

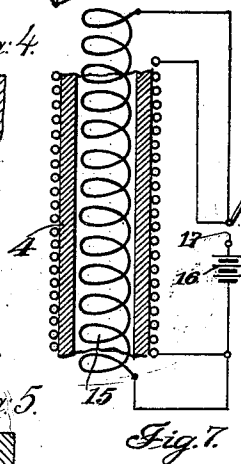
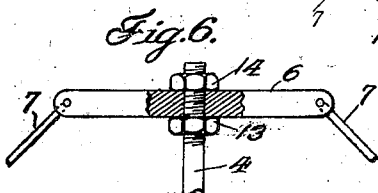
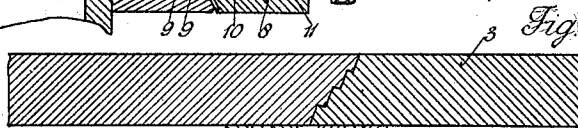
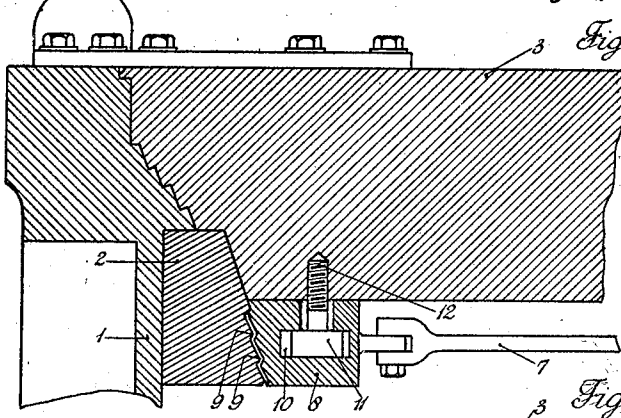
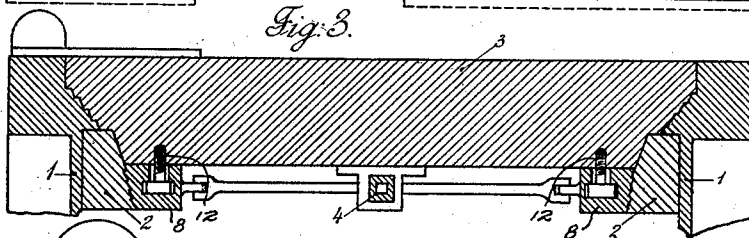
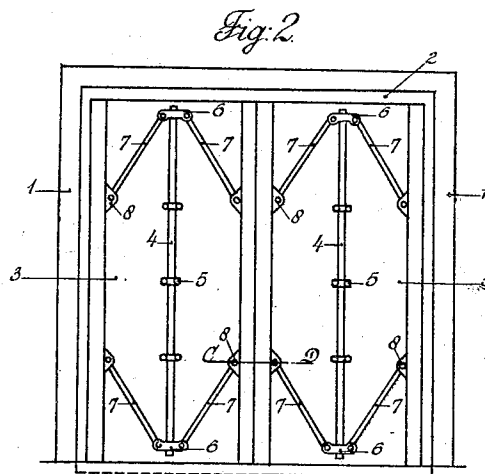
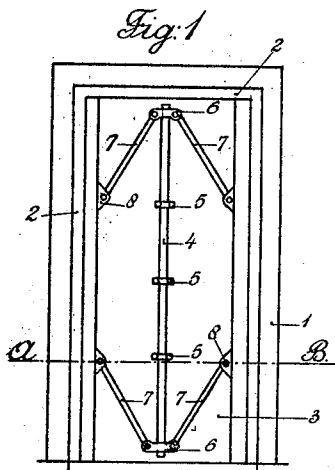
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A. H. M. BASART

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DOOR FASTENING FOR SAFES AND THE LIKE

Filed Oct. 28, 1922



INVENTOR:
Antonius H. M. Basart
BY *Wm Wallace White*
ATTY.

UNITED STATES PATENT OFFICE.

ANTONIUS HENDRIKUS MARIE BASART, OF THE HAGUE, NETHERLANDS.

DOOR FASTENING FOR SAFES AND THE LIKE.

Application filed October 28, 1922. Serial No. 597,478.

To all whom it may concern:

Be it known that I, ANTONIUS HENDRIKUS MARIE BASART, a subject of the Queen of the Netherlands, resident of The Hague, Province of South Holland, Kingdom of the Netherlands, have invented certain new and useful Improvements in Door Fastenings for Safes and the like, of which the following is a specification.

This invention relates to door fastenings, more especially for the doors of safes, strong rooms and fire proof chests. The fastening according to the invention differs from the usual known types in that it has no steel closing bars, lock case and other usual accessories, and furthermore that the construction is much more simple. The device according to the invention is adapted to be applied to all kinds of safes and fire proof chests without it being necessary to alter their construction considerably.

According to the invention the movement of the fastening members is effected by the expansion and contraction of a rod or rods mounted within the safe, when the said rod is heated and cooled respectively.

In a preferred form of construction the locking is effected by means of clamping pieces which are slidably attached to the door and are pressed against the door frame, or against a supplementary frame within the same, the pressure being applied by the contraction of a rod when the same is cooled.

In order to open the door the above mentioned rod must be heated so that the linear expansion of the rod causes same to pull the clamping pieces out of engagement, thereby enabling the door to be opened.

The invention will more clearly be understood by reference to the annexed drawing showing by way of example a preferred construction of the device.

Fig. 1 is a diagrammatical view of the inside of the door of a safe.

Fig. 2 is a similar view of a folding door.

Fig. 3 is a section, on a larger scale, on the line A—B in Fig. 1.

Fig. 4 shows the left hand portion of Fig. 3, drawn to a larger scale.

Fig. 5 is a section on the line C—D in Fig. 2.

Fig. 6 is a fragmentary, partly sectional side view on an enlarged scale, illustrating the adjustable connection of the expansible member with the operating links; and

Fig. 7 is a fragmentary, sectional view of the expansible tube illustrating the heating element carried thereby and its connection with the source of current.

Referring first to Figures 1, 3 and 4, a frame 2 is fitted securely within the door frame 1, said frame 2 being stepped, notched or grooved at the inner faces of its sides. A hollow rod 4 is slidable in brackets 5 fixed to the door 3. Said rod extends down the middle of the door. At or near the ends of the rod cross pieces 6 are adjustably secured thereto, said cross pieces being threaded on to the rod and held in place by a pair of nuts 13 and 14, as shown in Fig. 6. To the ends of each cross piece are hinged two links or rods 7. Said rods 7 extend obliquely from the cross pieces towards the side edges of the door. The ends of the rods 7 are connected to clamping members 8, which are carried by the door on the inside and are adapted to slide horizontally on the same. The outer faces of said clamping members are shaped correspondingly to the inner faces of the frame 2, that is to say they are stepped in such a manner that the faces 9 of the clamping members, when pressed against the frame 2, fit and engage the corresponding faces of the said frame, as is shown in Fig. 4. By pressing the clamping members the door is pulled inwardly. The clamping members are provided with slots 10, into which the flat sided heads 11 of bolts 12 engage. The dimensions of the parts and the adjustment of the cross pieces 6 are such that when the rod 4 is cold the clamping members 8 are firmly pressed against the side faces of the frame 2, the door thus being closed securely. Within the hollow rod 4 one or more heating elements such as a coil 15, Fig. 7, are provided, said coil being adapted to be heated by an electric current from a suitable source, as indicated at 16.

The electric circuit being closed by means of a switch 17, the rod 4 is soon heated to a fairly high temperature, and is thus caused to expand. This expansion causes the clamping members 8 to be pulled inwardly by the rods 7, and to be disengaged from the frame 2, so that the door can be opened. The cross pieces 6 may be insulated from the rod 4 by heat insulating material so as to prevent or reduce conduction of heat. The rod 4 may also be separated from the brackets 5 by heat insulating material. In order

to open the door it is necessary to establish an electric current through the heating elements. For this current a special switch device may be used, rendering it impossible to
 5 uninitiated persons to close the circuit and open the door. To enable the door to be opened in case a heating element has become effective, several heating elements may be provided within the hollow rod 4, each
 10 of which elements is able to heat the rod and to serve as a substitute for the defective element. The hollow rod 4 is preferably made of brass or other material whose coefficient of expansion is fairly high.

15 In the case of the folding door shown in Fig. 2 the construction is substantially similar to that above described. In this case, each leaf of the door carries at the inner side thereof a hollow rod 4. The hollow
 20 rods 4 are connected at their outer ends to rods 7, by means of cross pieces. The outer ends of the rods 7 nearest to the frame 2 or to the door frame carry slidable clamping members like those of the single door.
 25 However, the rods extending towards the middle of the door opening also carry slidable clamping members 8^a with flat faces 8^b (Fig. 5) and the dimensions of the parts are such that when the rods 4 are cold the
 30 outer ends of the clamping members 8^a are pressed tightly against each other, while the clamping members 8 are pressed tightly against the frame work. Both leaves of the door are in this case firmly shut.

35 The door fastening according to the invention is extremely simple and reliable.

What I claim is:

1. The combination with a door frame having a door opening, and a door adapted
 40 to close said opening, of door fastening means comprising movable members carried by the door, a member mounted on said door and adapted to expand and contract under variations of temperature, connecting means
 45 between said expansible member and movable members for moving said members into and out of engagement with the frame as the expansible member contracts and expands, and means for heating said expansi-
 50 ble member.

2. The combination with a door frame having a door opening, and a door adapted to close said opening, of door fastening means comprising movable members carried
 55 by the door, a tubular member mounted on

said door and adapted to expand and contract under variations of temperature, pivoted members connecting said movable members with said tubular member for moving
 60 said movable members into and out of engagement with the frame as the expansible member contracts and expands, and a heating element within said tubular member.

3. The combination with a door frame having a door opening, and a door adapted
 65 to close said opening, of door fastening means comprising a tubular member centrally disposed on said door at one side thereof, a plurality of members carried by the door and adapted to slide in a direction at right-
 70 angles to the axis of said tubular member, links connecting said slidable members to said tubular member adjacent to the ends thereof, and a heating element carried by said tubular member.

4. The combination with a door frame having a door opening, and a door adapted to close said opening, of door fastening means comprising a tubular member centrally disposed on said door at one side thereof, a plu-
 80 rality of members carried by the door and adapted to slide in a direction at right-angles to the axis of said tubular member, connecting members adjustably secured to said tubular member adjacent to its ends,
 85 links pivotally connecting said slidable members with said adjustable members, whereby said slidable members will be moved toward and away from the frame as the tubular member contracts and expands,
 90 and means for heating said tubular member.

5. The combination with a door frame having a door opening, and a pair of doors adapted to close said opening, of door fastening means comprising movable members
 95 carried by each of the doors, a member mounted on said doors and adapted to expand and contract under variations of temperature, connecting means between the expansible member of each door and its mov-
 100 able members for moving some of said members into and out of engagement with the frame and the remainder of said members into and out of engagement with each other as the expansible member contracts
 105 and expands, and means for heating said expansible member.

In testimony whereof I affix my signature.

ANTONIUS HENDRIKUS MARIE BASART.