Dec. 8, 1964 A. CREPINSEK 3,159,993

MORTISE LOCK WITH LATCH BOLT AND LOCKING BOLT

Filed Oct. 18, 1961 3 Sheets-Sheet 1

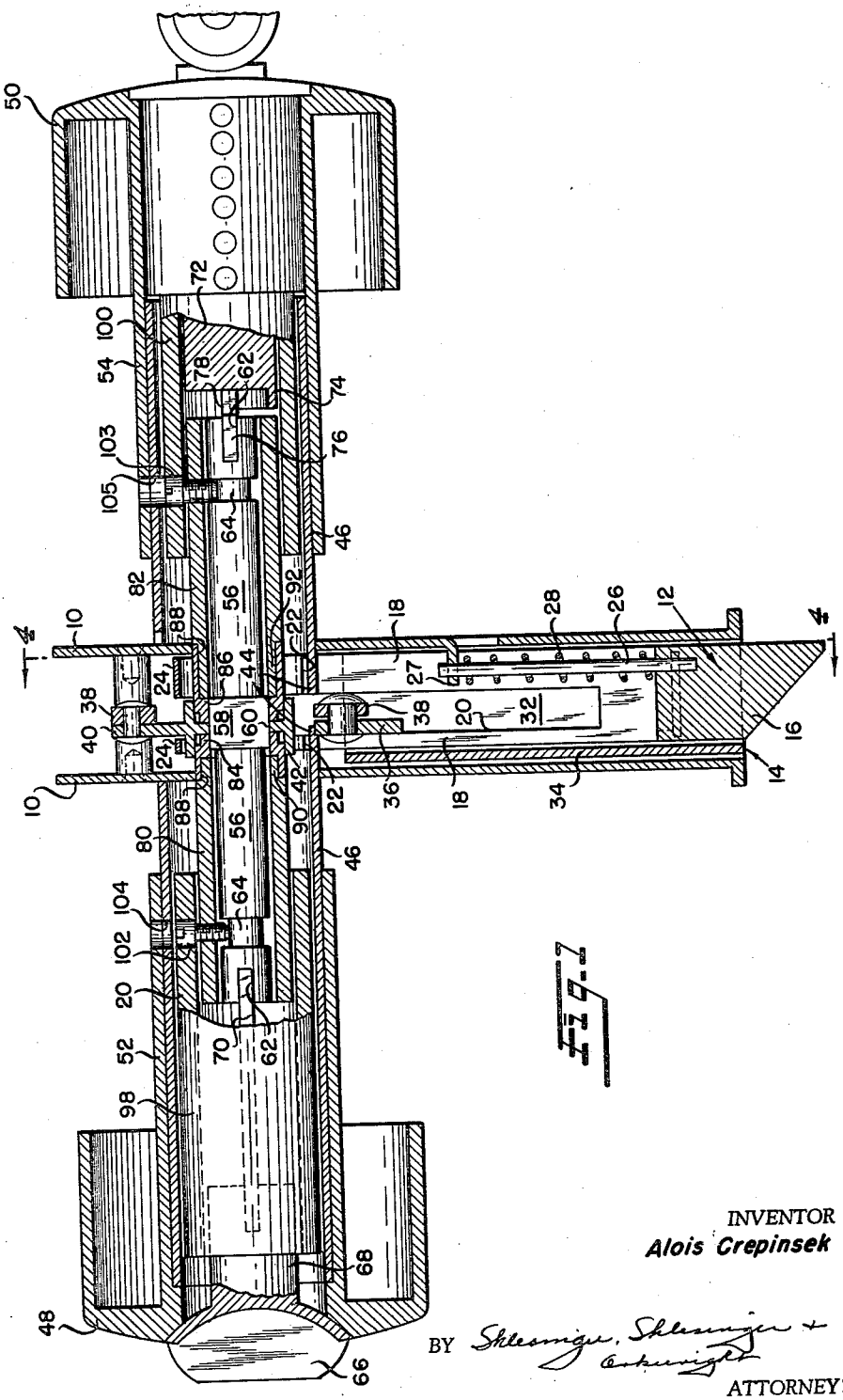

FIG. 7

INVENTOR
Alois Crepinsek

BY Schlesinger, Schlesinger & Cartwright
ATTORNEYS

MORTISE LOCK WITH LATCH BOLT AND LOCKING BOLT

Filed Oct. 18, 1961 3 Sheets-Sheet 2

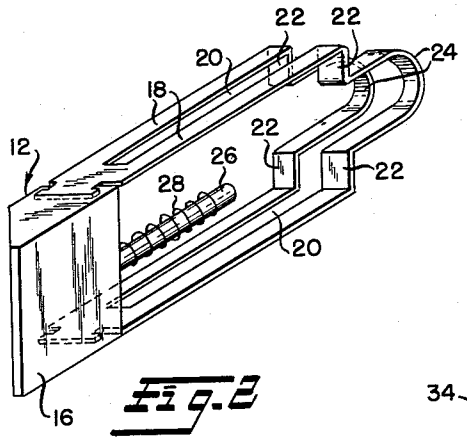

Fig. 2

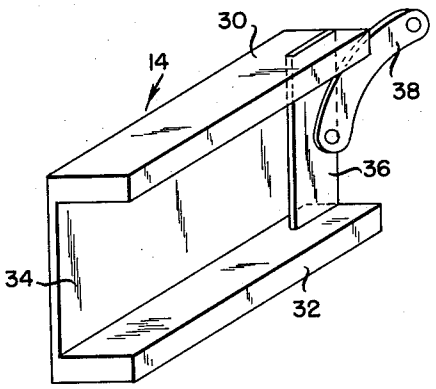

Fig. 3

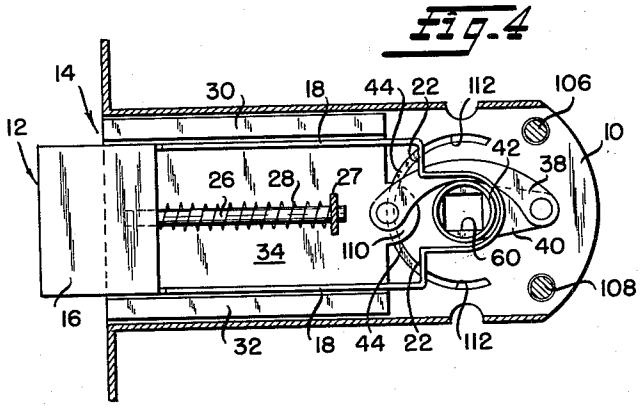

Fig. 4

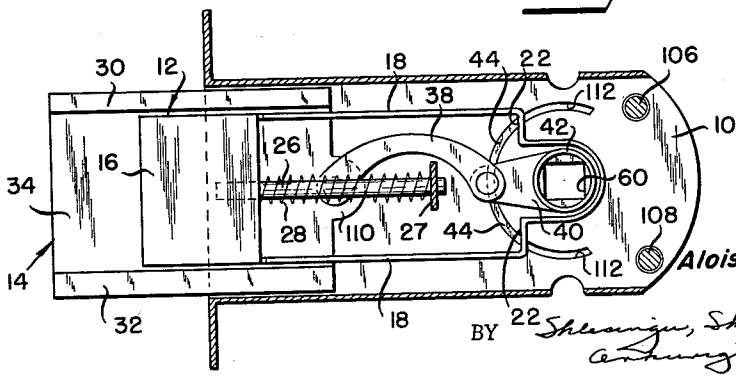

Fig. 5

INVENTOR

Alois Crepinsek

BY Schlesinger, Schlesinger & Cartwright

ATTORNEYS

Dec. 8, 1964 A. CREPINSEK 3,159,993

MORTISE LOCK WITH LATCH BOLT AND LOCKING BOLT

Filed Oct. 18, 1961 3 Sheets-Sheet 3

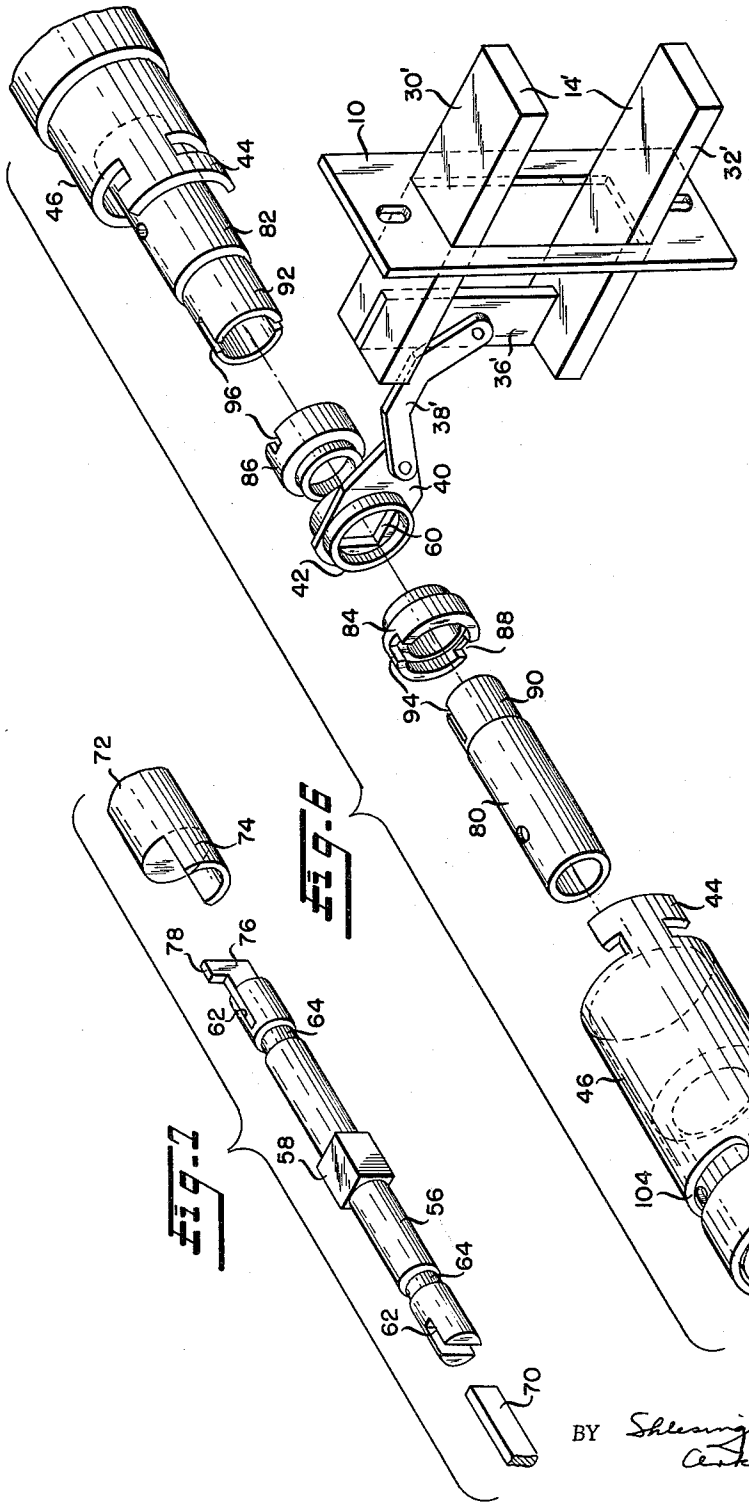

FIG. 6

FIG. 7

INVENTOR
Alois Crepinsek

BY Schlesinger, Schlesinger & Eckwright
ATTORNEY

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MORTISE LOCK WITH LATCH BOLT AND LOCKING BOLT

Alois Crepinsek, Santa Barbara, Calif. (% Patentanwalt Adolf Berglein, Widenmayerstr. 49, Munich, Germany)

Filed Oct. 18, 1961, Ser. No. 145,943
Claims priority, application Germany, Oct. 19, 1960, C 22,559
14 Claims. (Cl. 70—107)

This invention relates broadly to a mortise door lock having a latch bolt and a co-operating, but separate, locking bolt. More specifically, both the latch bolt and the co-operating locking bolt are disposed in close proximity within the lock casing and are both caused to operate from extremely simple driving means.

In many of the known mortise locks of this general nature the operating members for the latch bolts and the locking bolts have provided for only short locking bolt movements. Generally, the movement of the locking bolt from the lock casing is approximately equal to the movement of the latching bolt from the lock casing. It is obvious that as the locking bolt provides the function of preventing unauthorized use of the door in which the mortise lock is set that it should have a greater discrimination with respect to forced entries. Such discrimination is provided in the present mortise lock by reason of providing a greater extension of the locking member from the casing than is present in other such mortise locks.

The prior art has suggested several ways to extend locking bolts further from the lock casing. Generally speaking, these proposals have been in the nature of various connecting linkages which not only multiply the number of parts necessary but also grossly complicate assembly and disassembly of the door locks in which they appear. These types of linkages also require a fairly large space consideration within the mortise lock casing which then increases the size of the casing and limits the minimum size and width of doors in which these locks may be advantageously placed.

Another general characteristic of this type of mortise lock to be found in the prior art is that the latch bolt and locking bolt linkages mutually interfere with one another which causes the impossibility of the closer relationship of the locking bolt to the latch bolt. These same considerations, of course, also cause the movement of both the latch bolt and the locking bolt to be restricted due to space considerations.

In the applicant's copending application, Serial No. 856,617, filed December 1, 1959, and now Patent No. 3,066,523, there has been described a mortise lock in which a rotatable cylindrical locking member is positioned within fixed bearing sleeves within the casing so that this member may be operated from drive means contained in knobs on either side of the door in which the lock is placed. It was found that in this mortise lock placement of an additional locking means such as the locking bolt of the present application, was extremely difficult.

It is, therefore, an object of this invention to provide a mortise lock which combines in a minimum number of working parts the advantages of a mortise lock which contains both a locking bolt and a latch bolt in close co-operation with one another.

Another object of this invention is to provide a mortise lock which contains therein a latch bolt co-operating with a locking bolt in such a manner that the latch bolt is partially or completely surrounded by the locking bolt.

A further object of this invention is to provide a mortise lock having a variety of particularly shaped locking bolts.

Still another object of this invention is to provide a mortise lock in which the latch bolt and the co-operating locking bolt are operable independently of one another by reason of the operation of members which are disposed one within the other. A further object of this invention is to provide a mortise lock of this nature in which the total number of parts necessary for operation thereof is much less than the total number of parts normally required for such mortise locks.

Yet another object of this invention is to provide a mortise lock which is of simple and durable construction and which provides parts which are easily manufacturable and easily assemblable and disassemblable and which at the same time observe economy in the number thereof.

Briefly the invention described herein is effected by setting forth in both side walls of a mortise lock casing fixed bearing sleeves. Between these bearing sleeves a rotatable intermediate sleeve is fixed. Rotatable drive sleeves are placed about the bearing sleeves and knobs secured to the ends thereof. Drive means for effecting rotation of a rotatable elongated shaft member are positioned in each of the knobs. This rotatable elongated shaft member then extends through said lock casing within the tubular bearing sleeves. The rotatable longitudinal locking member has a configured middle portion which is mated with a configured portion in the rotatable intermediate sleeve. Upon rotation of the elongated shaft member, the intermediate sleeve causes a connection linkage to transmit rotary motion into linear motion in order to operate the extension of the locking bolt. Within the locking bolt or in close co-operation therewith is positioned the latching bolt which operates by reason of the rotatable drive sleeves extending into the mortise lock casing and operating the spring biased latch bolt through the latch bolt frame which is connected to the rear of said latch bolt.

The above objects and advantages of this invention and the brief description thereof will be apparent from the following description and claims.

In the accompanying drawings which illustrate by way of example various embodiments of this invention;

FIGURE 1 illustrates a first embodiment of the present invention by a horizontal cross sectional view of the mortise lock;

FIGURE 2 is a perspective view of the latch bolt and latch bolt frame;

FIGURE 3 is a first embodiment of the locking bolt shown in perspective view;

FIGURE 4 is a vertical sectional view of the present invention taken on the line IV—IV of FIGURE 1 in which the rotatable longitudinal locking member and the tubular bearing sleeve portions have been removed therefrom and in which a modified form of the locking bolt is shown in retracted and non-locking position;

FIGURE 5 is a vertical sectional view of the mortise lock as shown in FIGURE 4 in which the locking bolt is shown in extended and locking position;

FIGURE 6 is an exploded perspective view of the bearing sleeve portions and another modified form of locking bolt together with the rotatable drive sleeves shown in partial cross section and positioned with respect to the bearing sleeve portions; and

FIGURE 7 is an exploded perspective view of the rotatable elongated shaft member which is designed to fit inside of the tubular bearing sleeve portions, showing the relation to its two drive means.

Referring now to the drawings for the detailed description of the mortise lock, FIGURE 1 shows a lock casing 10 which is designed to be set into a door at the latching height. Reciprocally retained within the lock casing 10 is a latch bolt and latching frame assembly 12 and co-

operating locking bolt 14. These two elements of the invention are best shown in FIGURES 2 and 3, respectively.

Latch bolt and latch frame assembly 12 consists of a latch bolt 16 into which is affixed a latch bolt frame 18. The connection between the two is best shown in FIGURE 2. The latch bolt frame 18 is constructed to have a longitudinal slot 20 extending completely through the mid-portion thereof which is constructed for a purpose which will be hereinafter explained. The latch bolt frame 18 is further constructed to have inner abutments 22 upon which force is applied in order to retract the latch bolt 16 from latching position. Connected to the inner ends of inner abutments 22 are U-members 24 which serve to maintain the latch bolt frame 18 in a rigid relationship to the other elements of the mortise lock.

A guide pin 26 is secured to the rear portion of latch bolt 16 and co-operates with a stationary bracket 27 which is pressed from the side wall of lock casing 10. Spring 28 is positioned about guide pin 26 and abuts against stationary bracket 27 and the rear side of bolt 16 in order to resiliently urge latch bolt 16 into latching position.

Locking bolt 14 is shown positioned within casing 10 and surrounding latch bolt and latching frame 12. The locking bolt 14 consists of two plate shaped longitudinal members 30 and 32, best shown in FIGURE 3, which are held rigid by two means. The first of these means is lateral wall 34 and the second of these means is transverse bar 36. It is apparent that either one or both of these means may be eliminated and the necessary structural rigidity preserved.

The operation of the locking bolt is performed by means of connection linkage 38 which is pivotally connected between transverse bar 36 and radial arm 40. Radial arm 40 extends outward from rotatable intermediate sleeve 42 which is designed to be rotated by a means hereinafter described.

Referring now to the inner abutments 22 of the latch bolt frame 18 it is seen that they are contacted by inner projections 44 which are connected to rotatable drive sleeves 46 which are connected in turn to latch knobs 48 and 50. Both latch knobs are constructed with an internal tubular seeve 52 and 54 respectively. These internal sleeves are disposed in contact about rotatable drive sleeves 46 and are secured thereto so as to transmit rotary motion from the latch knobs 48 and 50 to the rotatable drive sleeves and, hence, to the inner projections 44 which then contact the inner abutments 22 of the latch bolt frame 18. It can be seen that by turning either of latch knobs 48 or 50 in either rotary direction the latch bolt 16 is retracted against the resilient force of spring 28 by means of this contact.

Locking bolt 14 is reciprocated by means of rotary motion transmitted from rotatable intermediate sleeve 42 for transmitting rotary motion through radial arm 40 and is converted into linear motion by means of the pivotal connections on either end of connection linkage 38.

Rotatable intermediate sleeve 42 is rotated by means of rotatable elongated shaft member 56 which has a configured middle portion 58 which mates with a like configured internal portion of central passage opening 60 of rotatable intermediate sleeve 42. By means of rotation of the rotatable elongated shaft member 56 the middle portion 58 causes rotatable internal sleeve 42 to rotate.

Rotatable elongated shaft member 56 is constructed with transverse slots 62 cut into both ends thereof and two securing circular grooves 64 positioned toward the center from slots 62.

In order to rotate the elongated shaft member 56 from the inside end thereof the inside latch knob 48 is provided with a turn handle 66 which is secured rotatably and axially at the inside end of the opening of tubular sleeve 52 and to which is connected a first drive member 68 which extends into the associated tubular sleeve 52.

Drive member 68 has connected to the end thereof a second drive member 70 which is designed to enter nearest slot 62 of the elongated shaft member 56. By rotation of the top portion of handle 66 (as shown in FIGURE 1) the drive member 68 and the secondary drive member 70 cause elongated shaft member 56 to rotate to cause locking bolt 14 to move into locking position from the lock casing 10.

Likewise, the outside latch knob 50 is provided with a means to rotate to elongated shaft member 56. This means consists of a cylinder tumbler lock 72 which is constructed with a cut away projection 74 on the inner end thereof. Projection 74 is positioned adjacent to plate member 76 which is retained in nearest slot 62 of the elongated shaft member 56. Plate 76 is constructed with a depending portion 78 which contacts the projection 74 during rotation thereof in one direction. The absence of such a depending projection 78 from the bottom portion of plate 76 permits that plate to be rotated by means of rotation of the elongated shaft member without contact with the projection 74. However, projection 74 will operate to rotate the elongated shaft member 56 if rotated in a direction so that depending member 78 is abutted against projection 74. Plate member 76 operates as a disconnected projection of tumbler lock 72.

The rotatable drive sleeves 46 and the rotatable elongated shaft member 56 are supported and held in operable position partially due to tubular bearing sleeves 80 and 82, respectively. These tubular bearing sleeves are rigidly held in lock casing 70 and have positioned thereon at the inner ends thereof sleeve portions 84 and 86, respectively, positioned upon tubular bearing sleeves 80 and 82. These inner sleeve portions are constructed with counter-sunk portions 88 which fit over reduced inner end portions 90 and 92 of tubular bearing sleeves 80 and 82, respectively. Slots 94 and 96, shown in FIGURE 6, are positioned at the connection of the bearing sleeve portions and the inner sleeve portions in order that tongue members (not shown) depending from the openings in the lock casing 10 may coact therewith to prevent rotation.

Outer tubular bearing sleeve projections 98 and 100 are secured respectively to the outer ends of tubular bearing sleeves 80 and 82, respectively, by means of set screws 102 and 103. In order to provide ease of removal of these set screws slot 104 is provided in the inner tubular latch knob projection 52 and the drive sleeve 46 secured thereto and aperture 105 is provided in inner tubular latch knob projection 54 and the drive sleeve 46 secured thereto.

It will be seen that as the tubular bearing sleeve portions 80 and 82 are secured against rotary movement and longitudinal displacement they are secured within the door by means of their co-operation with lock casing 10 so that they provide support for the rotary members 46 and 56.

Referring now to FIGURE 2, the latch bolt and latch bolt frame assembly 12 is shown in perspective view and composed of a latch bolt 16 secured to the latch bolt frame 18. A longitudinal slot 20 is cut around the entire periphery of the frame 18 and contains at the rear portion thereof inner projecting abutments 22 and rear U-shaped members 24. The guide pin 26 co-operates with stationary bracket 27 of the lock casing and has disposed there around a spring 28 for urging the entire assembly 12 into latching position. As has been previously explained, the inner abutments are provided as a surface upon which the inner projections 44 of the rotatable drive sleeve 46 may act.

Referring now to FIGURE 3, the lock bolt 14 is shown in perspective view and consists of plate shaped longitudinal members 30 and 32 which are held in rigid relationship to one another by a first means consisting of a lateral wall 34 and a second means consisting of a transverse bar 36. To this bar 36 or to another suitable portion of the lateral wall 34 a connection linkage 38 is connected

which transmits motion from the elongated shaft member **56**, as explained in the description of FIGURE 1.

It is not the intention of the applicant to limit his invention to the specific configurations of the latch bolt and latch frame assembly and the locking bolt shown in FIGURES 2 and 3. Other shapes of latch bolt and frame assemblies can be used and of course, would require co-operating configurations in the locking bolt. At the same time, it would not be necessary for the locking bolt to partially surround the latch bolt and latching frame assembly. The locking bolt could be positioned immediately adjacent rather than partially surrounding as is shown in the drawings herewith.

Referring now to FIGURE 4, the vertical sectional view in which the rotatable elongated shaft member **56** and the tubular bearing sleeve portions **82** and **86** are removed shows the co-operation of the latch bolt and latching frame assembly **12** in co-operative arrangement with locking bolt **14**. Both of these members are positioned within lock casing **10** which is secured at the rear portion thereof by stud bolts **106** and **108**, which are also shown in FIGURE 1. The latch bolt frame **18** is shown disposed between the longitudinal members **30** and **32** of locking bolt **14**. Lateral wall **34** may be seen in plan view.

In this figure the transverse bar **36** of FIGURE 3 is replaced by extension **110** which is secured to the rear portion of lateral wall **34**. To this extension connection linkage **38** is pivotally connected and is then pivotally connected onto radial arm **40** of the rotatable intermediate sleeve **42**. The configured central passage opening **60** of intermediate sleeve **42** can, also, be seen.

The co-operation of inner projection **44** of rotatable drive sleeve **46** with the two inner abutments **22** of the latch bolt frame **18** may best be seen in this figure. By rotation of inner projection **44** the latch bolt frame **18** is withdrawn from latching position against the force of spring **28**.

Slot **112** may be seen in the lock casing **10** which provide for movement of the inner projection **44** on the inside of the lock casing over an angle of approximately 90°.

Referring now to FIGURE 5, this figure shows substantially the same showing as FIGURE 4 except that the locking bolt **14** is in extended or locking position and positioned co-operatively about latch bolt **12**. The intermediate rotatable sleeve **42** has been rotated 180° counter clockwise and thus the radial arm **40** extends to the left rather than to the right and the arcuate shaped connection linkage **38** is shown in full extended position rather than in overlapped position as shown in FIGURE 4. The arcuate nature of the connection linkage is necessary in order to provide inner fitting relationship with the intermediate rotatable sleeve **42**. It should be noted that by reason of this unique co-operating nature of the parts shown here and described here the locking bolt **14** may be extended a greater distance than is normally available in other types of locks.

It can easily be seen that latch bolt **16** could be positioned out of the plane of the paper in FIGURES 4 and 5 and the nearest portion of the locking bolt **14** could be positioned within the paper and a suitable latch opening could be designed in the door casement for co-operation with these configured parts. Thus the parts shown are not restricted in width position and relationship nor are they restricted in longitudinal placement and relationship as has been hereintofore mentioned.

Referring now to FIGURE 6, locking bolt **14'** consists of longitudinal plate shaped members **30'** and **32'** which are secured one to another by transverse bar **36'**. It is to be noted that there is no lateral wall in this latch bolt.

The latch bolt **14'** is shown in extended or locking position through a front portion or face plate of casing **10**. The connection linkage **38'** as shown in full extended position as the radial arm **40** is positioned toward the opening of the lock casing **10**. The inner sleeve portions **84** and **86** which support the intermediate radial sleeve **42** for rotary motion within the lock casing **10** are shown on either side thereof. These inner sleeve portions are in turn connected respectively to ends **90** and **92** of the tubular bearing sleeve portions **80** and **82**, respectively. The slot arrangements **94** and **96** can be seen in this figure. These slot portions co-operate with tongues (not shown) which depend from the openings through which the tubular bearing sleeves pass in the lock casing **10**.

The rotatable drive sleeves **46** which are connected at either end thereof to the latch knobs **48** and **50** are shown with the inner projections **44** depending therefrom.

Within the rotatable drive sleeve **46** shown in the lower left hand corner the tubular bearing sleeve extension **98** can be seen. Access slot **104** in the rotatable drive sleeve **46** can, also, be seen. As will be recalled from the description of FIGURE 1 this slot is positioned to aid in access to the securing set screw **102**.

Referring now to FIGURE 7, this figure is a perspective view of the rotatable elongated shaft member **56** and shows the configured middle portion **58** and the slots **62** which are positioned at either end thereof. The securing grooves **64** are shown at either end thereof for co-operation with set screws **102** and **104**, as previously explained.

The secondary drive member **70** is shown in exploded relationship with respect to its slot **62** in the elongated shaft member. This secondary drive means **70** connects to the first drive means **68** in the inside latch knob **48**. On the opposite end of the elongated shaft member **56** is shown plate **76** in position in the transverse slot **62**. As can be appreciated from this view the cylinder tumbler lock **72** and its cut away projection **74** co-operate with plate **76** and the depending portion **78** so that when rotated in a first direction by the movement of the key in the cylinder tumbler lock projection **74** abuts against depending portion **78** and turns the entire elongated shaft member **56** so that movement of locking bolt **14** is effected. In this mortise lock the cylindrical tumbler lock **72** permits movement in both rotary directions in 180° and necessitates return to the initial position in order to retract the key. The return motion by the operator in order to retract the key then positions the projection **74** for the next key driven action.

A description of the action of the co-operation of projection **74** with depending portion **78** is as follows: The exploded perspective views of FIGURE 6 and FIGURE 7 if taken together show the locking bolt **14'** in extended position and the cylinder tumbler lock portion **72** at inoperative position. Assuming the operator is on the inside of the door and wishes to go out of the door and leave it locked he then rotates the drive member **70** in a counter clockwise direction 180° this then retracts locking bolt **14** and positions depending portion **78** in a downwardly direction against the bottom portion of projection **74**. The operator then goes through the door closes it and proceeds to rotate the tumbler lock by use of the key 180° counter clockwise fashion this then rotates the elongated shaft member **56** around to the position shown in FIGURE 7 wherein the depending portions **78** is upward as shown. However, this leaves tumbler lock **72** rotated 180° from the position shown so that projection **74** is on the opposite side of plate **76**. The operator must then rotate the key 180° in the opposite direction in order to retract it. This positions the tumbler lock **72** as shown in FIGURE 7. When the operator then returns to unlock the door the tumbler lock **72** is rotated in a clockwise direction 180° which positions the depending portion **78** in a downward direction he then rotates the keys 180° in order to retract and the tumbler lock is left as shown in FIGURE 7. The rotatable elongated shaft member **56** however is rotated 180° from that shown in FIGURE 7. Once inside the door the operator may return to lock position as shown in these exploded

perspective views by rotating the drive member **70** from the inside handle **66**, 180° in a clockwise direction. It is seen that the axes of member **56** and the pivot connection of linkage **38** now define, an approximate dead center line.

From the foregoing it is obvious that the configuration and shape of the latch bolt and latch bolt frame assembly **12** can be configured in different manners with respect to the configuration of the co-operating locking bolt **14**. Particularly, the locking bolt may be made without the transverse bar or without the lateral wall as is shown respectively in FIGURES 4 and 6. It is also obvious that by use of either a partial lateral wall at the rear most end of the locking bolt or by use of a partial transverse bar only one plate shaped longitudinal member **30** or **32** need be operated by the rotation of the rotatable intermediate sleeve **42**. Thus, it is not necessary for the locking bolt to partially surround the latch bolt and latch bolt frame assembly. An adjacent relationship is also contemplated by the present invention as can be seen through these drawings and the associated descriptions.

Likewise, no particular configuration of the central passage **60** and co-operating middle portion **58** need be observed, as long as some irregularity from circular configuration is complied with.

It is obvious, also, that many of the specific connection means shown in the drawings and described are not essential to the connection of the various parts and that other connection means can easily be used and the scope of the invention not altered. For instance, the connection of transverse bar **36** with plate shaped longitudinal members **30** and **32** need not be a slot type connection as shown but may be a welded connection on the inner surfaces thereof. Likewise, the joint of the latching frame **18** to the latch bolt **16** need not be as shown but may be of another type. Also, the slot association of secondary drive member **70** with slot **62** and plate member **76** with slot **62** of elongated shaft member **56** need not be specifically as shown.

While the invention has been described in connection with different embodiments thereof, it will be understood that it is capable of further modification, and this application is intended to cover any variations, uses, or adaptations of the invention following, in general, the principles of the invention and including such departures from the present disclosure as come within known or customary practice in the art to which the invention pertains, and as may be applied to the essential features hereinbefore set forth as as fall within the scope of the invention or the limits of the appended claims.

I claim:

1. A mortise lock comprising:

(*a*) an elongated thin-walled lock casing having a front face with an opening therein;

(*b*) a lock and latch bolt assembly disposed within said casing in telescoping engagement with the casing wall so that it may protrude through said opening when in locked position, the latch bolt and locking bolt of said assembly being in freely sliding reciprocable engagement with each other;

(*c*) the latch bolt of said assembly being spring-biased so that it normally protrudes out through said opening in said front face;

(*d*) the said locking bolt being held in withdrawn position behind said opening of said front face, and being forwardly movable to extended locked position through said opening in said front face;

(*e*) two rotatable drive sleeve members, one disposed on each side of said casing, and each having a portion thereof which extends through the casing wall, the rotation of said portion acting to move said latch bolt for effecting retraction thereof;

(*f*) an elongated rotatable shaft member which extends transversely through said casing behind said locking bolt and into each of said sleeve members where each end thereof is connected to a turning means; and

(*g*) a rotatable link member connected to said elongated rotatable shaft member and rotatable therewith, said link being mechanically connected to said locking bolt whereby turning of said elongated rotatable shaft member in one direction will rotate said link away from said locking bolt to thereby move said locking bolt to withdrawn position, and reverse movement of said elongated rotatable shaft member will extend said locking bolt to locked position.

2. The mortise lock as set forth in claim 1, wherein said rotatable link member is a radial arm which is integral with a rotatable intermediate sleeve mounted on said elongated rotatable shaft member.

3. The mortise lock as set forth in claim 1, wherein said link member is connected at one end to a connection link which is directly connected at its other end to said locking bolt, and said rotatable link member moves through an arc greater than forty five degrees.

4. The mortise lock as set forth in claim 3, wherein said connection link length is approximately twice that of said rotatable link, and said rotatable link is moved through an arc of approximately one hundred and eighty degrees.

5. A mortise lock comprising:

(*a*) an elongated thin-walled lock casing having top, bottom, and side walls and an open front end, the top and bottom walls being of substantially smaller dimension than said side walls, and the height of said side walls being substantially smaller than the length of said casing;

(*b*) an out-turned flange disposed in the plane transverse to the front end of said casing and integrally connected to said casing;

(*c*) a lock bolt telescopically fitted within said casing and in engagement with said walls so that it may readily be moved to extend outward through said open front end of the casing;

(*d*) said lock bolt having a longitudinal hollow section extending from the front of said casing and being open along one side of said lock bolt;

(*e*) a latch bolt telescopically fitted within said longitudinal hollow section of said lock bolt and freely reciprocable therein, said latch bolt being spring-biased to normally protrude through said open end of the casing, and having a flat side which is disposed at said open side of said lock bolt and adjacent the corresponding side wall of the casing;

(*f*) a hollow elongated rotatable drive assembly having a door knob at the end thereof and having its other end extending through said casing, rotation of said drive assembly acting to move said latch member to effect withdrawal of said latch member into said casing upon rotation of said drive assembly;

(*g*) an elongated rotatable shaft member which extends transversely through said casing and projects into said hollow rotatable drive assembly; and

(*h*) mechanical moving means disposed within said casing and directly connected to said elongated rotatable shaft member and to said lock bolt so that rotation of said rotatable shaft member in one direction will move said lock bolt to an extended locking position through said open front end of the casing, and reverse rotation of said rotatable shaft member will withdraw said lock bolt into the casing.

6. A mortise lock as set forth in claim 5, wherein the casing is of uniform cross section through out its length.

7. The mortise lock as set forth in claim 5, wherein said mechanical moving means includes a rotatable link member which is connected to said elongated rotatable shaft and is rotatable therewith.

8. The mortise lock as set forth in claim 7, wherein said rotatable link member is a radial arm integral with

a rotatable intermediate sleeve which is mounted on said elongated rotatable shaft member.

9. The mortise lock as set forth in claim 7, wherein said rotatable link member is pivotally connected to a connection link which is directly connected to said locking bolt, and said rotatable link member moves through an arc greater than forty five degrees.

10. The mortise lock as set forth in claim 7, wherein said rotatable link member is pivotally connected to a connection link which is approximately twice the length of said rotatable link member, and said rotatable link is moved through an arc of approximately one hundred and eighty degrees.

11. The mortise lock as set forth in claim 7, wherein said elongated rotatable shaft member is supported within a bearing sleeve which is fitted within said hollow rotatable drive assembly.

12. The mortise lock as set forth in claim 7, wherein the casing has an arcuate slot through which the said other end of said hollow rotatable drive assembly projects to engage said latch bolt.

13. The mortise lock as set forth in claim 12, wherein said rotatable link member is pivotally connected to a connection link which is approximately twice the length of said rotatable link member, and said rotatable link is moved through an arc of approximately one hundred and eighty degrees.

14. The mortise lock as set forth in claim 13, wherein said rotatable link member is a radial arm integral with a rotatable intermediate sleeve which is mounted on said elongated rotatable shaft member.

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