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CONSOLIDATED LATCH AND DEAD BOLT LOCK.
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Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

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To all whom it may concern:

Be it known that I, WILLIAM H. THOMAS, a citizen of the United States, residing at Whittier, in the county of Los Angeles and State of California, have invented a new and useful Consolidated Latch and Dead Bolt Lock, of which the following is a specification.

The object of this invention is, simplicity, cheapness and security of locks.

The invention is applicable for door locks of any kind and may be applied in locks constructed for operation either by a key operated directly or by a cylinder operated by a key.

An object of this invention is to provide a lock adapted to be used on all kinds of hinged doors either upon the surface or mortised therein and which lock may be locked to either latch bolt, or dead bolt, or both, and operable from either side of the door or from both sides thereof; and to provide a lock non-pickable by any means inserted in the keyhole; also to provide a lock that can be converted into a night-latch without the walking beam and other devices heretofore used for that purpose.

Further objects are to provide a lock which combines in compact space and with simple mechanism a latch lock for daily use which can be transformed for night latch use without opening the door in order to make the change from one form of lock to the other.

The accompanying drawings illustrate the invention in a form in which it may be embodied.

Figure 1 is a sectional view of the lock, on irregular line &apos;&apos; &apos; &apos;, Fig. 4, showing the novel mechanism with parts in position for ordinary day use when the latch is operable by the knobs from either side of the door. The lock is shown arranged for operation by a key. The key operated tumblers are omitted for convenience. The place where the cylinder would be in case the lock were arranged to be operated by a key-operated cylinder is indicated in dotted lines. The hub is also shown by dotted lines in a latch-retracting position. Fig. 2 is a fragmental view of a lock provided with the novel mechanism shown in Fig. 1; the lock in this view being arranged for operation with a key-operated cylinder which is shown unlocked, and constituting means to adjust the guard. The guard is adjusted in position to convert the lock into a night-latch. The place for the key-hole in case the lock were devoid of the cylinder is shown in dotted lines. Fig. 3 is a view analogous to Fig. 1, showing the latch and dead bolts thrown into locking position and the guard adjusted to lock the deadbolt, latch-bolt and knobs against unlocking by any means. A key-operated cylinder is shown instead of the key of Fig. 1. Fig. 4 is a section on irregular line &apos;&apos; &apos; &apos;, Fig. 2. In this view the lock is shown as applied to a door which can be guarded and released from only one side of the door. In Figs. 1, 2 and 3 the mechanism shown may be applied to such a door, or may be fitted for absolute double locking of a door between two rooms; and in the latter case the guarding mechanism may be applied for each of such rooms against unlocking by any means from the other room when the door is closed. Fig. 5 is a perspective view of the guard for such absolute double locking from opposite sides of the door. Fig. 6 is a fragmentary detail illustrating the construction of a lock which is different from Fig. 4 only in the double locking feature. Fig. 7 is a plan of the dead bolt detached. Fig. 8 is a plan of the bifurcated body of the latch-bolt detached.

The door 1 may be of any character adapted to swing into and out of the door frame which is provided with the usual strike plate 3 and the recess 4 for the bolts of the lock. The lock case 5 may be of any usual construction, except that where it is fitted for double locking it may be provided with a partition 6 between the guards hereinafter described.

In Fig. 4 the lock is shown with a single guard 7 and in Figs. 5 and 6 with two guards 7' and 7". Each guard is operable by a knob 8 connected with the guard by a stem 9 playing through a slot 10 in the side 11 of the lock case. Said guard is adapted to slide along the inner wall 12 of the lock case behind the several bolts as and for the purpose hereinafter more particularly set forth.

The latch bolt may be constructed of a single piece or of a plurality of pieces. In the form shown, it is composed of three elements; viz., the body 13, easy latch bolt tip
13' and an easy spring 19 to hold the tip normally extended. The body 13 may be provided with an easy tip 13' having a stem 14 sliding through an opening 15 which may be a slot in a cross-bar 16 of the latch-bolt, said stem 14 being provided with a shoulder 17 to prevent the easy tip 13' from escaping through the face plate 18 of the lock. The easy tip 13' is held normally extended relative to the body 13 of the latch-bolt by an easy latch-spring 19 surrounding the stem, said spring acting on a washer 20 which prevents any portion of the spring 19 from entering the slot 15. The easy spring 19 is to allow the latch-bolt tip 13' to slip easily over the striker plate 3 when the door closes.

The latch-bolt body 13 is provided with two lugs 21, 22, with which the arms 23, 24 of the hub 25 engage for the purpose of retracting the latch-bolt whenever the knob spindle 26 is turned by either of the knobs 27. The main latch-bolt spring 28 is fastened at one end to a stud 29 of the case and at the other end to the latch-bolt body 13 by the stud 30. When the hub 25 is turned by the spindle 26 in either direction one of the arms 23 or 24 will move back the latch-bolt in the usual manner against the pressure of the main latch-bolt spring 28 thus operating the latch-bolt by the knobs whenever the guard is in the position shown in Fig. 1.

A catch 31 having a spring body 32 is fixed at one end 33 in the recess 34 in the case, said end 33 being enlarged and the recess conformed thereto so as to secure and hold the catch against lengthwise displacement. Said catch is provided at its upper end with a right angle extension or detent 35 to enter the recess 36 in the arm extending from the hub 25. The tendency of the spring body 32 is to hold the detent 35 free from the hub. The guard 7 normally rests on the top of the catch 31 and its lower end is a wedge 37 adapted to slide in between the catch 31 and the wall 12 of the case, whenever the guard is pushed down, thereby to force the detent 35 into the recess 36 of the hub thus to prevent rotation of the hub. The guard 7 is provided with a rectangular extension adapted to engage the dead bolt 39 when the same is retracted. Said dead-bolt having two parts parallel to each other joined by a bar between the front and rear ends of said parts; said dead-bolt being of a single piece and provided with two locking tips or limbs 39' and 39'' on opposite sides of the tip 13' of the latch-bolt and adapted to enter the striker plate 3 for the purpose of dead-bolt locking when the dead bolt 39 is in unlocked position. The rear end of the locking bolt is in the path of the right-angle extension 38 which is provided with a face 40 to engage the dead bolt to stop the guard 7.

When the guard 7 is pushed down into the hub-locking position shown in Fig. 2 it is stopped by engagement of the extension 38 with the dead bolt 39 and cannot be moved any farther down until the dead bolt is thrown into locking position. The guard is thus stopped in order to allow the dead bolt to move freely back and forth when operated by the key. The tip 37 of the guard 7 is wedge-shaped so that the tension of the catch prevents accidental descent of the guard beyond the unlocked position shown in Fig. 1. When the dead bolt is thrown into locking position as shown in Fig. 3 the guard may then be shoved down to bring the right angle extension directly back of the dead bolt thereby absolutely preventing the dead bolt from being unlocked in any way either by key or knob or by any appliance that may be inserted through the key hole 41 after the cylinder 42 is in place.

The dog 31 is immovable except by the operation of the stem 9 and there is no passage between the key hole and the guard 7 through which an instrument may be inserted to manipulate the guard, consequently when the guard is fully depressed as shown in solid lines in Fig. 3 the dead bolt and also the latch bolts and hub are locked and it is impossible to pick the lock and the lock cannot be unlocked until the guard 7 is withdrawn from the position shown in dotted lines in Fig. 3 which will allow the dead bolt to be operated by the key or the cylinder 42 as the case may be. The guard 7 has a shoulder 37 to rest on the detent 35, thus to prevent the guard from unduly wedging the spring body 32, when the dead bolt is locked as shown in Fig. 3.

The parts 39' and 39'' of the dead bolt are connected by a cross bar 43 provided with a stop 44 to engage the end of the stem 14 of the easy tip of the latch bolt when the dead bolt is in the position shown in dotted lines in Fig. 3. The dead bolt is retracted with a recess 45 for the hub; and the latch bolt body is provided with an elongated recess 46 to receive the hub and also to allow the stop 44 to slide forward to engage the stem 14. The dead bolt is provided with stops 47, 48 to engage shoulders 49, 50 on the latch bolt to insure against retraction of the latch bolt when the dead bolt is locked and also to return the dead bolt to unlocking position whenever the latch bolt is retracted.

In practical use when the guard 7 is in position shown in Fig. 1 the latch bolt may be operated by the knob in the usual way. When the guard is pushed down in the position shown in Fig. 2 the knob is locked and cannot be turned and consequently the latch bolt cannot be operated thereby, but can be operated by means of the key 51 shown in Fig. 1 or the cylinder web 52 in the usual way.
Fig. 2. When it is desired to lock the dead-bolt, this is accomplished by turning the key 51 to the right in Fig. 1 or the cylinder 42 to the right in Fig. 2 until the dead-bolts are thrown into the locking position shown in Fig. 3 when the cylinder web will stand as shown in Fig. 3. Then the guard may be pushed down into the position shown in Fig. 3 whereupon it becomes impossible to retract the lock by any means introduced through the key-hole 53 in Fig. 1 or into the cylinder 42 in Fig. 2 or 3. When the guard is retracted to the position shown in Fig. 2 or 1 the bolts can again be retracted by a reverse movement of the key or cylinder as the case may be; and when the guard is fully retracted as shown in Fig. 1 both bolts may be retracted by either the knobs, the key or the cylinder. The latch-bolt slides on the face of and is carried by the dead-bolt and serves to retract the same whenever the latch-bolt is retracted, and it is unnecessary to provide any further means to hold the dead bolt retracted. The latch-bolt is provided with projections 54 that extend between the parts of the dead-bolt to act as guides for the latch-bolt, and the dead bolt is provided with guide slots 55, 56 to receive studs 57, 58 from the side of the case to assist in holding said bolt in true position as it is moved by the key or the web of the cylinder. The stud 29 also projects from the side of the case and a slot 59 in the dead bolt to further assist in guiding the same.

It is thus seen that I have provided in alignment with each other three bolt tips that are adapted to enter the slot-like recess 4 through the striker plate; and that when desired all three bolt tips may operate to engage the striker plate to bar the door from opening. It is also seen that I have provided a lock in which there are means for locking the knobs and converting the lock into a night latch instantaneously without opening the door, this result being accomplished by simply pushing down the knob 8. The reverse operation returns the parts of the lock to ordinary day use.

The dead-bolt is provided with two extensions 60, 61, on opposite sides of the hub 55 upon which the latch-bolt body 13 travels, and said extensions are provided with projecting guides 62, 63, between which the latch-bolt body with its lugs 21, 22, travels.

The latch-bolt is provided with a downwardly projecting key-contacting lug 64 and the dead-bolt body is provided with a downwardly projecting key-contacting lug 65, said lugs being on the lower part of said bolts respectively and are adapted to be engaged by the key 53 when turned in one or the other direction. By turning the key clockwise in Fig. 1 it will engage the downwardly projecting lug 64 to retract the latch-bolt, and in case both bolts are out to retract the latch-bolt and dead-bolts simultaneously, and on a reverse movement the key will engage the downwardly projecting lug 65 to extend the dead-bolt and to bring the lug 65 against the lug 64, thus to hold the latch-bolt out and in locking position.

I claim:

1. In a lock the combination provided with a dead-bolt and a latch-bolt, and a hub, of a guard adapted to hold the bolts from retraction; and means to adjust the guard; said guard being adjustable to three positions, one to free the bolts, another to lock the hub, and another to lock both latch and dead-bolts.

2. In a lock the combination with a knob, a dead bolt and a latch; and a hub, of a guard adapted to hold the bolts from retraction; and means to adjust the guard; said guard being adjustable to three positions, one to free the knob and bolts, another to lock the hub, and another to lock the hub and both latch and dead-bolts.

3. A lock comprising a latch-bolt, a dead-bolt formed of two parallel parts joined between their ends by a bar, a hub between the rear ends of the dead-bolt to operate the latch-bolt, an arm slotted in the end extending from the body of the hub, a catch with a spring body fixed to the lock case extending upward terminating in a catch consisting of an outward projecting shoulder to contact with the slot in the end of the arm extending from the body of the hub, a guard with a body with an arm extending at a right angle projecting downward and terminating in a wedge adapted to pass between the inner wall of the lock case and upper end of the catch to force the same into contact with the slot in the end of the arm extending from the body of the hub.

4. A lock comprising a latch-bolt, a hub to operate the latch-bolt, a spring catch, a guard with a horizontal body adapted to receive a knob by which it can be raised and lowered into and out of contact with the spring catch, a vertical arm extending at a right angle to the body and projecting downward, there being a shoulder on the vertical arm of the guard to contact with the upper end of the catch to prevent the arm being lowered when the dead-bolt is in locking position, so that the projection on the end of the body of the guard to receive the knob cannot be forced down between the inner wall of the lock case and dead-bolt.

5. A lock in combination with a latch-bolt, a dead-bolt having two parts parallel to each other and connected by a cross-bar to insure unity of action and to contact with the hub to prevent the retraction of the dead-bolt beyond the line of the face-plates, a hub between the rear ends of the dead-bolt to operate the latch-bolt, a latch-bolt body terminating in a receiving head, a forward extending...
latch tip connected with and resting in the receiving head and actuated by the hub and closely fitting between the two forward ends of the dead-bolt and passing through the face-plate in the same opening as the dead-bolt which act as a guide for the same, and key contacting means to lock and unlock the latch and dead-bolt simultaneously with one key, and on both sides of the door when the hub is in or out of locking position.

6. In a lock, the combination of a latch-bolt, a dead-bolt, an upward slotted projection on the rear end of the upper part of the dead-bolt forming the upper guide for the body of the latch-bolt, slots in the forward ends of the dead-bolt, studs projecting outward in all the slots from the lock case and forming guides for the dead-bolt, an upward projection on the rear end of the lower part of the dead-bolt with two arms forming a right angle, the vertical arm extending below the dead-bolt forming a key-contacting lug, the horizontal arm fitted to an open slot in the lower branch of the latch-bolt forming a bottom guide for the body of the latch-bolt, and key-contacting means on the lower part of the dead-bolt to hold the latch-bolt in locked position when the dead-bolt is in locked position.

7. In a lock comprising a latch-bolt, a dead-bolt, an upward projection on the rear end of the upper part of the dead-bolt forming the upper guide for the body of the latch-bolt, an upward projection on the rear end of the lower parts of the dead-bolt with two arms forming a right angle, the horizontal arm fitted to an open slot in the lower branch of the latch-bolt forming a guide for the body of the latch-bolt to travel in, key contacting means to hold the latch-bolt in locked position when the dead-bolt is in locked position, and a guard to hold the dead-bolt in locked position.

8. In a lock, a hub, a latch-bolt, a dead-bolt consisting of two parts parallel with each other and connected by a cross bar to insure unity of action and to contact with the hub to prevent the retraction of the dead-bolt beyond the line of the face-plate, a key contacting lug on the lower branch of the latch-bolt to retract at all times on either side of the door independently of the dead-bolt when it is in unlocked position.

9. In a lock, a dead-bolt having a downwardly projecting key contacting lug on its lower part, a hub having arms, a bifurcated latch-bolt having two branches extending backward from the body of the latch-bolt with an outwardly projecting shoulder from each of them to contact with the arms on the front of the body of the hub, and a downwardly projecting key contacting lug on the lower branch, a hub with a body consisting of one piece with an arm extending on either side to engage said outwardly projecting shoulders on the branches of the latch-bolt to operate the same, a spindle constructed of one piece to receive the knobs and to operate the hub, a key to contact the downwardly projecting lug on the lower part of the dead-bolt to simultaneously move the dead-bolt and latch-bolt.

10. A lock comprising a dead-bolt, a latch-bolt carried by the dead-bolt, a hub to operate the latch-bolt, a dog having a resilient body and adapted to lock the hub, and means to operate the dog to effect the locking.

11. In a lock, a hub, a dog to engage the hub, resilient means to retract the dog from the hub and a wedge to move the dog into engagement with the hub.

12. In a lock, a dead-bolt having two parts parallel with each other, a latch-bolt, key-contacting means on the lower parts of the dead-bolt to engage the key-contacting means on the latch-bolt to hold it in locking position when the dead-bolt is in locking position, and means to hold the dead-bolt in locking position.

13. In a lock, the combination of a dead-bolt, a latch-bolt, a hub to operate the latch-bolt, a guard, a catch having a spring body, an arm with a slot in the end extending from the body of the hub to contact with said catch when the guard is in night latch position, and a key to retract the latch-bolt and dead-bolt simultaneously.

14. In a lock, the combination with a lock case, of bolts therein, a hub to retract the bolts, a catch, a guard to pass between the wall of the lock case and the end of the catch to lock the hub, and a key to retract the latch bolt and unlock the dead-bolt while the hub is in locked position.

15. The combination with a lock-case, of a dog having a detent and a spring body between the detent and the end of the dog; said end being fixed to the lock-case; a hub adapted to be engaged by the detent, and a wedge-shaped guard slideable between the dog and a wall of the case to force the detent into engagement with the hub.

16. The combination with a lock-case, of a dog having a detent and a spring body between the detent and the end of the dog; said end being fixed to the lock-case; a hub adapted to be engaged by the detent; a wedge-shaped guard slideable between the dog and a wall of the case to force the detent into engagement with the hub, and a bolt in the lock adapted to be held in locking position by the guard when said guard is holding the dog in hub engaging position.

17. In a lock, a dead-bolt having two parts parallel with each other, a latch-bolt body adapted to slide on the dead-bolt, a key to lock and unlock said bolts simultaneously, and means on the inner side of the door to shift the lock in and out of night latch position.
18. The combination with a lock case having studs, of a dead-bolt having guides, slots engaging the studs, a latch-bolt adapted to travel on the dead-bolt, a catch having a spring body constructed to contact with the slot in the end of the arm extending from the body of the hub when the guard is lowered and the lock in night latch position.

19. The combination with a lock case having studs, of a dead-bolt having guides, slots engaging the studs, a latch-bolt body adapted to travel on the dead-bolt, a hub to operate the latch-bolt, said latch-bolt and dead-bolt having key-contacting means constructed to engage each other to retract the dead-bolt by the latch-bolt and to hold the latch-bolt in locking position when the dead-bolt is held in locking position, and means to hold the dead-bolt in locking position.

20. In a lock, a hub provided with arms, and a dead-bolt having two parts parallel to each other and connected by a cross-bar to insure unity of action and to contact with the hub to prevent the dead-bolt from being retraced beyond the height of the face-plate, there being an outward projection on the center of the cross-bar for the arms of the hub to ride on to avoid friction on the latch-bolt body and to prevent lateral motion of the hub.

21. In a lock, a latch-bolt, a hub between the rear ends of the dead-bolt to operate the latch-bolt, an arm with a slotted end extending from the body of the hub, a catch with a spring body fixed to the lock case, a guard to operate the catch and hold it in contact with the latched arm extending from the body of the hub and in locking position, and means to raise and lower the guard in and out of contact with the catch to lock and unlock the hub.

22. In a lock, a latch-bolt, a hub to operate the latch-bolt, an arm slotted on the end extending from the body of the hub to engage a catch with a spring body fixed to the lock case, double guards to operate the catch, means on both sides of the lock to shift the guards in and out of contact with a catch with a spring body to lock or unlock the hub from either side of the door, and a partition in the lock case separating the guards to prevent their being tampered with from either side of the lock.

23. In a lock provided with a case and a bolt, a guard adapted to slide down along a wall of the case between said wall and the end of the bolt to hold the bolt in locking position, said guard being provided with an extension to engage the top of the bolt to uphold the guard when the bolt is in locked position.

24. A lock having a bifurcated latch bolt body, a cross bar connecting the limbs of the body, a bifurcated dead bolt, a cross bar connecting the limbs of the dead bolt, and an extension on the sides of the dead bolt limbs for guides for the latch bolt body to travel between.

25. A lock comprising a dead bolt having a key-contacting lug, a latch bolt having a bifurcated body and a key-contacting lug on a limb of the body, and contacting with the lug on the dead bolt, and a key contacting with the lugs of the latch and dead bolt for locking them simultaneously and for unlocking them simultaneously.

26. In a lock, a bifurcated dead bolt, a bifurcated latch bolt, a key contacting lug on bottom limb of the dead bolt projecting downward and contacting with a lug on the latch bolt and forcing it into locking position when the dead bolt is being locked and held in locking position while dead bolt is locked.

27. In a lock, a latch-bolt, a hub to operate the latch-bolt, an arm extending from the hub with a slotted end, a catch having a spring body fixed to the lock case and extending upwardly terminating in a projecting shoulder at a right angle to the body, said slotted end being adapted to engage said catch, guards having horizontal bodies and arms projecting downward from the bodies, a partition in the lock case to separate the guards, outwardly projecting shoulders on the arms of the guards and means on the horizontal bodies to press them down between the inner wall of the lock case and the upper end of the spring bodied catch to force said catch into contact with the slot in the end of the arm extending from the body of the hub; there being slots in the sides of the lock case to allow the knobs on the bodies of the guard to travel up and down to move the catch into and out of contact with the seat.

28. In a lock provided with a bifurcated latch-bolt having a key contacting lug projecting downward from its lower branch, a striker plate, a key, a dead-bolt consisting of two parts parallel with each other and a cross-bar connecting said parts, said dead-bolt having two locking tips to enter the striker plate with the latch-bolt when the bolts are in locking position and to be retracted simultaneously by the key.

29. In a lock provided with a case, a key, a spindle and knobs; a bifurcated latch-bolt having a key contacting lug projecting downward from its lower branch, a dead-bolt consisting of two parts parallel with each other and a cross-bar connecting said parts, said dead-bolt having a key contacting lug extending downward from the lower part and adapted to contact with the lug on the lower branch of the latch-bolt to hold it in locking position, a hub to operate the latch-bolt constructed of one piece having an arm extending from the body of the hub and provided with a slotted end; a catch at-
tached to the lower part of the lock-case, and having a spring body and extending upward and adapted to contact with the slot in the end of the arm on the hub to lock the hub; an adjustable guard adapted to hold the bolts from retraction, means to adjust the guard and lower it in contact with the spring-catch to hold the hub in locking position to prevent the knobs and spindle from being operated, leaving the latch-bolt and dead-bolt free to be operated by a key, and to be locked and unlocked simultaneously from either side of the door while the hub remains in the locked position.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 4th day of September, 1909.

WILLIAM H. THOMAS.

In presence of—

JAMES R. TOWNSEND,
M. BEULAH TOWNSEND.

Copies of this patent may be obtained for five cents each, by addressing the “Commissioner of Patents, Washington, D.C.”