Dec. 27, 1927. 1,654,256

E. L. HILL ET AL.

DOOR FASTENER

Filed Aug. 5, 1926 2 Sheets-Sheet 1

FIG. 1.

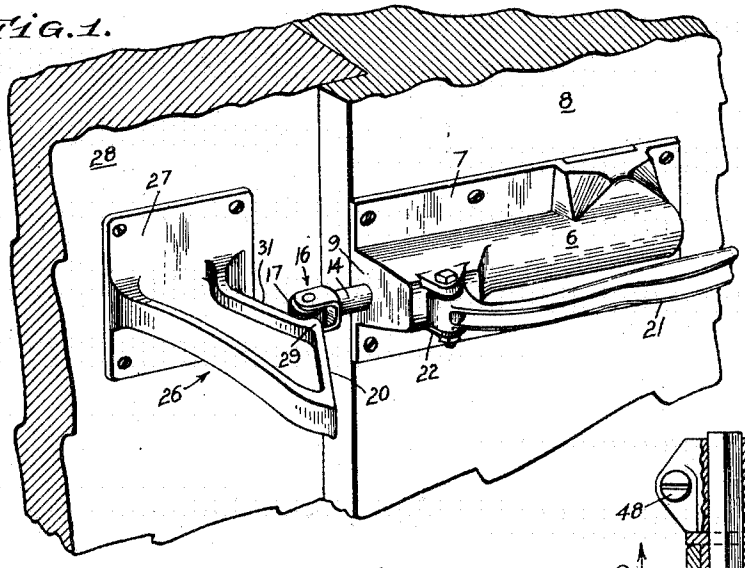


FIG. 2.

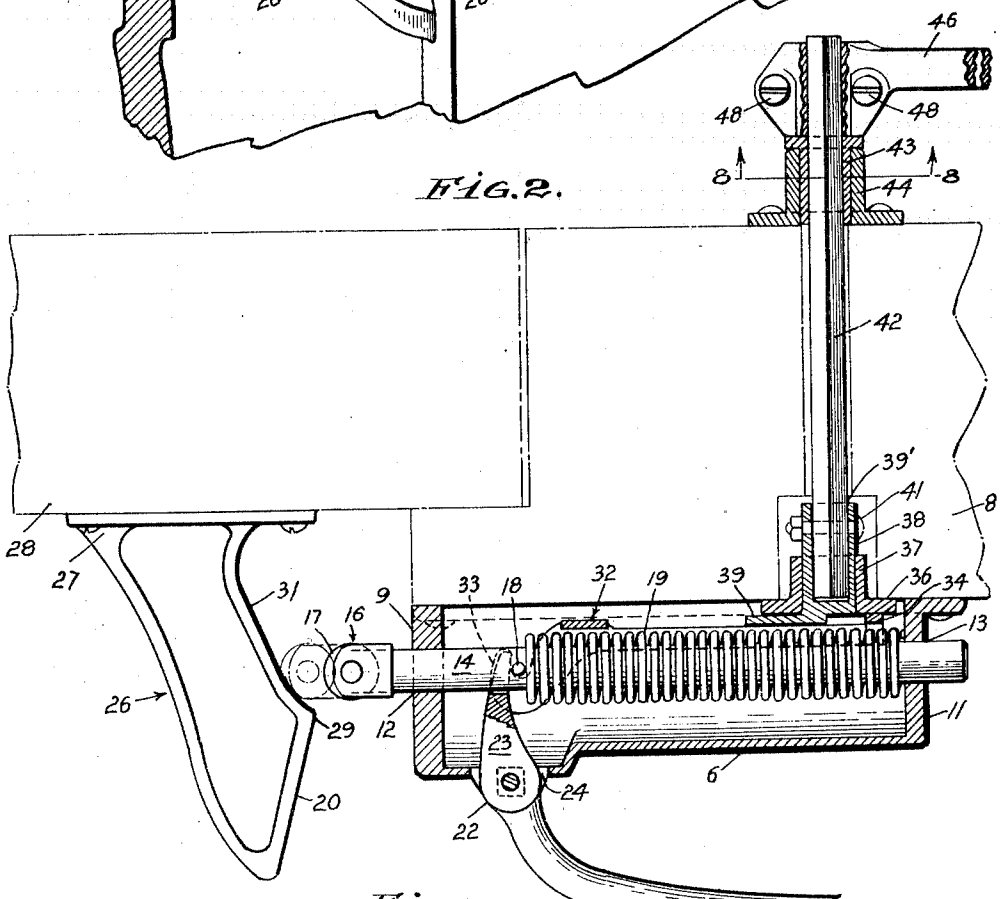
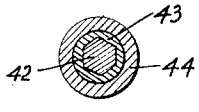


FIG. 8.



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FIG. 3.

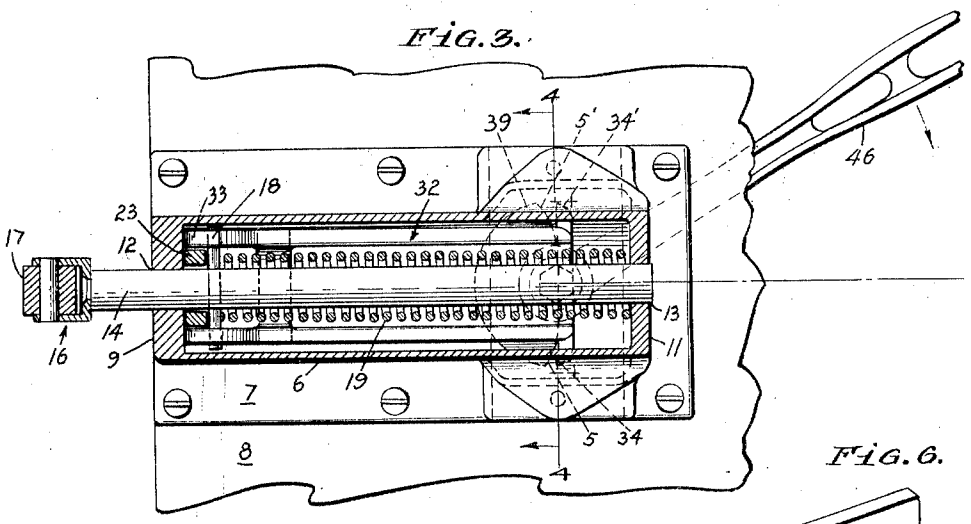


FIG. 6.

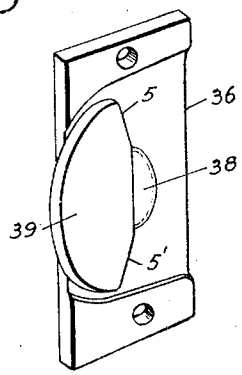


FIG. 5.

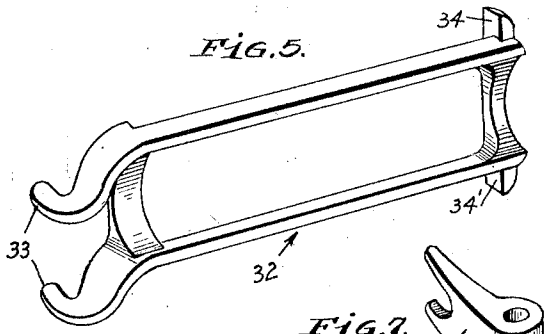


FIG. 7.

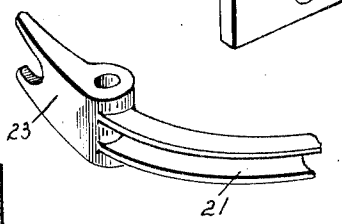
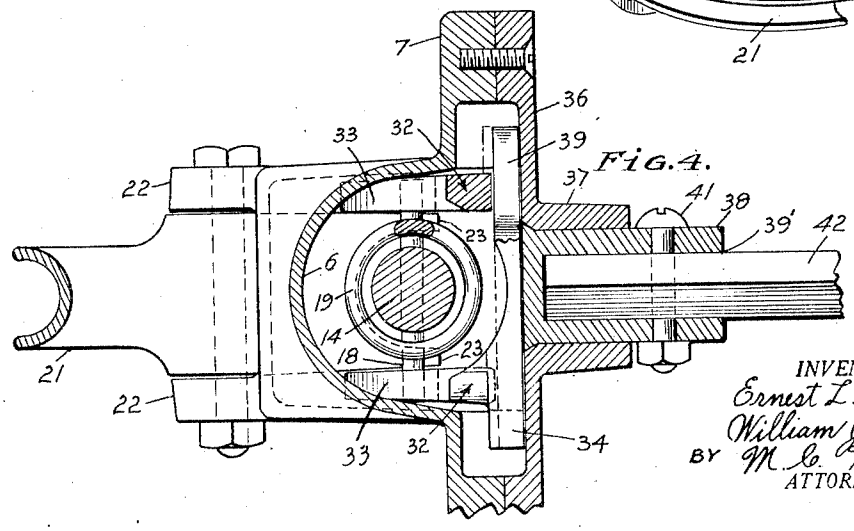


FIG. 4.



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UNITED STATES PATENT OFFICE.

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DOOR FASTENER.

Application filed August 5, 1926. Serial No. 127,229.

Our invention relates to fasteners and particularly to refrigerator door fasteners.

One of the objects of our invention is the provision of a door fasteners which may be readily operated from the inside of a refrigerator, cooler or the like, as well as from the outside, to actuate the fastener bolt in the closing or the opening of the door.

Another object of the invention is to provide a fastener of the above-mentioned character which has constant tension applied to hold the door tightly closed.

Another object which we have in view is a fastener of such construction that should the inside handle be accidentally broken off, a person locked in a refrigerator could push the door open and thereby save himself from freezing.

A further object of our invention is to provide a refrigerator door fastener which may be applied to either right or left hand doors.

A still further object is to provide adjustable means for the fastener to accommodate doors of different thicknesses.

Our invention possesses other objects and features of advantage, some of which with the foregoing will be set forth in the following description of the invention which is illustrated in the drawings accompanying and forming part of the specification. It is to be understood that we do not limit ourselves to the showing made by the said description and drawings, as we may adopt varying forms of our invention within the scope of the appended claims to this specification. Our preferred construction of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a perspective view of the fastener as seen from the outside of a refrigerator, the door and jamb of the latter being shown fragmentary.

Fig. 2 is a median horizontal sectional view of the fastener of Fig. 1 drawn to a larger scale. Certain parts are shown in full including the bolt which is withdrawn sufficiently to allow the door to open.

Fig. 3 is a median longitudinal vertical sectional view of the fastener, the bolt being shown in its projected position and in full lines.

Fig. 4 is a transverse vertical sectional view, the plane of section being indicated by the line 4—4 of Fig. 3.

Fig. 5 is a perspective detail, on an enlarged scale, showing the sliding shoe for the withdrawal of the bolt and operable from within the refrigerator.

Fig. 6 is a perspective detail of the cam and its supporting plate.

Fig. 7 is a perspective fragmental view showing the end of the outside operating lever.

Fig. 8 is a transverse sectional view, the plane of section being indicated by the line 8—8 of Fig. 2.

Broadly stated, our invention comprises a housing adapted to be secured to the outside of a door. A spring-pressed bolt is slidably mounted in the housing so as to extend out of one end thereof, and means are provided both on the inside and the outside of the door for withdrawing the bolt against the tension of the spring so that the fastener may be released from either side of the door to effect an entrance to or egrees from the refrigerator.

For convenience and simplicity we shall refer to a refrigerator as being the object to which our fastener is applied, but it is to be understood that it is within the purview of the invention to be applied wherever useful and desirable.

More specifically, our invention comprises a housing 6, preferably of malleable iron, and formed with a flange 7, whereby the housing may be secured to the outside of the door 8. The end walls 9 and 11 of the housing are formed with bearings 12 and 13 respectively and in which is slidably mounted a latch-bolt 14. The end 16 of the latch-bolt is preferably forked to support a roller 17. Extending through the latch-bolt 14 and within the housing is a stop pin 18, which forms a fulcrum for the operating levers of the device and also limits the movement of the bolt.

Coiled loosely around the bolt 14 and disposed between the wall 11 and the pin 18, is a spring 19 which tends to maintain the bolt in extended position. A lever 21 on the outside of the housing is pivoted to lugs 22 formed integral with the housing, and is provided with a forked end 23 which extends

into the housing through an opening 24, so as to engage the ends of the pin 18.

A keeper 26, formed as part of a bracket 27 and by which it is secured to the jamb 28 of a refrigerator, is provided with a bulge 29 and inclined edges 31 and 20 for engagement with the roller 17 on the bolt 14. The edge 31 functions with the bolt to hold the door tightly closed even though the door shrinks in time.

Mounted in a substantially vertical position within the housing is a shoe 32, adapted to slide freely over the coil spring 19. One end 33 of the shoe is forked so as to engage the stop pin 18, the forked end 33 of the sliding shoe being preferably wider than the forked end 23 of the lever 21, so as to engage the extreme ends of the pin 18. The other end of the shoe is provided with an outwardly extending lip 34 by which the shoe may be drawn lengthwise of the housing. Secured to the inside face of the housing is a plate 36 having a boss 37. Journalled in the boss is a hub 38 formed integral with a cam 39 disposed within the housing and engageable with the lip 34. The hub 38 is provided with a preferably hexagonal socket 39′, in which is seated and secured at one end by the machine bolt 41, a hexagonal rod 42, which extends through the door 8. The other end of the rod 42 is supported in a collar 43 journalled in a flanged boss 44 and which latter is secured to the inside of the door 8 within the refrigerator.

A hand lever 46 is secured to the rod 42 on the inside of the door so that when it is desired to open the door from the inside of the refrigerator, the lever 46 may be turned to cause the cam 39 to engage the lip 34 on the sliding shoe 32 and draw the shoe towards the end 11 of the housing. It will be observed that the shoe in so being moved, brings with it the latch-bolt 14 acting against the tension of the spring. When the lever 46 is released the spring 19 automatically forces the bolt back to its extended position. When it is desired to open the refrigerator door from the outside, the outside hand lever 21 is drawn outwardly from the door in the direction indicated by the arrow 47 shown in Fig. 2, and when the lever 21 is released the spring 19 functions as before described.

So that our improved fastener may be mounted on doors of various thicknesses, we make the hexagonal rod 42 of ample length, and the handle adjustable thereon by means of the screws 48, so that should the rod extend beyond the lever 46 when the fastener is installed, such extension may be readily sawed off.

It is to be observed that the shoe carries two outwardly extending lips 34 and 34′, and that the cam 39 has two chamfered edges 5 and 5′ engageable by the said lips. This double feature provides for the application of the fastener to right and left-hand swinging doors by simply reversing the fastener 180 degrees.

Having now described our invention what we claim as new and desire to secure by Letters Patent of the United States of America, is:—

1. In a fastener, the combination with a housing; a latch-bolt slidably mounted in said housing and extending through one end thereof; a stop on said bolt within said housing for forming a fulcrum; a spring engageable with said stop for maintaining said bolt in extended position; and a pair of levers pivoted to said housing and each lever being independently adapted to fulcrumly engage said stop for withdrawing said bolt against the tension of said spring.

2. The combination with a door, of a fastener comprising a housing; means for securing said housing to the outside of the door; a latch-bolt slidably mounted in said housing and extending through one end thereof; a stop pin extending through said bolt within said housing; a coil spring carried by said bolt and engaging said pin for maintaining said bolt in extended position; a lever pivoted to said housing and having a forked end engageable with the ends of said pin for withdrawing said bolt against the tension of said spring; a shoe slidable within said housing and having a forked end engageable with said pin; a cam engageable with said shoe; and means on the inside of said door for actuating said cam to slide said shoe whereby said bolt may be withdrawn against the tension of said spring.

3. The combination with a door, of a fastener comprising a housing; means for securing said housing to the outside of said door; a latch-bolt slidably mounted in said housing and extending through one end thereof; a stop pin extending through said bolt within said housing; a coil spring carried by said bolt and engaging said pin for maintaining said bolt in extended position; a lever pivoted to said housing and having a forked end engageable with the ends of said pin for withdrawing said bolt against the tension of said spring; a shoe slidable within said housing and having a forked end engageable with said pin; a plate secured to the inner face of said housing; a cam engageable with said shoe and having a hub journalled in said plate; a rod extending through said door and secured in said hub; and a lever secured to said rod on the inside of said door for actuating said cam to slide said shoe whereby said bolt may be withdrawn against the tension of said spring.

4. The combination with a door, of a fastener comprising a housing; means for securing said housing to the outside of said

door; a latch-bolt slidably mounted in said housing and extending through one end thereof; a stop fixed to said bolt within said housing for limiting the movement of said bolt; a spring engageable with said stop for maintaining said bolt in extended position; a shoe slidable in said housing and engageable with said stop; a cam engageable with said shoe; and means on the inside of said door for actuating said cam to slide said shoe whereby said bolt may be withdrawn against the tension of said spring.

5. The combination with a door, of a fastener comprising a housing secured to the outside of said door; a latch-bolt slidably mounted in said housing and extending through one end thereof; a stop fixed to said bolt within said housing for limiting the movement of said bolt; a spring engageable with said stop for maintaining said bolt in extended position; a shoe slidable in said housing and engageable with said stop; a plate secured to the inner face of said housing; a cam engageable with said shoe and having a hub journalled in said plate; a rod extending through said door and secured to said hub; and a lever secured to said rod on the inside of said door for actuating said cam to slide said shoe whereby said bolt may be withdrawn against the tension of said spring.

6. The combination with a door, of a fastener comprising a housing secured to the outside of said door; a latch-bolt slidably mounted in said housing and extending through one end thereof; a stop fixed to said bolt within said housing for limiting the movement of said bolt; a spring engageable with said stop for maintaining said bolt in extended position; a shoe slidable in said housing and engageable with said stop; a plate secured to the inner face of said housing; a cam engageable with said shoe; a hub integral with said cam and having a polygonal-shaped socket; a rod extending through said door and fitted in said socket and a lever secured to said rod on the inside of said door for actuating said cam to slide said shoe whereby said bolt may be withdrawn against the tension of said spring.

7. The combination with a door, of a fastener comprising a housing secured to the outside of said door; a latch-bolt slidably mounted in said housing and extending through one end thereof; a stop pin extending through said bolt for limiting the movement of said bolt; a spring carried by said bolt and engaging said pin for maintaining said bolt in extended position; a shoe slidable in said housing and having a forked end engaging the ends of said pin; a cam engageable with said shoe and means on the inside of said door for actuating said cam to slide said shoe whereby said bolt may be withdrawn against the tension of said spring.

8. A door fastener of the class described comprising a keeper; a bolt engageable with the keeper; a housing slidably supporting the bolt; a pin extending through the bolt and within the housing; a coil spring encircling the bolt and bearing against one side of the pin and one wall of the housing for maintaining the bolt in extended position within the keeper; a hand lever pivotally connected to one side of the housing and being adapted to engage the opposite side of the pin to withdraw the bolt from the keeper against the tension of the spring; a hand lever connected to the opposite side of the housing; and means within the housing operable on the last-named side of the pin whereby a turning movement of the last-named hand lever will also withdraw the bolt from the keeper against the tension of the said spring.

In testimony whereof, we affix our signatures.

ERNEST L. HILL.
WILLIAM J. WEBBER.