

March 23, 1943.

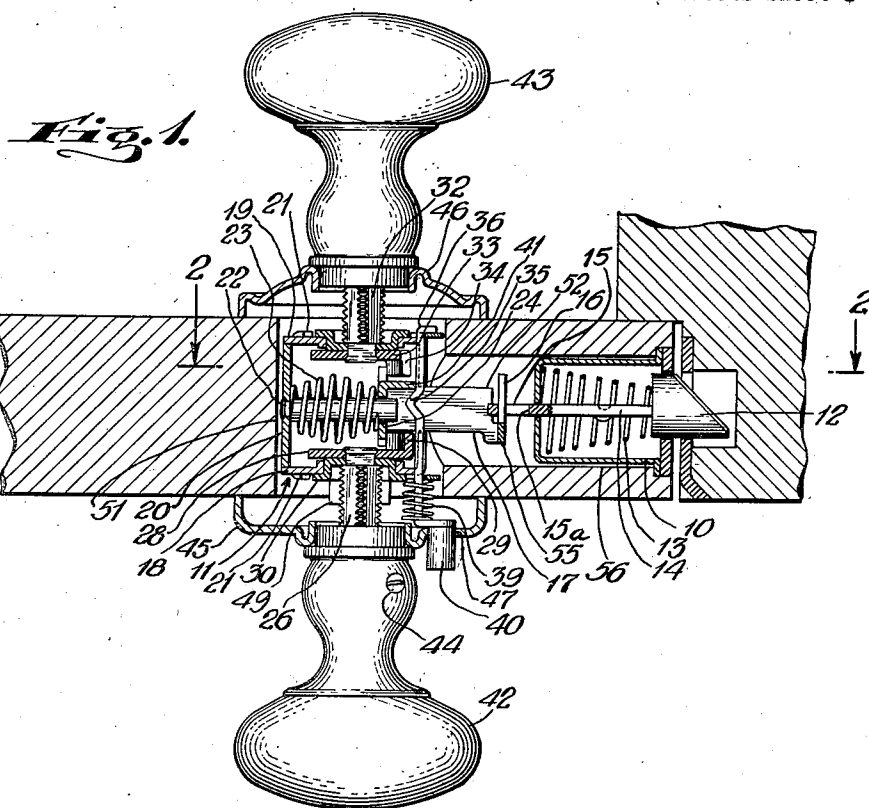
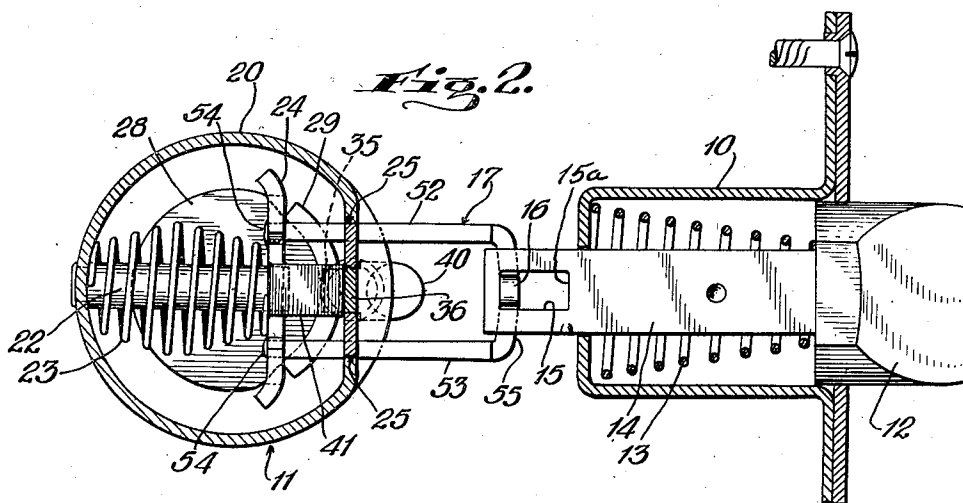
F. H. FELLOWS

2,314,488

TUBULAR LATCH

Filed Oct. 10, 1939

3 Sheets-Sheet 1



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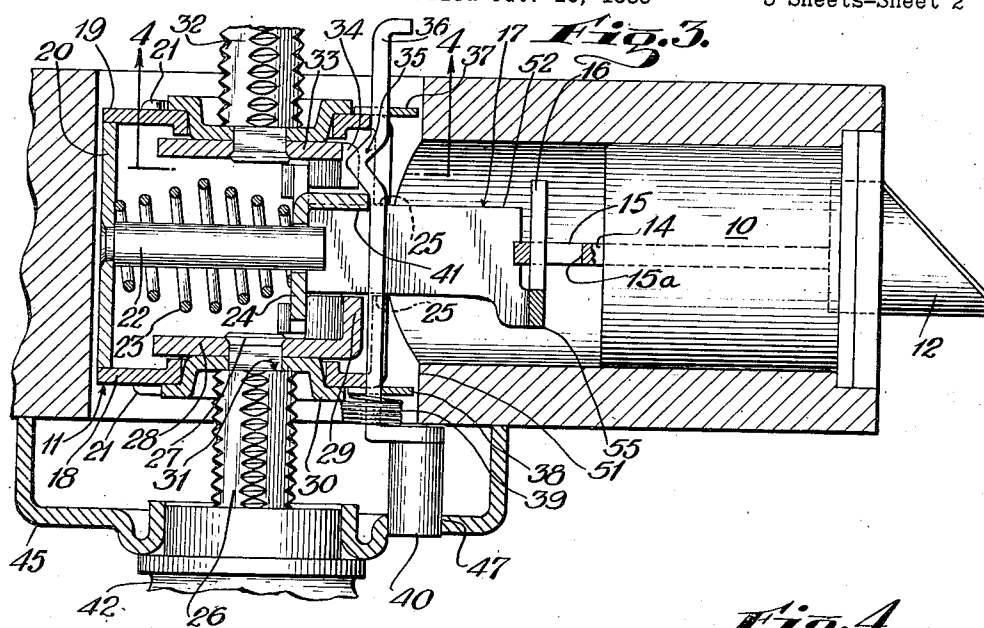
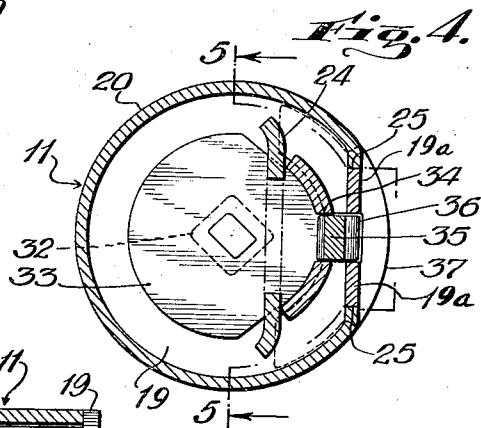
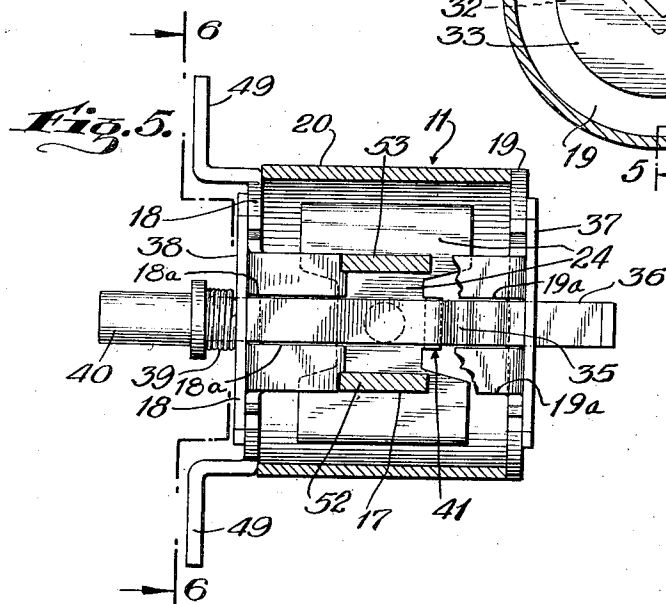
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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

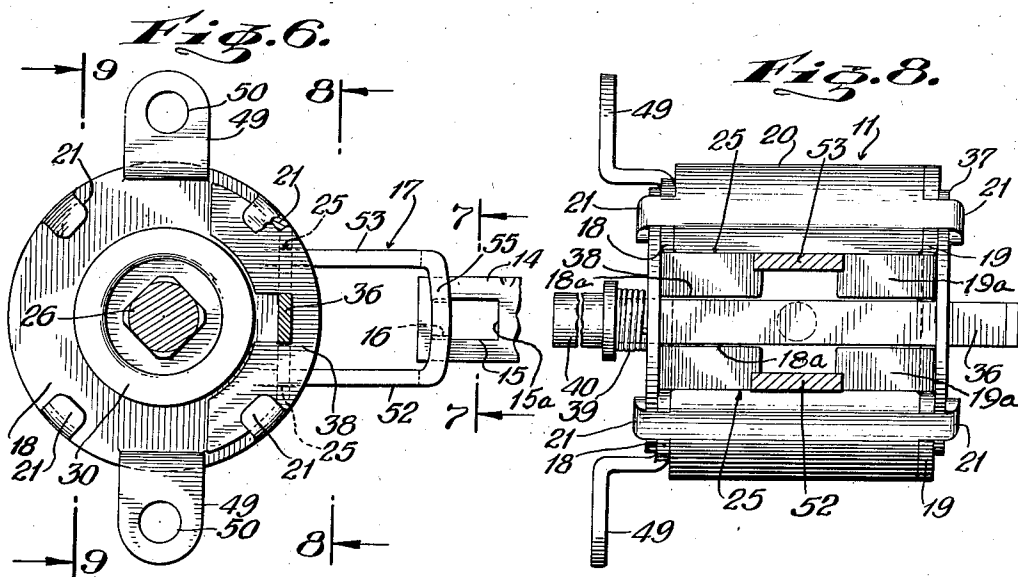
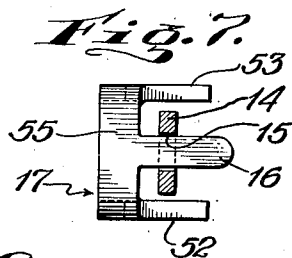
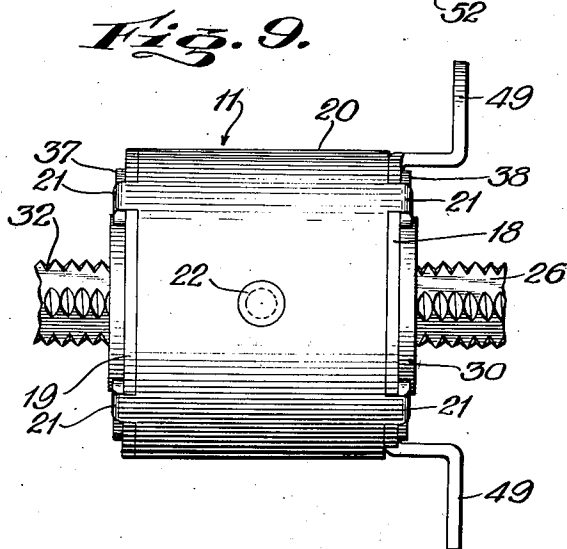
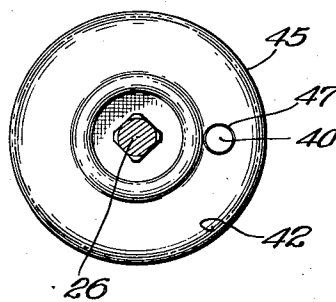


Fig. 10.



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UNITED STATES PATENT OFFICE

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TUBULAR LATCH

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Application October 10, 1939, Serial No. 298,731

8 Claims. (Cl. 292—169)

This invention relates to a latch of the tubular type in which the latch and its operating mechanism are adapted for mounting in bores formed in a door.

Latches of the general type disclosed in this application are old and well known in the art, my invention being directed to an improved form of latch whereby certain desirable results are obtained with a minimum of mechanism, and whereby the latch may be readily mounted on a door.

More particularly, my invention embodies a latch mechanism in which a locking or push piece is assembled with the latch mechanism within a latch casing, the push piece having a push button secured thereto and extending out of the casing and adapted to protrude through an opening in a suitable inside rose or escutcheon plate in offset and parallel relation to inside and outside operated spindles. Normally, the latch bolt may be retracted by both inside and outside operated bolt retracting mechanism through rotation of the spindles. By movement of the push piece through pressure exerted against its push button, the latch bolt is locked against retraction from the outside. Retraction of the latch bolt thereafter as when the door is shut, or by rotation of the inside knob and the inside spindle, acts to move the push piece out of locking relation to the outside operated latch bolt retracting mechanism.

The novel latch mechanism of my invention makes it possible to obtain this operation while utilizing a conventional type of solid spindle and conventional types of knobs and roses, whereas heretofore it has been necessary, in order to obtain the operations of my invention, to use sleeve spindles and knobs formed with central bores and openings. It is possible with my lock, therefore, to employ the usual trim; that is, roses and knobs which are desired in the art because adapted to certain traditional styles of architecture.

My invention incorporates, of course, additional features which are of exceeding importance, such as the particular construction of the lock casing, the mounting of the retracting rollbacks, and the latch bolt retracting member, and the control of the push button and its push piece, all of which will be set forth hereinafter.

Referring now to the drawings, Fig. 1 is a horizontal section through a door and latch showing the application of my latch to a door. Fig. 2 is a section taken along lines 2—2 of Fig. 1. Fig. 3 is an enlarged view of the latch of Fig. 1 showing

the outside rollback locked against rotation. Fig. 4 is a section taken along lines 4—4 of Fig. 3, while Fig. 5 is a section taken along lines 5—5 of Fig. 4. Fig. 6 is a view taken along lines 6—6 of Fig. 5, while Figs. 7 and 8 are sections taken along lines 7—7 and 8—8 of Fig. 6. Fig. 9 is a view taken along lines 9—9 of Fig. 6. Fig. 10 is an elevation showing the inside rose in position on the door, with the knob indicated in phantom lines.

Referring now more particularly to the drawings, my latch mechanism utilizes a latch bolt housing 10 and a latch housing 11. Mounted within the latch bolt housing 10 is a latch bolt 12 projected by a spring 13 and having a tail piece 14 which is slotted as at 15 for cooperation with the finger 16 of a latch bolt retracting member 17 mounted in the latch housing 11.

The latch housing 11 is formed of two end plates 18 and 19 which are maintained assembled by a cylindrical plate member 20 through overlapping lugs 21 formed on the cylindrical member 20, as best shown in Figs. 2 and 6. Riveted to the cylindrical plate member 20 and extending within the housing 11 is a pin 22 about which is mounted a spring 23 which presses against the plate 24 of the bolt retracting member 17. The bolt retracting member 17 is thus spring projected outwardly relatively to the casing and is supported by the pin 22 for retractive movement inwardly of the casing. The cylindrical plate member 20 is cut away leaving a space defined by upper and lower guide surfaces 25, as is best shown in Figs. 2, 5 and 8. In addition, each of the end plates has bent over guide portions fitting into the space between surfaces 25, and designated by reference numerals 18a and 19a. These portions are notched for guiding the bolt retracting member, as will more fully be indicated later in this specification.

Referring now to Fig. 3, an inside spindle 26 is provided for the lock housing 11, and is riveted at 27 to a rollback 28. The rollback 28 has a struck up portion 29 which cooperates with the plate 24 of the latch retracting member 17 for retracting the said member 17 against the pressure of the spring 23 whenever the spindle 26 is rotated.

A thimble 30 is secured between a shoulder 31 of the spindle 26 and the rollback 28, and is so formed as to limit the movement of the spindle and its rollback axially into the latch housing 11. It is thus seen that the spindle 26 is secured in assembled relation to the rollback 28 for rotation with that rollback relatively to the housing 11.

The outside spindle 32 is similarly secured to a rollback 33 which is cooperable also with the plate 24 of latch retracting member 17 to retract the latch bolt. Rollback 33 is notched at 34 for cooperation with a locking portion 35 of a locking push piece 36. This locking push piece 36 is guided by plates 37 and 38 secured to the end plates 18 and 19 of the casing through the lugs 21, as best shown in Fig. 6. A spring 39 operates between the plate 38 and a push button 40 secured to push piece 36, tending to press the button 40 and push piece 36 outwardly from the position of Fig. 3 to the position of Fig. 1.

It will be noted that in Fig. 3, the surface 35 of the locking push piece 36 is within the notch 34 of the rollback 33, thus preventing rotation of the rollback. At the same time, it will be noticed that the surface 35 is positioned just beyond the struck up lug 41 formed on the retracting member 17. Since spring 39 is obviously more powerful than spring 30, the locking push piece 36 will be prevented by lug 41 from moving outwardly under the pressure of spring 39 from its position of Fig. 3 to its unlocking position of Fig. 1. If the inside spindle 26 be rotated to retract the latch bolt by retracting movement of the member 17, the lug 41 will be moved away from obstructing relation to the locking surface 35 of the push piece 36, and the push piece 36 will spring outwardly under the influence of spring 33 to the release position of Fig. 1.

The spindles 26 and 32 are of a conventional threaded design adapted for use with standard knobs, such as those designated by reference numerals 42 and 43 in Fig. 1. The inside knob 42 is secured to the spindle 26 by any conventional means, usually a screw, such, for example, as the screw 44 driven in to cooperate with one of the flat surfaces of the spindle 26. The knob 43 may be similarly secured, as will be readily appreciated.

For supporting the knobs 42 and 43 for rotation, there are employed roses of the standard type well known in the art and designated by reference numerals 45 and 46 in the several figures. The inside knob rose 45 has formed therein an opening 47 through which protrudes the push button 40, the relation of which to the knob 42 is probably best illustrated in Figs. 1 and 10.

For securing the latch housing 11 to the wood of the door, the inside plate 18 of the housing is formed with ears 49 having holes 50 through which screws may be passed into the door, as will be readily appreciated by those skilled in the art. It will also be well appreciated that when the latch bolt retracting member 17 is fully retracted by either of the knobs, it will lie entirely within the bore 51 of the door to facilitate assembly.

The latch retracting member 17 is formed of a pair of spaced plate-like members 52 and 53 which, as illustrated in Fig. 2, are riveted at 54 to the plate 24 whereby the latch retracting member 17 is retracted by the inside and outside rollbacks 29 and 33. At the outer end of the latch retracting member, the two plate-like members 52 and 53 are connected by a vertical bar 55 from which protrudes the finger 16 already described. The guide surfaces 25 of the casing 11 earlier described, and the notched portions 18a and 19a of the casing end plates 18 and 19, cooperate with the spaced portions of the latch retracting member 17 to guide it for proper movement relatively to the latch casing, all as is best seen in Figs. 2, 5 and 8.

In assembling the latch on the door, I follow the procedure of first inserting the latch bolt housing 10 into the endwise bore 55 of the door, and then inserting the latch housing 11 into the bore 51 of the door, the finger 16 being moved into the slot 15 of the latch bolt tail 14 to unite the two, as illustrated in Fig. 1.

As has already been described, a rotation of the inside knob and the inside rollback 23 will retract the latch retracting member 17, and will effect the release of the outside knob, spindle and rollback, if they have previously been locked by the locking push piece 36. This release is caused by withdrawing the lug 41 of the retracting member 17 from holding relation to the surface 35 of the push piece 36. The same releasing action is obtained should the door be closed with the outside knob locked against rotation.

In such a case, the latch bolt 12 will be retracted until the surface 15a at one end of the slot 15 contacts the finger 16 of the latch retracting member 17. The latch retracting member 17 will be caused to move rearwardly, moving the lug 41 away from behind surface 35 of the push piece 36. The push piece 36 will then be moved outwardly by spring 39 into its release position of Fig. 1. It is thus seen that my outside knob may be locked from the inside by the depression of the push button, and maintained locked until the inside knob is rotated or the latch bolt is retracted as when the door is shut.

The operation of my invention will undoubtedly be now quite clear to those skilled in the art.

I now claim:

1. In a lock of the class described, a cylindrical casing having circular end plates, a spring pressed latch bolt retracting member in said casing, a spring pressed latch bolt, means of connection between said latch bolt and member whereby retraction of said member retracts also said latch bolt, an inside rollback and an outside rollback for retracting said latch bolt retracting member, an inside spindle secured to said inside rollback and extending outwardly of said casing through one of said end plates, an outside spindle secured to said outside rollback and extending outwardly of said casing through the other of said end plates, a push piece in said casing and extending outwardly therefrom through the first of said end plates and terminating in a push button, a spring pressing between the said end plate and a portion of said push piece which is out of said casing for yieldingly maintaining said push button outwardly relatively to said casing, means whereby said push piece when depressed inwardly of said casing and against said spring locks said outside rollback against rotation, a surface of said latch bolt retracting member retaining said push piece depressed whereby the retraction of said member as by the rotation of the inside spindle and its rollback releases said push piece for outward spring pressed movement to release said outside rollback, and means whereby retraction of said latch bolt independently of said member also releases said push piece for outward movement.

2. In a lock of the class described, a casing having a cylindrical portion and a pair of end plates, a rotatable inside rollback in said casing, a solid spindle for rotating said rollback projecting through one of said end plates, a rotatable outside rollback in said casing, a solid spindle for rotating said rollback projecting through the other of said end plates, a spring projected retracting member in said casing retracted by rota-

tion of either of said rollbacks by said spindles, a push piece, bearing means on said end plates whereby said push piece is supported for sliding movement relatively to said casing in offset parallel relation to said spindles, a portion of said push piece projecting beyond each of said end plates, a spring between one end plate and a projecting portion at one end of said push piece for pressing said push piece relatively to said casing and into release position, a push button whereby said push piece is depressed against said spring into locking position, a detent portion on said push piece cooperable with a portion of said retracting member whereby when said retracting member is projected by its spring, it maintains said push piece depressed against its spring relatively to said casing once said push piece is so depressed, said outside rollback having a notch into which a portion of said push piece enters when said push piece is depressed whereby to lock said outside rollback against rotation while leaving said inside rollback free for rotation, the retraction of said retracting member thereafter as by said inside rollback, releasing said push piece for projection by its spring to release the outside rollback for rotation.

3. In a door latch, a casing insertible into an opening formed in a door, a latch bolt retracting member mounted for reciprocation in said casing, inside and outside rollbacks in said casing, inside and outside knobs, independently rotated spindle sections, one of which is secured to one of said rollbacks while the other is secured to the other of said rollbacks, each of said spindle sections supporting one of said knobs, a dogging member movably mounted transversely on the casing and disposed forwardly of and parallel to said spindle sections and having means preventing operation of said retracting member by one of said knobs and its rollback, and means integrally formed with said bolt retracting member adapted to engage said dogging member to hold the same in dogging position.

4. In a door latch, a casing insertible into an opening formed in a door, a latch bolt retracting member mounted for reciprocation in said casing, inside and outside rollbacks in said casing, inside and outside knobs, independently rotated spindle sections, one of which is secured to one of said rollbacks while the other is secured to the other of said rollbacks, each of said spindle sections supporting one of said knobs, a dogging member movably mounted on the casing and disposed forwardly of and parallel to said spindle sections and having means preventing operation of said retracting member by one of said knobs and its rollback, a spring pressing against said dogging member and yieldingly urging it out of dogging position, and means integrally formed with said bolt retracting member adapted to engage said dogging member to hold the same in dogging position, the movement of said bolt retracting member in a bolt retracting direction releasing said dogging member for movement by said spring out of dogging position.

5. In a lock of the class described, a cylindrical casing having circular end plates, a latch bolt retractor in said casing, a spring normally projecting said retractor outwardly relatively to said casing, inside and outside rollbacks in said casing, inside and outside actuated spindles rotatable independently of one another for actuating said rollbacks to retract said latch bolt retractor, said spindles being secured at one end to said rollbacks and projecting through said end plates and out of the

casing at the other end for the mounting of knobs thereon, a push piece in said casing offset and parallel to said spindles and entirely outside said spindles, said push piece having a portion extending outwardly of said casing in the form of a button, said button and push piece extending from said casing in spaced parallel relation to said inside and outside spindles, a spring tending normally to urge said push piece outwardly relatively to said casing and into release position, said push piece being movable inwardly of said casing against said spring pressure by application of pressure against said push button, means whereby when said push piece is in said inward position it locks the outside actuated spindle and rollback against rotation while leaving the inside spindle and rollback free for rotation, and means whereby said latch bolt retractor retains said push piece in its inward position when said latch bolt retractor is projected and releases said push piece for projection by its spring when said latch bolt retractor is retracted.

6. In a lock of the class described, a cylindrical casing having circular end plates, a spring pressed latch bolt retracting member in said casing, a spring pressed latch bolt, means of connection between said latch bolt and member whereby retraction of said member retracts also said latch bolt, an inside rollback and an outside rollback in said casing for retracting said latch bolt retracting member, an inside spindle secured to said inside rollback and extending outwardly of said casing through one of said end plates, an outside spindle secured to said outside rollback and extending outwardly of said casing through the other of said end plates, a push piece in said casing and extending outwardly therefrom through the first of said end plates and terminating in a push button, a spring pressing between the said end plate and a portion of said push piece which is out of said casing for yieldingly maintaining said push button outwardly relatively to said casing, means whereby said push piece when depressed inwardly of said casing and against said spring locks said outside rollback against rotation, a surface on said latch bolt retracting member for retaining said push piece depressed in said casing, the retraction of said member as by the rotation of the inside spindle and its rollback releasing said push piece for outward spring pressed movement to release said outside rollback.

7. In a lock of the class described, a casing, a spring projected latch bolt, inside and outside rollbacks in said casing, inside and outside actuated spindles each connected at one end to one of said rollbacks for rotating said rollbacks to retract said latch bolt and extending outwardly of the casing at their other ends for the mounting of knobs thereon, a push piece in said casing offset and parallel to said spindles and entirely outside said spindles, said push piece having a portion extending outwardly of said casing in the form of a button in spaced parallel relation to the inside spindle, a rose through which said button protrudes on the inside of said lock when it is secured to the door, a spring tending normally to urge said push piece outwardly of said casing and into release position, said push piece being movable inwardly of said casing against said spring pressure by application of pressure against said push button, retaining means movable with said latch bolt when it is retracted for yieldingly retaining said push piece in said inward position when said latch bolt is projected, means whereby when said push piece is in said inward position

it locks the outside actuated spindle and rollback against rotation while leaving the inside spindle and rollback free for rotation, the retraction of said latch bolt by rotation of said inside actuated spindle moving said retaining means to release said push piece whereupon said push piece is pressed outwardly by its spring and releases said outside actuated spindle and rollback.

8. In a lock of the class described, a casing, a latch bolt retracting member, an inside rollback and an outside rollback in said casing for retracting said latch bolt retracting member, inside and outside spindles for said rollbacks extending outwardly of said casing, a push piece entirely outside said spindles guided in said casing in off-

set and parallel relation to said spindles and extending outwardly of said casing in spaced relation to said spindles and terminating in a push button, means whereby said push piece when depressed inwardly of said casing locks said outside rollback against rotation, means cooperating with a portion of said push piece for retaining it in locking relation to said rollback once said push piece is depressed inwardly of said casing, and means whereby the retraction of said latch bolt thereafter independently of said outside rollback effects the movement of said push piece from its depressed position.

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