July 22, 1958 J. O. CHITTUM ET AL 2,844,020

HANDLE AND LATCH OPERATING MEANS FOR DOORS

Filed Nov. 20, 1956 2 Sheets-Sheet 1

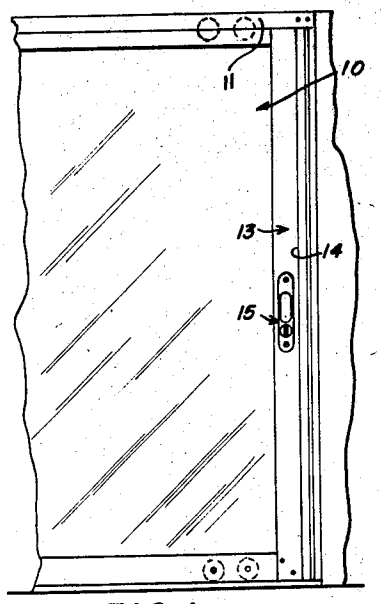


FIG. 1

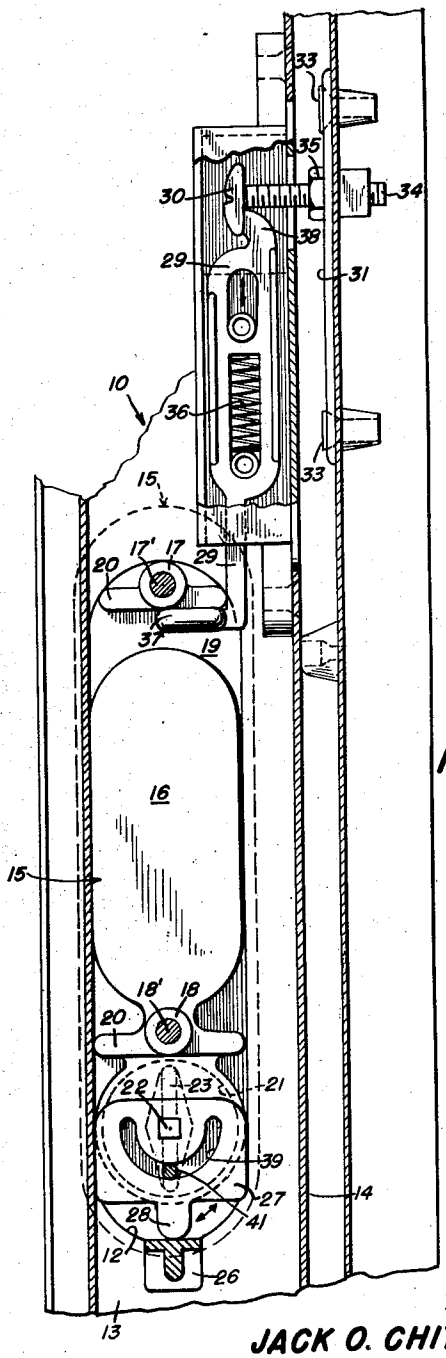


FIG. 2

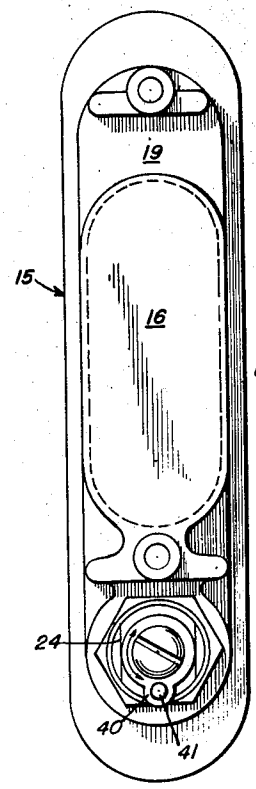


FIG. 3

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HANDLE AND LATCH OPERATING MEANS FOR DOORS

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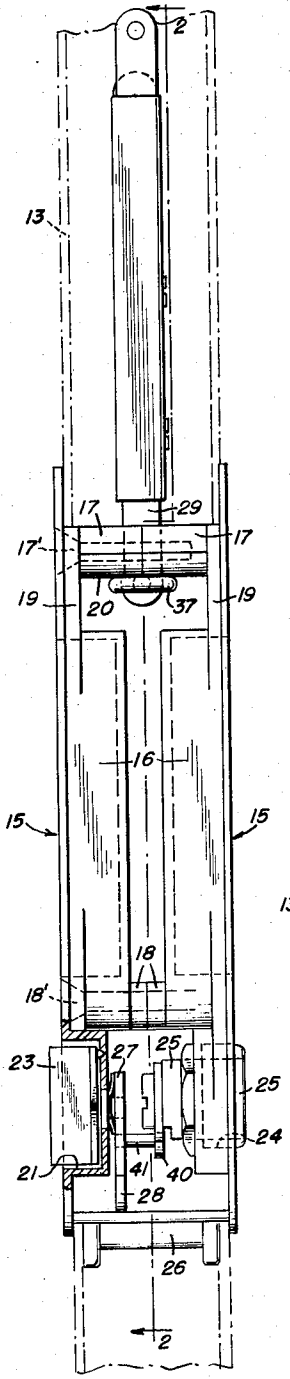


FIG. 4

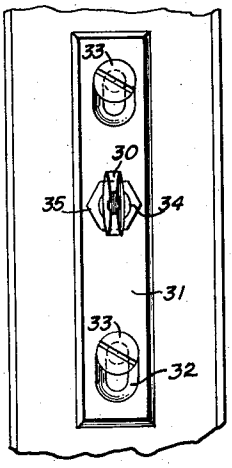


FIG. 5

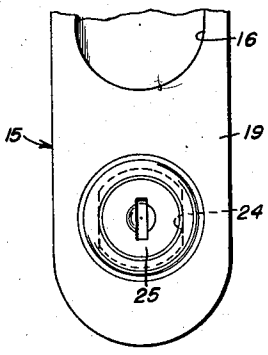


FIG. 6

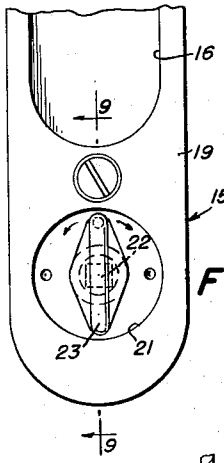


FIG. 7

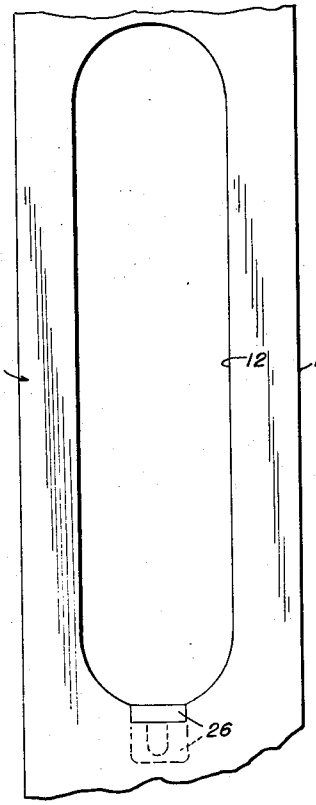


FIG. 8

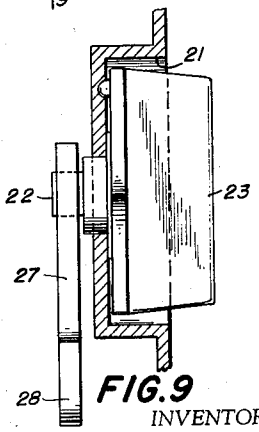


FIG. 9

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HANDLE AND LATCH OPERATING MEANS FOR DOORS

Jack O. Chittum and Frank S. Fitzgerald, Miami, Fla.

Application November 20, 1956, Serial No. 623,405

7 Claims. (Cl. 70—97)

This invention relates to a "flush" mounting lock and handle for use on horizontal sliding doors, more specifically for use on narrow stile sliding doors.

Sliding doors have been used for many years and it has been common practice to provide recessed finger grip means mounted "flush" with the door stile, and also to provide a locking means for such door. These known means, however, have been of such design that they could not be used except on doors having heavy stiles.

In recent years architectural design has required the installation of glass sliding doors where it is particularly desirable that the stiles be of the very minimum size, both as to width and thickness.

It is an object of the present invention to provide a novel completely "flush" mounting recessed handle or finger grip carrying a lock and a latch operating means for a sliding door.

It is a further object of the present invention to provide such a device which is inexpensive to manufacture, efficient in operation, and which is pleasing in appearance, being made as a unitary handle or finger grip by which the door latch may be operated.

Other and further objects and advantages of the present invention will become apparent from the following specification taken with the accompanying drawings in which like characters of reference designate similar elements in the several views and in which:

Figure 1 is a general view of a sliding door showing the "flush" mounting lock and latch operating handle in place.

Figure 2 is a section on line 2—2 of Figure 4 showing the structure of the latch element, actuating handle, and lock.

Figure 3 is a rear view of one of the handle elements.

Figure 4 is an elevation partly in section of the device.

Figure 5 is an elevation of the striker plate.

Figure 6 is a fragmentary elevation of the outside handle.

Figure 7 is a view similar to Figure 6 of the inside handle.

Figure 8 shows the handle mounting aperture in a door stile, and the lock stop.

Figure 9 is a section taken on line 9—9 of Figure 7.

As is seen in the drawing, a door **10** slides in the door jamb **11** and is mounted on any conventional means, such as rollers, to assure that the door will operate easily. Appropriate weather stripping may be included in the structure. The frame of door **10** is illustrated as being of metal which is a popular material for use in residential, commercial, institutional, and industrial buildings. These doors are made from extruded aluminum elements which make it possible to provide light and rigid frames for glass doors. It will be seen, however, that the device of the present invention may also be used with doors having a conventional wooden frame.

As seen in Figure 8, the door is provided with an oblong aperture **12** extending entirely through vertical stile **13** adjacent the edge of the door **14**. A pair of handle elements **15** each including a plate portion **19**, a finger grip portion **16** formed as a recess or depression in plate portion **19**, and provided on the reverse side with bosses **17** and **18** which extend rearwardly from the plate portion **19** at least as far as the recessed finger grip **16**.

It will be noted that the bosses **17** and **18** on one element **15** abut the corresponding bosses on the element **15** on the opposite side of the door, and the two elements are secured together by screws **17'**, **18'** extending from the handle element **15** on the inner side of the door, into the bosses **17** or **18** on the element **15** on the outer side of the door. Since doors will be of different thicknesses, it will at once be seen that the elements **15** of the present invention can be made to fit closely, yet slidingly, against the surface of the door by adjusting the length of the bosses **17** and **18** as required, as by means of a hack saw, file, etc. Elements **15** may be made with their bosses of a height to accommodate the thickest standard door so it is unnecessary to provide additional dies to accommodate thinner doors.

Also provided on each of these elements **15**, preferably adjacent bosses **17** and **18**, are actuating lugs **20**.

At one end of recessed finger grip portion **16** on one of said elements **15** is a second recess **21** having a central aperture through which a rotatable shaft **22** extends. A small bar or grip **23** is mounted on, and may in fact be formed integral with, shaft **22**. Shaft **22** and grip **23** are for use in connection with locking the device from the inside against unauthorized opening of the sliding door.

The other element **15** includes an aperture **24** in cover plate portion **19** which, when the two elements **15** are mounted back to back with bosses **17** and **18** abutting each other, is in alignment with shaft **22**. A lock device, such as a conventional lock cylinder **25**, is mounted in aperture **24**.

Across the bottom of aperture **12** there is located a lock-stop **26**.

Mounted on a squared portion of shaft **22** is a lock plate **27**, from one side of which extends a stop element **28**. By rotation of grip **23** the stop element **28** may be placed in alignment with aperture **12** in which the elements **15** are mounted so as to bear against lock-stop **26** to prevent movement of elements **15** in aperture **12**, and by reverse movement of grip **23**, the stop element **28** may be swung to one side to permit movement of elements **15** in aperture **12**. It will be noted that aperture **12** is of such a length as to permit sufficient movement of elements **15** when the stop element **28** is in unlocked position to actuate a bolt **29**.

Bolt **29** is mounted within the door stile adjacent the edge surface **14** of stile **13** so that there is no projection on the edge of the door. The edge of the door, when in closed position, extends into a recessed vertical jamb in the door frame. A striker or keeper element **30** is mounted in the recess of the door jamb by means of an adjustable plate **31** which includes slots **32** whereby the plate **31** may be vertically adjusted and held in place by screws **33**. Keeper element **30** is T shaped and includes a threaded portion **34**, which is screwed in a threaded opening in plate **31**, whereby the location of the keeper with relation to the bolt **29** when in closed position may be accurately adjusted. A jamb nut **35** may be used to lock keeper **30** in adjusted position.

Bolt **29** is biased into locking position by a spring **36** which is sufficiently strong to normally hold elements **15** in elevated position against the top end of aperture **12**. Bolt **29** contacts the elements **15** by means of projection **37** at its lower end which extends sufficiently inwardly from the edge of the door to engage one of the actuating lugs **20**.

From Figure 2 it will be seen that when the door is

slid to closed position, the keeper **30** will engage a surface **38** of bolt **29** and will cam it downwardly so that it will pass to a position behind keeper **30**, and the door will be retained in closed position until bolt **29** is retracted. Bolt **29** may be retracted if grip **23** is turned so that stop element **28** will not engage the lock stop **26**.

The door then is readily operated by inserting fingers into grip portion **16** and pressing downwardly, which moves elements **15** downwardly and as an actuating lug **20** contacts projection **37**, bolt **29** is moved downwardly against the spring **36** until bolt **29** is free of keeper **30**. The door may then be slid into open position.

If grip **23** is turned so that stop element **28** extends downwardly to lock the door, the door may not be opened if bolt **29** is behind keeper **30**. However, under this condition if the door is open it may be placed in closed and locked position because as the bolt **29** cams under keeper **30**, the projection **37** is free to move away from actuating lug **20**.

In order that the door may be locked or unlocked from the outside with a key, the lock plate **27** is provided with a semicircular aperture, or slot **39**, concentric with shaft **22** and lock cylinder **25**, and on lock cylinder **25** there is mounted an element **40** having a pin **41** extending into slot **39**. By insertion of the key in the lock cylinder, element **40** may be rotated a half a revolution in either direction. It will be seen therefore, that from the lock position shown in Figure 2 a half revolution turn of the key in the clockwise direction will turn the lock plate **27** a quarter turn to unlocked position, and upon turning the key anti-clockwise the lock plate **27** may be rotated again into locking position. The key may, of course, be withdrawn from the lock to leave the device in the desired condition. It will be noted that the door may be locked and unlocked from the outside by key only. The door may be locked and unlocked readily from the inside by the use of grip **23**.

It will be noted that the two handle elements **15** are symmetrical and may therefore be used on doors of either hand. Also it will be noted that there are four lugs **20** on each handle element **15**. This is desirable as it gives greater latitude in locating the bolt and each handle element for each installation.

It will also be noted that different length bolts **29** may be used. While the device is shown and described as requiring a downward movement pull panel, it may equally well be installed to require an upward motion.

Although a specific embodiment of the invention has been described above, it will be understood that changes and modifications in design, structure, and details may be made within the scope of the appended claims without departing from the spirit of the invention.

What we claim as new and desire to protect by Letters Patent of the United States is:

1. Latch operating means for a door comprising a handle for slidable mounting in an elongated recess in a door stile, said handle comprising a plate portion to overlie the edge of said recess, a finger grip portion formed as a depression extending into the said plate portion, a pair of spacing bosses extending rearwardly from said plate portion at each end of said finger grip portion for insertion into said recess and securing means mounted in said bosses to secure said latch operating means to a complementary member mounted on the other side of said stile whereby said latch operating means may be accurately spaced to slidingly engage said stile.

2. Latch operating means for a door comprising a pair of handles for mounting on each side of a door stile, each said handle including a plate portion, a finger grip portion formed as a depression extending into the surface of each said plate portion, a pair of spacing

bosses extending rearwardly from each said plate portion for abutment against the corresponding bosses on the other of said handle, and securing means for mounting in said bosses to secure said handles together whereby said handle plate portions are accurately spaced to slidingly engage said stile.

3. The latch operating means of claim 2 in which said bosses are of a length greater than required whereby the distance between said plate portions may be accurately adjusted when installed on a door.

4. In combination a bolt operating and handle means for a door, a door having a stile, an elongated aperture in said stile, a pair of handle means for mounting one on each side of said stile and including a plate portion to cover said aperture, each of said handle means including also a depressed finger grip portion and a pair of bosses so positioned as to extend into said aperture, the bosses on one said handle means being in abutting relation with the pair of bosses on the other said handle means, securing means mounted in said bosses securing said handle plates together and in sliding relation to said stile, and means extending from at least one of said handle means into said stile to engage and operate a bolt element upon sliding of said handle means in said aperture.

5. The device of claim 4 in which rotatable means are mounted on said handle means adjacent one end of said finger grip portions, and having means accessible on the surface of said handle means for rotation thereof, said rotatable means being so constructed and arranged that when rotated to one position, sliding movement of said handle means with respect to said stile is prevented, and when rotated to another position, sliding movement of said handle means is permitted.

6. In a door having a stile, a latch element mounted in said stile, and operable in a direction parallel to the length of the stile, an elongated aperture in said stile parallel to said latch element, a lug mounted on said latch element for operating said latch element extending into said elongated aperture, combination handle and latch operating means mounted for sliding movement relative to said aperture, said combination means comprising a pair of handles, each handle including a plate portion, one handle being mounted on one side and the other handle being mounted on the other side of said stile so said plate portions will cover said aperture, each handle having a recessed finger portion and a pair of bosses extending into and slidable within said elongated aperture, the bosses on one said handle being in abutting relation to the bosses on the other said handle, securing means mounted in said bosses to secure said handles together, and means extending rearwardly from at least one of said handles to engage said lug upon sliding of said handle means in said aperture whereby said latch element is operated.

7. The device of claim 6 in which rotatable means are mounted on said handle and latch operating means adjacent one end of said finger grip portions, means accessible on the surface of said handle and latch operating means for rotation thereof, said rotatable means being so constructed and arranged that when rotated to one position, sliding movement of said handle and latch operating means with respect to said stile is prevented, and when rotated to another position, sliding movement of said handle and latch operating means is permitted.

References Cited in the file of this patent

UNITED STATES PATENTS

1,554,171	Manny	Sept. 15, 1925
1,611,052	Malicki	Dec. 14, 1926