

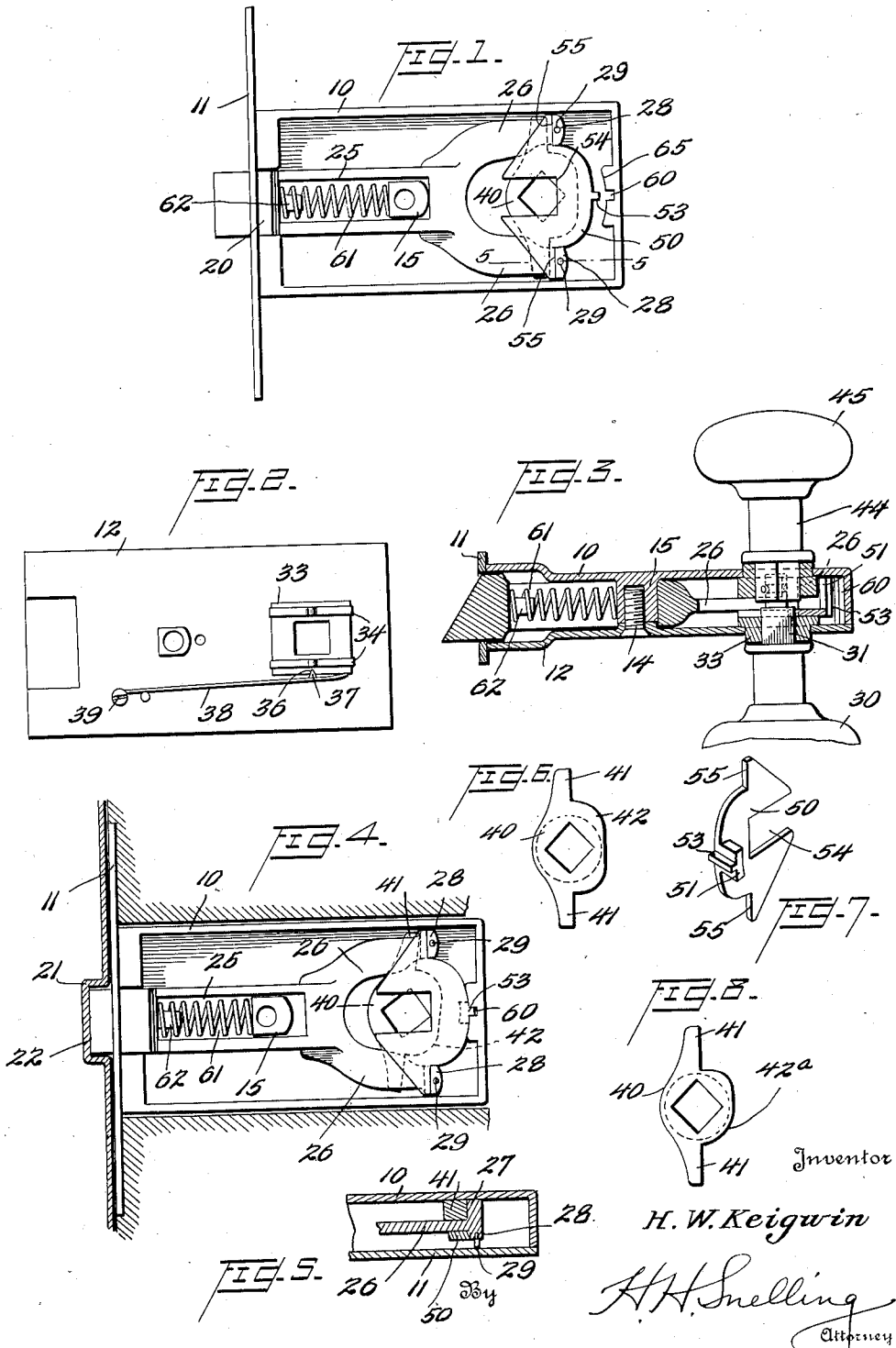
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DEAD LOCKING LATCH

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DEAD LOCKING LATCH.

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This invention relates to latches and has for its principal object the provision of a latch which will insure privacy when desired. A further object of the invention lies in the provision of a latch which when the door is closed from the inside can only be operated from the inside but when the door is closed from the outside the door may be opened from either side.

While the primary use of the latch of this type may perhaps be in connection with toilet rooms, private offices or telephone booths, the invention is not limited to such use nor in any way other than by the claims themselves as the particular structure illustrated may be much altered without departing from the spirit of my invention.

It frequently happens that privacy is desired at certain times, for example, in a bathroom, but with some automatic arrangement whereby the bathroom is available to anyone else when not occupied and without the need of providing a latch or key operated lock, in other words, permitting the very simple latch of the present invention to replace the much more complicated locks now in use.

In the drawings:—

Figure 1 is a view of my device with the cover plate removed.

Figure 2 is a view of the rear of the cover plate with the associated parts.

Figure 3 is a central cross section thru the latch.

Figure 4 is a view similar to Figure 1 but showing the bolt in caught position.

Figure 5 is a detail showing particularly the guiding pin.

Figure 6 is a view of the inside collar.

Figure 7 is a perspective of the outside roll back.

Figure 8 is a modified form of roll back in which the usual cam is replaced in part by an arc.

The housing 10 is preferably permanently secured to the face plate 11 and is closed by the side or cover plate 12 which may be secured in place by a screw 14 fitting a tapped opening in the stud 15.

A bolt 20, sliding freely thru the usual opening in the face plate 11, engages a keeper 21 having a preferably integral socket 22 since the depth of this socket is an important detail and it is therefore best not to use a flat sheet which however, would be satisfactory provided that the mechanic made the recess in the woodwork of the jamb the proper depth.

The bolt has a central elongated recess 25 and ends rearwardly in a yoke having similar arms 26 each ending in an inwardly directed transverse lug 27 and a shorter outwardly directed lug 28, the latter preferably each having a guiding pin 29 adapted to engage the removable side plate 12.

The outer doorknob 30 has a shaft or spindle 31 which extends slightly less than halfway into the housing passing thru a pivoting collar 33 to which I attach springs 34 slightly bowed out centrally for a purpose to be described later. The lower side of the outer collar has a niche 36 which is engaged by a pin 37 on a spring 38 anchored to the side plate as by the screw 39, which pin holds the square shaft of the outside knob 30 so that two of its faces are horizontal, the spring 38 yieldingly resisting movement of the outside knob 30 and the pin 37 forming a stop in both directions.

The inside collar 40 has a roll back 41 and also a cam 42 either integral or permanently secured to it or, expressed differently, the roll back has an integral collar for pivoting the shank 44 of the inside knob 45 and also has the cam surface for operating the outside roll back 50 which has an angular lug 51 which is engaged by the cam 42 and also has a rearwardly extending lug 53 which may be moved into holding engagement with a recess 60 formed in the rear of the housing. The outside roll back has a slot 54 which slidably but somewhat snugly engages the shaft 31 while one or the other of the shoulders 55 withdraws the bolt 20 against the bolt spring 61 when the outer knob and shaft are rotated. In conformity with the usual custom this spring 61 is confined in the slot 25 of the bolt, is positioned by the anchoring projection 62 and engages the stud 15 which is an integral part of the housing.

The operation of the device is as follows assuming that the door is closed, having last been shut from the outside: The knob 30 on the outside is now turned either to the right or left, it makes no difference, and the door is swung outward so that when the knob is released the parts assume the positions shown in Figure 1 with the bolt 20 projecting its full extent. The operator now goes inside the room and pulls the door shut by the knob 45, turning the knob or not as he desires. If the knob has not been turned when the door was closed the parts, will be as in Figure 1 except that the bolt will be only half projected so

that the lugs 27 and 28 will not touch the roll back shoulders but will be positioned nearer to the rear of the casing 10, that is, toward the recess 60, and privacy will not be assured for now the door can be opened from either side. The inside of the door in the preferred form will bear the legend "To insure privacy, turn knob" and if this is done, the rotation of the inside spindle section 44 will cause the top or bottom of the cam 42 depending on the direction of rotation of the knob, to engage the angular lug 51 extending toward the inside knob from the outside roll back 50, and this will cause the outside roll back to slide on its spindle 31 (which is held against rotation under such circumstances by the spring 38) so that the fin 53 will enter the slot 60. The springs 34 will hold the outer roll back in such secured or "caught" position under ordinary jars and rattling of the outer knob, but will offer no appreciable resistance to the return of the outer roll back to the position shown in Figure 1 by complete forward movement of the bolt. If in entering the room or compartment the inside knob had been turned in either direction the cam 42 would have acted as just described above thus preventing access from without but permitting opening the door from the inside. By substituting an arc 42^a for the lower half of the cam 42 (see Figure 5) a further and highly desirable result is secured i. e., the ability to turn the inside knob clockwise (the usual way) and not secure privacy while if it is turned counterclockwise either in closing the door or later, the outside knob is held against rotary movement. In such case the legend should read: "To insure privacy turn knob to the left."

Movement of the bolt to normal locking position, i. e., as in Figure 4, does not slide the outside roll back to free the fin 53 from the recess 60 but complete forward movement of the bolt always frees this roll back, sliding it forwardly on its spindle 31 to the position of Figure 1. The inner surfaces 65 of the two projections forming the recess 61 are curved to guide the fin 53 to insure that the roll back is held seated against its shank except when in "caught" position so as to secure the outside knob. If the free end of the bolt is not beveled as is usual this invention insures invariable privacy whenever the door is closed in any way from the inside, but by beveling the bolt end the ability to slam the door shut is secured and often this advantage outweighs the automatic securing of privacy. My invention naturally is not to be limited by the specific description given but only by the claims following.

60 What I claim is:

1. In a latch, a bolt, a spindle composed of independently movable sections, a bolt operating device on each section, one of said devices being slidable on its section.
- 105 2. In a latch, a bolt, a spindle composed of

independently rotatable sections, a bolt operating device on each section, one of said devices being slidable on its section and having locking engagement with the latch casing.

3. In a latch, a bolt, a spindle composed of two independently rotatable sections held against relative longitudinal movement, a bolt operating device on each section, one of said bolt operating devices being slidable on its section and movable into locking engagement with the latch casing by movement of the other bolt operating device.

4. In a latch, a spring-pressed bolt having a yoke end, a spindle composed of independently rotatable sections extending between the arms of the yoke, a roll-back on each section to engage one arm of the yoke, one of said roll-backs being slidable on its section and having an extension to engage in a slot in the latch casing to prevent rotation of its respective section, and means carried by the other roll-back for sliding the first-mentioned roll-back on its section and into locking engagement, complete forward movement of the bolt freeing the sliding roll-back from locking engagement with the casing while partial advance of the bolt does not operate the sliding section.

5. In a latch, a bolt, a spindle composed of independently movable sections, a bolt operating device on each section, and means whereby when the bolt is operated by one section to withdraw the bolt and then move it into normal locked position the other section is locked against rotation, and whereby when the bolt is withdrawn and then moved into normal locked position by the other section the first-mentioned section is free to withdraw the bolt.

6. In a dead-locking latch, a spring-pressed bolt, a keeper having a recess shallower than the full travel of the bolt, a spindle composed of an inside section and an outside section secured together against relative longitudinal movement but free to rotate independently of one another, means on each section to withdraw the bolt and to release the bolt into full forward movement not in the keeper or into partial forward movement in the keeper, and means for securing the outside section when the bolt is released into the keeper by the inside section, the bolt being operable from either section when the bolt spring is fully expanded or when the bolt is released into the keeper by movement of the outside section.

7. In a dead-locking latch, a casing having a groove therein, a spring-pressed bolt slidable in said casing and having a pair of arms forming a yoke, a spindle composed of independently rotatable sections, a roll-back on the outside spindle section adapted to engage either arm of the yoke to withdraw the bolt against its spring, said roll-back being free to slide on its section but constrained to rotate with said section, a fin on said roll-back

adapted to engage the groove in said casing to hold said roll-back and its section against rotation, a roll-back on the inside spindle section adapted to engage either arm of the bolt yoke to withdraw the bolt against its spring, and a cam on said inside roll-back to engage the outside roll-back upon rotation of the inside spindle section to slide the outside roll-back into locking engagement with said casing, the travel of the bolt being such that when the spring is expanded to the limit of its travel the sliding roll-back is moved out of locking engagement with the casing but when the bolt is in normal locking position in its keeper the outside spindle section is held against rotation if the latch has last been moved to unlatched position by the inside spindle section.

8. The device of claim 7 including means resiliently holding the outside roll-back in engagement with both arms of the yoke and spring means for holding said last-named means in position to hold the outside shank in a given angular position.

9. In a dead-locking latch, a spring-pressed bolt, a keeper having a recess shallower than the full travel of the bolt, a spindle composed of an inside section and an outside section free to rotate independently of one another, a roll-back on each section to withdraw the bolt, and means for latching the outside section when the bolt is released into the keeper by the turning of the inside section in one direction, the bolt being operable from either section when the bolt is fully extended, when the bolt is released into the keeper by movement of the outside section, or when the bolt is released into the keeper by turning the inside section in one direction.

10. The device of claim 9 in which the outside spindle section latching means includes a cam on the inside roll-back to slide the outside roll-back on the outside section.

11. The device of claim 9 in which the latch casing has a centrally located slot the outside roll-back is slidable on its section and has a fin adapted to enter said slot to latch the outside section against rotation, and the inside roll-back has a cam for sliding the outside roll-back to latch the fin in the slot.

12. In a dead-locking latch, a spring-pressed bolt having three positions, the first with the bolt withdrawn into the latch casing, the second with the bolt in latched position in its keeper and the third with the bolt projected beyond latched position, an outside spindle section, an inside spindle section, means on each section for moving the bolt from third to first or second position, means whereby the moving of the bolt from third to second position by the inside section holds the outside section against rotation, and means whereby the movement of the bolt to third position frees the outside section from such engagement.

13. The device of claim 12 in which when the bolt is in second or normal latched position, the rotation of the inside section in one direction causes the latching of the outside section in case the inside section has last been turned in the opposite direction and the outside section is not held against rotation.

14. In a latch, a plurality of bolt operating devices one of said devices having an extended portion and the other device having cam means whereby when the second device is rotated to operate the bolt the first device will be moved away from its axis if the angular movement is in one direction but will not be moved at all if the angular movement of the second device is in the opposite direction, and means for holding the first bolt operating device against rotation when moved from its axis.

In testimony whereof I affix my signature.
HENRY W. KEIGWIN.