Dec. 5, 1950 A. F. LICKTEIG 2,533,023

NIGHT LATCH

Filed Dec. 22, 1945 2 Sheets-Sheet 1

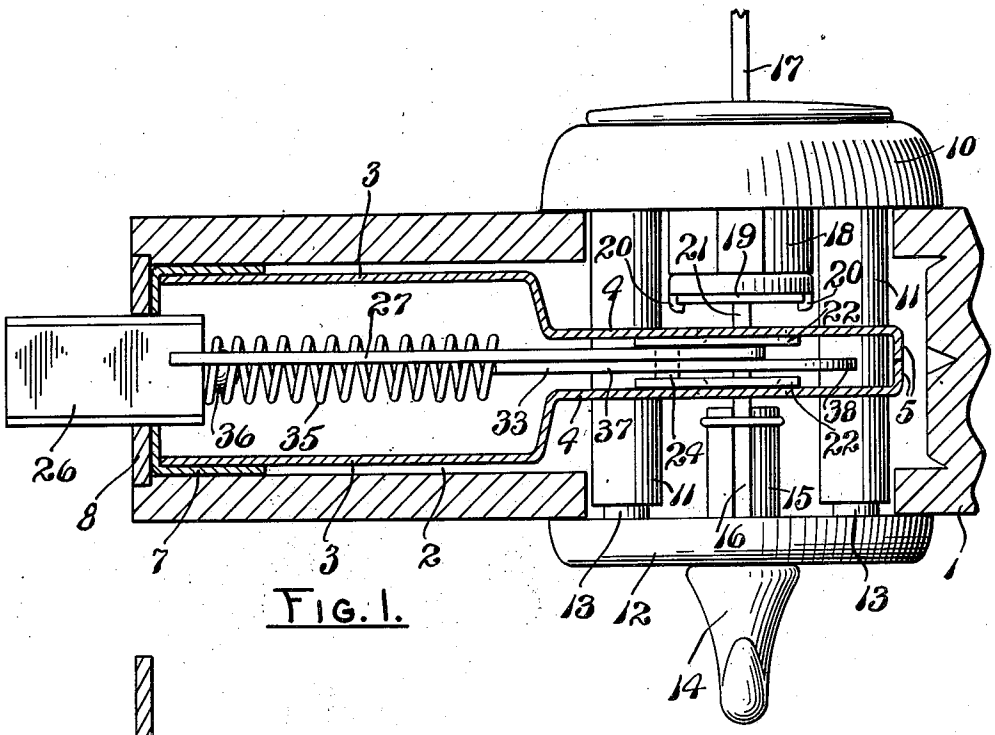


FIG. 1.

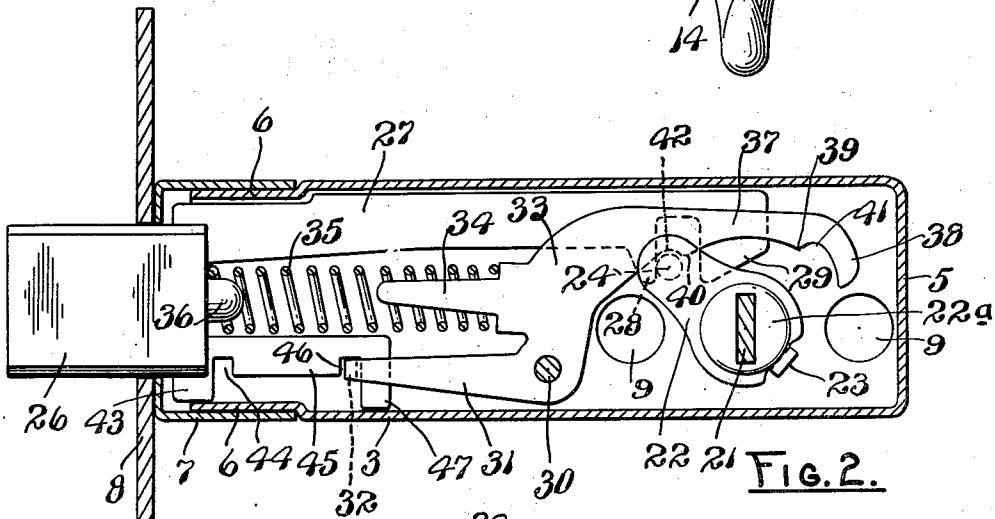


FIG. 2.

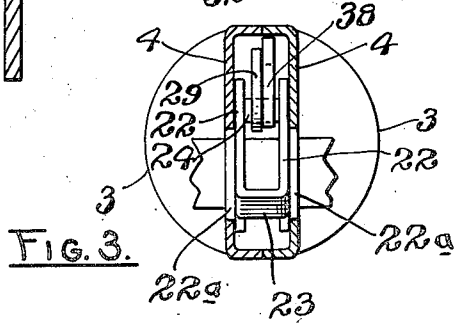


FIG. 3.

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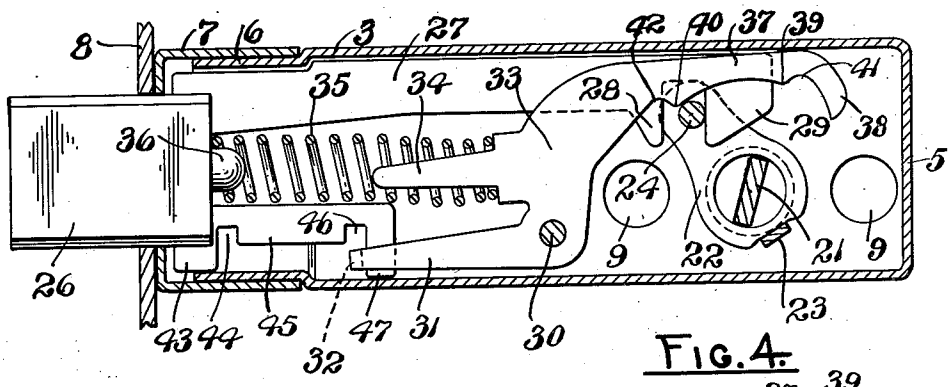


FIG. 4.

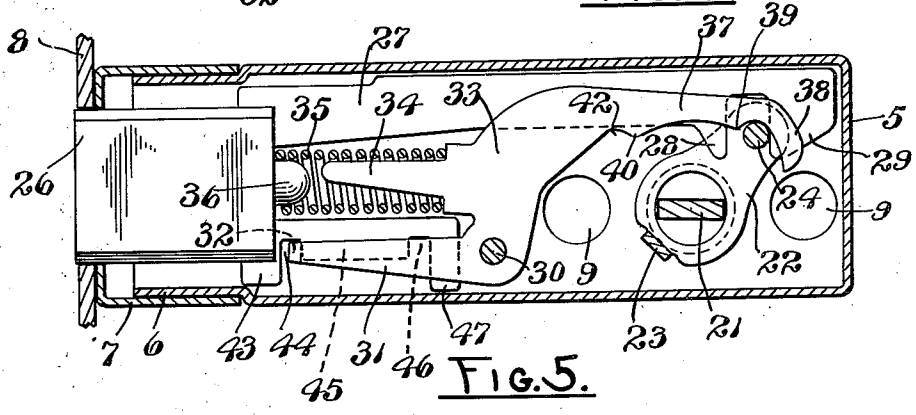


FIG. 5.

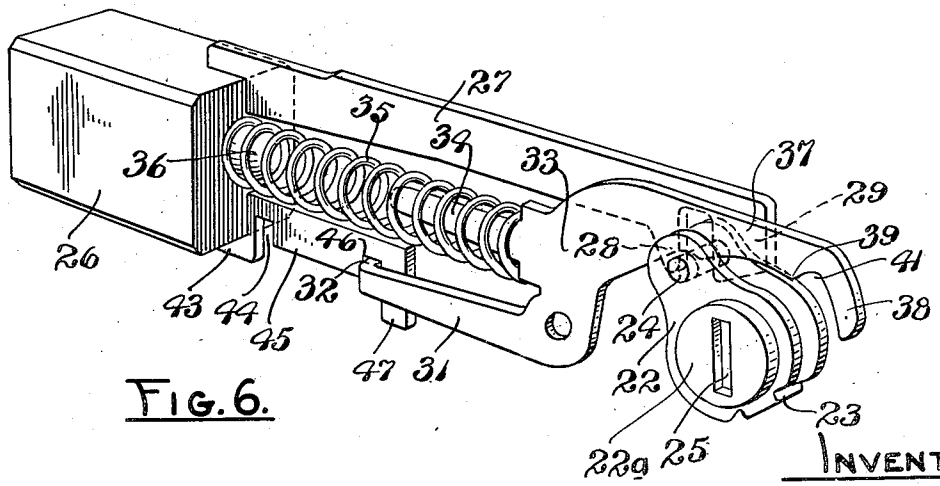


FIG. 6.

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NIGHT LATCH

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Application December 22, 1945, Serial No. 636,611

6 Claims. (Cl. 292—169)

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This invention relates to night latches or bolts which may be key operated from the outer side of the door, and manually operated at its inner sides. The present invention is directed to a practical, economical, novel construction of night latch which is automatically locked in either its extended operative position or in its withdrawn inoperative position, so that it is not movable except through either the key operation or the inside manual operation, when in its projected or extended position. It is received in a recess provided therefor in a door casing or jamb and is locked against retraction and cannot be moved to unlock the door by attempting to manipulate the keeper engaging head of the latch bolt, or in any other manner except by the key at the outer side of the door or by operating the knob at the inner side. Similarly, withdrawal of the bolt head to its inoperative position automatically locks and holds the bolt head withdrawn and not releasable except by key or knob. It is the primary object and purpose of the present invention to provide a night latch of exceptionally simple and economical structure, which has the qualities and properties stated, and which is sure and certain in its operations, and which may be readily installed with a minimum of trouble.

An understanding of the invention may be had from the following description taken in connection with the accompanying drawings, in which

Fig. 1 is a horizontal section through the night latch made in accordance with my invention showing it installed at the vertical edge of a swinging door, which door is shown fragmentarily in section.

Fig. 2 is a longitudinal vertical section through the latch construction with the latch bolt in its extended operative position.

Fig. 3 is a transverse vertical section taken adjacent the inner end of the latch housing.

Fig. 4 is a section similar to Fig. 2, showing the position of the parts immediately after the projecting bolt head has begun to be withdrawn.

Fig. 5 is a like section with the bolt head fully withdrawn and retained or locked in such position.

Fig. 6 is a perspective view of the interior latch mechanism which is housed within the latch housing or casing.

Like reference characters refer to like parts in the different figures of the drawing.

The door 1, upon which the latch is installed or mounted, is bored from its free vertical edge inwardly for a distance to provide a cylindrical

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opening 2 for the reception of the latch, and the door is also provided with transverse openings from its inner and outer sides to and communicating with the inner end portion of the cylindrical opening 2.

The latch housing is made of sheet metal in two parts or halves each in two sections, including a semi-cylindrical outer section 3, and an inner channel section 4, with inner end flanges 5, which may be secured together in any suitable manner, for example, as shown in prior constructions devised by me. Also at the outer ends of the semi-cylindrical section 3 short semi-cylindrical sections 6 of reduced diameter are made, over which a cup 7 is telescoped and releasably secured in a suitable manner. A face plate 8 is welded or otherwise permanently secured at the outer side of the bottom of the cup, and is adapted to be received in a mortised recess in the edge of the door (Fig. 1) in securing the latch to the door after it has been inserted into the cylindrical opening 2 in the door. In the bottom of the cup and plate 8 openings in conjunction with each other are made for the slidable passage of the head of the night latch bolt.

The vertical sides or webs of the inner channel sections 4 of the housing each have circular openings 9 therethrough spaced from each other as shown in Figs. 2, 3, 4 and 5. At the outer side of the door a rose or escutcheon is disposed, having cylindrical posts 11 extending therefrom and passing through said openings 9 (Fig. 1) nearly to the inner sides of the door 1. An inner escutcheon 12 is located at the inner side of the door through which screws 13 pass threading into the posts 11, the escutcheons 10 and 12 covering the transverse openings made through the door. A manually operated knob 14 at the inner side of the escutcheon plate 12 has a rotatable stem 15 extending through said escutcheon. The stem is divided between opposed sides making a slot in which an operating bar 16 is held, and which at its inner end is connected with one side of a roll back within the latch housing, which will be later described.

The key indicated at 17 (Fig. 1) is for the operation of a key actuated lock, generally indicated at 18, at the inner end of which a disc 19 is held by inwardly bent tongues 20. From the disc 19 a bar 21 extends through the roll back and has its opposite end 16 connected with the knob 14. Therefore, the roll back may be operated from either side of the door, by means of the key 17 at the outer side of the door, and the knob 14 at

the inner side. In practice the disk 19 is associated with an escapement in the housing from which the tongues 20 extend which permits a free rotation of the disk 19 on turning the knob 14 whereby the bolt 26 may be controlled by the knob 14 without the barrel of the lock 18 being turned, but a turning or rotation of the barrel of the lock 18, by such escapement mechanism is connected with the disk 19 so that the bolt 26 may be independently operated by the key 17. This structure is no part of the present invention and many ways other than the escapement mechanism which is used in practice may be used, therefore it is not specifically shown and described.

The roll back is mounted between the sides of the inner end portion of the latch housing and, as best shown in Fig. 6 is constructed from sheet metal with two spaced apart sides or arms 22 integrally connected at one end by a cross member 23, and having a cross pin 24 secured to and extending between the opposite ends of said arms. Each of said arms toward the end thereof connected by member 23 is provided with an outwardly pressed embossing 22*a*, circular in outline and which are mounted in complementary circular openings in the webs of the channel sections 4, thereby mounting the roll back for rocking movements above a horizontal axis. Each of the embossings 22*a* has a rectangular slot 25, through it, shaped to receive the bar 21.

The latch bolt head 26 passes through the openings through the plate 8 and bottom of cup 7, and may be moved from an outward position, as in Figs. 1 and 2, to a retracted position as in Fig. 5. A flat bar 27 is permanently secured at its outer end to the bolt head 26 and extends inwardly lengthwise of the latch housing. At its inner end portion it is formed with two spaced downwardly extending fingers 28 and 29, with a recess between the fingers open at its lower end in which the transverse pin 24 carried between roll back is received. (Fig. 4.) It is evident that by turning the roll back in a clockwise direction, pin 24 engaging against the finger 29 will withdraw the bolt head 26. The bolt, normally when free, is acted upon for projection outwardly by a spring, the mounting and installation of which will now be described.

A transverse pin 30 extends through the latch housing at a point approximately midway between its ends and near its lower side. A lever is mounted for rocking movement on the pin. The lever is made from flat stock and has an arm 31 extending forwardly from pin 30, which, at its free forward end, is provided with a laterally turned lug 32. The intermediate portion or body of the lever, shown at 33, extends upwardly above the pin 30, and has an outwardly extending finger 34, over which the inner end portion of a coiled compression spring 35 is located, the outer end of the spring being seated against the rear end of the bolt head 26 and around a nub 36 extending rearwardly therefrom. It's evident that the spring normally acts to project the bolt head in an outward direction, and also that it tends to turn the lever 33 in a clockwise direction about the pivot pin 30.

From the upper portion of the body 33 of the lever an arm 37 extends to the rear, alongside the rear portion of bar 27, and over the roll back pin 24. Said arm 37 at its rear end terminates in a down turned tail piece 38. At its under edge it is formed with two spaced downwardly extending projections 39 and 40, the former located a short distance ahead of the tail piece 38, and with its rear side joining with the forward edge of the tail piece to make a concave recess 41 as shown. The forward projection 40 at its front side or edge joins with the rear edge of the body 33 making a similar recess 42, in which recesses the pin 24 may seat in the operations of the latch.

A second bar 43 of flat stock is connected to the bolt head 26, and extends back thereof at its lower side. A short distance back of the head 26 it is provided with a notch or recess 44 between the front end portion of the bar and an intermediate portion 45. At the rear end of the intermediate section 45 a second vertical slot 46 is made between it and a downwardly extending tongue 47 at the rear end of said plate. The recesses 44 and 46 are open at their lower ends and are adapted to receive the laterally turned lug 32 at the forward end of arm 31, which lug seats in the recess 44 when the bolt head is retracted, and in the recess 46 when the bolt head is at its outward position (Fig. 2). The spring 35 turns the lever having the arm 31 in a clockwise direction so as to normally insure that the lug 32 is disposed in either one or the other of said recesses to lock the latch bolt in either its outer or inner positions.

With the projected bolt head 26 in operative engagement with a door casing keeper therefor, the parts of the latch mechanism are in the positions shown in Figs. 2 and 6. The roll back carried pin 24 is seated in the front recess 42, at the juncture of the body 33 and arm 37 of the lever actuated by spring 35, so that a sufficient clockwise movement of the lever is permitted to elevate lug 32 into the recess 46. With the lug seated in such recess, the latch bolt head 26 is held against movement. The only way that is provided for moving lug 32 out of recess 46 is to turn the roll back in a clockwise direction either by the key 17 or the knob 14. When this occurs the pin 24 moves underneath the downwardly extending projection 40, and is also elevated to some extent by reason of its arc of movement, turning the arm 31 in a downward direction to the position shown in Fig. 4, and moving said lug 32 out of the recess 46. A continuation of the roll back movement to the rear moves bar 27 and attached head 26 inwardly as pin 24 engages the finger 29, the lever 31 remaining in its lowered position until the pin has passed by the projection 39 and has come to the recess at 41. The lower edge of the arm 37 between projections 40 and 39 is in an arc of a circle, the radius of which is from the axis of rotation of the roll back to the outer side of pin 24. When the pin 24 reaches the recess at 41, the lever is released for clockwise movement under the pressure of spring 35 and lug 32 is lifted into the front recess 44, the head 26 and the bar 43 thereon in which the recess 44 is made having been retracted to bring such recess immediately above the lug 32.

The bolt is therefore retained in its retracted position as in Fig. 5. To release the bolt the key or the knob 14 turned in the opposite direction, causes pin 24 to ride underneath the projection 39, again turning the pivotally mounted lever to its down position, as in Fig. 4, and it is held in such position during the outward movement of the head 26 and until said roll back pin 24 comes to the recess 42, and the lever is again freed to be turned to lift lug 32 into the recess 46, as in Figs. 2 and 6.

The rear end of the bar 27, that is the rear or inner edge of the finger 29 coming against the end 5 of the housing provides a stop against inward movement of the head 26 beyond a position in which it is fully released from its keeper.

With the construction described, a very simple and effective organization and combining of parts is provided to make a night latch having the desirable properties and functions stated. One spring only is required to normally project the latch head and to move the locking lever to operative locking engagements with the bar 43. The parts are few in number and very readily stamped from sheet or flat metal, their assembly is expeditiously performed and the installation on the door of the most economical type and character.

The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming withing their scope.

I claim:

1. A latch including, an elongated housing, a latch bolt having a bolt head at its outer end extending through the outer end of the housing, a roll back mounted toward the inner end of the housing for rocking movement, means for operating said roll back, operative connections between the roll back and bolt for retracting the bolt on movement of the roll back in one direction, a movably mounted member located within the housing, spring means between said member and the bolt head for moving the bolt outwardly, cooperating means on said member and on said bolt for locking said bolt in either its inner or outer positions when moved thereto, and means on said movable member in association with and operatively moved by said roll back for releasing the bolt for movement on manual operation of the roll back at the beginning of such manual operation and at either the position of the roll back when the bolt is projected or when it is withdrawn.

2. A latch including, an elongated housing closed at its inner end and having an opening at its outer end, a latch bolt slidably mounted in said housing having a head passing through said outer opening, a roll back mounted for turning about an axis transverse of the housing located at the inner end thereof, operative connections between the roll back and the latch bolt for withdrawing the bolt when the roll back is turned to the rear, a pivotally mounted lever within said housing having an arm extending rearwardly over said roll back, said roll back having a transverse pin and the lower edge of the arm having spaced downwardly extending projections and a pin receiving recess in front of the front projection and back of the rear projection, said lever having a second arm extending in forward direction toward said bolt head, said second arm at its free end having a lateral lug, a bar secured to and extending rearwardly from the bolt head provided with forward and rear recesses, each adapted to receive said lug, compression spring means between the bolt head and said lever normally acting to elevate said

second arm, and means for independently manually operating said roll back between a forward and a rear position in which positions the pin or said roll back is seated in said recesses on the first arm of the lever extending thereover.

3. A construction as defined in claim 2, said compression spring means comprising a coiled spring, a rearwardly extending knob on the bolt head over which the front end portion of the spring extends, said lever above its pivot having a forwardly extending finger over which the rear end portion of the spring is located, the rear end of the spring bearing against the intermediate portion of the lever between the arms thereof.

4. A latch construction comprising, an elongated housing having an opening at its outer end, a latch bolt slidably mounted lengthwise of the housing having a head passing through said outer end opening, manually operated means for independently retracting the latch bolt, one at each of opposite sides of the housing, roll back means within the housing connected with each of said manually operable means for movement thereby, operative connections between the latch bolt and said roll back for retracting the latch bolt on movement of the roll back in one direction, movably mounted means within the housing and extending between the bolt head and roll back, having an end portion adapted to be operated by the roll back in its movements and an opposite end portion extending toward the head of said bolt, means connected with said bolt head with which said last mentioned end portion of said movable means engages when the bolt is at either its fully retracted or fully projected positions, said means being releasable by the roll back movements, and spring means between said movable means and the bolt head for moving the bolt outwardly when free to do so.

5. A latch comprising a housing, a latch bolt slidable in said housing, manually operated means for retracting the latch bolt, a locking member within the housing having a portion movable into locking engagement with said bolt and movable into unlocked position by movement of said manual retracting means, and a single spring acting between said locking member and said latch bolt to extend the latch bolt and to hold the locking member in locking position.

6. The elements of claim 5 in which said locking member moves into locking engagement with said latch bolt in both extended and retracted positions.

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