

J. H. VAN DORN.
CELL DOOR LOCKING MECHANISM.
APPLICATION FILED JAN. 10, 1907.

981,037.

Patented Jan. 10, 1911.

2 SHEETS—SHEET 1.

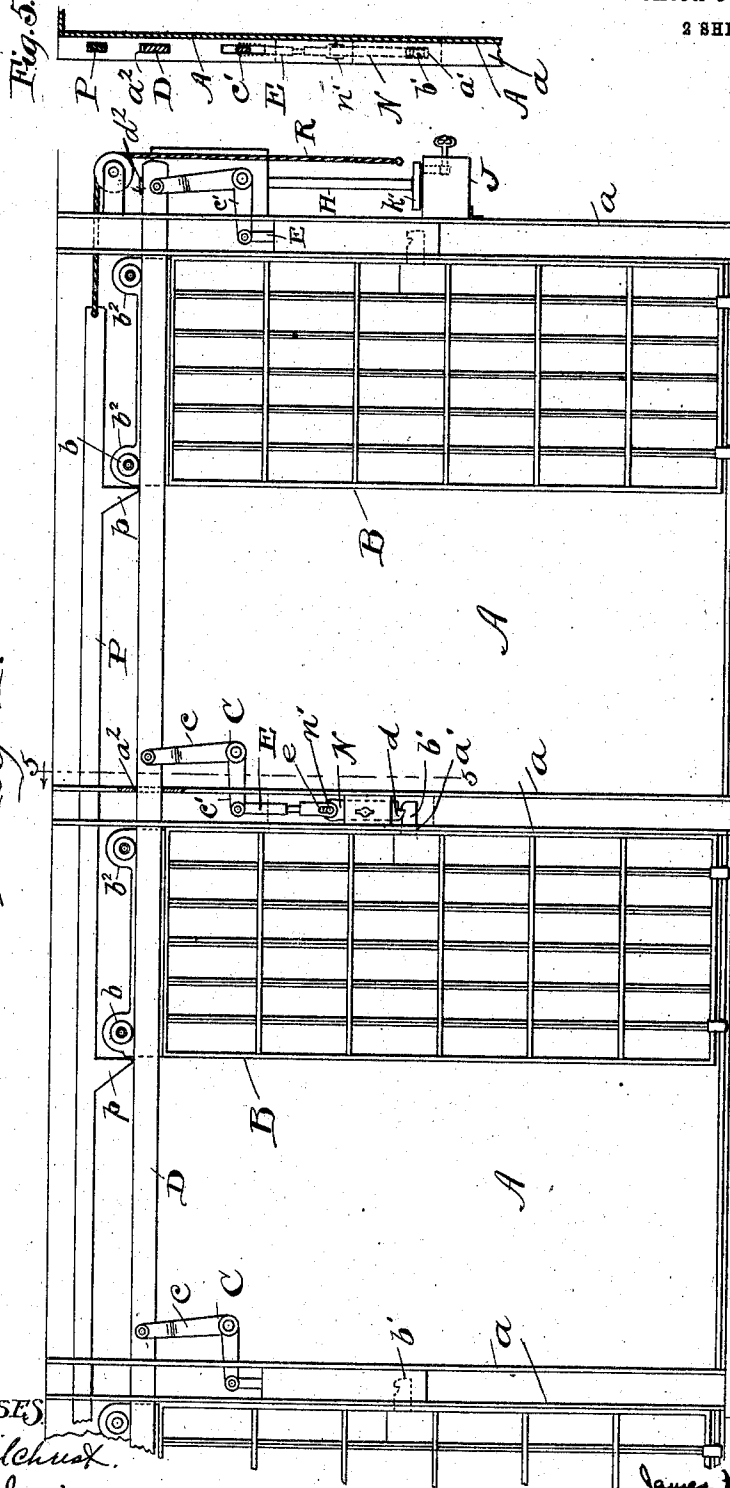


Fig. 1.

WITNESSES

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H. R. Sullivan

INVENTOR

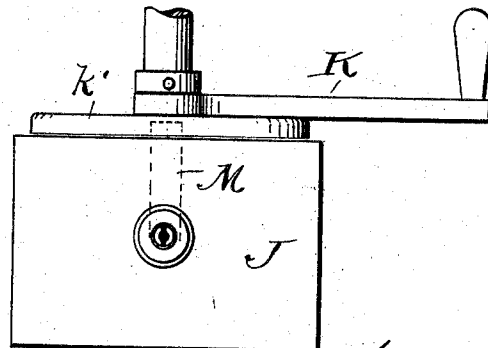
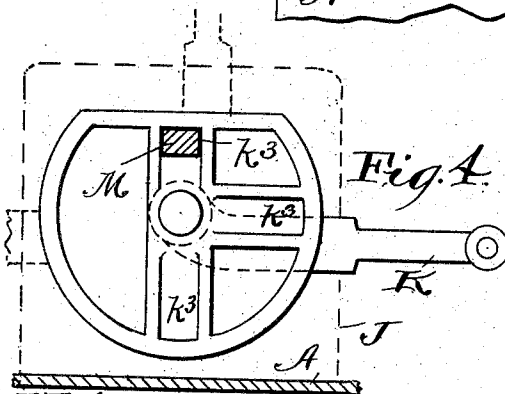
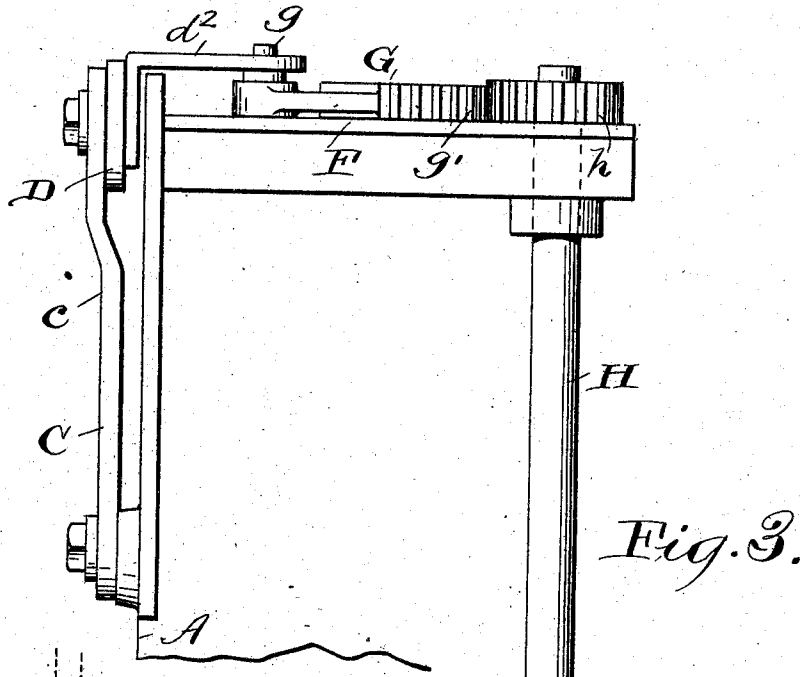
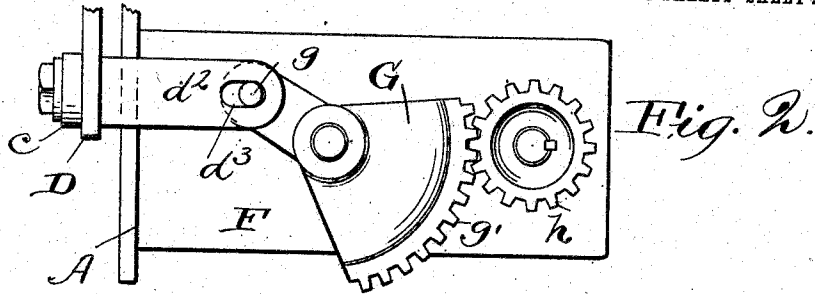
James H. Van Dorn
by
Thurston Rendall

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2 SHEETS—SHEET 2.



Witnesses:
E. B. Gilchrist
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UNITED STATES PATENT OFFICE.

JAMES H. VAN DORN, OF CLEVELAND, OHIO, ASSIGNOR TO THE VAN DORN IRON WORKS COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

CELL-DOOR-LOCKING MECHANISM.

981,037.

Specification of Letters Patent. Patented Jan. 10, 1911.

Application filed January 10, 1907. Serial No. 351,666.

To all whom it may concern:

Be it known that I, JAMES H. VAN DORN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Cell-Door-Locking Mechanism, of which the following is a full, clear, and exact description.

It is ordinary in jail construction to arrange the cells in rows or tiers, and to provide each door with a lock, usually and preferably a spring lock, which, when a cell door is shut, will automatically lock the same, but which is capable of being unlocked by a key. It is also customary to provide mechanism whereby all of the doors in a tier may be simultaneously unlocked or released from restraint, so that they may act as described,—said means being commonly operable from a station, at the end of the tier, to which prisoners do not have access. Moreover, it usually is possible to separately dead-lock the various locks by means of keys. This, however, is an inconvenient way of doing it; and, which is of more importance, it is not always an effective way, because prisoners very frequently find a way of opening key-controlled locks, provided they can get access thereto.

This invention has for its primary object the provision of means, associated with a tier of cells, whereby all the locks of the cells in that tier may be simultaneously dead-locked,—said means being additionally of such character that they may be operated from a station to which prisoners do not have access, and may be there locked in any of the various positions.

Another object is to so combine the dead locking mechanism with means for locking and unlocking all of the locks of a tier of cells, so that a single operative device controls all of said operations.

Another desirable characteristic of the construction shown is that a part of the lock controlling mechanism is utilized to support the sliding cell doors.

The invention may be here summarized as consisting of the combinations of parts hereinafter described and pointed out definitely in the claims.

In the drawings, Figure 1 is a front view of two (and part of the third) cells of a tier. Fig. 2 is a top plan view of the mechanism at the end of said tier by which the locks of

all of the cell doors may be operated. Fig. 3 is an end elevation of said mechanism; Fig. 4 is a bottom plan of the lock box associated with the mechanism shown in Figs. 2 and 3; and Fig. 5 is a small sectional side view in the plane of line 5—5 on Fig. 1.

Referring to the parts by letters, A represents the front wall of a tier of cells.

B B represent sliding cell doors. Each of these doors is for closing a door opening through said wall; and is provided at its upper end with hanger plates b^2 carrying a pair of rollers b which ride on the top of a horizontal bar D. This bar is located above said door openings, and extends from one end of the row of cells to the other, and is parallel with the said front wall. This bar is pivoted to the upper ends of a plurality of lever arms c , which are pivoted to said front wall; wherefore the bar may move endwise when said lever arms are rocked. Projecting forward from said front wall are the vertical flanges a , a ,—two of which are associated with each cell door, and are located close to that vertical edge of the door opening toward which the door moves in the closing. Between each pair of these flanges a , a vertically movable self closing latch bolt N is mounted,—said bolt having on its lower end a beveled catch d of the usual form. Each cell door has secured to its edge a locking bar b' , which, when the door is closed, passes through a vertical slot a' in one of the flanges a into locking engagement with said latch bolt. To the upper end of each of these latch bolts a pin n' is secured, which pin goes through a vertical slot e in an adjustable link E, the upper end of said link being pivotally connected with the horizontal arm c' of a bell crank lever C,—the vertical arm c of which serves, as before explained, as one of the supports of the bar D. This bar D also passes through vertical slots a^2 in all of the flanges a . It is evident that if this bar D be moved to the right, as shown in Fig. 1, it will rock all of these bell crank levers C, and thereby all of the latch bolts N will be lifted out of engagement with the lock bars on the doors. If this bar be moved a suitable distance to the left, all of these spring latch bolts will be permitted to descend for engagement with the lock bars on the several doors. This latch N may be the latch of any suitably constructed key-operated lock, which lock is

conventionally shown in the drawing. When, however, it is desired to dead lock all of the cell doors, the bar D is moved still farther to the left. The result will be that the links E will move down until the upper ends of their slots *e* come in contact with the pins *n'* on the latch bolts N. These bolts are therefore dead locked. That is to say, it is impossible to move either of them in the unlocking direction without first moving the bar D to the right so as to permit the latch bolts to be severally raised. The bar D extends slightly beyond the end cell of the tier, and is provided on said projecting end with a rigidly attached rearwardly extended arm *d*² in which there is a slot *d*³. This slot receives a pin *g* on one arm of a rocker G pivoted on a vertical pivot to a horizontal plate F secured to the end of the end cell of the tier,—this rocker having on one arm a gear segment *g'* which is engaged by a pinion *h*. This pinion is secured to the top of a vertical shaft H, the lower end of which is mounted in a lock box J. It has secured to it, just above said box, a handle K by means of which it may be turned, and a plate *k'* in which are three bolt holes or slots *k*³ which are adapted to receive the upper end of the bolt M shown in dotted lines of a lock which is inclosed in said box,—this box being secured to the end wall of the end cell below this shaft. The bolt may be the bolt of any suitable sort of a lock, such, for example, as are in common use in jail construction,—that is to say, a lock capable of being operated by a key.

A longitudinally movable bar P is a desirable adjunct to the described mechanism. It is parallel to and located above bar D, and is slidable lengthwise through slots in the vertical flanges *a*. On this bar are the downwardly extended fingers *p* which are severally adapted to engage with the upper ends of the doors, so that all of the doors will be closed when said bar P is moved far enough to the right. Some means, as a rope R may be secured to said bar P and may be carried to the end of the tier of cells so that the attendant who operates the bar D and its associated mechanism may also operate it. No means are shown and none are required for moving bar P in the contrary direction, because when any cell door is opened, it will so move said bar.

Having described my invention, I claim:
1. The combination of a row of cells, their doors, and vertically movable locking bolts

which are severally associated with the cell doors, bell crank levers which are severally associated with said locking bolts, an adjustable link connection between one arm of each lever and the associated locking bolt, a horizontal bar pivotally connected with the substantially vertical arms of all of said bell crank levers, door hangers secured to the several doors, and wheels mounted in said hangers riding upon said bar, and means for moving said bar endwise.

2. In a prison-door locking mechanism, the combination of a series of cells with door openings on a common corridor, a pair of vertical parallel flanges projecting from the wall on the jamb side of each door opening, an endwise-reciprocable bar extending above all of the doors of the series and passing through guide apertures in said flanges, a door for each cell supported at its top and independently slidable on said reciprocable bar, a hooked lug on the door adapted to pass through an aperture in one of said vertical flanges, a vertically movable bolt mounted between said flanges and adapted to engage the said hooked lug, a cross pin on said bolt and a bell crank lever, the horizontal arm of which passes through a guide slot in one of said vertical flanges and has a slot connection with the pin on said bolt whereby the bolt may be raised independently of the lever arm, the upright arm of said lever being pivotally connected to the reciprocal bar, with means for reciprocating said bar, and means for locking it against movement.

3. The combination of a row of cells, their doors, and locking bolts, individual mechanisms for locking said bolts, a horizontally movable bar operatively connected with all of said locking mechanisms, which bar extends beyond the row of cells, an operating device for moving said bar, comprising a horizontal lever pivotally connected at one end to the bar and having a geared segment formed at its other end, a pinion engaging said segment, and a vertical shaft carrying said pinion, with means for locking said shaft in any one of three several positions against rotation.

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

JAMES H. VAN DORN.

Witnesses:

E. B. GILCHRIST,
H. R. SULLIVAN.