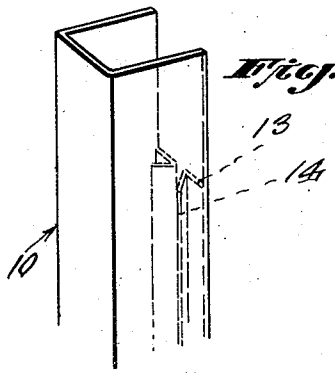


Fig. 8.



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Patented July 1, 1930 1,769,757

UNITED STATES PATENT OFFICE

IRVING SIEGEL, OF NEW YORK, N. Y.

FIREPROOF DOOR

Application filed June 14, 1929. Serial No. 370,878.

This invention relates to an improved all metal substantially indestructible fireproof door for buildings and construction work.

Generally stated, the invention consists in a new style all metal fireproof door susceptible of general application in the trade and characterized by a novel arrangement of parts cooperating in an intimate and dependable manner for producing secure interlocking joints and connections between the complemental parts, whereby to provide a structure which is fire resisting, strong and durable, dependable, and otherwise efficient in fulfilling the requirement for a closure of this class.

More specifically stated, I have developed a sturdy, all metal door, capable of general application in the industry and distinguishable from analogous closures, in that it involves the utilization of an unusually secure assembly of parts, which cannot be disassembled and which will rarely, if ever, fall apart, irrespective of the heat produced in a burning building.

The particular elements and their co-relation will become more readily apparent from the following description and drawings.

In the drawings:

Figure 1 is a front view, with portions broken away and shown in section, to disclose the construction and relationship of certain of the elements.

Figure 2 is an enlarged fragmentary corner view, exaggerating the relationship of parts.

Figure 3 is a vertical section through the fragmentary structure seen in Figure 2.

Figure 4 is a fragmentary perspective view of the lower end portion with certain parts being removed and detailing the internal skeleton-like structure.

Figure 5 is a perspective view of one of the casing members of the main door frame.

Figure 6 is a perspective view of a bottom keeper.

Figure 7 is a perspective view of one of the vertical keepers.

Figure 8 is a fragmentary perspective view of the upper end portion of one of the casing members of the door frame.

Figure 9 is a perspective view of the upper end portion of the keeper shown in Figure 7.

Referring first to Figure 1, it will be seen that the door frame is of conventional configuration, and is here shown as composed of four members, namely the two vertical frame members 10 and the top and bottom frame members 11 and 12. These frame members are more in the nature of hollow casings and of general channel shaped cross section. Each member is substantially the same in construction, for instance, as will be seen from a comparison of Figure 5 with Figure 8. Thus, each member has in turn flanges 13 terminating in outwardly diverging lips 14, and the lips 14 of the upper and lower frame casings 11 and 12 cooperate with horizontally disposed relatively short members 15, of a type illustrated in Figure 6. For convenience these members are designated as keepers and have converging edge flanges 16 between which the lips are confined and formed into an interlocking joint as detailed in cross section in Figure 3. The vertical keepers 17 are also formed with similar flanges 18, for cooperation with the inturned lips 13 of the frame members 10. The web portions of these vertical keepers 17 are formed with pressed protuberances of the configuration seen in Figure 9 and designated by the reference character 19. These constitute spaced retention abutments which are properly supported at the upper and lower ends in the complete door structure in the manner seen in Figure 1.

The upper and lower construction constituting the support for the keepers 15 and 17 is substantially the same in construction. For instance, as seen in Figure 4, the supporting means is in the nature of an internal arrangement of elements confined and concealed within the casing members of the door frame.

Referring to Figure 4, it will be observed that 20 designates the horizontal partition member of U-shaped or channel shaped cross section, securely fastened at its opposite end

to the U-shaped saddles or clips 21. These are in turn seated or confined within the complemental members of the door frame and constitute cornices. At the bottom of the structure is a single horizontal brace 22. This, however, is not presented in either of the sides or top of the structure. This brace is also fastened to the cornice members 21. The partition 20 is formed adjacent its opposite ends with holes or openings 23, receiving the opposite end portions of the pair of vertical keepers 17. It will be observed, for instance, by examining Figure 2, that the end of the keeper extends down through the opening in the partition and the abutment 19 has straddling engagement therewith.

The details so far described constitute the internal and external elements of the door frame.

I next call attention to the solid metal panel 24, whose edge portions cooperate with novel means for rigidly connecting the panel with the frame structure. It is thought that by considering Figure 3, a clear understanding of this fastening means for the panel will be had. For example numeral 25 designates the bead. This is composed of separate pieces located on opposite sides of the panel. The bead in each instance is the same and includes an ornamental portion 26, an overhanging flange 27, formed by bending the metal as seen in Figure 3 and inwardly projecting hanger flanges 28. The reference character 29 denotes a part which may be conveniently designated as a chair, and it is seated in the adjacent or complemental keeper within the flanges 14 and 16. The side walls of the chair are directed outwardly as at 30 and terminate in angularly bent hooks 31, which engage the flanges 28 and provide the dependable and novel interlocking joint and connection. Incidentally all of these parts are properly soldered or otherwise rigidly secured together to render the door substantially indestructible, of a high fire resisting quality and otherwise serviceable and dependable in fulfilling the requirement of a practically fireproof door construction.

It is thought that by carefully considering the detailed description and objects in connection with the drawings, a clear understanding of the construction, assembly and features and advantages of the invention will be had.

Therefore a more lengthy description is believed to be unnecessary.

Minor changes in the shape, size and rearrangement of details coming within the field of invention claimed may be resorted to, in actual practice, if desired.

I claim:

1. In a fire proof door of the class described, a main frame comprising a plurality of frame members of hollow construction, each member being formed on its inner side with inturned flanges terminating in outwardly diverging lips, an inner frame structure confined within said main frame and including a plurality of horizontal and vertical keepers having inturned converging side flanges interlocked with said lips, retaining means in said main frame for holding said inner frame structure in place, a panel, and means for securing the edge portions of the panel with the inner frame structure.

2. In a door construction of the class described, a main outer frame comprising top, bottom and side members, each member being of hollow channel shaped construction, having its inner portion formed with inturned flanges terminating in outwardly diverging lips, an inner frame structure confined and concealed within said outer frame, said inner frame structure comprising upper and lower horizontal keepers and vertical keepers, each keeper having longitudinal inturned converging flanges interlocked with said lips, upper and lower horizontal partition members supported within said main frame, and coacting means between said partition members and the adjacent end portions of the vertical keepers for maintaining the latter in place, together with a panel, and means securing the edge portions of the panel with said inner frame structure.

3. In an all-metal fire-proof door of the class described, a main metal outer frame composed of horizontal and vertical frame members of hollow construction having inturned flanges terminating in outwardly diverging retaining lips, upper and lower cornice clips arranged within the corner portions of said main frame, upper and lower horizontal partition members fastened at their opposite ends to the adjacent clips and having end openings, an inner frame structure embodying upper and lower horizontal keepers associated with said upper and lower horizontal partition members, and disposed between said end members, a pair of vertical keepers having their end portions projecting through said end openings, said projecting end portions being provided with retention abutments cooperating with the partition members to maintain the vertical keepers in place, both the horizontal and vertical keepers being formed with longitudinal inwardly converging retention flanges interlocked with said lips, a panel having its edge portion disposed in said keepers and between said lips, and retaining means for said panel.

4. In an all metal fire-proof door of the class described, a main metal outer frame composed of horizontal and vertical frame members of hollow construction having inturned flanges terminating in outwardly di-

verging retaining lips, upper and lower cornice clips arranged within the corner portions of said main frame, upper and lower horizontal partition members fastened at their opposite ends to the adjacent clips and having end openings, an inner frame structure embodying upper and lower horizontal keepers associated with said upper and lower horizontal partition members and disposed between said end members, a pair of vertical keepers having their end portions projecting through said end openings, said projecting end portions being provided with retention abutments cooperating with the partition members to maintain the vertical keepers in place, both the horizontal and vertical keepers being formed with longitudinal inwardly converging retention flanges interlocked with said lips, a panel having its edge portion disposed in said keepers and between said lips, and retaining means for said panel, said retaining means comprising ornamental facing beads having internal flanges, together with channel shaped chairs in which the edge portions of the panel are received, said chairs having hooped flanges engaged with said last named bead flanges.

In testimony whereof I affix my signature.

IRVING SIEGEL.