

No. 881,032.

PATENTED MAR. 3, 1908.

W. F. SCHULTZ.
SAFE AND VAULT CONSTRUCTION.
APPLICATION FILED NOV. 23, 1906.

Fig. 1.

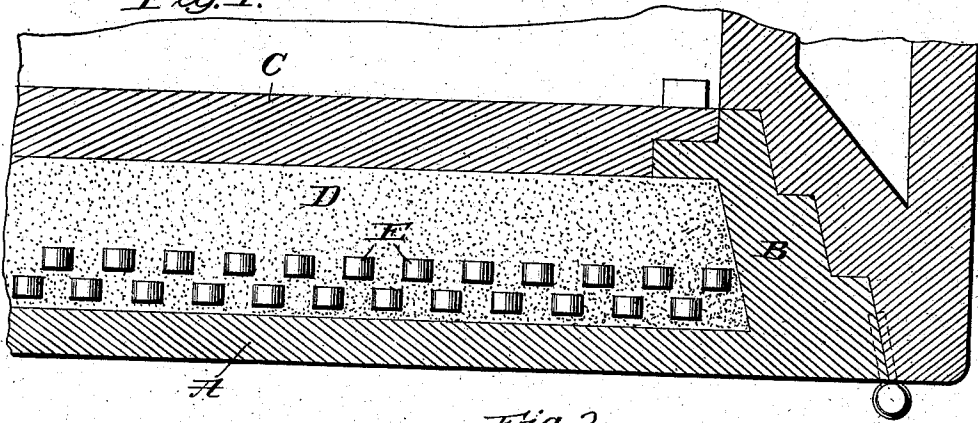


Fig. 2.

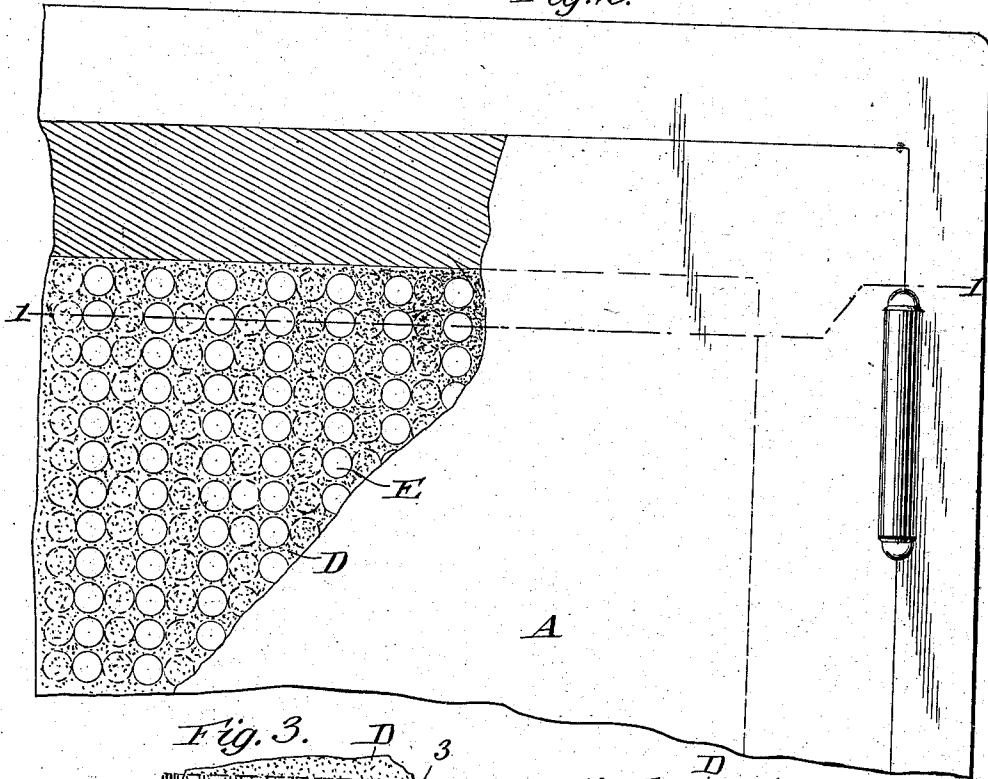


Fig. 3.

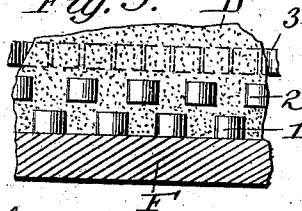


Fig. 5.

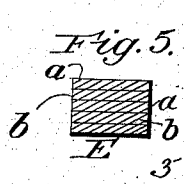
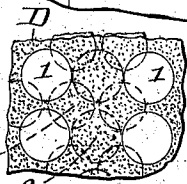


Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM F. SCHULTZ, OF CINCINNATI, OHIO, ASSIGNOR TO HERRING-HALL-MARVIN SAFE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

SAFE AND VAULT CONSTRUCTION.

No. 881,032.

Specification of Letters Patent.

Patented March 3, 1908.

Application filed November 23, 1906. Serial No. 344,742.

To all whom it may concern:

Be it known that I, WILLIAM F. SCHULTZ, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Safe and Vault Construction, of which the following is a specification.

My present invention pertains to improvements in safe and vault construction, the advantages of which will be hereinafter set forth, reference being had to the annexed drawings wherein, for the purposes of illustration, the invention is shown as applied to a safe door.

In said drawings: Figure 1 is a horizontal sectional view, on the line 1—1 of Fig. 2; Fig. 2 a front elevation of a portion of the safe and door, a part of the latter being shown in section; Figs. 3 and 4 detail sectional views of a modified arrangement; and Fig. 5 a sectional view of one of the laminated disks employed in the structure.

The main object of the invention is to provide a structure which is at once both burglar and fire proof, the construction being such that it is not affected by an electric arc and will withstand penetration by the use of drills.

As before noted, the invention is shown in connection with a safe door, but it is to be understood that it is not to be limited thereto, the invention being applicable to safe and vault work generally.

In Figs. 1 and 2 I have shown the invention as applied to a safe door though, of course, it will be readily appreciated that it may be used in any other part of the safe or vault construction. In said figures, A denotes the outer face of the door, preferably made of cast steel and having formed therewith the side faces or walls B.

C indicates the inner face of the door, preferably formed of Bessemer steel and bolted to the inner flanges of the side faces or walls B. The door is thus made hollow or provided with an inclosed chamber, which is filled with a suitable non-conducting or insulating material D, such for instance as a hard, insulating cement. Within this body of cement, and preferably adjacent to the outer face or member A, are arranged a number of disks E, said disks by preference being arranged in two layers, each comprising a series of separated columns of disks, with the

disks of each column separated from each other. Preferably, the columns of the two layers will stand in a staggered relation to each other, the distance between the proximate edges of the disks comprising the outermost columns being approximately equal to the width of the disks comprising the innermost layer, so that substantially the entire inner face of the member A may be said to be backed-up by a series of independent insulated disks.

As will be seen upon reference to Figs. 1 and 2, the disks are separated from each other and from the door or framing, so that should a hole be burned or drilled through the outer casing the disks, by reason of their insulated relation, would prevent the passage of current from one to the other, thus affording protection against the burning effect of the electric arc.

The disks also perform another highly important function, in that they prevent the drilling of the structure. As will be readily appreciated, a drill, after passing through the outer face A, will come into contact with the face of one of the disks; or against the edge of one or more of the disks. If against the face, the disk will turn and further penetration of the drill is thereby prevented. If between the disks, or against the edge of one or more, the drill will be broken or shattered. To render the disks more effective against the action of the drill, they will preferably be laminated or formed of alternate layers of steel and iron, as indicated by *a* and *b*, Fig. 5.

In Figs. 3 and 4 I have illustrated a slightly modified arrangement, three layers of disks 1, 2 and 3, being shown as embedded in the cement. The outermost layer, 1, in this instance is shown as resting against the inner face of the outside member F. The layers 1 and 2 bear the same relation to each other as in the construction heretofore described, while the third or innermost layer, 3, stands in line with the substantially diamond-shaped spaces left between the outer and intermediate layers. This construction will effectually prevent the passage of even a small drill. As in the former case, the disks are insulated from each other.

Having thus described my invention, what I claim is:

1. In a structure of the class specified, the combination of a wall; a body of insulating material in rear thereof; and a series of separated

rated disks embedded in the insulating material, the axis of each disk standing at approximately right angles to the face of the wall.

5 2. In a structure of the class specified, the combination of a wall; and a series of independent, electrically insulated disks mounted in rear thereof, the axis of each disk standing at approximately right angles to the face of
10 the wall.

3. In a structure of the class specified, the combination of a wall; a backing of insulating material; and a series of independent disks embedded in said material, the axis of
15 each disk standing at approximately right angles to the wall.

4. In a structure of the class specified, the combination of a wall; a backing of insulating material; and two layers of disks embedded in said material, the disks being independent of each other and of the wall and having their axes at substantially right angles to the wall.

5. In a structure of the class specified, the combination of a wall; a backing of insulating material; and two layers of separated disks mounted therein, each layer of disks being composed of separated vertical columns, the columns of one layer being staggered with relation to those of the other the
25 axes of the disks being at substantially right angles to the face of the wall.
30

6. In a structure of the class specified, the combination of a wall; a backing of insulating material; and a plurality of layers of
35 disks mounted therein, the disks of the various layers bearing a staggered relation, and each disk being insulated from the wall and the other disks by the insulating material each disk having its axis at substantially
40 right angles to the face of the wall.

7. In a structure of the class specified, the combination of a wall; a body of hard insulating cement in rear thereof; and a series of separated metallic members mounted in said
45 cement, said members being free to rotate under the action of a drill.

8. In combination with an outer steel casting; a closure for the rear portion thereof; a filling of insulating cement placed with-
50 in the chamber formed by said members; and a series of metallic disks embedded in the cement, the disks being separated from one another, and the axis of each disk standing at approximately right angles to the face
55 of the outer casting.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM F. SCHULTZ.

Witnesses:

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