

No. 725,303.

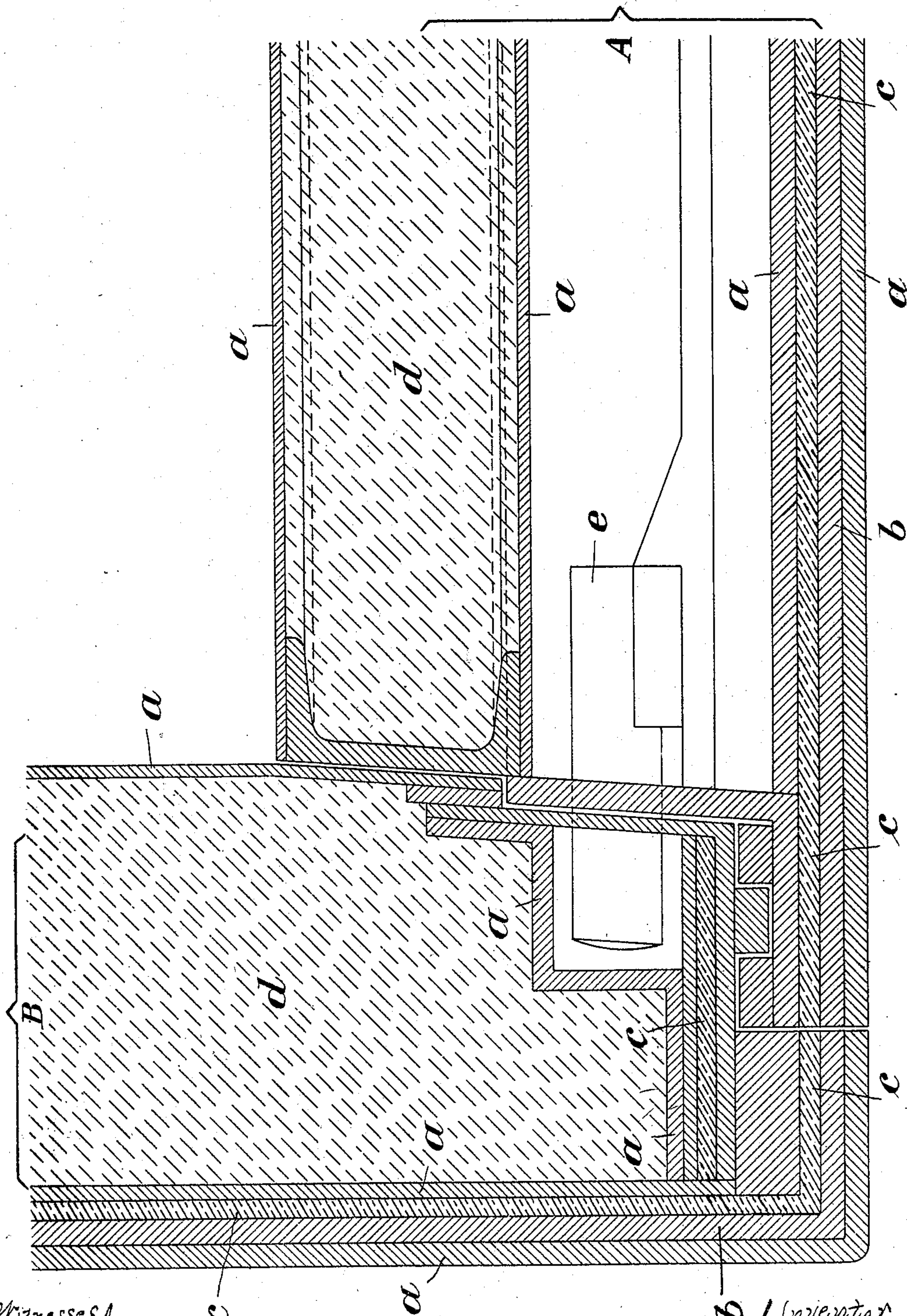
PATENTED APR. 14, 1903.

J. WARTENBERGER.

SAFE.

APPLICATION FILED OCT. 30, 1900.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

JOSEF WARTENBERGER, OF BERLIN, GERMANY.

SAFE.

SPECIFICATION forming part of Letters Patent No. 725,303, dated April 14, 1903.

Application filed October 30, 1900. Serial No. 34,896. (No model.)

To all whom it may concern:

Be it known that I, JOSEF WARTENBERGER, a subject of the Emperor of Germany, residing at Berlin, Germany, have invented a new and useful Improvement in Safes or the Like, of which the following is a full, clear, and exact description.

The mixture of aluminium and ferric oxid known in commerce as "thermit" is capable of developing sufficient heat to smelt every kind of material hitherto known. Therefore considerable danger exists that this new medium might easily be employed for destroying or melting through the armor-plates of safes and strong rooms, since the ingredients necessary for forming and igniting the thermit may be easily obtained in commerce. It is therefore necessary that safe and strong-room manufacturers should find some means of resisting attacks made by the aid of thermit. Experiments have shown that iron, steel, and cement are quite incapable of such resistance.

The object of the present invention is to provide effective protection against the melting power of thermit, particularly in regard to safes and strong rooms.

The principle upon which the present invention is based is the prevention of a continued contact of the thermit with the plate onto which it is poured. This object is attained by employing metals or metallic alloys for the construction of the safe or strong room which under the influence of the heat of the thermit poured on the same generate vapors capable of explosion, whereby part of the thermit will be blown off, while at the same time the contact of the material not yet attacked with the thermit will be prevented, in that a layer of vapor will be formed between the two, which will prevent the immediate transmission of the heat of the thermit. It has been discovered that this effect may be best attained with the aid of metals having a comparatively low melting-point—such as zinc, lead, tin, copper, antimony, bismuth, and alloys of the same. The heat of the thermit momentarily decomposes the metal or alloy, so that at first, if zinc or zinc alloys are employed, zinc-vapors will be developed on the surface, which, owing to the intense rapidity

of the development, will blow off the greater part of the mass poured on by the explosive eruption. The reaction is analogous to the Leidenfrost phenomenon, which is well known. The slag of the thermit remaining on the surface combines with the metal of the plate to form an insoluble crust, which renders the attack by a renewed addition of thermit less effective.

The particular proportions of the protecting metal to be employed may be varied within considerable limits, and many other substances may be added to the metallic alloy which may advantageously affect the protecting metal in view of the object to be attained. It is, however, a condition that the alloy should contain a considerable proportion of the above-mentioned substances. There is a further advantage in the employment of zinc, to wit: When the thermit is poured onto the armor-plate, such a quantity of zinc-vapors will be generated (which are, as is well known, very poisonous) that it will be practically impossible for any person to remain in a closed room and continue to work on the destruction of the safe and extraction of its contents. This effect may be increased by adding phosphorus and similar substances to the protecting mass.

The application of the invention is illustrated in the accompanying drawing, which is a sectional detail of a corner of a safe.

A is the door of the safe, and B is a side wall of the same.

a is wrought-iron.

b is steel, and *c* is the plate of a more fusible and volatile metal protecting the safe from the effects of the thermit.

The further construction of the safe is usual.

d is a layer of infusorial earth, and *e* is a lock-bolt.

As shown in the drawing, the protection-plate *c* is covered on both sides by steel or armor plates. The plates on the outer side of the plate *c* are necessary, as otherwise the soft metal can easily be cut or bored away, and so the purpose of the plate *c* will be null and void; but if these plates are arranged as shown it is impossible to bore the safe; but it is possible to smelt the same with thermit.

As soon as the first two iron or steel plates are smelted the thermit acts on plate c, of a more fusible and volatile metal, with the result stated in the specification. It will be
5 therefore impossible to smelt also the steel plates lying behind the plate c.

I claim as my invention—

In a safe or the like, the combination with
10 the steel or iron plates forming the walls thereof, of plates of soft metal other than iron

adjacent to said steel or iron plates and co-extensive therewith, said soft metal volatilizing rapidly under contact with thermit, substantially as described.

In witness whereof I have hereunto set my
hand in presence of two witnesses.

JOSEF WARTENBERGER.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.