(No Model.)

H. B. TRIPP.

BURGLAR PROOF SAFE DOOR.

No. 317,688. Patented May 12, 1885.

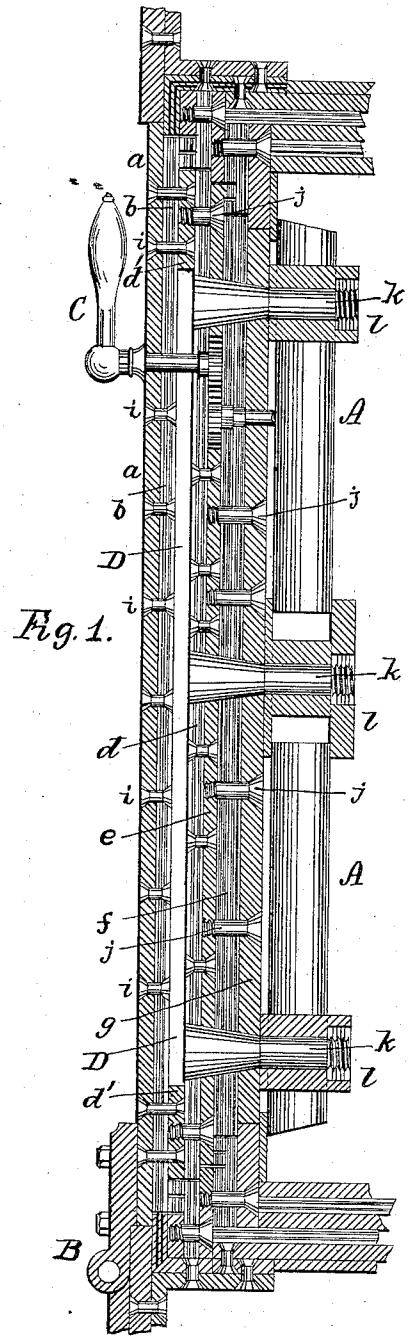


Fig. 1.

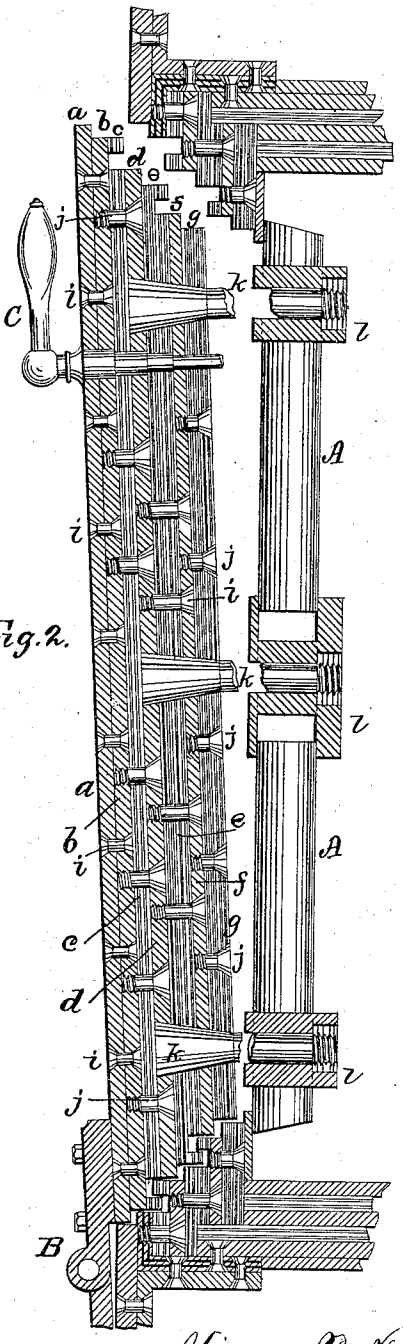


Fig. 2.

WITNESSES

Philip F. Larner.

J. P. Dewey

Hiram B. Tripp

INVENTOR

Wm. H. Brereton

By Attorney

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

HIRAM B. TRIPP, OF BALTIMORE, MARYLAND.

BURGLAR-PROOF-SAFE DOOR.

SPECIFICATION forming part of Letters Patent No. 317,688, dated May 12, 1885.

Application filed February 9, 1885. (No model.)

To all whom it may concern:

Be it known that I, HIRAM BRADFORD TRIPP, a citizen of the United States, residing at Baltimore, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Burglar-Proof-Safe Doors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to burglar-proof safes, vaults, &c.; and my said invention consists in a novel construction of the door of said safe or vault, whereby injury to the combination and time locks and locking bolt-work thereof is prevented should an attempt be made to effect an entrance within said safe or vault by means of an explosive agent discharged against the front of the door thereof.

In order to effect an entrance to safes, vaults, &c., a charge of some powerful explosive agent, usually dynamite, has been discharged against the front of the door of said safe or vault in order to force or spring the metal plates composing said door inward, and thereby break or wrench out of position the mechanism of the combination and time locks, one or both, or the bolts and other connections employed to secure the locking bolt-work to the inner face of the door. It has been found that when a charge of dynamite has been so placed and exploded against the front of a safe-door the inner metal plates thereof would be forced inward from three to five eighths of an inch, (depending upon the size of the charge,) and that because of the elasticity of said plates composing the door they would again spring back or return to their normal position, or nearly so. The result of this movement back and forth or vibration of the plates of safe-doors incident to the force of the explosive has been that the time-lock, the combination-lock, and the series of conical bolts by which the bolt-work was secured to the door have been, one or all, completely destroyed, not unfrequently all the bolts and other fastenings employed to secure the locking bolt-work to the door, as well as the mechanism of both the combination and time locks, being either completely broken down or so wrenched out of place as to be useless for the purposes intended.

Various expedients have been resorted to to prevent the destruction of the combination and time locks and the severance of the bolts employed to secure the locking bolt-work to the doors of safes, &c., by the vibration of the plates of said door—such, for instance, as arranging springs or rubber cushions to the locks and conical bolts, whereby to permit said parts to vibrate with said plates; but in doing this the said parts have been rendered more complicated, expensive, and not so strong or durable as is necessary, and without accomplishing the desired result. This invention is therefore directed to the accomplishment of this object—viz., to prevent injury to the mechanism of the combination and time locks and the bolt-work of the doors of safes, vaults, &c., in the event of an attempt being made to open said door by discharging dynamite or other similar explosive agent against the face of the same; and to this end the said invention consists in forming the door of said safe, &c., with a space between the plates thereof, to permit a free vibration of the front plates, against which the discharge was directed, without affecting the inner plates, to which the locks and locking bolt-work are secured.

As now ordinarily constructed, a burglar-proof safe or vault door is composed of a number of solid metal plates riveted close and flush together. In fire-proof safes and vaults, in addition to the metal plates, a filling of concrete or other hard substance has been interposed between the front and rear plates or walls of the door, and sometimes water or other liquid has been circulated around the safe or vault through pipes or a space provided for this purpose. In all of these cases the doors of the safes, vaults, &c., have been, practically speaking, a solid structure; in other words, no free and unobstructed space has been left in said doors, as is contemplated by this invention, and none of the plates thereof could vibrate without affecting them all.

As before stated, various expedients have been resorted to to prevent or lessen the disastrous effect of the explosion of dynamite against the face of the door of safes and vaults;

but, so far as I am informed, they have all been directed to the locks and bolts of the locking bolt-work and not to the door itself, as in my proposed invention, which I will now proceed to particularly describe, reference being had to the accompanying drawings for a better understanding of the same, and in which—

Figure 1 represents a sectional plan view of a portion of a safe or vault door constructed in accordance with my invention; and Fig. 2 is a similar view of an ordinary burglar-proof safe or vault door, showing the position of said door and the usual conical bolts employed to secure the locking-bolts to the door.

The door shown in Fig. 2 is composed of the several metal plates *a b c d e f g*, secured flush together by the bolts, screws, or rivets *i* and *j*.

A represents the usual locking-bolts, secured to the inner face of the door by the large conical-shaped bolts *k*, entering a frame, *l*. B is the hinge, and C is the handle or lever for throwing the locking-bolts A. These parts just described are all of the usual construction and arrangement, and the plates thereof are all secured close and flush together. When thus constructed, should pressure be applied to the front of the door, the front plate thereof would be pressed against the second, and so on until the entire door is forced or bent inward, resulting, as before stated, in the destruction of either the combination or time locks, one or both, or, as shown in Fig. 2, the breaking of the conical bolts employed to secure the locking bolt-work in position thereon. In either event, whether the combination or time locks are destroyed, an entrance to the safe or vault is then a comparatively easy matter; but when, as is most usually the case, the conical bolts of the bolt-work are broken, as in Fig. 2, the door would be entirely disconnected from the bolt-work and forced open, as shown. Therefore, to prevent this breaking of these conical bolts is the point most desired, and which is accomplished by my invention in the following manner:

Instead of securing all the plates composing the door flush together, as in Fig. 2, I propose to omit one or more, preferably, of the front plates, as shown at D, Fig. 1. To effect this, one or more narrow pieces or strips, *d'*, are placed around the edges of the door after the first or second front plate thereof, so that a clear and unobstructed space over almost the entire central surface of the door is formed in the walls thereof, as shown. This space is preferably at the front of the door, immediately after the first or second layer of metal plates, instead of at the back or central portion thereof; but said space may be formed either at the front, back, or center, as desired or found to accomplish the best results, and it is proposed to have said space to extend over nearly the entire portion of the door, with only sufficient margin around it to effect the proper fastening of the plates composing the door. If desired, an elastic filling of light rubber may be placed in this space; but it is preferred and thought to accomplish the best results by leaving said space entirely free and unobstructed. The object of thus forming a safe-door is to permit of the free vibration of the outer wall of the door when a charge of dynamite or other explosive is discharged against the same, so that the force of the explosion will be exerted against the said front plate only, and said plate may vibrate back and forth without affecting the locks or bolts and other fastenings of the bolt-work. By reason of this space in the walls of the safe-door the free vibration of the front plate or plates thereof is permitted, while the rear plates remain intact. No injury to the locks or bolt-work can therefore result should an explosive be discharged against the outside of the door.

It may happen that the force of the discharge severed the bolts by which the front plates were secured to the main body of the door, in which event said front plate only could be removed, and a second discharge, or more, if the door were provided with two or more spaces instead of one, would be necessary before the bolt-work would be reached.

Should a rubber or other very elastic filling be placed in the space formed in the door, it must be of such nature as to permit of a free movement of the outer plates of the door; otherwise the said plates may be forced against the rubber and compress it against the inner plates sufficiently to produce the result this invention is intended to overcome—viz., injury to the bolt-work and locks.

I have described and shown the door as being made of separate solid plates of metal secured together, this being the usual way of making these doors, and as forming the space therein by omitting the central portion of one or more of said plates; but said door may be formed in any manner desired, and the plates may be hollow instead of solid, as at present, or they may be in one piece with a suitable space formed therein, instead of employing the narrow strips around the edge, if desired, no claim to any such details of construction as these being made by me herein, the gist of my invention being the forming of the door so as to permit a free vibration of the front plates or portion thereof without affecting the rear plates or portion; and instead of forming the door of safes, &c., of a solid structure of metal plates, rubber sheets or other suitable elastic packing may be interposed between said metal plates, whereby any jar or pressure applied against the front portion of the door or wall would be taken up by said elastic filling and dispelled before it reached the inner plates or wall, so that the locks and bolt-work would also in this instance be protected from injury, probably the same as if the structure were merely formed with free spaces interposed between the walls thereof, as at first proposed.

I am aware that safes have been formed with an air-space in the walls thereof to render

the said safe buoyant; also, that a rubber pad has been placed behind the knob-spindles of safe-locks. This, therefore, I do not claim as my invention; but

What I do claim as new and of my invention, and desire to secure protection therefor by Letters Patent of the United States, is—

1. A burglar-proof safe or vault door formed of a series of separate metal plates having one or more spaces or openings between the inner and outer plates thereof, substantially as described, whereby, should an explosive be discharged against said door, the front plates or portion composing the same would freely vibrate without affecting the inner plates or portion of the structure to which the locks and bolt-work are attached, and thus injury to said locks and bolt-work is prevented.

2. The combination, in a burglar-proof safe or vault door, of a series of separate metal plates having spaces interposed between the same, substantially as described, and an elastic filling or sheet occupying said spaces, and the whole united together in a solid structure, for the purposes specified.

In testimony whereof I hereto affix my signature in presence of two witnesses.

HIRAM B. TRIPP.

Witnesses:
A. M. TANNER,
J. A. RUTHERFORD.