

J. ROBERTSON.
LOCK AND FASTENER.
APPLICATION FILED SEPT. 15, 1908.

933,586.

Patented Sept. 7, 1909.

3 SHEETS—SHEET 1.

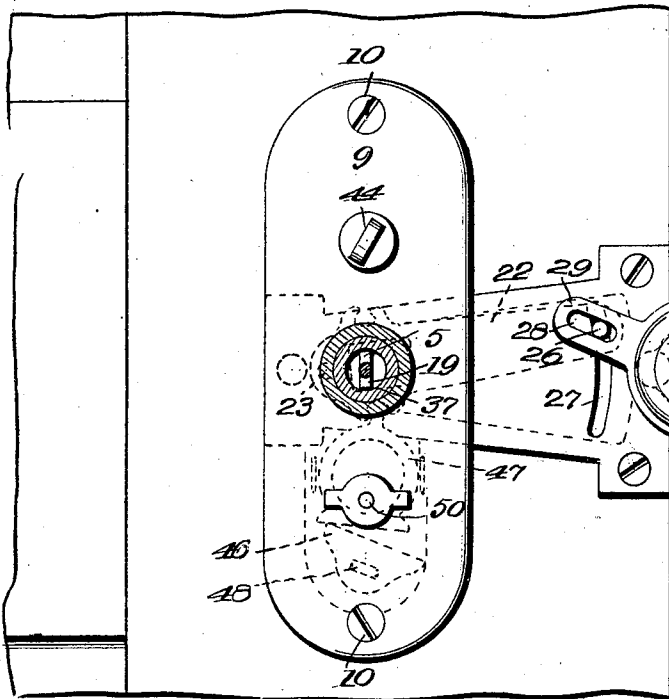


Fig. 1.

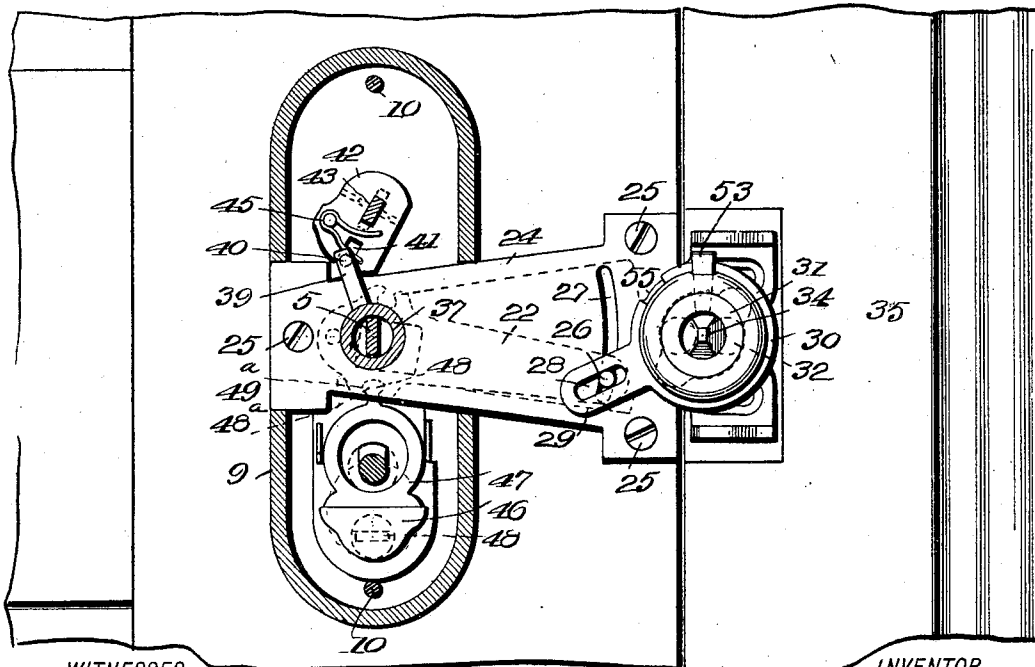


Fig. 2.

WITNESSES

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 3 SHEETS—SHEET 2.

Fig. 3.

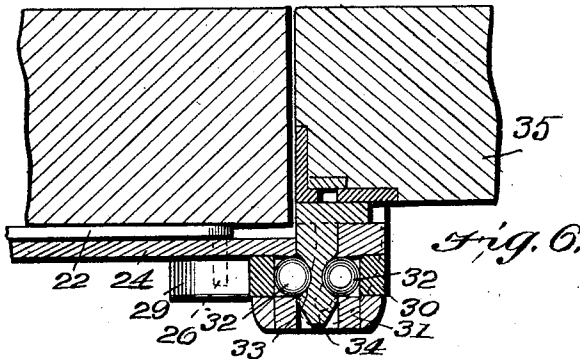
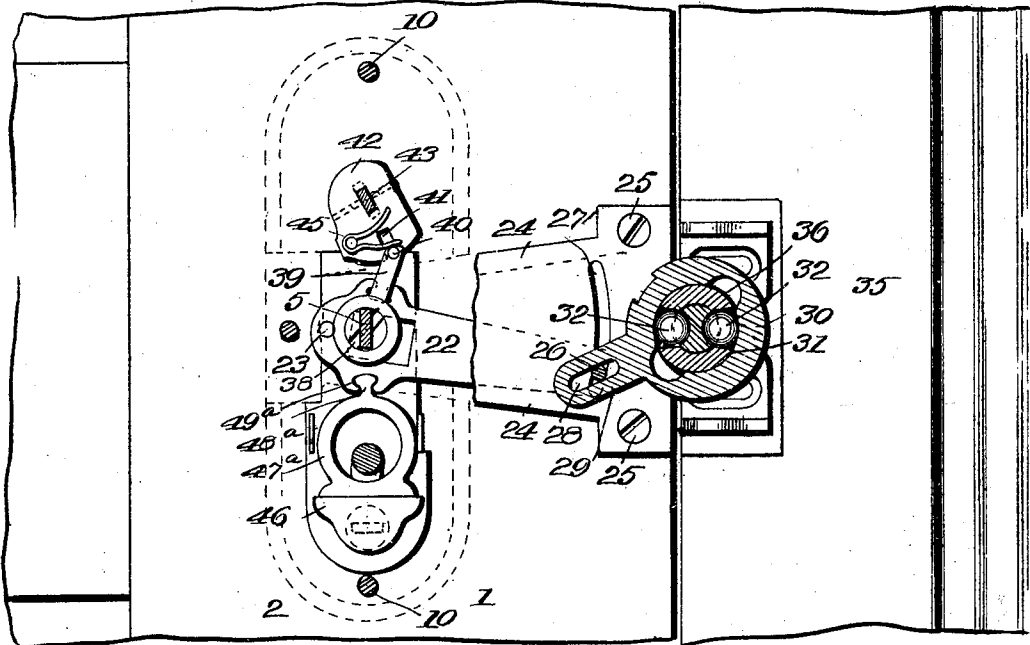


Fig. 6.

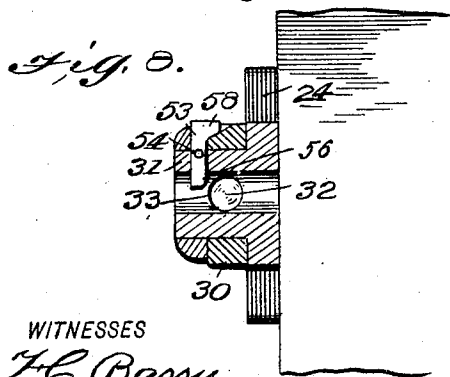


Fig. 8.

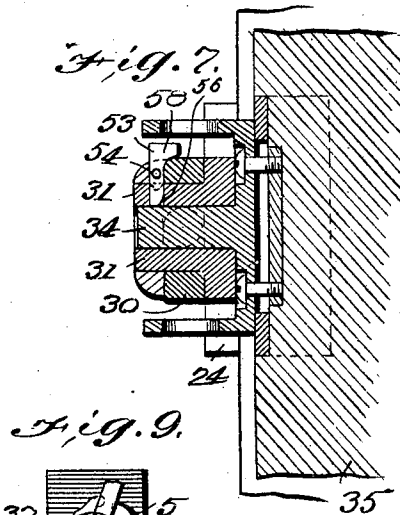


Fig. 7.

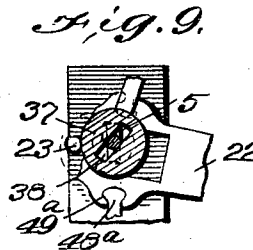


Fig. 9.

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UNITED STATES PATENT OFFICE.

JAMES ROBERTSON, OF PERTH, ONTARIO, CANADA.

LOCK AND FASTENER.

933,586.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed September 15, 1908. Serial No. 453,208.

To all whom it may concern:

Be it known that I, JAMES ROBERTSON, a subject of the King of England, and a resident of Perth, in the county of Lanark and Province of Ontario, Canada, have invented certain new and useful Improvements in Locks and Fasteners, of which the following is a specification.

My invention is an improvement in locks and fasteners and consists in certain novel constructions and combinations of parts hereinafter described and claimed.

Referring to the drawings forming a part hereof—Figure 1 is a front view of the improvement partly in section; Fig. 2 is a similar view with the cover plate removed, showing the fastener in locked position. Fig. 3 is a similar view, the locking device proper being shown in section. Fig. 4 is a section through a portion of the door, and the lock in place showing the sliding bar in one position. Fig. 5 is a portion of Fig. 4 showing the bar in another position. Fig. 6 is a longitudinal section through the locking device proper. Fig. 7 is a view at right angles to Fig. 6; Fig. 8 is a view similar to Fig. 7 showing the fastener unlocked; Fig. 9 is a detail of the night latch arrangement; Fig. 10 is a similar view, and Fig. 11 is a detail perspective view of the means for preventing the operation of the key.

The present embodiment of the invention comprises a tube 1, adapted to be passed through an opening in the door 2, and provided at one end with a flange 3, which flange abuts against the adjacent side of the door. A sliding bar 5 is movable in the tube, and knobs 6 and 7 which may be integral with the plates 8 and 9 are secured to the door on each side thereof, by means of screws 10 traversing the plates and the door.

Each of the knobs is provided with an opening therethrough for receiving the sliding bar, and the knob 6 is provided with a depression 11 in its face, into which depression projects the end of the sliding bar which is round to form a push button 12. The other end of the bar is slotted longitudinally as at 13, and the sides of the bar upon each side of the slot are corrugated as at 14, and a plate 15 provided with an integral trigger or catch 16 is clamped to the bar by means of a second plate 17 arranged on the opposite side of the bar and secured to the first plate by a screw 18. The bar is also provided with notches 19 upon each

side thereof, at the opposite end from the trigger or catch, and adjacent to the knob 6 for a purpose to be presently described, and adjacent to the plate 9 the bar is provided with a V-shaped notch 20, in which normally rests a ball 21.

The ball 21 is in engagement with the upper edge of an opening in an arm 22, which is pivoted as at 23, beneath a plate 24 arranged transversely of the door and secured in place by screws 25, the outer end of the plate being flush with the edge of the door as shown in Figs. 1, 2 and 3. The swinging arm 22 is provided at its free end with a pin 26, which projects through an arc shaped slot 27, in the plate 24, the free end of the pin engaging a slot 28 in a radial arm 29, projecting from a ring 30 which is mounted to rotate on a bushing 31, integral with the plate 24 and projecting beyond the edge of the door as shown in Figs. 1 to 3.

The bushing 31 is provided with opposite openings in which are mounted balls 32, which balls are adapted to engage an annular recess 33, in a pin 34 secured to the casing 35 of the door, in any suitable manner, and the ring 30 is provided with depressions 36 for receiving the balls 32, when the ring is turned in a certain position, and when the ring is in this position, and the door is opened, the edge of the annular recess in the locking pin which is inclined as shown in Fig. 6, engages and moves the balls outward into the recesses, thus permitting the pin to be withdrawn from the ring. It will be evident from the description that when the sliding bar 5 is moved in either direction, either by pressing on the end 12, or by pulling or pushing on the catch 16, the ball 21 will be lifted by the inclined edges of the notch 20, which in its upward movement will move the swinging arm 24 to partially rotate the ring 30, whereby to bring the recess in the ring, in position for the balls to move thereinto, to permit the pin to be withdrawn from the ring, and the door to be opened.

Within the plate 9 is arranged a bushing 37, which encircles the sliding bar, and whose outer end is closed except for a slot 38, through which passes that portion of the sliding bar between the notches 19, as shown in Figs. 4 and 9. The inner end of the bushing is provided with an arm 39, provided in its free end with a pin 40 in engagement with a notch 41, in a swinging plate 42,

which is pivoted in the plate 9 before mentioned, the swinging plate being engaged by a lug 43, on a knob 44, journaled in an opening in the plate, the knob being on the outer face of the plate, whereby the plate may be swung to oscillate the bushing, so that the transverse slot therein, no longer corresponds with the widest dimension of the sliding bar, whereby said bar is prevented from endwise movement.

A spring 45 is provided on the plate, one end of which engages the pin on the arm, and the other the lug, to retain the arm and plate in their adjusted position.

It will be obvious from the description, that when the bushing is oscillated by the knob 44 into the position shown in Figs. 3 and 9, the sliding bar will be prevented from endwise movement, for which reason the swinging arm 22 cannot be operated by the sliding bar. When the lock is in this position, it is arranged for a night latch, and may be opened by a key.

The door below the opening for the tube 1, is provided with an opening in which may be arranged the chamber 47, of a "Yale" lock, whose bolt 48 extends through the opening and is connected with a cam plate 46, against whose flat edge rests the flat edge of a ring 47^a having on its opposite side a lug 48^a, which engages a notch 49^a in the swinging arm 22 before described.

When the lock is arranged in the night latch position, a key inserted in the lock will turn the bolt 48 to turn the plate 46 into the position shown in Fig. 1, thereby elevating the ring 47^a, and swinging the arm 22 whereby to open or release the lock. If desired, the operation of the Yale lock may be prevented by a cam 49, arranged within the ring 47^a, and mounted upon the end of a pin 50, extending through the plate 9, and provided on its outer end with a button 51, whereby to manipulate the same, and a spring 52 is arranged between the plate and the cam for retaining the cam in its adjusted position.

It will be evident that by turning the cam, into the position shown in Fig. 3, the ring 47^a cannot be lifted to operate the swinging arm.

A plate 53 is provided with trunnions 54, which extend into the recesses in the bushing 31, before mentioned, the plate extending through an opening in the bushing, and the upper end is headed as at 58, and is adapted to engage a recess 55, in the ring 30 before mentioned.

The lower inner face of the plate is beveled as shown at 56 in Figs. 7 and 8, and the free end of the pin 34 is also beveled as shown in Fig. 6. When the door is closed, the free beveled end of the pin will engage the plate, thus lifting the same, and permitting the door to lock. When the door

is unlocked the loose ring being swung into the position shown in Fig. 1, the plate drops into the recesses of the loose ring, thus locking the said ring in the position shown in the before mentioned figure, and retaining it in position for the reëtrance of the locking pin.

I claim:

1. A lock comprising plates provided with knobs and arranged upon each side of the door, said plates and door being provided with registering openings, a swinging arm having an opening registering with the openings of the door and plates, a plate provided with a bushing projecting beyond the door, and with an arc-shaped slot, a ring rotatable on the bushing and provided with a longitudinally slotted radial arm, a pin on the swinging arm projecting through the slot of the plate, and engaging the slot of the radial arm, said bushing having oppositely arranged openings, balls within the openings, said ring being provided with oppositely arranged recesses for receiving the balls, a pin on the casement adapted to enter the bushing and provided with an annular groove for receiving the balls, a movable plate projecting into the bushing and provided with a bevel surface, the free end of the pin being beveled for engaging and lifting the plate when the door is closed, said ring being provided with a recess for engagement by the plate, whereby to retain the ring with the recesses registering with the balls, a bar slidable transversely of the opening through the plates and door, and provided on one edge with a V-shaped notch, adjacent to the opening through the swinging arm, a ball in the notch for engaging and lifting the swinging arm when the bar is moved longitudinally, a bushing having one end closed and provided with a slot through which the bar moves, said bar being provided with notches adjacent to the slot whereby to permit oscillation of the bushing, said bushing having a radial arm, a knob on the arm for oscillating the bushing whereby to prevent movement of the bar, an auxiliary lock, means whereby said lock may swing the arm, and means for preventing the operation of said lock.

2. A lock comprising plates provided with knobs and arranged upon each side of the door, said plates and door being provided with registering openings, a swinging arm having an opening registering with the openings of the door and plates, a plate provided with a bushing projecting beyond the door and with an arc-shaped slot, a ring rotatable on the bushing and provided with a longitudinally slotted radial arm, a pin on the swinging arm projecting through the slot of the plate, and engaging the slot of the radial arm, said bushing having oppositely arranged openings, balls within the openings, said ring being provided with op-

positely arranged recesses for receiving the balls, a pin on the casement adapted to enter the bushing and provided with an annular groove for receiving the balls, a movable plate projecting into the bushing and provided with a bevel surface, the free end of the pin being beveled for engaging and lifting the plate when the door is closed, said ring being provided with a recess for engagement by the plate whereby to retain the ring with the recesses registering with the balls, a bar slidable transversely of the openings through the plates and door and provided on one edge with a V-shaped notch adjacent to the opening through the swinging arm, a ball in the notch for engaging and lifting the swinging arm when the bar is moved, and means on one side of the door for preventing movement of the bar.

3. A lock comprising plates provided with knobs and arranged upon each side of the door, said plates and door being provided with registering openings, a swinging arm having an opening registering with the openings of the door and plates, a plate provided with a bushing projecting beyond the door, and with an arc-shaped slot, a ring rotatable on the bushing and provided with a longitudinally slotted radial arm, a pin on the swinging arm projecting through the slot of the plate and engaging the slot of the radial arm, said bushing having oppositely arranged openings, balls within the openings, said ring being provided with oppositely arranged recesses for receiving the balls, a pin on the casement adapted to enter the ring and provided with an annular groove for receiving the balls, a bar slidable transversely of the openings through the plates and door and provided on one edge with a V-shaped notch adjacent to the opening through the swinging arm, a ball in the notch for engaging and lifting the swinging arm when the bar is moved, a bushing rotatable in the opening of one of the plates, said bushing having one end closed and provided with a slot through which the bar moves, said bar being provided with notches adjacent to the slot whereby to permit oscillation of the bushing, said bushing having a radial arm, a knob on the arm for oscillating the bushing whereby to prevent movement of the bar, an auxiliary lock, means whereby said lock may swing the arm, and means for preventing the operation of said lock.

4. A lock comprising a plate for connection with the door and provided with a bushing, a pin on the casement adapted to enter the bushing when the door is closed, said bushing being provided with oppositely arranged openings, and the pin being provided with an annular groove adapted to register with the openings when the door is closed, balls in the openings, a ring rota-

table on the bushing, and provided with a radial arm, and with recesses registering with the openings when the ring is in one position, means for oscillating the ring to bring the recesses into registering position with the openings, whereby to permit the balls to move away from the pin, means for restraining the operation of the oscillating means, an auxiliary lock, means whereby said lock may operate said oscillating means, and means for preventing operation of said lock.

5. A lock comprising a plate for connection with the door and provided with a bushing, a pin on the casement adapted to enter the bushing when the door is closed, said bushing being provided with oppositely arranged openings and the pin being provided with an annular groove adapted to register with the openings when the door is closed, balls in the openings, a ring rotatable on the bushing, and provided with a radial arm, and with recesses registering with the openings when the ring is in one position, means for oscillating the ring to bring the recesses into registering position with the openings, whereby to permit the balls to move away from the pin, means for restraining the operation of the oscillating means, an auxiliary lock, and means whereby said lock may operate said oscillating means.

6. A lock comprising a bushing for connection with the door, the bushing having radial openings, a pin on the casement adapted to enter the bushing when the door is closed, said pin being provided with an annular groove adapted to register with the openings when the door is closed, balls in the openings, a ring rotatable on the bushing and provided with a radial arm, and with recesses registering with the openings when the ring is in one position, means for oscillating the ring to bring the recesses into registering position with the openings to permit the balls to move away from the pin, and means for restraining the operation of the oscillating means.

7. A lock comprising a bushing for connection with the door, a pin on the casement adapted to enter the bushing when the door is closed, said bushing being provided with oppositely arranged openings and the pin being provided with an annular groove adapted to register with the openings, a ring rotatable on the bushing, and provided with a radial arm, and with recesses registering with the openings when the ring is in one position, and means for oscillating the ring to bring the recesses into registering position with the openings, whereby to permit the balls to move away from the pin.

8. In a device of the class described, a pin provided with an annular groove, a bushing for receiving the pin and provided with

oppositely arranged recesses, balls in the recesses, a ring encircling the bushing and provided with oppositely arranged recesses for receiving the balls, to permit the pin to leave the bushing, a swinging arm for oscillating the ring, and means for swinging the arm comprising a sliding bar arranged transversely thereof, and provided with a V-shaped notch adjacent to the bar, a ball within the notch, and means for preventing movement of the ball transversely of the arm.

9. A lock comprising a pin, a bushing for receiving the pin, means in connection with the bushing and the pin for locking them together, a means for operating said means comprising an oscillating ring, a swinging arm for oscillating the ring, a bar slidable transversely of the arm and provided on its edge with a V-shaped notch adjacent to the arm, a ball in the notch for engaging and lifting the arm when the bar is moved, and means for preventing movement of the ball transversely of the arm.

10. A lock comprising a pin, a bushing for receiving the pin, means in connection with the bushing and the pin for locking them together, a means for operating said means comprising a swinging arm, a bar slidable transversely of the arm and provided on its edge with a V-shaped notch adjacent to the arm, a ball in the notch for engaging and lifting the arm when the bar is moved longitudinally, and means for preventing movement of the ball transversely of the arm.

11. A lock comprising a pin, a bushing for receiving the pin, means in connection with the bushing and the pin for locking them together, a means for operating said means comprising a swinging arm, a bar slidable transversely of the arm, and means in connection with the bar for lifting the arm when the bar is moved longitudinally.

12. A lock comprising a pin, a bushing for receiving the pin, means in connection with the bushing and the pin for locking them together, means for operating said means comprising a swinging arm, a bar slidable transversely of the arm, means in connection with the bar for lifting the arm when the bar is moved longitudinally, and means for preventing movement of the bar.

13. A lock comprising a pin, a bushing for receiving the pin, means in connection with the bushing and the pin for locking them together, a means for operating said means comprising a swinging arm, a bar slidable transversely of the arm, means in connection with the bar for lifting the arm when the bar is moved longitudinally, means for preventing movement of the bar, an auxiliary lock, and means whereby said lock may operate said arm.

14. A lock comprising a pin, a bushing for receiving the pin, means in connection with the bushing and the pin for locking them together, means for operating said means comprising a swinging arm, a bar slidable transversely of the arm, means in connection with the bar for lifting the arm when the bar is moved longitudinally, means for preventing movement of the bar, an auxiliary lock, means whereby said lock may operate said arm, and means for preventing operation of said lock.

15. In a device of the class described, a swinging arm, locking means in connection therewith, an opening through the arm, a bar slidable through the opening, said bar being provided with a V-shaped notch at the opening through the bar, a ball in the notch for lifting the arm when the bar is moved, means for preventing movement of the bar, an auxiliary lock, means in connection with the said lock for swinging the arm, and means for preventing operation of said lock.

16. A lock comprising a pin, a bushing for receiving the pin, means in connection with the bushing and the pin for locking them together, a means for operating said means comprising a swinging arm, a bar slidable transversely of the arm, and means in connection with the bar for lifting the arm when the bar is moved longitudinally, said bar being provided with oppositely arranged notches, a bushing having a slot through which the notched portion of the bar passes, said bushing having a radial arm, a button in connection with the arm for swinging the bushing, and a spring for retaining the bushing in its adjusted position.

17. A lock comprising a pin, a bushing for receiving the pin, means in connection with the bushing and the pin for locking them together, a means for operating said means comprising a swinging arm, a bar slidable transversely of the arm, and means in connection with the bar for lifting the arm when the bar is moved longitudinally, said bar being provided with oppositely arranged notches, a bushing having a slot through which the notched portion of the bar passes, said bushing having a radial arm, and a button in connection with the arm for swinging the bushing.

18. A lock comprising a pin, a bushing for receiving the pin, means in connection with the bushing and the pin for locking them together, a means for operating said means comprising a swinging arm, a bar slidable transversely of the arm, and means in connection with the bar for lifting the arm when the bar is moved longitudinally, said bar being provided with oppositely arranged notches, a bushing having a slot

through which the notched portion of the bar passes, said bushing having a radial arm, a button in connection with the arm for swinging the bushing, a spring for retaining the bushing in its adjusted position,
5 an auxiliary lock, and means whereby said lock may operate the swinging arm.

19. A lock comprising a pin, a bushing for receiving the pin, means in connection
10 with the bushing and the pin for locking them together, a means for operating said means comprising a swinging arm, a bar slidable transversely of the arm, means in connection with the bar for lifting the arm
15 when the bar is moved longitudinally, means for preventing longitudinal movement of the bar comprising a slotted bushing through which the bar passes, the bar being notched within the bushing whereby to permit the

bushing to turn, and means for turning the
20 bushing.

20. A lock comprising a pin, a bushing for receiving the pin, means in connection with the bushing and the pin for locking
25 them together, means for operating said means comprising a swinging arm, a bar slidable transversely of the arm, means in connection with the bar for lifting the arm when the bar is moved longitudinally, and
30 means for preventing longitudinal movement of the bar comprising a swinging bushing through which the arm passes, said bar being notched for engagement by the bushing.

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Witnesses:

JOHN DITTRICK,
LOTTIE MORRIS.