F. L. SAINO.

FUSIBLE FASTENING.

APPLICATION FILED SEPT. 21, 1914.

1,151,289.

Patented Aug. 24, 1915.

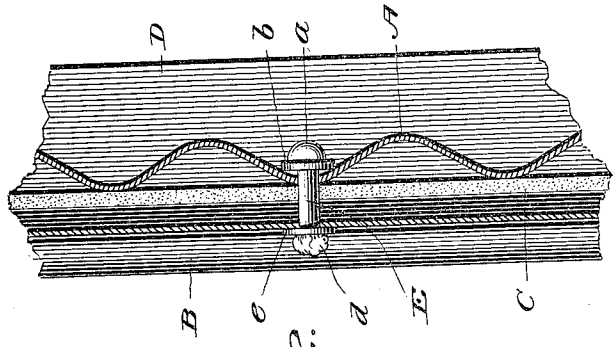


Fig. 2.

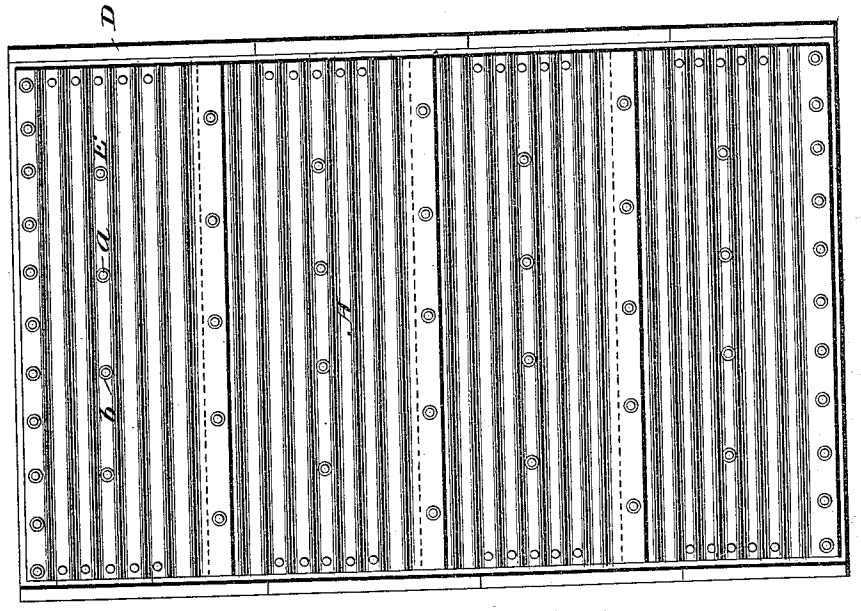


Fig. 1.

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FUSIBLE FASTENING.

1,151,289. Specification of Letters Patent. Patented Aug. 24, 1915.

Application filed September 21, 1914. Serial No. 862,722.

To all whom it may concern:

Be it known that I, FELIX L. SAINO, a citizen of the United States, residing at Memphis, in the county of Shelby and State of Tennessee, have invented certain new and useful Improvements in Fusible Fastenings, of which the following is a specification.

My invention relates to an improved means for fastening together two or more pieces of metal or other material in such manner that normally the parts are rigidly connected, but when the fastening means is subjected to a high temperature, a portion thereof will be fused and the said pieces will be unrestrained by fastenings to allow one of said members to expand or move relatively to the other member. To this end, the invention consists of a bolt or like fastening having a part which will be fused under a predetermined temperature to allow one of the parts which it connects to move relatively to the other part, as I will hereinafter describe and claim.

In the accompanying drawings forming part of this specification, and in which similar reference characters indicate like parts in the several views:—Figure 1 is a side elevation of a portion of the back of a fire door or like structure embodying my invention. Fig. 2 is an enlarged sectional view thereof showing one of the fasteners.

While my invention is capable of different uses and I intend to employ it in any art where it may be found of advantage, it is especially designed as a fastening for the front and back sheets of a fire-door or shutter or like structure.

In a prior patent granted to me on the 24th day of January, 1911, Number 982,303, I have disclosed a fire door which is composed, essentially, of a back face, A, and a front face, B, both composed of galvanized iron or the like, and between which is placed a sheet of asbestos, C, or other suitable non-conducting material.

Specifically, the inner and outer faces of the door or other structure are made up of overlapping sections of sheet metal which are corrugated for the purpose of giving them increased strength and to provide internal spaces for the circulation of air thereby tending to produce cooling drafts along the inner surfaces of the plates or sections. One of the features of the patented door is that no bolts, rivets, or other fastenings are used except at the margin where the metal sheets are attached to an expansible stiffening frame, D. Practical tests of a more or less extensive nature have shown that when a door of the character specified is subjected to high temperatures, the outer or exposed face of the door which is unrestrained by fastenings to the rear face, bulges toward the fire without affecting or altering the position of the rear wall. This has proved to be a desirable feature of the patented door and I desire to retain it, but at the same time, it is of advantage to make the door more rigid than is permitted by the patented construction.

In order to stiffen such a door when made of large dimensions, it is desirable to use bolts at various points, extending through the front and back plates or faces, A—B, and the intermediate asbestos sheet or lining, C, whereby the front face of the door may be normally rigidly fastened to the back face, and when this plan is adopted it will be found that the stiffness and rigidity of the door is materially increased and the door as a whole has imparted to it improved and desirable qualities. If, however, the bolts which are used to fasten the front and rear faces of the door are of a permanent character—in other words, if the bolts maintain a rigid and unyielding holding together of these parts of the door, there cannot be obtained the before described desirable feature of the outer or exposed face of the door being unrestrained by fastenings to the rear wall so that it will be permitted to bulge toward the fire independent of the rear wall, to which it is under normal conditions rigidly connected. Accordingly, I have found that a fastening might be employed which will pass through both faces of the door and which under normal conditions will rigidly attach the front to the rear face of the door, but which will automatically release the face of the door exposed to the fire from its rigid connection with the opposite face whereby the outer or exposed face of the door becomes unrestrained by fastenings to the rear wall and is permitted to bulge toward the fire without affecting said rear wall.

While various types of fastenings may be used for the described purpose, I prefer to employ a bolt of ordinary construction adapted to be passed through holes made for the purpose in the front and rear faces of the door, said bolt being provided or

formed with a head of some metal different from that of which the body of the bolt is composed and which will fuse when subjected to a relatively high temperature, said fusible head being placed, generally, on the outside of the door, or rather on the side of the door which is usually exposed to fire.

In Fig. 2 I show one of the securing bolts, E, of which any desired number may be employed, said bolt passing through the aforesaid front and rear faces of the door having at one end, say at the rear side of the door, a head, *a*, which may be composed of iron or other material, of which the body of the bolt is formed, a suitable washer, *b*, being placed between the head and the rear wall of the door. At the front of that part of the door which is exposed to the heat, I form the bolt with a head, *d*, of fusible metal, as tinner's solder, and beneath this head I may place any suitable washer, *e*, formed of any appropriate material.

From the foregoing it will be apparent that I am enabled to make a fire-door, shutter, curtain or like structure composed of independent front and back faces with thermal-controlled fastenings which, while making the door rigid, which is desirable in shipping, handling and installing the structure in place, melt or fuse when subjected to the action of fire to thereby release the outer face of the door so that it may bulge toward the fire without adversely affecting the rear wall of the door.

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

In a door, the combination with the front and back plates thereof spaced from each other, of fastening means extending transversely of the plates and normally holding the plates together relatively in lateral restraint, said means comprising a bolt having a shank passing through both plates, said shank having a head at one end engaging one of the plates and adapted to fuse under the action of heat to thereby render one of the plates unrestrained transversely relatively to the other plate and to allow the unrestrained plate to bulge outwardly.

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

FELIX LAWRENCE SAINO.

Witnesses:

C. J. PEARSALL,

C. HAMEL.

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