

No. 839,933.

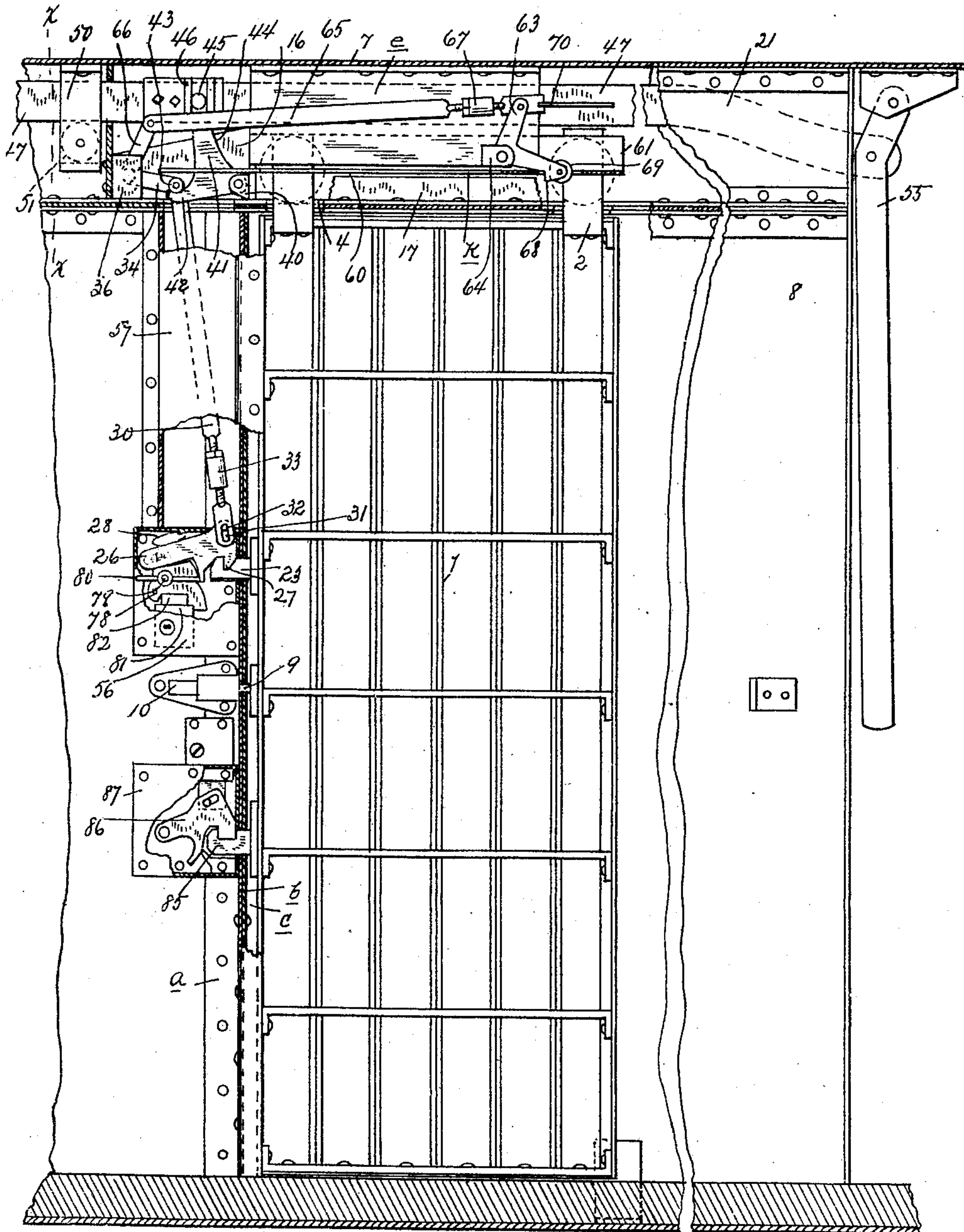
PATENTED JAN. 1, 1907.

W. R. KALES.
LOCKING MECHANISM FOR JAILS.

APPLICATION FILED JAN. 16, 1906.

3 SHEETS—SHEET 1.

Fig. 1.



Inventor
William R. Kales

Witnesses
James O. Barry
Melio Tillman

By *Chittmas Hulbert & Whittam*
attys.

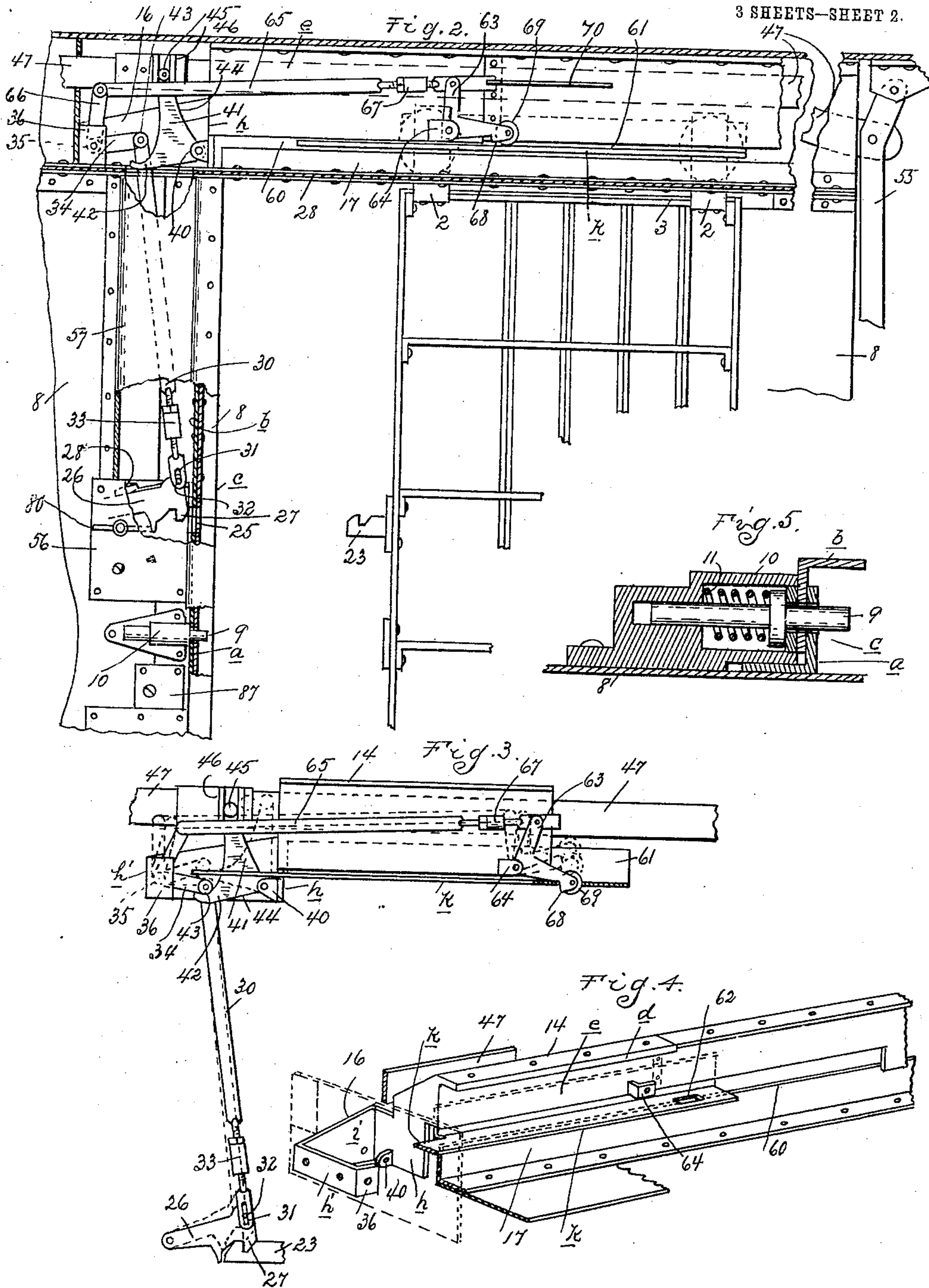
No. 839,933.

PATENTED JAN. 1, 1907.

W. R. KALES.
LOCKING MECHANISM FOR JAILS.

APPLICATION FILED JAN. 16, 1906.

3 SHEETS—SHEET 2.



Witnesses
James P. Barry
Melba Williams

Inventor
William R. Hayes
By Whittington Hulbert & Whittington
Attys!

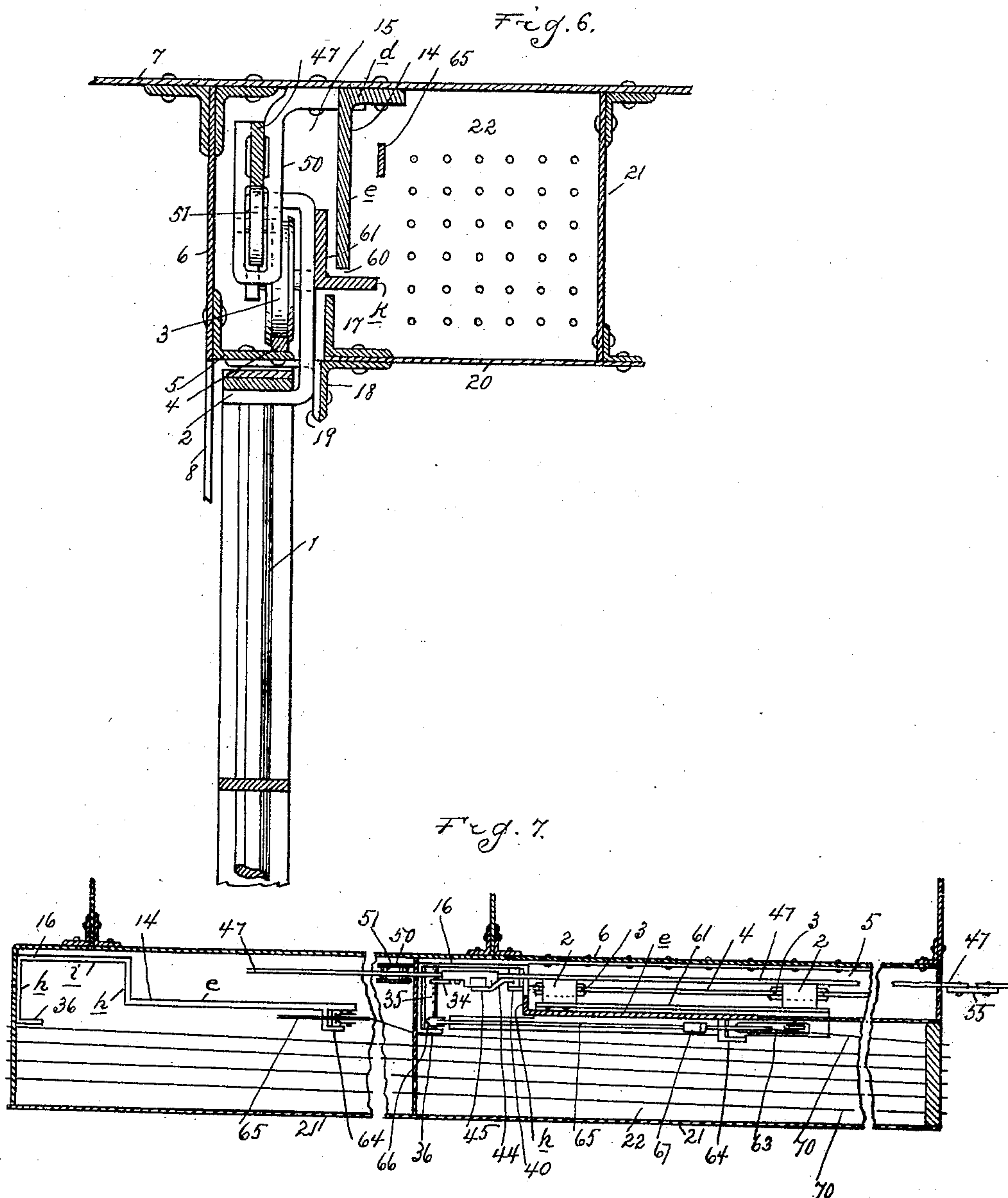
No. 839,933.

PATENTED JAN. 1, 1907.

W. R. KALES.
LOCKING MECHANISM FOR JAILS.

APPLICATION FILED JAN. 16, 1906.

3 SHEETS—SHEET 3.



Inventor
William R. Kales

Witnesses
James P. Baird
Melba Williams

By Whittmore Hulbert Whittmore
attys

UNITED STATES PATENT OFFICE.

WILLIAM R. KALES, OF DETROIT, MICHIGAN.

LOCKING MECHANISM FOR JAILS.

No. 839,933.

Specification of Letters Patent.

Patented Jan. 1, 1907.

Original application filed June 21, 1904, Serial No. 213,489. Divided and this application filed January 16, 1906. Serial No. 296,396.

To all whom it may concern:

Be it known that I, WILLIAM R. KALES, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Locking Mechanism for Jails, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to the construction of jail-cells; and it consists particularly in the construction of the locking mechanism for the cell-door.

The invention further consists in the peculiar construction, arrangement, and combination of the various parts, as more fully hereinafter described, and particularly pointed out in the claims.

In the drawings, Figure 1 is an elevation of a door-frame and door of a jail-cell, showing some of the parts broken away to illustrate the locking mechanism. Fig. 2 is a similar elevation of the upper part of Fig. 1, showing the parts in position with the door open. Fig. 3 is a detached elevation of the locking-latch and connected parts. Fig. 4 is a detached perspective view of the frame which supports the locking and indicating mechanism. Fig. 5 is a section through the firing-pin for opening the door when the same is unlatched. Fig. 6 is a vertical section on line *x x*, Fig. 1; and Fig. 7 is a plan view of the parts shown in Fig. 1 with the casing broken away to show the operating parts.

1 is the door of a cell, which is of the usual grate construction. This door is supported on suitable hangers 2, having the rollers 3 running on a suitable rail 4, supported on an angle-bar 5, forming the upper member of the door-frame of the cell. This angle-iron is riveted to the plate 6, which forms the front of the cell above the door and in turn is secured to the plate 7, which forms the ceiling of the cell.

8 represents the sheet-metal front wall of the cell, the door sliding across the outer face thereof. The door jamb is preferably formed with a recess *c*, into which the end bar of the door projects. However, the construction of the cell, the door, and the indicating means, except so far as it relates to the locking mechanism, is immaterial to this application, being embodied in United States Letters Patent No. 800,216, granted to me

September 26, 1905, Serial No. 213,489, of which this application is a division.

9 is the firing-pin in the casing 10, having usual spring 11 for projecting the same outward. This pin projects into the recess *c* and strikes against the door and is for the purpose of projecting the door slightly open when the same is unlocked. This is of any usual construction, and the specific construction thereof forms no part of my invention.

14 is a frame which supports the locking mechanism. It is secured by the flange *d* to the ceiling-plate. It has the vertical plate *e*, which acts as a shield-plate and forms between the plate 6 and the plate *e* the chamber 15, in which the door-brackets slide and the operating mechanism for the locks is supported. This frame 14 is preferably a cast frame and has at the end a rectangular bracket 16, preferably cast integral therewith. The two arms *h h'* thereof are preferably at right angles to the plate *e* and form within an open space above the locking mechanism of the door.

17 is a vertical plate below the shield-plate *e* and separated therefrom, preferably being formed of an angle-bar which is secured to the angle 18, which in turn is supported by the angle 19 to the angle-bar 5. The horizontal member of the angle 19 is cut away for so much of its distance as is necessary for the hangers 2 of the door to operate therein. I have shown the angles 17 and 18 having secured between them the plate 20, which with the vertical plate 21 forms with the ceiling and the shield-plate *e* and the plate 17 a box within which is the chamber 22 for the operating mechanism for suitable indicators. The inner edge of the door is provided with the outward-projecting notched catch-bar 23, which forms the locking means on the door. This catch-bar is arranged opposite an aperture 25 in the jamb. Opposite this aperture is pivoted the locking-latch 26, having a suitable lug 27 to engage in the notch of the bar 23. The locking-latch 26 is preferably pressed constantly downward by a spring 28.

30 is a connecting-rod having the slot 31 in its lower end engaging the pin 32 on the locking-latch 26 and preferably with a suitable turnbuckle 33 for adjusting the length of the connecting-rod accurately, so as to properly perform the functions to be hereinafter de-

scribed. This connecting-rod at its upper end is connected to the rock-arm 34 at the inner end of the rock-shaft 35, which is journaled in the lug 36 of the bracket 16 at one
 5 end and at its other end in the connecting-plate *i* between the two portions *h h'* of the bracket 16.

Pivoted on the lug 40, which projects inwardly from the portion *h* of the bracket 16,
 10 Figs. 2 and 4, is the bell-crank 41. The arm 42 of this bell-crank is bifurcated to embrace the connecting-rod 30, and the furcations of this arm are adapted to strike the rollers 43, arranged on the pivot-pin between the con-
 15 necting-rod 30 and the rock-arm 34, upon each side thereof. The other arm 44 of this bell-crank is provided with a roller-wrist 45, engaging in the slot between the guides 46 on the gang-bar 47. This gang-bar is sup-
 20 ported in the brackets 50, which I have shown suspended from the ceiling-plate, Fig. 6, and preferably rests upon rollers 51 therein, these brackets being arranged at suitable intervals. The gang-bar is of such length as
 25 to operate the series of cells which are arranged in line, and it may be used to operate the locks of any desired number in the bank of cells. In this case I have simply illustrated the gang-bar as applied to one door;
 30 but it will be understood that the other doors are duplicates and that the bar is intended to be used in connection with a bank of cells. At the end the gang-bar is to be operated, preferably from the corridor, by an operat-
 35 ing-lever 55, pivoted on a stationary point to connect with the gang-bar to move the same longitudinally forward and back. 56 is the casing for the lock, and above this lock-casing I provide a casing 57, extending from the
 40 lock to the under side of the angle-bar 5, which casing forms a housing for the connecting-rod 30 and also prevents tampering with the parts within the rectangular bracket 16.

45 Between the shield-plate *e* and the plate 17 is formed a slot or space 60, through which the horizontal member *k* of the angle-bar 61 projects, this angle-bar being secured to the hangers 2 of the door. The flange or mem-
 50 ber *k* of the angle-bar 61 is provided with the slot 62, Fig. 4.

63 is a bell-crank lever journaled on the lug 64 of the frame 14. The vertical member of the bell-crank is connected by the con-
 55 necting-rod 65 with the crank-arm 66, which is a vertical crank-arm attached to the outer end of the rock-shaft 35. This connecting-rod is also preferably provided with a turn-buckle 67. The horizontal member of the
 60 bell-crank 63 is provided with a downward-projecting lug 68 and with a roller 69.

Connected to the connecting-rod 65 is a suitably arranged indicator-actuating rod
 70, preferably of wire or of any desired con-
 65 struction, which extends through the indi-

cator-chamber 22. The indicator which I prefer to employ forms a part of the subject-matter of my United States Patent previously referred to.

The parts thus far described are intended
 70 to operate as follows: When the door is closed, the notched bar 23 will engage with the latch 26 and that latch by the tension of its spring will be moved into locking engagement with the notch in the bar 23, as plainly shown in
 75 Fig. 1. When it is desired to open the bank of cells controlled by the gang-bar 47, the operator raises the lever 55, which moves the gang-bar 47 to the right and rocks the bell-
 80 crank 41, thereby moving vertically the horizontal arm 42 thereof, and because of its engagement with the roller 43 at the upper end of the connecting-rod 30 the connecting-rod
 85 30 will be lifted. In the first part of the movement the latch 26 will not be lifted, because of the slot 31; but as soon as the connecting-rod has moved the length of the slot the latch will be lifted by the engagement of the connecting-bar with the pin 32 and with-
 90 drawn from its engagement with the locking projection 23 on the door. During the time that the connecting-rod 30 is traveling from the position shown in Fig. 1 to the end of the slot 31, there being a positive connection, by
 95 means of the connecting-rod 30, the rock-arm 34, the rock-shaft 35, the rock-arm 66, and the connecting-rod 65 with the bell-crank 63, the bell-crank 63 will be rocked so as to raise the horizontal arm thereof and withdraw the lug 68 out of the slot 62 in the
 100 horizontal member *k* of the angle-bar 61 and at the same time will withdraw the wire or rod 70 to actuate an indicator. When the full movement of the connecting-rod 30 has been accomplished and the latch 26 with-
 105 drawn from the locking projection 23 of the door, the firing-pin 9 will throw the door open sufficiently to clear the locking projection 23 from the path of the latch 26, and at the same time this movement of the door
 110 open will bring the imperforate portion of the flange *k* underneath the horizontal member of the bell-crank 63 and the roller 69 thereof will rest upon this flange *k* as the door opens. As soon as the doors are thus
 115 opened the operator moves the lever 55 back to its vertical position, (shown in Fig. 2,) which will withdraw the bell-crank 41 from beneath the roller 43 at the upper end of the connecting-rod 30 and allow that connecting-
 120 rod to drop the length of the slot. It is held from dropping farther by the fact that the bell-crank 63 is now riding upon the flange *k* of the angle-bar 61. This downward movement of the connecting-rod 30 and the latch
 125 26 is sufficient to bring the latch into the path of the locking projection 23, so that if any door of the bank should be closed by the jailer or by the prisoner the latch 26 will en-
 130 gage with the projection 23 and lock that in-

dividual door closed, while the remaining doors of the bank would remain open and unaffected by the operation of the latch. At the same time that the door is closed as the latch 26 drops into its locking position through the connections described the bell-crank 63 will be rocked, and when the slot 62 in the closing movement of the door is brought beneath the lug 68 that lug will drop into the slot.

In case it is desired to hold all the latches 26 in unlocked position the operator has simply to raise the lever 55 and leave it in its raised position, which will hold all the latches 26 out of the path of the locking projection 23. This condition is seldom or never required; but it will be observed that in order to put the latches back into their locking position after they have been unlocked it is only necessary to move the lever 55 back to its vertical position after it has been swung to unlock the doors. The slot 31 in the connecting-rod is necessary so that when the latch is moved back in its locking position, if the door is closed, the latch can lift as the projection 23 passes beneath it and before it enters the notch in that locking projection.

It is desirable or necessary in connection with such a device as this that each cell-door should have means for unlocking it independently of the gang-unlocking device, which in this case is described as the lever 55. I have shown means for unlocking the individual-cell doors, comprising the cam-block 78, secured to the rock-shaft 79, which is provided with a suitable handle 80 and an ordinary key-lock 81, having a bolt 82, adapted to engage a socket or recess in the cam-block 78. When it is desired to unlock an individual cell without operating the gang-bar 47, the jailer being provided with a suitable key withdraws the bolt 82, then grasping the handle rotates the cam-block 78, which is provided with a suitable surface to strike the under surface of the latch and raise the latch out of engagement with the locking projection 23. This unlocking movement of the latch 26 by the handle 80 will lift the connecting-rod 30 and through the connections described will likewise rock the bell-crank 63, and thus operate the indicator, if such is employed. When unlocked, the firing-pin 9 will move the door to its open position.

If it is desired to provide the device with a so-called "dead-lock," I provide the door with a second locking projection 85, with which the bolt 86 in the key-lock 87 is adapted to engage. This key-lock is provided with suitable locking mechanism for operating the bolt 86 and moving it into and out of engagement with the locking projection 85 on the door, and when thus engaged it is obvious that the operation of the lock 26 will not unlock the door, for the dead-lock will be in engagement therewith. Thus in case one cell

of the bank is desired to be dead-locked it can be so arranged without in any way affecting the unlocking of all the other cells of that bank by means of the gang-bar 47.

In case a prisoner should saw through the locking projections 23 and 85 and attempt to open the door it is obvious that it could not be opened if the lug 68 on the bell-crank 63 were in the slot 62, and in that event this bell-crank will act as an auxiliary or emergency lock for the door, as the lug 68 has a square shoulder, as shown in the drawings, for engagement with the edge of the slot 62. With this construction, therefore, if the ordinary locking devices are entirely removed—*i. e.*, the parts 23 and 85—the supplementary lock will be in position which can only be operated through the rock-arm 63 and the operating-lever 55.

What I claim as my invention is—

1. The combination of a door, having latch-engaging means thereon, a latch therefor, a supplemental lock and a pair of independently-operable means each operating both the supplemental lock and the latch, for the purpose described.

2. The combination with a door and a latch for locking the door of a member carried by said door and means operated thereby for holding said latch in unlocked position when said door is open and permitting said latch to fall into its locked position when said door is closed.

3. The combination with a door and a frame, of a member carried by said door and means pivoted on said frame comprising an antifriction-roller for engaging said member when said door is open, and a projection for interlocking with said member when the door is closed.

4. In a jail mechanism, the combination of the door, the locking projection thereon, the locking-latch therefor, the connecting-rod 30, having a slotted or lost-motion connection with the latch, and an operating device for reciprocating the connecting-rod, as and for the purpose described.

5. The combination of a cell-door, a flange thereon having the aperture 62, the bell-crank lever 63, above the flange, having a lug 68 adapted to engage the aperture and means for rocking said bell-crank lever.

6. The combination with a door, of a latch therefor, means for unlocking said latch, a supplemental lock at the top of said door and connections between said supplemental lock and said unlocking means, substantially as described.

7. The combination with a door, of a latch and a supplemental lock acting upon different parts of said door and a common means for actuating said latch and said supplemental lock for the purpose described.

8. The combination with a door, of a latch and a supplemental lock for said door, a com-

mon means for actuating said latch and said supplemental lock, independently-adjustable connections between said means and said latch and lock, for the purpose described.

- 5 9. The combination with a door, of a latch and a supplemental lock for said door, connections between said latch and lock, means for engaging said connections to operate both latch and lock, and means arranged to en-

gage with said latch to operate the same and 10 to operate said lock through said connections.

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

WILLIAM R. KALES.

Witnesses:

AMELIA WILLIAMS,
JAMES P. BARRY.