April 28, 1953 F. McCONNELL 2,636,376

LOCK

Filed Jan. 6, 1948 2 SHEETS—SHEET 1

FIG. 1.

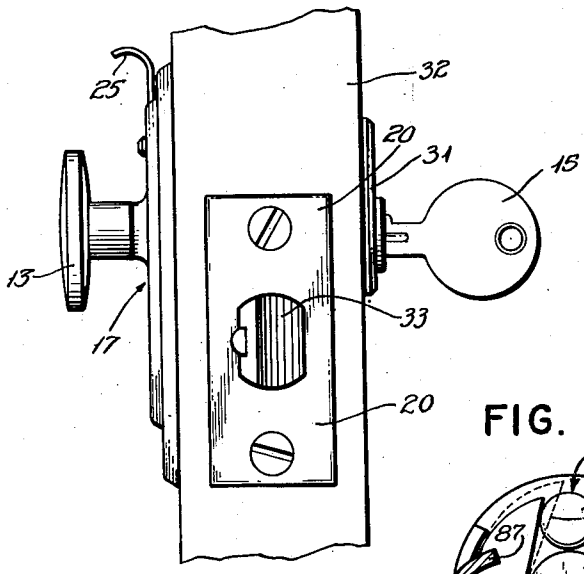


FIG. 11

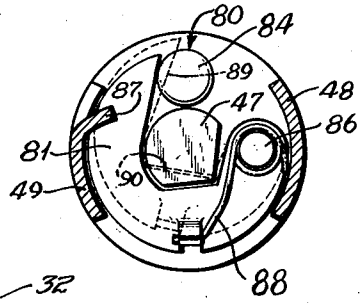
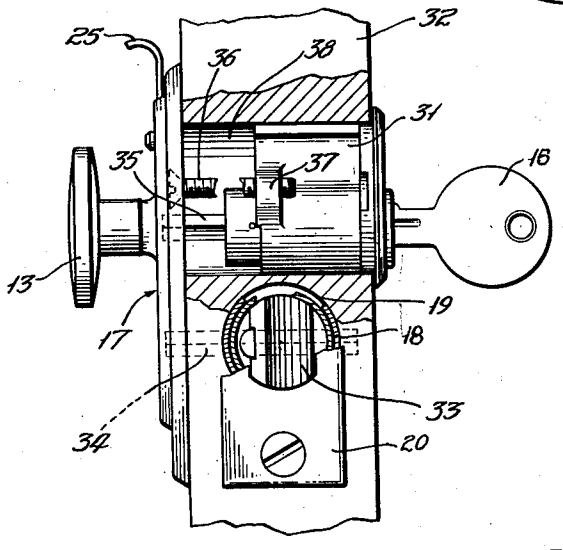


FIG. 2.



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FIG. 3.

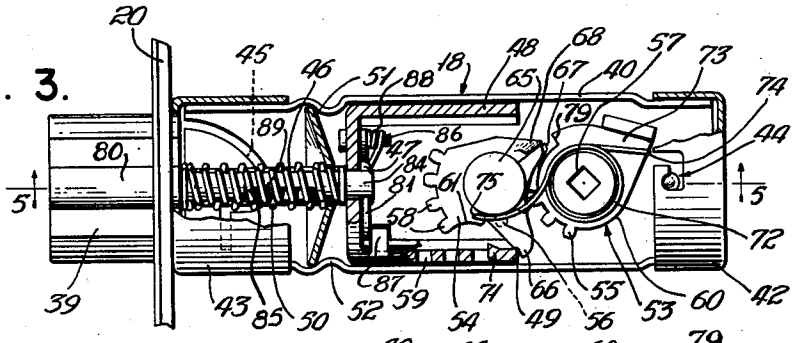


FIG. 4.

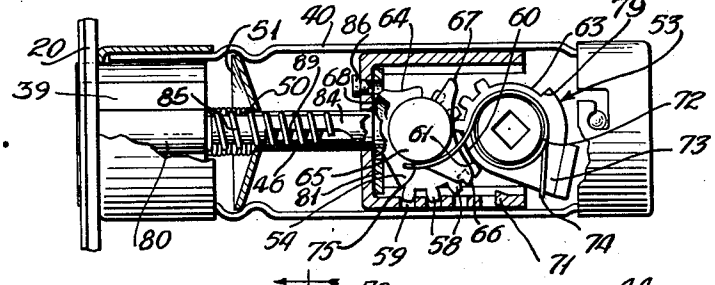


FIG. 5.

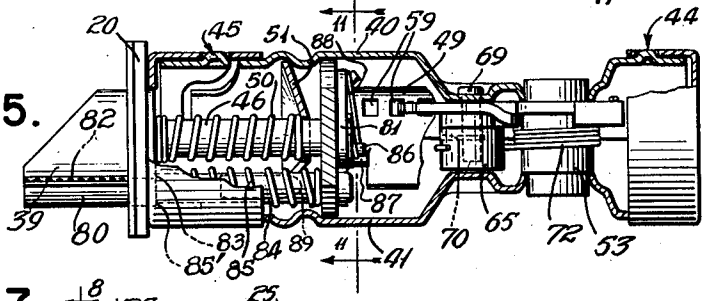


FIG. 7.

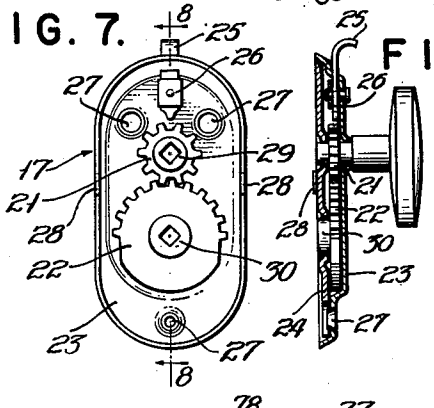


FIG. 8.

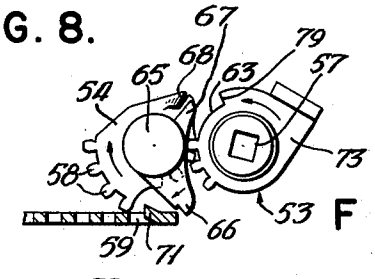
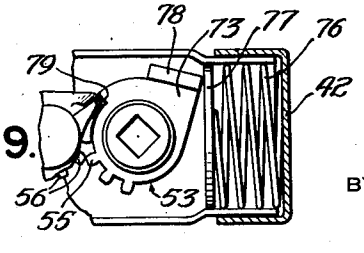


FIG. 6.

FIG. 9.



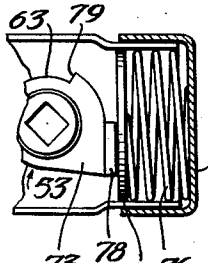


FIG. 10.

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Patented Apr. 28, 1953

2,636,376

UNITED STATES PATENT OFFICE

2,636,376

LOCK

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Application January 6, 1948, Serial No. 676

21 Claims. (Cl. 70—151)

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My invention relates to latching devices and in particular to a latch for application to a door or the like.

It is an object of my invention to provide an improved device of the character indicated.

It is another object to provide an improved latch device for particular application to relatively thin door sections.

It is a more specific object to provide an improved latch unit adaptable in combination with a lock to permit a flush-type finished mounting on a door.

It is also an object to provide improved anti-picking means for a latching device of the character indicated.

It is still another object to provide an improved rosette structure for use in combination with a latch.

It is a more specific object to provide a simple, relatively inexpensive, and dependable structure to meet the above objects.

Other objects and various further features of the invention will be pointed out or will occur to those skilled in the art from a reading of the following specification in conjunction with the accompanying drawings. In said drawings:

Fig. 1 is a side view, showing a combination according to the invention as applied to a door;

Fig. 2 is a view similar to Fig. 1, but with the door and latch front partly broken away to show features of the invention;

Fig. 3 is a longitudinal sectional view of a latch unit which may be applied in the combination of Figs. 1 and 2;

Fig. 4 is a view similar to Fig. 3, but with the parts shown in a different relationship;

Fig. 5 is a sectional view taken substantially in the plane 5—5 of Fig. 3 with certain parts broken away;

Fig. 6 is a fragmentary view illustrating cooperation of certain elements of the latch unit of Figs. 3, 4, and 5;

Fig. 7 is a rear view of parts of the rosette structure shown in the combination of Figs. 1 and 2;

Fig. 8 is a sectional view of the rosette of Fig. 7, taken substantially in the plane 8—8 of Fig. 7;

Fig. 9 is a fragmentary view of a part of the latch unit of Figs. 3, 4, and 5, shown with a slight modification for performing a different function in the combination such as shown in Figs. 1 and 2;

Fig. 10 is a view similar to Fig. 9, for a different relationship of parts; and

Fig. 11 is a sectional view taken in the plane 11—11 of Fig. 5.

Briefly stated, my invention contemplates an

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improved combination latch unit and rosette, whereby this combination may be applied to doors including those of relatively thin section. When so applied, this combination may also be utilized in conjunction with conventional locks. In short, my invention contemplates a maximum employment of unit-handling subassemblies requiring but a simple engagement with one another when assembled to a door; by unit-handling, I mean that each subassembly shall be a completely assembled functioning unit which shall require no further parts or assembly operations to complete its assembly. In a preferred form, my novel rosette structure may be unit-handling and incorporates means coupling two rotatable members, one of which may be linked as by a spindle to actuate the latch mechanism, and the other of which may be associated with a lock, such as a cylinder lock, also unit-handling. In the form to be described, the rosette includes gears for positively associating the two rotatable members, and these gears are secured in a unitary structure having a knob and dogging means, the rosette structure being suitable for application directly to a face of a door. The latch unit, as it is shown and described, is unit-handling and generally cylindrical to fit within a bore in the edge of the door, and by a novel employment of resilient members it may be utilized either as a dead bolt or as a resiliently actuated latch; novel means are also shown whereby the latch unit may be rendered pick-proof.

In assembling my lock unit, rosette unit, and latch unit to a door, the door need be bored substantially only with a transversely extending lock-receiving bore offset from a latch-receiving bore in the front edge of the door. These bores may be said to overlap in the sense that a plane including the axis of the latch bore and normal to the axis of the lock bore actually overlaps or passes across the lock bore, so that in a relatively thin door a cylindrical lock in the lock bore may be said to overlap a cylindrical latch in the latch bore.

In Figs. 1 and 2 of the drawings, my invention is shown as a combination applied to a door 32. The combination may include an outwardly facing cylinder lock 31 and an inner knob 13 for actuating a latch 33. The lock 31 may be flush-mounted on the front face of the door 32 and may carry a spindle 35 for engagement with a part of the mechanism of a rosette structure 17. The knob 13 may be journalled in the rosette 17 on one of two spaced axes and, in the form shown, the spindle 35 that is carried by the lock 31 en-

gages the rosette structure 17 on the axis of the inner knob 13. The other rosette axis may be in actuating relation with the mechanism for actuating the latch 33, may be housed in a case 18 of generally cylindrical form for insertion as a unit into a bore 19 (see the broken-away portion of Fig. 2) in the edge of the door 11. The outer radius of the cylindrical latch case 18 preferably clears the lock 31, so that the spacing between the lock axis and the latch axis may be said to exceed the outer radius of the latch case 18; in other words, the spacing between rosette axes may be said to be at least the distance from the lock-actuating axis (i. e. axis of rotation of key 15) to the side of the lock unit nearest the latch unit, plus the distance from the latch-actuating axis (axis of spindle 34), to the side of the latch unit nearest the lock unit. The latch case 18 may carry a latch front or face plate 20 to serve as a bracket for securing the assembled latch mechanism in position on the door 11. Both the lock 31 and the rosette structure 17 may be held securely to the door 32 by a single set of securing screws 36 passing through mounting holes 27 (Fig. 7) and engaging lugs 37 of the lock 31.

In accordance with a feature of the invention, the inner knob 13 may be formed in a unitary structure with the rosette 17, which, in addition to providing a means for operating a latch, may impart additional functions when used in combination with a latch such as the latch 33. In a preferred form, and with particular reference to Figs. 7 and 8, the rosette 17 comprises two coupled rotary members 21—22, which may have meshing gear teeth. Both members 21—22 may be journalled in a rosette housing comprising an outer plate 23 and an inner plate 24. Dogging means such as a dog member 25 may be supported in a guide 26 for manual actuation, to slide into or out of dogging engagement with the teeth on rotary member 21. The housing plates 23—24 may be provided with a plurality of holes 27 to receive mounting screws to secure the unit to the face of a door. To preserve a unit-handling relationship, however, one of the housing plates may be provided with lugs 28 which may be bent over the other housing member. Both rotary members 21—22 preferably include boss parts 29—30 to be received in bearing apertures in the inner housing plate 24; both bosses 29—30 may include spindle-engaging means. A socket in the lower boss 30 may engage the roll-back or other actuating element of the latch mechanism 33, as by means of a transversely extending spindle; and the lock spindle 35 may engage a corresponding socket in the upper boss 29.

With the described combination, it will be clear that the latch 33 may be actuated from the outside of the door by a turning of the lock key 15, and from the inside by actuation of knob 14, the inside actuation being effected through the gears on rotatable members 21—22; to permit latch actuation by knob 13 independently of lock 31, I prefer that lock 31 may be of a type permitting sufficient angular lost-motion between spindle 35 and lock 31. It will further be noted that even though the latch mechanism 33 may incorporate no dogging means, the dogging means 25 in the rosette assembly 17 may be adequately effective in dogging the latch mechanism 14 from the inside of the door 11. With a proper design, the spindle 35 may fail before failure of any of the rosette parts, should the dogging mechanism 25 be in position to dog the latch 14. Thus, the security afforded by a dogged latch of the described combination may be unimpaired, even under circumstances in which the outer door lock 31 or the key 15 may be overstressed.

It will be appreciated that because the rosette structure 17 may accommodate two spindles on spaced axes, it is possible to apply a standard lock (such as the lock 31) and a standard latch (such as the latch 33) in a completely flush mounting on a door 32 of a relatively thin section. The lock 31 may be accommodated in a transversely extending bore 38 in the door, and said bore 38 may be adequately spaced in non-interfering relation with the bore 19 into which the latch 33 is inserted. The coupling and dogging functions may be performed by the rosette 17 in a relatively flat structure which cannot disturb the overall flush-type appearance of the finished combination.

In accordance with a feature of the invention, the latch mechanism for the latch 14 of Fig. 1 or for the latch 33 of Fig. 2 may be of such construction as to provide alternative functions for either of the applications of Figs. 1 and 2. In the form illustrated in Figs. 3, 4, and 5, the latch function is one of normal resilient urging for an extended position of the latch bolt 39, while in Figs. 9 and 10 the same structure is shown in use as a dead bolt.

Referring to Figs. 3, 4, and 5, my novel latch structure is shown carried in a case 18 which may be of generally cylindrical shape. The case 18 may be formed of two generally semicylindrical case members 40—41 held together at the back end by a cap 42 and at the front end by a sleeve member 43, which may carry the face plate or latch front 20. Both cap 42 and sleeve 43 may lockingly engage the case members 40—41, as by bayonet or snap-action means 44—45.

The latch bolt 39 may carry a shank 46 having a head 47 to engage a latch carriage, and the carriage may include spaced side members 48—49 to be guided by the inner walls of the latch case 18. In the preferred form shown, resilient means such as a spring 50 acting between the plate 51 and the latch bolt 39 serves to urge the bolt 39 into an extended position, with the head 47 in engagement with the latch carriage. The plate 51 may be fixedly retained in the case 18, as by beads 52 formed in the case 18.

In accordance with a feature of the invention, novel roll-back means are employed for actuating the latch 39 by way of the latch carriage. The roll-back means preferably comprises essentially two roll-back elements 53—54 mounted for rotation on spaced axes and preferably meshing with each other as by means of sector teeth 55—56. Both roll-back elements 53—54 may be journalled in the case 18, and the member 53 may be provided with a spindle-engaging opening 57 to receive say the spindle 16 or the spindle 34 of the combinations of Figs. 1 and 2, respectively. The roll-back element 54 may include another set of sector teeth 58 to engage rack means, in the form of spaced openings 59 in one of the side members 49 of the latch carriage. Thus, roll-back actuation of the latch bolt 39 may be effected by a rotation of the roll-back element 53 to cause reverse rotation of the roll-back element 54, which in turn effects a displacement of the latch 39 against the resilient action of spring 50. In order to clear the latch-carriage side plate 49 the diameters of sector teeth 55—56 may be small compared with the pitch diameter of teeth 58; this

proportioning will be appreciated as effecting relatively large latch-carriage displacements for given angular actuation of roll-back element 53. The fully withdrawn latch bolt 39 is shown in Fig. 4.

In accordance with a feature of the invention, the roll-back elements 53—54 are formed with mutually cooperating contours to assure only a particular partial rotation of each element 53—54 with respect to the other. In the withdrawn case of Fig. 4, it will be noted that the limiting withdrawn position is determined by abutment of an arcuate edge 60 (of reduced radius) on the roll-back element 53 with the dished edge 61 on the roll-back element 54. Attempts to produce further withdrawal of the latch bolt 39, as by rotation of the roll-back mechanism, will necessarily result in abutment of the two edges 60—61 so as to prevent overstressing of the rack-and-pinion engagement of teeth 58 and openings 59. In the other extreme position, that is, with the latch bolt 39 extended, a further arcuate edge 63 on the roll-back element 53 may cooperate with a suitably dished edge 64 on the roll-back element 54, and a projection or shoulder 79 on element 53 may lockingly abut element 54. Again, attempts to overdrive the roll-back element 53 in a latch-extending direction will result only in more resistive abutment of the shoulder 79, and it will thus be clear that engagement of the meshing teeth 55—56 may be assured at all times, for roll-back actuation of the latch bolt 39.

It will be noted that in order forcibly to extend the latch bolt 39, should the resilient means 50 for such extension fail, the arcuate extent of the sector of teeth 58 might not be sufficient to cause the necessary forcible expulsion of the latch carriage, for it will be noted that in the Fig. 3 relationship of parts, the last of teeth 58 substantially clears the rack apertures 59. In order to provide a means for positively expelling the carriage, a lost-motion mechanism in the form of a third roll-back element 65 may be secured on an axis common with the second roll-back element 54. The roll-back element 65 may be in the form of a bellcrank, having a first arm or projection 66 to engage say the back end of the carriage side plate 40 and a second arm or projection 67 to engage an upturned lug 68 formed on the second roll-back element 54. If desired, the second and third roll-back elements 54—65 may be mounted on a pin or stud 69, as by upsetting one end of the pin 69 outside the frame or case plate 40 and by pinning the third roll-back element 65 to stud 69, as at 70.

For assuring positive engagement of the sector teeth 58 with the rack openings 59, as when the roll-back mechanism is actuated from the positions of Fig. 3 to the positions of Fig. 4, a slightly inwardly extending projection 71 may be formed at the edge of the rearmost rack opening 59 so that the first sector tooth 58 may unquestionably engage the first rack opening 59. For the resiliently-urged-latch embodiment of Figs. 3, 4, and 5, a coil spring 72 may be supported by the first roll-back element 53, one end of spring 72 being looped around a radial projection 73 on roll-back element 53 (as as 74) and the other end of the spring 72 being stressed against the second or third roll-back element 54—65 (as at 75).

The cooperative functioning of the above-described parts of my latch mechanism will perhaps be better understood from a description of a cycle of operation, commencing with the fully extended position of Fig. 3. In this fully extended position, the second roll-back element 54 is out of engagement with the rack on the latch carriage, except insofar as the third roll-back element 65 may be urged against the back end of the carriage. Thus, the second and third roll-back elements 54—65 are in engagement at 67—68. Should the first roll-back element 53 be urged in a direction for further expulsion of the latch bolt 39, this motion will be resisted by abutment of shoulder 79 so as not to damage the projection parts 66—67 of the third roll-back element 65. Also, it will be noted that the abutment of projection 66 with the carriage is not overstressed, due to protection afforded by shoulder 79. Under the action of spring 72 it will be clear that the parts are normally urged into this fully extended position.

First rotation of roll-back element 53 will cause a meshing of the gear teeth 55—56 so as to impart rotary motion to the second roll-back element 54, thus relieving the abutment of projection 67 with lug 68 and causing rack-and-sector engagement, once the first sector tooth 58 abuts projection 71 to engage the rack openings 59. The carriage and therefore the latch bolt 39 may then begin to retract. Full retraction is accomplished when the abutment edges 60—61 of members 53—54 engage, as for the position shown in Fig. 4. Attempts to overstress this position, that is, to effect more than necessary retraction of the latch bolt 39 (by roll-back actuation) may only result in more firm binding of these abutment edges 60—61, so that there need be no overstressing of the sector and rack 58—59.

For the return stroke, in the form shown, the action of spring 72 is such as to urge roll-back element 53 counterclockwise until limited by abutment of shoulder 79. On this return stroke it will be understood that the projection 66 of the third roll-back element 65 merely rides or slides along the smooth inner surface of carriage member 49 until just prior to engagement of the projection 67 with the lug 68, at which time the roll-back parts may have the relationship shown in Fig. 6. This engagement preferably occurs as the last sector tooth 58 is leaving its engagement with the rack 59, so that the last driven rotation of the second roll-back element 54 may be effective to force expelling displacement of the latch carriage.

As indicated generally above, the above-described latch structure may also be applied to perform the function of a dead bolt. In the latter event, and referring to Figs. 9 and 10, I prefer to employ resilient means to impart a snap action for resiliently retaining the roll-back element 53 in one of two selected positions. In the form shown, a spring 76 is retained by the end cap 42 and serves to displace a washer 77 against the projection 73 of the roll-back element 53; the projection 73 may be said to be on one side of the thrust axis of spring 76 for one position of the roll-back means, and on the other side of the thrust axis of spring 76 for another position of the roll-back means. To provide better engagement between the washer or plate 77 and the projection 73, the projection 73 may be formed with an upturned lug 78. When my latch unit is used as a dead bolt, the spring 72 of Fig. 3 may be removed, as it will be clear that normal resilient expulsion of the latch mechanism is not called for.

It will be understood that a first dead-bolt po-

sition, for example the position shown in Fig. 9, wherein resilient means 76 resiliently urges projection 73 counterclockwise (in the sense of the drawings), may represent a full expulsion of the latch bolt 39. Actuation of the roll-back element 53 as by a turning of the key 15 will cause the spring 76 and the washer 77 to ride up with the projecting lug 78 to a second position, as shown in Fig. 10. In the second (latter) position it will be understood that the latch bolt 39 is fully retracted. It will be seen that for the position shown in Fig. 10, the spring 76 may adequately assure that the latch mechanism will be held fully retracted.

As a further feature of the invention, it will be noted that the edge 63 of roll-back element 53 may be formed with a slightly greater arcuate extent than the edge 64 with which it is intended to mate. The edge 63 also preferably terminates in an abutment such as the radial shoulder 79. Thus, regardless of the adaptations of my latch mechanism, whether as a dead bolt or as a resilient latch, the roll-back element 53 may be resiliently urged (for the expelled bolt position) into abutment with the roll-back element 54 by engagement of the shoulder 79 against the latter. Because of the preferably greater arcuate extent of edge 63 as compared with edge 64, there may be a slight angular lost motion between roll-back elements, so that under the action of either of springs 72—76 a normal position of teeth 55—56 will be as shown in Fig. 9. In this normal position (i. e. for an extended bolt) any attempt to force a retraction of the carriage (as when shank 46 is locked to the latch carriage by a strike-plate operated anti-picking device, described below) will result in an interference or bind between teeth 55—56 so as to prevent such forcible retraction. Thus, the only way in which the latch carriage may be retracted is by rotary actuation of the roll-back element 53.

In addition to the above mechanisms, I provide, as a feature of the invention, a novel pick- or tamper-resisting arrangement which may be incorporated in the latch mechanism of Figs. 3, 4, and 5. In the form shown, an auxiliary latch 80 and an auxiliary-latch lever or dog 81 cooperate to render the latch pick-proof. The auxiliary latch 80 includes a forwardly projecting part slidably guided in a groove 82 in the latch bolt 39, and a shoulder 83 (see Fig. 5) on the auxiliary latch 80 may engage the inner or back side of latch bolt 39 in order to retain the auxiliary latch 80 against extension beyond the latch bolt 39. The tail end or shank 84 of the auxiliary latch 80 may be slidably guided in a hole in the forward end of the latch carriage, and a spring 85 between said end and a shoulder 85' on the auxiliary latch 80 may serve to urge the auxiliary latch into an outwardly extended position. The auxiliary-latch lever 81 may be generally crescent-shaped and pivotally supported as by a pin 86 away from the axis of shank 46. A lug 87, bent inwardly from the side plate 49, may serve to guide and position the lever 81. The free end of lever 81 may be urged by a spring 88 to ride constantly on the rearwardly projecting end of the auxiliary-latch shank 84.

As long as the door 32 is open, the latch bolt 39 and the auxiliary latch 80 may be fully extended, or they may be retracted, as by operation of key 15 or knob 13; in other words latch members 39 and 80 will move in unison as if they were one and the same piece. However, upon closing the door 32, the auxiliary latch 80 may be held retracted by the strike plate while the latch bolt 39 is projected under the influence of spring 50. With the auxiliary latch 80 thus held in retracted position, it will be noted that a recessed portion 89 of the shank 84 thereof will have presented itself to the free end of the auxiliary-latch lever 81 so as to permit lever 81 to rotate (clockwise, in the sense of Fig. 11) and doggingly to engage a transverse slot 90 in the shank 46. The dotted outlines of Fig. 11 indicate the position of lever 81 in the dogging position, and it will be clear that as long as lever 81 remains so disposed (i. e. as long as the door remains closed), the latch bolt cannot be picked or retractively pushed, and the door 32 may remain securely locked.

On the other hand, the door 32 may be readily opened upon actuation of the key 15 or of the knob 13 to withdraw the latch carriage. Withdrawal of the latch carriage will be understood to produce such relative motion of shanks 46 and 84 that the lever 81 will be forced (as by a camming slope at the inner end of the recess 89) to ride out of the recess 89 and therefore out of dogging relation with the shank 46 of the latch bolt 39.

It will be appreciated that I have described a novel latch-and-rosette combination, the features of which will be found particularly practical in application of the combination to relatively thin doors or where flush-type mountings are desired. The rosette construction is characterized by simplicity and by the fact that it may impart additional functions to the latch with which it is combined. It will also be understood that my latch mechanism is of such simplicity as to be adaptable to manufacture substantially wholly from sheet metal, and that such a latch mechanism may be rugged and highly resistive to tampering.

While I have described my invention in detail for the preferred forms shown, it will be understood that modifications may be made within the scope of the invention as defined in the appended claims.

I claim:

1. As an article of manufacture, a unit-handling rosette assembly to be mounted on one side of a door and for use in combination with a separate latch assembly and in combination with a separate latch-actuating assembly accessible on the other side of the door, said rosette comprising an inner housing plate, an outer housing plate, a first rotatable member journalled in said inner housing plate and including means to be connected in latch-actuating relation with said latch assembly, and a second rotatable member geared to said first rotatable member and journalled in said inner housing plate, said second rotatable member including means to be connected in actuable relation with said latch-actuating assembly.

2. An article of manufacture according to claim 1, in which said first and second rotatable members have spindle-receiving sockets for spindle-connection to said latch assembly and to said latch-actuating assembly, respectively.

3. An article of manufacture according to claim 1, in which said rosette assembly further includes dogging means for dogging one of said members.

4. In a latch device of the character indicated, a latch case, a latch slidable in said case at one end thereof, a latch carriage for said latch, and roll-back means for said carriage, said roll-back

means including a rotatable drive member and a rotatable driven member geared to each other, said driven member including a radial projection engageable with said carriage for one portion of the total movement of said driven member, and a further radial projection carried with lost-motion by said driven member for engagement with said carriage, said driven member being in driving relation with said carriage via said further radial projection while said first radial projection is not in engagement with said carriage.

5. A device according to claim 4, in which the pitch diameter of the gear for said drive member is greater than the pitch diameter of the gear for said driven member, whereby a given rotation of said drive member may effect a relatively great movement of said carriage.

6. As an article of manufacture, a unit-handling rosette assembly for use in combination with a unit-handling latch assembly, said rosette assembly comprising an inner housing plate, an outer housing plate, a knob and a pinion member unitarily journalled in said outer housing plate, a latch-actuating member journalled in said inner housing plate and including means to be connected to said latch assembly and in latch-actuating relation therewith, said latch-actuating member including tooth-engaging means meshing with said pinion, and dog means radially engageable with one of said members and including dog-actuating means projecting externally of said outer housing plate.

7. In combination, a door, a unit-handling cylindrical latch assembly in an edge of said door and between the inner and outer sides of said door, a cylinder lock accessible on one side of said door and including a body extending toward the other side of the door, said body being radially offset from said latch assembly, and a rosette assembly on the other side of the door and including interconnected gears separately coupled to said cylinder lock and to said latch.

8. In combination, a unit-handling cylindrical latch assembly comprising latch means and latch-actuating means, a unit-handling rosette assembly comprising two geared rotatable members on spaced axes, the spacing between said axes exceeding the outer radius of said latch assembly, and a driving connection including a spindle between one of said geared members and said latch-actuating means of said latch means.

9. In combination, a lock unit for access from one side of a door and including an actuation axis, a rosette unit on the other side of the door, and a latch unit including an actuation axis, said units being separate complete assemblies, said rosette unit including two geared rotatable members on spaced axes, a spindle between one of said rotatable members and said lock, and a spindle between the other of said rotatable members and said latch, the spacing between said rosette axes being at least the distance from said first-mentioned actuation axis to the side of said lock unit nearest said latch unit plus the distance from said second-mentioned actuation axis to the side of said latch unit nearest said lock unit.

10. The combination according to claim 9, including dogging means accessible from the other side of the door and comprising a member carried by said rosette unit and engageable with one of said two geared members.

11. In combination, a door having a latch-receiving bore in an edge thereof and a transversely extending lock-receiving bore offset from said first-mentioned bore, a unit-handling cylindrical latch in said first bore, a unit-handling cylinder lock in said second bore and flush with one side of said door, said lock overlapping said latch at least in a plane normal to the axis of said lock and including the axis of said latch, and a unit-handling rosette including two meshing gears adjacent the other side of said door, and separate spindles, separately coupling said gears to said latch and to said lock.

12. In combination, a unit-handling latch unit having a case of generally cylindrical shape to be inserted in a bore, said latch unit comprising a latch and a latch-actuating member having a transversely extending spindle-receiving opening, a unit-handling rosette unit comprising two geared rotatable members in a housing to be mounted on the face of a door, and a spindle in said opening and connected to one of said geared members, the axes of said rotatable members being spaced on amount exceeding the distance between the axis of said spindle-receiving opening and an outer part of said generally cylindrical latch case, whereby a latch-actuating spindle may pass through the door in clearance relation with said case, for actuation of said latch via said rosette.

13. In a latch device of the character indicated, a latch case, a latch slidable at one end of said case, a latch carriage for said latch, and roll-back means for said carriage, said roll-back means including a first rotatable member and a second rotatable member journalled on spaced axes in said case and geared to each other, rack means cooperating between said second member and said carriage for propelling said carriage, and a third rotatable member carried by and engageable with said second rotatable member and having a radial projection for engagement with said carriage, there being lost motion between said second and third rotatable members, so that said third rotatable member may be driven by said second rotatable member only for a fraction of the total rotation permitted said second rotatable member.

14. A device according to claim 13, in which said roll-back means includes resilient means for resiliently urging one of said members in one direction of rotation and to the full extent of possible movement of said one member in said one direction.

15. In combination, a generally cylindrical latch case, a latch slidable in an end of said case, a latch carriage slidable in said case and connected to said latch, roll-back means including a first rotary roll-back element geared to a second rotary roll-back element, said latch carriage including back means meshing with one of said roll-back elements, and a rosette including a first gear coupled to the other of said roll-back elements and a second gear in coupled relation with said first gear and connected to a knob, the axis of said second gear being radially offset from said latch case.

16. In a latch device of the character indicated, a latch case, a main latch slidable at one end of said case, an auxiliary latch slidable at said end of said case and positioned to be held in a retracted position by a strike plate when said main latch extends into the strike plate, latch-actuating means including a latch carriage for said main latch and slidable with respect thereto, roll-back means for said carriage, said latch-actuating means including means

jamming said carriage against retraction except by operation of said roll-back means, cam means carried by said auxiliary latch, and dogging means carried with said latch carriage and positioned to be cammed by said cam means and including a part to dog said main latch when said main latch is extended, said cam means being effective to permit said dogging means to dog said main latch only when said auxiliary latch is in a retracted position.

17. In a latch device of the character indicated, a latch case, a main latch slidable at one end of said case and including a shank, a latch-actuating carriage for said main latch and slidably receiving said shank, said shank including an abutment to be engaged for dogging purposes, a dogging lever pivotally supported by said carriage and resiliently urged in a direction to dog said shank to said carriage, slidable auxiliary-latch means including cam means operative to withdraw said lever from said dogging engagement upon a retracting displacement of said latch carriage relatively to said auxiliary latch means, and roll-back means for said carriage, said roll-back means including means normally urged to jam said carriage against retraction except upon an operation of said roll-back means.

18. A latch device according to claim 17, in which said roll-back means includes two gears which may mesh with each other to retract said carriage, said gears having for substantially one relative position thereof an effective lost-motion of meshing engagement, whereby one gear may be caused to drive the other for roll-back actuated retraction of said main latch, and whereby the other gear may jam and may therefore not be caused to drive the one, thereby preventing latch-driven retraction of said carriage.

19. In a latch device of the character indicated, a latch case, a latch slidable at one end of said case, a latch carriage for said latch, roll-back means for said carriage, said roll-back means including a first rotatable member and a second rotatable member journaled on spaced axes in said case and geared to each other, rack means cooperating between said second member and said carriage for propelling said carriage, a third rotatable member freely pivoted on a common axis with said second member and having a radial projection for engagement with said carriage, and abutment means cooperating between said second and third rotatable members for imparting a positive rotary drive to said projection for one direction of rotation of said second member.

20. In a device of the character indicated, a latch case, a latch slidable in said case, a latch carriage connected to said latch and slidable in said case, and roll-back means engageable with said carriage for actuating said latch, said roll-back means including a rack on said carriage, driven gear means journaled in said case and engageable with said rack, drive gear means in driving relation with said driven gear means, a cap over the back end of said case, a radial projection on the one of said gear means which is nearer said back end, and spring means retained by said cap and compressionally urged against said projection, said projection being on one side of the thrust axis of said spring means for one position of said roll-back means, and on the other side of the thrust axis of said spring means for another position of said roll-back means.

21. In a latch device of the character indicated, a latch case, a main latch slidable at one end of said case, an auxiliary latch slidable at said end of said case and positioned to be held in a retracted position by a strike plate when said main latch extends into the strike plate; latch-actuating means including a carriage and roll-back means therefor, said carriage being movable only upon actuation by said roll-back means, cam means carried by said auxiliary latch, and dogging means carried with said latch carriage and positioned to be cammed by said cam means and including a part to dog said main latch when said main latch is extended, said cam means being effective to permit said dogging means to dog said main latch only when said auxiliary latch is in a retracted position.

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