

G. H. DYER.

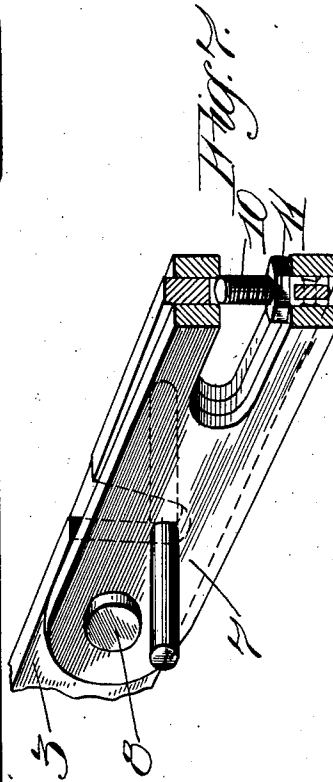
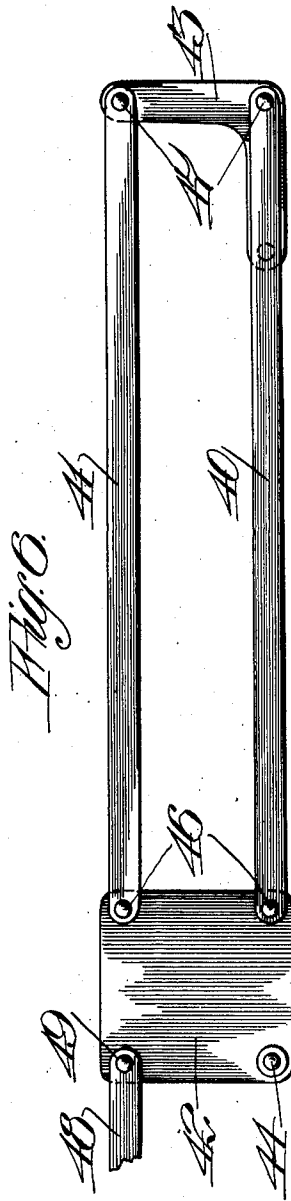
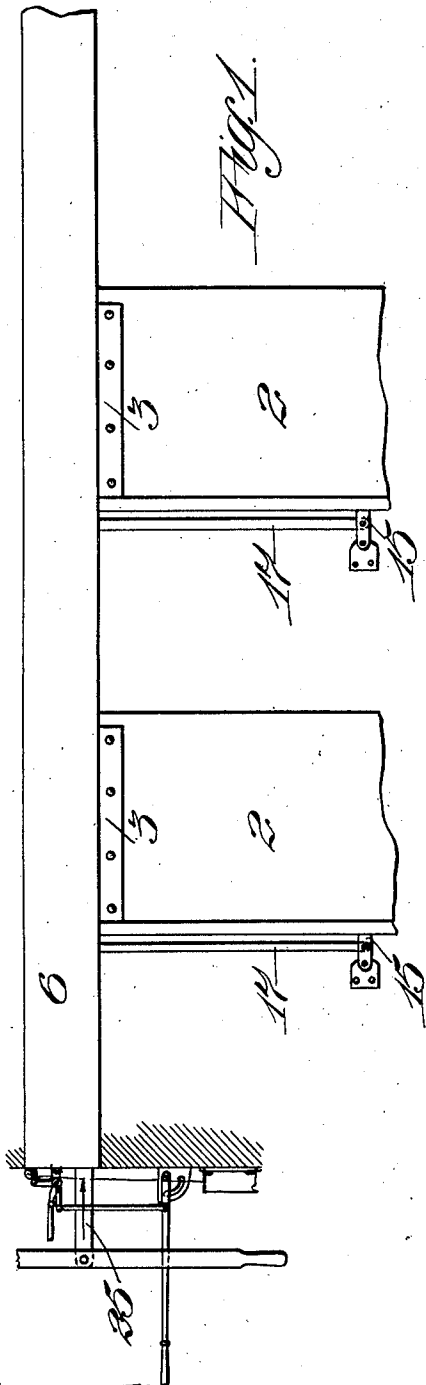
JAIL DOOR LOCKING AND UNLOCKING DEVICE.

APPLICATION FILED MAY 29, 1911. RENEWED SEPT. 19, 1912.

1,059,127.

Patented Apr. 15, 1913.

3 SHEETS—SHEET 1.



Witnesses:
Thos. Casberg
J. E. Maynard.

Inventor:
George H. Dyer
By G. B. Strong
Attorney

G. H. DYER.

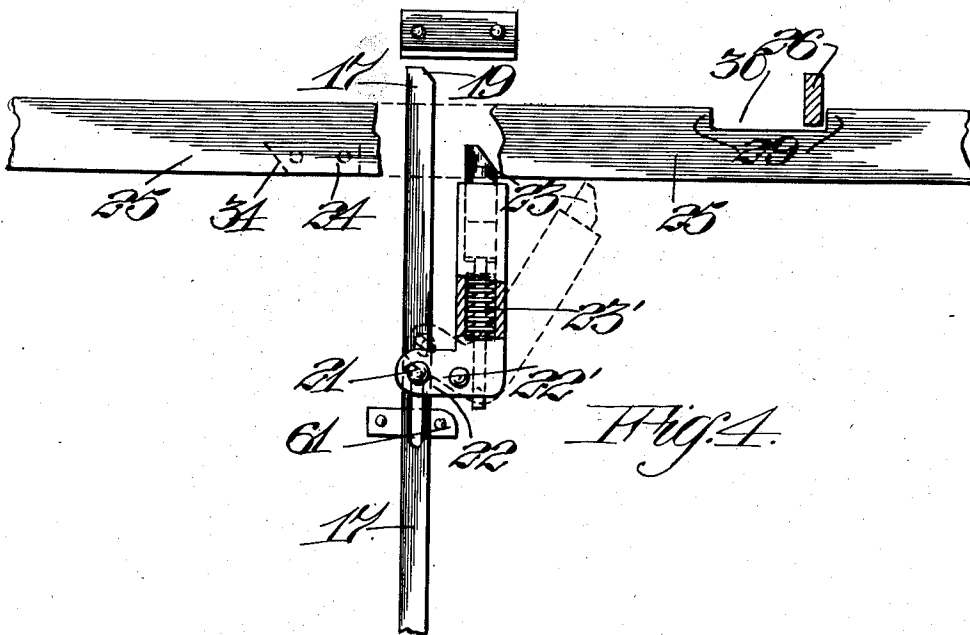
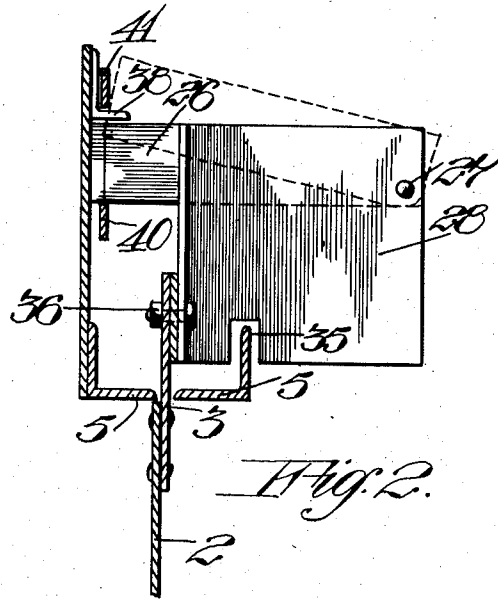
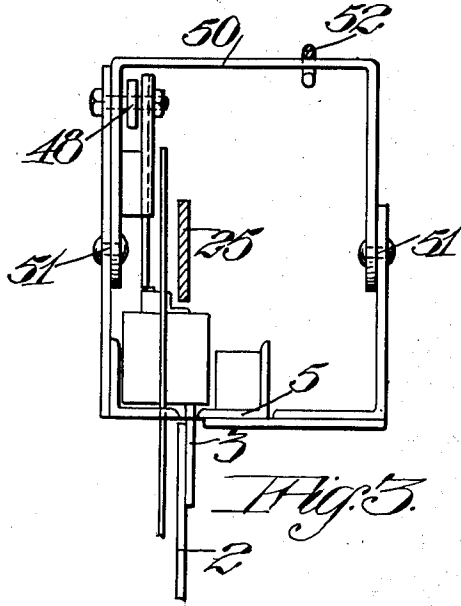
JAIL DOOR LOCKING AND UNLOCKING DEVICE.

APPLICATION FILED MAY 29, 1911. RENEWED SEPT. 19, 1912.

1,059,127.

Patented Apr. 15, 1913.

3 SHEETS—SHEET 2.



Witnesses:
Thos. Casberg.
G. E. Maynard

Inventor:
George H. Dyer.
G. H. Strong.
Attorney.

G. H. DYER.

JAIL DOOR LOCKING AND UNLOCKING DEVICE.

APPLICATION FILED MAY 29, 1911. RENEWED SEPT. 19, 1912.

1,059,127.

Patented Apr. 15, 1913.

3 SHEETS—SHEET 3.

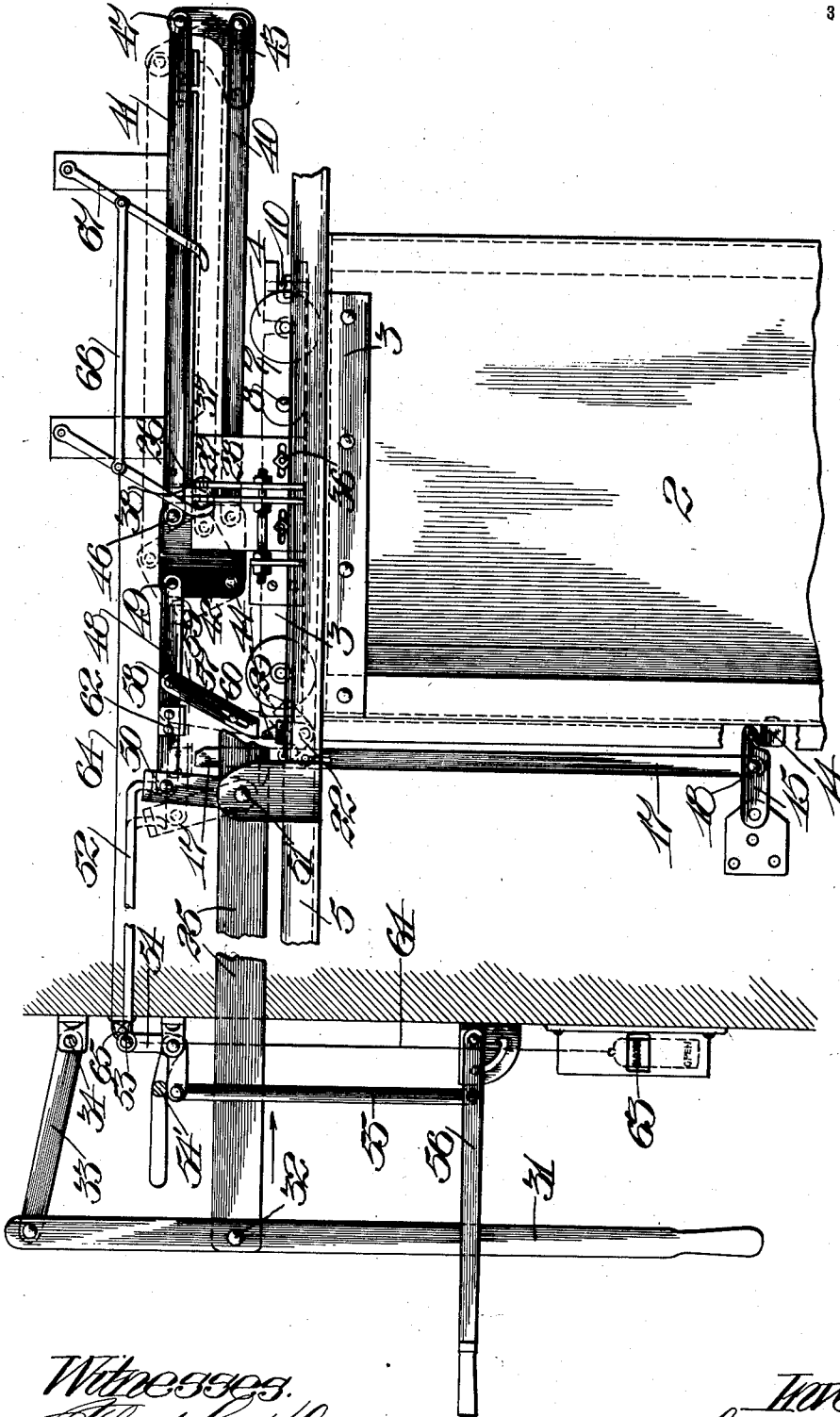


Fig. 5.

Witnesses.
Thos. Kashberg
F. E. Chaynard.

Inventor.
George H. Dyer.
by G. H. Strong.
Attorney.

UNITED STATES PATENT OFFICE.

GEORGE H. DYER, OF SAN FRANCISCO, CALIFORNIA.

JAIL-DOOR LOCKING AND UNLOCKING DEVICE.

1,059,127.

Specification of Letters Patent.

Patented Apr. 15, 1913.

Application filed May 29, 1911, Serial No. 630,020. Renewed September 19, 1912. Serial No. 721,324.

To all whom it may concern:

Be it known that I, GEORGE H. DYER, citizen of the United States, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Jail-Door Locking and Unlocking Devices, of which the following is a specification.

This invention relates to jail doors, and particularly to mechanism for actuating and locking and unlocking the same.

The present invention has for its object to provide a substantial, easily operated mechanism for adjusting doors and for locking the same in their adjusted position, and which locking means is so constructed and designed that any one of a series of doors can be locked without interfering with the actuation of other doors by the door actuating mechanism; and to provide a door structure whereby the door may be adjusted to compensate for the shrinkage, expansion, settlement or any other causes which may happen and so affect the door as to cause it to become inoperable by the actuating mechanism; and to provide a door locking device which is simple in operation and may be adjusted to a nicety.

The invention consists of the parts and the construction and combination of parts, as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a front elevation of a series of jail or other doors. Fig. 2 is a transverse vertical section in the plane of the head bolt. Fig. 3 is an edge view of the door with locking device in elevation. Fig. 4 is a detail view showing the latch lifting device. Fig. 5 is a side elevation of a door and its lock and shifting mechanism. Fig. 6 is a detail view of the parallel link frame. Fig. 7 is a detail view of the door leveling device.

In the present embodiment of my invention 2 represents a door, which may be of metal or other material, and which is connected at its upper edge by a plate 3 to sets of rollers 4 which travel upon bars 5 formed in the superstructure or housing indicated at 6. One set of rollers, as 4, is mounted in an adjustable journal 7 pivoted at 8 upon the door plate 3 so that the door may be adjusted vertically to keep it plumb by means of a screw 10. The screw 10 is secured in a tongue or portion of the plate

3, and is provided with a nut 11 which may be adjusted upon a projecting portion of the journal piece 7 by screwing the nut 11 toward or from the fixed portion in which the screw is secured and this permits the pivoted journal piece 7 to swing sufficiently to adjust the door in a plumb or vertical position. This adjustment of the door is frequently necessary, due to the settlement of the building in which the bars 5 may be erected, and from any causes such as shrinkage or expansion of the elements of the structure which would result in disaligning or jamming the door so that it becomes inoperable.

At 14 on the front edge of the door is attached a keeper having an upwardly projecting point over which is adapted to fall a latch 15 which is pivoted at 16; the latch 15 being adapted for actuation and release of the door 2 by means of a vertical link 17 connected to the latch at 18 and projecting upwardly through the housing 6. The upper end of the link 17 is slightly rounded, as at 19, for the purpose hereinafter to be explained. The link 17 is provided adjacent its upper end with a slot in which moves a bolt 21 secured in a rocking coupler 22 which is pivoted at 22' in suitable supports and which is adapted to be rocked away from the link 17 when an upwardly projecting spring actuated dog 23, projecting from the upper end of the coupler 22, is encountered by a cam or projection 24 secured to one side of a door actuating member hereinafter to be called the actuator 25. Each of the several doors is provided with a keeper, as 14, engageable by its respective latch 15. Each of the doors may be unlatched by the single actuator 25 which is provided with a series of cams 24 adapted to engage with the dogs 23 in each of the link couplers 22.

The structure as thus far described shows a means whereby the door is latched when it is closed. The door is unlatched just prior to its being opened by the initial movement in the direction indicated by the arrow in Fig. 1, by the actuator 25 which first oscillates the coupler 22 to lift the latch link 17 and raise the latch from the keeper 14. Following the unlatching of the door, the actuator engages what is here termed a "head bolt" 26 which is pivoted at 27 in a hanger 28 which is adjustably secured upon the plate 3 of the door. The head bolt 26 projects transversely over the upper end of

the door, and when in its lower position lies in a plane to engage the vertical walls 29 of a slot 30 formed in the upper edge of the actuator 25 which is provided with as many of these slots as there are doors to be moved.

When the bolt 26 is in such position as to lie between the shoulders 29 of the slot, and the preliminary movement of the actuator 25 results in the unlatching of the door, the bolt 26 will be encountered by the shoulder 29 and the door pushed open, the rollers which support it traveling along the bars 5.

Manifestly, the closing of the door is accomplished by reversing the motion of the actuator 25, which then moves the opposite shoulder 29 of the slot 30 of the actuator into engagement with the opposite face of the bolt 26, and the movement of the actuator 25 thus closes the door; the movement of the actuator being accomplished by any suitable form of apparatus, here indicated as a simple lever 31 connected to the actuator at 32 and at its upper end to a link 33 which is pivoted at 34 so as to allow a free movement of the lever 31. As the actuator moves in the direction indicated by the arrow, it will encounter the dog 23 and rock the coupler 22 to unlatch the door just before it is pushed open. When the actuator 25 is moved backwardly to close the door, the dog 23, which is provided with an inclined face, is encountered by an inclined face 34 of the cam 24 when the actuator 25 is moved to close the door; the dog 23 being depressed without actuating the link 17.

The hanger, upon which the head bolt 26 is pivoted, is slotted at 35 and clamped to the plate 3 of the door by suitable means, as the bolts 36; the hanger 28 being adjustable horizontally so that the bolt 26 can be properly aligned or registered with a fixed keeper 37 attached longitudinally to the wall of the housing 6, and which horizontal keeper is here shown as made of angle iron of such length as to permit the bolt, which is approximately mounted centrally of the door, to be elevated in juxtaposition with one end of the keeper 38 when the door is closed. When the door is opened, after having been shut, by the actuator 25, the head bolt 26 can be elevated in juxtaposition to the opposite end of the keeper 38 so as to lock the door open. The bolt 26 forms a safety lock in addition to the latch 15; the latch 15 being automatically operable when the door is closed and the bolt 26 being manually operable to insure the positive locking of the door or doors in the system.

An important feature of the present invention is the means whereby the several doors may be separately locked and unlocked, and which comprises in the present instance parallel bars 40 and 41, the lower of which is longitudinally disposed in a plane below the lower edge of the head bolt

26 and is adapted to be lifted by the bar 41 into juxtaposition with one or the other ends of the keeper 38 to prevent longitudinal movement of the bolt for the locking of the door. The parallel bars 40 and 41 constitute members of a frame, the ends of which are formed by a plate 42 and an angle arm 43 which are pivoted respectively at 44 and 45. Plate 42 is connected to the adjacent ends of the upper and lower bars 40 and 41 by pivots 46. The opposite ends of the bars 40 and 41 are pivoted to the member 43 at 47.

The parallel frame, comprising the bars 40 and 41 and the end links 42 and 43, is actuated by a connecting rod 48 pivoted at 49 to the plate 42 and connected to a bail 50 which is pivoted at 51 for oscillation. The bail 50 is operated by a link 52 which is connected at 53 to a bell-crank 54, being connected by a link 55 to an operating lever 56. The operating levers 31 and 56 are mounted in a convenient operator's chamber or room at one end of an alley in a building so that both of the levers are in convenient access.

The operation for the locking and unlocking of the door is as follows: Motion being given to the lever 56, power is transmitted through its several connections to oscillate the bail 50 about its fulcrum 51 so as to pull on the link 48 and rock the end plate 42 of the bolt lifting frame about its respective pivot 44. This rocking of the bolt lifting frame carries the lower member 41 of the frame upwardly so as to elevate the bolt 26, as indicated in dotted lines in Fig. 2, and place it opposite the end of the keeper 38 which is over the top of the door to be locked and thus prevent the horizontal movement of the bolt 26 and the door 2. By reversing the oscillation of the bail 50 the bars 40 and 41 of the bolt lifting frame are lowered and the bolt is allowed to drop below the adjacent end of the keeper 38 and into the slot 30 in the keeper 25 which is in position above the door 2 to be opened. As it is sometimes desirable to open certain doors and not others by moving the single actuator 25, it is necessary to prevent the engagement by the actuator cam 24 with its respective dog 23 of the latch coupler which controls the unlatching of such door as it is not desired to open. This is accomplished by connecting to the link 48 of the door locking mechanism, a pawl 57 pivoted at 58 on the member 48 and which is slotted at 59 so as to travel over a fixed pin 60. When the bail 50 is moved toward the position indicated in dotted lines in Fig. 5 the pawl 57 is shifted so that its lower end is depressed and engages the upwardly projecting spring supported dog 23 carrying it out of the path of its cooperative cam 24 secured on the actuator 25, thus permitting the

actuator to be advanced without engaging the dog 23 and avoiding the operation of the latch lifting coupler 22. Just as soon as the bail 50, which actuates the pawl 57, is moved backwardly again to the full line position Fig. 1, the pawl is moved forwardly away from the dog 23, which latter is instantly projected upwardly by its spring 23' so as to be in position to be engaged by its respective cam 24 on the actuator 25. Since the dog 23 is spring supported it is necessary to provide a device for preventing its yielding down under the pressure of the cam 24 as the actuator 25 is moved. This is accomplished by securing a plate 61 in convenient position just below the pivot 22' upon which the coupler 22 is mounted. The position of the stop plate 61 is such that the moment the cam 24 on the actuator 25 engages the dog 23 and oscillates the coupler 22, the dog is prevented from descending by reason of its lower projecting surface abutting with the surface of the stop plate 61 though the latter does not interfere with the oscillation of the coupler 22. As a further security against the surreptitious unlatching of the latch 15, there is mounted upon the link 48 of the bolt actuating mechanism a guard 62 which moves into position over the upper curved end 19 of the latch lifting link 17 when the bolt actuating mechanism is operated. This positively prevents the link 17 from being lifted to release the latch 15.

When it is desired to unlock the door, the lock actuating mechanism, including the lever 56, its connected bail 50, the link 48, and the lock carrying frame member 41, is manipulated so that the bolt 26 is lowered from the position adjacent the end of the keeper 38 and permitted to fall into the slot 30 of the actuator 25. When this has been done, the operator may move the actuator 25, pushing the cam 24 into engagement with the dog 23 to raise the latch 15, and then the further movement of the actuator 25 will cause it to abut the transversely disposed lowered bolt 26 whereby the door may be shifted to the open position. When the door has been opened the lock bolt actuating mechanism can be again actuated so that the bolt 26 will be elevated into position adjacent the opposite end of the keeper 38 and thereby prevent the horizontal movement of the door after it has been opened. By depressing all of the bell-cranks 54 at one time with a universal bar 54' all of the doors are locked at once. The position of each door is indicated to the operator by signal plates 63 marked "Open" and "Closed," each connected by a cord or cable 64 led over a guide pulley 65 to a shiftable bar 66 suspended above a door by links 67. The lower ends of the links are alternately engaged by the bolt bracket 28, first when the door is

closed, pushing the bar 22 to the right and lowering the indicator to expose the mark "Closed," and then when the door is opened, pushing the bar to the left and lifting the indicator to show "Open."

Having thus described my invention what I claim and desire to secure by Letters Patent, is—

1. A door controlling mechanism including a latch receiver secured to the door, a pivoted latch engageable therewith, a link connected to the latch, a coupler of bell-crank form having a yielding dog mounted in one of its ends, an actuator adapted to engage the coupler to lift the link and disengage the latch, and a device pivoted upon the door engageable with the actuator.

2. A door controlling mechanism including a pivoted latch engageable with the door, a coupler independent of the door effective to lift the latch, said coupler being pivotally mounted between its ends having one end provided with a yielding dog; an actuator operative upon the coupler, and means for rendering the coupler inoperative relative the actuator, said means comprising a pawl pivoted at the upper end having its lower end movable toward and from said dog.

3. A door controlling mechanism including a latching device, and a coupler, said coupler being of bell-crank form and having a yielding dog mounted in one of its ends, a transverse head bolt pivoted to the door for vertical movement, and a longitudinally movable actuator engageable with the dog end of the coupler to first rock the coupler, said actuator having shoulders to engage the head bolt.

4. A door controlling mechanism including a bolt pivoted transversely upon the door for vertical movement whereby said door may be shifted and locked, a latch operating coupler independent of the door, and an actuator operative first to rock the coupler and then engage the bolt to shift the door.

5. A door controlling mechanism including a bolt pivoted transversely upon the door for vertical movement whereby said door may be shifted and locked, a latch operating coupler independent of the door, an actuator operative first to rock the coupler and then engage the bolt to shift the door, and means for rendering the coupler inoperative.

6. A door controlling mechanism including a bolt pivoted transversely upon the door for vertical movement whereby said door may be shifted and locked, a latch operating coupler independent of the door, an actuator operative first to rock the coupler and then engage the bolt to shift the door, and means for rendering the coupler inoperative and for lifting the bolt from the path of the actuator.

7. A door and latch controlling mecha-

nism including a horizontal, longitudinally movable actuator having notches in one edge, a door bolt transverse the door adapted to drop into one of said notches, a pivot
 5 adjustably secured to the door and supporting the bolt, and a stationary, horizontal keeper below which the bolt is movable and by which the same may be prevented from horizontal movement when elevated.

10 8. A door and latch controlling mechanism including a horizontal, longitudinally movable actuator having notches in one edge, a door bolt transverse the door adapted to drop into one of said notches, a pivot
 15 adjustably secured to the door and supporting the bolt, a stationary, horizontal keeper below which the bolt is movable and by which the same may be prevented from horizontal movement when elevated, and a means
 20 whereby the bolt may be lifted and sustained in juxtaposition with the ends of the keeper to lock the door closed or open.

9. A door and latch controlling mechanism including a horizontal, longitudinally
 25 movable actuator having notches in one edge, a door bolt transverse the door adapted to drop into one of said notches, a pivot adjustably secured to the door and supporting the bolt, a stationary, horizontal keeper below
 30 which the bolt is movable and by which the same may be prevented from horizontal movement when elevated, a means whereby

the bolt may be lifted and sustained in juxtaposition with the ends of the keeper to lock the door closed or open, and a latch lifting
 35 device independent of the door operable by the actuator previous to longitudinal movement of the door bolt.

10. A door and latch controlling mechanism including a horizontal, longitudinally
 40 movable actuator having notches in one edge, a door bolt transverse the door adapted to drop into one of said notches, a pivot adjustably secured to the door and supporting the bolt, a stationary, horizontal keeper below
 45 which the bolt is movable and by which the same may be prevented from horizontal movement when elevated, a means whereby the bolt may be lifted and sustained in juxtaposition with the ends of the keeper to
 50 lock the door closed or open, a latch lifting device independent of the door operable by the actuator previous to longitudinal movement of the door bolt, and a pawl connected to the bolt sustaining means whereby said
 55 device is rendered inoperative when the bolt is lifted.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEO. H. DYER.

Witnesses:

ZOE. HARRISON,
 F. E. RUSSELL.