

H. S. HASHIM.

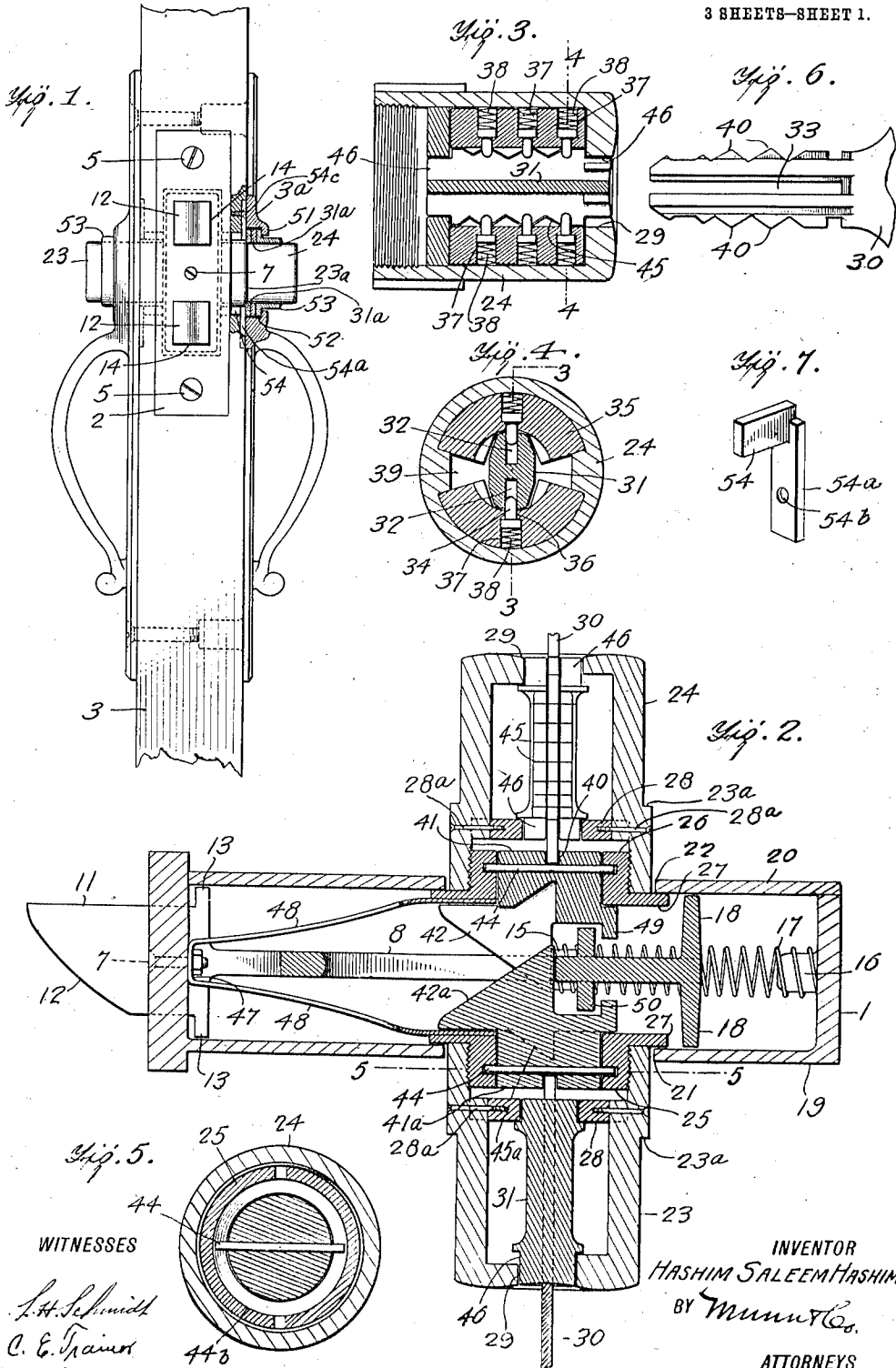
LOCK.

APPLICATION FILED FEB. 10, 1912.

1,061,177.

Patented May 6, 1913.

3 SHEETS—SHEET 1.

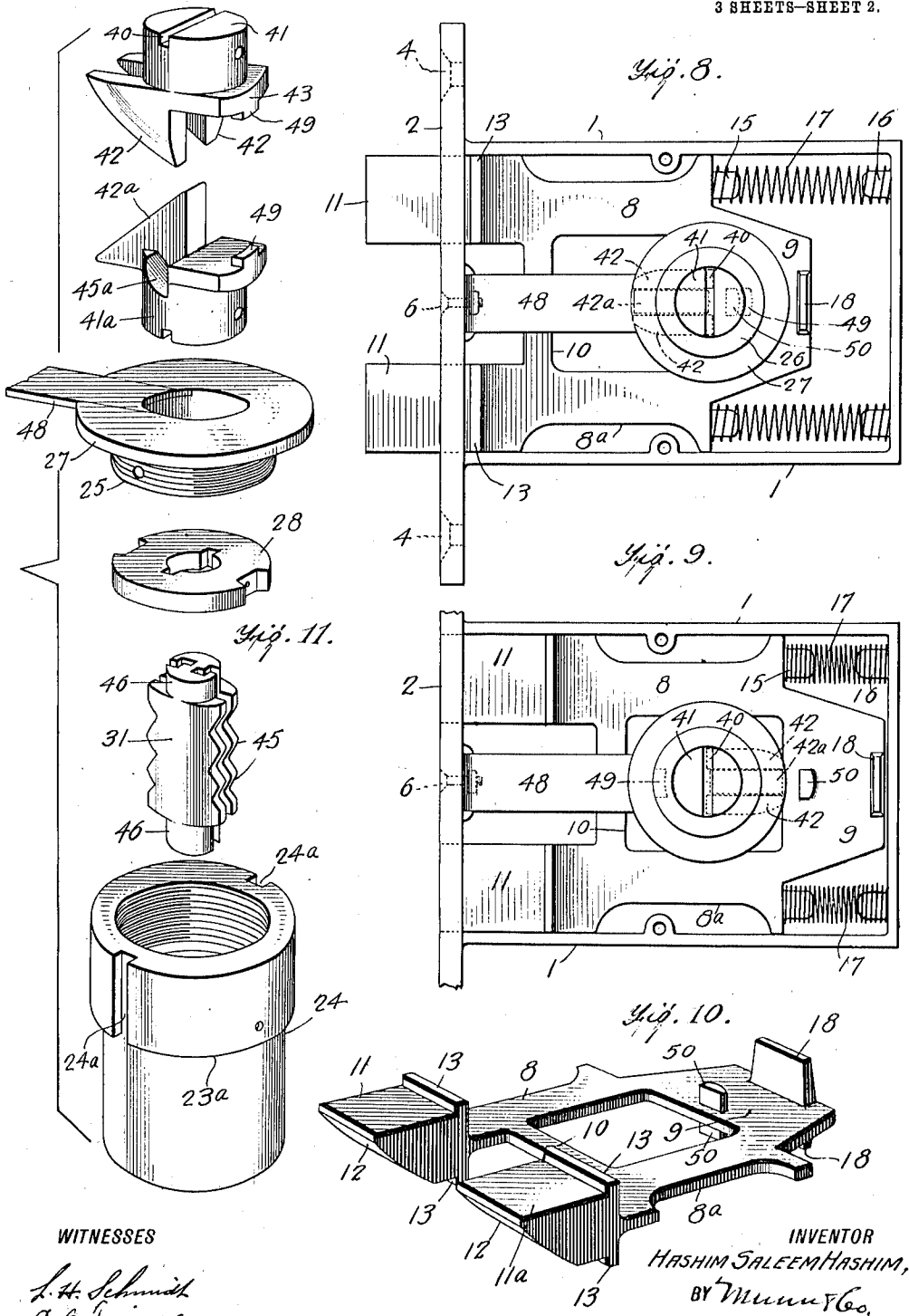


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3 SHEETS—SHEET 2.



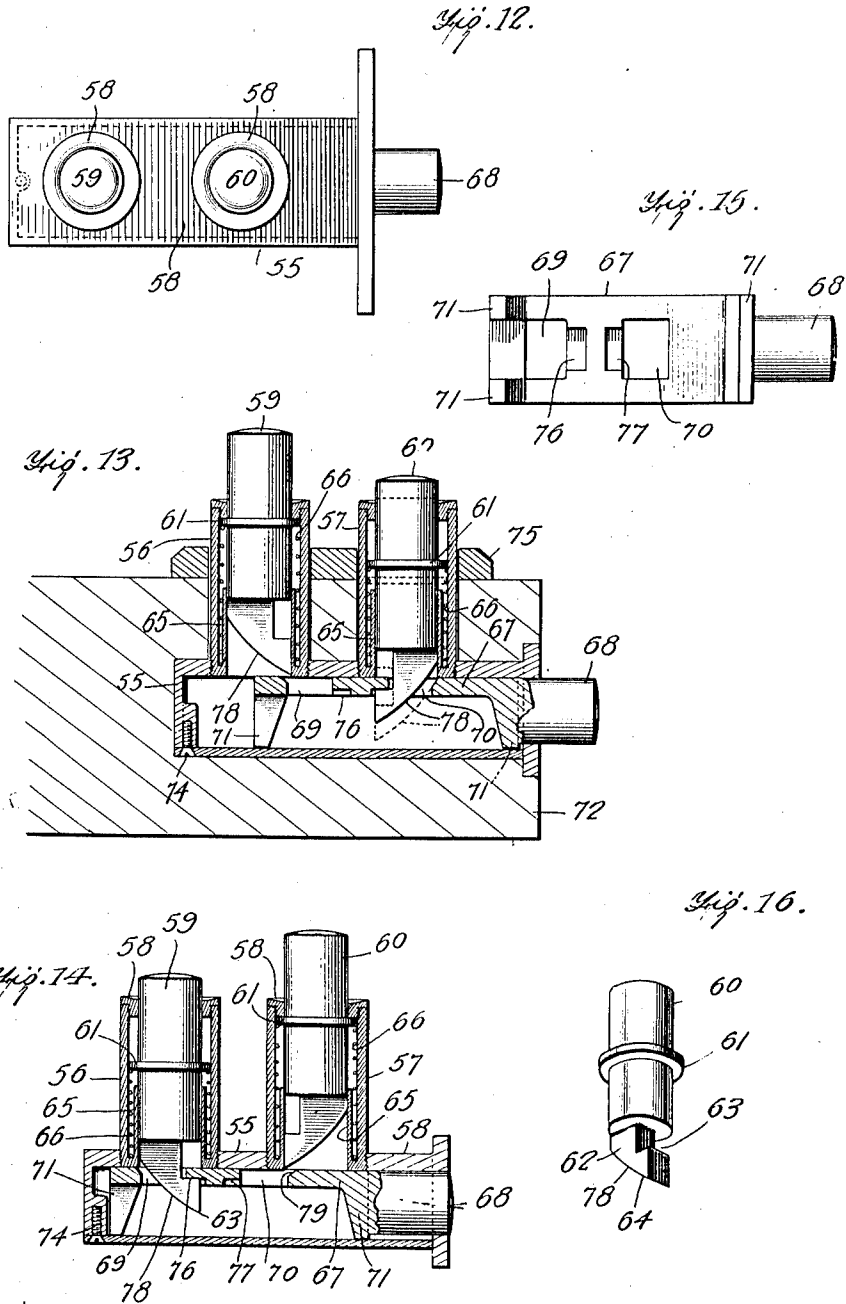
ATTORNEYS

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3 SHEETS-SHEET 3.



WITNESSES

L. H. Smith.
C. E. Reimer

INVENTOR
HASHIM SALEEM HASHIM,
BY *Munn & Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

HASHIM SALEEM HASHIM, OF RAYMOND, WASHINGTON.

LOCK.

1,061,177.

Specification of Letters Patent.

Patented May 6, 1913.

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To all whom it may concern:

Be it known that I, HASHIM SALEEM HASHIM, a citizen of the United States, and a resident of Raymond, in the county of Pacific and State of Washington, have invented a certain new and useful Improvement in Locks, of which the following is a specification.

My invention is an improvement in locks, and has for its object the provision of a device of the character specified, simple in construction and operation and operated by push buttons to open and close the same, and having means for locking the bolt in extended position.

In the drawings:—Figure 1 is a side view of the lock in place; Fig. 2 is an enlarged horizontal section of the lock; Fig. 3 is a section on the line 3—3 of Fig. 4; Fig. 4 is a section on the line 4—4 of Fig. 3; Fig. 5 is a section on the line 5—5 of Fig. 2; Fig. 6 is a side view of the key; Fig. 7 is a perspective view of the means for holding the auxiliary casings from rotation; Fig. 8 is a side view of the lock with the cover plate removed with the bolt extended; Fig. 9 is a similar view with the bolt retracted; Fig. 10 is a perspective view of the bolt; Fig. 11 is a perspective view of the operating mechanism for the bolt with the parts separated; Fig. 12 is a side view of a modified form; Fig. 13 is a horizontal section of a door through the lock with the parts in one position; Fig. 14 is a similar view with the parts in another position; Fig. 15 is a plan view of the bolt; and Fig. 16 is a perspective view of one of the latches.

In the embodiment of the invention shown in Figs. 1 to 11, the lock comprises a case 1 substantially rectangular in cross section, and having at one end a face plate 2. The case is adapted to be inserted in a mortise or recess in the edge of a door 3 with the plate 2 countersunk in the edge of the door, and having openings 4 near each end for receiving screws 5 to hold the case in the mortise. The plate 2 is also provided with an opening 6 at its center for receiving a screw bolt 7, and a bolt composed of a substantially rectangular open frame is arranged to slide in the case. The frame is composed of two parallel bars 8 and 8^a connected at their inner end, as shown at 9, and near their outer end by a cross bar 10 (Fig. 10). The outer end of each bar 8

and 8^a is shaped into the usual latch lug or head 11, 11^a having one face beveled at 12 to engage the door casing, to press the bolt inwardly. Each lug or head 11 and 11^a is adapted to extend through an opening 14 in plate 2 and is provided with flanges or ribs 13 for engaging the inner face of plate 2 to limit the extension of the heads from the casing. The connection 9 between the inner ends of bars 8 and 8^a is notched or recessed at each end, and a pin 15 extends longitudinally from each bar at the notch or recess. The inner end of the case 1 is also provided with a pin 16 near each end, and a coil spring 17 is engaged with each pair of pins, and acts to force the bolt outwardly to extend the heads 11 and 11^a. The outer side edges of the frame of the bolt slidably engage the sides of the case to guide the bolt in its movement, and the rear edge of the connection 9 is provided with oppositely extending lateral lugs 18 which engage the bottom 19 of the case, and the cover plate 20 thereof to prevent lateral movement of the rear end of the bolt. The bottom 19 and cover plate 20 have each an approximately central opening 21 and 22 respectively for receiving the inner end of a substantially cylindrical auxiliary casing, the casing 23 in opening 21 and the casing 24 in opening 22. A ring 25 is threaded into the inner end of casing 23 and a similar ring 26 is threaded into the inner end of casing 24, and each ring has a marginal flange 27 at its inner end fitting against the inner face of the cover plate or bottom, as the case may be. Each casing 23, 24 is counterbored or enlarged to receive the ring, and a diaphragm 28 is arranged in each casing on the outer side of the ring. The said diaphragms 28 are held in place by means of screws 28^a which are passed through the auxiliary casings, and engage the diaphragms to hold them in place. Each casing 23 and 24 has an opening 29 at its outer end for receiving the key 30, shown in Fig. 6, and a bar 31 is supported in the casing, the bar having a longitudinal opening 32 substantially H shaped in cross section and the key has a longitudinal slot 33 to enable it to be inserted in the said opening. The side edges of the key are notched as indicated at 33, and a plurality of tumblers 34, in the shape of pins having heads, are supported in segmental blocks

35, in the casing. The pins extend through openings 36 in the blocks, and the outer ends of the openings are enlarged at 37 to receive the heads. Springs 38 are arranged in the enlarged portions of the openings and force the tumblers outwardly. The blocks are held in place by oppositely arranged ribs 39 in the casing. The tumblers are lifted by the teeth or wards 40 of the key, and the inner end of the key is adapted to engage in a transverse recess or slot 41^a in the outer end of the cylindrical portion 41 of a latch member composed of the said portion 41 and a pair of spaced connected cam blocks 42. The cams 42 are approximately right-triangular, and are connected on one side of the portion 41 at 43, the inclined edges 42 of the cams facing in the opposite direction from the connection. The portion 41 of the latch member fits into the ring 26 and a pin 44 is passed through the said portion, the ends of the pin engaging annular grooves 44^b in the rings 25 or 26. The bar 31 before mentioned has its opposite edges toothed, as indicated at 45, somewhat in the same manner as the edges of the key, and the ends of the bar are reduced and of cylindrical form, as shown at 46, and are journaled in the diaphragm 28 and in the outer end of the casing to permit the bar to rotate. A plate spring in the form of a yoke has its body 47 secured to the plate 2 by means of the screw bolt 7 before mentioned, and the arms 48 of the spring extend inwardly and rest against the flange 27 of the adjacent ring 25—26. The latch member before mentioned extends into the central opening of the bolt frame, and the connection 43 of the cams is provided with a lateral lug 49 at its center. The said lug 49 engages in rear of one of a pair of lugs 50, the said lugs being oppositely arranged on the connection 9 of the frame at the opposite side thereof from lugs 18. The upper lug 50 is between the lug 49 and the perpendicular faces of the cams 42. It will be understood that the mechanism in casing 23 is precisely the same as that of casing 24 with the single exception of the latch member, the said member comprising a cylindrical portion 41^a held in ring 25, and a single cam 42^a. The portion 41^a of the latch member of casing 23 is held in the ring 25 by a pin 44^a, and the said member has an inwardly extending lug 49^a corresponding to lug 49 of the other latch member. The cam 42^a of the latch member of casing 23 fits between the cams 42 of the member of casing 24. It will be evident that the differences between the latch members are merely those incident to construction. The portion 41^a of the latch member of casing 23 is recessed at 45^a on each side of the cam 42^a to receive the lower ends of the portions 42.

In Fig. 2 the lock is shown in locked position. The beveled faces of the cams 42, 42^a are toward the outer edge of the door. Each of the casings 23 and 24 is movable inwardly through opening 21 or 22 and is normally held outward in the position of Fig. 2, by the spring 47—48. In the locked position of Fig. 2, when the auxiliary casings, which may be described as operating-buttons for the lock, are pressed inwardly they are engaged by lugs 50 and move but a short distance. The bolt is locked in extended position by the engagement of the said lugs 50 with lugs 49 of the latch members. The lock is also locked for the reason that the auxiliary casings 23 and 24 cannot be pressed inwardly. To unlock the lock, the key is inserted, and the latches are turned to bring the beveled edges of the cams 42—42^a rearwardly. When now either of the buttons is pressed inwardly, the beveled edges of the cams engage the inner edge of the frame adjacent to the lugs 50 and force the bolt into retracted position, thus unlocking the door. The lock is normally operated, merely by pressing the buttons inwardly and may be locked to prevent the operation of the buttons. Each casing has an annular shoulder 23^a intermediate its ends, and an escutcheon 3^a is provided for each casing to limit the outward movement of the button or casing. Each escutcheon has an inwardly extending flange 51 engaging an outwardly extending flange 52 on a collar 53 encircling the casing 23 or 24. Washers 51^a encircle the casing between the flange 52 and an annular shoulder 23^a of the casing 23 or 24. The washers 51^a are inserted in order to permit the collar to fit different thicknesses of doors. Each auxiliary casing 23 and 24 is provided with oppositely arranged longitudinal grooves 24^a at its inner end, and a bar 54 (Fig. 7) engages each slot. Each bar is connected to the end of a plate 54^a fitting against the adjacent face of the door, and each plate 54^a has an opening 54^b for receiving a screw 54^c to hold the plate in place. The object of the bar 54 of plate 54^a is to prevent rotation of the auxiliary casings 23 and 24 with the key, when the said key is turned in order that the latch member may be rotated by the key with respect to the casings 23 and 24.

In Figs. 12 to 16, a casing 55 is provided having a pair of cylindrical auxiliary casings 56 and 57 on one side, each casing being threaded into an opening in the inner casing. A ring 58 is threaded into the outer end of each auxiliary casing and a latch member 59—60 respectively is slidable in each casing 56—57. Each latch member is provided with an annular rib 61 near its center, and with a head 62 at its inner end. Each head is provided with a lug 63 at its outer end, and a shoulder 64 is formed between each

lug and the head. Each casing has a tubular return portion 65 at its inner end, fitting the body of the latch member closely and the rib 61 fits the inner surface of the casing. A coil spring 66 encircles the return portion, bearing at one end against the connection between the said portion and the auxiliary casing, and at the other end against the rib of the latch. Each spring acts normally to press the latch member outwardly. A bolt 67 is slidable in the casing and has a cylindrical portion 68 adapted to extend beyond the casing. The body of the bolt is in the form of a plate having openings 69 and 70 for engagement by the latch members, and the plate has laterally extending lugs 71 engaging the opposite side of the casing to hold the plate against one side of the casing. The casing is adapted to be inserted in a door 72 with the auxiliary casings 56 and 57 extending through one face of the door. The main casing is open at the side remote from the auxiliary casings and a cover plate 73 closes the open side being held to the casing by screws 74. A facing or escutcheon 75 is secured to the face of the door around the projecting casings. The body 67 of the bolt is recessed on the face remote from the auxiliary casing at each opening 69—70, as shown at 76 and 77 for receiving the shoulder 63. The bolt is operated by means of the latch members, and it will be noticed that the said members are oppositely arranged. Each of the heads 62 is beveled on its outer side, as shown at 78, and the adjacent edge of opening 69 or 70 is also beveled to cooperate therewith, as indicated at 79. When latch member 59 is pushed inwardly toward the bolt the bolt is moved inwardly, the beveled surface 78 of the latch engaging the surface 79 of the opening 69 and moving the bolt. As soon as the bolt is withdrawn into the casing, the shoulder 63 engages recess 76 and locks the latch from outward movement, as shown in Fig. 14. When latch 60 is pushed inwardly, the bolt is extended, releasing latch 59 and locking latch 60 in the position of Fig. 13. The springs 66 return the latch to outward position as soon as they are released. The operation of each latch to move the bolt releases the other latch. The bolt may be locked in either open or closed position, by turning the proper latch member. That is, the latch member may be so arranged that when pushed inward, it will have no effect upon the bolt. It is obvious that were the members 59 for instance turned half around with the parts in the position of Fig. 13, the bolt would not be moved to open the same. In the same manner, were the member 60 turned half around with the parts in the position of Fig. 14, the bolt, could not be moved.

The construction of Figs. 1 to 11 has the

buttons arranged on opposite sides of the lock casing, while that of Figs. 12 to 16 has them arranged on the same side. In both cases, the bolt is operated in opposite directions by spring pressed buttons. The first construction is operated to open the lock and the bolt may be locked in closed position; while the last described construction provides a button to open and one to close, and both buttons lock the bolt.

I claim:—

1. A lock comprising a main casing, a bolt slidable in the casing, said bolt comprising a substantially rectangular open frame provided at one end with a pair of spaced longitudinally extending lugs, each beveled on one face; the casing having openings for the lugs, an auxiliary casing at each side of the main casing, said main casing having an opening for each auxiliary casing, a yoke shaped spring having its body secured to the end of the casing between the bolt openings, and its arms extending toward the auxiliary casings, a ring threaded into the inner end of each auxiliary casing, each ring having an annular lateral flange at its inner end engaging the inner face of the main casing to limit the outward movement of the auxiliary casing, a latch member held in each ring, each member being rotatable and having an opening in its outer end for engagement by a key and provided with a cam at its inner end; each cam having one face perpendicular to the bolt and the other beveled to engage and move the bolt inwardly when the auxiliary casing is pressed inward with the latch member turned into one position, a lug on the bolt for engaging the latch to limit the inward movement when the latch member is turned into another position, said latch members having each a lug on the opposite side of the lug on the bolt from the perpendicular face of the cam for preventing inward movement of the bolt, means for preventing rotation of the auxiliary casings, and springs pressing the bolt outwardly.

2. A lock comprising a main casing, a bolt slidable in the casing, an auxiliary casing at each side of the main casing, said main casing having an opening for each auxiliary casing, a yoke shaped spring having its body secured to the end of the casing between the bolt openings, and its arms extending toward the auxiliary casings, a ring threaded into the inner end of each auxiliary casing, each ring having means for limiting the outward movement of the auxiliary casing, a latch member held in each ring, each member being rotatable and having an opening in its outer end for engagement by a key and provided with a cam at its inner end, each cam having one face perpendicular to the bolt and the other beveled to engage and move the bolt inwardly when the auxiliary casing

is pressed inward with the latch member turned into one position, a lug on the bolt for engaging the latch to limit the inward movement when the latch member is turned into another position, said latch members having each a lug on the opposite side of the lug on the bolt from the perpendicular face of the cam for preventing inward movement of the bolt, means for preventing rotation of the auxiliary casings, and springs pressing the bolt outwardly.

3. A lock comprising a main casing, a bolt slidable in the casing, an auxiliary casing at each side of the main casing, a yoke shaped spring having its body secured to the end of the casing between the bolt openings, and its arms extending toward the auxiliary casings, a ring threaded into the inner end of each auxiliary casing, each ring having an annular lateral flange at its inner end engaging the inner face of the main casing to limit the outward movement of the auxiliary casing, a latch member held in each ring, each member being rotatable and having an opening in its outer end for engagement by a key and provided with a cam at its inner end, each cam having one face perpendicular to the bolt and the other beveled to engage and move the bolt inwardly when the auxiliary casing is pressed inward with the latch member turned into one position, a lug on the bolt for engaging the latch to limit the inward movement when the latch member is turned into another position, means in connection with the latch members and the bolt for preventing movement of the bolt when the latch member is turned into the said last named position, means for holding the auxiliary casings from rotation, and springs pressing the bolt outwardly.

4. A lock comprising a main casing, a bolt slidable in the casing, an auxiliary casing at each side of the main casing, a yoke shaped spring having its body secured to the end of the casing between the bolt openings, and its arms extending toward the auxiliary casings, a ring threaded into the inner end of each auxiliary casing, each ring having an annular lateral flange at its inner end engaging the inner face of the main casing to limit the outward movement of the auxiliary casing, a latch member held in each ring, each member being rotatable and having an opening in its outer end for engagement by a key and provided with a cam at its inner end, each cam having one face perpendicular to the bolt and the other beveled to engage and move the bolt inwardly when the auxiliary casing is pressed inward with the latch member turned into one position, a lug on the bolt for engaging the latch to limit the inward movement when the latch member is turned into another position, and means in connection with the latch members

and the bolt for preventing movement of the bolt when the latch member is turned into the said last named position.

5. A lock comprising a casing having oppositely arranged openings in its side walls, a bolt slidable in the main casing, an auxiliary casing having its inner end secured in each opening, a ring threaded into the inner end of each auxiliary casing, each ring having a flange for limiting the outward movement of the auxiliary casings, a spring pressing each casing outward, a latch member rotatable in each ring, each latch member having a cam face for engaging the bolt when the latch member is in one position to retract the bolt, and means for engagement by the bolt to limit the inward movement of the latch member and the auxiliary casing when the latch member is in another position, each latch member having means for engagement by a key to turn the said member, means for holding each auxiliary casing from rotation with the key, and a spring passing the bolt outward.

6. A lock comprising a casing having oppositely arranged openings in its side walls, a bolt slidable in the main casing, an auxiliary casing having its inner end secured in each opening, a ring threaded into the inner end of each auxiliary casing, each ring having a flange for limiting the outward movement of the auxiliary casings, a spring pressing each casing outward, a latch member rotatable in each ring, each latch member having a cam face for engaging the bolt when the latch member is in one position to retract the bolt, and means for engagement by the bolt to limit the inward movement of the latch member and the auxiliary casing when the latch member is in another position, each latch member having means for engagement by a key to turn the said member.

7. A lock comprising a casing having oppositely arranged openings in its side walls, a bolt slidable in the main casing, an auxiliary casing at each side of the main casing, each auxiliary casing having its inner end secured in the adjacent opening, a ring threaded into the inner end of each auxiliary casing, each ring having a flange for limiting the outward movement of the auxiliary casings, a spring pressing each casing outward, means supported by each ring and rotatable in the ring for retracting the bolt when the auxiliary casing is pressed inward with the said means in one position, and for engaging the bolt to limit the inward movement of the casing when the said means is in another position, said means having means for engagement by a key.

8. A lock comprising a main casing having openings in its side walls, a bolt slidable in the casing, a spring pressing the bolt outwardly, an auxiliary casing in each open-

ing of the main casing, a spring pressing each auxiliary casing outwardly, means on each auxiliary casing for limiting its outward movement, an operating means rotatable in each auxiliary casing for engaging and moving the bolt when the auxiliary casing is pressed inwardly with the said means in one position, each of the said operating means having an opening for engagement by a key to rotate the said operating means to bring it into or out of engaging position, the bolt having means for engagement by each operating means to limit the inward movement of the auxiliary casing, when the operating means is out of engaging position.

9. A lock comprising a main casing having openings in its side walls, a bolt slidable in the casing, a spring pressing the bolt outwardly, an auxiliary casing in each opening of the main casing, a spring pressing each auxiliary casing outwardly, means on each auxiliary casing for limiting its outward movement, an operating means rotatable in each auxiliary casing for engaging and moving the bolt when the auxiliary casing is pressed inwardly with the said means in one position, each of the said operating means having an opening for engagement by a key to rotate the said operating means to bring it into or out of engaging position.

10. A lock comprising a main casing having a plurality of openings in its wall, a bolt slidable in the casing, a latch member in each opening of the main casing, a spring pressing each member outwardly, means on each member for limiting its outward movement, and an operating means in connection with each member for engaging and moving the bolt, each of the said members being rotatable in the opening, to bring it into and out of operative position with respect to the bolt.

11. A lock comprising a main casing, a bolt movable in the casing, a pair of auxiliary casings arranged at right angles to the bolt, a latch member in each auxiliary

casing for operating the bolt, when the said member is moved toward the bolt, a spring normally pressing each of the said members outwardly, each member having means for engagement by a key to turn the said member into or out of engaging position, and a tumbler casing for receiving the key rotatable in each auxiliary casing.

12. A lock comprising a main casing, a bolt movable in the casing, a pair of auxiliary casings arranged at right angles to the bolt, a latch member in each auxiliary casing for operating the bolt, when the said member is moved toward the bolt, and a spring normally pressing each of the said members outwardly, each member having means for engagement by a key to turn the said member into or out of engaging position.

13. A lock comprising a main casing, a bolt movable in the casing, a pair of auxiliary casings arranged at right angles to the bolt, a latch member in each auxiliary casing for operating the bolt, when the said member is moved toward the bolt, and a spring normally pressing each of the said members outwardly, each of the said latch members being rotatable in the auxiliary casing to bring the said member into and out of operative position with respect to the bolt.

14. A lock comprising a main casing, a bolt in the main casing, a pair of latch members arranged at right angles to the bolt and mounted for movement toward and from the bolt, and means in connection with each latch member for engaging and moving the bolt when the latch member is pressed toward the bolt, each of the said latch members being rotatable to bring the said member into and out of operative position with respect to the bolt.

HASHIM SALEEM HASHIM.

Witnesses:

MARTIN C. WELSH,
NETTIE CURL.