HEAT RESISTING PROTECTIVE STRUCTURE

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Inventor:

By: Deverell, M. D., Challen, & Wilcox
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Inventor:
Albert L. Abbott.

By Lynneforth, Inc. Chilton 

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The invention relates to heat-resisting protective structures, such as chests, safes and vaults which are used to store valuables.

One form of the invention is described in this application which is a continuation, in part, of my co-pending application, Serial No. 420,088, filed January 11, 1930. This form of the invention is disclosed as it is embodied in the doors of a safe. Each of the doors comprises spaced front and back walls, a slab of thermally insulating material being held between the walls. Improved means is provided within the doors to prevent disintegration and cracking of the thermally insulating slab.

In the drawings:

Figure 1 is a horizontal section taken through the front part of a safe which embodies the invention.

Fig. 2 is a section taken on line 2—2 of Fig. 1, said section being taken immediately behind the front walls of the safe doors and the thermal insulation being omitted to further illustrate certain details of construction.

Fig. 3 is a section taken on line 3—3 of Fig. 1, and

Fig. 4 is a perspective view of a flange or baffle plate which forms part of the safe shown in Figs. 1 to 3, inclusive, the flange or baffle plate being shown in connection with wire mesh which is attached to the flange or baffle plate by a plurality of hooks.

Referring to the drawings, wherein a preferred form of the invention is illustrated, the reference character 10 designates, generally, a safe which comprises sidewalls 11, a top wall 12 and a bottom wall 13. The safe is also provided with a back wall (not shown). The walls 11, 12 and 13 may be of conventional construction.

Doors 15 and 16 are hinged to the sidewalls 11 by hinges 17. It will be noted that the doors and the sidewalls 11 are provided with the usual tongue and groove construction and that the meeting edges of the doors are also provided with such construction.

Each of the doors 15 and 16 comprises a metallic front wall 18, a metallic rear wall 19, a metallic top wall 20 and a metallic bottom wall 21. The door edges co-operating with the tongues and grooves in the sidewalls 11 are formed by vertically disposed walls 23 and the meeting edges of the doors are formed by metallic walls 24.

The metallic walls of each door form a metallic case, and this case is filled with a slab of thermally insulating material 25. Projecting into the slab 25 from the edge walls 23 of the doors, are flanges or baffle plates 27, and, likewise, projecting into the slabs 25 from edge walls 24 of the doors are flanges or baffle plates 28. Additional flanges or baffle plates 30 project from the top and bottom walls of each door case and are aligned with the baffle plates 27 and 28. The baffle plates are preferably spot welded to the metallic walls from which they project, and are preferably formed from relatively flexible sheet metal.

Extending through each slab 25 is a wire mesh 32 which has its marginal portions clamped to the associated front wall 18 by the edge walls of the door, the wire mesh being bowed or dished intermediate its marginal portions so that its central portion is embedded deeply in the slab 25.

In each instance, the wire mesh 32 has its central portion secured to the free ends of the associated baffle plates 27, 28 and 30 by hooks 34 which are preferably spot-welded to the baffle plates. The hooks 34 are preferably in the form of straight bars when they are spot-welded to the baffle plates and are subsequently bent over portions of the wire mesh to secure it to the baffle plates. The wire mesh reinforces the slabs of insulating material to prevent disintegration and cracking therefrom.

The slabs 25 are preferably formed by pouring the heat-resisting material into the doors while it is in a plastic state and then permitting the slabs to harden. Unless the central portions of the wire mesh members 32 are secured in their proper positions within the doors, they have a tendency to move towards the front of the doors during the pouring operation, and if this happens the slabs are not properly re-enforced. Doors embodying my improved construction have their in-
sulating slabs properly re-enforced as the wire mesh can not slip out of place during the pouring operation.

The insulating material employed in forming the slabs 25 usually has the characteristic of giving off water when subjected to heat. This water turns to steam and thus absorbs heat during the drying or dehydrating of the heat-resisting material. The baffle plates described above are adapted to prevent the free flow of water from the front wall of each door to the back wall thereof. The baffle plates also prevent or retard the penetration of heat along the jamb of each door. This is advantageous as when these baffle plates are omitted and the same is subjected to intense heat, the heat penetrates the insulation along the jamb of the door and causes it to disintegrate and crack so that the heat can penetrate to the inside of the door freely. The flanges or baffle plates prevent such disintegration of the insulation so that safe doors embodying this construction have high heat-resisting characteristics.

While I have shown and described certain embodiments of my invention, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of the invention as disclosed in the appended claims, in which it is my intention to claim all novelty inherent in my invention as broadly as possible, in view of the prior art.

What I claim as new, and desire to secure by Letters Patent, is:

1. In a heat-resisting protective structure, a door comprising front and back walls, a slab of thermally insulating material disposed between said front and back walls, and means for supporting said slab, said wire mesh being firmly attached to said slab and engaging said wire mesh to hold its central portion in place within the slab.

2. In a heat-resisting protective structure, a door comprising front and back walls, walls at the edges of said door, a slab of thermally insulating material disposed between said front and back walls, a perforate re-enforcing member embedded in said slab and a member attached to one of said walls at an edge of said door and engaging said perforate re-enforcing member to hold its central portion in place within the slab.

3. In a heat-resisting protective structure, a door comprising spaced front and back walls, walls at the edges of said door, a slab of insulating material disposed between said front and back walls, metallic baffle plates extending from a plurality of edge walls into said insulating slab, a wire mesh embedded in said slab, and means attached to said baffle plates and engaging said wire mesh to hold its central portion in place within said slab.

4. In a heat-resisting protective structure,