

No. 635,602.

Patented Oct. 24, 1899.

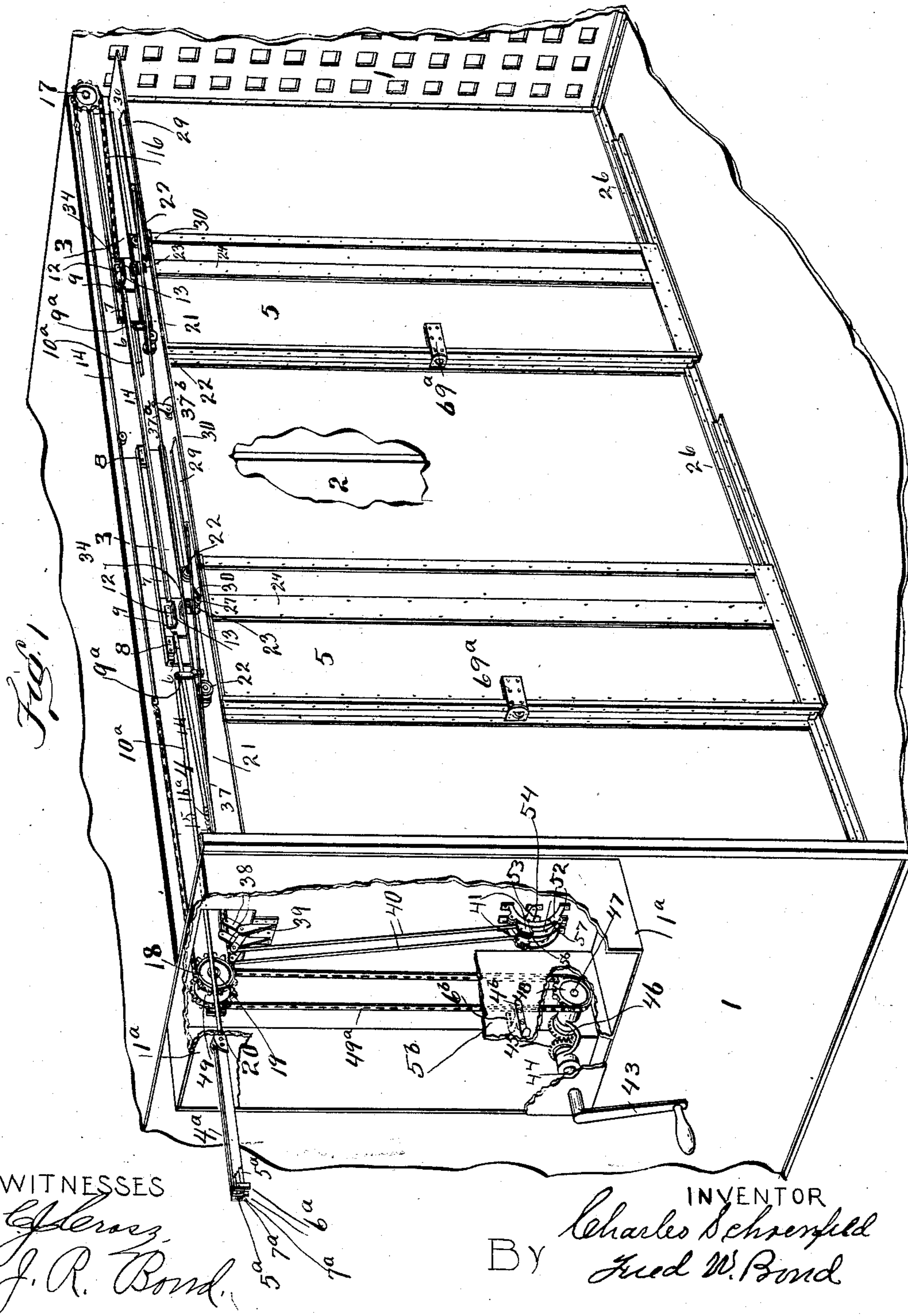
C. SCHOENFELD.

DEVICE FOR OPERATING AND LOCKING PRISON DOORS.

(Application filed Apr. 7, 1899.)

(No Model.)

6 Sheets—Sheet 1.



No. 635,602.

Patented Oct. 24, 1899.

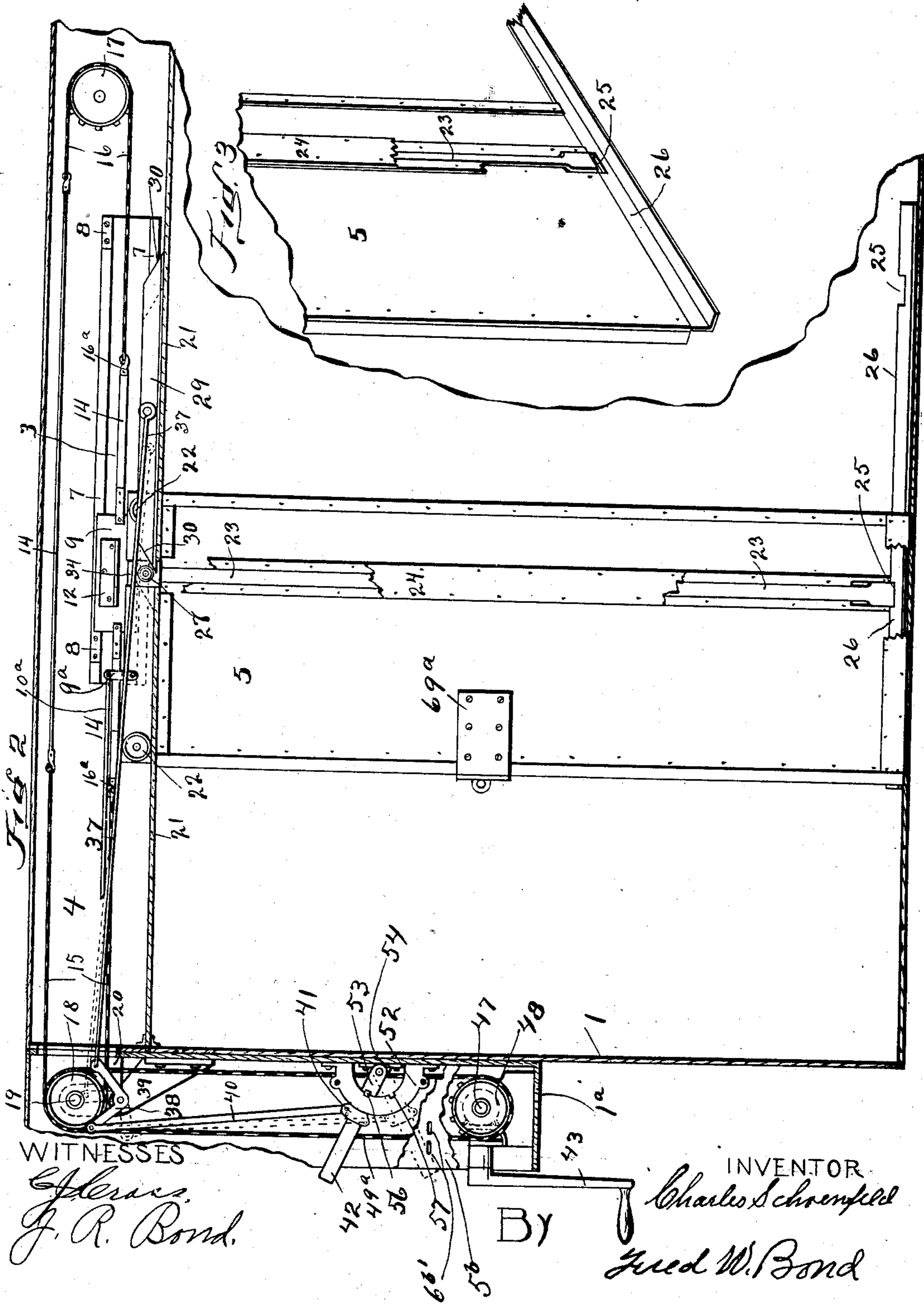
C. SCHOENFELD.

DEVICE FOR OPERATING AND LOCKING PRISON DOORS.

(Application filed Apr. 7, 1899.)

(No Model.)

6 Sheets—Sheet 2.



WITNESSES

G. R. Bond.

By

INVENTOR
Charles Schoenfeld
Fred W. Bond

ATTY

No. 635,602.

Patented Oct. 24, 1899.

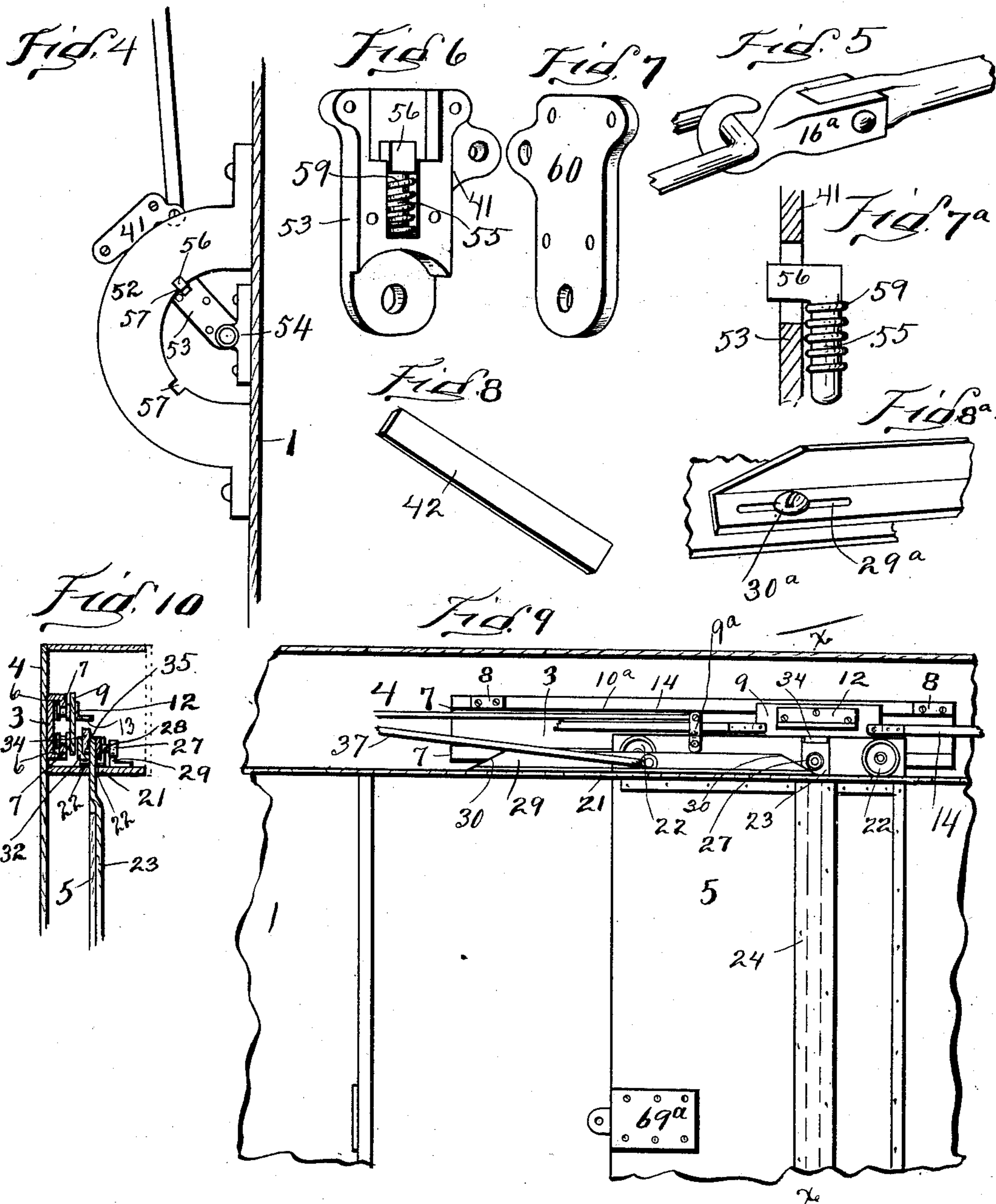
C. SCHOENFELD.

DEVICE FOR OPERATING AND LOCKING PRISON DOORS.

(Application filed Apr. 7, 1899.)

(No Model.)

6 Sheets—Sheet 3.



WITNESSES

E. H. Bond
J. R. Bond

BY

INVENTOR
Charles Schoenfeld
Fred W. Bond

ATTY

No. 635,602.

Patented Oct. 24, 1899.

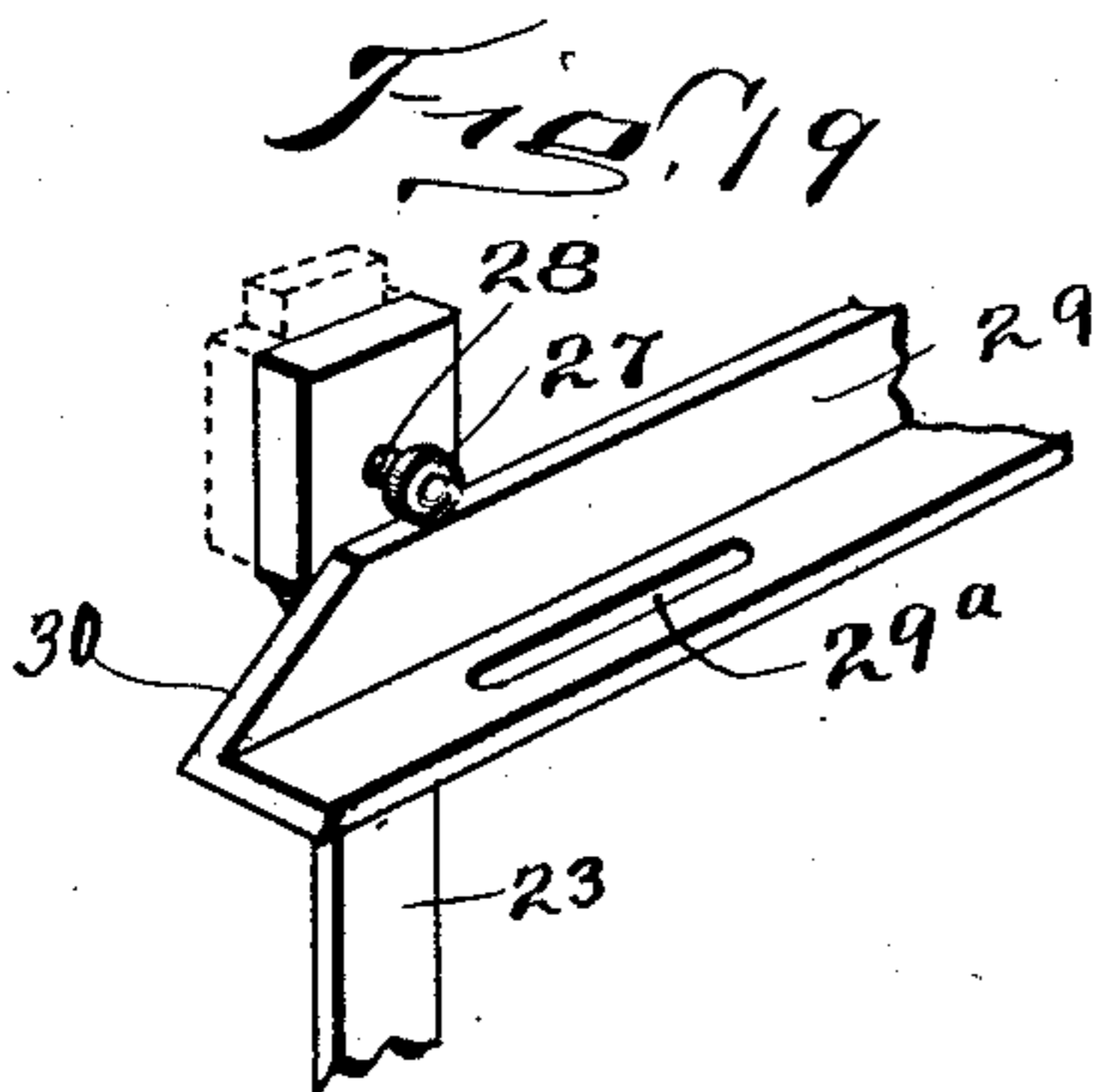
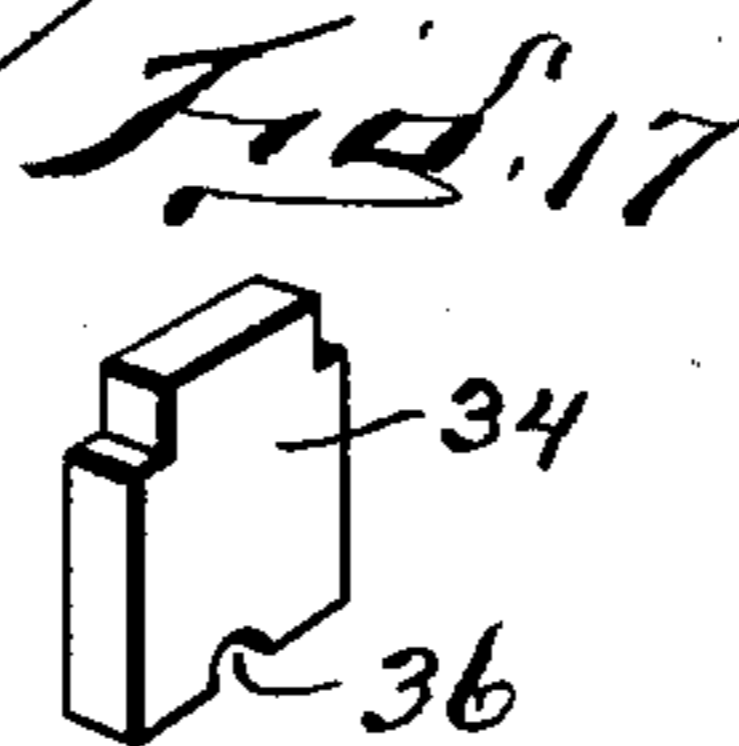
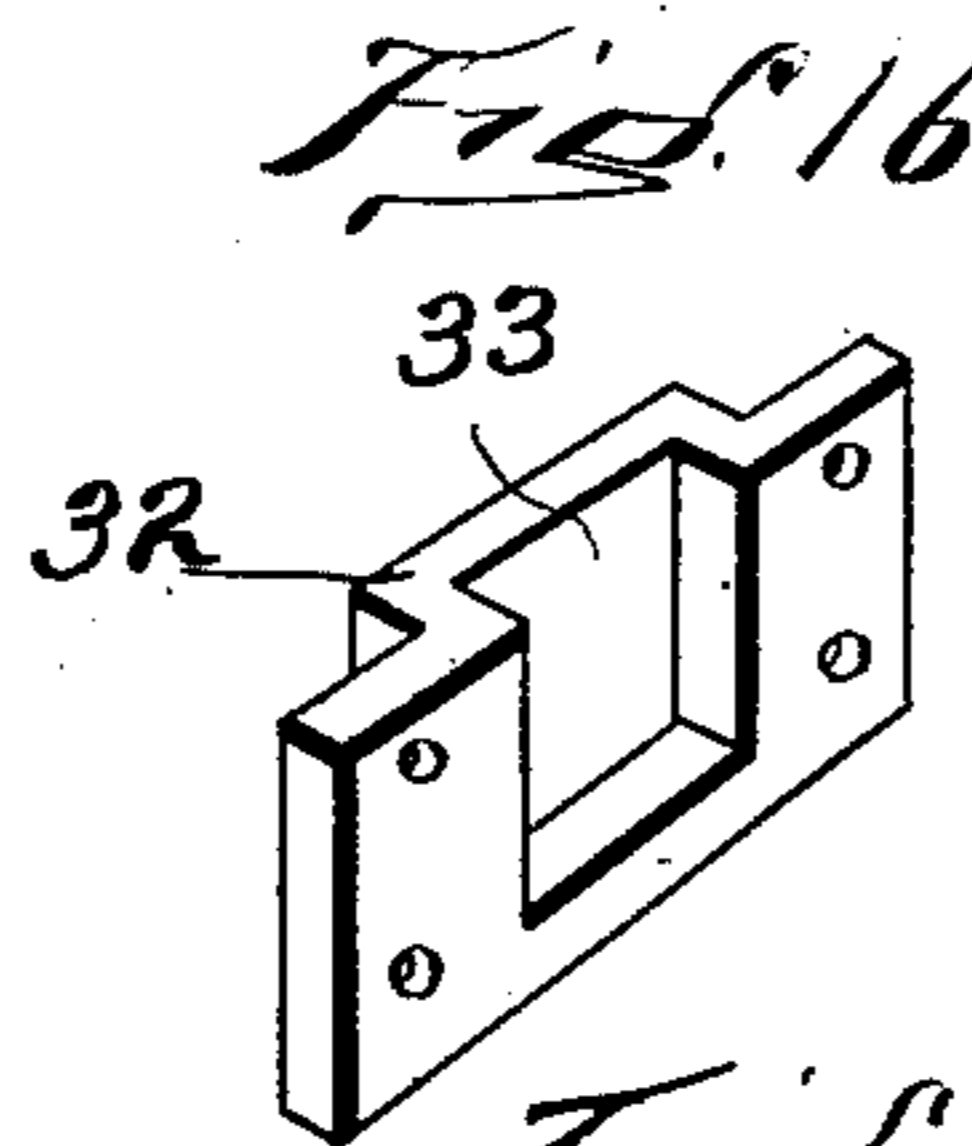
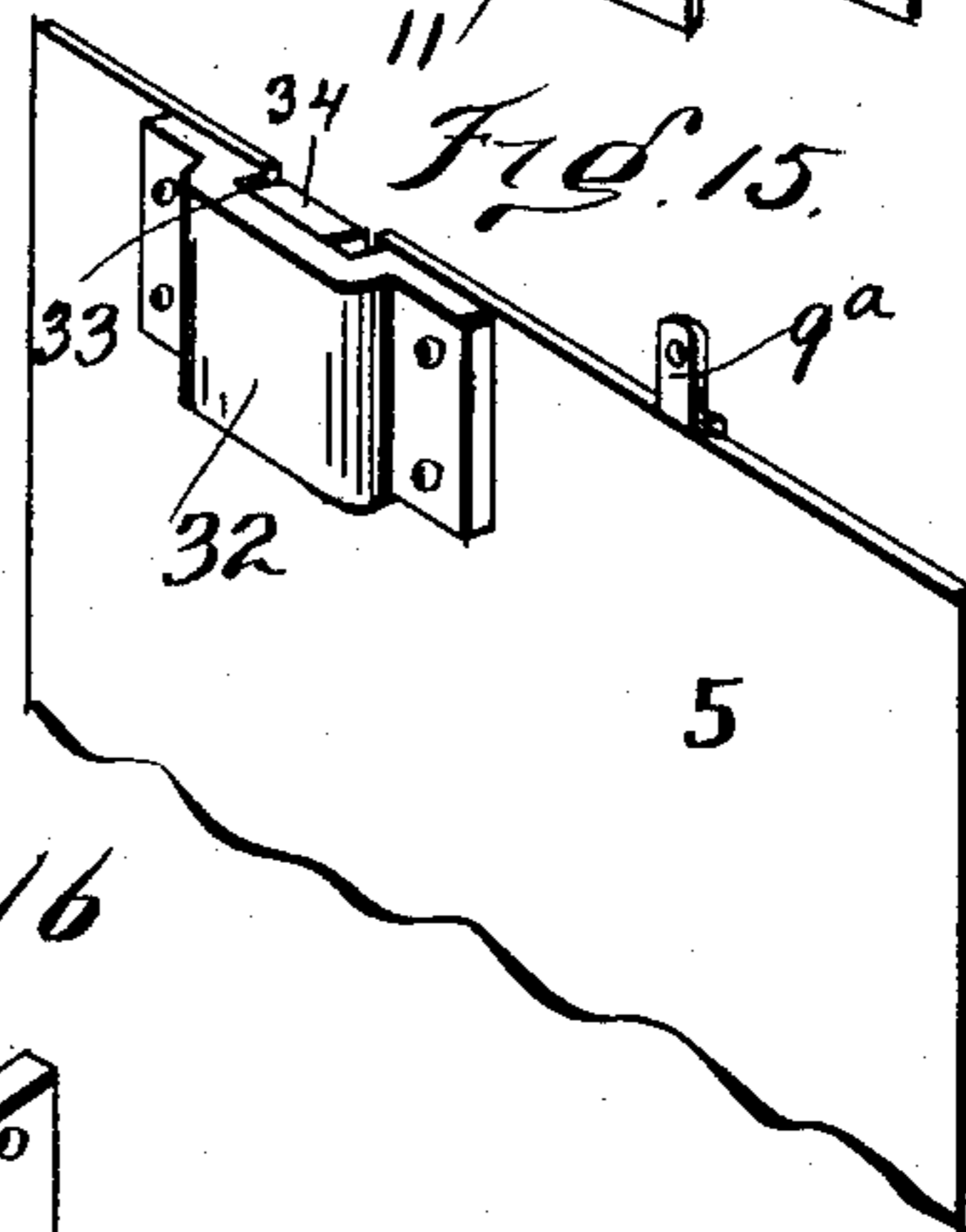
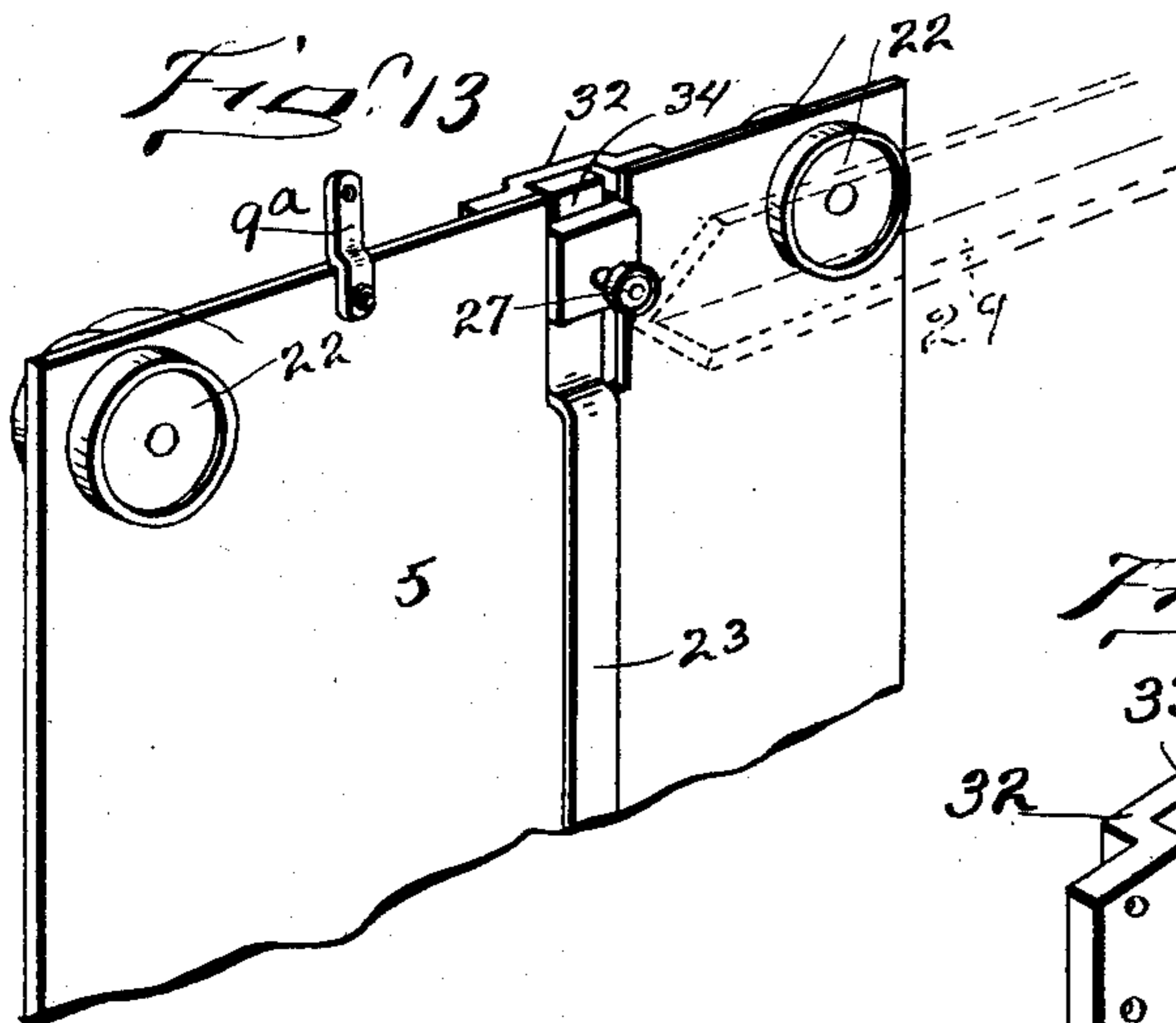
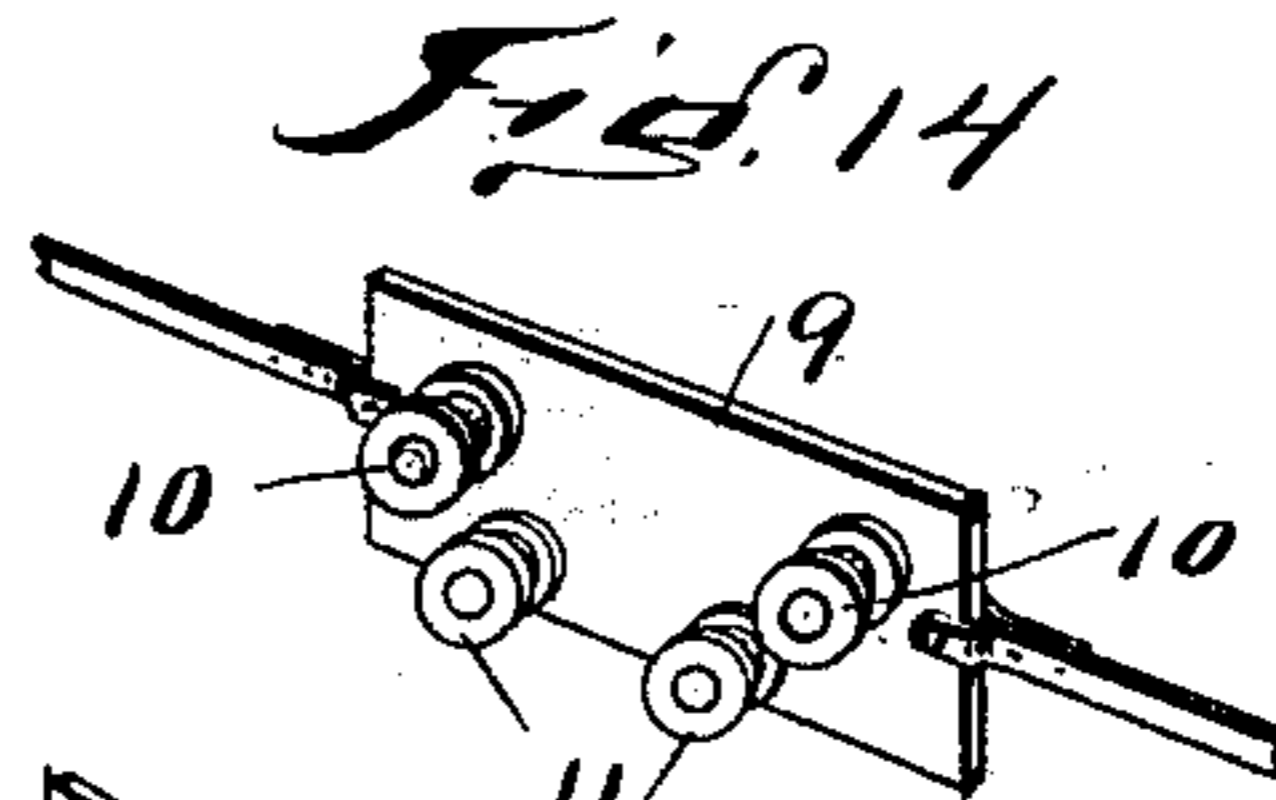
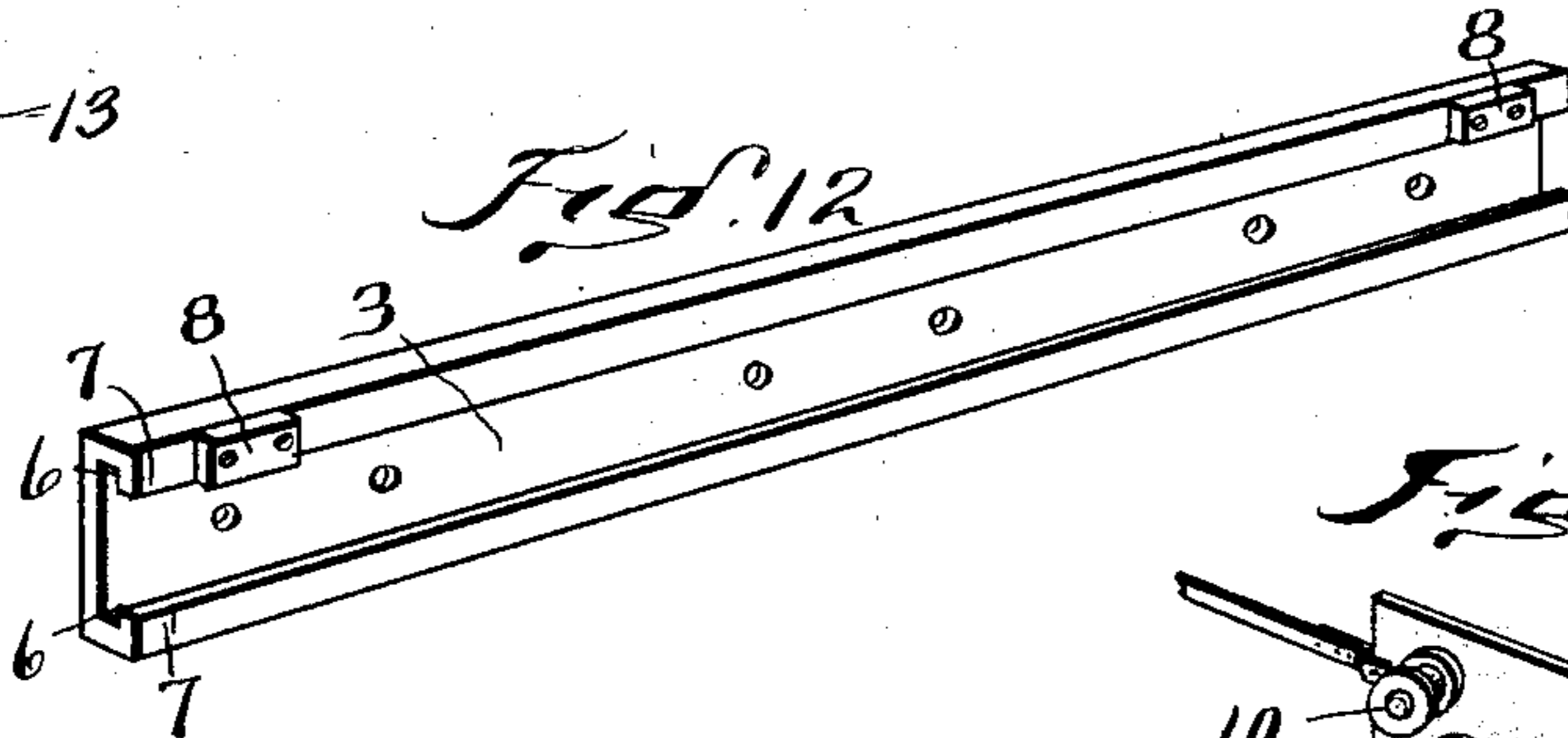
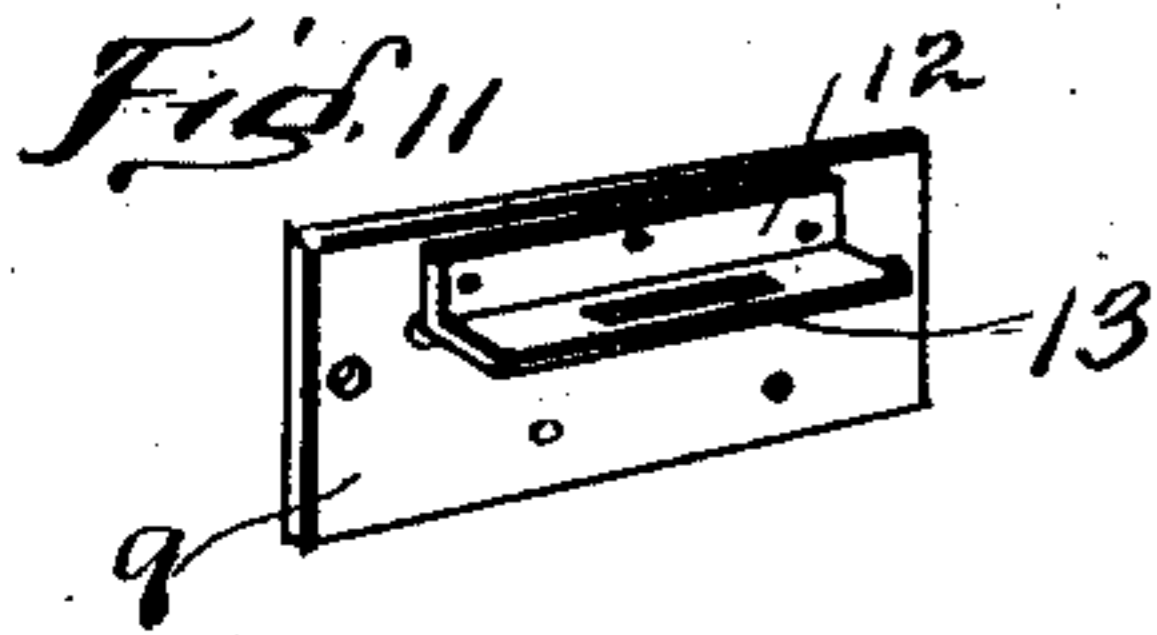
C. SCHOENFELD.

DEVICE FOR OPERATING AND LOCKING PRISON DOORS.

(Application filed Apr. 7, 1899.)

(No Model.)

6 Sheets—Sheet 4.



WITNESSES

G. L. Lewis
J. R. Bond

INVENTOR

Charles Schoenfeld
Fred W. Bond

BY

ATTY

No. 635,602.

Patented Oct. 24, 1899.

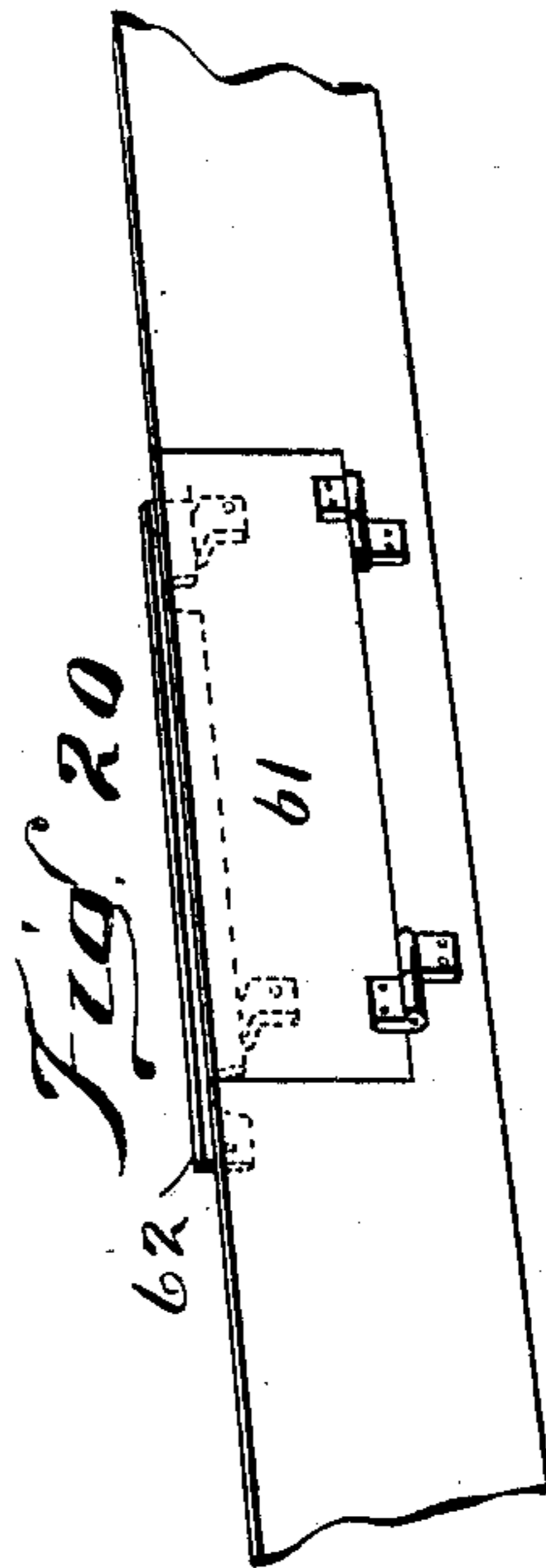
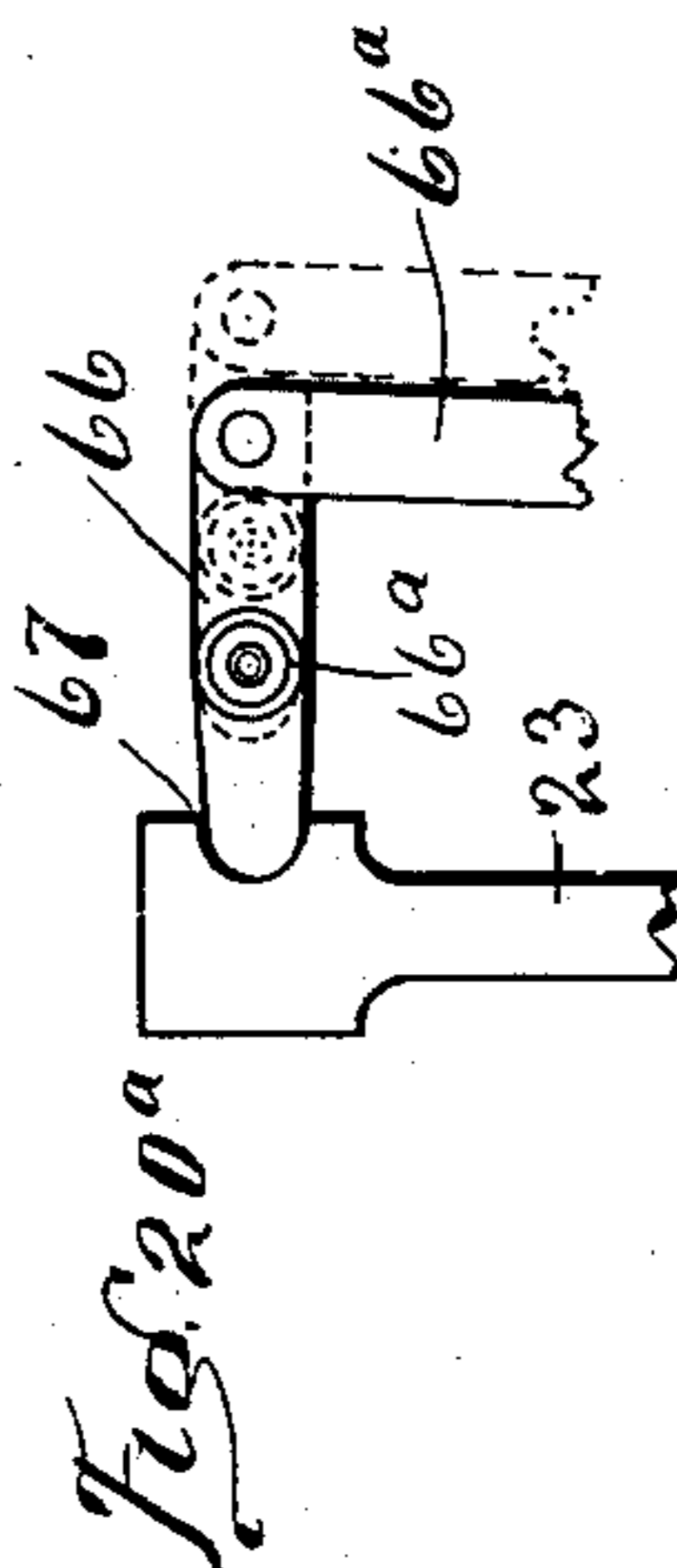
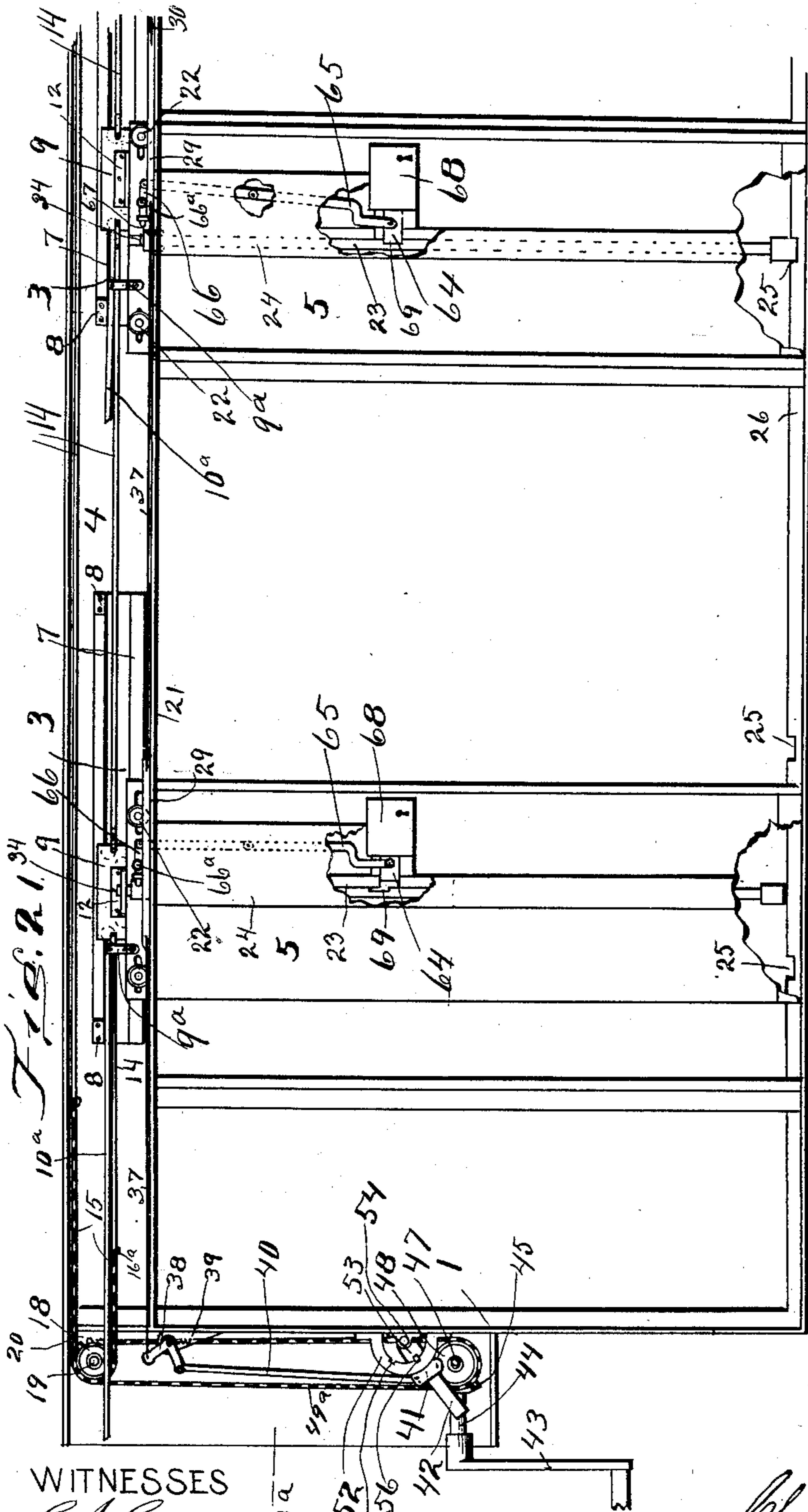
C. SCHOENFELD.

DEVICE FOR OPERATING AND LOCKING PRISON DOORS.

(Application filed Apr. 7, 1899.)

(No Model.)

6 Sheets—Sheet 5.



WITNESSES

G. Brass,
J. R. Bond.

BY

INVENTOR
Charles Schoenfeld
Fred W. Bond

ATTY

No. 635,602.

Patented Oct. 24, 1899.

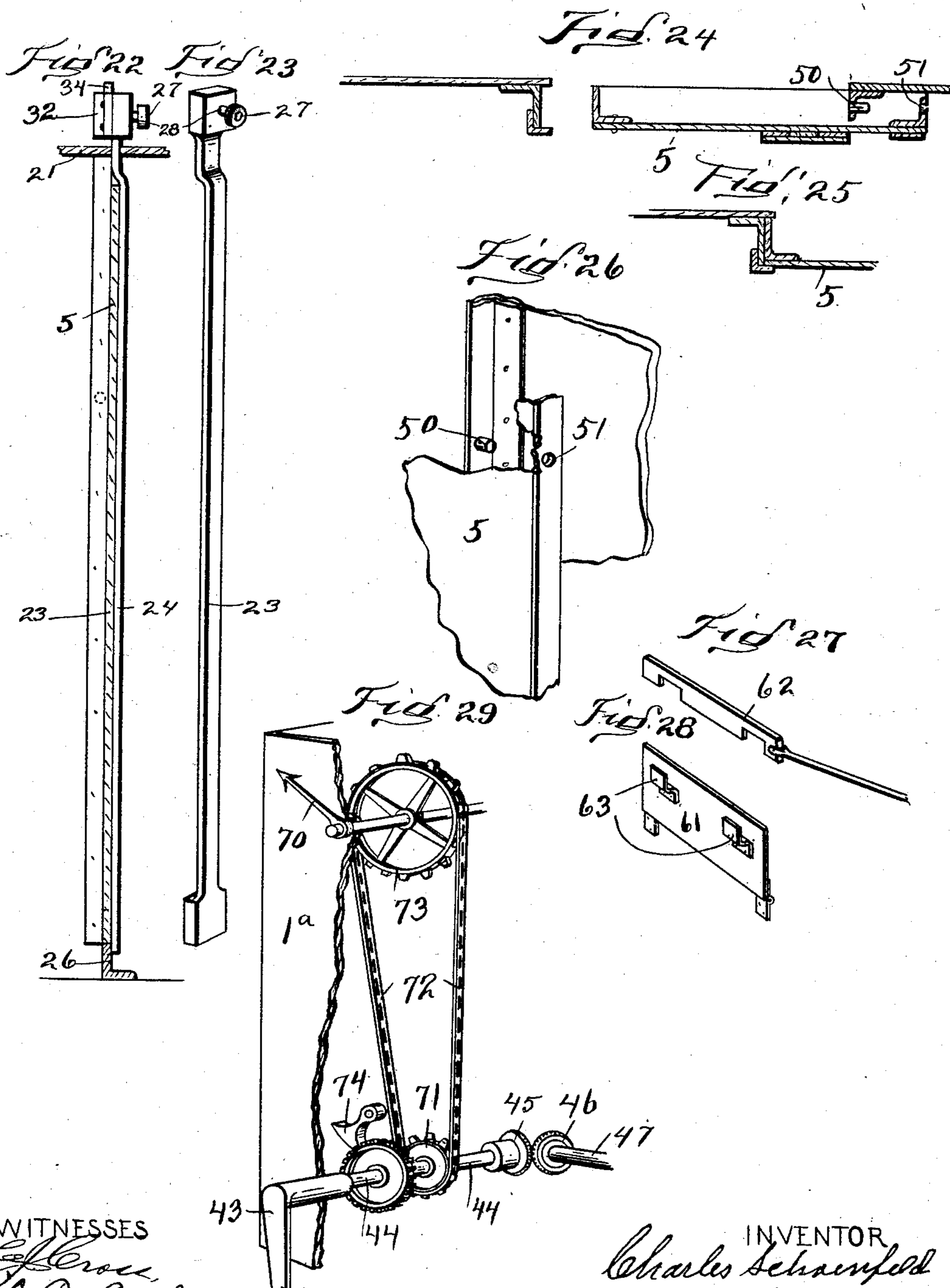
C. SCHOENFELD.

DEVICE FOR OPERATING AND LOCKING PRISON DOORS.

(Application filed Apr. 7, 1899.)

(No Model.)

6 Sheets—Sheet 6.



WITNESSES

E. Brown
J. R. Bond.

BY

INVENTOR

Charles Schoenfeld
Fred W. Bond

ATTY

UNITED STATES PATENT OFFICE.

CHARLES SCHOENFELD, OF CANTON, OHIO, ASSIGNOR TO THE DIEBOLD
SAFE AND LOCK COMPANY, OF SAME PLACE.

DEVICE FOR OPERATING AND LOCKING PRISON-DOORS.

SPECIFICATION forming part of Letters Patent No. 635,602, dated October 24, 1899.

Application filed April 7, 1899. Serial No. 712,116. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SCHOENFELD, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Devices for Operating and Locking Prison-Doors; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the figures of reference marked thereon, in which—

Figure 1 is a perspective view showing my device properly connected and arranged for operating two doors. Fig. 2 is a side elevation showing the door closed and locked, also showing the track or way and the device for operating the door. Fig. 3 shows a portion of a door and its locking-bar. Fig. 4 is a side elevation of one of the handle-socket guides. Fig. 5 is a view showing one of the bar-and-link connections. Fig. 6 is a detached view of one of the handle-sockets, showing the same open. Fig. 7 is a detached view of the handle-socket cap or cover. Fig. 7^a shows a portion of the handle-socket and its releasing bolt and spring. Fig. 8^a is a detached view showing a portion of one of the bolt-operating sliding bars. Fig. 8 is a detached view of the detachable handle or lever. Fig. 9 is a view showing the position of the track and traveling carriage, showing the door unlocked from the carriage. Fig. 10 is a section through line *x x*, Fig. 9. Fig. 11 is a detached view of the traveling carriage and its locked bar or plate. Fig. 12 is a detached view of the track or way. Fig. 13 is a view showing a portion of a traveling door and illustrating the bolt-elevating bar in dotted lines. Fig. 14 is a view showing the traveling carriage and its wheels or grooved rollers connected thereto. Fig. 15 is a view showing a portion of the door and illustrating the bolt-head housing connected thereto. Fig. 16 is a detached view of the bolt-head housing. Fig. 17 is a detached view of the bolt-head for locking the door to the traveling carriage. Fig. 18 is a view showing the upper end of the door-bolt proper. Fig. 19 is a view showing the top or upper end of the

door-bolt proper and illustrating the elevating or sliding bar in position to lift and hold the bolt. Fig. 20 is a view showing the rear side of the track or way, also showing the hinged door or lid. Fig. 20^a is a modified form of the top or upper end of the door-bolt proper. Fig. 21 is a view showing doors properly arranged, also showing the track or way and illustrating the devices for deadlocking the door. Fig. 22 is an edge view of a door, showing the locking bolt or bar connected thereto. Fig. 23 is a detached view of the locking bolt or bar. Fig. 24 is a transverse section of the door and cell, showing the door-jambs. Fig. 25 is a transverse section of one edge of the door, showing the same closed. Fig. 26 is a view showing a portion of the door and its rear jamb, showing the door practically closed. Fig. 27 is a detached view of the locking-bar for locking the track door plate or lid. Fig. 28 is a detached view of the door or lid for the track or way. Fig. 29 is a view showing the connection and device for operating the indicator.

The present invention has relation to devices for operating and locking prison-doors; and it consists in the different parts and combination of parts hereinafter described and particularly pointed out in the claims.

In the accompanying drawings, 1 represents the prison-walls, which may be constructed in the usual manner and are of a size to correspond with the size of the cell or cells designed to be constructed. When it is desired to construct a row of cells, partitions, such as 2, are to be provided and are arranged and connected in the usual manner. Directly above each cell-door is located a track or way 3, which track or way is securely connected in any convenient and well-known manner to the vertical plate or bar 4 or its equivalent. The track or way 3 is formed of a length to correspond, substantially, with the length of travel the sliding door or doors 5 are to have; but this is immaterial, inasmuch as a single and continuous track may be employed for any desired number of doors, such as 5. As shown, the track 3 is provided with the grooves 6 and the flanges 7, said grooves and flanges being located and arranged substantially as shown

in the drawings, and, as shown, they are located at the top and bottom of the track proper.

For the purpose of stopping the door or doors 5 in either direction at the proper point or points the stop-blocks 8 are provided, which stop-blocks may be connected to the track or way 3.

Upon the track is located the traveling head or carriage 9, which traveling head or carriage is provided with the grooved rollers 10 and 11, which grooved rollers are so located and arranged that they will fit the grooves formed upon the track or way 3, by which arrangement the traveling head or carriage is held at all times in proper position with reference to the track or way 3. Upon the opposite side of the traveling head or carriage 9 from that upon which the grooved rollers 10 and 11 are located is located the bolt-engaging bar 12, which in this instance consists of an angle-bar provided with a mortise 13; but it will be understood that the objects and purposes hereinafter described can be carried out without the exact construction just above described.

To the traveling head or carriage 9 are securely attached in any convenient and well-known manner the pull-bars 14, to which pull-bars are connected the sprocket-chains 15 and 16, said sprocket-chains extending over and around the sprocket-wheels 17 and 18, the sprocket-wheel 17 being preferably journaled and connected to the vertical plate 4 and the sprocket-wheel 18 being mounted upon the shaft 19, which shaft is connected to the housing 20 or its equivalent, and when the sprocket-wheel 18 is rotated, as hereinafter described, the traveling head or carriage 9 will be moved back and forth upon the track or way, reference being had to the direction of rotation of the sprocket-wheel 18.

Below the track or way 3 is located the door track or way 21, which door track or way is located and arranged substantially as shown in the drawings, and is for the purpose of providing a support for the door or doors 5, to which doors are properly journaled in any convenient and well-known manner the traveling wheels 22. The door or doors 5 are each provided with the locking bolts or bars 23, which bars are properly concealed by the housing or casing 24. The locking bolts or bars 23 are formed of a length to correspond substantially with the length of the door, reference being had to operating said locking bolts or bars and also for engaging the locking notches or recesses 25, which locking notches or recesses are formed in the guide rail or bar 26, said guide rail or bar being located adjacent to the face of the door and directly below the door or doors.

The top or upper end of each of the locking bolts or bars 23 is provided with the rollers 27, which rollers are preferably journaled upon the studs 28; but it will be understood that the objects and purposes hereinafter de-

scribed can be carried out without the rollers 27 without departing from the nature of my invention, inasmuch as a lateral projection or pin may take the place of the roller 27.

Upon the door track or way 21 are located the sliding bars 29, which sliding bars are provided with the beveled ends 30, which beveled ends are for the purpose of engaging the under side of the roller or rollers 27, and as the sliding bars are moved endwise toward the roller or rollers 27 said rollers will move upward until they reach the top or upper side of the sliding bar 29. For the purpose of holding the sliding bars 29 in proper position they are provided with slots, such as 29^a, through which slots are passed retaining-screws 30^a or their equivalents.

The upward movement of the roller 27 lifts the locking bolt or bar 23 and disengages the bottom or lower end of said locking bolt or bar from the notch or recess 25, formed in the guide-rail 26, at which time the door 5 is free to move or travel upon its track, together with the traveling head or carriage 9.

The door or doors 5 are each provided with the housing 32, which housing is provided with the chamber 33, and within which chamber is located the connecting head or block 34, which connecting head or block when in its normal position is located adjacent to the locking bolt or bar 23, as illustrated in Fig. 13, and for the purpose of elevating the connecting head or block 34 at the time the locking bolt or bar 23 is elevated the pin 35 is provided, which pin is securely connected to the top or upper end or portion of the locking bolt or bar 23 and engages the recess 36, formed in the bottom or lower end of the block 34. When the locking bolt or bar 23 is elevated, the connecting bolt or head will be carried with it, thereby causing said block or head to be passed into the mortise 13, by which arrangement the door 5 will be connected to the traveling head or carriage 9.

For the purpose of providing a means for moving the sliding bar or bars 29 the rod or rods 37 are provided, it being understood that there are to be as many rods 37 as there are bars 29 to be operated. One end of each of the bars 37 is pivotally connected to the sliding bar 29, and the opposite end of said bar 37 is pivotally connected to the bell crank or lever 38, which bell-crank is pivotally attached to the bracket 39. To the bell crank or cranks 38 are pivotally attached the top or upper ends of the connecting-rods 40, and the bottom or lower end or ends of said connecting-rods 40 are connected to the handle socket or sockets 41. When it is desired to move the sliding bar 29, the detachable handle or lever 42 is inserted into the handle-socket 41 and said handle and socket moved downward, as indicated in dotted lines, Fig. 2, which movement rocks the proper bell crank or lever 38 and moves the sliding bar 29 by means of the connecting-rod 37. This movement connects the door with the traveling head

or carriage 9, after which the detachable crank 43 is connected to the shaft 44, which shaft is provided with the beveled gear-wheel 45, which gear-wheel meshes with the gear-wheel 46, said gear-wheel 46 being mounted upon the shaft 47, and upon which shaft is mounted the sprocket-wheel 48. As the sprocket-wheel 48 is rotated rotary motion will be imparted to the sprocket-wheel 49 by means of the sprocket-chain connecting the sprocket-wheels 48 and 49 together, and by which arrangement the sprocket-wheel 18 is rotated by means of rotary motion being imparted to the sprocket-wheel 48, thereby imparting rotary motion to the sprocket-wheels 18 and 17 by means of the chains 15 and 16 and the pull-bars 14, and thereby operating or moving the traveling head or carriage and the doors when said doors are properly connected to said traveling head or carriage.

It will be understood that the door or doors when disconnected from the traveling head cannot be moved by means of the crank 43, and when said doors are disconnected from the traveling carriage they are firmly locked in position.

For the purpose of assisting in holding the doors when in a closed position the pin 50 is provided, and when the door is fully closed the pin will enter the aperture or opening 51, which construction is illustrated in Figs. 24 and 26. It will be understood that any desired number of pins, such as 50, may be employed, and the number of apertures 51 must correspond with the number of pins.

To the wall of the cell are securely connected the segmental flanges or guides 52, which segmental flanges or guides are located substantially as shown and are for the purpose of assisting in holding in proper position the handle-sockets 53, which handle-sockets are pivotally connected to suitable flanges, such as 54, said flanges being connected to the cell-wall in any convenient and well-known manner. The handle-socket 53 is provided with the spring-bolt 55, which spring-bolt is provided with the head 56, which head is for the purpose of automatically engaging the recesses 57, formed in the segmental flanges or guides 52, and thereby hold said handle-sockets in proper position.

In use when it is desired to connect a door to its traveling carriage or head the detachable handle or lever 42 is inserted into the proper handle-socket, such as 53, at which time the bolt 55 is pressed or forced toward the pivoted end of said socket, thereby releasing the head 56 from one of the notches 57, after which the handle or lever 42 is moved downward, so as to operate the sliding lift-bar 29, and when the handle or lever 42 is removed from its handle-socket the spring 59 will force the bolt 55 endwise or outward, thereby engaging the proper notch 57, and hold the handle-socket 53 in proper position.

For the purpose of closing the handle-socket 53 the cover or cap 60 is provided, which cover

or cap is securely connected by means of suitable bolts or rivets.

For the purpose of providing a means for connecting the bars 14 to the sprocket-chains 15 and 16 the hook-heads 16^a are provided. (See Fig. 5.)

For the purpose of providing a means for reaching the traveling head or carriage 9 and also the traveling wheels of the different doors hinged plates, such as 61, are provided, which hinged plates are so located that when opened the different parts needing oil can be reached, said hinged plates 61 being properly connected or hinged to the walls of the structure proper.

For the purpose of locking the hinged plate or door 61 the notched bar 62 is provided, which notched bar is dropped onto the catches 63, as illustrated in dotted lines, Fig. 20.

In the construction of prisons wherein it is desired to have a large number of cells—say from ten to thirty or any other number—it would be inconvenient to provide a separate handle-socket, such as 53, for each door, and in order to provide for connecting any desired number of doors to the traveling carriages or heads the sliding lift-bars 29 may be coupled together, so that all of the sliding lift-bars 29 will move in unison and be operated by a single lever or handle, such as 42, and the different parts belonging to and connected with the handle-socket 53.

For the purpose of carrying out the operation of a large number of doors and at the same time providing a means for dead-locking any particular door or doors in the series each door is provided with a lock-bolt 64, to which lock-bolt is pivotally connected the upward-extending bar or arm 65, which bar or arm is to be properly covered or concealed in the usual manner and is extended upward, as illustrated in Fig. 21, and its upper end provided with the pivoted arm or lever 66, which pivoted arm or lever is provided with a roller 66^a, said roller being located between the free end of the arm or lever 66 and its pivoted end and is so located for the purpose hereinafter described. When it is desired to dead-lock any particular door in the series, a key is employed to throw the lock-bolt 64 into the recess or notch, which notch or recess is formed in the sliding bolt or bar 23. When the lock-bolt 64 is moved so as to be engaged with the recess 69, the upper end of the pivoted bar 65 will be thrown or moved away from the upper end of the sliding bolt or bar 23, which movement will disengage the arm or lever 66 from the recess 67. When the parts are in the position just above described, the lower end of the locking bar or lever 23 will be seated into its proper notch 25 and locked against upward movement by means of the lock-bolt 64 and the recess 69. When it is desired to open the doors contained in the series and when the lifting-bar 29 is moved under the roller 66^a, it will lift the sliding lock-bolt 23 when said sliding lock-bolt is en-

gaged with the pivoted arm or lever 66, as illustrated in Fig. 21 in one case, and one lever 66 is shown engaged with the locking bolt or bar 23, and another lever 66 is shown disengaged or the door locked. In other words, in Fig. 21 two doors are illustrated, one dead-locked and the other unlocked. When the lifting-bars 29 are moved, the ones coming under the roller 66^a of the unlocked door will lift the pivoted arm or lever 66, carrying with it the locking bolt or bar 23 and connecting said door to and with the traveling head or carriage 9; but if in the event the door is dead-locked, as shown in Fig. 21 at the right, the lifting-bar 29, coming under the roller 66^a in lieu of roller 27 on the lock-bar 23, as formerly described, will simply lift the free end of said arm or lever without imparting any movement to the locking bar or bolt 23. By the above-described mechanism and arrangement it will be seen that any particular door may be locked or all of the doors may be operated at one time and with one handle-socket and its connection. If in the event it is desired to operate the doors without a dead-lock, an ordinary lock, such as 69^a, may be employed.

For the purpose of operating an indicator, such as 70, which indicator is for the purpose of indicating the position of the door or doors, a sprocket-wheel, such as 71, is provided, which sprocket-wheel is securely mounted upon the shaft to which the crank 43 is to be attached and the sprocket-chain 72 extended from the sprocket-wheel 71 around the sprocket-wheel 73. It will be understood that the sprocket-wheels 71 and 73 should be geared so that the indicator will travel in proportion of the door.

For the purpose of holding the shaft 44 against rotation an ordinary detent is provided.

For the purpose of protecting the various parts for operating the doors other than those parts located above said doors the housing 1^a is provided, which housing is securely connected in any convenient and well-known manner to the cell-frame 1. It will be understood that the housing 1^a is to be provided with a door, which is of ordinary construction and arrangement and, it will be understood, should be provided with a lock common to structures of this kind.

When a series of cells are arranged together and a series of doors arranged as shown in Fig. 1, the connecting-bar 37^a should be formed in sections and the sections connected to the sliding bar 29 and to the pivoted arm 37^b, by which arrangement the bar-sections 37^a will be prevented from sagging, and at the same time said bars can be moved with greater ease.

For the purpose of providing a means for indicating the location of the different doors a track or way 4^a is provided and is extended outward from the housing 1^a, substantially as illustrated in Fig. 1. The track or way 4^a

is to be provided with grooves 5^a, and it will be understood that there are to be as many grooves 5^a as there are doors to be connected to the prison—that is to say, if there are two doors to be connected to the prison the track or way 4^a is to be provided with two grooves 5^a, and, if desired, there may be an independent track or way for each door and the tracks or ways located side by side. Within the tracks or ways are located the indicator-blocks 6^a, which indicator-blocks travel back and forth with the doors as they are operated, and for the purpose of supporting the blocks or indicators 6^a the tracks or ways are provided with the flanges 7^a, which flanges provide supports for the rods 10^a and the blocks or indicators 6^a.

Upon the upper ends of the doors 5 are connected the arms 9^a, which arms are so located and arranged that they will not travel with the track or way 3 and the different parts connected to said track and the doors. To the arms 9^a are connected the rods or bars 10^a, which rods are extended and connected to the blocks or indicators 6^a, so that said blocks or indicators will be moved as the doors are moved and in the same direction.

For the purpose of locking the crank-shaft 44 against rotation a sliding bolt 4^b is provided, which sliding bolt is adjustably attached to the partition 5^b, said partition being shown broken away in Fig. 1, and for the purpose of allowing longitudinal movement said partition 5^b is provided with the slots 6^b.

When it is desired to lock the chain 49^a, the bolt 4^b is moved toward said chain until the arm 6^b engages with a link of said chain.

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

1. In a device for operating and locking prison-doors, a track or way held in a fixed position, a door or doors located below the track or way and provided with traveling wheels, a locking bolt or bar slidably connected to the door or doors and a carriage located upon the track or way movable independent of the door or doors and means for connecting the door or doors to the traveling head or carriage, substantially as and for the purpose specified.

2. The track or way 3 having mounted thereon a traveling head or carriage, a bar or bars connected to said traveling head or carriage, a pivoted handle-socket having connected thereto a rod and a bell-crank located intermediate between the traveling carriage and the handle-socket, a traveling door or doors and a sliding bar or bolt provided with a head carrying a roller, and the sliding bar 29, substantially as and for the purpose specified.

3. In a device for operating doors, a track or way provided with a traveling head or carriage, means for imparting movement to the traveling carriage or head, a traveling door provided with a locking-bolt and means for locking and connecting the traveling door to

the traveling head, substantially as and for the purpose specified.

4. The combination of the handle-socket 53, a bolt located therein and provided with a head, a spring located around the bolt, the flange or guide 52 provided with recesses, a detachable handle or lever, a rod connected to the handle-socket and to a bell-crank, a rod 14 connected to the traveling carriage or head, a track or way for said traveling head or carriage, a door located below the track or way provided with a locking bolt or bar, a roller connected to the upper end or portion of said locking bolt or bar, and the sliding bar 29, substantially as and for the purpose specified.

5. The combination of a track or way provided with a traveling head or carriage, a mortised flange connected to said traveling head or carriage, a traveling door provided with a locking bolt or bar and sliding bar, and means for operating the sliding bar and lifting the bolt, and means for moving the door with the traveling carriage and the block 34 actuated by the bolt 33, substantially as and for the purpose specified.

6. A track or way, a traveling door located below the track or way, a traveling carriage located upon the track or way, a locking-bolt movable with the door, the bar 26 provided with notches or recesses 25, and means for operating the locking bolt or bar and the door, substantially as and for the purpose specified.

7. The combination of a traveling door provided with a lock, a lock-bolt having connected thereto the pivoted bar 65, the link or bar 66 connected to the bar 65, the sliding bolt or bar provided with the notches or recesses 67 and 69, and the bar 26 provided with the notches or recesses 25, substantially as and for the purpose specified.

8. The combination of a track or way provided with stops, a traveling head or carriage movable along the track or way, a traveling door located below the track or way, means for connecting and disconnecting the door

from the traveling head or carriage, substantially as and for the purpose specified.

9. The combination of a series of cell-doors, means for operating the doors in the series independent of each other, sliding bars connected together and a locking bolt or bar connected to the doors and movable with the doors, substantially as and for the purpose specified.

10. The combination of a traveling cell-door provided with a locking bolt or bar having a lock-bolt-receiving recess, and a recess head or end, a bar or lever pivotally connected to the door and to the lock-bolt, a lever or arm pivotally attached to the pivoted lever of the door, a roller carried by the lever or arm and a bolt-lifting bar and means for operating the bolt-lifting bolt or bars, substantially as and for the purpose specified.

11. The combination of a series of cells, a track or way having located thereon traveling carriages, doors detachably connected to the traveling carriages and provided with arms, rods connected to the arms, a track or way extended outward and provided with blocks or indicators, and rods connected to said blocks or indicators, substantially as and for the purpose specified.

12. The combination of a series of prison-cells, a track or way, traveling heads or carriages movable upon the track or way, doors detachably connected to the heads or carriages, means for imparting movement to the traveling head or carriages and the doors, and means for imparting movement to the blocks or indicators, located in a track extended beyond the prison-cells, substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

CHARLES SCHOENFELD.

Witnesses:

J. A. JEFFERS,
F. W. BOND.