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2,775,111

FREEZER LOCK

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2 Sheets-Sheet 1

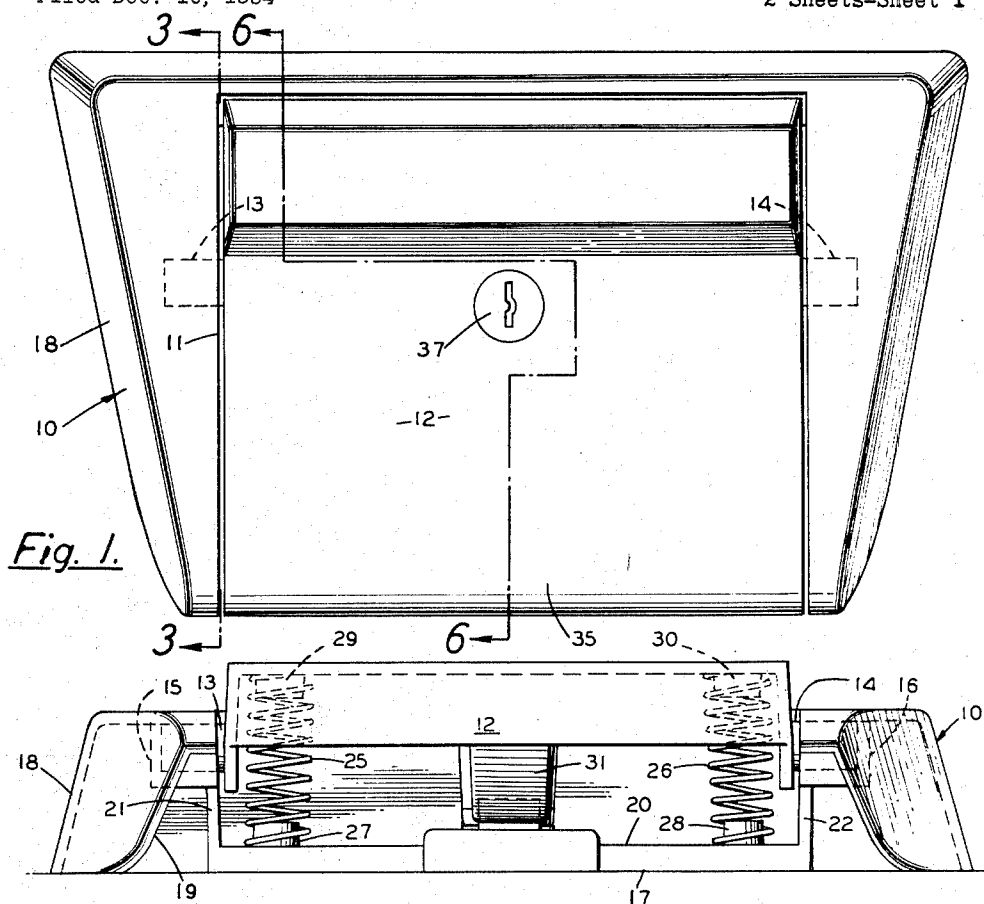


Fig. 2.

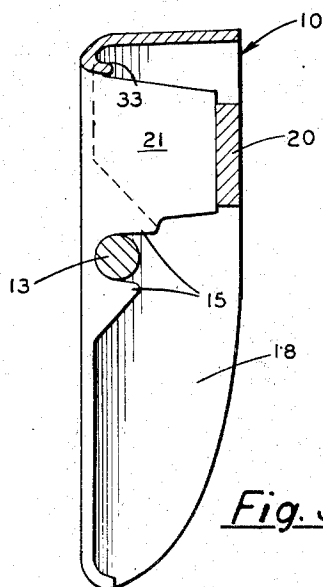


Fig. 3.

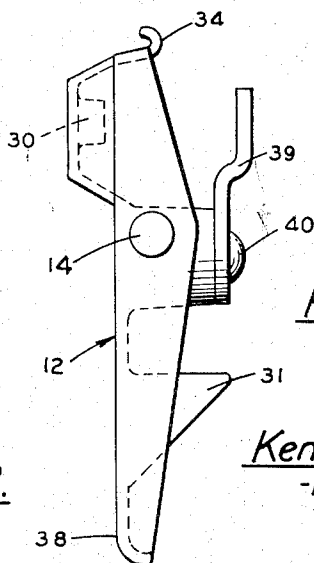


Fig. 4.

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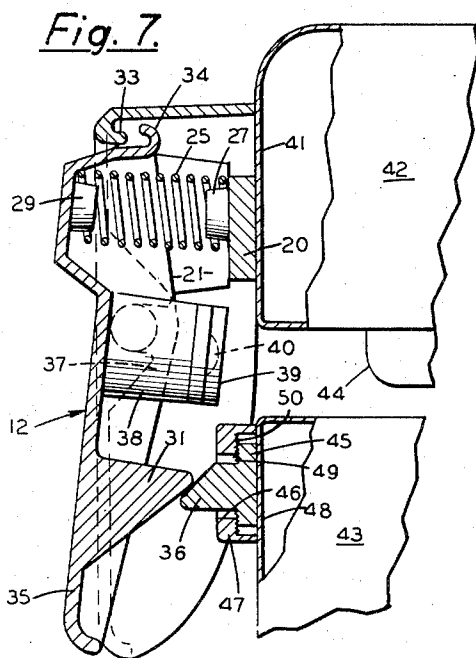
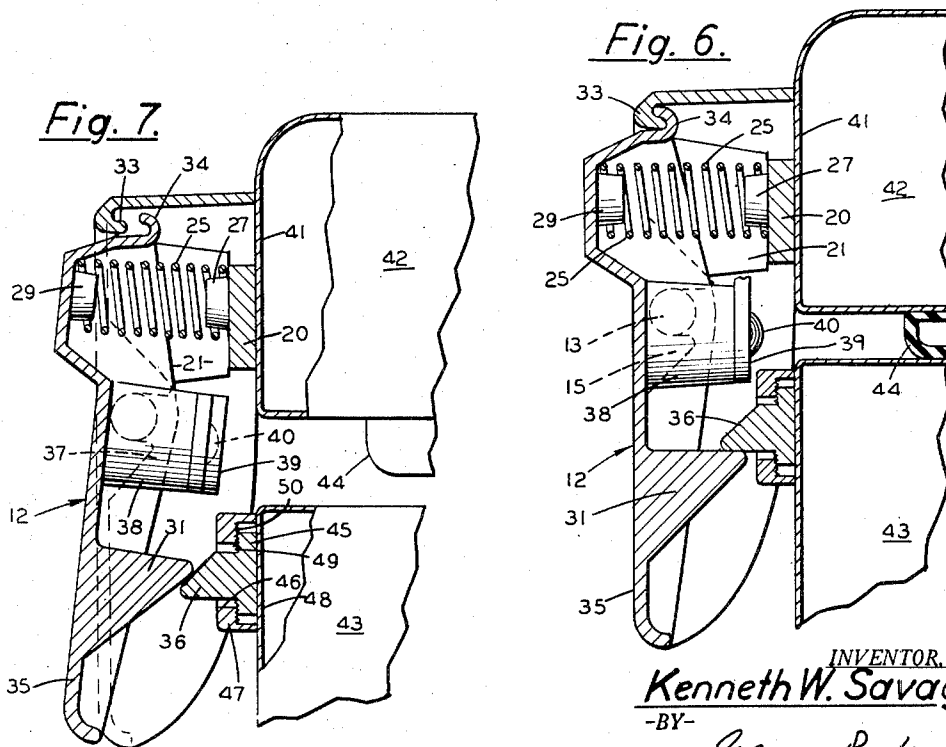
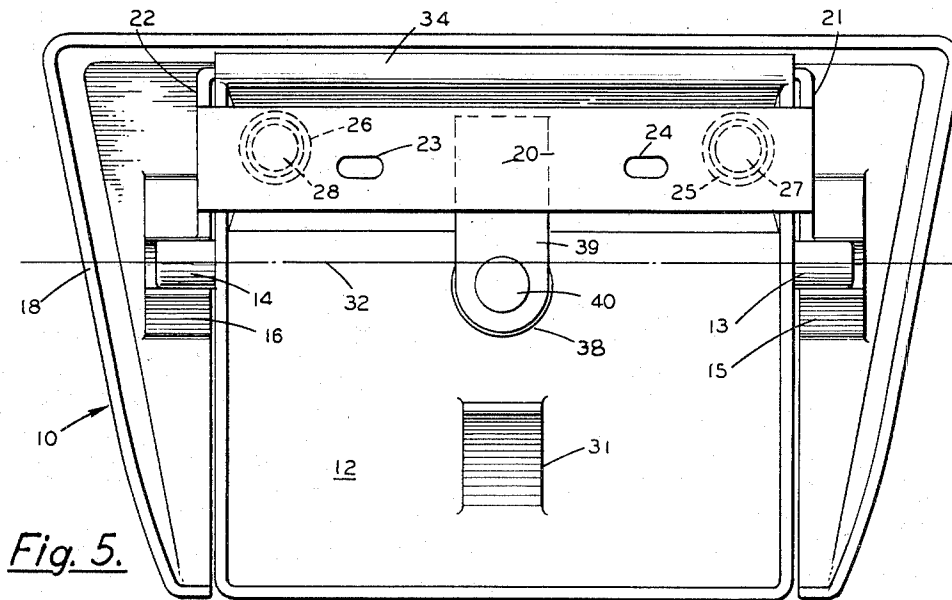
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2 Sheets-Sheet 2



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FREEZER LOCK

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2 Claims. (Cl. 70—9)

This invention relates to the construction of locks, and was developed primarily for use on food freezer and storage cabinets having a cover which swings upward on opening. The subject mechanism is of the type in which the lifting action normally required to swing open the cover will also operate to disengage the latch. The operating handle of the mechanism thereby serves also as a lifting handle for the cover. A locking mechanism is incorporated with the bolt to prevent unauthorized access to the cabinet. The principal objective of the invention disclosed herein is the reduction of cost through the minimizing of the number of working parts, and also through the simplification of assembly procedure. Except for the parts forming the key-operated locking mechanism, the components of a mechanism embodying this invention may be reduced to two basic elements and appropriate springs, with the addition of a suitable keeper structure. The two basic elements including a housing which is normally fixed with respect to the cover of the freezer, and a bolt-handle unit mounted in bearings on the housing. These bearings are preferably open over a sector of at least 180 degrees facing the mounting surface of the mechanism, and are engaged by laterally-extending journals preferably formed integrally with the bolt-handle unit. The housing is formed in such a manner that the bolt-handle unit, including the laterally-extending journals, may be inserted from a direction approximately parallel to the mounting surface to a point where the journal and bearing units become engaged. The assembly of the bolt unit into the housing is accomplished by the compression of springs which act between these components to bias the handle-bolt unit toward locking position. The key-operated locking mechanism serves to swing a cantilever beam into a position where it will abut a portion of the housing on rotation of the bolt toward disengaging position, and thereby prevent such movement. Operation of the key serves to swing this beam out of obstructing position.

The mechanism centering around the housing, the bolt, the spring, and the key-operated lock may be used in conjunction with any one of a variety of keeper constructions, but it is preferable to incorporate a construction involving a plastic keeper member whose position is adjustable through the engagement of serrations on the plastic member with corresponding serrations on a hold-down plate through which a portion of the keeper projects for active engagement with the bolt.

The several features of this invention will be analyzed in detail through a discussion of the particular embodiments illustrated in the accompanying drawings. Referring to the drawings:

Figure 1 presents a top elevation of the assembled unit.

Figure 2 presents a bottom view of the device shown in Figure 1 with Figures 1 and 2 being in projection.

Figure 3 is a section taken on the plane 3—3 of Figure 1.

Figure 4 presents a view of the handle-bolt unit separated from the surrounding structure.

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Figure 5 illustrates a view from underneath the mechanism shown in Figures 1 and 2.

Figure 6 is a sectional view taken on the plane 6—6 of Figure 1, and illustrating the device in the locked condition.

Figure 7 illustrates a view of the device corresponding to the partially closed position of the cover of the cabinet.

Referring to the drawings, the housing 10 is formed with an opening 11 which receives a handle-bolt unit 12. Laterally-extending journal portions 14 on the handle-bolt unit are received within coaxially disposed bearings 15 and 16, respectively, which provide a fulcrum for the handle-bolt unit. The mechanism is secured to a mounting surface 17, and the bearings 16 are radially open over a 180 degree sector facing the mounting surface so that movement of the handle-bolt unit toward the mounting surface tends to disengage the journals 13 and 14 from their respective bearings. Referring to Figure 2, the housing 10 is essentially a hollow structure having its outer wall continuous around three sides, but being interrupted to form the entrance 19 of such dimensions as will be capable of receiving the journal sections 13 and 14 of the handle-bolt unit.

The housing 10 is provided with the shelf portion 20 suspended from its opposite ends on the panels 21 and 22, which are formed integrally with the remainder of the housing 10. The shelf 20 is provided with mounting holes 23 and 24 (refer to Figure 5), and additionally acts as a spring seat for the support of one end of the springs 25 and 26. Bosses 27 and 28 are formed integrally with the shelf 20 to locate the springs 25 and 26, respectively. Similar bosses 29 and 30 are formed in the bolt-handle unit for locating the opposite ends of the springs, and the location of the bosses is such that the action of the compression springs 25 and 26 biases the bolt-handle unit 12 about the axis of the bearings 15 and 16 to bring the keeper-engaging portion 31 into locking position.

On the opposite side of the axis 32 of the bearings 15 and 16, a hook portion 33 is formed in the housing, with the projection 34 being provided on the handle-bolt unit to engage therewith. The engagement of these two portions of the mechanism serves two functions: (a) the provision of a stop limiting the counter-rotation of the handle-bolt unit toward locking position under the action of the springs 25 and 26, and (b) a coupling action preventing lateral movement of the bolt-handle unit in the event that the handle were pushed accidentally inwardly to the point of disengagement of the journals 14 and 15 from their corresponding bearings. Such a condition could arise if a pushing action were inadvertently applied to the handle portion 35 instead of a normal pulling action such as will disengage the portion 31 from the keeper 36.

The disassembly of the bolt-handle unit from the housing is preferably performed by a depression of the bolt-handle unit adjacent the journals, causing a compression of the springs 25 and 26 and a disengagement of the hook portion 33, and also a disengagement of the journals from their respective bearings. The bolt-handle unit can then be laterally withdrawn through the entrance 19 accompanied by a displacement of the springs from their erect positions perpendicular to the shelf 20. The diameter of the bosses 29 and 30 should be such that the ends of the springs can be forcibly "wrung on" with sufficient grip to maintain their position on these bosses during assembly and disassembly. Assembly of the device involves the opposite procedure, with the lower ends of the springs being engaged with their respective bosses prior to compression of the springs, and by deflecting them into a bent-axis position to accomplish this engagement.

A key-operated locking mechanism 37 is mounted in

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the boss 38 formed integrally with the bolt-handle unit 12, and serves to rotate the cantilever locking beam 39 from the locking position illustrated in Figure 4 into the position shown in Figure 7, in which the portion 31 of the bolt-handle unit may be pulled free of the keeper 36. The key-operated mechanism itself is standard, and forms no part of the present invention, the beam 39 being secured thereto preferably with a screw as indicated at 40. In locking position, the beam 39 swings over into the position illustrated in Figure 5 above and across the shelf 20, and rotation of the bolt-handle unit as shown in Figure 7 is prevented when the beam 39 is in locking position.

The assembly supported by the housing 10 is mounted on the wall 41 of the cover 42 of a freezer chest 43. The opening between the freezer 43 and the cover 42 is normally sealed by a principal gasket 44, and it is the primary purpose of any lock or latch to maintain sufficient closing force to establish a good seal at this point.

The preferred form of keeper structure to be utilized in conjunction with the lock mechanism described above, includes a molded plastic member having a projecting portion 36 for engagement with the portion 31 of the bolt-handle assembly, and a base portion 45. The portion 36 projects through an opening 46 in the cap 47 which is larger than the portion 36. The cap 47 is secured to the wall 48 of the cabinet 43 by appropriate screws (not shown). The outer surface of the base 45 is serrated as indicated at 49, which registers with the corresponding serrations in the under surface 50 of the cap 47 to positively and adjustably maintain the lateral position of the projecting portion 36 with respect to the mechanism with which it cooperates. The keeper member, including the projecting portion 36 and the base portion 45 with which it is preferably integrally formed, is preferably of the material commonly referred to as "nylon," because of its tendency to produce a relatively noiseless action, and also because of its lack of a need for lubrication. The use of a metallic cap 47 provides a uniform support around the base of the molded keeper member to transfer the stresses more effectively therefrom than would be possible without an excessively large number of screw fastenings to secure the plastic member itself directly to the cabinet. With this arrangement, the lifting action on the handle portion 35 of the bolt-handle unit will enable the user of the cabinet to disengage the mechanism from the keeper and lift the cover in one motion without a change of hand position.

The particular embodiments of the present invention which have been illustrated and discussed herein are for illustrative purposes only and are not to be considered as a limitation upon the scope of the appended claims. In these claims, it is my intent to claim the entire invention disclosed herein, except as I am limited by the prior art.

I claim:

1. A lock mechanism comprising: a housing having a

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mounting surface, an opening, aligned bearing means disposed on opposite sides of said opening on a single axis substantially parallel to said mounting surface, said bearing means being radially open over at least 180 degrees on the side thereof facing said mounting surface, said housing also having a stop adjacent an edge of said opening which is parallel to said axis, and a shelf portion; a bolt member formed to be received in said opening and having journal portions normally engaging said bearing means, said bearing means being spaced from said mounting surface sufficiently to receive said journal portions, and said bolt member also having a portion disposed to engage said stop on rotation of said bolt toward locking position, a keeper engaging portion, and a handle portion both remote from said axis and on the opposite side thereof from said stop, and locking means including a bar moveable to a position opposite said shelf to prevent rotation of said bolt member about said axis, said housing being formed to receive said bolt member into said opening from a lateral direction with respect to said mounting surface to engage said bearing means and journal portions; and compression spring means acting between said shelf portion and a point on said bolt to rotate said bolt about said axis against said stop.

2. A lock mechanism comprising: a housing having a mounting surface, an opening, aligned bearing means disposed on opposite sides of said opening on a single axis substantially parallel to said mounting surface, said bearing means being radially open over at least 180 degrees on the side thereof facing said mounting surface, said housing also having a hook portion adjacent an edge of said opening which is parallel to said axis, and a shelf portion substantially parallel to said mounting surface; a bolt member formed to be received in said opening and having journal portions normally engaging said bearing means, said bearing means being spaced from said mounting surface sufficiently to receive said journal portions, and said bolt member also having a portion disposed to engage said hook portion on rotation of said bolt toward locking position, a keeper engaging portion, and a handle portion both remote from said axis and on the opposite side thereof from said hook portion, said housing being formed to receive said bolt member into said opening from a lateral direction with respect to said mounting surface to engage said bearing means and journal portions; and spring means acting between said shelf portion and a point on said bolt to rotate said bolt about said axis against said hook.

References Cited in the file of this patent

UNITED STATES PATENTS

602,520	Raenhart	Apr. 19, 1898
872,775	Weber	Dec. 3, 1907
2,345,432	Schweller	Mar. 28, 1944