

June 28, 1932.

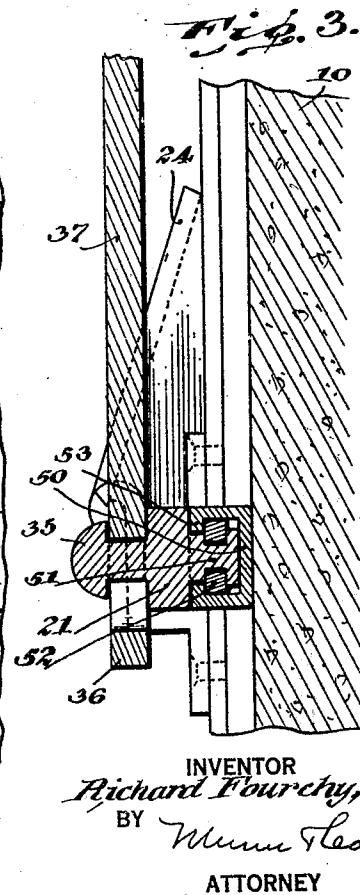
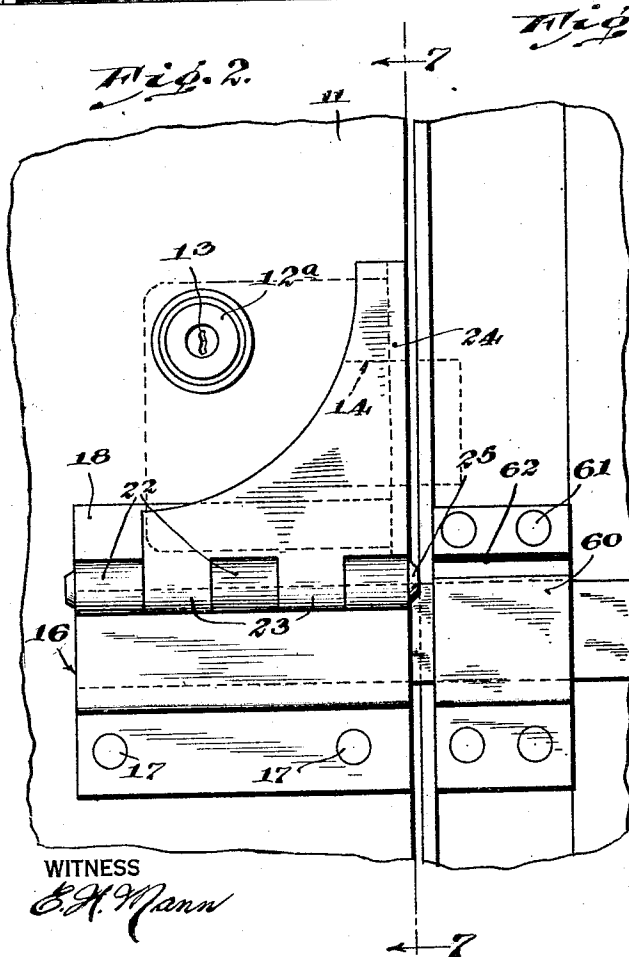
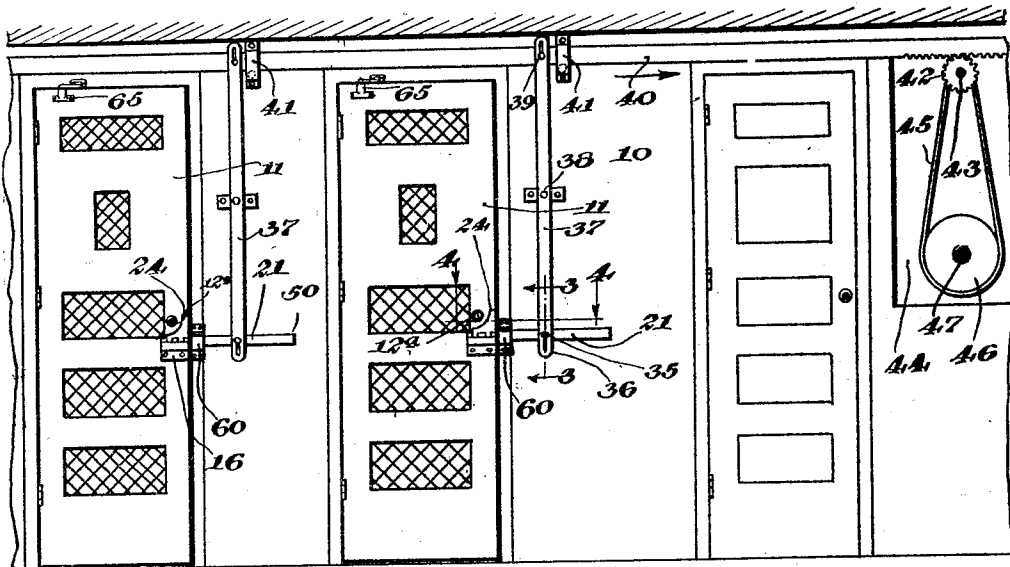
R. FOURCHY

1,865,366

LOCKING DEVICE

Filed Aug. 31, 1931

2 Sheets-Sheet 1



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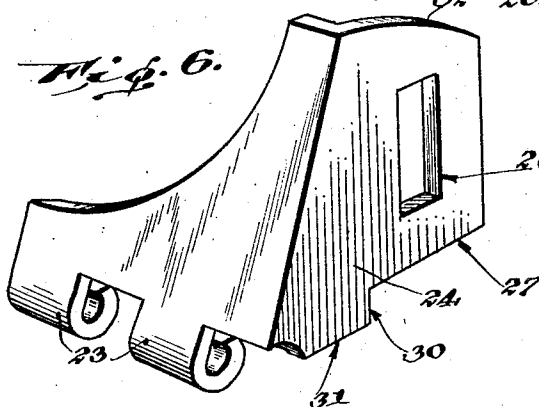
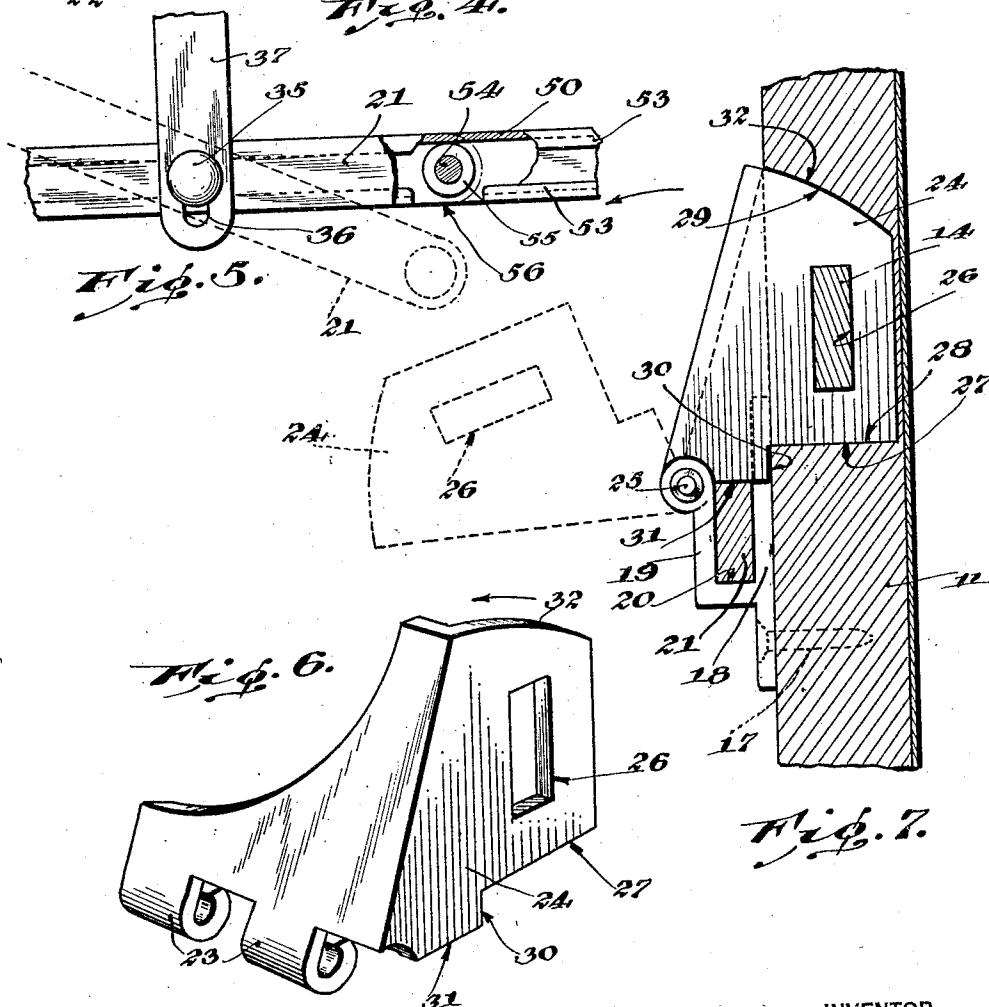
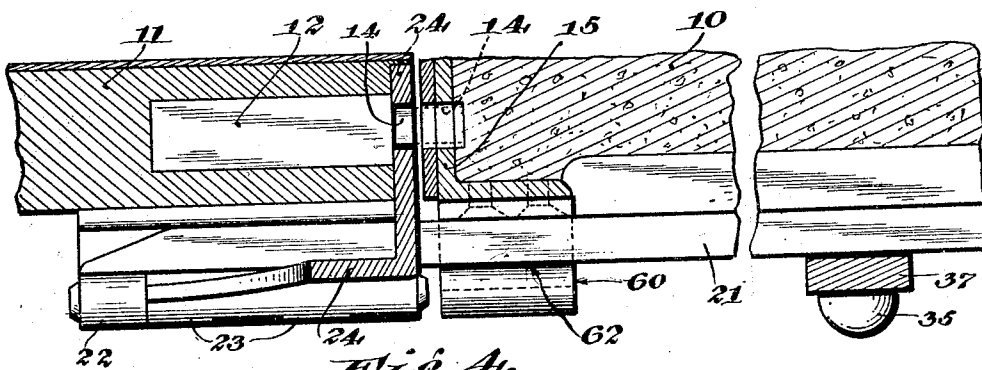
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2 Sheets-Sheet 2



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LOCKING DEVICE

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This invention relates to a locking device for a plurality of doors.

An object of the invention is the provision of a plurality of locking devices adapted to be co-ordinated with a similar number of doors so that the head of an institution may operate all of the locking devices simultaneously, a main locking device being employed in addition to the plurality of locking devices and being independently operable.

Another object of the invention is the provision of a plurality of locking devices associated with the doors of an institution with the devices being so co-ordinated that the head of an institution may operate simultaneously all of the devices for locking or unlocking all of the doors in series, or each locking device associated with a door capable of being unlocked and re-locked independently of the other devices, a primary locking device individual to each door being adapted to retain against movement a swingable block or keeper which prevents normally the independent release of a respective locking device of the series by an unauthorized person.

A further object of the invention is the provision of a plurality of bolts for simultaneously locking a similar number of doors against unauthorized opening, means being employed for actuating all of the locking devices from a central control, means being further employed for permitting individual movement of the bolts to an inoperative or operative position by the release or replacement of a retaining means which is under the control of an authorized person.

A still further object of the invention is the provision of a main control device for locking or unlocking all the doors of the cells of a series in an institution at one operation, provision being made for releasing or setting any individual locking means of a door independently of the other locking means, separate means being employed for locking individual doors independently of the main control so that the doors cannot be unlocked by said main control.

This invention will be best understood from a consideration of the following de-

tailed description, in view of the accompanying drawings forming a part of the specification nevertheless it is to be understood that the invention is not confined to the disclosure, being susceptible of such changes and modifications which shall define no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:

Figure 1 is a fragmentary view in elevation of a wall of a corridor showing my invention applied to a plurality of doors of an institution;

Figure 2 is a fragmentary view in elevation of a keeper and bolt forming part of the invention;

Figure 3 is an enlarged transverse vertical section taken along the line 3—3 of Figure 1;

Figure 4 is an enlarged horizontal section taken along the line 4—4 of Figure 1;

Figure 5 is an enlarged fragmentary view in elevation and partly in section of the guide and reciprocating bolt;

Figure 6 is a view in perspective of a keeper; and

Fig. 7 is a transverse vertical section taken along the line 7—7 of Figure 2.

Referring more particularly to the drawings, 10 designates the wall of a corridor in a penal institution in which a great deal of care must be exercised in maintaining doors 11 of the institution securely locked to prevent the escape of prisoners. Each door as is usual is provided with a lock 12 having a key barrel 12a and a slot 13 in which is adapted to be inserted a particular form of key for releasing a bolt 14 from a keeper 15 which is secured to the wall 10 or for returning the bolt to said keeper.

A bracket, generally designated by the numeral 16, is secured at 17 to the door 11. This bracket consists of a flat plate 18 as shown in Fig. 7 and an arm 19 which is spaced from the plate 18 to form a U-shaped guide and keeper 20 for an auxiliary bolt 21. The upper end of the arm 19 is provided with spaced sleeves 22. Sleeves 23 are formed on a block 24. A pin 25 is received by the sleeves 22 and 23 for swingably supporting the block 24

from the arm 19. This block is provided with an opening 26 which receives the bolt 14 of the lock 12 for a purpose which will be presently explained.

5 The block 24 has a straight bottom portion 27 resting upon a base 28 of a pocket 29 formed in the door 11. This block is also provided with a shoulder 30 engaging the outer face of the door 11 and a depressed portion 31 below the straight portion 27 of the
10 block is adapted to engage the upper face of the auxiliary locking bolt 21. It will be noted that the upper edge 32 of the block 24 is curved and the upper portion of the pocket 29 is curved to conform to the curvature of
15 the block 24 so that the block neatly fits within the pocket 29, and may enter and leave said pocket.

Each bolt 21 is connected to a pin 35 received within an elongated slot 36 formed at
20 the lower end of the lever 37 which is pivotally mounted at 38 on the wall 10. It will be noted that a lever 37 is pivotally mounted to one side of each of the doors 11. The upper
25 ends of these levers are pivotally connected at 39 with a rod 40 which extends the length of the corridor and is mounted for reciprocation within guides 41 which are secured to the wall 10.

30 A spur gear 42 is mounted on an axle 43 within a steel cabinet 44 controlled by the head of the institution. The gear is driven through a belt 45 and a pulley 46 which is secured to a shaft 47. The shaft is operated
35 by means of a crank (not shown) by an authorized person when it is desired to reciprocate the rod 40 to remove the bolts 21 from their locked positions or for moving the bolts into operative positions. It will be appreciated that any other type of mechanism
40 may be employed for reciprocating the rod 40.

The bolt 21, as shown more particularly in Figs. 3 and 5, is slidably mounted within a
45 U-shaped guide 50 which is secured to the wall 10 in any approved manner. The headed pin 35 which connects the lever 37 with the bolt 21 is formed integrally with said bolt. A projection 51 formed integrally with the
50 bolt 21 and oppositely to the pin 35 carries a roller 52 which is located within the guide 50 and is maintained in place by means of flanges 53 formed at the inner edges of the U-shaped guide 50. A second pin 54 extends
55 laterally from the outer end of the bolt 21 and a wheel 55 is mounted on the pin and is received within the guide 50. A portion of the lower flange 53 is cut away, as shown at 56, in order to permit the wheel or roller bearing 55 to be moved downwardly from said
60 guide.

A door closer 65 is applied to each door 11 so that the door will close automatically when released after it has been opened.

65 It will be noted from Fig. 4 that the bolt

14 of the lock 12 is in a position to lock the block 24 against outward swinging movement from the door 11, but does not engage the keeper 14 of the wall 10 for locking the door against outward movement. Thus it will be seen that the bolt 14 has two stages of movement, that is to lock the swinging block 24 to the door and likewise lock the door against movement by engaging the keeper 15. 70

The operation of my device is as follows: 75 After all of the inmates of the institution have been placed in the cells and the doors are closed, the head of the institution then actuates the shaft 47 causing reciprocation of the rod 40 in the direction indicated by the arrow in Fig. 1 until the levers 37 assume a substantial vertical position so that the upper ends of the levers will be in close association with the guides 41 for the rod 40. As a matter of fact, the guides may act as stops
80 for retaining the levers in their normal vertical positions. As the levers 37 are actuated, the auxiliary bolts 21 are moved to the left in Fig. 1 until they are seated within the bracket or keeper 20. Thus it will be seen
90 that by one operation all of the doors are maintained against release by the keepers. 60 and 20 when the bolts 24 are moved to their inner positions and retained in such positions by the bolts 14 of the locks 12. 85

It is taken for granted however that when the bolts 21 are moved to their operative locking positions with the doors 11, the blocks 24 are in their operative positions, as shown in Fig. 4 with the bolts 14 of the locks 12 retaining the blocks 24 in their operative positions. 100

If it be desired at any time to release one of the prisoners from a cell it is only necessary for a guard to insert a key within the key slot 13 and withdraw the bolt 14 of the lock 12 from the opening 26 in the block 24, thus releasing said block. Then the block 24 may be swung outwardly to the dotted line position shown in Figure 7. Since the outer end of the auxiliary bolt 21 is then located opposite the cutout portion 56, the roller 55 may be moved downwardly. The bolt 21 is then swung on its pivot 35 releasing the free end of the bolt from the keeper 20. By this means a door may be individually unbolted and unlocked. A reversal of the movements just described will provide for the locking of the door through the bolts 21 and 14. 105 110 115 120

An additional keeper 60 is secured at 61 to the frame of the door 11. The upper end of this keeper, as shown at 62, is open to permit the free end of the bolt 21 to be moved upwardly and away from the free edge of the door 11. 125

It will be seen by this construction that all of the doors may be locked or unlocked at one operation or any door may be unlocked without unlocking any of the other 130

doors. On the other hand, any or all of the doors may be locked individually by moving the bolt 14 sufficiently outwardly of the lock 12 to engage the keeper 15 in the wall 10 so that a door or all of the doors are retained in a closed position by the individual locks 12, and thus cannot be released by the main control.

I claim:

1. An auxiliary locking means for a plurality of doors comprising a rod mounted for reciprocation and extending transversely of the doors, a pivotally mounted lever located adjacent each door and having one end pivotally connected with the reciprocating rod, means for actuating the rod for reciprocating the levers, a keeper on each door, a bolt adjacent each door and slidably mounted on a fixed support, each bolt being pivoted directly on an end of a lever and being oscillatable for manual release of each bolt from its respective keeper the bolts adapted to engage the keepers simultaneously for securing said doors against movement.

2. An auxiliary locking means for a plurality of doors comprising a rod mounted for reciprocation and extending transversely of the doors, a pivotally mounted lever located adjacent each door and having one end pivotally connected with the reciprocating rod, means for actuating the rod for reciprocating the levers, a keeper on each door, a bolt adjacent each door and slidably mounted on a fixed support, the bolts adapted to engage the keepers simultaneously for securing said doors against movement, the bolts being mounted for oscillation, a block swingably mounted on each door and engageable with a respective bolt for preventing oscillation of the bolt, and means for retaining the block against swinging movement.

3. An auxiliary locking means for a plurality of doors comprising a rod mounted for reciprocation and extending transversely of the doors, a pivotally mounted lever located adjacent each door and having one end pivotally connected with the reciprocating rod, means for actuating the rod for reciprocating the levers, a keeper on each door, a bolt adjacent each door and slidably mounted on a fixed support, each bolt being oscillatable on an end of a lever for manually releasing the bolt, the bolts adapted to engage the keepers simultaneously for securing said doors against movement, and a releasable means for preventing oscillation of each bolt.

4. An auxiliary locking means for a plurality of doors comprising a rod mounted for reciprocation and extending transversely of the doors, a pivotally mounted lever located adjacent each door and having one end pivotally connected with the reciprocating rod, means for actuating the rod for reciprocating the levers, a keeper on each door, a bolt adjacent each door and slidably mounted on

a fixed support, the bolts adapted to engage the keepers simultaneously for securing said doors against movement, and means for preventing release of each bolt from its keeper.

5. A locking device for a door comprising a bolt mounted for oscillation and reciprocation, a guide secured to a fixed support for slidably receiving the bolt, a lever having pivotal connections with the bolt, means for rocking the lever to reciprocate the bolt, a keeper on a fixed support to receive the bolt and provided with a slot to permit oscillation of the bolt on the pivotal connection between the bolt and lever, and means on the door engageable with the bolt to prevent oscillation of said bolt.

6. A locking device for a door comprising a bolt mounted for oscillation and reciprocation, a guide secured to a fixed support for slidably receiving the bolt, a lever having pivotal connections with the bolt, means for rocking the lever to reciprocate the bolt, a keeper on a fixed support to receive the bolt and provided with a slot to permit oscillation of the bolt on the pivotal connection between the bolt and lever, a swinging block on the door engageable with the bolt to prevent oscillation of said bolt, and means to prevent unauthorized manipulation of the block.

7. A locking device for a door comprising a bolt mounted for oscillation and reciprocation, a guide secured to a fixed support for slidably receiving the bolt, a lever having pivotal connections with the bolt, means for rocking the lever to reciprocate the bolt, a keeper on a fixed support to receive the bolt and provided with a slot to permit oscillation of the bolt on the pivotal connection between the bolt and lever, swinging means on the door engageable with the bolt to prevent oscillation of said bolt, a lock on the door having a bolt engaging the swinging means for retaining said means against manipulation.

8. A locking device for a door comprising a bolt mounted for oscillation and reciprocation, a guide secured to a fixed support for slidably receiving the bolt, a lever having pivotal connections with the bolt, means for rocking the lever to reciprocate the bolt, a keeper on a fixed support to receive the bolt and provided with a slot to permit oscillation of the bolt in the pivotal connection between the bolt and lever, means on the door engageable with the bolt to prevent oscillation of said bolt, said guide having flanges, spaced pins on the bolt provided with rollers, the flanges retaining said rollers and likewise the bolt in operative relation with the guide, a portion of one of the flanges being cut away to permit one of the rollers to move from the guide and permit oscillation of the bolt.