

United States Patent

Horgan, Jr.

[15] 3,696,648

[45] Oct. 10, 1972

- [54] **PANIC LOCK FOR A DOOR**
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- [73] Assignee: **Blumcraft**, Pittsburgh, Pa.
- [22] Filed: **Dec. 11, 1970**
- [21] Appl. No.: **97,102**

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Primary Examiner—Albert G. Craig, Jr.
 Attorney—Paul & Paul

Related U.S. Application Data

- [63] Continuation-in-part of Ser. No. 875,229, Nov. 10, 1969, and a continuation-in-part of Ser. No. 87,717, Nov. 9, 1970, Pat. No. 3,633,389.
- [52] U.S. Cl.70/92, 292/185, 292/186, 292/333, 292/DIG. 57
- [51] Int. Cl.E05b 65/10
- [58] Field of Search292/92, 93, 333; 70/92

[57] **ABSTRACT**

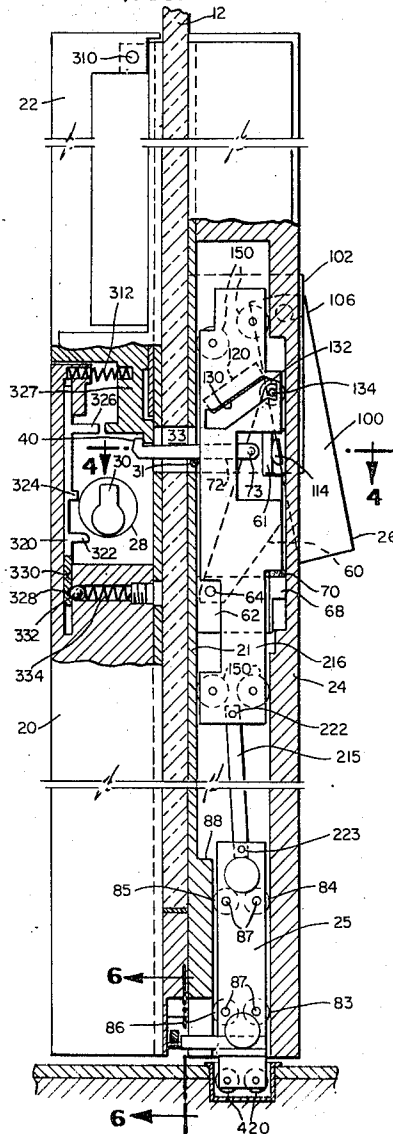
A pivotally mounted bar is mounted on the inside of a locked door. Upon movement of the bar a lever is pivoted to actuate a cam actuated slide and raise a lock bolt to unlock the door without the use of a key. A crossover link provides a means whereby the door can be unlocked from the other side by means of pulling on a handle. A lock is provided to render inoperable the handle portion of the device. A means is provided for retaining the lock bolt in the raised position while the door is swung open.

[56] **References Cited**

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7 Claims, 10 Drawing Figures



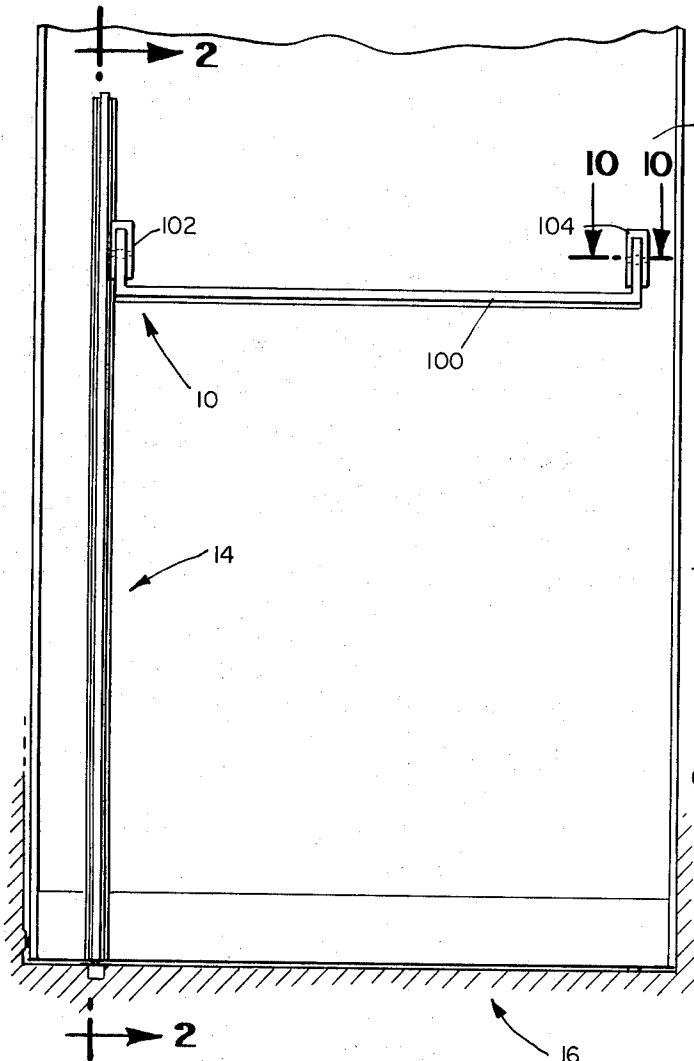


Fig. 1

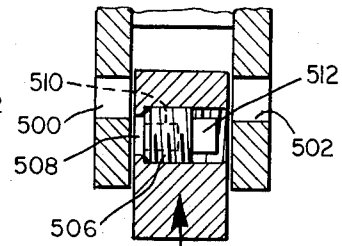


Fig. 10

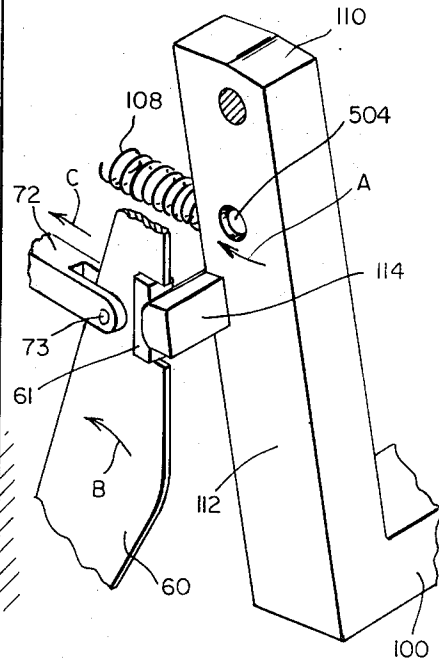


Fig. 5

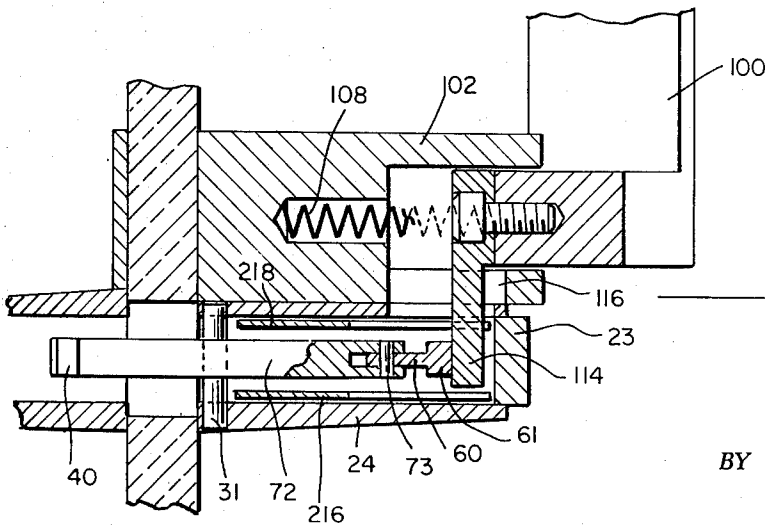


Fig. 4

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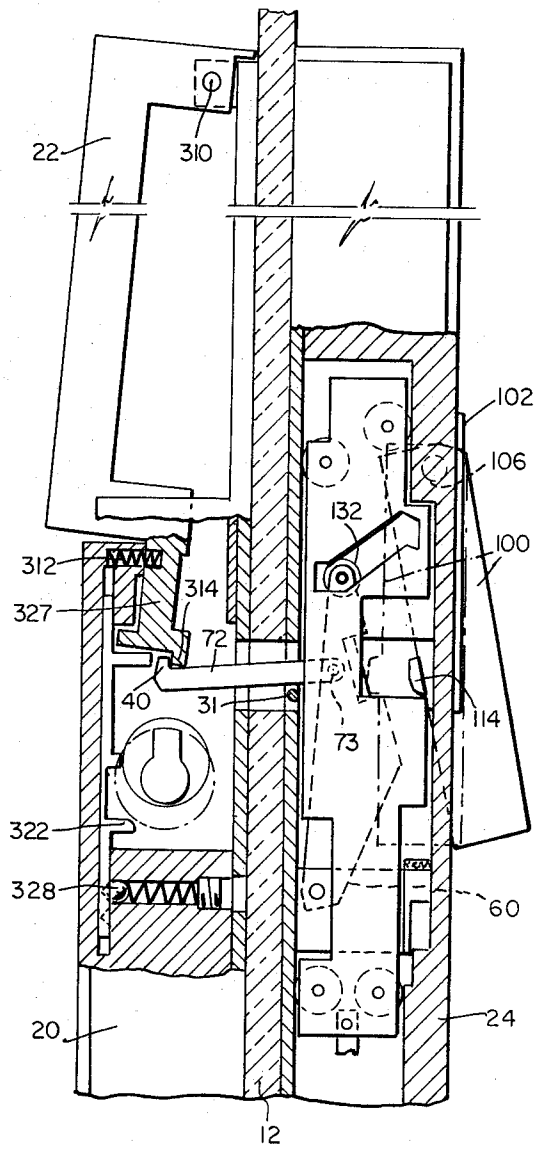
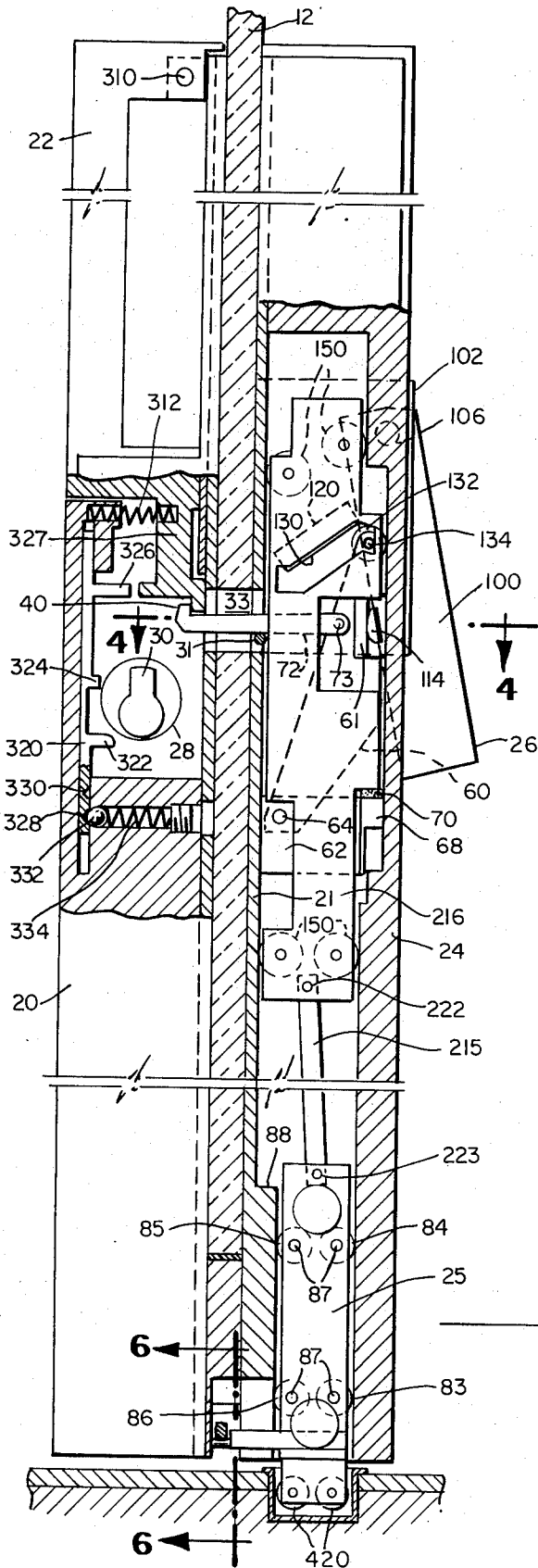


Fig. 3

Fig. 2

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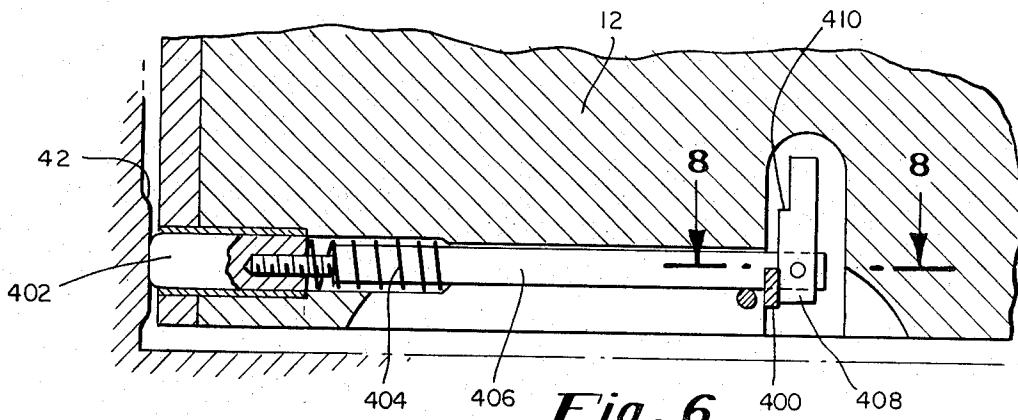


Fig. 6

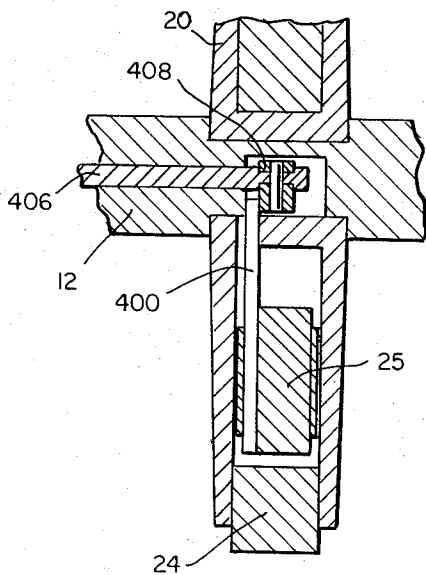


Fig. 8

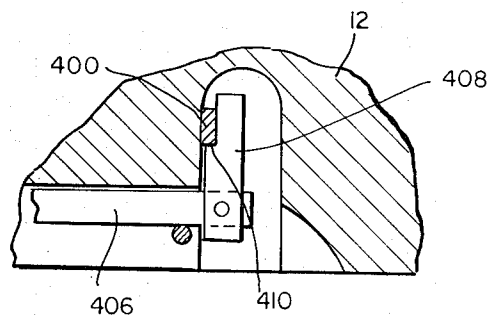


Fig. 7

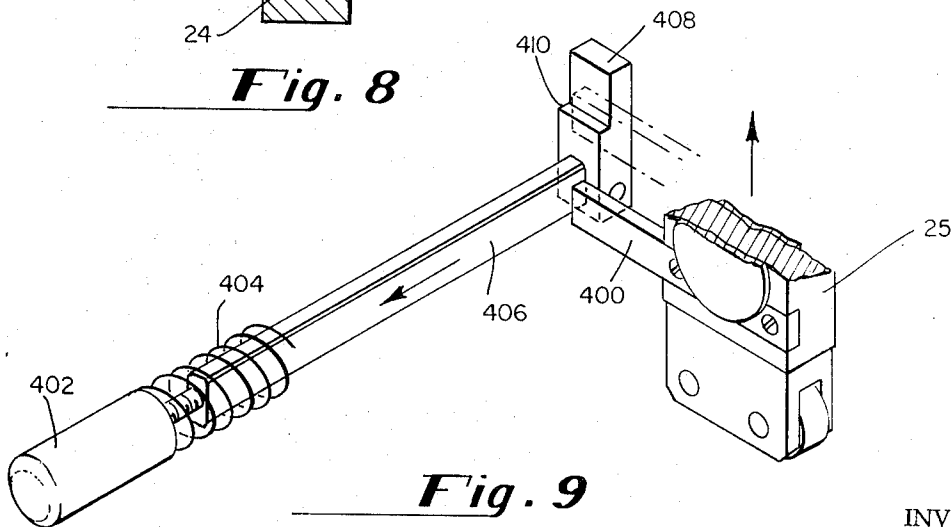


Fig. 9

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PANIC LOCK FOR A DOOR
CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation-in-part of my prior copending application Ser. No. 875,229, filed Nov. 10, 1969, and my prior copending application for an Edge Mounted Lock for a Door, Ser. No. 87,717 filed Nov. 9, 1970, now U.S. Pat. No. 3,633,389 issued Jan. 11, 1972, and discloses and claims in part the subject matter disclosed and claimed in these two prior applications.

BACKGROUND OF THE INVENTION

This invention relates to devices known as panic devices for use on the insides of doors on fire escapes, public buildings and the like to allow people to quickly unlock and open the door without a key.

Panic devices are known in the art and are used to actuate laterally and vertically movable lock bolts.

SUMMARY OF THE INVENTION

My invention comprises a bar actuated panic device including in its preferred embodiment means for raising a vertically mounted lock bolt of a locked door and thereby unlocking the door without the need for a key, means extending through the door for actuation by a handle means on the other side for raising the lock bolt, means for inactivation said last mentioned means independently of said first mentioned means, and means for retaining the lock bolt in its raised unlocked position while the door is being swung open and closed which includes a means for releasing the lock bolt upon closing the door.

Accordingly, it is an object of this invention to provide a new and novel panic mechanism of the type described.

This and other objects of the invention will become apparent from the following description with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an elevation of a panic device in accordance with the present invention shown mounted on a door, partially broken away, on the inside of a building or other structure shown by way of shading around the outer portion of the door;

FIG. 2 is a vertical section taken as indicated by the lines and arrows 2—2 in FIG. 1 showing the panic device foreshortened and partially broken away for the sake of clarity and showing a portion of the door and its surrounding structure for purposes of illustrating the environment;

FIG. 3 is a section similar to FIG. 2 showing a portion of the device illustrated in FIG. 2 with certain parts in alternate positions;

FIG. 4 is a section taken as indicated by the lines and arrows 4—4 in FIG. 2 showing a portion of the device partially broken away;

FIG. 5 is a pictorial perspective view showing the interrelationship between some of the parts in the device disclosed in the previous figures, these parts being shown partially broken away;

FIG. 6 is a section taken as indicated by the lines and arrows 6—6 in FIG. 2 showing a portion of the device, door and surrounding structure partially broken away;

FIG. 7 is a section similar to FIG. 6 showing a portion of the apparatus in an alternate position;

FIG. 8 is a section taken as indicated by the lines and arrows 8—8 in FIG. 6;

FIG. 9 is a pictorial perspective showing the interrelationship between several portions of the apparatus disclosed in the previous figures, with an alternate position shown in phantom; and

FIG. 10 is a section taken as indicated by the lines and arrows 10—10 in FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Although specific forms of the invention have been selected for illustration in the drawings, and the following description is drawn in specific terms for the purpose of describing these forms of the invention, this description is not intended to limit the scope of the invention which is defined in the appended claims.

FIG. 1 shows a panic device designated generally 10 mounted on a door 12 in association with a lock mechanism designated generally 14. The door 12 is supported for pivotal movement in the doorway of a building. The panic mechanism 10 is generally located on the inside of the door so that when the door is locked and one wishes to leave the building from the inside, one merely pushes down on the panic device and this releases the lock so that the door swings outwardly. A portion of the surrounding structure is shown in shaded lines and designated generally 16.

The lock mechanism is the vertical bolt type which has a bolt which is movable vertically within a housing and can be extended from the housing into the surrounding structure to lock the door or can be withdrawn from the surrounding structure into the housing so that the door can be swung open. Similar type vertical bolt mechanisms are shown in my prior copending applications, which disclose a cam actuated vertical bolt mechanisms having crossover means passing through the door upon which the mechanism is mounted, so that the mechanism can be actuated from either side of the door. In such mechanisms a plurality of lock housings are used mounted on opposite sides of the door, and in accordance with my inventions, these housings are disposed intermediate the vertical edges of the door and are integrated with the handle. In this case the outside housing 20 is integrated with the handle 22 and the inside housing 24 is integrated with the push bar 26 of the panic mechanism (see FIG. 2). In this embodiment the housing 20 serves as a means for mounting a lock cylinder 28 in what I describe as an edge mounted condition, that is, the cylinder is disposed with its axis parallel to the plane of the face of the door and its cylindrical surface lying substantially on edge with respect to the main plane of the door. Thus, the lock tab 30 of the cylinder operates in a plane which is substantially parallel to the vertical edge of the door. This differs from a flush mounted condition wherein the back of a lock cylinder would be disposed flush against the face of the door and the tab would operate in a plane which is parallel to the plane of the vertical face of the door.

In this embodiment the handle 22 serves to operate the lock bolt mechanism from the outside of the door and the key actuated lock cylinder 28 is used only to prevent this handle from functioning.

On the inside of the door the lock bolt is operated by the panic bar 26. The inside housing 24 is similar to that shown in my prior copending application for an Edge Mounted Lock for a Door except that in this particular embodiment the lock housing is only half height and is therefore illustrative of a vertical bolt mechanism which has a single bolt at the bottom rather than a bolt at the top and bottom. It is within the scope of this invention to use full height hardware with bolts at the top and bottom. The housing 24 is connected to the door in any suitable manner (not shown). The housing 24 comprises a rigid member 21 which is interfitted with a cover 23. It contains a cam actuated bolt 25.

To actuate the bolt I have provided a pivotally mounted lever means. This lever means comprises a pivot arm 60 which is pivotally mounted at one end to a bracket 62 by means of a spring pin 64 passing through the bracket and the pivot arm. The bracket is held in place in the housing by any suitable means (not shown). The bracket 62 extends across the width of the channel formed between the side walls of the covered portion 23 and terminates in a relieved channel shaped portion 68 which supports a T-shaped insert 70. The insert is preferably made of a hard rubber material such as Butyl rubber.

The pivot arm 60 is pivotable about the pin 64. Extending through the pivot arm 60 is a cylindrical pin 73. This pin pivotally engages one end of a crossover bar 72, the function of which will be fully described hereinafter. The crossover bar 72 is mounted horizontally and comprises an elongated body having an upwardly extending tab 40 at the longitudinal end thereof remote from the end which is pivotally connected to the pin 73. Other than this pivotal connection, the crossover arm is free floating in that the elongated body rests on a bearing means, in this case a transversely extending pin 31 which is mounted in any suitable manner within the frame of the housing 24. As shown in FIG. 2, the crossover arm 72 is in its right most position and passes through a hole 33 in the door 12 and the frame portions of the lock housings 20 and 24 and extends into a cavity in the lock housing 20. Its coaction with the handle portion 22 will be described in greater detail hereinafter.

The pivotal movement of the pivot arm 60 actuates the bolt mechanism. This pivotal movement is caused either by pulling on the crossover arm 72 so that it moves to the left when viewed in FIG. 2 and pivots the arm in a counterclockwise rotation about the pin 64, or by pushing on the pivot arm 60 from the right by means of the panic mechanism, which will now be described in greater detail.

Referring now to FIGS. 1 through 5, the panic mechanism comprises a U-shaped push bar 100 which is pivotally mounted at both extending ends in the blocks 102 and 104, which are fixedly connected to the door by any suitable means (now shown). The upper configuration of the terminal end of the U-shaped bar is such that the bar is free to pivot about its support pins, as for example, 106 in FIG. 3, between fixed limits within the blocks. Thus, as will be seen by comparing the bar shown in full lines in FIG. 3 with its position as shown in phantom lines in FIG. 3, the bar can be rotated a few degrees downwardly from its slightly angular position with the vertical to a true vertical posi-

tion. In its normal condition the bar remains in the slightly angled out condition shown in full lines in FIGS. 2 and 3. This normal condition is maintained by a spring bias illustrate by the spring 108 in FIGS. 4 and 5 which is retained in the housing 24 and engages the extending portion of the U-shaped bar 100 so as to cause it to pivot outwardly until the upper surface 110 engages a corresponding portion on the block 102 and stops further movement of the bar. A similar spring provided in the block 104 engaging the other arm of the U-shaped bar 100.

Extending from the arm 112 of the U-shaped bar is a transverse member 114 which is fixedly connected thereto for movement therewith. This bar passes through a hole 116 (FIG. 4) in the block 102 and also passes through a hole in the cover member 23 of the housing 24, so that throughout the movement of the bar 100 the transverse portion 114 clears both the block and the cover member. This transverse member 114 engages the pivot arm 60 at a reinforced portion 61 which is provided in a slight cutout in the member 60 (see FIG. 5). Accordingly, as will be seen most clearly in FIG. 5 when the bar 100 is depressed against the spring 108 it will move in the direction of the arrow A and will cause the member 114 to move in the same direction against the pivot arm 60, thereby causing the pivot arm 60 to rotate in the direction of the arrow B and move generally in the direction of the arrow C which would be toward the left when viewed as in FIG. 2. Thus, the pivot arm 60 would be moved on full depression of the bar 100 to the position shown in FIG. 3. Note that the full depressed condition of the bar 100 is shown in FIG. 3 in phantom, and the comparison with the full position in FIG. 3 is illustrative of the action of the bar 100 on the pivot arm 60. This movement of the pivot arm 60 operates the bolt mechanism.

In accordance with my prior copending application for an Edge Mounted Lock for a Door, I have provided a means whereby the bolt mechanism is made considerably easier to operate. This means comprises a plurality of bearings attached to the bolt. It is preferably to have four such bearings, as at 83, 84, 85 and 86 in FIG. 2 disposed on opposite sides of the bolt 25 and proximate to the ends thereof. The bearings are preferably ball bearings and are retained on the bolt by means of guide pins 87.

The bearings and bolt ride in the channel formed by the cover 23 and a bearing block 88 attached to the member 21.

I have found that this arrangement considerably reduces the frictional resistance to the movement of the bolt and in part provides an effective means for raising or lowering the bolt by the use of the pivot arm 60. The remaining linkage for accomplishing this result is a slide plate assembly comprising two flat plates 216 and 218 in FIG. 4 which are held in spaced relation by means of a spacer 120, FIG. 2. This spacer is fixed between the plates in a suitable manner as by riveting. The link 215 is pivotally engaged at its upper end with the slide plate assembly as by means of the pin 222. The other end of the link 215 is pivotally engaged to the bolt 25 by means of the pin 223. Thus, on movement up or down within the housing 24 of the slide plate assembly the bolt will be raised or lowered respectively. The slide plate assembly also includes bearings which

will be more fully described hereinafter in connection with the function of the plate assembly and its movement in the housing.

The slide plate assembly is engaged by the pivot arm 60 and on appropriate movement of the pivot arm the slide plate assembly is either raised or lowered vertically in order to raise or lower the bolt 25. For this purpose, the assembly has a cam and follow-up mechanism associated with the pivot arm. The spacer 120 provides a cam surface 130 which is flat and is disposed on an angle to the vertical line of movement of the lock bolt 25. The cam surface 130 is engaged by a portion of the pivot arm 60. This portion comprises a ball bearing 132 held for rotation in the yoked end of the pivot arm 60 by means of a lock pin 134. The lock pin extends beyond both sides of the yoked portion of the pivot arm as clearly shown in my prior copending applications for the reasons set forth therein. As the pivot arm is rotated from the position shown in FIG. 2 to the position shown in FIG. 3 the surface of the ball bearing 132 will engage the surface 130 of the cam of the spacer 120 and as the bearing continues to rotate in a counterclockwise direction when viewed as in those figures, the slide assembly will be pushed vertically upwardly in the lock housing thereby forcing the bolt 25 to be retracted into the housing. On counter rotation of the pivot arm, the plate assembly will be pulled downwardly in the housing by gravity thereby extending the bolt 25.

The plates 116 and 118 have similar S-shaped slots therein. The extending ends of the pin 134 are disposed in these slots. The slots are so shaped that the ends of the pin basically ride substantially in the center of the slots throughout the entire travel of the pivot arm. The principal function of the end of the pin is to prevent the opening of the mechanism when it is in the closed position shown in FIG. 2, by other than the handle 22 actuating the arm 72 or the bar 100 actuating the pivot arm 60. This function was clearly described in my prior copending application.

The operation of the device requires minimal effort to move the slide plate assembly by virtue of the fact that the assembly is mounted for movement on ball bearings. Four such bearings 150 are shown in FIGS. 2 and 3. Each of the bearings are mounted between axially spaced elements such as washers (not shown) so that they are freely rotatable about their axes. The bearings along the left hand side of the slide plate assembly bear against the member 21 and the bearings along the right hand side bear against the cover member 23.

Thus, in operation when the bar 100 is depressed to its full limit of travel the pivot arm 60 is moved from right to left and the slide assembly is cammed upwardly thereby retracting the bolt 25.

This actuation can be duplicated by pulling on the crossover arm 72. To accomplish this, I have provided a pivotally mounted handle 22 which is mounted for rotation about its pivot 310 which extends from the frame of the housing 20. The handle can be swung outwardly as shown by a comparison of FIGS. 2 and 3. A spring 312 is provided mounted in the frame of the housing 20 and engaging the handle 22 as shown in the figures to force it to its normal vertical position shown in FIG. 2. That is, the handle is spring biased in its vertical upright position and will be returned to that posi-

tion when it is released after having been pulled outwardly to the position shown in FIG. 3.

When the handle is so withdrawn, that is, pivoted about the pivot 310, a lip 314 engages the upwardly extending tab 40 on the crossover arm 72 and forces the arm to the left from the position shown in FIG. 2 to the position shown in FIG. 3. As previously stated, this causes the pivot arm 60 to rotate in a counterclockwise direction with a resulting retraction of the bolt 25.

This handle is mounted on the opposite side of the door from the panic bar and in order to lock the door so that it cannot be opened from the outside, I have provided an interference mechanism which cooperates with the tab 30 of the lock cylinder 28. The interference mechanism comprises a sliding bar 320 which has several inwardly extending tabs 322, 324 and 326.

In the position shown in FIG. 2, the sliding bar 320 is in a position wherein the tab 326 interferes with the portion 327 of the handle which extends downwardly into the cavity in the housing 20. Thus, the handle cannot be retracted, but rather will be stopped by the inwardly extending tab 326. In this position the key lock cylinder 28 is locked and the door cannot be opened from the outside, but can be opened from the inside by means of the panic bar. Note in this regard that there is nothing interfering with the movement of the arm 72.

In order to open it from the outside, it is necessary to have a key. When a key is inserted into the cylinder 28 and the tab 30 is rotated so that it moves in a counterclockwise direction when viewed as in FIG. 3, the tab will engage the inwardly depending tab 332 and force it downwardly. Not in this regard the dash line circle showing the movement of the tab 30 in FIG. 3. Thus, the inwardly depending tab 322 is forced downwardly to a new position wherein the sliding bar 320 has been moved downwardly and the inwardly depending tab 326 has been moved out of its interfering relationship with the bottom portion of the handle 22 (see FIG. 3).

To retain the sliding bar 320 in either the raised or lowered condition I have provided two detents 328 and 330 respectively in the bar which are engaged by a steel ball 332 which is spring biased to the left by means of a spring 334 as shown in FIG. 2.

In order to raise the sliding bar 320, the key in the lock cylinder is reversed in its rotation so that the tab 30 moves in a clockwise direction when viewed as in FIG. 3 and engages the inwardly depending tab 324 forcing it upwardly to the position shown in FIG. 2. It is retained in this position by the ball 332 in the detent 328.

When the bolt is raised as aforesaid it is desirable to retain it in the raised position as the door is swung opened and closed. Referring to FIGS. 2, and 6 through 9, I have provided a transversely extending bar 400, FIG. 9 fixedly connected to the bolt 25 and extending from the lock housing 24 into the envelope bounded by the plane faces of the door. Within this envelope and specifically within the shoe on the door, I have provided a latch engaging mechanism for engaging the bar 400. The latch engaging mechanism comprises a spring loaded button 402 mounted to extend laterally from the vertical edge of the door. A spring 404 engages the button to bias it outwardly. The button is fixedly connected to a latch arm 406 which terminates in a catch 408. The catch has a notch 410 at the top as shown.

When the bolt 25 is raised, as it would be just prior to opening the door, the bar 400 is raised also.

Now as the door is opened the button is forcefully extended by the spring 404 and draws with it the latch bar 406 thus, moving the latch bar to the position shown in fully lines in FIG. 7, that is, the catch 408 is moved beneath the arm 400 and as the bolt attempts to descend the arm 400 will engage the notch 410 in the catch 408 thereby preventing the bolt from falling out of the bottom of the lock housing 24. Thus, in operation, if one approached the locked door from the inside and pushed down on the bar 100 it would cam the assembly upwardly and withdraw the bolt and as the door swung open the button 402 would be forced outwardly thereby retaining the bolt 25 in its raised position. One would then release the bar 100 and the springs would force the bar outwardly once again leaving the bolt in its raised condition. The same condition of the bolt would obtain if the handle 22 had been used in order to raise it and open the door.

The outer terminal surface of the button is semi-spherical or rounded. The vertical door jam is, most preferably, provided with a button 412, FIG. 6 having a complimentally rounded gradual sloping surface terminating in a flat outer surface. Thus, as the door is closed the rounded surface of the button 402 engages the sloping surface of the button 412 on the door jam and the button 402 is cammed inwardly against the action of the spring 404 until it assumes the position shown in FIG. 6, which is the closed position of the door 12.

In this closed position it will be noted that the button 402 has moved the latch arm 406 to the right so that the bar 400 is released from its phantom position shown in FIG. 9 and drops to its full line position as shown in FIG. 9. This is the closed position for the bolt 25 wherein it has dropped down into the structure surrounding the door as shown in FIG. 2. The full line position shown in FIG. 9 corresponds to the closed position shown in FIGS. 6 and 8.

As an added feature I have found it desirable to bolt to ease it over door jams and the like. This takes care of the problem of alignment and that last 1/2-inch or so of travel which the door makes as it is being fully closed and the bar 400 is being disengaged from the notch 410 of the catch 408.

As a further added feature I have provided a means whereby the panic bar 100 can be locked in its forward position, that is, the position in which it is rotated downwardly toward the door. This lock means is illustrated in FIGS. 1, 5 and 10 and comprises a screw for insertion into clearance holes in the support brackets supporting the bar for pivotal movement. The clearance holes are shown in dotted lines in FIG. 1 in both of the supports 102, 104. One set is shown in greater detail in FIG. 10 as clearance holes 500, 502. A hole 504 in the portion 112 in FIG. 5 allows the end of a screw to pass therethrough and into the hole in the support bracket 102. Such a screw is shown in FIG. 10 for the opposite support bracket 104. The screw 506 is a socket head screw having provision for insertion of an Allen wrench. Thus, when the bar 100 is rotated downwardly toward the door, the hole 500 lines up with the hole 508 and an Allen wrench can be inserted therethrough into the socket 510 of the screw 506. The

screw can then be advanced along its threaded hole until the reduced cylindrical end 512 thereof enters the hole 502. When the bar 100 is released, the spring 108 cannot return the bar to its normal relaxed condition because the portion 512 is in the locked condition in the hole 502. A similar screw and hole arrangement is provided on the opposite side.

The function of this additional means is to allow the mechanism to be locked in the up position wherein the bolt is retracted within the housing, while the door is being freely used and opened and closed in the normal manner. Such would be the case, for instance, in the use of such a device on a fire escape during the day in a school.

It will be understood that various changes in the details, materials and arrangement of parts which have been herein described and illustrated in order to explain the nature of this invention, may be made by those skilled in the art within the principle and scope of the invention as expressed in the following claims.

It will further be understood that the "Abstract of the Disclosure" set forth above is intended to provide a non-legal technical statement of the contents of the disclosure in compliance with the Rules of Practice of the United States Patent Office, and is not intended to limit the scope of the invention described and claimed herein.

What is claimed is:

1. In a panic lock device on a door, the improvement comprising:
 - a. a push bar pivotally mounted on one side of said door;
 - b. locking bolt means comprising at least one lock bolt and means slideably mounted within said device for extending or retracting said bolt with respect to said device;
 - c. actuating means for moving said locking bolt means to retract said bolt in response to appropriate pivotal movement of said bar, said actuating means comprising a pivotally mounted arm for engagement by said bar and with said locking bolt means;
 - d. a crossover link pivotally connected at one end to said pivotally mounted arm and extending through a hole in said door; and
 - e. a handle mounted on the opposite side of said door from said push bar, said handle being pivotally mounted at one end and having means for engagement with said crossover link whereby on pivotal movement of said handle said crossover link is drawn through said hole thereby pivoting said pivotally mounted arm to retract said bolt.
2. The invention of claim 1 wherein lock means are provided on said door to prevent or permit said handle from actuating said device.
3. The invention of claim 2 wherein said lock means includes a lock cylinder having a locking tab extending from the rear thereof and a slide bar mounted for sliding movement with respect to said handle, said slide bar having tabs extending therefrom for engagement by the tab on said cylinder to be moved thereby to either prevent or permit movement of said handle.
4. The invention of claim 3 wherein means are provided to retain said slide bar in a plurality of predetermined fixed positions.

5. The invention of claim 2 wherein said lock means comprises a slide bar movable to a first position interfering with pivotal movement of said handle to prevent actuation to retract said bolt, and movable to a second position clear of said interference to permit actuation to retract said bolt. 5

6. The invention of claim 1 wherein said crossover link is free floating and rests freely on a bearing means and the free end thereof has an upwardly extending tab for engaging with a downwardly extending tab on the free end of said pivotally mounted handle. 10

7. The invention of claim 1 wherein latch engaging means are provided for engaging said bolt when it has been retracted upon opening of said door to prevent said bolt from extending from said device when said door is swung open and for releasing said bolt when said door is closed and the latch engaging means coacts with a surface the position of which is fixed with respect to the vertical edge of said door, as for example, a jam, so that the bolt will extend from said device, comprising: 15 20

a. a plunger mounted in the bottom of said door and spring biased outwardly and having a rounded outer terminal surface which extends laterally from the vertical edge of said door when said door is swung open and which is forced back into said door when said door is closed and said rounded outer surface engages and is cammed inwardly by the surface which is fixed with respect to the verti- 25 30

cal edge of the door;

b. a latch bar connected at one end to said plunger and at the other end terminating in a catch, said latch bar being slideable horizontally within said door;

c. said catch having a transversely relieved portion forming a step having a thread portion and a riser portion for engagement with an arm extending horizontally from said bolt in a direction perpendicular to the face of said door; said arm being positioned between said catch and the vertical edge of the door from which said plunger will extend; whereby said actuation to retract said bolt as, for example, upon opening said door by pivoting said push bar or said handle, and extension of said plunger as, for example, the vertical edge of said door clears said jam, the horizontal tread portion of said step will move below said arm to prevent downward extension of said bolt from said device and the vertical riser portion of said step will abut the arm under the influence of the bias spring of the plunger and apply a transverse holding force to the arm and the bolt, and further, when said plunger is forced inwardly as aforesaid said catch will move out of engagement with said arm thereby allowing said arm to drop vertically with said bolt when said door is closed.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,696,648 Dated October 10, 1972

Inventor(s) William J. Horgan, Jr.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Col. 6, Line 33 - delete "Not" and insert "--Note--"

Col. 6, Line 45 - delete "g" before "334"

Col. 6, Line 48 - delete "hen" and insert "--when--"

Col. 6, Line 59 - delete "his" and insert "--this--"

Col. 7, Line 43 - after "desirable to" insert
-- provide rolling bearings as at 420 on the
bottom of the--

Col. 8, Line 3 - delete "e" after "the" and before
"bar"

Signed and sealed this 6th day of February 1973.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents