

No. 881,031.

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W. F. SCHULTZ.
SAFE AND VAULT.

APPLICATION FILED NOV. 23, 1906.

Fig. 1.

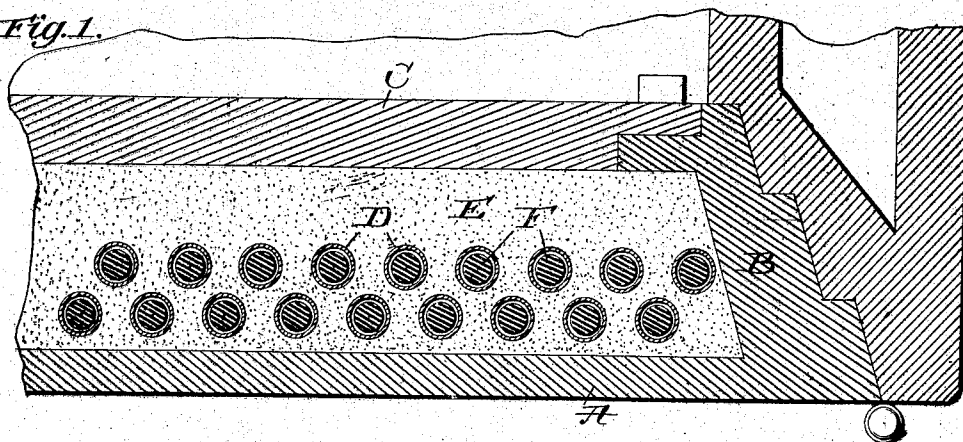


Fig. 2.

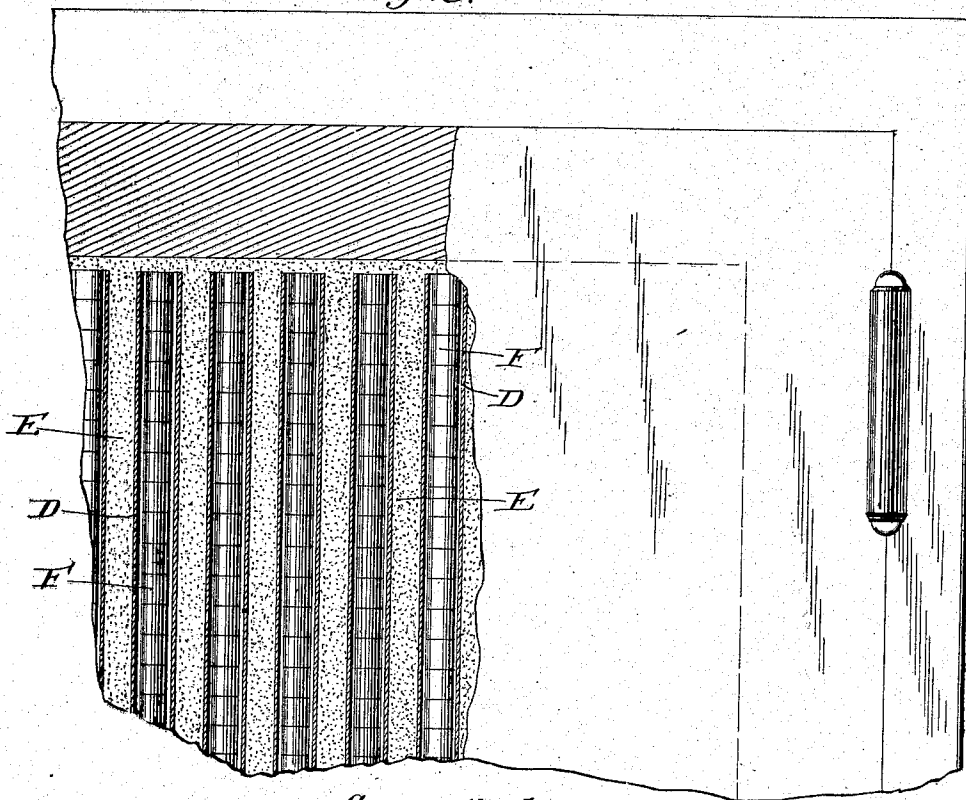


Fig. 3.

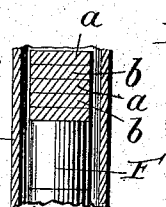


Fig. 4.



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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.

No. 881,031

Specification of Letters Patent.

Patented March 3, 1908.

Application filed November 23, 1906. Serial No. 344,741.

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 Safes and Vaults, of which the following is a specification.

My present invention pertains to improvements in safes and vaults, the construction and advantages of which will be hereinafter set forth, reference being had to the annexed drawings, wherein:

Figure 1 is a horizontal sectional view of a safe-door, the invention being illustrated in connection therewith merely for sake of convenience; Fig. 2 a front elevation of the same, a portion of the door being broken away and the tubes which contain the cylindrical members being shown in section; Fig. 3 an enlarged sectional view of a portion of one of the tubes, with one of the rotatable cylindrical members likewise appearing in section; and Fig. 4 a similar view of a slightly modified construction.

The main object of the invention is to provide a structure which is both burglar and fire proof, the construction being especially designed to resist the use of the electric arc and of drills.

While the invention is shown as applied to a safe-door, it is to be understood that it is applicable to safes and vaults generally.

In the drawings, Figs. 1 to 3 inclusive, A denotes the outer member of the door (or other structure) preferably formed of cast steel and provided with inwardly-extending side walls B. C denotes the inner member of the door, preferably formed of Bessemer steel and secured to the flanges of the side walls B. Mounted within the chamber thus formed and adjacent to the front wall thereof, is a series of tubes D, which are of such length as to stop short of the upper and lower side walls B. The tubes are entirely surrounded by a suitable hard, non-conducting, fire-proof cement E, which entirely fills the chamber formed by the walls and effectually insulates the various tubes from one another and the walls of the chamber.

As will be seen upon reference to Fig. 1, the tubes are arranged in two tiers, one behind the other, the tubes in each tier being separated, with the tubes of one tier staggered with reference to those of the other tier

Mounted within each tube is a series of rel-

atively short cylindrical members F, said members by preference being formed of laminated iron and steel, as indicated by *a* and *b*, Fig. 3. It will be noted upon reference to the drawings, that the cylinders are smaller in diameter than the interior diameter of the containing tube, so that the cylinders may be free to rotate therein should a drill cut into the tube, whereby the drill-point would be deflected and as a consequence the drill be broken or prevented from further penetrating the structure. The rounded surface of the tubes also renders the drilling thereof extremely difficult, and in and of themselves they afford an excellent protection against drilling. Should they be pierced, however, the rotatable members or cylinders contained therein will effectually prevent further penetration and cause the drill to be broken. The non-conducting cement and the insulation of the tubes from each other and the walls prevent the effective use of an electric arc in the destruction of the door or wall.

In Fig. 4 there is shown a slightly modified construction, wherein a series of balls G is shown, the balls resting one upon another in the tube and being free to rotate and clamp or bind a drill which may pass through the wall of the tube.

It is evident that members of other shapes may be placed in the tubes, or members of varying forms in each tube, though the cylindrical form will preferably be employed.

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 cement in rear thereof; a series of tubes embedded in such cement; and a series of rotatable members mounted in each of said tubes.

2. In a structure of the class specified, the combination of a wall; a body of cement in rear thereof; a series of tubes embedded in such cement said tubes being out of contact with the wall and each other; and a series of cylinders rotatably mounted in each of said tubes.

3. In a structure of the character specified, the combination of a wall; a body of cement in rear thereof; a series of tubes embedded in said cement, the tubes being insulated from each other and from the wall; and a series of members rotatably mounted in each of said tubes.

4. In a structure of the character speci-

fied, the combination of a wall; a body of cement in rear thereof; a series of tubes embedded in said cement and insulated from each other and said wall; and a series of
5 cylinders formed of laminated metal mounted in each of said tubes.

5. In a structure of the character specified, the combination of a wall; a body of cement in rear thereof; a series of tubes embedded in such cement, said tubes being
10 arranged in a plurality of rows, the tubes of the various rows being staggered said tubes being likewise insulated from each other and the wall; and a series of rotatable members
15 mounted in each of said tubes.

6. In a structure of the character specified, the combination of a wall; a series of

tubes mounted in rear of said wall, said tubes being insulated from each other and said wall; and a series of rotatable members
20 mounted in each of said tubes.

7. In a structure of the class specified, the combination of a wall; a body of cement in rear thereof; a series of tubes embedded therein said tubes being insulated from each
25 other and the wall; and a rotatable member mounted in each of said tubes.

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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