

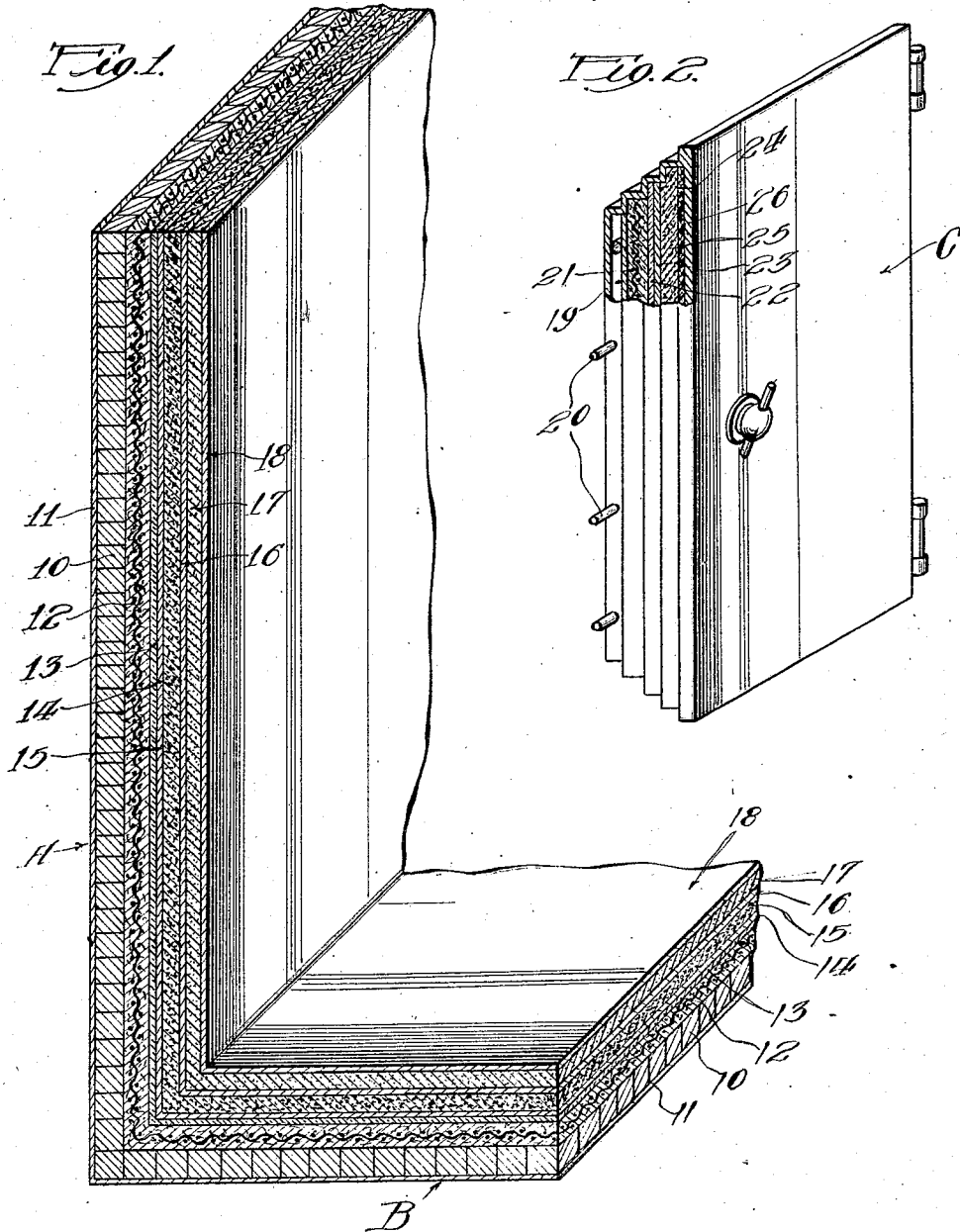
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BURGLARPROOF WALL STRUCTURE FOR VAULTS, DOORS, AND THE LIKE

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BURGLARPROOF WALL STRUCTURE FOR VAULTS, DOORS, AND THE LIKE.

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To all whom it may concern:

Be it known that I, FREDERICK W. RAVEN, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Burglarproof Wall Structures for Vaults, Doors, and the like; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in the art of protecting the contents of vaults, safes or like enclosures for valuable property, such as safety deposit vaults, bank vaults, safes, and the like, and refers more particularly to an improved wall structure for such enclosures, including both the permanent walls thereof and movable walls, such as doors and the like, and the invention consists in the combination and arrangement of the parts shown in the drawings and described in the specification, and is pointed out in the appended claim.

In the drawings:

Figure 1 is a perspective view of adjacent walls of a vault closure showing my improvements applied to said walls.

Figure 2 is a perspective view of a door which may be employed to close the opening in the wall of a vault space, a safe, or the like, to which my improvements are applied.

The principal object of the invention is to provide an improved wall structure for the purpose described, usually made of laminated material, such as hardened steel plates, asbestos layers to assist in preventing the breaking down of the wall in case of fire, fire brick layers, and proper inside and outside finish. In respect of prior laminated structures of such walls, the number of layers and the different materials of which they are composed has been considerably varied, depending on the particular location and use of the vault and the preference of the builder in respect of such materials.

In modern wall structures, the wall has usually been composed of elements that are so arranged and combined as to afford protection to the enclosed contents against penetration or breaking down thereof by burglars, and also to afford protection against fire. Steel plates have been commonly em-

ployed to constitute parts of the wall structure, usually the inner parts, which possess a high degree of hardness to resist drilling operations by burglars, and as a result of the use of this character of steel it has become common practice for burglars to penetrate these hardened steel plates by the use of compounds that burn at a high temperature, such as oxy-acetylene. When such hardened steel plates are employed the drilling of said plates, when it is possible to drill them, generates a high temperature in the plates.

It is the purpose of the present invention to produce a wall structure for the purpose described in which one of the component parts thereof is a layer of a slow burning compound between said hardened steel plates which compound will ignite at relatively low temperatures, and which, when ignited and air is admitted to the ignited portion of the layer, throws off or emits a dense, stifling, obnoxious smoke of a character which makes it impossible for a person to continue an attack on the vault wall, safe or door, with a view of penetrating it. This layer of compound is preferably inserted as a layer in the wall structure in the form of a paste, and is of such character as to slowly burn without producing great heat, so that thereby its presence in the wall does not increase the fire hazard. The compound is also of such character that the fumes or smoke of the burning compound, while being so stifling and obnoxious to a person attacking the wall structure as to prevent further attack by him on the wall structure and, therefore, drive him away when the compound is burning, it is not intended to be of a character to be lethal or to destroy life, or to injure, by breaking down or corroding, metals or other materials with which the smoke or fumes may come in contact. A compound for this purpose may be made up of such constituents as tar, pitch, resin, sulphur, ammonia, and rubber in the proper proportions to produce a material which, in the presence of air, will slowly burn and emit the noxious smoke and fumes referred to.

In accordance with one phase of the invention, it is desirable, and preferred, to enclose the compound in a chamber or chambers bounded directly by hardened steel plates or like material which offer such resistance to penetration as to practically require a flame to penetrate them, or which,

if drilled, produces a localized temperature, which, when the plate is punctured and air is admitted to the compound, ignites the slow burning compound.

Thus it becomes practicable to employ a safety medium in wall structures of this character which will effectively function to drive away the intruder because he cannot continue his attack in the presence of the dense noxious fumes emitted from the burning compound, still at the same time the fumes or smoke of the compound are not deleterious to the articles within or without the vault wall being attacked. The materials which have been mentioned as components of the compound are of such character as to retain their vital properties of combustion for a long period of time, it being understood that when embodied in the wall structure the compound is contained in an air tight enclosure, which will prevent evaporation and other devitalizing influences which would occur if subjected to atmospheric conditions.

In the drawings representing one embodiment of the invention, Figure 1 illustrates more particularly the rather heavy or thick wall surrounding a large enclosure such as a safety vault area, and it is arranged to protect the wall against attack from either the inner or outer side. It will be understood that when the wall structure is applied to vault areas the burglar proof element will be embodied in all of the walls, that is to say, the floor and ceiling, as well as the vertical walls, and the wall structure is so made that at the angles between vertical and horizontal walls the space to receive the compound referred to will continue from one wall to the other, so that the area enclosed by such a laminated wall structure is entirely surrounded by the protective compound or medium to secure safety against attack through any part of any wall.

The wall structure shown in Figure 1 comprises a fire brick layer 10 having a usual outside finish 11 which, in a bank vault that is constructed in the basement of a building, may face the street or may face some interior part of the building. Inside of this fire brick layer is a layer 12 consisting of steel lath embodied in a plastic asbestos. Just inside of the layer 12 may be placed a layer or sheet of glass 13. 14 designates the protecting medium or compound referred to, and it is enclosed between hardened steel plates 15, 16, the plate 15 lying against the glass plate 13. On the other side of the compound layer and next adjacent to the hardened steel plate 16, is another

layer of steel lath and plastic asbestos 17, which is covered on its inner side by the usual inside finish 18,—assuming the latter side of the wall to be that which faces the vault area. It is noted that the upright wall designated as a whole by A, and the horizontal wall designated as a whole by B, and which may be the floor wall of the vault, are shown as exactly alike in structure, and it will be understood further that the ceiling and other side or enclosing walls of the vault area will be of the same structure. At the angle between the vertical and horizontal walls, it will be noted from an inspection of Figure 1 that the layers 13 are continuous and are integral with each other at said angle.

When using the invention in connection with a safe door C, shown in Figure 2, it will be practicable, so far as the burglar proof phase of the structure is concerned, to place the laminations of the door structure outside of the casing or chamber 19 that encloses the actuating mechanism for the locking bolts 20. In this arrangement the layer or lamination 21 adjacent to the outer wall 22 of said actuating bolt mechanism chamber or compartment may consist of steel lath embedded in a plastic asbestos mineral wool, or the like, and the next outer layer may consist of a metal plate 23 which, together with a hardened steel plate 24 set opposite thereto, constitute the walls of the enclosure for the layer of compound 25. Exterior to the hardened steel plate 24 is the usual front finish 26 of the door.

In adapting my invention to other specifically different wall structures, the combined layers or laminations may be disposed in relatively different positions, in respect to other layers or laminations of the structure, whether it be a wall or door. It will, however, be desirable, in any event, to flank one or both sides of the layer with a hardened steel plate or plates, depending upon whether the wall structure may be attacked from one or both sides thereof.

I claim as my invention:

A burglar proof structure for vault walls, doors and the like comprising laminated wall elements, including two, spaced, hardened steel plates which bound a chamber containing a body of compound consisting of pitch, rubber and like body, impregnated with a relatively small amount of sulphur and ammonia, that burns slowly with a dense smoke.

In witness whereof I claim the foregoing as my invention, I hereunto append my signature this 3rd day of June, 1920:

FREDERICK W. RAVEN