E. H. WALTON.

Fire-Proof Shutter.

No. 227,934. Patented May 25, 1880.

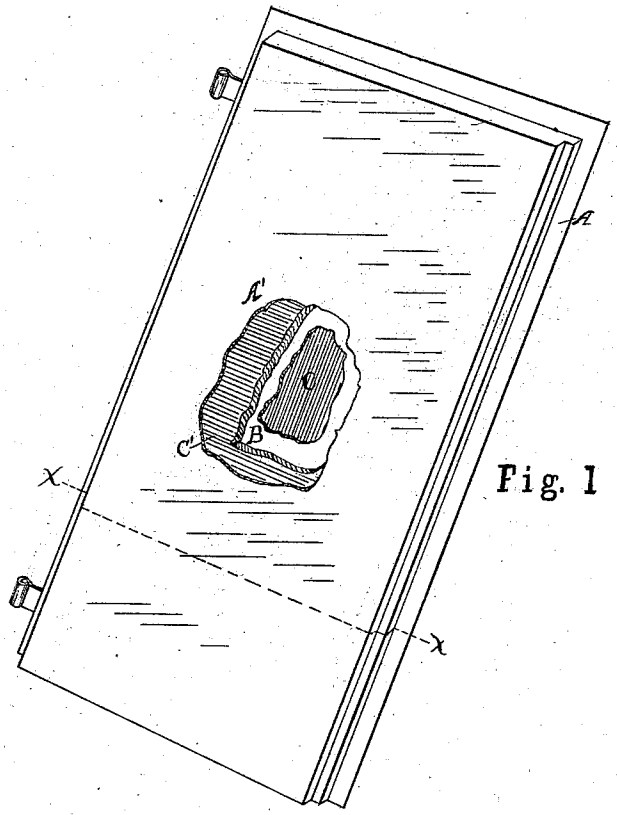

Fig. 1

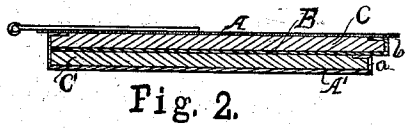

Fig. 2.

Fig. 3

Attest.

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ELIAS H. WALTON, OF CINCINNATI, OHIO.

FIRE-PROOF SHUTTER.

SPECIFICATION forming part of Letters Patent No. 227,934, dated May 25, 1880.

Application filed June 6, 1879.

To all whom it may concern:

Be it known that I, ELIAS H. WALTON, of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Fire-Proof Construction of Doors, Shutters, &c., of which the following is a specification.

The object of my invention is to provide a new and useful mode of constructing doors, shutters, &c., whereby their ability to resist the action of fire and their value as non-conductors of heat are greatly increased and their strength greatly enhanced; and it consists, in general, of layers of wood and metal so arranged, as will be hereinafter fully described, as to accomplish this end.

In the drawings forming a part of this specification, Figure 1 is a perspective view of the inner side of one of my shutters, with parts broken out to show the different layers of which it is composed. Fig. 2 is a sectional view taken through the line *x x*, Fig. 1. Fig. 3 is a section showing a different manner in which the inner plate of metal may be bent around the other layers of wood and metal.

A is a metal plate, forming the outer side of the shutter, to which the other layers are secured, forming a fire-proof lining; A′, the inner plate of metal, and B an intermediate metal plate separating two plates or layers of wood, C and C′.

The metal plates are preferably bent around the edges of the wooden layers, as at *a* and *b*, Fig. 2; but they may, however, be bent as shown at *a′*, Fig. 3, and still fall within the scope of my invention.

The wooden layers are preferably so arranged that the grain of one layer will run at right angles with the grain of the other. This adds strength and will prevent the shutter from warping, bending, or breaking under the influence of heat, cold, water, &c.

One great objection urged to metal shutters as commonly constructed is that when a fire breaks out in an adjoining building the shutters become so heated on the outside as to warp, allowing the flames to gain ingress through the windows or doors to the inside of the building.

Another objection urged to metal shutters as commonly constructed is that when there is a conflagration within the building the shutter becomes heated, so that if water is thrown against the outside of the shutter the cold on the outside and heat within will cause a shutter made of metal alone to warp, so as to give entrance to the air, and thus the fire will burn much more furiously than it would could it be confined to the inside of the building and air not be admitted.

My invention provides against the warping of the shutters in the following manner:

If the conflagration is without the building and the shutters closed, the outer plate of metal will become heated, and this will cause the layer of wood next to it to become heated; but as the air cannot get to this layer or any other of the intermediate layers, it does not become sufficiently heated to ignite or transmit the heat to the other layers to such an extent as to cause the shutter to warp.

If the conflagration is within the building and the shutters closed, the inner layer of the shutter will become heated, but the intermediate layers of wood and metal prevent heat from being communicated to the outside of the shutter to such an extent as to cause it to warp when water is thrown against the outside. Thus the shutter is kept closely against the building over the window or door and air is not permitted to enter.

Having thus fully described my invention, its object, and mode of accomplishing same, what I claim as new and of my invention is as follows, viz:

In a fire-proof shutter, the combination of the wooden layers C and C′ and the metal layers A, A′, and B, the latter bent around the edges of the former, as at *a* and *b*, substantially as and for the purposes specified.

ELIAS H. WALTON.

Attest:

J. GILLIGAN,

JNO. W. STREHLI.