

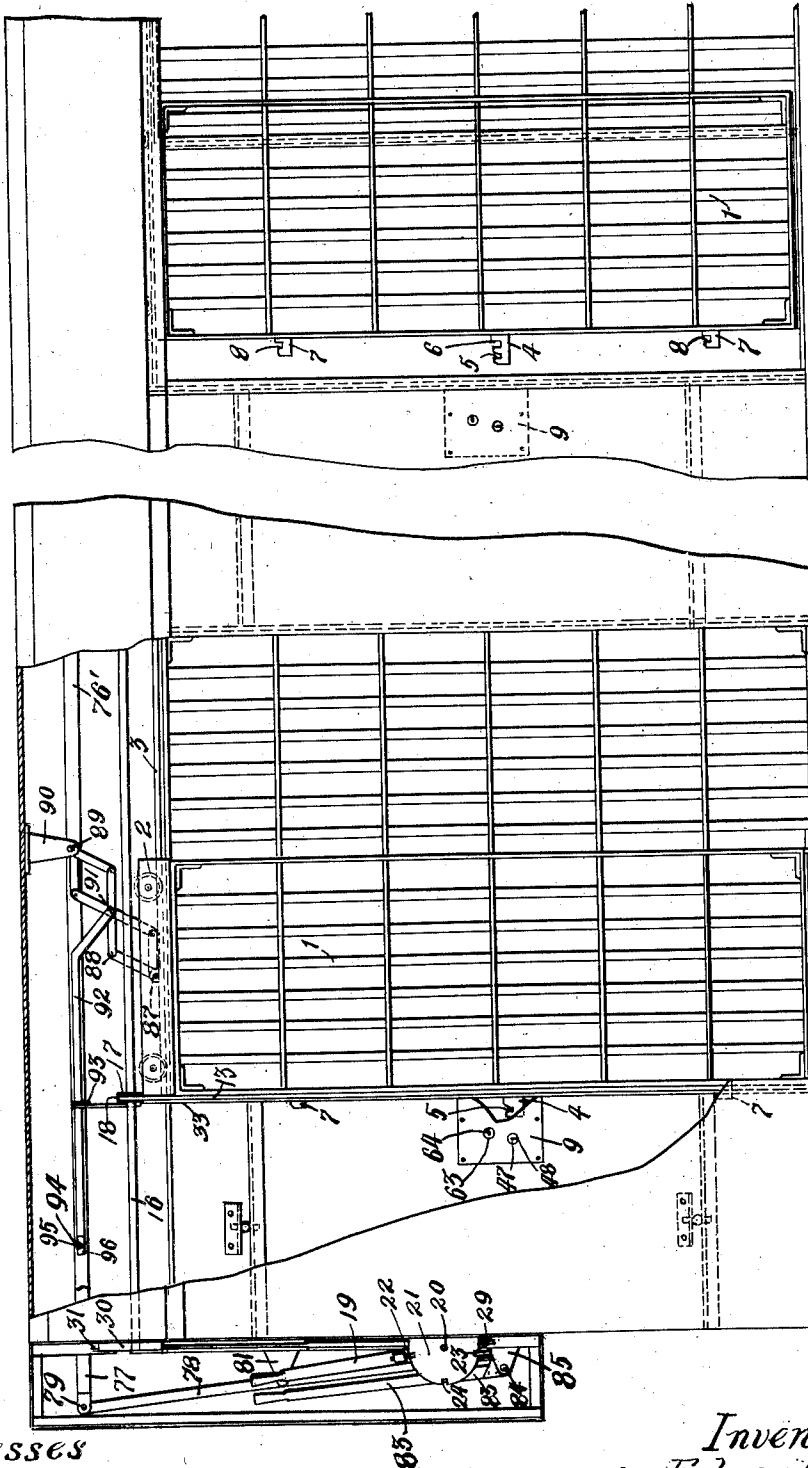
F. ADAM.
JAIL DOOR LOCK AND OPERATING MECHANISM.
APPLICATION FILED NOV. 6, 1909.

Patented Nov. 5, 1912.

7 SHEETS—SHEET 1.

1,043,746.

Fig. 1.



Witnesses
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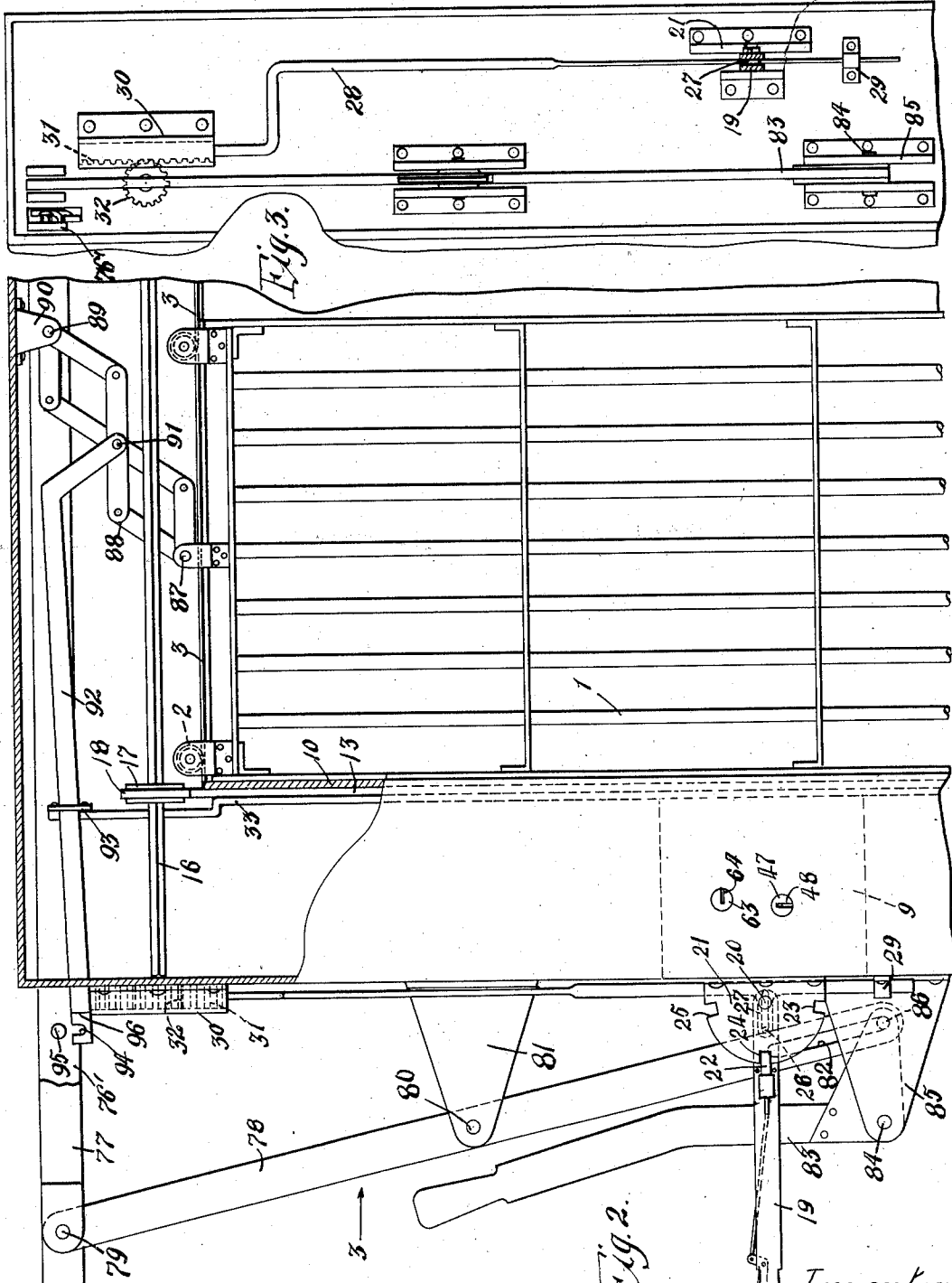
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7 SHEETS—SHEET 2.

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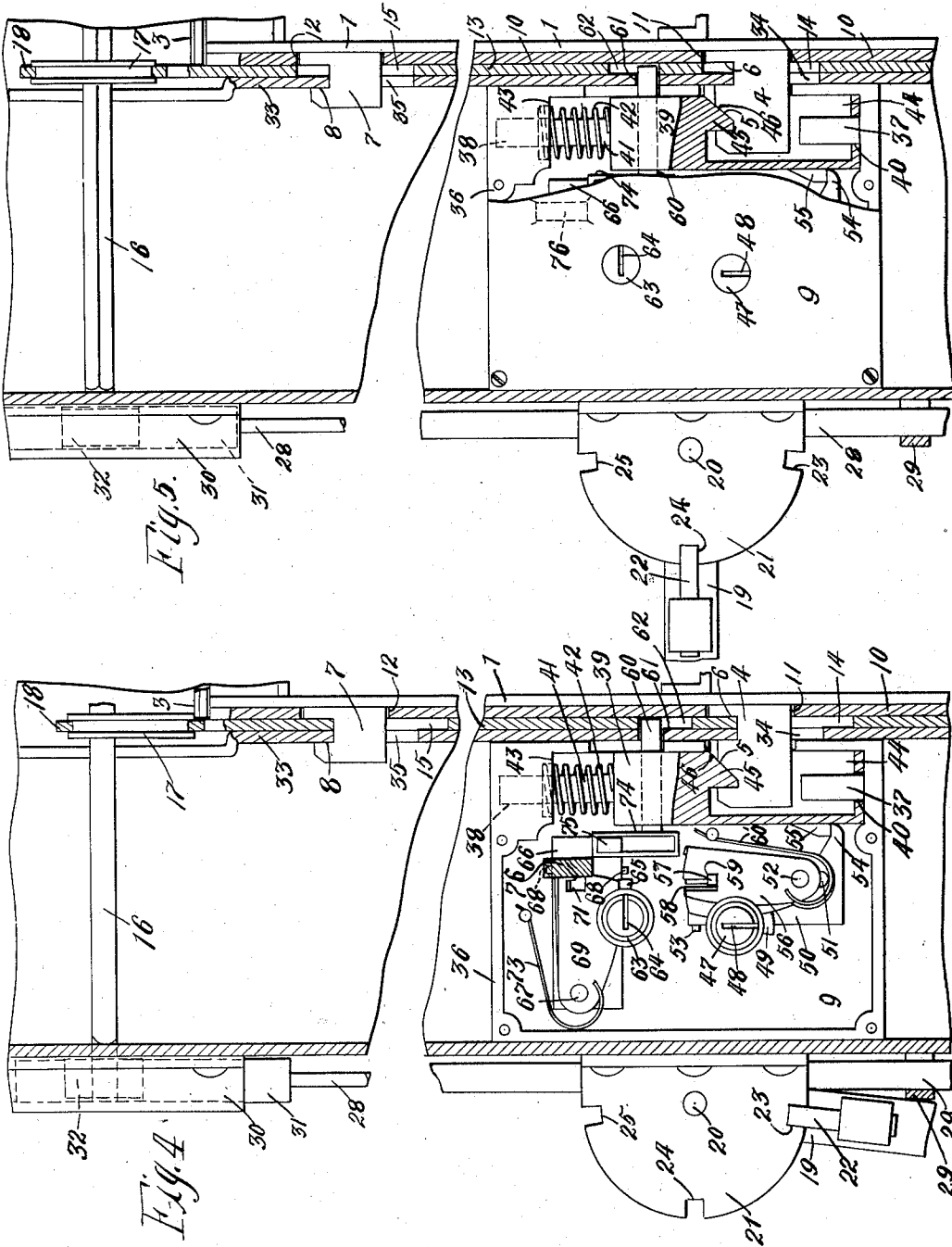
Fig. 2.
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7 SHEETS—SHEET 3.



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7 SHEETS—SHEET 4.

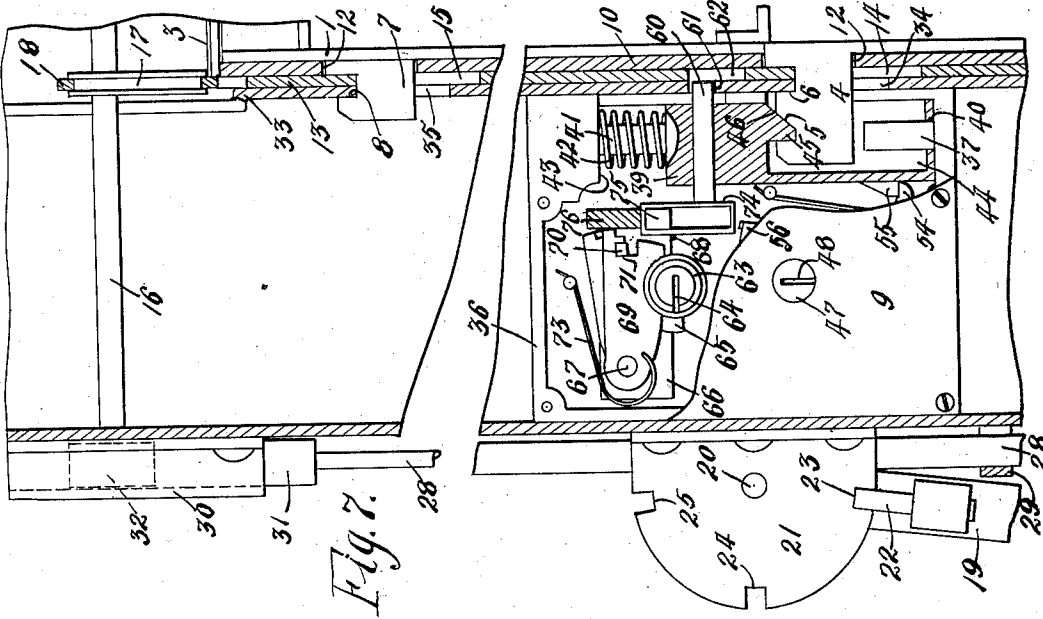


Fig. 7.

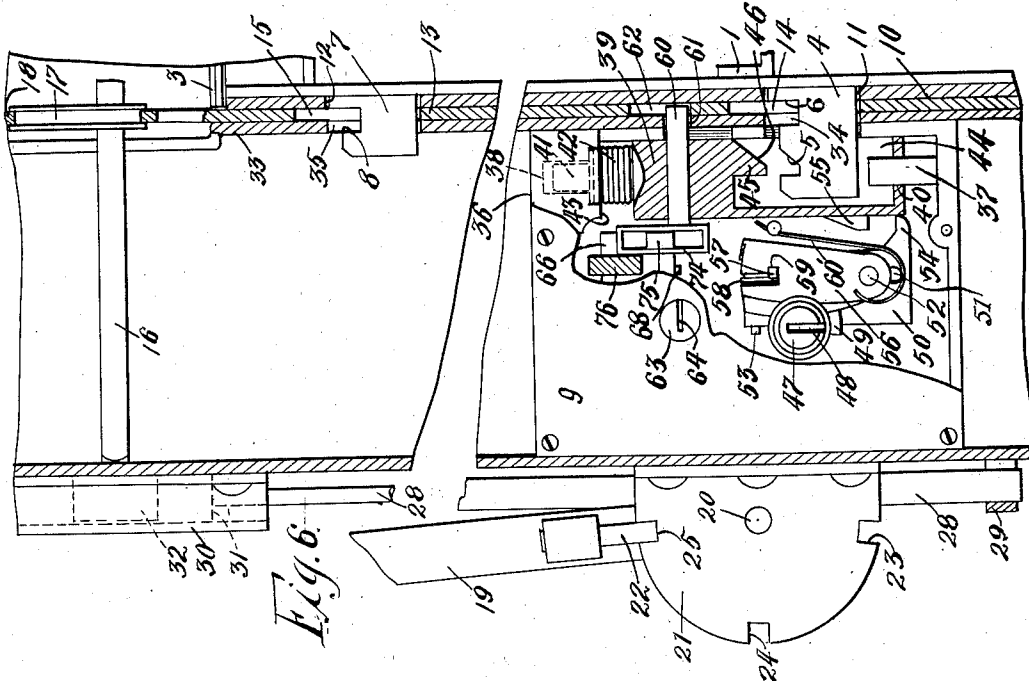


Fig. 6.

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7 SHEETS—SHEET 5.



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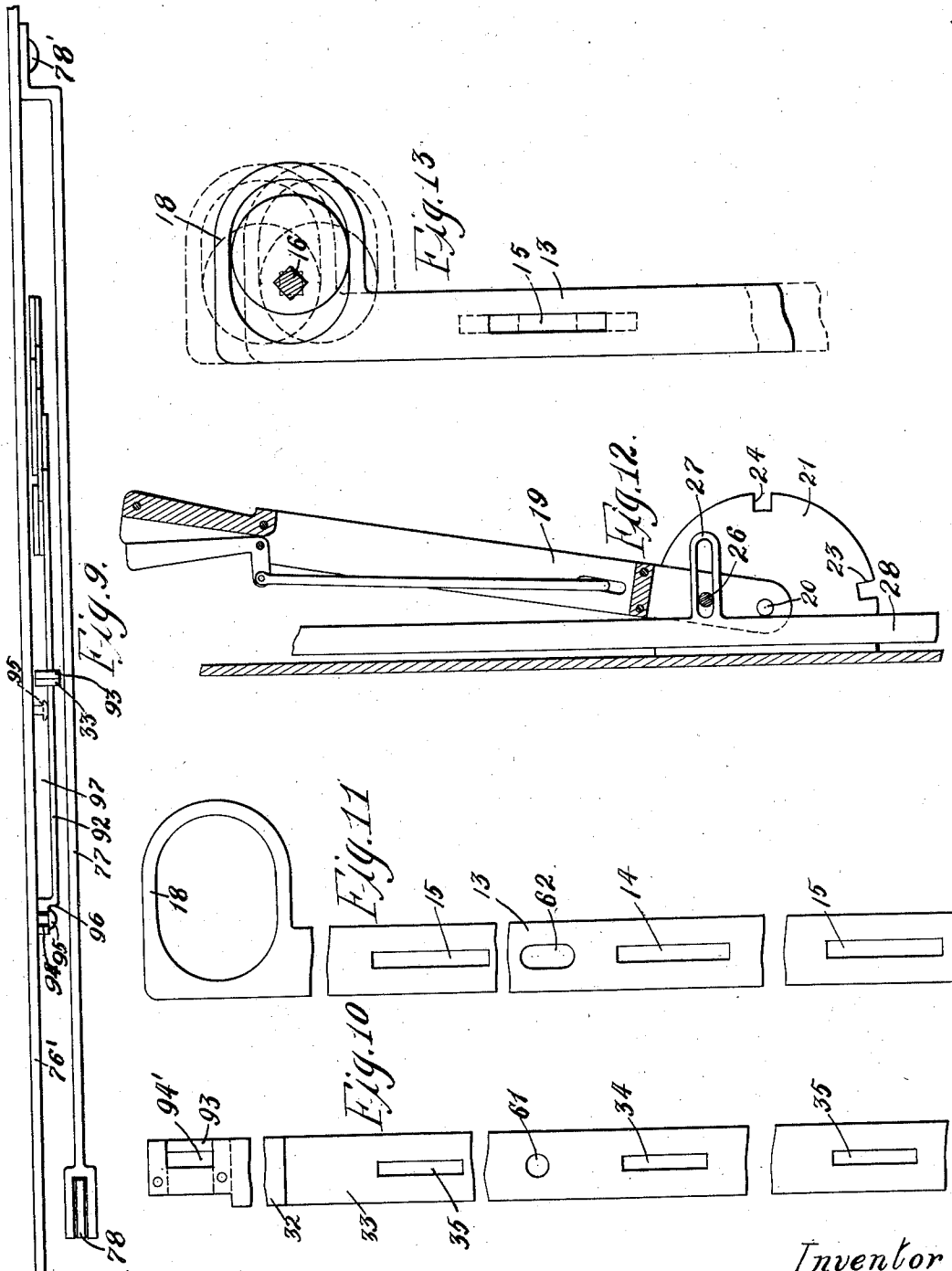
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7 SHEETS—SHEET 6.

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Witnesses

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7 SHEETS—SHEET 7.

1,043,746.

Fig. 15

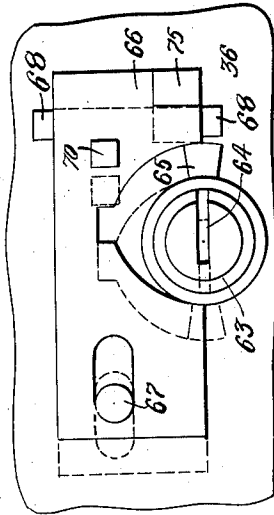


Fig. 16

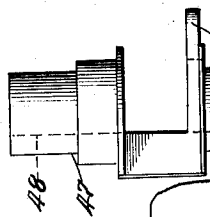


Fig. 17

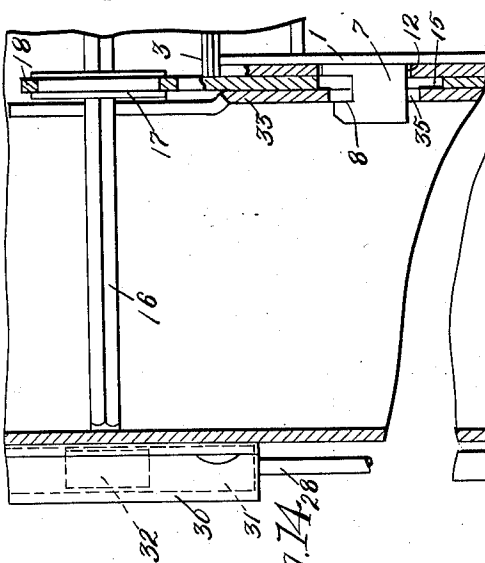
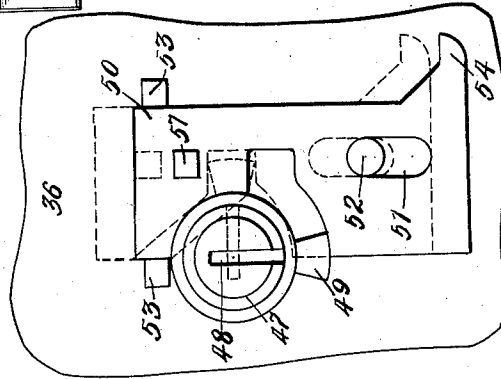
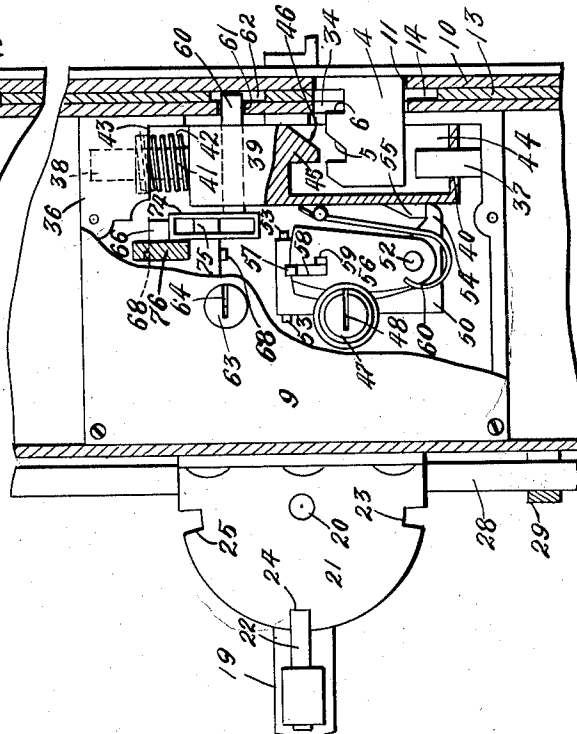


Fig. 14



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UNITED STATES PATENT OFFICE.

FOLGER ADAM, OF JOLIET, ILLINOIS.

JAIL-DOOR LOCK AND OPERATING MECHANISM.

1,043,746.

Specification of Letters Patent.

Patented Nov. 5, 1912.

Application filed November 6, 1909. Serial No. 526,528.

To all whom it may concern:

Be it known that I, FOLGER ADAM, a citizen of the United States, residing at Joliet, in the county of Will and State of Illinois, have invented a new and useful Improvement in Jail-Door Locks and Operating Mechanism, of which the following is a specification.

This invention relates to improvements in gang locks for sliding cell doors and has for one of its objects the provision of a gang lock, adapted when thrown in one of its positions, to permit the simultaneous locking of all of the closed doors of a row of cells and when thrown in another position to unlock the same.

A further object of the invention consists in the provision of a gang lock constructed and arranged so that when it is unlocked in one of its positions all of the doors of the row of cells will be locked, but may be independently unlocked by separate door locking devices, with which each door is provided, and which locking devices are operatively connected with the gang lock. In the most improved embodiment of my invention the separate locking devices for each door are normally engaged therewith to lock the same and when the doors are unlocked by the gang lock the separate door locking devices are operated by the gang lock.

A further object of this invention is to provide each of the separate door locking devices with means for "dead locking" any one or more of the doors whereby such doors cannot be opened by the gang lock, or by the door locking mechanism proper, the arrangement being such that the "dead locking" of one or more doors does not in any way interfere with the simultaneous locking or unlocking of the remaining doors by the gang lock.

The invention also contemplates a gang operating device or mechanism for the doors arranged and designed to open and close all of the doors in unison, the feature of novelty, of which consists, in the operative connection of the gang operating device with the gang lock, and separate locking devices, so that all of the doors which are under control of the gang lock will be thrown into operative relation with the gang

operating device to be opened simultaneously and so that those doors which are "dead locked" or those doors which are not in operative adjustment with the gang lock, and are in adjustment to be opened only by the separate locking devices, may be opened or closed and locked wholly independently of the gang operating device.

The invention includes other features of novelty and details of construction which will be more fully described in connection with the accompanying drawings and which will be more particularly pointed out and ascertained in and by the appended claims.

In the drawings: Figure 1 is a front elevation of one end of a tier showing one complete cell and a portion of an adjoining cell with parts broken away to show the operative mechanism. Fig. 2 is a similar view of a portion of the structure shown in Fig. 1 on an enlarged scale. Fig. 3 is an end elevation of the structure shown in Fig. 2 looking in the direction of the arrow 3 thereof. Fig. 4 is a fragmentary sectional view of the gang lock and one door lock showing the gang lock in a final locking position wherein all of the doors are locked and wherein none of the doors can be opened or unlocked by their respective door locks. Fig. 5 is a similar view with the gang lock in an intervening position and with all of the doors of the cells locked but in an adjustment wherein any one of the cell doors can be unlocked by operation of their respective door locks. Fig. 6 is a similar view with the gang lock in an unlocking position showing an adjustment wherein all of the doors are unlocked and may be simultaneously opened by the gang operating mechanism. Fig. 7 is a similar view illustrating the gang lock in a final position and one door lock in a dead locking position in which position its respective door is locked and will remain locked irrespective of the position of the gang lock, being impossible to unlock the door from the lock proper and only possible to unlock the door by readjustment of the dead locking means. Fig. 8 is a view similar to Fig. 2 showing the door opened by the gang operating device. Fig. 9 is a detached plan view of a portion of the gang operating device. Fig. 10 is a view in elevation of a door locking bar. Fig.

11 is a view in elevation of a gang door locking bar. Fig. 12 is a view of a controlling lever for operating the gang lock looking in a reverse direction from the bars as they appear in Fig. 2. Fig. 13 is a view of one of the gang locking bars showing the same in its different operating positions. Fig. 14 is a view similar to Fig. 5 with the locking mechanism in a position to permit the jail door to be opened. Figs. 15, 16 and 17 are enlarged detail views of the individual locking mechanism.

Like numerals of reference designate similar parts throughout the different figures of the drawings.

Referring specifically to the construction shown, 1, designates doors mounted upon rollers 2, adapted to run upon a suitably formed rail or track 3, to afford requisite sliding movement of the door abreast of the door way. The door is provided with a locking member which is preferably in the form of a rigid notched member 4 having notches 5 and 6. Above and below the members 4, each door is provided with notched lugs 7, preferably rigidly secured to the doors, the notches 8 thereof being in vertical alinement with the notches 6 of the members 4. Each door is provided with an independent lock indicated as a whole at 9, and with which the member 4 of the respective door coöperates. An abutment or jamb strip 10 is disposed on one side of each doorway to receive the impact of the doors when closing and said strips are provided with suitable notches 11 and 12 for permitting passage of the member 4 and lugs 7, respectively.

Lying back of each jamb strip 10, or on that side opposite to the side against which the door engages, are two locking bars, one of which is directly connected with and forms a part of the gang lock, and the other of which is connected with the first mentioned bar indirectly preferably through the door locks, and which may be operated by the gang lock, or the door lock, or which may not be operated by either when the door lock is in a "dead locking" position. One of said bars being adapted to act on an individual door lock when thrown out of operative relation with the gang lock.

The gang locking bars are indicated at 13 and are provided with engaging portions preferably in the form of elongated slots 14 and 15, the slots 14 being adapted for engagement with the notches 6 of the members 4 and the slots 15 being adapted for engagement with the notches 8 of the lugs 7. The bars 13 are operatively connected with a gang shaft 16, conveniently arranged above each tier of doors and extending throughout the length thereof.

The operative connection between the bars 13 and the shaft 16 may consist of

eccentrics 17, rigidly secured to the shaft 16, and eccentric straps 18 suitably secured, or if desired formed integral, with the bars 13. The gang shaft 16 may be polygonal in cross section to facilitate non-rotative engagement of the eccentrics thereto, as clearly shown in Fig. 13.

A device is provided for operating the gang shaft 16 and, as shown, said device consists of a lever 19, pivotally mounted at 20, upon a notched quadrant 21, secured in any desirable manner to the structure. Said lever is provided with a common form of manually operable sliding dog 22, adapted for engagement with notches 23, 24 and 25 of the quadrant 21 to lock the lever 19 in three different positions of adjustment. The lever 19 is provided with a pin 26 having sliding engagement with a slotted projection 27, of a rack bar 28, which is mounted to be reciprocated vertically in a lower guide 29 and an upper guide 30. A rack 31 is provided on the upper end of said bar 28 and engages the pinion 32 on the gang shaft 16. It will be obvious from the foregoing that as the lever 19 is shifted, from one position to the other, movement will be imparted to the gang shaft 16 and to the gang locking bars 13 to adjust the latter to desired positions.

The locking bars 33 lie abreast of and in abutting relation with the gang locking bars 13 and are provided with engaging portions preferably in the form of slots 34 and 35, slots 34 engaging the notched portion 6 of the locking members 4 and slots 35 engaging the notches 8 of the lugs 7.

The construction of the independent door locks will next be described in detail.

Each lock includes a casing 36 provided with a bolt guiding pin 37 and a guiding socket 38 arranged in vertically alined relation. A bolt 39 is apertured at 40 to receive the pin 37 and is provided with a shank 41 disposed in the socket 38. A bolt spring 42 is interposed between the upper ends of the same and a shoulder 43, formed in the casing, to normally hold the bolt 39 in the position shown in Fig. 4. The lower end of the bolt 39 is recessed at 44 to permit the end of the member 4 to project therein and the bolt is provided with a latch member 45 adapted for engagement with the notch 5. The front face 46 of the latch portion 45 presents an inclined face to the end of the member 4 so that when the member 4 is thrust into the position shown in Fig. 4, the bolt 39 will be automatically raised and subsequently lowered, by the spring, into engagement with the member 4. A key post 47 is revolvably mounted in the casing 36 and is provided with a slotted portion 48 to receive a suitably formed key. The lower end of the key post is provided with a lug 49 adapted for engagement with a bolt actuating plate slid-

ably mounted in the casing 36. As shown the bolt actuating plate 50 is slotted at 51, and a pin 52, mounted on casing 36, projects therethrough to guide the lower end of said plate. The upper end of said plate slides between two lugs 53. The plate 50 is provided with an extension 54 engaging a lug 55 which serves to raise the bolt 39 when the plate 50 is actuated. A plurality of wards 56 are pivotally mounted on the stationary pin 52 and said wards project into a suitable recess in the key post 47 to be engaged by the key and shifted upon their pivotal mounting 52. A ward post 57 is mounted upon the plate 50 and engages suitably formed notches 58 provided with shoulders 59, in the wards 56. This engagement of the wards 56 with the post 57, which is normally maintained by the spring 60', renders impossible the upward or downward movement of the plate 50 by any but the properly formed key. When the proper key is applied to the lock the wards 56 are freed from the post 57 and the plate 50 is free to be operated by the lug 49 against the lug 55 to raise the same and the bolt 39 of which it is a part. When the bolt 39 is free from gang and deadlock control, as shown in Fig. 7, the upward movement of the plate 50 is adapted to raise the bolt 39 to the position shown in Fig. 6, against the pressure of the spring 43, which spring also serves to return the bolt 39 and the plate 50, upon the release of pressure on the key, to their original position as shown in Fig. 4, where any further downward movement of the plate 50 is prevented by the top of the slot 51 coming to rest upon the pin 52 which, as has been stated, is integral with the casing 36 of the lock.

The parts hereinbefore described constitute what will hereinafter be termed the door lock proper and the function of the same is to permit the attendant to unlock any one of the cell doors which may be thrown out of relation with the gang lock.

The relation which the lock mechanism proper has with the gang lock will next be described in detail.

A projection 60, carried by the bolt 39, has operative connection with the gang locking bars 13, and the locking bars 33, and performs the further function of operatively connecting said bars with each other. As shown, said projection 60 is in the form of a rod which engages an aperture 61 in the locking bar 33, and a slot 62 in the gang locking bar 13. It will be noted that the slots 15 are of greater length than the slots 35, and that the slots 14 are of greater length than the slots 34, and that the slot 62 is sufficiently elongated with respect to the aperture 61 to correspond with the extra length of the slots 14 and 15. The extra play afforded the gang locking bars 13 permits the

same to be raised out of locking relation with the members 4 and the lugs 7 when the lever 19 is swung from the notch 23 to the notch 24, which is the position shown in Fig. 5, without releasing the locking bars 33 from the members 4 or lugs 7. This is the neutral or intermediate position or adjustment of the gang lock which does not unlock any of the doors but permits any one or more of the doors to be independently unlocked by their respective locking devices proper. In the position shown in Fig. 4, both bars 13 and 33 form a part of the gang locking mechanism but in the neutral position, shown in Fig. 5, the gang locking mechanism is not in an acting position and the bars 33 temporarily form a part of the door locks. In this position each bar 33 may be considered an independent door lock with means, which may be the door lock, for actuating the bar to unlock the door. It will be readily understood that in the position shown in Fig. 5 the raising of a bolt 39, by a key, will also serve to raise a corresponding bar 33 and release the lugs 7 therefrom as well as the corresponding member 4 therefrom, the bolt 39 acting through the projection or rod 60. When the gang lock is thrown from a locking to an unlocking position to unlock all of the doors simultaneously, then the lever 19 is thrown from the notch 23 to the notch 25, carrying all of the bars 13 a sufficient distance upwardly to first disengage said bars from the lugs 7 and members 4 and subsequently act through engagement of the lower ends of the slot 62, with the projection 60, to carry the bars 33 upwardly a sufficient distance to disengage the same from the members 4 and lugs 7, which movement will also carry the bolts 39 upwardly a sufficient distance to disengage the latch members 45 from the members 4. It will thus be seen that when the gang lock is thrown into an unlocking position both bars 33 and 13 form a part of the gang lock and that said bars are operatively connected with each other, and with the independent locking devices proper. It will be further noted that the projection 60 constitutes means performing a distinct function of operatively connecting the bars 13 and 33 with each other and a separate distinct function of operatively connecting the independent locking devices proper with the gang lock.

It is sometimes desirable to "dead lock" one or more of the doors of a row of cells so that it cannot be opened by the gang lock, or by the lock proper, and this feature of the invention will now be described in detail.

As shown the "dead lock" device comprises a key post 63 having a key slot 64 and a lug 65. A ward plate 66 is slotted to receive a stationary pin 67 and is guided between lugs 68 when actuated by the key. A

plurality of wards 69 are pivotally mounted on the ward pin 67 and project into a suitable recess in the key post 63 so as to be actuated by a properly notched key. A ward post 70 is mounted upon the ward plate 66 and engages suitably notched and shouldered portions 71, formed in the wards 69. Springs 73 normally hold the wards 69 in engagement with the post 70. When the plate 66 is in the position shown in Fig. 4 one end of the slot in the plate 66 is in engagement with the pin 67 and the shoulders 72 are in engagement with the post 70 and the plate 66 is thereby held in the position shown. In retracting the plate 66, from the position shown in Fig. 4, to the position shown in Fig. 7, the key post 63 is turned to the left and the post 70 is brought into engagement with the notches 71 thereby holding the plate 66 in a retracted position. The projection or rod 60 is preferably slidably mounted in the bolt 39 and is provided with an elongated loop extension 74 which engages a lug 75 on the plate 66. It will be noted that this looped extension 74 provides a lost motion connection between the "dead lock" and the lock proper permitting the lock proper to be freely operated in any manner within the limits of its action when the "dead lock" is in a neutral position, as shown in Fig. 4. Means are provided for locking or preventing action of the lock proper when the "dead lock" is in an active position (Fig. 7) and as illustrated, said means includes a lug 76 preferably disposed upon the outer or front wall of the lock casing 36 and positioned thereon in such a manner as to permit the loop 74 to reciprocate freely on the right hand side of the lug 76 when the "dead lock" is in a neutral position. It will be further noted that this lug 76 prevents the "dead lock" from being thrown, from a neutral to an active position, except when the bolt 39 and loop 74 are in a lowermost position, see Fig. 6, in view of the fact that the loop 74 would engage the lug 76, laterally, and prevent the plate 66 from being thrown into a retracted position. It will also be noted that when the bolt 39 is in a lowermost position, as shown in Fig. 7, and the "dead lock" is thrown from a neutral to an active position, the loop 74 is shifted abreast of the lower end of the lug 76 so that the bolt 39 cannot be raised by either the key of the lock proper or by the gang lock. As a further means of preventing the gang lock from operating the lock proper when the "dead lock" is in an active position the rod or projection 60 is of such length that the laterally shifting movement of the plate 66 to throw the "dead lock" from a neutral to an active position will withdraw said projection 60 from engagement with the slot 62, thereby disconnecting the bars 13 and 33 from each

other and preventing any movement of the bar 33 of the "dead locked" door under the action of the gang lock. It will thus be seen that when the door is "dead locked" it is secured by its bolt 39 and bar 33 engaging the member 4 and also by the bar 33 engaging both of the lugs 7 thereby securely holding the door locked.

Reference will next be made to a gang door operating device the novel features of which consist in its operative connection with the locking mechanisms.

As shown, a gang operating bar 76' extends throughout the length of a row of cells and is preferably disposed above the doors thereof. Any form of suitable bearings may be provided for the bar 76' to permit of longitudinal shifting movement thereof. The bar 76', as shown, is operated at one end of a row of cells by a device which may comprise the following elements: A link 77 is pivotally connected to the bar 76', at 78', and at its opposite end said link 77 is connected with a lever 78, at 79, and said lever 78 is pivotally mounted at 80, to a suitable bracket 81, secured to the structure in any desirable manner. The lower end of the lever 78 is slotted at 82 and is connected with a manually operable lever 83, which is pivotally mounted at 84, to a bracket 85, and is connected with the lever 78, at 86, the slot 82 affording requisite movement of the connection 86 when the lever is shifting from the position shown in Fig. 2, to the position shown in Fig. 8, and vice versa, as will be obvious from the drawing. In the form shown, each door is connected at 87, with one end of a lazytong structure 88, the other end of which is connected at 89 with any desirable stationary part, as 90. Intermediate of its ends the lazytong structure 88 is connected at 91 with a member 92, which is in the form of an arm, and which is designed to be normally out of operative connection with the gang operating device, when the doors are locked, either by the door locks or gang locks, all of said bars being adapted to be simultaneously thrown into operative relation with the gang operating device when all the doors are unlocked, by the gang lock, or as many of the doors as may be unlocked by the gang lock. The members 92 of those doors which are not unlocked by the gang lock, or which may be "dead locked" are not thrown into operative relation with the gang operating device. Furthermore after a certain number of doors have been unlocked by the gang lock and opened by the gang operating device those doors remaining closed may be subsequently opened by unlocking the independent locks and the locking bars 33 of such door or doors will not interfere with the gang operating mechanism. Referring to the specific construction shown, each

member 92 is connected with a locking bar 33, at 93, a suitable slotted portion 94' (Fig. 10) being provided to afford the slidable connection of the member 92 with the bar 33. The ends of the members 92 are notched at 94 to engage the studs 95 on the gang bar 76'. The studs 95 are preferably provided with heads (see Fig. 9) and the members 92 are bent inwardly at 96 to bring the notched portions 94 into the plane of the shanks of said studs 95. The spaces 97 between the gang bars 76' and the bodies of the members 92 permit of upward movement of any one of the members 92 of those doors not under control of the gang operating device and not opened by the gang lock and which are subsequently opened after the doors, under control of the gang operating gang lock devices, have been opened, it being noted that at such time the studs 95 will have been shifted to the right before the "dead lock" or subsequently opened doors have been opened, thereby shifting the studs into the position shown in dotted lines in Fig. 9. It will be noted that a door will only be thrown into operative relation with the gang operating device when its respective bar 33 has been shifted upwardly throughout its extreme unlocking position so as to bring the notch 94 into engagement with the stud 95. When the gang lock is adjusted to a neutral position, as shown in Fig. 5, the bars 33 will not have been moved and the doors will not be thrown into operative relation with the gang operating device. When however the gang lock has been thrown into an unlocking position, as shown in Fig. 6, all of the bars 33, under control of the gang lock, will be shifted upwardly a sufficient distance to engage the members 92 with the studs 95.

Assuming that the gang lock is in a neutral position, as shown in Fig. 5, with all of the doors closed and with the gang operating device in a closing position, as shown in Fig. 2, any one of the doors may be opened by its individual lock without throwing such door in operative relation with the gang device. To afford this advantage the parts are so proportioned, and the upper portions of the notches 5 and 6 of the member 4, and the notches 8 of the lugs 7, are reduced in height so that the lugs 7 and member 4 of the door to be opened may be released from engagement with the bar 33 and the bolt 39 without raising either a distance equal to the distance to which they are raised when operated by the gang lock. With the parts in the position set forth in the foregoing, a key may be inserted in the key post 47 of the door to be opened and the bolt 39 and bar 33 will be raised a sufficient distance to clear the upper reduced tops of the notches to free the member 4 and lugs 7 but this upward movement of the bar 33 will not be

sufficient to engage the notch 94 with the pin 95, see Fig. 2, therefore the attendant can slide the door open and the door will be free to open independently of the gang control.

While the operation of my invention will be clear from the foregoing an understanding thereof may be facilitated by a short recapitulation.

With the lever 19 in the final locking position, as shown in Fig. 4 all of the bars 33 and 13 will be in locking engagement with the locking members and lugs of all the doors and all of the locking members of all of the doors will be additionally locked by their individual locks proper, namely the bolts 39. In this position all of the members 92 will be out of connection with the gang bar 76', and it will be absolutely impossible to unlock any of the doors by the individual door locks because the gang lock will hold the bars 13 in a full locking position thereby preventing the pins 60 and bolts 39 from being raised. In this position, however, nothing will prevent any one of the doors from being "dead locked" because the loop 74 are below the lugs 76 and the "dead locking device" can be readily turned to withdraw the pin 60 from engagement with the slot 62, thereby throwing such individual lock out of relation with the gang lock and preventing the bolt 39 from being operated by the key post, 47, by reason of the fact that the loop 74 is beneath the lug 76. It will thus be seen that if it is secretly decided at a late hour to prevent the release of a prisoner in a certain cell on the following morning said cell can be "dead locked" after all of the other cells of the row have been finally locked and that when all of the other cells have subsequently been unlocked by the gang lock the "dead locked" cell will still remain "dead locked." If it should be desired to open any one of the doors of a row of cells and maintain all of the other doors of the cells of this row locked then the lever 19 will be thrown into a neutral position with the dog 22 in engagement with the slot 24. This movement rotates the gang shaft 16 and lifts all of the bars 13 out of locking engagement with the members 4 and lugs 7 of all the doors thereby temporarily throwing all of the doors out of control of the gang lock. From Fig. 5 it will be seen that this neutral position does not lift the bars 33, and does not lift the bolts 39, therefore all of the doors are individually locked by the bolts 39 and bars 33. By inserting a key in the post 47, of the door desired to be opened, the bolt 39 and bar 33 may be lifted a sufficient distance to free the member 4 and lugs 7 and permit the door to be opened. As hereinbefore described this movement will not be sufficient to cause the bar 33 to engage the

member 92 with stud 95. It will also be noted that when the gang lock is in a neutral position none of the bolts 39 are raised therefore any one of the doors of the cells may be "dead locked." If it is desired to unlock all of the doors of a row of cells by the gang lock the lever 19 will be raised to the unlocking position shown in Fig. 6 with the dog 22 of the lever 19 engaging the notch 25, in which position, the lower ends of the slots 62 will engage the rods 60 and raise all of the bars 33 and bolts 39, except for such doors as have been "dead locked," by withdrawing their respective pin or pins 60 from engagement with the slot 62. This movement imparted to the bars 33 will be greater than the movement imparted thereto when doors are unlocked separately and will be sufficiently great to engage all of the notches 94 in the members 92 with the studs 95 and place all of the doors, not "dead locked," into operative relation with the gang operating device. By now throwing the gang operating lever 83 from the position shown in Fig. 2 to the position shown in Fig. 8 all of the doors, connected with the gang operating device may be simultaneously opened and subsequently simultaneously closed.

I claim:—

1. A jail door locking and operating mechanism, comprising in combination, a sliding door, two separate locks associated with said door, means connecting said locks to operate each lock through the other, and means for connecting said doors with a door opening device, said connecting means being associated with one of said locks and operable through the other lock.
2. A jail door locking and operating mechanism, comprising, in combination, a movable door provided with a locking member, a pair of locking bars having locking engagement with said member, a lock for the door connected with each of said bars and engaging said member, and means connected with one of said bars for releasing the same from said member without releasing the other of said bars, and subsequently releasing the remaining bar and lock from engagement with said member.
3. A jail door locking and operating mechanism, comprising in combination, a door provided with a locking member, a pair of locking bars having locking engagement with said member and a loose connection with each other, and means for moving one of said bars throughout a predetermined distance in one direction to disengage the same from said member and through a further predetermined distance subsequently to disconnect the remaining bar from said member.
4. A jail door locking and operating

mechanism, comprising, in combination, a door provided with a locking member, a pair of locking bars having locking engagement with said member and a loose connection with each other, a latch for the door engaging said member and connected to one of said bars, and means for moving the other of said bars throughout a predetermined distance in one direction to disengage the same from said member, and through a certain further predetermined distance, subsequently, to disconnect said latch from said member.

5. A jail door locking and operating mechanism comprising in combination, a sliding door provided with a rigid notched locking member, a pair of reciprocating locking bars provided with slots engaging said member, a reciprocating door lock device connected with said bars and connecting said bars with each other and engaging said door member, and means for operating one of said bars to disconnect the same from said member and acting through said lock device to disconnect the same and the remaining bar from said member.

6. A jail door locking and operating device comprising in combination, a slidable door provided with a rigid notched locking member, a pair of reciprocating bars provided with slots engaging said member, one of the bars having a slot of greater length than the slot of the other bar, a reciprocating door locking device connected with said bars and connecting said bars with each other and engaging said locking member, and means for disconnecting the bar having the longer slot from said member and acting therethrough to subsequently disconnect said lock and the remaining bar from said member.

7. A jail door locking and operating device comprising in combination, a sliding door provided with a rigid notched locking member, a pair of reciprocating bars provided with slotted portions engaging said members, one of said bars having a slotted portion of greater length than the other bar, a reciprocating door locking device engaging said member and carrying a projection, said bar having the longer slotted portion also having a relatively long slotted engaging portion for said projection and the other of said bars having a relatively reduced opening for receiving said projection, said projection serving to connect said bars with each other and connect said locking device to said bars, and means for disconnecting the longer slotted bar from said member and subsequently acting therethrough to disconnect said locking device and remaining bar from said member.

8. A jail door locking and operating device comprising in combination, a sliding door provided with a rigid notched lock-

ing member, a pair of reciprocating bars provided with slotted portions engaging said member, one of said bars having a slotted portion of greater length than the other bar, a reciprocating door locking device engaging said member and carrying a projection, said bar having the longer slotted portion also having a relatively long slotted engaging portion for said projection and the other of said bars having a relatively reduced opening for receiving said projection, said projection serving to connect said bars with each other and connect said locking device to said bars, means for disconnecting the longer slotted bar from said member, and means for disconnecting said other bar and said locking device from said member.

9. A jail door locking and operating device comprising in combination, a sliding door provided with a rigid notched locking member, a pair of reciprocating bars provided with slotted portions engaging said member, one of said bars having a slotted portion of greater length than the other bar, a reciprocating door locking device engaging said member and carrying a projection, said bar having the longer slotted portion also having a relatively long slotted engaging portion for said projection and the other of said bars having a relatively reduced opening for receiving said projection, said projection serving to connect said bars with each other and connect said locking device to said bars, means for disconnecting the longer slotted bar from said member, and means acting through said locking device for disconnecting the same and said other bar from said member.

10. A jail door lock and operating mechanism comprising in combination, a sliding door provided with a locking member, a pair of locking bars engaging said member, a lock for the door connected with said bars and connecting said bars with each other and engaging said member, means for engaging and disengaging both of said bars and said lock with or from said member or maintaining one of said bars out of engagement with said member, and means for disengaging or engaging said lock and one of said bars from or with said member when the other of said bars is out of engagement with said member.

11. A jail door locking and operating mechanism, comprising, in combination, a door provided with a locking member, a pair of locking bars having locking engagement with said member, a lock for said door engaging said member, said lock being connected with one of said bars to be operated thereby, and with the other of said bars to operate the same, means connected with one of said bars for releasing the same from engagement without releasing the remain-

ing bar, and means for subsequently releasing said remaining bar and lock from engagement with said member.

12. A jail door lock and operating mechanism, comprising, in combination, a door, a pair of locking bars for locking said door, means for connecting said bars with each other, and separate means for unlocking the one or both of said bars simultaneously from said door, and for unlocking the other of said bars when said first bar is unlocked.

13. A jail door lock and operating mechanism, comprising, in combination, a door provided with a locking member, a pair of locking bars having locking engagement with said member, means for connecting and disconnecting said bars with each other and means connected with one of said bars for disconnecting the same from said member, and for disconnecting both bars simultaneously, when said bar-connecting means is in operation.

14. In a jail door locking and operating mechanism, a sliding door having an engaging member, a pair of locking members adapted to cooperate with said engaging member to lock said door, a reciprocating connector adapted to connect said locking members for simultaneous operation, means for withdrawing said connector from one of said locking members to permit its operation without operating the other locking member, and means for connecting said door with a door operating mechanism said means being operable through said other locking member.

15. A jail door lock and operating mechanism comprising in combination, a sliding door provided with a locking member, a pair of locking bars loosely connected with each other, and means connected with one of said bars for first disconnecting the same and subsequently the other bar from said member or disconnecting one bar and leaving the other bar in engagement with said member.

16. A jail door lock and operating mechanism comprising in combination, a sliding door provided with a locking member, a pair of locking bars connected with each other and engaging said member, means for disengaging one or both of said bars from said member, and separate means for disengaging one of said bars from said member without changing the position of the companion bar.

17. A jail door lock and operating mechanism comprising in combination, a sliding door provided with a locking member, a pair of locking bars loosely connected with each other and engaging said member, means for disengaging one or both of said bars from said member, or disengaging one bar and leaving the other bar in engagement with said member, and separate means for

moving the engaged bar out of connection with said member.

18. A jail door locking and operating mechanism comprising in combination, a sliding door provided with a locking member, a pair of locking bars engaging said member, a lock for the door connected with said bars and engaging said member and connecting said bars with each other, means for operating said bars and lock to lock or unlock said door or disconnect one of said bars therefrom without unlocking said door, and means for operating one of said bars and lock for unlocking said door.

19. In an operating control for a door lock, a latch member adapted to lock a door, operating means for said latch member having intermittent control thereof, and a reciprocating bar having an operating connection with said latch member and a controlling connection with said operating means.

20. A jail door locking and operating mechanism, comprising in combination, a movable door, a locking member associated with said door, a pair of reciprocating bars adapted to engage said member, means for intermittently connecting said bars for operating purposes, operating means connected with one of said bars to operate the same and with the other of said bars during the operation of said connecting means, to unlock one or both of said bars.

21. A jail door locking and operating mechanism, comprising in combination, a sliding door, two separate locks associated with said door, means connecting said locks to operate each lock through the other and separate deadlocking means connected with each lock to prevent its operation through the other lock.

22. A jail door lock and operating mechanism, comprising in combination, a sliding door provided with a locking member, a locking bar engaging said member to lock said door, means for operating said bar to lock and unlock said door, a latch for said door engaging said member, and means operatively connecting said latch and bar, in one position and disconnecting said latch and bar and deadlocking said latch in another position.

23. In a jail door locking and operating mechanism, a door having an engaging member, a locking bar adapted to engage said member to lock and unlock said door, a latch adapted to engage said member to lock said door, a bolt operatively connected with said latch and adapted to engage said locking bar to operate said latch, a stop in connection with said bolt, and means for withdrawing said bolt from engagement with said locking bar and into engagement with said stop, whereby said door may be positively deadlocked from operation in one position of said bolt.

24. A jail lock and operating mechanism, comprising, in combination, a sliding door, two independent locking means adapted to lock said door, means for connecting said locking means for purposes of simultaneous operation, and independent deadlocking means adapted to deadlock said door through said independent locking means.

25. In a jail door locking and operating mechanism, a door provided with an engaging member, a plurality of locking members adapted to engage said member to lock said door and a reciprocable connector adapted to connect said locking members for simultaneous operation in one of its positions, and to positively lock one of said locking members from operation in another position of said connector.

26. In gang locking and operating mechanism for jail doors, a series of doors each provided with an engaging member, a locking bar adapted to engage said member to lock said door, a latch adapted to engage said member to lock said door, a bolt having an operative connection with said latch and adapted to engage said locking bar to operate said latch, gang means connected with the locking bars of each door to operate the same, and means in connection with each of said bolts to disengage the same from the locking bars whereby the locking latches of individual doors may remain inoperative during the action of the gang mechanism.

27. In a gang operating control for a plurality of doors, a latch member adapted to lock a door, operating means connected with said latch to operate the same and having interrupted control thereof, a reciprocating bar having an operative connection with said latch member and a controlling connection with said operating means and gang means connected with said bar for simultaneously operating the same on a plurality of doors.

28. In a gang operating control for a plurality of doors, a latch member adapted to lock a door, latch operating means for said latch member having interrupted control thereof, a reciprocating bar having an operating connection with said latch member and adapted to control said latch operating means, and gang means connected with said bar for simultaneously operating the same on a plurality of doors, whereby said doors may be locked, unlocked, or rendered individually operable by said latch operating means.

29. A gang lock and operating mechanism for jail doors comprising in combination, a plurality of sliding doors each provided with a locking member, a pair of bars for engaging the member of each door, a gang controlling device for simultaneously disconnecting one bar of all the pairs from said members without disconnecting the

other bar of said pairs, a locking device for each door engaging the member thereof and the bars therefor, means for operating a locking device for disconnecting the same from its member and also disconnecting the remaining locking bar from such member, and means included in said locking device for disconnecting the same from one of said bars.

30. A gang locking and operating mechanism for jail doors comprising in combination, a plurality of sliding doors each provided with a locking member, a pair of locking bars for engaging each locking member, means connecting the bars of each pair with each other, and a gang controlling device for locking all of the pairs of bars with said members or disconnecting one bar of each pair from said members without disconnecting the other bar of said pairs or disconnecting both bars of said pairs from said members.

31. A gang locking and operating mechanism for jail doors comprising in combination, a plurality of sliding doors each provided with a locking member, a pair of locking bars engaging the locking member of each door, means connecting the bars of each pair with each other, and a gang controlling device for effecting locking engagement of all the bars with said members, disconnecting one bar of each pair from said members without disconnecting the other bar of said pairs or disconnecting all the bars from said members.

32. A gang locking and operating mechanism for jail doors comprising in combination, a plurality of sliding doors each provided with a locking member, a pair of locking bars for engaging each member, means loosely connecting the bars of each pair, and a gang controlling device for simultaneously disconnecting one bar of all the pairs from said locking members without disconnecting the other bar of said pairs, disconnecting both bars of each pair from said locking members, or engaging both bars of each pair with said locking members.

33. A gang locking and operating mechanism for jail doors comprising in combination, a plurality of sliding doors each provided with a locking member, a pair of locking bars for engaging each member, a lock for each door engaging the member thereof and connected with the bars of such door and connecting such bars with each other, and a gang controlling mechanism for disconnecting one bar of each pair from said members and disconnecting the remaining bar of each pair and the locks of said doors from said members.

34. A gang locking mechanism for jail doors, comprising, in combination, a locking member, a pair of reciprocating bars engaging the same, gang means connected with

one of said bars for releasing the same from said member and means for intermittently connecting the other of said bars and said locking member with said first bar for gang locking and unlocking.

35. A gang locking and operating mechanism for jail doors, comprising, in combination, a plurality of sliding doors, a locking member, a pair of reciprocating bars having locking engagement with said member and a lock connected with each of said bars and engaging said member, gang means for disengaging one of each pair of bars from said member and subsequently disengaging the other, and said lock therefrom and means in connection with each door for disconnecting the lock and one bar from said gang mechanism.

36. A gang lock and operating mechanism for jail doors, comprising, in combination, a plurality of sliding doors each provided with a locking member, a pair of bars for engaging each member to lock the door thereof, a gang lock for operating said bars in unison to lock and unlock the doors, a lock for each door engaging the member thereof and connected with the bars thereof, and a deadlocking device for each door acting through the lock thereof to deadlock one of said bars without deadlocking the other and thereby deadlock said door without blocking the gang mechanism.

37. A gang locking and operating device for jail doors, comprising, in combination, a plurality of sliding doors each provided with a locking member, a pair of locking bars having locking engagement with each member, a lock for each door connected with both bars of said pairs and engaging said members, and gang means connected with one of said bars on each door for releasing the same from said members without releasing the other bars of said pairs, and subsequently releasing the remaining bars and locks from engagement with said members.

38. In a gang locking and operating mechanism for jail doors, a series of doors each provided with a locking member, a locking bar adapted to engage said member to lock said door, a latch adapted to engage said member to lock said door, a bolt having operative connection with said latch to operate the same and adapted to engage said locking bar to operate said latch, a stop in connection with said bolt and adapted to engage the same in one position thereof, deadlocking gang means connected with said bars to operate the same, and means in connection with each of said bolts to disconnect them from said locking bars and engage them with said stops whereby each door may be individually deadlocked during the action of the gang mechanism.

39. A gang lock and operating mechanism

for jail doors, comprising, in combination a plurality of sliding doors each provided with a locking member, a locking bar associated with each door and engaging the member thereof, a lock associated with each door and engaging the member thereof, and a second locking bar associated with each door and constituting a part of the gang lock engaging the member of said door, a gang controlling device for operating all of said second locking bars, and connecting means adapted to join said first locking bars with said gang operated locking bar, and to said lock to be operated thereby.

40. In a jail door locking and operating mechanism, a sliding door having a locking member, a pair of reciprocating locking bars adapted to engage said member, a reciprocating bolt adapted to engage both of said bars to connect them whereby both of said bars can be operated through one of them, and a locking mechanism to disengage said bolts from one of said bars whereby one of said bars may remain inoperative during the operation of the other bar.

41. In a jail door locking and operating mechanism, a door provided with an engaging member, a latch adapted to engage said member to lock said door, a reciprocating locking bar adapted to engage said member to lock said door, a bolt having an operative connection with said latch and adapted to engage said locking bar to operate said latch, and means for withdrawing said bolt from engagement with said locking bar to permit the operation of said bar during the locking engagement of said latch.

42. In a jail door locking and operating mechanism, a sliding door having an engaging member, a plurality of locking members adapted to cooperate with said en-

gaging member to lock said door, a reciprocating connector adapted to connect said locking members for simultaneous operation, and means for withdrawing said connector from one of said locking members to permit its operation without operating the remaining locking members.

43. A gang lock and operating mechanism for jail doors, comprising, in combination, a locking member on each of a plurality of doors, a gang bar and a door lock bar engaging said member to lock each of said doors, an operative connection between said bars, gang means connected to said gang bars to unlock the same without unlocking the door lock bar and to subsequently unlock the door lock bar, independent means to unlock said door lock bar when the gang bar is in its unlocked position, and means connected with the door lock bar for attaching the door to a gang door-operating device, said means being operated by the gang bar but not by the independent unlocking means.

44. In a jail door locking and operating mechanism, a sliding door, two separate locks associated with said door, means connecting said locks to operate each lock through the other, means connected with one of said locks and operable through the other of said locks for connecting said door with a door operating mechanism, and dead locking means connected with one of said locks to dead-lock said lock and to prevent the operation of said connecting means through the other lock.

In testimony whereof I affix my signature in presence of two witnesses.

FOLGER ADAM.

Witnesses:

E. SCHALLINGER,
CARL H. CRAWFORD.