Jan. 31, 1956 G. COPLEN 2,733,090

SAFETY RELEASE FOR VAULTS, REFRIGERATORS, AND THE LIKE

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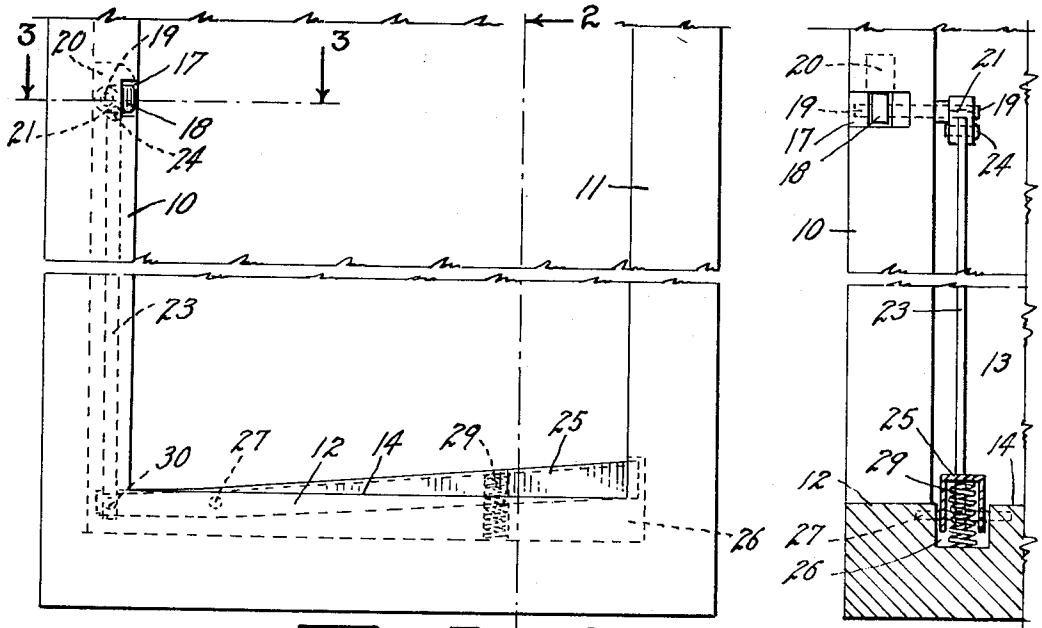


Fig 1

Fig 2

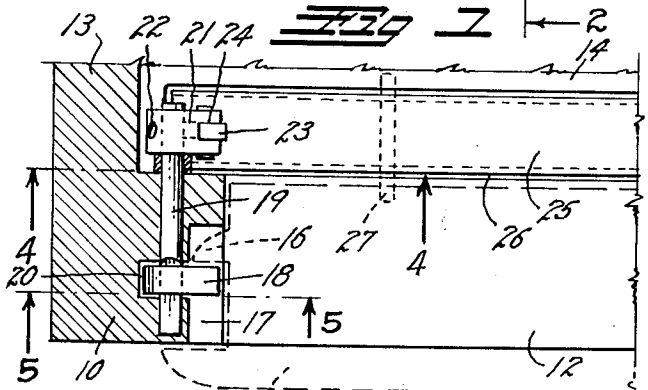


Fig 3

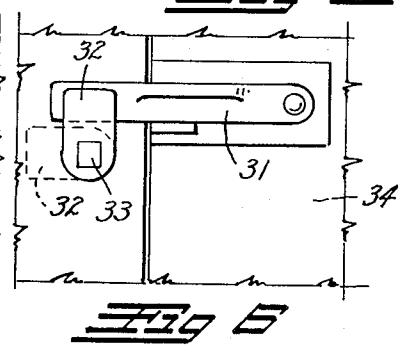


Fig 6

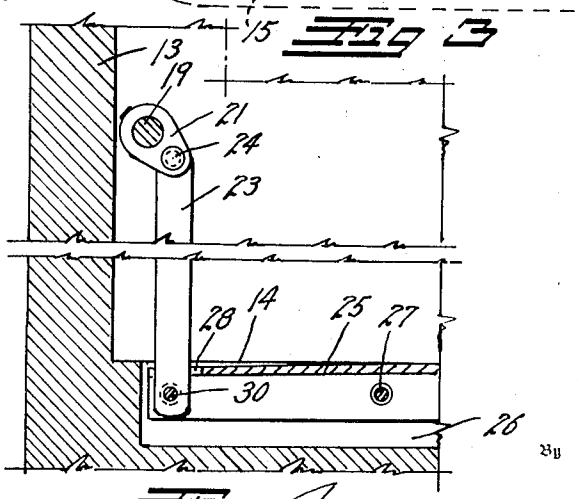


Fig 4

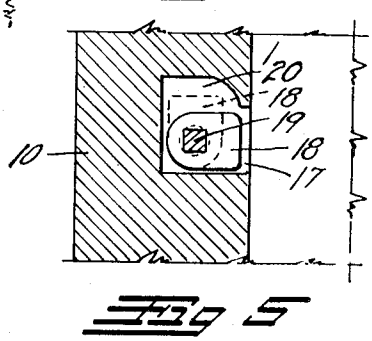


Fig 5

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SAFETY RELEASE FOR VAULTS, REFRIGERATORS, AND THE LIKE

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1 Claim. (Cl. 292—94)

This invention relates to a safety release device for doors and is more particularly designed to release persons, more especially children, from being accidentally locked in abandoned ice boxes, refrigerators and the like.

The principal object of the invention is to provide means for unlocking or releasing the latch of a closed door from the interior of an enclosure which will operate automatically from the movements and weight of an imprisoned person without requiring any intelligence or conscious effort on the part of the prisoner so that children and others who might become hysterical from the darkness and fright will automatically release themselves.

Another object of the invention is to so construct the releasing device that it will not interfere in any way with the normal uses of the enclosure and its door or with the type of lock or latch with which the enclosure door is provided.

While the invention has been more particularly designed to prevent children from becoming accidentally locked in abandoned ice boxes and refrigerators, it will be found equally valuable for releasing persons either accidentally or intentionally locked in bank vaults, food lockers and other sealed enclosures.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

Fig. 1 is a fragmentary front view of a conventional refrigerator door opening with the door removed therefrom;

Fig. 2 is a vertical section through the door opening of Fig. 1, taken on the line 2—2, Fig. 1;

Fig. 3 is an enlarged detail section through the side jamb of the door openeing of Fig. 1, looking downwardly on the line 3—3, Fig. 1;

Fig. 4 is a vertical cross-section, taken on the line 4—4, Fig. 3;

Fig. 5 is a similar section, taken on the line 5—5, Fig. 3; and

Fig. 6 is a fragmentary front view of the lock portion of a door and its adjacent jamb showing the invention applied to an alternate type of lock.

In the drawing, the side jambs of the door opening of a conventional refrigerator have been indicated at 10 and 11, the door sill at 12, the side wall at 13 and the floor at 14. The position of a conventional door is indicated in broken line at 15 in Fig. 3 with a conventional projecting latch bolt also indicated in broken line at 16. The door and its latch bolt are any of the conventional types and form no part of the present invention. The invention relates to a retractible keeper for the door latch bolt.

A horizontal latch-bolt receiving notch 17 is formed in the side jamb 10 in alignment with the closing path of the latch bolt 16 to receive the latter when the door is closed. The latch bolt is locked in the closed position by means of a retractible keeper 18 arranged to swing downwardly into the notch 17 to retain the bolt therein or to swing upwardly and outwardly therefrom to release the bolt therefrom to allow the door to freely swing open. The keeper 18 is fixedly mounted on and projects laterally from a keeper shaft 19 which extends horizontally through the jamb 10 in alignment with the bolt notch 17 and at right angles to the plane of the closed door.

The forward extremity of the keeper shaft is preferably square, as shown in the drawing, so that it may be inserted through a bearing opening in the side jamb 10 from the inside of the refrigerator with the square forward extremity entering into the keeper to lock the latter against rotation on the shaft. The keeper is mounted in a keeper cavity 20 formed in the side jamb, the confines of which prevent lateral movement of the keeper relative to the plane of the door opening. The keeper may also be locked on the square extremity of the keeper shaft 19 by a suitable set screw or other conventional securing device.

An actuating lever 21 is fixedly mounted on the inner extremity of the shaft 19 by means of a suitable set screw 22 or in any other desired manner. An elongated push rod 23 is suspended from the free extremity of the lever 21. The latter is preferably bifurcated to receive the extremity of the rod 23 and a suitable hinge pin 24 is passed through the rod and the bifurcated extremity to hingedly mount the rod therein.

A tiltable treadle 25 is inset in a treadle socket 26 immediately inside the door sill 12. The treadle is preferably formed from a metal bar having an inverted U-shaped cross-section as illustrated and is tiltably mounted on a pivot pin 27 which extends across the treadle socket 26 and through the treadle 25 adjacent the side jamb 10, to provide a short lever extremity, adjacent the jamb 10 and a long lever extremity adjacent the jamb 11.

The long lever extremity is constantly urged upwardly by means of a suitable relatively light compression spring 29 positioned between the treadle and the bottom of the treadle cavity. The end of the short lever extremity of the treadle is hingedly secured to the lower extremity of the push rod 23. The latter preferably extends through a receiving slot 28 in the treadle and a hinge bolt or pin 30 is extended through the sides of the treadle and through the lower extremity of the push rod.

The actuating lever 21 is positioned on the keeper shaft at an angle of substantially 45° below the keeper 18 and the length of the push rod is such that when treadle is in the upwardly projecting position of Fig. 1, the keeper will be in the horizontally projecting position of Figs. 1 and 5.

If the door 15 is closed, the door bolt will snap past the keeper 18 to the broken line position of Fig. 1 as is usual with refrigerator doors having spring urged bolts. Normally, this locks the door so that it cannot be opened from the inside. However, let us assume a child has been imprisoned by the closed door. The child will naturally approach the door to push or pound upon it in an endeavor to open it or attract attention. The child's weight will depress the treadle against the action of the spring 29, into the treadle socket 26. This causes the short lever extremity of the push rod to push the actuating lever upward to rotate the keeper shaft 19.

The shaft will in turn rotate the keeper 18 upwardly and outwardly to the broken line position of Fig. 5 out of the path of the latch bolt 16 so that the door can swing freely open. When the actuating weight is moved from the treadle, the spring 29 will return the keeper 18 to its normal bolt retaining position.

On the doors of some types of ice boxes, such as indicated at 34, a swinging latch bolt is used, such as indicated at 31 in Fig. 6. This invention can also be employed with the latter type of latch by extending a keeper shaft 33, similar to the previously described shaft 19, forwardly through the front of the door jamb and placing a keeper 32 thereon which will receive and retain the swinging bolt 31 in the locked position of Fig. 6. When the treadle is actuated from the interior of the box as previously described, the keeper shaft 33 will be rotated to swing the keeper 32 away from the door to horizontal position, as indicated in broken line in Fig. 6, so as to completely release the swinging bolt 31 so that the door may be pushed open from the inside.

It will also be noted that, in Fig. 6, the second keeper 32 can be used as a handle by means of which the keeper shaft may be rotated by hand from the exterior of the box to unlock the door thereof.

While in the embodiment illustrated, the spring 29 has been positioned below the treadle, it could, of course, be replaced by a spring of any type connected to any moving part for accomplishing the same result. While the invention has been illustrated as applied to doors which open to the right, it would simply be reversed for application to doors opening to the left.

While a specific form of the improvement has been described and illustrated herein, it is to be understood that the same may be varied, within the scope of the appended claim, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

A retractible keeper for latching a latch bolt of a forwardly swinging door in its jamb comprising: a horizontal keeper shaft rotatably mounted in said jamb in horizontal alignment with and spaced from the extremity of said latch bolt and at right angles to the plane of said door; a keeper secured on and normally projecting horizontally from said shaft toward and into the path of said latch bolt to prevent said door from being opened; an actuating lever secured on the rear extremity of said shaft; a depressible floor treadle positioned across the lower edge of said door parallel to and spaced from the rear face of said door, one extremity of said treadle being positioned directly beneath said actuating lever; a connecting rod extending from the latter extremity of said treadle to said actuating lever; and a horizontal pivot pin extending transversely through said treadle adjacent said one extremity to provide a tilting fulcrum for said treadle so that when the other extremity thereof is depressed, said one extremity will force said connecting rod upwardly to cause said actuating lever to rotate said keeper shaft so as to swing said keeper upwardly from the path of said latch bolt.

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