Feb. 17, 1970 A. R. SNOW 3,495,861

DOOR LATCH ASSEMBLY

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FIG. 1.

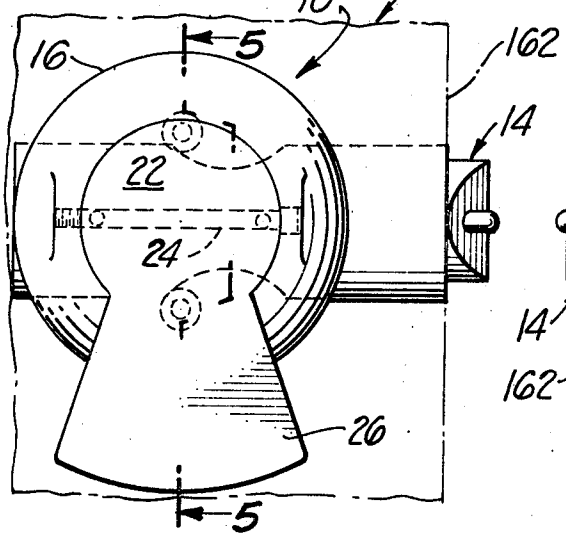


FIG. 2.

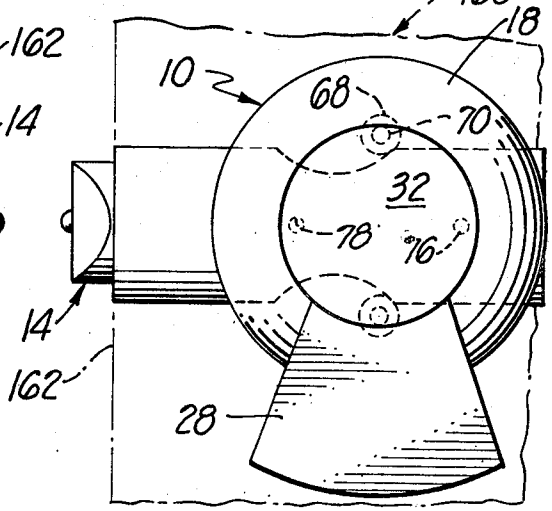


FIG. 10.

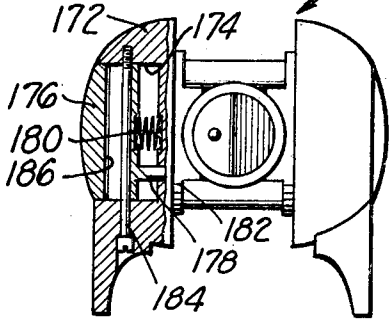


FIG. 3.

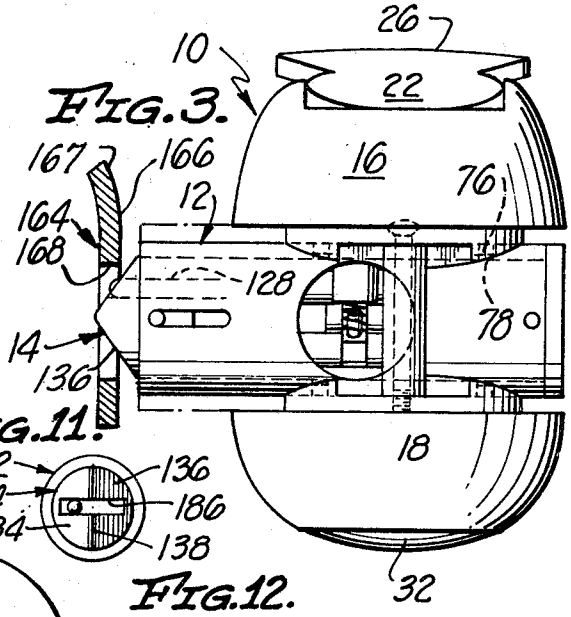


FIG. 11.

FIG. 4.

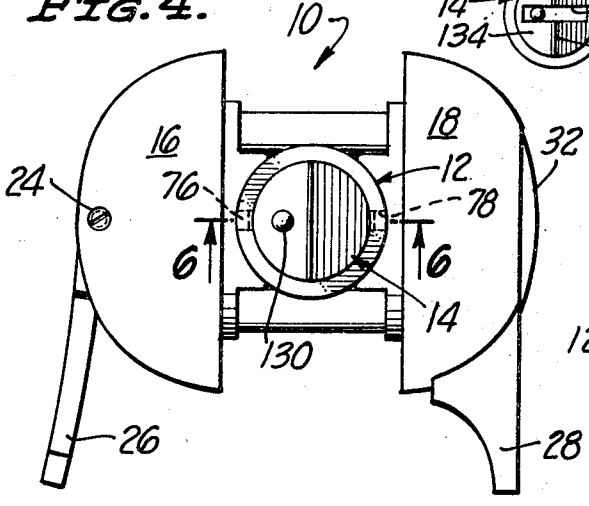


FIG. 12.

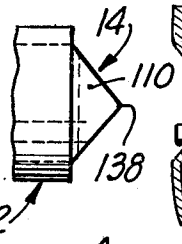
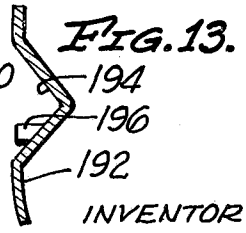


FIG. 13.



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FIG. 5.

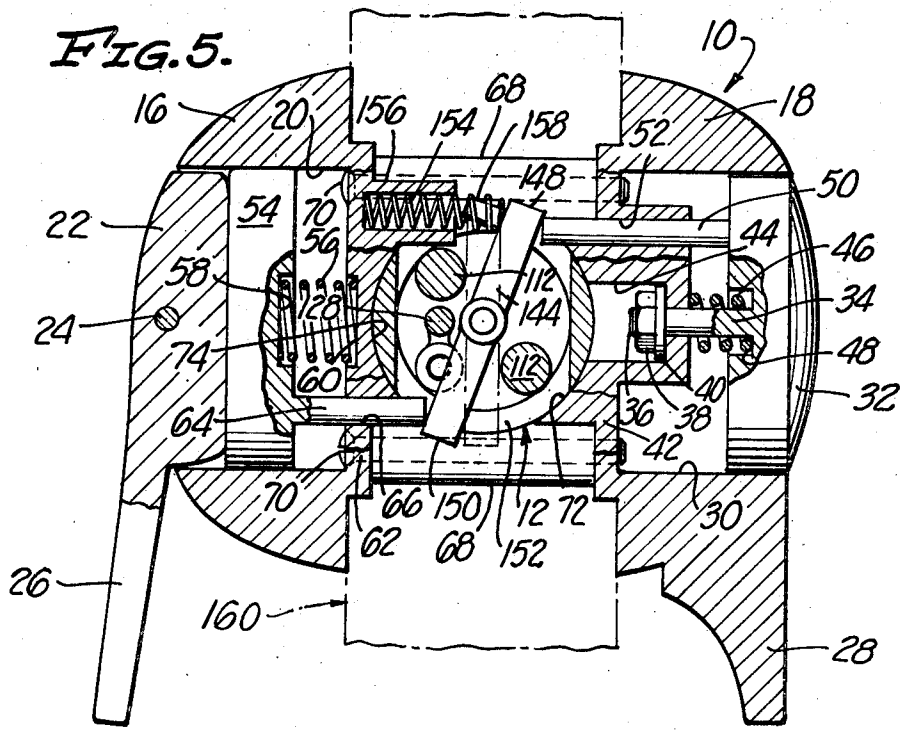


FIG. 6.

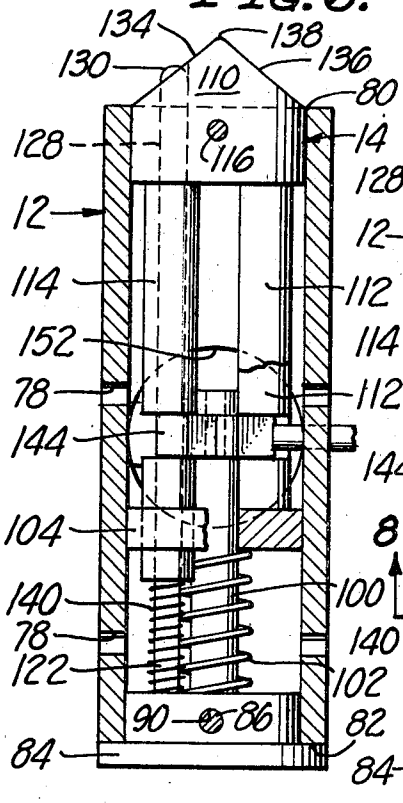


FIG. 7.

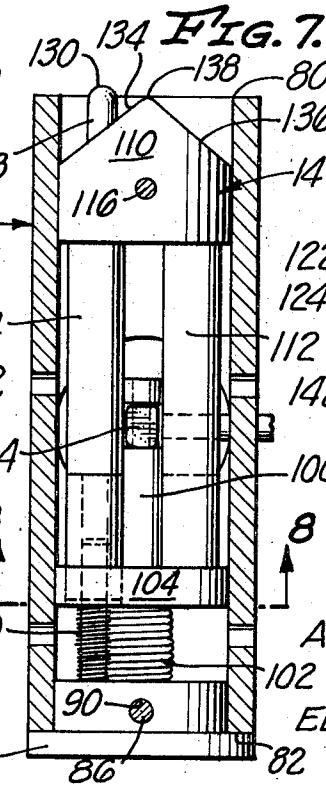
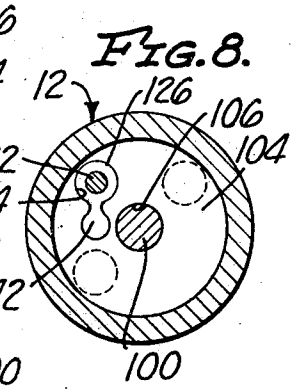


FIG. 8.



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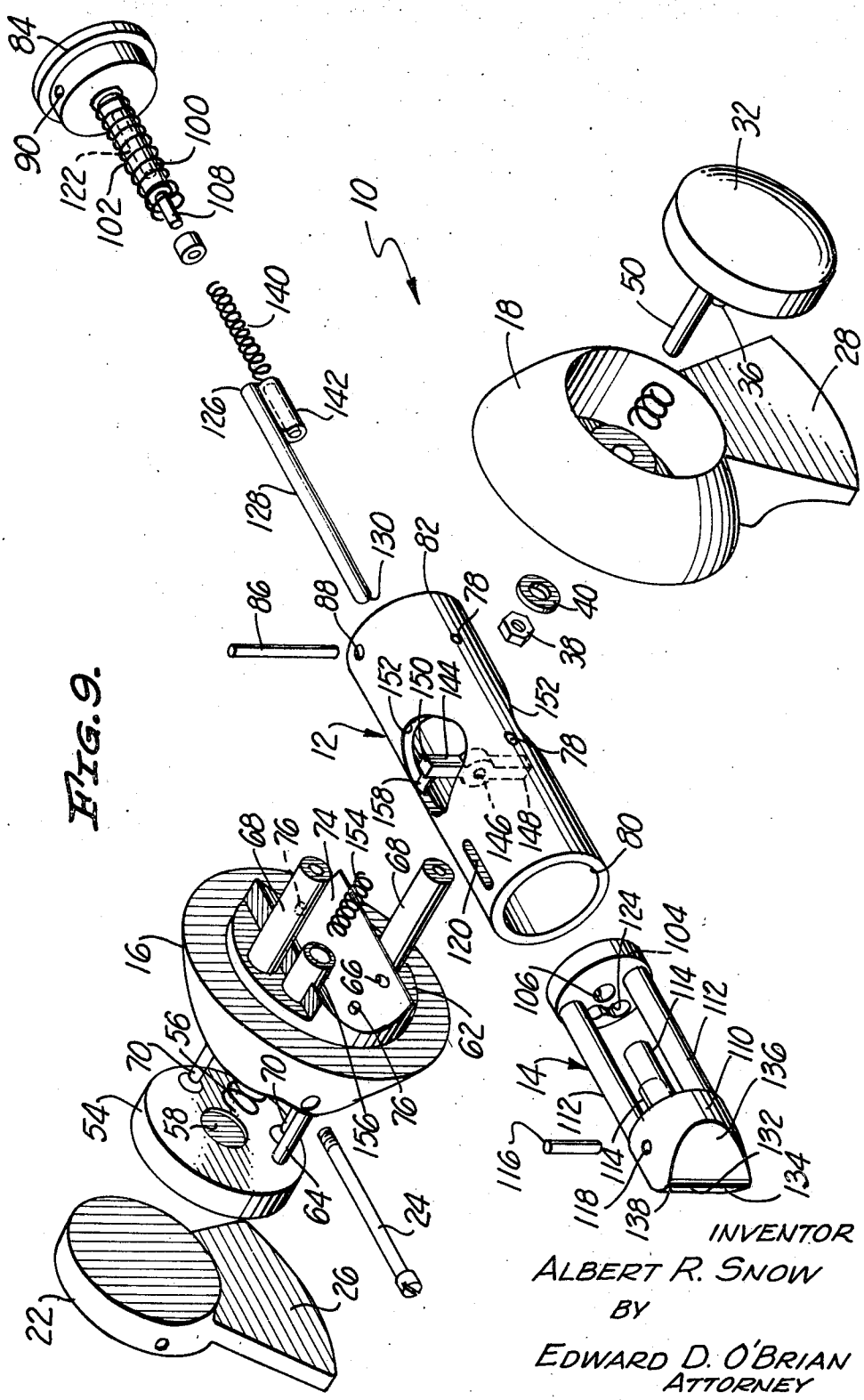


Fig. 9.

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3,495,861

DOOR LATCH ASSEMBLY

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Filed Sept. 15, 1967, Ser. No. 667,931
Int. Cl. E05c 1/04, 3/06, 9/02
U.S. Cl. 292—74 13 Claims

ABSTRACT OF THE DISCLOSURE

A door latch assembly of the so-called touch plate type is disclosed. This assembly includes a barrel, a bolt slidably mounted in the barrel so as to be capable of being moved between a retracted and an extended position and biasing means urging the bolt away from the retracted position into the extended position. The assembly also includes holding means adapted to engage the bolt so as to hold it in an extended position, urging means for biasing the holding means so that it will automatically engage and to hold the bolt in the extended position, locking means for preventing the holding means from being operative for its intended purpose and at least one release means for releasing the holding means from the bolt. The release means used may include a so-called touch plate type of structure.

BACKGROUND OF THE INVENTION

Latch structures have been used for centuries. Practically all of such structures which are in common use today involve an assembly of parts including at least one door handle, a barrel located within a door and a bolt mounted within the barrel so as to be capable of being moved upon actuation of the door handle. Usually these structures or assemblies include a spring biasing the bolt so that it extends from the barrel used. With structures such as this the bolt is designed so as to be capable of being directly moved through a direct mechanical connection with the handles. Generally the bolt is moved from an extended position to a retracted position when the handle is turned, although structures are known in which a bolt is moved by a wedge-like action when a handle is pushed.

No one can deny that door latch assemblies or structures of the broad types indicated in the preceding discussion have proved effective. However, in spite of this it is considered that there is a commercial need for new and improved door latch assemblies having a different mode of operation than various structures or assemblies as are briefly indicated in the preceding. Frequently individuals affected by various types of physical ailments cannot satisfactorily manipulate a conventional door handle so as to operate it in a convenient manner. There is a need for door latch assemblies which can be easily and conveniently operated by many such individuals.

Frequently a conventional door latch assembly is not acceptable or desirable to a user merely because it operates in a conventional manner or has a conventional type of appearance. There is a need to provide door latch assemblies which will be acceptable to such users in place of more conventional structures. There is also a need for door latch assemblies having a different mode of operation than conventional structures for many applications where the mode of operation of conventional door latch assemblies is undesirable.

SUMMARY OF THE INVENTION

A broad generalized object of the present invention is to provide new and improved door latch assemblies meeting these commercial needs. Thus, an object of the invention is to provide door latch assemblies having a different mode of operation than conventional structures in this field. A related object of the invention is to provide door latch assemblies which can be easily and conveniently used by persons suffering various types of physical handicaps. Another related object of the invention is to provide door latch assemblies which are desirable merely because of their unique mode of operation, and the unique structural appearances they can have because of such operation.

Further objects of this invention are to provide new and improved door latch assemblies which may be manufactured relatively easily at a comparatively nominal cost, which may be installed relatively easily, which may be easily and conveniently used in various applications, which are capable of giving long, reliable performance, and which are capable of being easily serviced as required.

These various objectives of the invention are achieved in door latch assemblies, each of which include a barrel, a bolt mounted within the barrel so as to be capable of being moved between a retracted and an extended position and biasing means urging the bolt away from the retracted position into the extended position. In a latch assembly of this invention these parts are used with a holding means which is capable of engaging the bolt so as to hold it in an extended position and urging means biasing the holding means so that the holding means will lock the bolt in the extended position, preferably locking means for preventing the holding means from being operative for its intended purpose, and at least one release means for causing the holding means to be disengaged from the bolt so that the bolt may be moved to its retracted position, as on opening the door latch assembly.

DESCRIPTION OF THE DRAWING

The aforegoing objects and various other objects of this invention and advantages of it will be apparent from a detailed consideration of the accompanying drawings in which:

FIG. 1 is a side-elevational view showing one side of a door latch assembly of this invention;

FIG. 2 is a side elevational view similar to FIG. 1 showing the other side of this door latch assembly;

FIG. 3 is a top plan view of this same door latch assembly;

FIG. 4 is an end view of the door latch assembly illustrated in the preceding figures;

FIG. 5 is a partial cross-sectional view taken at line 5—5 of FIG. 1;

FIG. 6 is a partial cross-sectional view taken at line 6—6 of FIG. 4;

FIG. 7 is a cross-sectional view corresponding to FIG. 6 showing the bolt in a retracted position;

FIG. 8 is a partial cross-sectional view taken at line 8—8 of FIG. 7;

FIG. 9 is an exploded view showing all parts of the door latch assembly illustrated in the preceding figures in isometric projection;

FIG. 10 is an end view of a modified door latch assembly of this invention, this view being partially in section so as to illustrate the features of it which are different than the features of the preceding door latch assembly;

FIG. 11 is an end view of a modified bolt and barrel being capable of being used with either of the door latch assemblies illustrated in the preceding figures;

FIG. 12 is a side view of a part of the bolt and barrel illustrated in FIG. 11; and

FIG. 13 is a side view of a jamb plate for use with the bolt and barrel indicated in FIGS. 11 and 12.

DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

The invention is best explained with reference to the accompanying drawings. Here there is shown a door latch assembly **10** of the present invention. This assembly includes a centrally located cylindrical barrel **12** which holds a bolt **14** so that the bolt **14** may be moved between an extended position as shown in FIGS. 1, 2, 3, 4 and 6 and a retracted position as shown in FIG. 7. It also includes mounting knobs **16** and **18** which are in the nature of handles.

The mounting knob **16** is provided with an internal cylindrical cavity **20** within which there is pivotally mounted a disc **22** by means of a pin **24**. This pin **24** extends across the cavity **20**. A small lever arm **26** used in rotating the disc **22** is attached to the disc **22** so as to extend therefrom in a downward direction. This arm **26** can be considered as a handle in the operation of the entire assembly **10**. Another similar, but fixed arm **28** is attached to the knob **18** so as to extend downwardly therefrom. This arm **28** can also be considered as a handle because of its use during the operation of the complete assembly. The knob **18** is provided with an internal cylindrical cavity **30** corresponding to the cavity **20**.

Within the cavity **30** in the knob **18**, there is located a pressure plate **32**. This plate **32** is dimensioned so that it can be moved along the length of the cavity **30** generally towards the bolt **14** and the barrel **12**. The plate **32** carries an extending shaft **34** having a threaded end **36** upon which there is located a retaining nut **38**. If desired a washer **40** may be associated with this nut **38**. The shaft **34** extends through what may be considered a mounting bracket **42** attached to and associated with the knob **18** so as to extend into a small cavity **44** within this bracket **42**.

A conventional coil spring is located between the bracket **42** and the plate **32** for the purpose of biasing this plate **32** to an outward position with respect to the central part of the assembly. If desired the spring **46** may terminate in an annular retaining groove **48** in the plate **32**. With this construction the plate **32** may be pushed inwardly against the pressure of the spring **46** so as to move a rod **50** generally towards the barrel **12**. This rod **50** is guided by moving through a guide hole **52** in the bracket **42**. The rod **50** may be attached to the plate **32**, but does not have to be attached to this plate.

A similar but related structure is utilized within the cavity **20**. Here there is located another plate **54** which is capable of being slid within the cavity **20** generally towards the barrel **12** and the bolt **14**. This plate **54** is biased away from the bolt **14** and the barrel **12** by means of a conventional coil spring **56**. The spring **56** may be held in place by having its ends located within a small depression **58** in the plate **54** and another depression **60** in a bracket **62**. The brackets **42** and **62** are used for substantially the same purpose. Upon examination of the drawing it will be seen that the bracket **62** is formed integrally with the mounting knob **16**. The plate **54** also carries a rod **64** corresponding to the rod **50** previously described. This rod **64** projects through a guide opening or hole **66** in the bracket **62** generally towards the barrel **12** and the bolt **14**.

Hollow tubular spacers **68** are attached to the bracket **62** so as to extend therefrom into contact with the bracket **42**. These two brackets and the parts connected to them and mounted on them are secured together in proper alignment through the use of screws **70** extending through the spacers **68**. These spacers **68** in effect serve to maintain a proper spacing between the brackets **42** and **62** so that the entire assembly **10** may be easily secured together in an operative manner. When the brackets **42** and **62** are secured together in this manner a curved surface **72** on the bracket **42** engages a part of the barrel **12** while another corresponding curved surface **74** on the bracket **62** engages an opposed part of the barrel **12** so as to adequately support this barrel. Movement of the barrel **12** with respect to the brackets **42** and **62** when the barrel **12** is so mounted is prevented by small pins **76** on the brackets **42** and **62** fitting within corresponding small openings **78** in the barrel **12**.

The barrel **12** has a normally open end **80** and a normally closed end **82** which is adapted to be closed by a cap **84**. This cap **84** may be conveniently secured to the closed end **82** through the use of a retainer pin **86** which fits through holes **88** in the barrel **12** and through a hole **90** in the cap **84**. The cap **84** carries a centrally located guide shaft **100** which extends from the cap **84** along the axis of the barrel **12**. A small coil spring **102** is located around this shaft so as to bias or urge the bolt **14** generally away from or out of the barrel **12** by engaging an end plate **104** on this bolt **14**. The end plate **104** is provided with a centrally located opening **106** which accommodates the shaft **100**. The shaft **100** also carries a smaller shaft **108** which extends along the axis of the barrel **12** within the central region of the barrel **12**.

The bolt **14** includes a latch end **110** which is joined to the end plate **104** by means of two shafts **112**. These shafts **112** are located on diametrically opposite sides of the axis of the barrel **12**. The latch end **110** also carries what can be referred to as lock shafts **114** which extend from this end **110** parallel to the axis of the barrel towards the end plate **104**. These lock shafts **114** are dimensioned so that when the bolt **14** is in an extended position as indicated in FIG. 6, they terminate adjacent to the small shaft **108**. When the bolt **14** is in a retracted position these lock shafts **114** extend past the small shaft **108** as indicated in FIG. 7 of the drawing to generally along the shaft **100**.

The bolt **14** is restrained so that it will only move between these two positions by a small pin **116** located within a hole **118** in the latch end **110** fitting into an elongated slot **120** in the barrel **12**. This slot **120** extends in a straight line parallel to the axis of the barrel **12**. The slot not only serves to limit movement of the bolt **14**, but also serves in part to prevent twisting or rotation of the bolt **14** within the barrel **12**. Such twisting or rotation of the bolt **14** is also prevented by means of an auxiliary stabilizing rod **122**.

This rod **122** extends from the cap **84** parallel to the shaft **100** through a hole **124** in the end plate **104**. This hole **124** is larger than the rod **122** and is dimensioned so as to correspond in shape to the shape of an end **126** of a locking rod **128**. This locking rod **128** has another end **130** and is of a somewhat shaft-like appearance; it projects through the interior of the bolt **14** and a hole **132** in the latch end **110**.

It will be realized from an examination of the initial seven figures of the drawing that this locking rod has two positions which are referred to hereinafter as locking position and non-locking position. In the locking position the lock rod **128** extends from the bolt **14** as indicated in FIG. 7 of the drawing. In the non-locking position, the locking rod **128** is located so that the end **130** is generally within the plane of a tapered latch surface **134** on the latch end **110**.

This latch end **110** is also provided with another tapered surface **136** and the two surfaces are joined by a vertically extending edge **138**. These surfaces **134** and **136** in effect define on the bolt **14** a vertically extending wedge shaped end. The lock rod **128** is held so as to be biased in the locking position by means of a small coil spring **140** located around the rod **122** so as to push against a cylinder **142** attached to and forming a part of the end **126** of the rod **128** in such a manner as to in effect form a part of this end **126**. It will be recognized that the hole **124** is dimensioned so as to correspond to the dimensions of the entire end **126** including the cylinder **142**.

The function of the lock rod **128** is related to the operation of a small double-ended trigger or lever **144**. This lever **144** is provided with a centrally located hole **146** fitting around the small shaft **108** in such a manner so as to pivotally mount this lever **144**. The lever **144** is dimensioned so as to extend across the center of the bolt **14** and the barrel **12** so as to have ends **148** and **150** which may be viewed through top and bottom openings **152** in the barrel **12**. These openings **152** are adjacent to the rods **50** and **64**, and these rods normally extend through them so that the rod **50** engages the end **148** and so that the rod **64** engages the end **150**. The lever **144** is normally biased into a position in which such engagement occurs by another spring **154** engaging the end **148**, urging this end away from the bracket **62**. For the purpose of retaining the spring **154** a cup-like retainer **156** is formed on the bracket **62**, and a small projection **158** is located on the end **148**. The spring **154** fits around this projection **158** and into the retainer **156**.

The assembly **10** may be easily installed on a door such as a door **160** as indicated in phantom in FIGS. 1 and 2 of the drawing. Prior to assembly the barrel **12** and the bolt **14** and the various associated parts are assembled together in the manner indicated. Also, the knob **18** is assembled as described in the preceding. The knob **16** is left disassembled to the extent that there is nothing located within the cavity **20**. With assemblies of these parts in hand, an appropriate hole (not numbered) of a size necessary to accommodate the barrel **12** is drilled from the edge **162** of a door such as the door **160** perpendicular to such an edge midway between the sides of the door. Next, an appropriate other hole (not numbered) of a dimension suitable to receive the brackets **42** and **62** is drilled between the sides of the door perpendicular to the first hole.

Then, the barrel **12** (and the associated parts mounted on it) is inserted in the hole drilled to receive this barrel. Thereafter, the knob **18** is located against the door **160** into operative contact with the barrel **12** so that the pins **76** engage the openings **78**. The mounting knob **16** is then similarly placed into position, and the two knobs **16** and **18** are attached through the use of the screws **70**, securing the entire assembly **10** together. Next, the plate **54** and the spring **56** in the knob **16** are inserted to a position as shown in FIG. 5 so that the spring **56** is held under compression. Then the disc **22** is placed in the location shown in FIGS. 1, 3 and 5 and the pin **24** is inserted across the knob **16** so as to hold this disc **22** in place, retaining the plate **54** and the spring **56** within the knob **16**. At this point, the entire assembly **10** is ready for use.

During such use, the door **160** normally will be moved to an operating position against a conventional jamb plate **164** so as to first engage a surface **166** of this plate, such as a jamb plate **164** as shown in FIG. 3 of the drawing. Engagement of the surface **136** with this jamb plate **164** will cause the bolt **14** to slide within the barrel **12** from the extended position shown in FIG. 6 and other figures of the drawing to the retracted position shown in FIG. 7. This action will occur because when the locking rod **128** is in its locking position (as it normally is when a door is open) the end of the cylinder **124** is against one of the lock shafts **114** so as to prevent movement of the lever **144** to a position as shown in FIG. 5. As a result of this, the bolt **14** will be free to move forward within the barrel **12**. The position of the lever **144** when the bolt **14** is in its retracted position is indicated in FIG. 7 of the drawing.

As the bolt **14** is moved to its retracted position it will be apparent that this spring **102** is compressed, and this spring **102** will automatically function to return the bolt **14** into its extended position when the pressure of contact with the jamb plate **164** is relieved. It is so returned normally when the entire assembly **10** is located so that the bolt **14** extends through the conventional hole **168** in the jamb plate **164**. In this position the door **160** could be opened by continuing the rotation of this door in the same direction as it was moved into contact with the jamb plate **164**, causing compression of the bolt **14** within the barrel **12**. If it were not for the lock rod **128** the door **160** equipped with the assembly **10** could also be opened by being moved in a direction in reverse to the direction it was moved in order to be closed. From this it will be seen that a structure having utility as a door closure assembly can be manufactured omitting the lock rod **128** and the various parts associated with it as described in the preceding.

Normally when the door **160** is closed contact with a curved tab **167** on the jamb plate **164** will cause the lock rod **128** to slide within the bolt **14** to what has been identified in the preceding as a non-locking position. In this non-locking position the cylinder **142** is spaced from the lock shaft **114** it previously engaged. As a result of this spacing, the spring **154** will be operative to rotate the lever **144** to a locking position as shown in FIGS. 5 and 6 of the drawing. In this position the end **148** of the lever **144** is located between the cylinder **142** and one of the lock shafts **114** and the end **150** is behind the other lock shaft **114**. As a result of this, the bolt **14** is locked in its extended position so as to be held against retraction.

Since the lever **144** moves into a position in which the bolt **14** cannot be retracted and is held in an extended position this lever **144** and the associated structure necessary for its operation can be considered as a holding means for holding the bolt **14** in an extended position. Similarly the spring **154** may be classified as an urging means for biasing the lever **144** or holding means so that it automatically engages the bolt **14** in order to hold the bolt in the extended position.

With the assembly **10**, the bolt **14** may be only retracted from such an extended position by lifting upon the lever arm **26** or pushing in upon the plate **32**. When either of these things is done, the lever **144** will be rotated from its locking position as described because of movement of either the rod **50** or the rod **64**. In effect these rods **50** or **64** constitute means for rotating the lever **144** to a position in which this lever **144** is out of the way as far as the movement of the bolt **14** is concerned. Thus, a door such as a door **160** may be pulled open, or pushed open, when either the arm **26** or the plate **32** has been actuated as indicated.

Then a door such as the door **160** may be moved away from a jamb plate such as the jamb plate **164** so as to open. As this occurs the bolt **14** slides to its retracted position within the barrel **12**. Because of the functions and operations of rods **50** and **64** and the various parts associated with them such as the arm **26** and the plate **32** serving to cause movement of the lever **144**, these rods **50** and **74** and such associated parts may be referred to as release means. It will be realized that for certain installations only one of these release means is necessary. To achieve the method of operation described the wedge shape of the surfaces **134** and **136** of the latch end **110** of the bolt **14** is necessary.

In FIG. 10 of the drawing there is shown a modified door latch assembly **170** of the present invention which is exceedingly closely related to the assembly **10**. For this reason, various parts of the assembly **170** which are the saame as or substantially the same as various corresponding parts of the assembly **10** are not separately described herein, and are indicated where necessary herein and in the drawing by the same numerals previously used to describe such parts.

In the assembly **170**, the mounting knob **16** is replaced by a closely related mounting knob **172** having an internal cavity **174** located therein which corresponds to the cavity **20** previously described. This cavity holds a slidable plate **176** similar to the plate **32** previously described. This plate carries a rod **178** which is similar to and serves the same function as the rod **64** previously described. A coil spring **180** corresponding to and serv-

ing the same function as the spring **56** is located between the plate **176** and a bracket **182**. The bracket **182** is the same as the bracket **62** previously described. The plate **176** is held within the cavity **174** so as to be capable of being moved by virtue of an elongated screw **184** extending through a flat slot **186** in the plate **176**.

The modified door latch assembly shown in FIG. 10 is mounted and used in substantially the same manner as the assembly **10**. However, during such mounting the screw **184** is placed in position as the last step in order to secure the plate **176** in place while in the assembly **10** the pin **24** is the last part inserted to assemble the device. The plate **176** is, of course, pushed so as to operate as a release means.

In FIGS. 11, 12 and 13 of the drawing, there is shown a manner in which the bolt **14** within the barrel **12** can be modified in order to achieve a door latch assembly in which the door can be swung in either direction. In this particular case, the various parts are the same as the part described in conjunction with the assembly **10**. Hence, they are designated in the drawing and herein by the same numerals previously used.

In this particular case, a slot **186** extends across the surfaces **134** and **136** and the edge **138** of the latch end **110** on the bolt **14**. This bolt **14** is adapted to be used with a jamb plate **192** as shown in FIG. 13 of the drawing. This jamb plate **192** has instead of the usual opening, a V-shaped center portion **194** which is of a complementary shape to the shape of latch end **110**. A projection **196** is located within this center portion **194** so as to engage and depress the locking rod **128** when the bolt **14** illustrated in FIGS. 11 and 12 is in place with respect to this jamb plate **192**, causing the locking rod **128** to be moved to a position where the bolt **14** is locked against movement in the manner previously described.

Those skilled in the art to which this invention pertains will realize that a number of changes may be made in the precise door latch assemblies shown without departing from the basic features or characteristics of this invention. As an example of this, conventional lock structures may be mounted in various ways upon either a mounting knob such as the mounting knob **16** or the mounting knob **18** in order to prevent movement of a structure such as the disc **22** or the plate **32**. When such movement cannot occur, obviously, the complete assembly with which such a lock is used cannot be opened because the bolt of such an assembly is held in an extended position by a structure previously described. Various other structural changes may be made in the assemblies described and illustrated through the use or exercise of routine engineering skill or ability.

I claim:

1. A door latch assembly having a barrel with an open end, said barrel being adapted to be mounted in a door so that said open end is adjacent to an edge of said door, a bolt slidably mounted in said barrel so as to be capable of being moved between an extended position in which said bolt extends from said open end of said barrel and a retracted position in which said bolt is located within said barrel, and biasing means for urging said bolt away from said retracted position into said extended position, wherein the improvement comprises:

holding means for holding said bolt in said extended position, said holding means being movable between a position in which said holding means engages said bolt so as to hold said bolt in said extended position and a position in which said holding means disengages said bolt, permitting said bolt to be moved to said retracted position,

said holding means comprising a lever means capable of being rotated to a position in which said lever means engages said bolt so as to prevent movement of said bolt,

urging means for biasing said holding means so that said holding means automatically engages said bolt to hold said bolt in said extended position when said bolt is in said extended position,

at least one release means for releasing said holding means from said bolt when said bolt is held by said holding means in said extended position so that said bolt may be moved to said retracted position,

said release means comprises means for rotating said lever means so as to cause said lever means to be rotated out of engagement with said bolt,

said bolt having a wedge shaped end, enabling said bolt to be moved from said extended position to said retracted position by contact with a door jamb, and

at least one knob means adapted to be located on an exposed surface of the door and wherein,

said release means includes movable means mounted on said knob mean and rod means actuated by said movable means, said movable means contacting said lever means during movement of said movable means to rotate said lever means.

2. A door latch assembly as claimed in claim **1** including:

spring means holding said movable means in a position in which said lever means is not engaged by said release means.

3. A door latch assembly having a barrel with an open end, said barrel being adapted to be mounted in a door so that said open end is adjacent to an edge of said door, a bolt slidably mounted in said barrel so as to be capable of being moved between an extended position in which said bolt extends from said open end of said barrel and a retracted position in which said bolt is located within said barrel, and biasing means for urging said bolt away from said retracted position in said extended position, wherein the improvement comprises:

holding means for holding said bolt in said extended position, said holding means being movable between a position in which said holding means engages said bolt so as to hold said bolt in said extended position and a position in which said holding means disengages said bolt, permitting said bolt to be moved to said retracted position,

urging means for biasing said holding means so that said holding means automatically engages said bolt to hold said bolt in said extended position when said bolt is in said extended position,

at least one release means for releasing said holding means from said bolt when said bolt is held by said holding means in said extended position so that said bolt may be moved to said retracted position,

said bolt having a wedge shaped end, enabling said bolt to be moved from said extended position to said retracted position by contact with a door jamb,

locking means for preventing said holding means from holding said bolt in said extended position,

said locking means being located so as to be automatically actuated by contact with a door jamb so as to permit said holding means to hold said bolt in said extended position during operation of said door latch assembly,

said holding means comprising lever means capable of being rotated to a position in which said lever means engages said bolt so as to prevent movement of said bolt,

said release means comprises means for rotating said lever means so as to cause said lever means to be rotated out of engagement with said bolt,

at least one knob means adapted to be located on an exposed surface of the door and wherein:

said release means includes movable means mounted on said knob means and rod means actuated by said movable means, said movable means contacting said lever means during movement of said movable means to rotate said lever means.

4. A door latch assembly as claimed in claim 3 including:

spring means holding said movable means in a position in which said lever means is not engaged by said release means.

5. A door latch assembly as claimed in claim 3 wherein said locking means comprise:

a rod slidably mounted in said bolt so as to be capable of being moved between a locked position in which said rod extends from said bolt and a non-locking position in which said rod fits generally within said bolt, and

spring means biasing said rod so that it is normally located within said locking position,

said rod being located so as to be capable of being engaged by a part of a door jamb during the use of said door latch assembly and moved to said non-locking position by contact with said door latch assembly.

6. A door latch assembly as claimed in claim 5 wherein:

said holding means comprises lever means capable of being rotated to a position in which said lever means engages said bolt so as to prevent movement of said bolt.

7. A door latch assembly as claimed in claim 6 wherein:

said release means comprises means for rotating said lever means so as to cause said lever means to be rotated out of engagement with said bolt.

8. A door latch assembly as claimed in claim 7 including:

at least one knob means adapted to be located on an exposed surface of the door and wherein,

said release means includes movable means mounted on said knob means and rod means actuated by said movable means so as to be capable of contacting said lever means during movement of said movable means so as to cause rotation of said lever means.

9. A door latch assembly having a barrel with an open end, said barrel being adapted to be mounted in a door so that said open end is adjacent to an edge of said door, a bolt slidably mounted in said barrel so as to be capable of being moved along an axis between an extended position in which said bolt extends from said open end of said barrel and a retracted position in which said bolt is located within said barrel, and biasing means for urging said bolt away from said retracted position into said extended position, two knobs connected to said barrel, said knobs being adapted to be mounted on opposite sides of said door, wherein the improvement comprises:

said knobs being secured to said barrel so as to be incapable of relative movement with respect to said barrel;

holding means for holding said bolt in said extended position, said holding means being movable between a position in which said holding means engages said bolt so as to hold said bolt in said extended position and a position in which said holding means disengages said bolt, permitting said bolt to be moved to said retracted position, said holding means being a lever pivotally mounted so as to rotate about an axis transverse to the axis of the bolt;

urging means for biasing said holding means so that said holding means automatically engages said bolt to hold said bolt in said extended position when said bolt is in said extended position;

a separate release means for releasing said holding means from said bolt so as to permit said bolt to be moved to said retracted position from said extended position carried by each of said knobs, each of said release means being capable of being moved with respect to the knob upon which it is located so as to separately actuate said holding means;

said bolt having a wedge-shaped end enabling said bolt to be moved from said extended position to said retracted position by contact with a door jamb.

10. A door latch assembly as claimed in claim 9 wherein:

said holding means comprising a lever means capable of being rotated to a position in which said lever means engages said bolt so as to prevent movement of said bolt.

11. A door latch assembly as claimed in claim 10 wherein:

each of said release means comprises means for rotating said lever means so as to cause said lever means to be rotated out of engagement with said bolt.

12. A door latch assembly as claimed in claim 9 including:

a locking rod means for preventing operation of said holding means, said locking rod means being movably mounted in said bolt, said locking rod means being capable of being moved in said bolt between first and second positions, in said first position said locking rod means being in a position to block engagement of said holding means so that said bolt is capable of being moved to said retracted position, in said second position said locking rod means permitting said bolt to be engaged by said holding means so as to hold said bolt in said extended position.

13. A door latch assembly as claimed in claim 12 including:

a door jamb, said door jamb having projection means for engaging said locking rod upon closure of said door so as to move said locking rod means to said second position when said bolt engages said door jamb.

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