(No Model.)

H. C. JOHNSON & F. M. McMILLAN.

FIRE PROOF SAFE.

No. 261,461. Patented July 18, 1882.

Fig. 1.

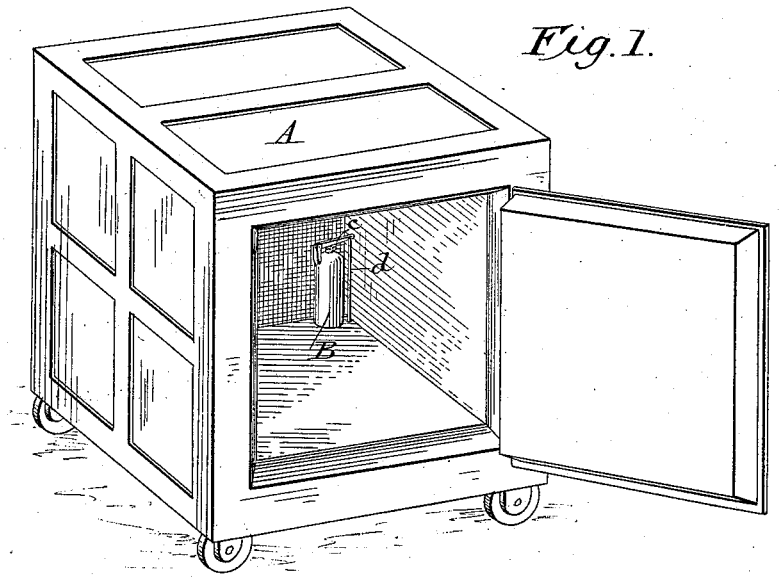
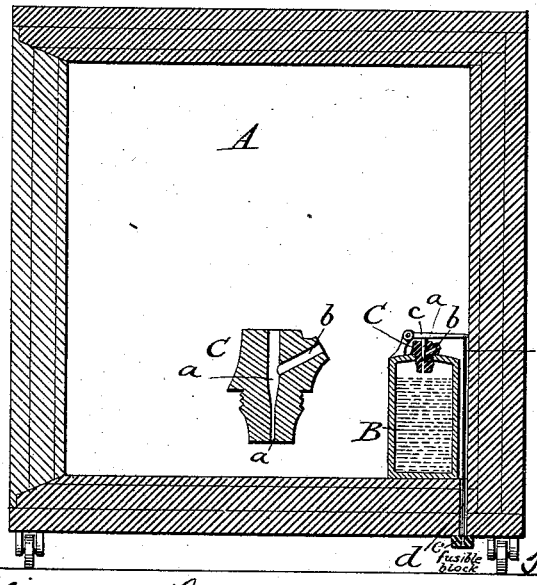


Fig. 2.



Attest.

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UNITED STATES PATENT OFFICE.

HENRY C. JOHNSON AND FRANCIS M. McMILLAN, OF WASHINGTON, D. C.

FIRE-PROOF SAFE.

SPECIFICATION forming part of Letters Patent No. 261,461, dated July 18, 1882.

Application filed April 6, 1882. (No model.)

To all whom it may concern:

Be it known that we, HENRY C. JOHNSON and FRANCIS M. MCMILLAN, of Washington, in the District of Columbia, have invented certain Improvements in Fire-Proof Safes, of which the following is a specification.

This invention relates to fire-proof safes; and it consists in providing the safe with a vessel or receiver charged with carbonic-acid gas or other highly-compressible fluid reduced to a liquid form, and provided with a valve which is held normally closed by a fusible retaining device, preferably on the outside of the safe, so as to be exposed to the atmosphere of the room in which the safe stands.

The details to be adopted in carrying out the invention may be varied considerably without departing from its limits, the essential feature of the invention consisting in providing a vessel charged with the liquid gas with a valve from or through which the liquefied gas may escape in a small thread-like stream into the interior of the safe, and by its sudden expansion produce intense cold, thus counteracting and neutralizing the heat which may find its way through the walls of the safe, while at the same time actually preventing combustion.

In the accompanying drawings, Figure 1 represents a safe provided with the improvement; and Fig. 2, a sectional view, showing the construction and arrangement of parts.

A represents a safe, which may be of special or ordinary construction, and B the gas-receiver, charged with the liquefied gas and provided with an outlet-valve, C, the stem *a* of which is tapered down to a fine needle-like point, and closes a small outlet-passage, *b*. The valve-stem *a* is pressed and held to its seat by a lever, *c*, which is held down upon the head of the stem by a strong wire or rod, *d*, passing through the bottom or wall of the safe and secured by a fusible nut or block, *e*, which may be screwed upon the wire or held in place thereon by riveting the end of the wire down upon the outer face of the nut or block, as shown. The block or nut *e* will be made of a metal alloy or composition capable of securely retaining the wire, but which will fuse at a given temperature, preferably a little higher than would ever naturally occur in the room in which the safe is located.

It will be readily seen that with the parts thus constructed and arranged the presence of an unusually high heat will cause the nut or block *e* to fuse or melt, and thereby release the wire *d*, thus permitting the gas to raise the valve and escape. The outlet-passage *b* will be sufficiently small to cause the gas to escape slowly and in a very fine stream, thus securing a long-continuing gradual discharge, which may require a number of days to empty the receiver. The gas escaping through the joints around the door will materially aid in putting out the fire.

Fusible alloys and compounds are so common and well known that it is unnecessary to state their composition, though we prefer an alloy of tin, lead, bismuth, and mercury, in the following proportions: tin, five parts; lead, three parts; bismuth, three parts; mercury, three parts, because of its low melting-point—122° Fahrenheit.

The alloy or compound may be varied or its proportions changed to alter the melting-point.

The receiver may be built into the wall of the safe or placed inside, and the fusible nut or block may also be inside or outside, but preferably outside.

We are aware that vessels containing acids have been placed within safes and designed to discharge their contents into or upon soda or other substance, which, acted upon by the acid, would produce carbonic-acid gas; but our invention differs from these, in that we effect a refrigeration of the interior of the safe, the extinguishing property of the gas being purely incidental thereto.

We are aware that it is not new to provide a safe with chambers or vessels charged with liquefied gas, and provided with fusible plugs which should melt and permit the gas to escape outside of the safe in case the temperature reached a given height. Our invention differs from this and from the use of water or steam chambers, in that we effect a refrigeration of the interior of the safe, which is additional to the ordinary protection of the lining or filling of the walls. The effect upon combustion is a

mere incidental matter, and is not a matter of importance, the refrigerative or cooling effect being solely relied upon by us, and this being possible only when the discharge is within the safe.

Having thus described our invention, what we claim is—

1. In combination with a safe, a gas-receiver inside of the safe, provided with an escape-valve opening into the safe, a lever bearing upon the valve and serving to hold the plug to its seat, and a fusible device adapted and arranged to hold the lever down upon the valve until a given temperature is reached, and then to release the lever and valve, as explained.

2. In combination with the safe, a receiver placed within the safe, provided with valve C, wire or rod *d*, and fusible nut or block *e*, all arranged to operate as shown and described.

3. In combination with a gas-receiver within a safe and provided with an escape-valve, a fusible block or device located on the outside of the safe, and an intermediate connection between the valve and fusible block, as and for the purpose specified.

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Witnesses:
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ALBERT MILLER.