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Doyle

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[54] **COMBINED LATCH BOLT AND DEAD BOLT MECHANISM INCLUDING SINGLE ACTION DOUBLE BOLT RELEASE**

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[73] Assignee: **Emhart Corporation**, Bloomfield, Conn.

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[52] **U.S. Cl.** **70/107**, 70/DIG. 63, 292/34, 292/39

[51] **Int. Cl.** **E05b 63/14**

[58] **Field of Search** 70/107, 111, 118; 292/39

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Attorney, Agent, or Firm—Mahoney, Schick & Cislo

[57] **ABSTRACT**

First and second latch assemblies are interconnected such that operation of inside and outside operators of the second latch assembly will extend or retract a deadbolt of the second latch assembly without affecting the first latch assembly, operation of an outside operator of the first latch assembly will retract a spring extended latch of the first latch assembly without affecting the second latch assembly, and operation of an inside operator of the first latch assembly will retract both the latch of the first latch assembly and the deadbolt of the second latch assembly generally simultaneously. The inter-connection between the latch assemblies preferably includes a rotatable gear and pivotal rack.

16 Claims, 10 Drawing Figures

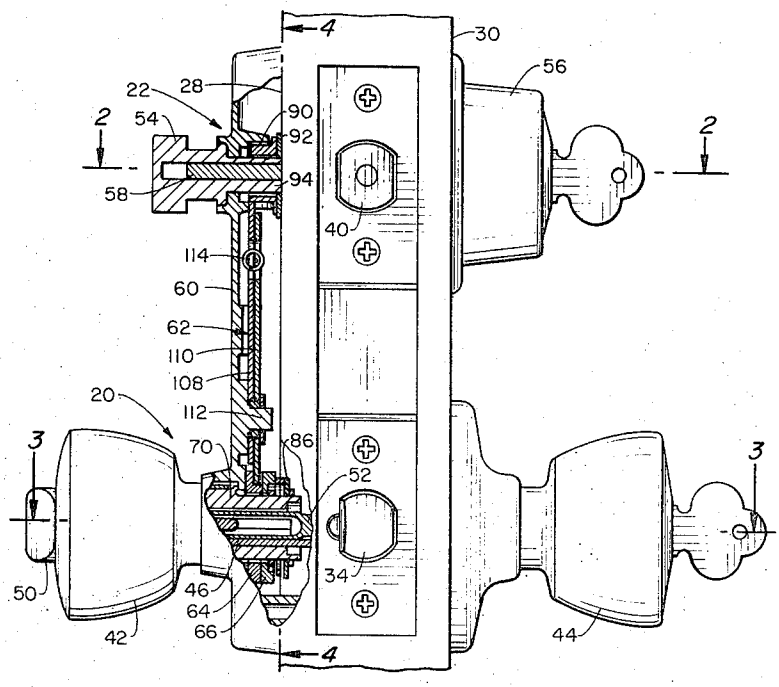

Fig. 1.

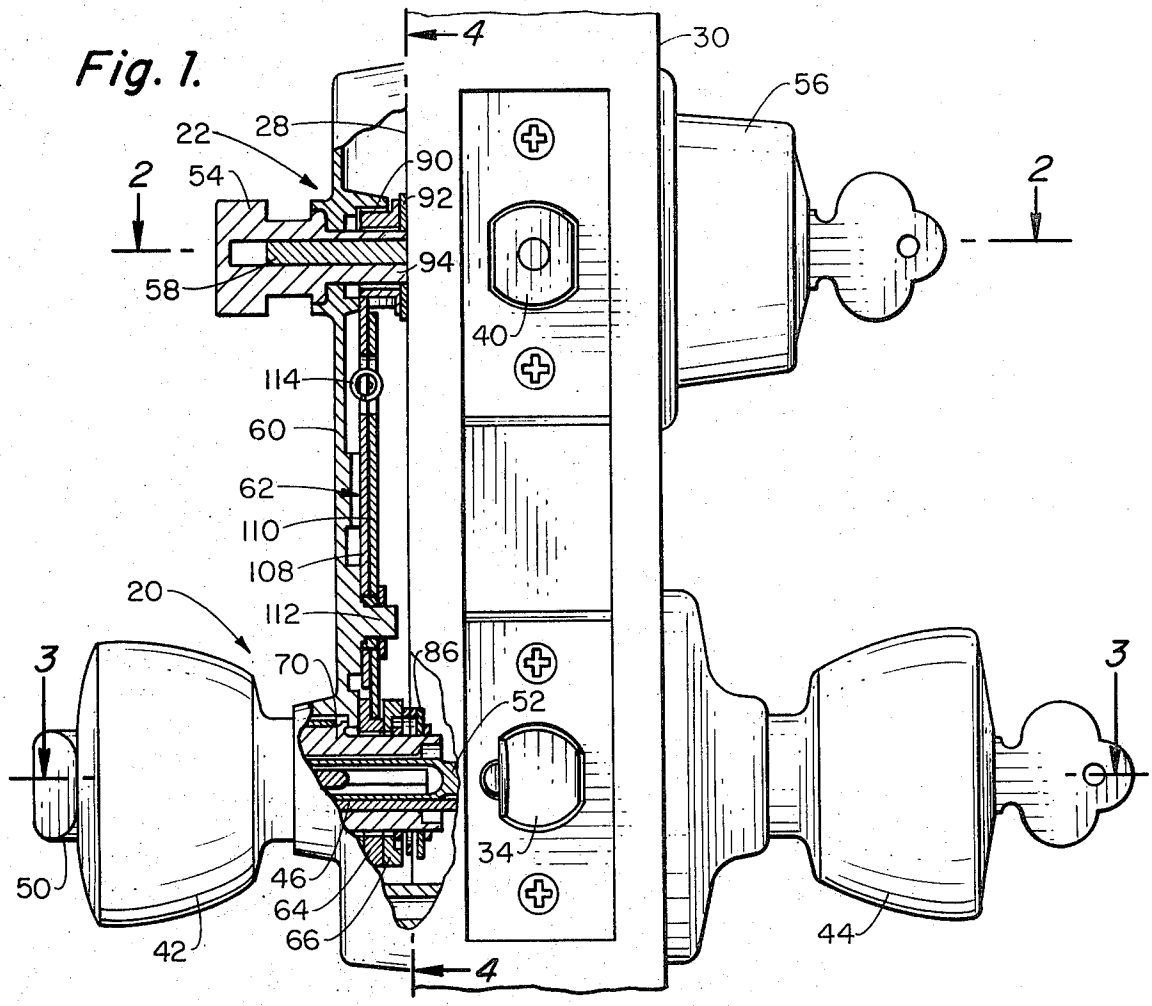
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Fig. 2.

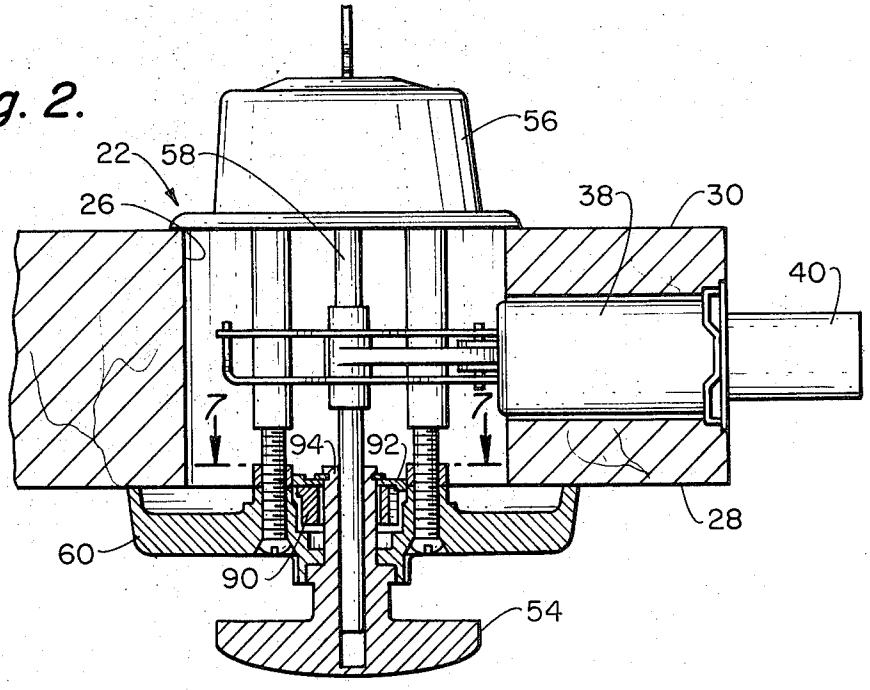
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Fig. 3.

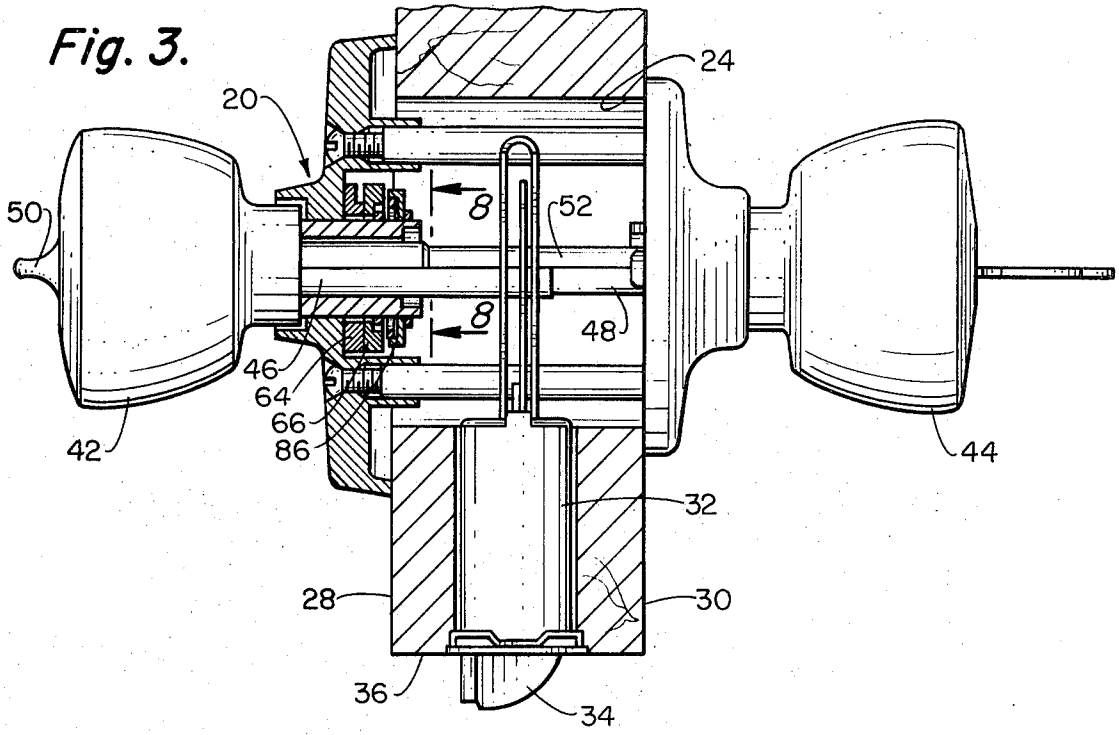
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Fig. 4.

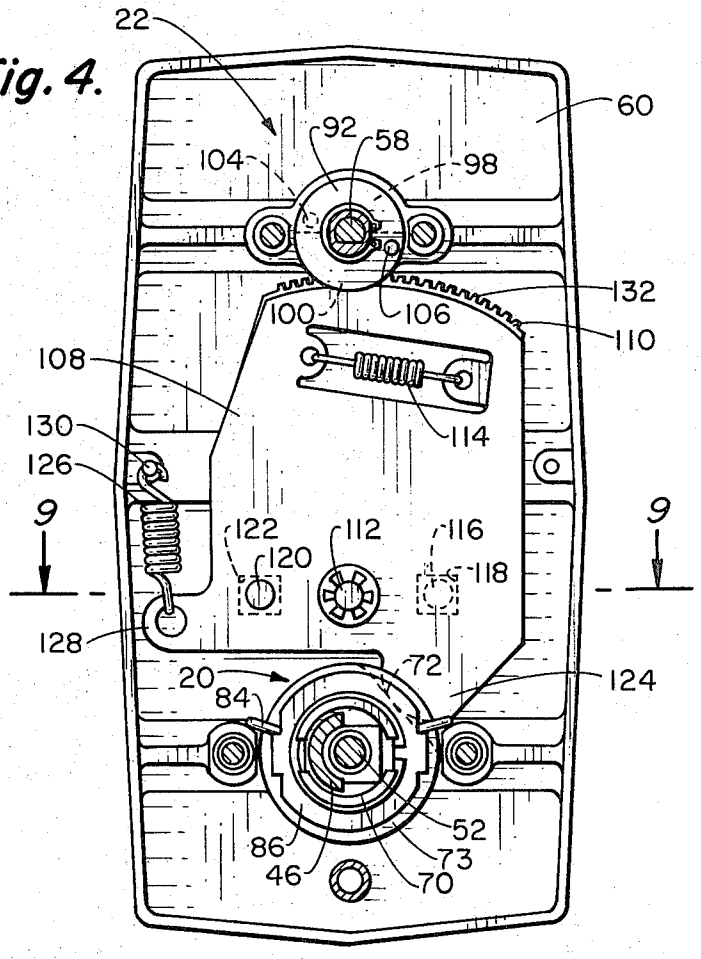
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Fig. 5.

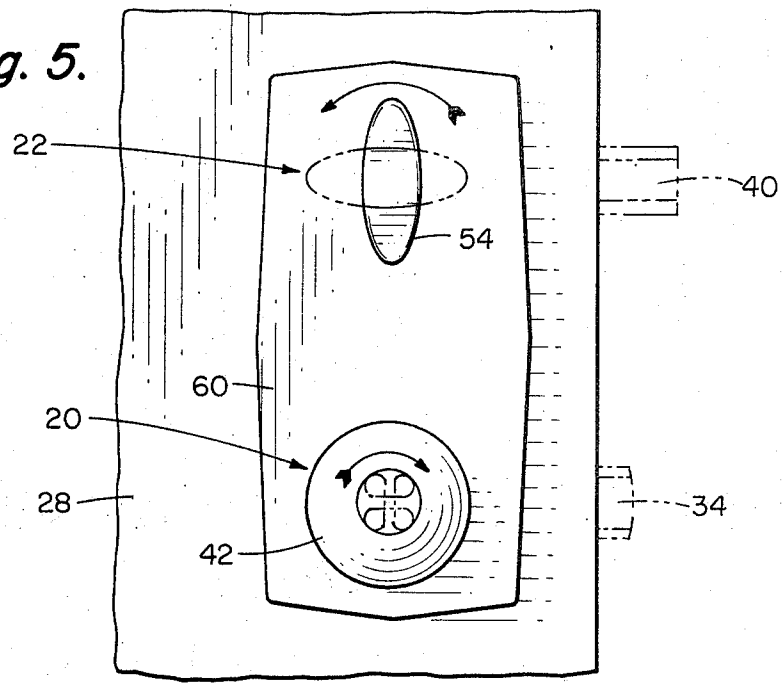
22
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Fig. 6.

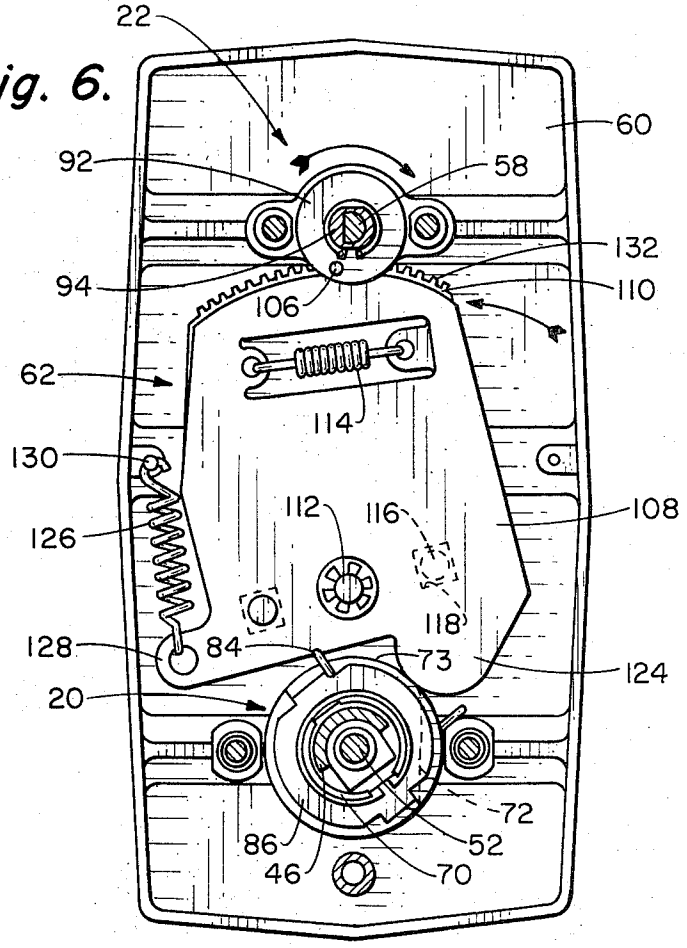
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Fig. 7.

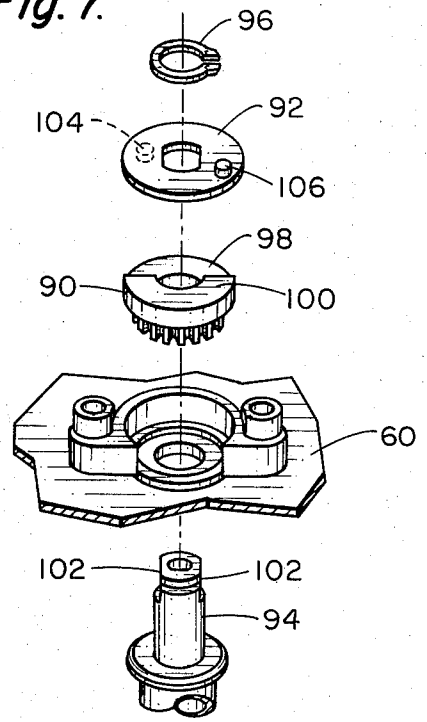


Fig. 8.

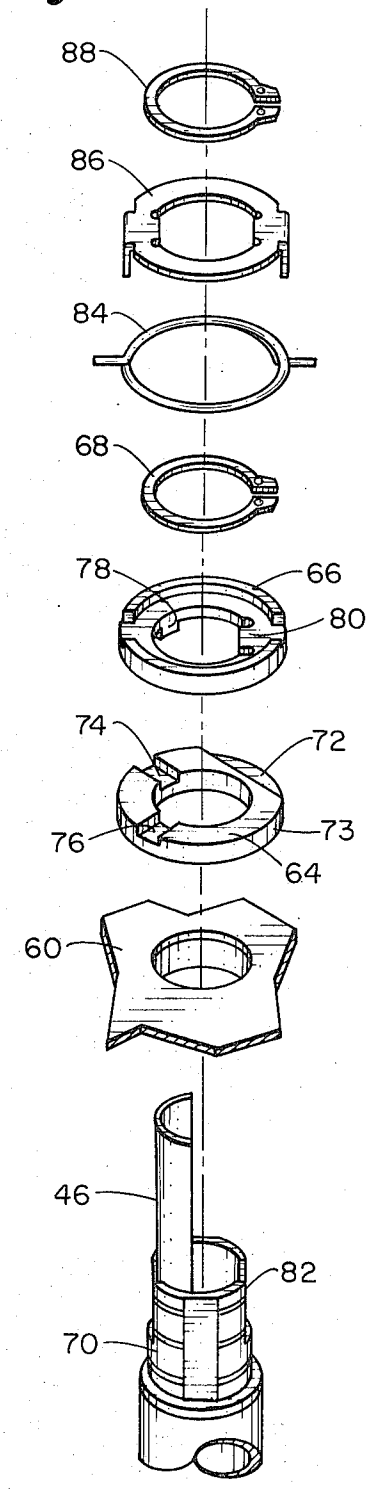


Fig. 9.

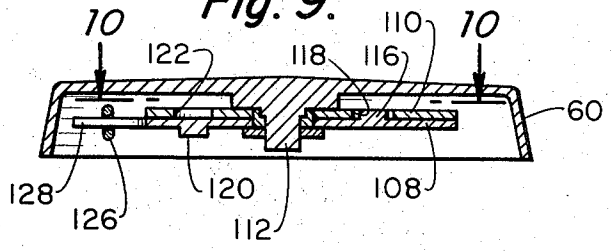
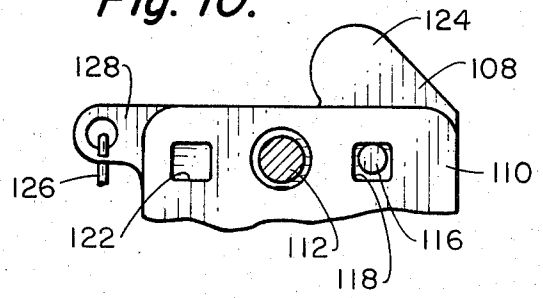


Fig. 10.



COMBINED LATCH BOLT AND DEAD BOLT MECHANISM INCLUDING SINGLE ACTION DOUBLE BOLT RELEASE

BACKGROUND OF THE INVENTION:

This invention relates to a combined latch bolt and deadbolt mechanism including single action double bolt release and more particularly, to such a construction which provides double latch or latch bolt protection which may be double keyed, yet is panic-free. Two latch assemblies are positioned adjacent the first preferably having a latch spring urged extended and the second preferably having a deadbolt requiring deliberate movement to both extended and retracted, both preferably having outside keyed opearators with locks and inside hand operators. The inter-connection between the two latch assemblies is such that operation of either of the second assembly operators extends or retracts the second assembly bolt without affecting the first assembly latch, operation of the first assembly outside operator retracts the first assembly latch without affecting the second assembly bolt, and operation of the first assembly inside operator retracts both the first assembly latch and the second assembly bolt, the latter thereby providing a panic-free lockset.

With the rapid rise in burglary and other forms of unauthorized entry to homes and business offices, it has become imperative that greater security be provided, one means of increased security being the provision of multiple locks on doors. As a result thereof, two latch assemblies are presently frequently being used in all outside doors, each preferably being separately keyed and either or both preferably being of the deadbolt form wherein it is impossible to retract the bolt by forces directly thereagainst, but rather requires actuation of a latch mechanism in order to retract the bolt. Although it is a relatively simple matter to provide two separately operable latch assemblies and mount the same side by side in a door, at least one major problem is presented which is occasioned by the tendency of some people, when within a structure, to become panicked by an emergency situation occuring within the structure requiring their rapid exit therefrom, such as fires and other similar emergency occurrences.

With a single latch assembly retaining a door in closed position and against opening, it is merely necessary, of course, to operate a single inside operator in order to open the door and exit the structure from the inside. With the two latch assemblies required for the increased security, however, many persons become confused from the panic caused by the emergency situation and are incapable of performing the relatively simple task of operating two inside operators in order to open the door, despite the fact that the two operators are closely positioned side by side. Thus, it is not only desirable to provide the increased security by the use of dual latch assembly arrangements, but with the provision of the dual latch assemblies, it is also desirable to mount and construct the same inter-connected such that operation of a single inside operator will retract both latches, thereby requiring this single operation to open the door and exit the structure.

At the same time, however, this single inside operation or panic-free arrangement must not disturb the security value of the two latch assemblies, otherwise the entire purpose is frustrated. In other words, the interconnection between the two latch assemblies must be

such that each latch assembly requires separate key operation at the outside of the door for the security purposes, and, although one of the inside operators must be capable of actuating both latch assemblies at once for the panic-free purposes, it is preferable to provide the other inside operator capable of only actuating its associated latch assembly, particularly where that assembly includes a deadbolt rather than the usual spring latch. The problem, therefore, becomes one of providing a dual latch assembly construction satisfying all of the foregoing requirements and desirabilities, yet of relatively simple and uncomplicated form so that the same may be manufactured at a minimum of labor and material cost.

OBJECTS AND SUMMARY OF THE INVENTION:

It is, therefore, an object of this invention to provide a combined dual latch assembly including single action double latch or bolt release wherein there are two latch assemblies for door mounting which are preferably separately keyed requiring separate key outside operation, yet may be simultaneously operated by one of two inside operators. With the two latch assemblies being separately keyed and requiring separate key outside operation, the former single security of a single latch assembly is conveniently increased to double latch assembly security. At the same time, the provision of the double latch security is not at the sacrifice of two latch assemblies requiring separate inside operation for withdrawing the associated latches and permitting the door to be opened from the inside or interior of a structure, but rather, by unique integration of the two latch assemblies, operation of a single outside operator will quickly withdraw both latches or bolts and results in a "panic-free" dual latch assembly.

It is a further object of this invention to provide a combined dual latch assembly including single action double latch or bolt release which has all of the foregoing qualities, yet only one of the inside operators provides dual latch assembly operation, while the other inside operator merely operates its associated latch assembly, so as to make it convenient to include in such dual latch, a deadbolt of the type requiring deliberate extension and retraction. In the usual form of the dual latch assembly of the present invention, the one latch assembly is of the type having a spring-urged latch, preferably with a deadbolt attachment thereon, which automatically extends when the door is closed, thereby providing partial security even without deliberate actuation of the second latch assembly. The second latch assembly, on the other hand, is of the pure deadbolt type which requires a deliberate extension of the bolt, once the door is closed, through a deliberate action. Despite these two distincly different forms of latch assemblies requiring distinctly different operations thereof, with the unique integrating mechanism of the present invention between the two latch assemblies, the latches or bolts thereof may be withdrawn by the single action of a single inside operator and operation of the other inside operator will only affect that particular latch assembly and not both.

It is also an object of this invention to provide a combined dual latch assembly including single action double latch or bolt release which provides all of the features stated in the foregoing despite the fact that the overall dual latch assembly is still of relatively simple construction and one which may be manufactured for

a minimum of cost and materials. According to a preferred embodiment of the present invention, interconnection for integration between the dual latch assemblies is provided by a relatively simple rack and gear assembly, the rack and gear assembly being arranged for transmitting relative motion between the dual latch assemblies in one direction but not in the other, and in this manner, transmitting motion from the one inside operator for dual latch retraction, while not transmitting motion from the other inside operator therebetween. Still further, it is preferred to provide the gear and rack assembly actionable for transmitting relative motion between the dual latch assemblies merely by the use of a single cam which normally retains the rack stationary until moved by operation of one operator for the dual latch or bolt retraction, the result being a relatively simple and inexpensive arrangement with positive action.

Other objects and advantages of the invention will be apparent from the following specification and the accompanying drawings which are for the purpose of illustration only.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view with parts broken away and in section showing a preferred embodiment of the combined dual latch assembly including single action double latch or bolt release of the present invention typically mounted in a door;

FIG. 2 is a horizontal sectional view, part in elevation, looking in the direction of the arrows 2—2 in FIG. 1;

FIG. 3 is a horizontal sectional view part in elevation, looking in the direction of the arrows 3—3 in FIG. 1;

FIG. 4 is a vertical sectional view, primarily in elevation, looking in the direction of the arrows 4—4 in FIG. 1;

FIG. 5 is an inside elevational view of the dual latch assembly of FIG. 1;

FIG. 6 is a view similar to FIG. 4, but with various parts in operating positions;

FIG. 7 is an exploded view of various sub-assembly parts seen looking in the direction of the arrows 7—7 in FIG. 2;

FIG. 8 is an exploded view of sub-assembly parts seen looking in the direction of the arrows 8—8 in FIG. 3;

FIG. 9 is a horizontal sectional view looking in the direction of the arrows 9—9 in FIG. 4; and

FIG. 10 is a fragmentary, vertical sectional view primarily in elevation, looking in the direction of the arrows 10—10 in FIG. 9.

DESCRIPTION OF THE BEST EMBODIMENTS CONTEMPLATED:

Referring to the drawings, an embodiment of the combined dual latch assembly including the principles of the present invention is illustrated mounted in operative position in a usual door ready for cooperable engagement in a usual strike plate (not shown) of a usual door frame (not shown) in a well-known manner obvious to those skilled in the art. Furthermore, the embodiment of the combined dual latch assembly illustrated may be fabricated from usual material and by usual fabrication methods. It should be kept in mind, however, that the particular embodiment illustrated herein is solely for purposes of illustration and that it is not intended to limit the principles of the present invention to the particular embodiment shown.

As illustrated, the embodiment of the present invention includes a first latch assembly generally indicated at 20 and a second latch assembly generally indicated at 22, the first latch assembly in this case being the lower and the second latch assembly being the upper. As would be true of the usual individual or separate installation of the respective first and second latch assemblies 20 and 22, each latch assembly is mounted through a usual door opening 24 and 26, respectively, between door inside and outside surfaces 28 and 30. Furthermore, the first or lower latch assembly 20 preferably includes a usual biased latch bolt mechanism 32 with a biased bolt 34 extensible from a door edge 36, whereas the second or upper latch assembly 22 has a usual deadbolt mechanism 38 with a deadbolt 40 extensible from the door edge 36.

More particularly, the first or lower latch assembly 20 is to a large extent, of usual biased latch bolt form as shown particularly in FIGS. 1 and 3 having a two-directional rotatable knob 42 constituting the first inside operator and a two-directional keyed knob 44 constituting the first outside operator, each knob or operator being assembled with its particular half-round spindle 46 and 48, respectively, extending through the latch bolt mechanism 32, that is, spindle 46 telescoping spindle 48 and each being independently rotatable in either direction by its respective knob for actuating the latch bolt mechanism 32 to withdraw the biased bolt 34 in the usual manner. Also, a turn button 50 of the inside knob 42 is operably connected in the usual manner to the lock of the outside keyed knob 44 through a locking spindle 52 independently rotatable within the half-round spindle 46 and 48. Thus, ignoring for the moment the additions of the present invention, with the turn button 50 in the locked position as shown in FIG. 1 and the biased bolt 34 extended, the outside keyed knob 44 may be unlocked and turned in either direction to withdraw the biased bolt, or, the inside knob 42 may be rotated in either direction to withdraw the biased bolt 34, all in the usual manner.

The second or upper latch assembly 22 is likewise to a large extent of usual form having a rotatable thumb bar 54 constituting the second inside operator and a pure keyed lock 56 constituting the second outside operator connected through a common spindle 58 through the upper deadbolt mechanism 38 such that with the deadbolt 40 extended as shown in FIGS. 1 and 2, operation of either of the thumb bar 54 or keyed lock 56 will withdraw the deadbolt to the retracted position. In view of the fact that this deadbolt mechanism is a deadbolt mechanism, the deadbolt 40 will remain retracted until operation of either of the thumb bar 54 or keyed lock 56 in the opposite direction to extend the same. As is usual in this deadbolt mechanism arrangement, operation of the keyed lock 56 from locked to unlocked will automatically, through the common spindle 58 move the thumb bar 54 from the locked position as shown in FIGS. 1 and 2 and in phantom lines in FIG. 5 to the unlocked position as shown in full lines in FIG. 5 wherein the deadbolt 40 is withdrawn and the opposite operation of the keyed lock 56 will produce the locking motion of both the deadbolt 40 and thumb bar 54.

For adding the improvements of the present invention to inter-connect the lower first latch assembly 20

with the upper second latch assembly 22 in a unique manner providing all of the foregoing independent operation of the respective latch assemblies with the exception of during rotation of the inside knob 42 of the first latch assembly, the two latch assemblies are inter-connected by a common inside rosette plate 60 mounting and enclosing inter-connection means generally indicated at 62. With the inside rosette plate 60 constituting the frame rotatably mounting the inside knob 42 and its half-round spindle 46 of the first latch assembly 20, the inter-connection means 62 at the first latch assembly includes an annular cam plate 64, an annular drive plate 66 and a retaining ring 68 which are telescoped over an inwardly extending portion 70 against the inner side of the inside rosette plate 60 rotatable relative thereto. As shown in assembly in FIGS. 1 and 3 and in exploded view in FIG. 8, the cam plate 64 rotatably abuts the inner side of the inside rosette plate 60 and is formed with a flat chordal cam surface 72, a circumferential cam surface 73 at either side of the flat chordal cam surface 72, and a radial lug slot 74, a second lug slot 76 being included but merely for alternate mounting of the inter-connection means 62 as will be briefly hereinafter discussed.

The drive plate 66 is assembled axially against the cam plate 64 with an axial lug 78 engaged in the cam plate lug slot 74 and a radial lug 80 of the drive plate 66 radially engaged with a drive flat 82 formed on the inwardly extending portion 70 of the inner knob 42. The retaining ring 68 is assembled axially against the drive plate 66 thereby retaining the assembly of the inner knob 42, the cam plate 64 and the drive plate 66 all simultaneously rotatable through the various lug connections. Not a part of the inter-connection means 62 of the present invention is the usual knob positioning spring 84, spring retaining plate 86 and retaining ring 88 for retaining the inner knob 42 at a rotative center position in the usual manner.

As shown in assembly in FIGS. 1 and 2 and in exploded view in FIG. 7, the portion of the inter-connection means 62 at the second or upper latch assembly 22 includes an annular pinion or gear 90 and an annular pinion drive plate 92 retained in assembly on an inwardly extending portion 94 of the thumb bar 54 by a retaining ring 96. In assembly, the pinion 90 rotatably abuts the inner surface of the inside rosette plate 60 telescoping the thumb bar inwardly extending portion 94 and the pinion has an approximately 180° side surface recess 98 and approximately equivalent side surface raised portion 100 axially exposed to the pinion drive plate 92. The pinion drive plate 92 telescopes and engages flats 102 on the thumb bar inwardly extending portion 94 with an axially extending lug or pin 104 received in the side surface recess 98 of the pinion 90, a similar pin 106 projecting axially opposite of the pinion drive plate 92 again for alternate assembly as will be briefly hereinafter described.

To complete the elements of the inter-connection means 62, a cam follower plate 108 and a rack plate 110 are pivotally mounted on a mounting pin 112 at the inner side of the inside rosette plate 60, as best seen in FIGS. 1, 4, 9 and 10. As shown, the cam follower and rack plates 108 and 110 are connected at upper portions thereof by an override tension spring 114 and a lower portion projection 116 of the cam follower plate is received in an opening 118 of the rack plate for retaining the plates generally simultaneously pivotally movable, although permitting slight relative pivotal movement therebetween. Again, the respective plates are provided with alternate projection 120 and opening 122 for alternate mounting as will be hereinafter briefly discussed.

More important to direct functioning, the cam follower plate 108 has a downwardly projecting cam follower portion 124 retained in constant engagement with the peripheral cam surfaces 72 or 73 of the cam plate 64 on the inner knob inwardly extending portion 70 as shown for instance in FIG. 4, this retention of engagement of the cam follower portion 124 being accomplished by a positioning spring 126 engaged between a fastening tab 128 on the cam follower plate 108 and a fastening pin 130 of the inside rosette plate 60. Also, an arcuate rack 132 is formed on an upper edge of the rack plate 110 constantly engaged with the pinion or gear 90 on the thumb bar inwardly extending portion 94.

With the foregoing description of the assemblies of the first and second latch assemblies 20 and 22 with the inter-connection means 62, the acutal relative functioning thereof and the particular relationships of the various elements during such functioning can best be understood by a further detailed description of both independent and cooperative operation of these various elements. Keeping in mind the various assemblies hereinbefore described, including the portions of the inter-connection means 62 integrated into both of the first and second latch assemblies 20 and 22, and those portions of the inter-connection means 62 extending therebetween as shown in detail in FIGS. 7 through 10, as well as in other figures of the drawings, assume that both the first and second latch assemblies 20 and 22 are in locked positions with the biased bolt 34 of the first latch assembly and the deadbolt 40 of the second latch assembly in extended positions as shown in FIGS. 1 through 4. In such locked position, and referring for the moment to FIG. 4, the cam follower portion 124 of the cam follower plate 108 is engaging the segmental flat cam surface 72 of the first latch assembly cam plate 64 and the pin 104 of the second latch assembly pinion drive plate 92 is at the left extremity of the side surface recess 98 on the second latch assembly pinion or gear 90 (hidden lines in FIG. 4).

Now, considering the upper or second latch assembly 22 and keeping in mind that this latch assembly includes the deadbolt mechanism 38 and deadbolt 40, the deadbolt 40 may be withdrawn by actuating either the keyed lock 56 constituting the second outside operator or the thumb bar 54 constituting the second inside operator, in either event partially rotating the thumb bar 54 from the phantom line position to the full line position shown in FIG. 5 and permanently positioning the dead bolt 40 retracted. The deadbolt 40 may again be extended by a reversal of either of the keyed lock 56 or thumb bar 54 to again place the deadbolt in permanently extended position. During any of these movements, either the lower or first latch assembly 20 nor the major portion of the inter-connection means 62 will be effected in view of the fact that the pin 104 of the second latch assembly pinion drive plate 92 will move solely within the side surface recess 98 of the second latch assembly pinion or gear 90, that is, arcuately clockwise and back counter-clockwise as viewed in FIG. 4.

As a result, the second latch assembly **22** is independently operable free of any effect on the first latch assembly **20.** The deadbolt **40** may be extended or retracted through the deadbolt mechanism **38** by either of the thumb bar **54** or the keyed lock **56** without disturbing the first latch assembly **20.** Thus, the upper or second latch assembly **22** provides independent security separate from the lower or first latch assembly **20** for the particular installation.

Considering the lower or first latch assembly **20,** and for the moment, the actuation thereof by the keyed knob **44** constituting the first outside operator, actuation of the keyed knob **44** will withdraw the biased bolt **34** during actuation thereof or rotation of the keyed knob in the properly keyed situation. This withdrawal of the biased bolt **34** will be completely independent of the inner knob **42** constituting the first inside operator in view of the half-round spindle **48** being partially rotatable to actuate the latch bolt mechanism **32** independent of the half-round spindle **46** as is usual in such latch assemblies and well known to those skilled in the art.

Actuation of the first latch assembly **20,** however, by actuation or rotation in either direction of the knob **42** constituting the first inside operator brings into play the unique panic-free principles of the present invention by causing actuation of the inter-connection means **62** to withdraw both the biased bolt **34** and the deadbolt **40.** Comparing FIGS. **4** and **6** showing bolt extended and retracted positions, respectively, rotation of the knob **42** causes equal rotation of the drive plate **66** and through the axial lug **78** thereof and the lug slot **74** of the cam plate **64,** causes equal rotation of the cam plate **64.** As the cam plate **64** rotates, and this is true regardless of the direction of rotation, the cam follower portion **124** of the cam follower plate **108** rides from the segmental flat cam surface **72** outwardly in one circumferential direction or the other onto the circumferential cam surfaces **73** of the cam plate, thereby pivoting the cam plate **64** and its connected drive plate **66** against the extended tensioning of the positioning spring **126.**

As the cam follower and rack plates **108** and **110** pivot from the positions shown in FIG. **4** to the positions shown in FIG. **6,** the arcuate rack **132** of the rack plate moves arcuately to the left as shown in FIG. **4** along the pinion or gear **90** so as to rotate this pinion or gear clockwise as viewed in FIG. **4.** Such roatation of the pinion or gear **90** in the clockwise direction as viewed in FIG. **4** causes the pinion side surface raised portion **100** to circumferentially engage the pin **104** of the pinion drive plate **92,** thereby rotating the pinion drive plate in the same clockwise direction to rotate the thumb bar **54** in the counter-clockwise direction as viewed in FIG. **5** withdrawing the deadbolt **40** to its permanently retracted position. Release of the inside knob **42** of the first latch assembly **20** permitting such knob to return to its inactive position in the usual manner causes all elements to resume the positions shown in FIG. **4** as a result of the spring urging of the positioning spring **126** on the cam follower plate **108,** but more important, while the inner knob **42** of the first latch assembly **20** is actuated, both of the first latch assembly biased bolt **34** and the second latch assembly deadbolt **40** are in retracted position.

Thus, with the unique inter-connection means **62** of the present invention, a conventional first latch assembly **20** in the form of a biased bolt latch assembly and a second latch assembly **22** in the form of a deadbolt latch assembly are adapted for dual installation wherein separaetly keyed outside operators **44** and **56** must be separately actuated to withdraw the biased and deadbolts **34** and **40.** At the same time, an inside thumb bar **54** may be operated to both withdraw and extend the deadbolt **40** without affecting the biased bolt **34** of the biased bolt latch assembly **20.** Still further, and very important, through the unique relatively simplified and inexpensive inter-connection means **62,** operation of the inside knob **42** of the biased bolt latch assembly **20** in either direction will withdraw to retracted position both of the biased bolt **34** and the deadbolt **40** in this single movement to provide the important panic-free qualities to the overall dual latch assembly.

At various occasions throughout the foregoing description of the embodiment herein involved, various elements were described as alternate elements and not being used in the assembly shown. The purpose of these alternate elements is to adapt the same parts to a similar assembly wherein the inside of the door on which the dual latch assembly is mounted assumes the position of outside and the outside of the door assumes the position of the inside so that the entire assembly would be exactly reversed. In such case, with the various alternate elements, the same assembly can be accomplished with the same parts and it is not necessary to provide alternate parts for the alternate assemblies, again adding to the economy of construction.

Also, in the interconnection means **62,** as shown for instance in FIGS. **4** and **6,** the cam follower and rack plates **108** and **110** are described as being connected at upper portions thereof by the override tension spring **114** and at lower portions thereof by the cam follower plate projection **116** received in the rack plate opening **118** for common pivotal movement on the mounting pin **112,** but additionally slight pivotal movement relative to each other, such slight relative pivotal movement being permitted by the override tension spring **114** and movement of the cam follower plate projection **116** within the slightly larger rack plate opening **118.** The purpose of permitting this slight relative pivotal movement between the cam follower and rack plate **108** and **110** is due to the fact that in usual mass production manufacturing and the necessary tolerances involved therein, it would be most difficult and impractical to attempt to manufacture devices such as the combined dual latch assembly of the present invention with sufficient preciseness that both the first and second latch assemblies **20** and **22** will reach their full withdrawal movements of their respective latches or bolts at precisely the same instant in movement thereof by the interconnection means **62.** Thus, the slight relative pivotal movement provided between the cam follower and rack plates **108** and **110** permits the second latch assembly **22,** which is the dead bolt latch assembly, to reach the full extent of its withdrawal movement slightly in advance of the first latch assembly **20,** which is the biased bolt latch assembly, wihtout damage to the interconnection means **62.**

I claim:

1. In a latch construction of the type having first and second latch assemblies, said first latch assembly including a first latch mechanism actionable for withdrawing a first latch, a first inside operator operable for actuating said first latch mechanism, and a first outside operator operable for actuating said first latch mecha-

nism, said second latch assembly including a second latch mechanism actionable for withdrawing a second latch, and a second inside operator operable for actuating said second latch mechanism; the improvements comprising: gear and rack means including a gear and a rack inter-connecting certain of said first latch mechanism and first inside operator and certain of said second latch mechanism and second inside operator for generally simultaneously actuating said first and second latch mechanisms upon operation of said first inside operator while being free of actuating said second latch mechanism during operation of said first outside operator and being free of actuating said first latch mechanism during operation of said second inside operator.

2. A latch construction as defined in claim 1 in which said second latch assembly includes a second outside operator operable for actuating said second latch mechanism; and in which said gear and rack means is free of actuating said first latch mechanism during operation of said second outside operator.

3. A latch construction as defined in claim 1 in which said first outside operator is a keyed operator including a lock; in which said second latch assembly includes a second outside operator operable for actuating said second latch mechanism, said second outside operator being a keyed operator including a lock; and in which said gear and rack means is free of actuating said first latch mechanism during operation of said second outside operator.

4. A latch construction as defined in claim 1 in which said first inside operator is operable by rotation in either of opposite rotatable directions from a neutral position for actuating said first latch mechanism to withdraw said first latch; and in which said gear and rack means includes said gear and said rack inner-connecting said certain of said first latch mechanism and said first inside operator and said certain of said second latch mechanism and said second inside operator for generally simultaneously actuating said first and second latch mechanisms upon operation of said first inside operator by rotation of said first inside operator in either of said rotational directions.

5. A latch construction as defined in claim 1 in which said second latch assembly includes a second outside operator operable for actuating said second latch mechanism; in which said gear and rack means is free of actuating said first latch mechanism during operation of said second outside operator; in which said first and second outside operators are keyed operators including locks; in which said first inside operator is operable by rotation in either of opposite rotatable directions from a neutral position for actuating said first latch mechanism to withdraw said first latch; and in which said gear and rack means includes said gear and said rack inner-connecting said certain of said first latch mechanism and said first inside operator and said certain of said second latch mechanism and said second inside operator for generally simultaneously actuating said first and second latch mechanisms upon operation of said first inside operator by rotation of said first inside operator in either of said rotational directions.

6. A latch construction as defined in claim 1 in which said second latch assembly includes a second outside operator operable for actuating said second latch mechanism; in which said gear and rack means is free of actuating said first latch mechanism during operation of said second outside operator; in which said first and second outside operators are keyed operators including locks; in which said second latch is a dead bolt requiring actuation of said second latch mechanism for both extension and retraction thereof; in which said first inside operator is operable by rotation in either of opposite rotatable directions from a neutral position for actuating said first latch mechanism to withdraw said first latch; and in which said gear and rack means includes said gear and said rack inner-connecting said certain of said first latch mechanism and said first inside operator and said certain of said second latch mechanism and said second inside operator for generally simultaneously actuating said first and second latch mechanisms upon operation of said first inside operator by rotation of said first inside operator in either of said rotational directions.

7. A latch construction as defined in claim 1 in which said gear and rack means includes said gear at said second latch mechanism and second inside operator, and said rack being a pivotal rack extending between said gear and said first latch mechanism and first inside operator.

8. A latch construction as defined in claim 1 in which said gear and rack means includes said gear at said second latch mechanism and second inside operator, and said rack being a pivotal rack extending between said gear and said first latch mechanism and first inside operator, said rack being operably connected to said gear rotating said gear upon movement of said rack; and in which cam means is operable associated with said first latch mechanism and said first inside operator normally positioning said rack stationary, said cam means being movable to move said rack and rotate said gear during actuation of said fist latch mechanism by said first inside operator.

9. A latch construction as defined in claim 1 in which said gear and rack means includes said gear at said second latch mechanism and second inside operator, and said rack being a pivotal rack extending between said gear and said first latch mechanism and first inside operator, said rack being operably connected to said gear rotating said gear upon movement of said rack; in which a cam is operably associated with said first latch mechanism and first inside operator operably engaged with said rack positioning said rack stationary, said cam rotating and pivoting said rack during actuation of said first latch mechanism by said first inside operator; and in which resilient means is operably connected to said rack constantly urging said rack against said cam.

10. A latch construction as defined in claim 1 in which said gear and rack means includes said gear at said second latch mechanism and second inside operator, and said rack being a pivotal rack extending between said gear and said first latch mechanism and first inside operator; and in which drive transmitting means is operably connected between said gear of said gear and rack means and said second latch mechanism for transmitting drive from said gear to said second latch mechanism for actuating said second latch mechanism and being free of transmitting drive from either of said second latch mechanism and second inside operator to said gear.

11. A latch construction as defined in claim 1 in which said gear and rack means includes said gear at said second latch mechanism and second inside operator, and said rack being a pivotal rack extending between said gear and said first latch mechanism and first

inside operator, said rack being operably connected to said gear rotating said gear upon movement of said rack; in which cam means is operably associated with said first latch mechanism and said first inside operator normally positioning said rack stationary, said cam means being movable to move said rack and rotate said gear during actuation of said first latch mechanism by said first inside operator; and in which drive transmitting means is operably connected between said gear of said gear and rack means and said second latch mechanism for transmitting drive from said gear to said second latch mechanism for actuating said second latch mechanism and being free of transmitting drive from either of said second latch mechanism and second inside operator to said gear.

12. A latch construction as defined in claim **1** in which said gear and rack means includes said gear at said second latch mechanism and second inside operator, and said rack being a pivotal rack extending between said gear and said first latch mechanism and said first inside operator, said rack being operably connected to said gear rotating said gear upon movement of said rack; in which a cam is operably associated with said first latch mechanism and first inside operator operably engaged with said rack positioning said rack stationary, said cam rotating and pivoting said rack during actuation of said first latch mechanism by said first inside operator; in which resilient means is operably connected to said rack constantly urging said rack against said cam; and in which drive transmitting means is operably connected between said gear of said gear and rack means and said second latch mechanism for transmitting drive from said gear to said second latch mechanism for actuating said second latch mechanism and being free of transmitting drive from either of said second latch mechanism and second inside operator to said gear.

13. A latch construction as defined in claim **1** in which said first outside operator is a keyed operator including a lock; in which said second latch assembly includes a second outside operator for actuating said second latch mechanism, said secnd outside operator being a keyed operator including a lock; and in which said gear and rack means is free of actuating said first latch mechanism during operation of said second outside operator, said gear and rack means including said gear at said second latch mechanism and second inside operator and said rack being a pivotal rack extending between said gear and said first latch mechanism and first inside operator.

14. A latch construction as defined in claim **1** in which said first outside operator is a keyed operator including a lock; in which said said second latch assembly includes a second outside operator operable for actuating said second latch mechanism, said second outside operator being a keyed operator including a lock; in which said gear and rack means is free of actuating said first latch mechanism during operation of said second outside operator, said gear and rack means including said gear at said second latch mechanism and second inside operator, and said rack being a pivotal rack extending between said gear and said first latch mechanism and first inside gear, said rack being operably connected to said gear rotating said gear upon movement of said rack; in which a cam is operably associated with said first latch mechanism and first inside operator operably engaged with said rack positioning said rack stationary, said cam rotating and pivoting said rack during actuation of said first latch mechanism by said first inside operator; and in which resilient means is operably connected to said rack constantly urging said rack against said cam.

15. A latch construction as defined in claim **1** in which said first outside operator is a keyed operator including a lock; in which said second latch assembly includes a second outside operator for actuating said second latch mechanism, said second outside operator being a keyed operator including a lock; in which said gear and rack means is free of actuating said first latch mechanism during operation of said second outside operator, said gear and rack means including said gear at said second latch mechanism and second inside operator, and said rack being a pivotal rack extending between said gear and said first latch mechanism and first inside operator; and in which drive transmitting means is operably connected between said gear of said gear and rack means and said second latch mechanism for transmitting drive from said gear to said second latch mechanism for actuating said second latch mechanism and being free of transmitting drive from either of said second latch mechanism and second inside opearator to said gear.

16. A latch construction as defined in claim **1** in which said first outside operator is a keyed operator including a lock; in which said second latch assembly includes a second outside operator operable for actuating said second latch mechanism, said second outside operator being a keyed operator including a lock; in which said gear and rack means is free of actuating said first latch mechanism during operation of said second outside operator, said gear and rack means including said gear at said second latch mechanism and second inside operator, and said rack being a pivotal rack extending between said gear and said first latch mechanism and first inside operator, said rack being operably connected to said gear rotating said gear upon movement of said rack; in which a cam is operably associated with said first latch mechanism and first inside operator operably engaged with said rack positioning said rack stationary, said cam rotating and pivoting said rack during actuation of said first latch mechanism by said first inside operator; in which resilient means is operably connected to said rack constantly urging said rack against said cam; and in which drive transmitting means is operably connected between said gear of said gear and rack means and said second latch mechanism for transmitting drive from said gear to said second latch mechanism for acutating said second latch mechanism and being free of transmitting drive from either of said second latch mechanism and second inside operator to said gear.

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