

No. 877,354.

PATENTED JAN. 21, 1908.

D. C. MEEHAN.
FIRE RESISTING STRUCTURE.
APPLICATION FILED SEPT. 25, 1907.

Fig. 1.

Fig. 2.

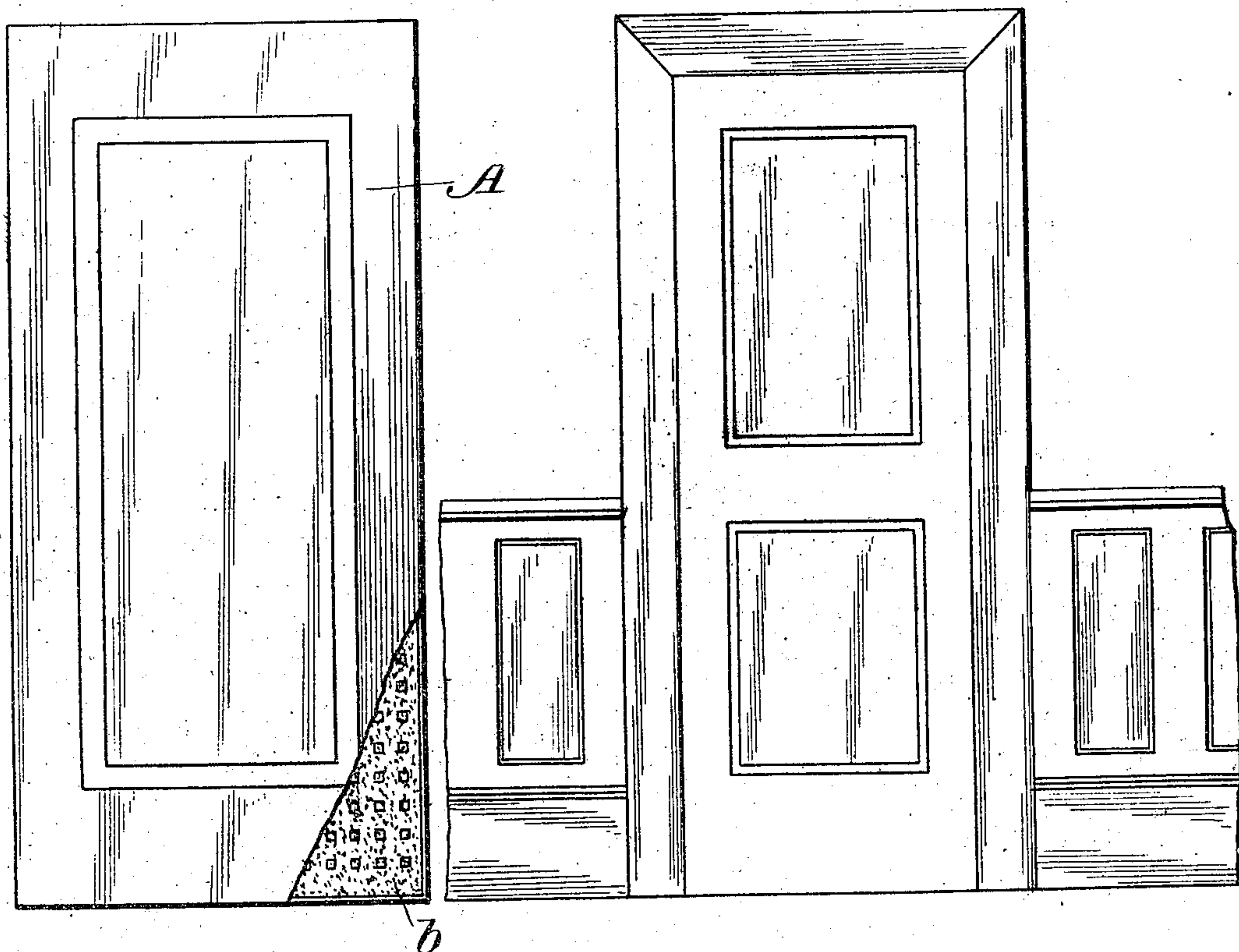


Fig. 3.

Fig. 5.

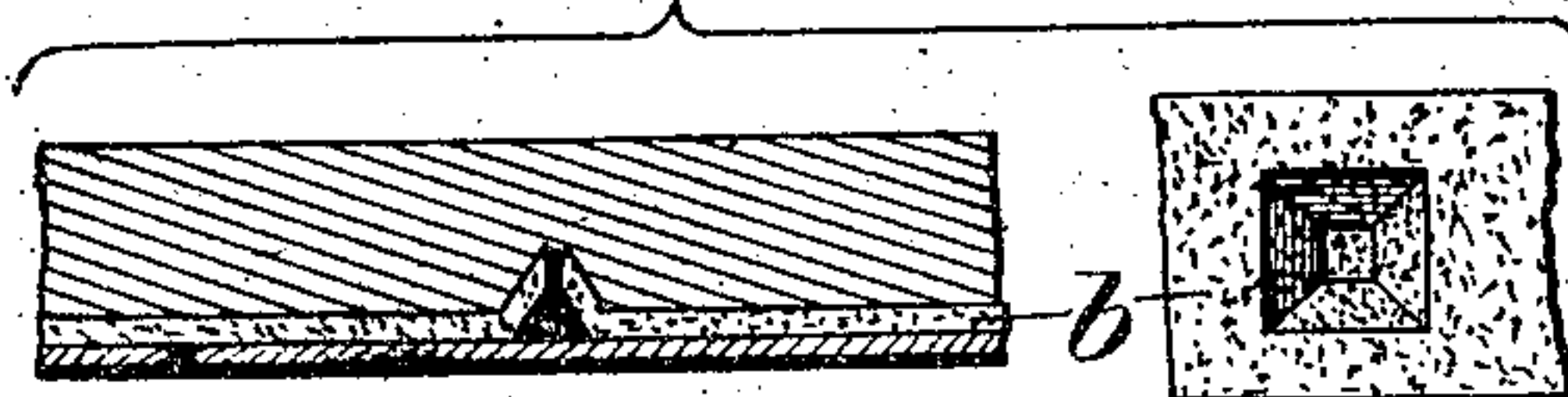
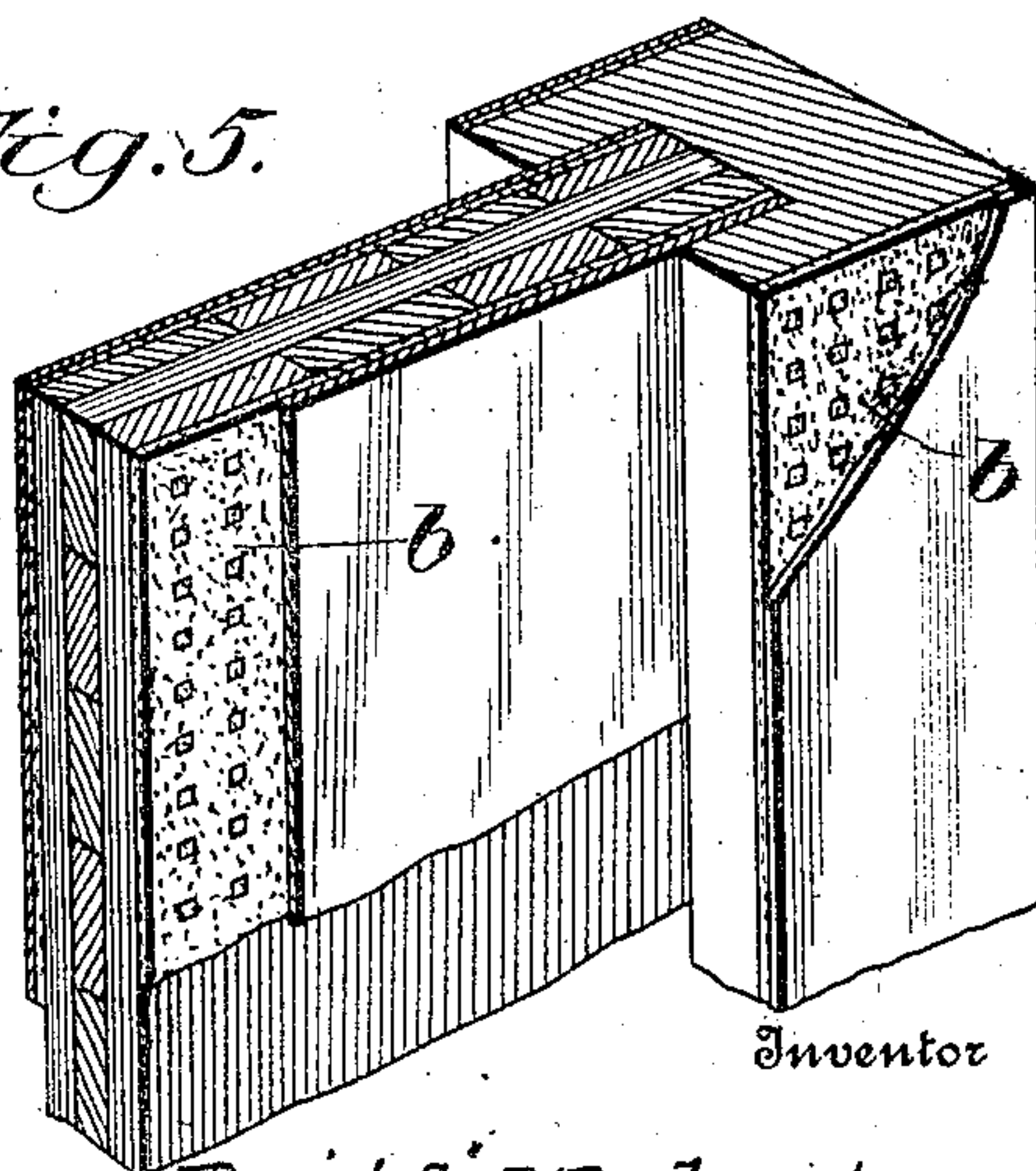
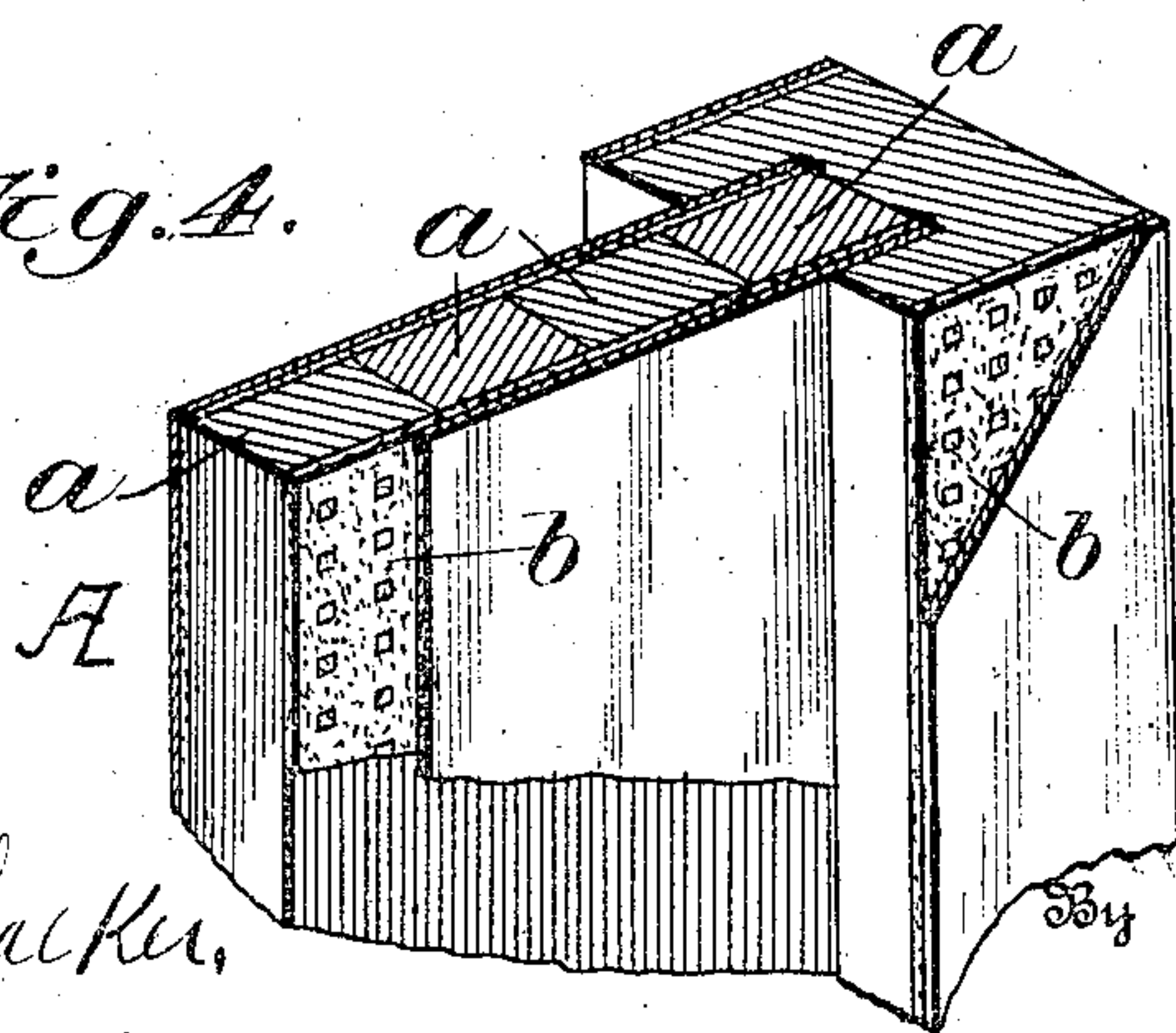


Fig. 4.



Witnesses

C. H. Wacker,
Ab. Ernst

David C. Meehan,

J. Walter Fowler

Attorney

UNITED STATES PATENT OFFICE.

DAVID C. MEEHAN, OF COLUMBUS, OHIO.

FIRE-RESISTING STRUCTURE.

No. 877,354.

Specification of Letters Patent.

Patented Jan. 21, 1908.

Application filed September 25, 1907. Serial No. 394,499.

To all whom it may concern:

Be it known that I, DAVID C. MEEHAN, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented new and useful Improvements in Fire-Resisting Structures, of which the following is a specification.

This invention relates, essentially, to certain useful improvements in fire-proof or fire-resisting doors, and panels for doors, wainscoting, ceilings, partition work and other parts of an apartment or structure, and the invention consists of the construction and combination of parts which I will hereinafter describe and claim.

In the accompanying drawings in which similar letters of reference indicate like parts in the several views;—Figure 1 represents a door embodying my invention and showing a portion of an outside veneer broken away to expose the underlying protecting sheet. Fig. 2 illustrates a wainscoting to which my invention is applied. Figs. 3, 4 and 5 are modifications which I will herein-
after refer to.

It is well recognized by architects and builders, fire-insurance adjusters and others familiar with house construction, that the thinness and general weakness of the panels of ordinary doors, partitions, ceilings and like subdividing structures, offers but slight resistance to the destroying or consuming progress of flames; and that in many instances if the fire which originates in one room can be confined therein for a short time and, until the arrival of the fire-extinguishing apparatus, the spread of the fire to adjoining apartments and possibly the destruction of the building itself, may be prevented.

In the ordinary building construction wherein paneled structures like doors, partitions, wainscoting, ceilings, etc., are used, the stiles and rails of said structures, are usually of sufficient thickness to require quite a little period of time before they are burned through or so badly burned as to collapse, but the panels of such structures are relatively thin and are readily destroyed, or fall out, thereby opening direct communication with the adjoining apartment, and making it possible for the flames to spread with such rapidity that by the time the fire-extinguishing apparatus arrives on the scene and gets into action, the fire is more or less beyond control, and the partial or total de-

struction of the building occurs. This serious loss of property and often life, could be avoided if the paneled portions connecting apartments had the capacity to resist flames equal to the resistance offered by the thicker and more substantial stiles and rails, for then the paneled portions would remain intact sufficiently long to enable the firemen to reach the scene and extinguish the flames in the apartment in which the fire originated.

To meet the foregoing conditions and to provide a door which will retard and for a considerable period resist the destroying action of flame, and to impart the foregoing desirable properties to the thinner paneled portions of a door and to the like parts of partitions, wainscoting, ceilings, etc., is an essential object of the present invention.

As the invention is applicable to doors, or like structures, of substantially uniform thickness, with or without the usual stiles and rails, I will first describe my invention in connection with the door shown in Figs. 1 & 4. In these figures the door, A, is composed of a core or main section which may be made of a number of strips, *a*, of a more or less cheap grade of wood glued or otherwise fixed together. These strips may be single pieces arranged so that the grain will run all in one direction or the core may be built up of layers of longitudinal and cross-pieces as is well known in this art and as shown in Fig. 5. When this core has been made along any of the well known lines usually followed in door construction, I cover one side of the same with glue, and I then take a sheet, *b*, of asbestos or other non-combustible material and lay it upon the glued surface of the core so that the two will unite. I then indent, slit or perforate the sheet at numerous points by suitable means, as by rolling over the sheet a heavy roller studded with fine points. As this roller is moved over said sheet, its points indent, slit, or perforate the sheet and also penetrate the surface of the wood in the core beneath with the result that what might be termed "burs" are formed on the inner or glue-coated side of the sheet and which "burs," produced by the roller points, are forced, accompanied by the glue, down into the corresponding indentations made by the points in the core, thereby firmly holding the sheet to the core. When this operation is finished, I trim the edges of the asbestos sheet to a size somewhat smaller than the core after which I apply a coating of glue to

the outer side of said sheet, which glue will enter the pits or indentations in said sheet, and upon this outer surface of said sheet I place a veneer, trimmed approximately to the size of the core. By suitable mechanism, not herein shown, the structure is now subjected to pressure with the result that the veneer is securely glued to the asbestos sheet and to the underlying core, as the pressure applied to the structure has driven the glue through the indented, slitted or perforated portions of the sheet and forms an effective bonding medium between the outside veneer and the core. The other side of the core will be covered in a like manner. I have, therefore, an efficient and practical way of joining together the fibrous-fabric sheet and the wood so that they will hold together under ordinary conditions quite as well as the woods themselves, while, under the influence of fire, I have found that the face veneer will char but will not ignite when underlaid with the asbestos, and that where the asbestos is not used the whole will ignite and burn readily.

It will be apparent that, under the most trying conditions of fire I shall expose to the destroying effects of flame inflammable material of say less than 1/16 inch in thickness, this representing the exterior veneer, which if it should fall off will do but little damage ordinarily, while in that event the asbestos driven into and locked to the wood core by the indented or "burred" portions, and held in place by the glue, which will char but will not melt under fire, will remain attached to the core, thus affording protection to the latter, and to whatever lies beyond.

While the foregoing description is made applicable to the door construction of Fig. 1, it is apparent that it may also apply to all panel-work for interior use, and also to all stiles, and rails, whether these be in doors, wainscots, ceilings, or wood furnishings for that matter, wherever face veneers are used.

In Fig. 2 a wainscot is shown, and in Fig. 4

I show a broken view of a portion of a stile which may belong to a door, wainscot, ceiling or like structure, and wherein a relatively thin panel is shown constructed in the manner herein before described.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is,—

1. A fire-resisting structure comprising a core or interior section, a face-veneer, a non-combustible fibrous sheet underlying the veneer, and an adhesive between the veneer and sheet and between said sheet and core, said sheet being punctured to form "burs" which interlock with indented portions in the core.

2. In a fire-resisting structure the combination with a core, of a sheet of non-combustible, fibrous material, applied thereto and having portions upset and forced into the adjacent surface of the core, and a face-veneer fixed to the outer side of said sheet.

3. A fire-resisting structure comprising a core, a sheet of asbestos placed thereover and punctured and having the upset portions surrounding the punctures forced into the adjacent surface of the core, a face-veneer overlying the outer side of the asbestos sheet, and an adhesive between the sheet and the veneer and core and entering the punctured portions of said sheet.

4. A fire-resisting element composed of inner and outer members, and an intermediate non-combustible member glued thereto and having portions upset and interengaged with said inner member, and means for securing the outer member to said intermediate member.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

DAVID C. MEEHAN.

Witnesses:

CHAS. H. FRANK,
JOHN A. CONNOR.