

(No Model.)

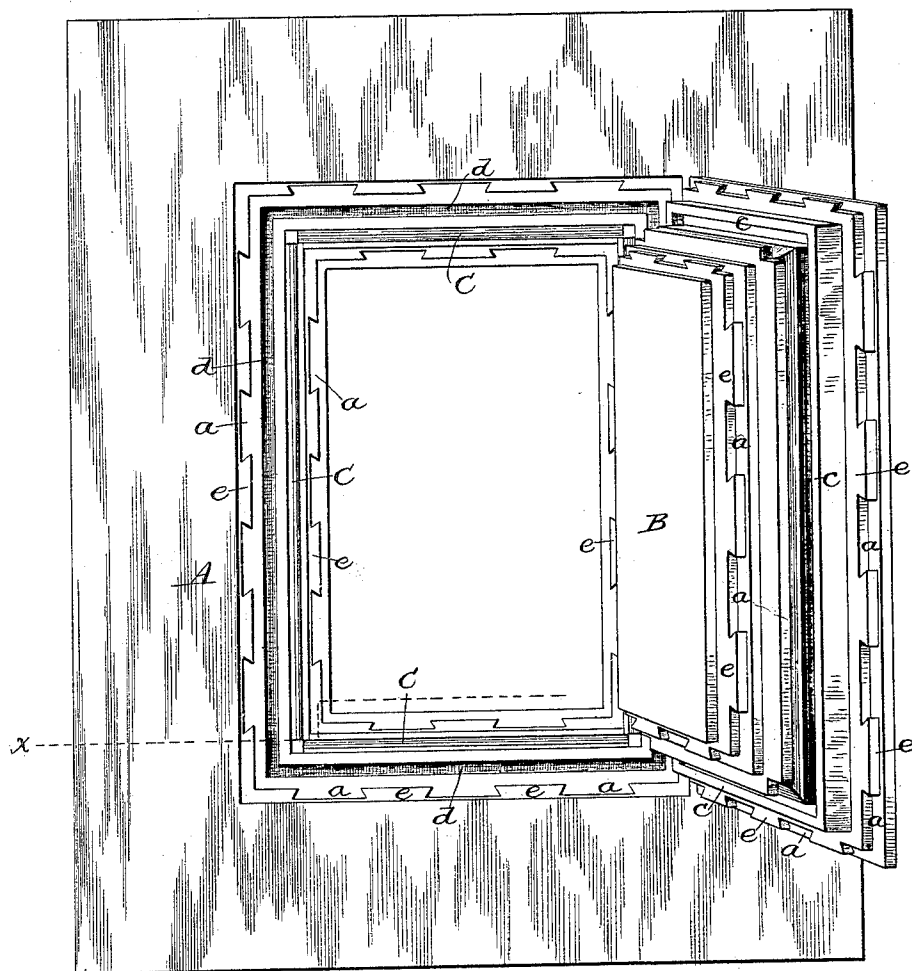
3 Sheets—Sheet 1.

J. L. HALL.
SAFE OR VAULT.

No. 398,610.

Patented Feb. 26, 1889.

Fig. 1.



WITNESSES:

James F. Duhamel
Horace A. Dodge.

INVENTOR

J. L. Hall,
by Dodge & Sons

ATTORNEYS

(No Model.)

3 Sheets—Sheet 2.

J. L. HALL.
SAFE OR VAULT.

No. 398,610.

Patented Feb. 26, 1889.

Fig. 2.

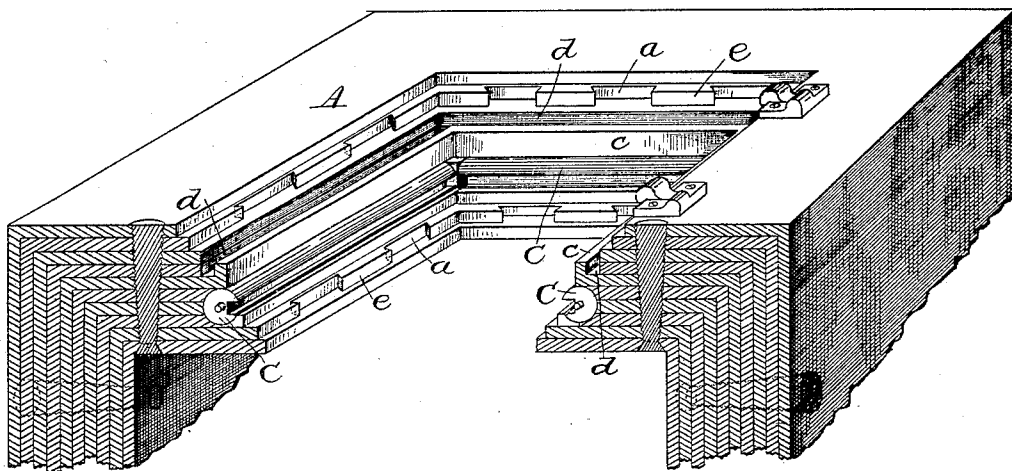
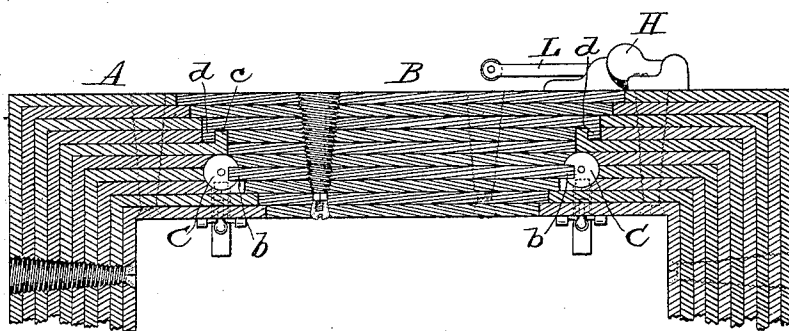


Fig. 3.



WITNESSES:

James F. Duffhamel
Horace A. Dodge.

INVENTOR

J. L. Hall,
by Dodge & Sons

ATTORNEYS

J. L. HALL.
SAFE OR VAULT.

No. 398,610.

Patented Feb. 26, 1889.

Fig. 4.

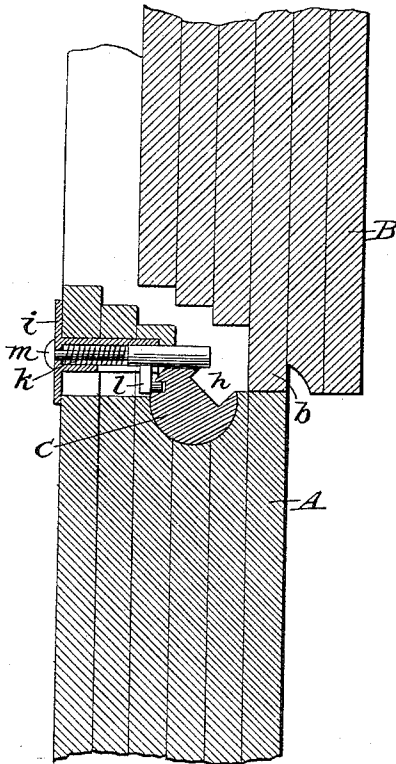
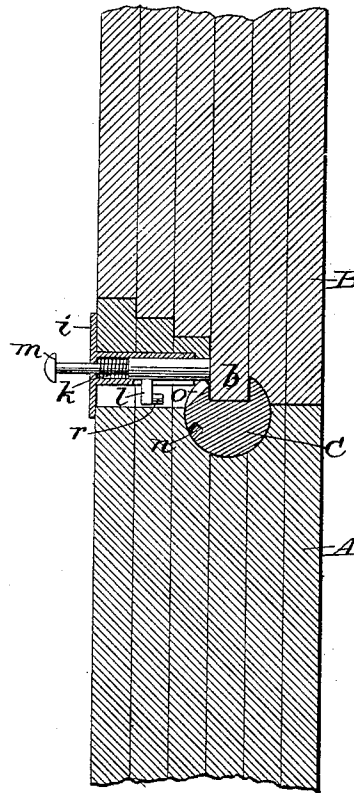


Fig. 5.



Witnesses:

James F. Duffhamel

Horace A. Dodge

Inventor

J. L. Hall.

by Dodge & Sons

Attorneys.

UNITED STATES PATENT OFFICE.

JOSEPH L. HALL, OF CINCINNATI, OHIO.

SAFE OR VAULT.

SPECIFICATION forming part of Letters Patent No. 398,610, dated February 26, 1889.

Application filed November 12, 1888. Serial No. 290,578. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH L. HALL, of 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 relates to certain improvements in safes and vaults, as hereinafter more fully set forth.

Referring to the accompanying drawings, Figure 1 is a front elevation; Fig. 2, a perspective view, partly in section, of the body of a safe. Fig. 3 is a transverse section of the same on the line *x x* of Fig. 1, and Figs. 4 and 5 are enlarged sectional views through the door and its jamb at right angles to the jamb.

This invention has reference more especially to what are known as "burglar-proof" safes and vaults, the object being to render them more secure and prevent their being forced open by the use of wedges, explosives, or any of the means usually resorted to by burglars; and to that end it consists in the combination of several different means for uniting the door with its frame or jambs.

It further consists in a means of locking the rotary bars or bolts in their proper position when the door is opened, and automatically releasing them in the act of closing the door.

In order to prevent burglars from opening the joint between the door and its jamb by means of wedges and other devices, and inserting explosives, safes and vaults have heretofore been made with a series of interlocking dovetails, *e* and *a*, on the jambs and edges of the door, as shown in Fig. 1, in which *e* indicates the dovetails, and *a* the recesses in which the corresponding dovetails fit, the same having been patented to me July 23, 1867, No. 67,046. They have also been constructed with an interlocking tenon, *c*, and the grooves *d* made on the jamb and the edge of the door, as shown in Figs. 1, 2, and 3, the same being shown and described in my prior patent, No. 67,045, dated July 23, 1867. In my present invention I combine these two devices, or either of them, with the movable bars or bolts, *C*, described in my application, Serial No. 276,136, filed June 5, 1888. The construction and arrangement of these bars or bolts *C* and the interlocking flange *b* are fully shown and

described in said application, to which reference is hereby made for a more detailed description. As will be seen by reference to Fig. 2, I have shown two series of the dovetails *a* and *e* on the jamb and door, also the interlocking tenons and grooves *c d* and the movable bolts or bars *C*, and in Fig. 3 I have shown those parts in the position they will occupy when the door *B* is fully closed. In order to apply these various devices, it is necessary that the door *B* shall be hung on compound hinges *H*, which are provided with a handle or lever, *L*, for forcing the door into its seat after it has been swung into position in front of the opening; but this device, being well known and described in former patents, need not further be described herein.

It is obvious that the dovetail joints may be used in connection with the movable bars or bolts *C* without the interlocking tenons and grooves *c d*.

It is also obvious that the interlocking tenons and grooves *c d* may be used in connection with the movable bars or bolts *C* without the dovetails; but by combining all three the security is increased. By this combination of interlocking devices in a safe it will be seen that it will be impossible to force the door away from its jamb by means of wedges or similar devices, and also that in consequence of the several right-angle joints made by the interlocking tenons and grooves *c d* and by the interlocking flange *b* in the groove of the movable bars or bolts *C* it will be impossible to inject explosives into the joint.

I do not claim in this application either the dovetail joints, the interlocking tenons and grooves *c d*, or the interlocking flange *b* with the bar or bolt *C* *per se*, but simply the combination of two or more of them in connection with the jambs and door of a safe or vault.

As it is necessary that the movable bars or bolts *C* shall be in a certain position to enable the flange *b* to enter the groove in said bolts as the door is closed, and as they are liable to be accidentally moved by hitting them when putting articles in the safe or removing them therefrom, it is necessary to provide some means for holding these parts in position after the door is opened. This is

more especially necessary with those at the top and bottom, for the reason that, having the lip at the inner side of the groove cut away more or less, they thus have an excess of weight on one side, which of itself is liable to cause them to turn by gravity. To prevent any such movement and retain the movable bars or bolts in proper position when the door is opened for the flange *b* of the door to engage therewith when closed, I have devised the means shown in Figs. 4 and 5, in which *A* represents a portion of the frame, and *B* the door. As will be seen, I insert through a hole in the jamb from the inside a spring-bolt, *m*, at such a point that its inner end will rest in a groove, *o*, cut in the side of the bar or bolt *C* when the door is opened, the spring *k* forcing said bolt forward to the position shown in Fig. 4, in which case the friction of the spring-bolt *m* against the side of the movable bolt *C* will suffice to hold the latter in position and prevent it from being moved by a jar or any similar cause, this being more especially adapted to the perpendicular bars or bolts at the sides of the door, and which have no tendency to turn by gravity. In such case the spring-bolt *m* need not be made to project so as to be struck by the flange *b* when the door is closed, it operating simply by friction against the side of bolt *C*, and which of course may be turned by the flange when brought in contact therewith without first pushing back the bolt *m*. It is obvious that any form of friction-spring may be used in such case. When, however, it is desired to lock the movable bars or bolts *C* positively against being moved except when the door is closed, I secure to the bolt *m* an arm, *l*, having thereon a small stud, *r*, which engages in a hole, *n*, in the bar or bolt *C*, as shown in Fig. 4. In such case the inner end of bolt *m* is made to project inward far enough for the flange *b* of the door to strike against it as the door is closed and force it back far enough to release the bar or bolt *C*, so that the latter is left free to be moved in its seat by the flange *b* as the door is closed, as clearly shown in Figs. 4 and 5.

It is obvious that this device may be used in connection with the removable bar or bolt *C* wherever the latter is applied, whether in safes, vaults, or other inclosures.

It is also obvious that any of the known forms of locking devices may be used for lock-

ing the movable bolts or bars *C* of the door; but as they form no part of the present invention I have neither shown nor described any in this application.

Devices or methods of locking will form the subject of one or more separate applications.

Having thus described my invention, what I claim is—

1. In a burglar-proof safe, a door and its jambs, one of said parts having the movable bolt *C* set therein, with a laterally-projecting flange, *b*, on the other part, and both the door and its jambs being provided with an interlocking tenon and groove, *c d*, all constructed and arranged to operate substantially as and for the purpose set forth.

2. In a burglar-proof safe, a door and its jambs, each provided with a series of interlocking dovetails, *e a*, with one or more movable bars or bolts, *C*, set in one of said parts, and a laterally-projecting flange, *b*, on the other of said parts, all constructed and arranged for joint action substantially as and for the purpose set forth.

3. In a burglar-proof safe, a door and its jambs, each provided with an interlocking tenon and groove, *c d*, and a series of interlocking dovetails, *e a*, with one or more movable bars or bolts, *C*, set in one of said parts, and a laterally-projecting flange, *b*, on the other of said parts, all constructed and arranged to operate substantially as described, for the purpose of fastening the door more securely in place when closed.

4. In combination with a movable bar or bolt, *C*, a spring-bolt, *m*, arranged to bear against the bolt *C* and hold it by friction from being accidentally moved while the door is open.

5. In combination with the movable bar or bolt *C*, the spring-bolt *m*, provided with a stud, *r*, arranged to engage with the former and lock it positively in position, said bolt *m* having its end arranged to project beyond the inner lip of bolt *C*, so as to be forced back by the flange *b* and disengage its stud *r* from the bolt *C* in the act of closing the door.

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

JOSEPH L. HALL.

Witnesses:

RICHARD T. PULLEN,
CHARLES BIRD.