March 5, 1957 J. O. FLETCHER 2,783,722

ANTI-LOCK DEVICE FOR A CABINET DOOR

Filed Feb. 15, 1956

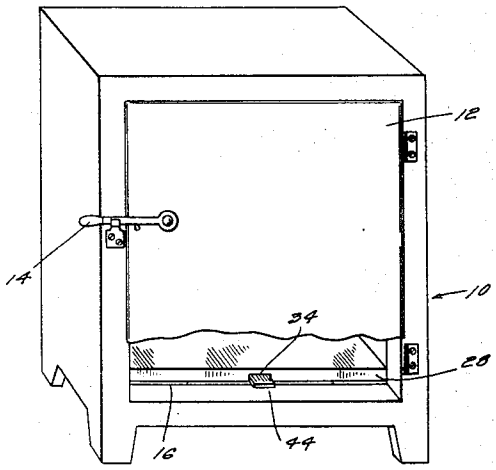


Fig. 1

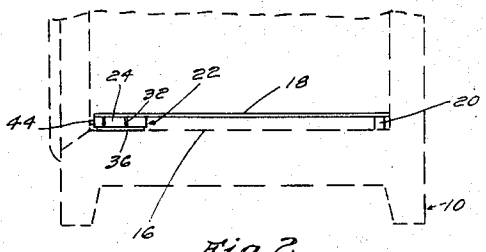


Fig. 2

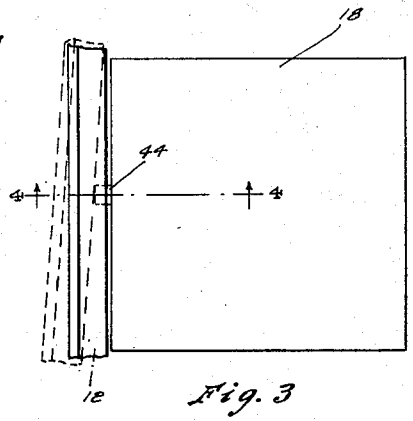


Fig. 3

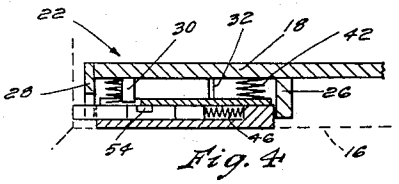


Fig. 4

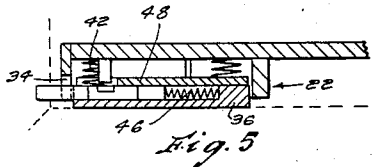


Fig. 5

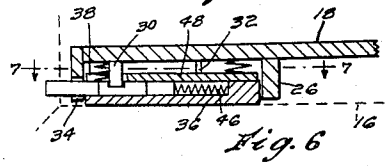


Fig. 6

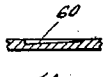


Fig. 9

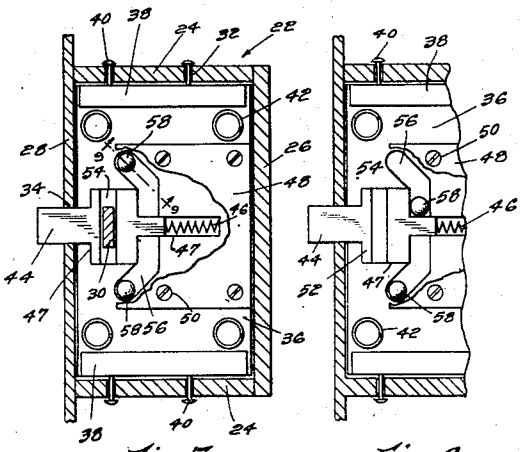


Fig. 7

Fig. 8

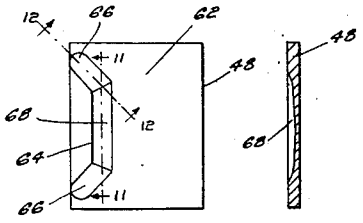


Fig. 10

Fig. 11

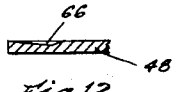


Fig. 12

INVENTOR.
John O. Fletcher
BY Elliot A. Salter
Atty.

United States Patent Office 2,783,722 Patented Mar. 5, 1957

2,783,722

ANTI-LOCK DEVICE FOR A CABINET DOOR

John O. Fletcher, Providence, R. I., assignor of fifty percent to Harvey Flint, Providence, R. I.

Application February 15, 1956, Serial No. 565,694

4 Claims. (Cl. 109—63.5)

This invention relates generally to anti-lock devices and more specifically to means for preventing the inadvertent closing and latching of a door to a cabinet or the like when someone is within said cabinet.

A primary object of the instant invention is the provision of means adapted to be mounted within a cabinet such as a refrigerating box or the like which will prevent inadvertent closing and latching of the door thereto when someone is within the cabinet, said means being automatically operable in response to the presence of a person therein.

Another object of the instant invention is the provision of means which will automatically prevent closing and latching of a cabinet door when said cabinet is tilted or turned to other than its normal, right-side-up, position.

A further object is the provision of an anti-lock device of the above character which is durable and effective in use, but which at the same time is relatively simple and economically feasible to manufacture.

Other objects, features and advantages of the invention will become apparent as the description thereof proceeds when considered in connection with the accompanying illustrative drawings.

In the drawings which illustrate the best mode presently contemplated by me for carrying out my invention:

Fig. 1 is a front perspective of a cabinet embodying the instant invention, a portion of the door being broken away for purposes of illustration;

Fig. 2 is a fragmentary side elevation of said cabinet, the side wall thereof being omitted to better illustrate the parts;

Fig. 3 is a plan view of the cabinet interior showing the door thereof closed in the full line position, and in broken lines the degree of closure possible when my anti-lock device is effective;

Fig. 4 is a section, on an enlarged scale, taken on line 4—4 of Fig. 3, showing the position of the parts when the door is closed;

Fig. 5 is a section, on an enlarged scale, showing the parts when the door is open;

Fig. 6 is a section, on an enlarged scale, showing the parts when the door is open and the cabinet bottom wall is in its lower position;

Fig. 7 is a section taken on line 7—7 of Fig. 6;

Fig. 8 is a fragmentary section showing the position of the parts of Fig. 7 when the cabinet is tilted;

Fig. 9 is a section taken on line 9—9 of Fig. 7;

Fig. 10 is a bottom view of the retaining plate which forms a part of my invention;

Fig. 11 is a section taken on line 11—11 of Fig. 10; and

Fig. 12 is a section taken on line 12—12 of Fig. 10.

It has been found desirable to provide means for preventing the inadvertent closure of a cabinet door or the like when someone is inside the cabinet. More specifically, refrigerating boxes and the like are normally of the self-latching type and most generally are provided with no means for the opening thereof from within the box. Accordingly, it not infrequently happens that someone

finds it necessary to go inside such a box, and in such a situation the possibility exists that the door may close accidentally or else it may be pushed closed by another person who happens by and is ignorant of the fact that someone is inside the box. No matter how it happens, however, the closing of the door in a situation such as this can have disastrous consequences for the person unknowingly trapped within. Furthermore, it is a well-known fact that old, discarded ice-boxes and the like form an attractive nuisance for small children, who are inclined to climb inside during the course of their play. If the door accidentally happens to close, suffocation is a likely consequence should the child not be discovered in time.

Heretofore, attempts directed at the overcoming of this problem have all taken the appoach of providing means within the cabinet for unlatching the door. Such attempts has proven largely unsuccessful, however, due to the fact that the provision of such means destroys to a large degree the air-tightness of the box, an important feature where refrigerating boxes are concerned. Furthermore, nothing has been developed that is foolproof in operation or practical to put in use.

The instant invention takes an entirely different approach to the problem. Instead of providing unlatching means within the cabinet, I have provided means for preventing the closing and latching of the cabinet door when a predetermined weight bears on the cabinet floor. I have further provided gravity actuated means for preventing the closing of the cabinet door when the cabinet is in other than its upright position, the thought here being that should a child climb into a discarded ice-box or the like that might be lying on its side, the door still will be incapable of closing and latching, even though no weight is now disposed on the floor.

Referring now to the drawings, there is shown generally at **10** a cabinet having a hinged door **12** and a conventional self-latching handle **14**. The cabinet **10** forms a complete enclosure, it being understood that my invention is of particular value in connection with ice-boxes and the like, although the structure hereinafter to be described could well be adapted to any cabinet having a movable closure associated therewith.

Overlying the inner base **16** of the cabinet **10** is a bottom wall **18**, supported at its rear edge by a transversely extending member **20** and at its front end by an assembly generally designated at **22**. As will hereinafter be explained more fully, the assembly **22** is collapsible to a limited degree whereby bottom wall **18** is downwardly movable responsive to a predetermined downward force, it being understood that said bottom wall will actually pivot counterclockwise (note Fig. 2), member **20** acting as a fulcrum.

The assembly **22** comprises a substantially rectangular housing secured to and depending from the bottom wall **18**, which housing comprises side walls **24**, a rear wall **26**, and a front wall **28** which extends completely across the front edge of bottom wall **18**, as will be seen most clearly in Fig. 1. Bottom wall **18** further is provided with a downwardly extending lug **30**, the function of which will hereinafter be made apparent, while side walls **24** are each provided with a pair of elongated slots **32**, and front wall **28** has therein a centrally disposed notch **34** extending upwardly from it lower edge.

Mounted on base **16** is a rectangular plate **36**, the dimensions of which are such that it may be encompassed by the depending walls **24**, **26** and **28**. The plate **36** is provided with built-up side portions **38** which carry outwardly extending studs or screws **40**, the studs **40** passing through the slots **32** of walls **24**. Resilient means such as coil springs **42** normally urge the bottom wall **18** to its uppermost position (Figs. 2, 4 and 5), the limit of said up-

ward movement being defined by studs 40 and slots 32. When bottom wall 18 is in its uppermost position, the lower edges of depending walls 24, 26 and 28 are in spaced relation to base 16.

Plate 36 has slidably mounted thereon abutment means 44 in the form of a reciprocal plunger, which plunger passes through notch 34 in front wall 28 and is resiliently biased to its extended position (Figs. 5 to 8) by means of a spring 46. Plunger 44 is reciprocally slidable in a complementary trackway 47 provided in the plate 36, and is maintained in said trackway by means of a retaining plate 48 which is mounted thereover by any desirable means, such as screws 50 or the like. Plunger 44 is provided with an enlarged portion 52 which coacts with trackway 47 to limit its outward movement, and said enlarged portion has formed therein on its top surface a laterally extending groove 54. As will be apparent from Figs. 5 to 7, groove 54 and depending lug 30 are in substantial alignment when the plunger 44 is in its outermost position. Also, it will be noted that when bottom wall 18 is in its uppermost position (Figs. 4 and 5), the lower end of depending lug 30 is slightly above the upper surface of the plunger 44. It will further be noted that said depending lug is located slightly forward of the front edge of retaining plate 48.

The operation of my invention is as follows. Upon the opening of door 12, abutment 44 will be moved to its extended position by means of spring 46, Figs. 5, 7 and 8. In normal use, closing of door 12 will force abutment 44 rearwardly against the action of its spring, enabling the door to close completely and latch. If after opening the door, however, a person should happen to step inside the cabinet onto the bottom wall 18 thereof, the excessive weight thereon would cause the springs 42 to compress whereupon wall 18 would move downwardly to its lowermost position, Fig. 6. In this position lug 30 enters into groove 54 and locks the abutment 44 in door-blocking position, whereupon the door cannot close and latch until the weight is removed from the wall 18. It will be understood that springs 42 are calibrated to withstand weights encountered in normal use without compressing, and that only upon application of an excessive weight will the wall 18 move downwardly to locking position.

It has also been found desirable to provide, in accordance with the instant invention, means for preventing closing of the door 12 when the cabinet is in other than its upright position. Accordingly, trackway 47 is provided with a pair of oppositely disposed angular channels 56, in communication therewith (Figs. 7 and 8), each of which has positioned therein a metal ball or the like 58, said balls being maintained within their respective channels by retaining plate 48. As shown at 60 in Fig. 9, the bottom of channels 56 are inclined slightly away from trackway 47 whereby to insure that when the cabinet 10 is upright, the balls 58 will remain in the position shown in Fig. 7 and not interfere with the normal operation of the parts as aforedescribed. Should, however, the cabinet be tilted, or placed on its side or back, at least one of the balls 58 will roll down into trackway 47 behind enlarged portion 52 of plunger 44, note Fig. 8, whereby to maintain said plunger in door-blocking position.

Means are also provided for preventing closing and latching of door 12 should the cabinet be placed upside down. In this respect, the inner surface 62 of retaining plate 48 is provided with channel means 64 formed therein, said channel comprising oppositely disposed angular portions 66, in substantial alignment with channels 56, and a transversely extending central portion 68. As shown in Fig. 11, central portion 68 inclines toward its center, while portions 66 also incline inwardly (Fig. 12). Thus if the cabinet 10 should be turned upside down, the balls will engage channel 64, and due to the inclination thereof, will gravitate into trackway 47 and lodge behind portion 52 of plunger 44, whereby to lock the latter against rearward movement.

While there is shown and described herein certain specific structure embodying the invention, it will be manifest to those skilled in the art that various modifications and rearrangements of the parts may be made without departing from the spirit and scope of the underlying inventive concept and that the same is not limited to the particular forms herein shown and described except insofar as indicated by the scope of the appended claims.

I claim:

1. In a cabinet having a door movable from an open to a closed position, an abutment mounted in said cabinet and movable into the path of closing movement of said door to block the same against closing, and means for locking said abutment in its door-blocking position, said means comprising a plurality of roller elements each movable into locking engagement with said abutment to positively maintain it in door-blocking position, and trackways for defining the movement of said elements, said movement being gravity actuated responsive to tilting or turning of the cabinet from its normal upright position.

2. In the cabinet of claim 1, said roller elements comprising balls.

3. In the cabinet of claim 2, said trackways having inclined portions for insuring gravitation of at least one of said balls to abutment locking position whenever the cabinet is in other than upright position.

4. In a cabinet having a door movable from an open to a closed position, a reciprocal plunger mounted in said cabinet and movable into the path of closing movement of said door to block the same against closing, said plunger having a pair of oppositely disposed lateral extensions, spring means normally urging said plunger to its door-blocking position, and means for locking said plunger in said door-blocking position, said means comprising a plurality of roller elements each movable to a position behind said plunger lateral extensions when the plunger is in door-blocking position whereby to positively maintain the plunger in said position, and trackways having inclined portions for guiding the movement of said elements, said movement being gravity actuated responsive to tilting or turning of the cabinet from its normal upright position.

References Cited in the file of this patent

UNITED STATES PATENTS

2,733,090 Coplen ---------- Jan. 31, 1956