

No. 801,356.

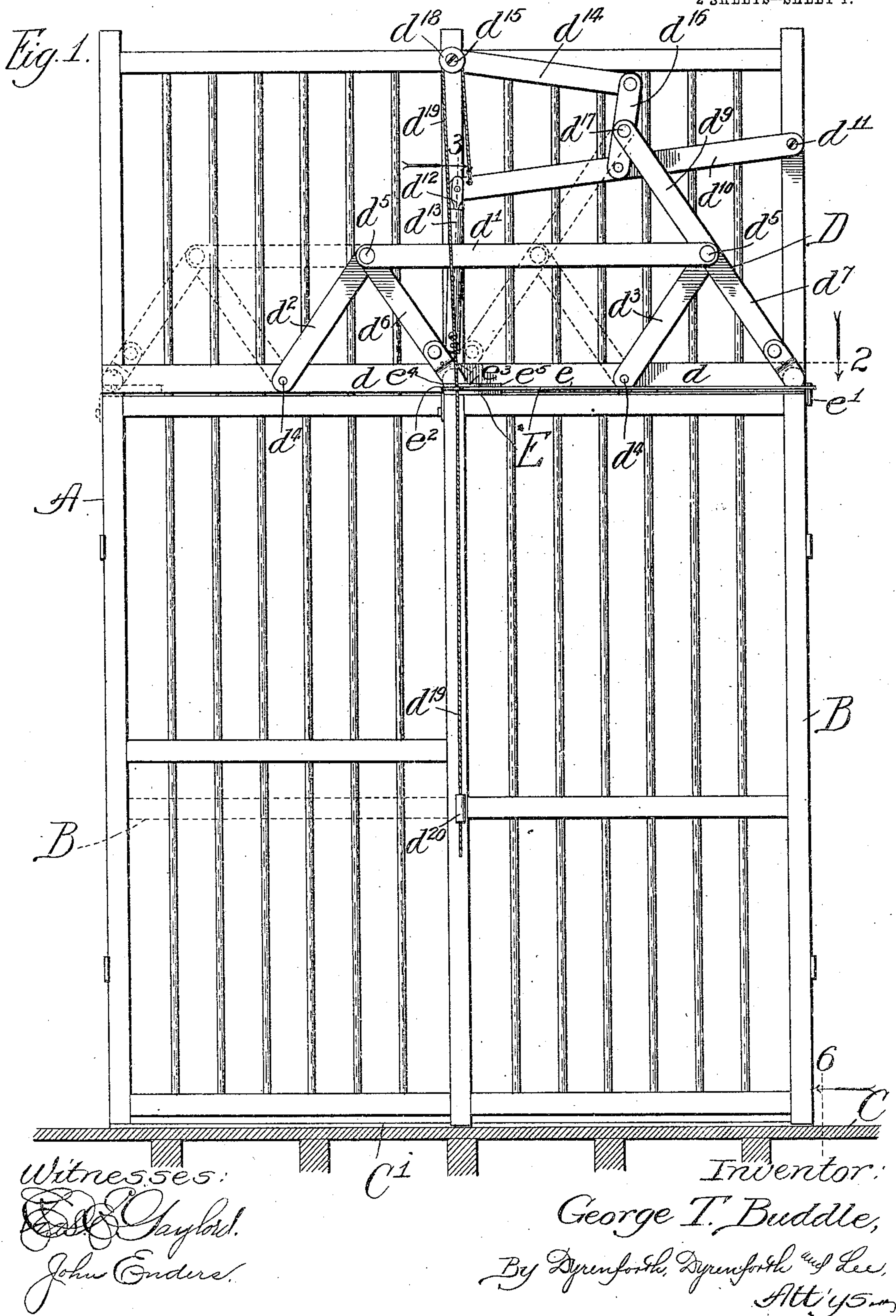
PATENTED OCT. 10, 1905.

G. T. BUDDLE.

DOOR.

APPLICATION FILED MAR. 15, 1905.

2 SHEETS--SHEET 1.

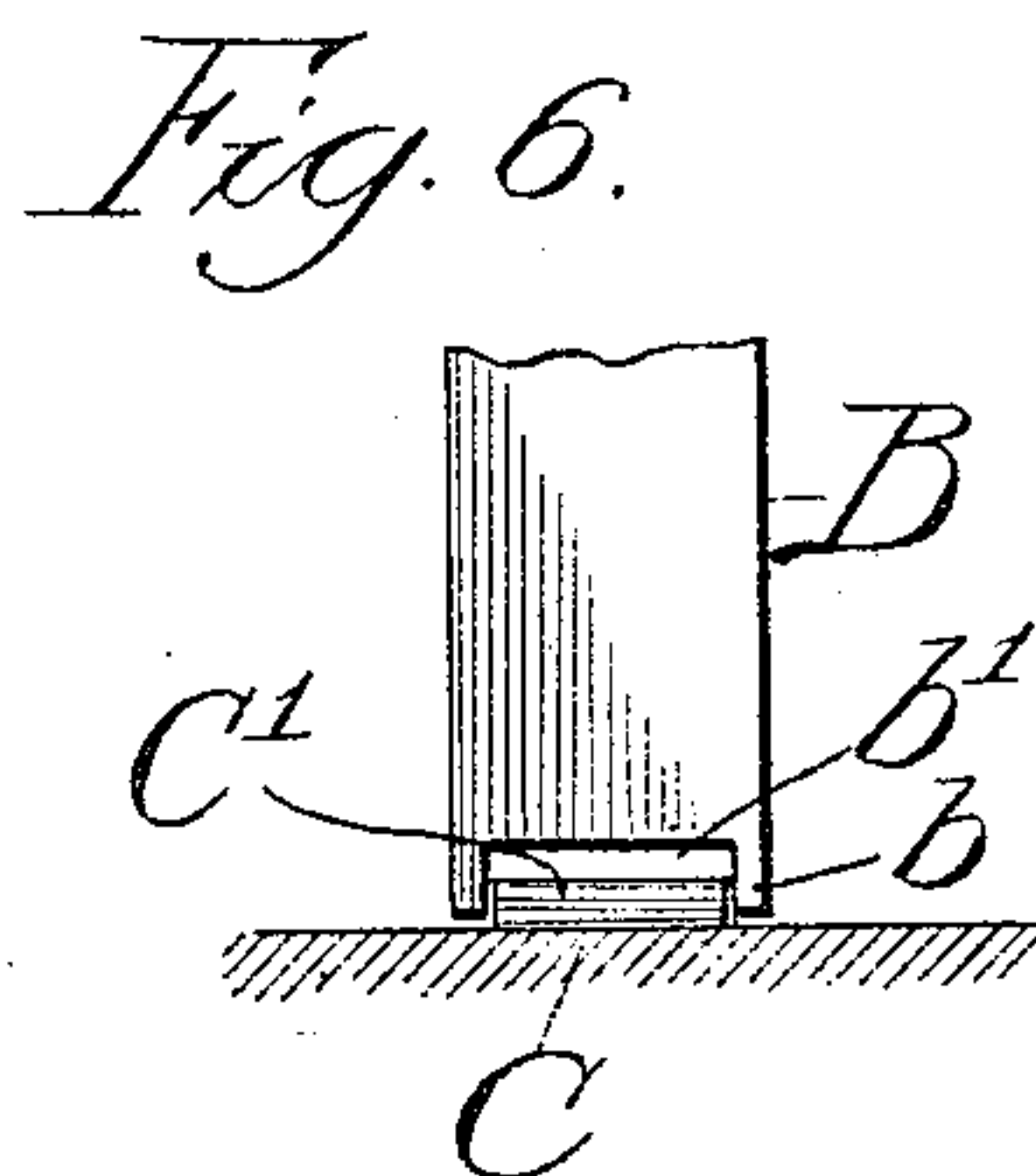
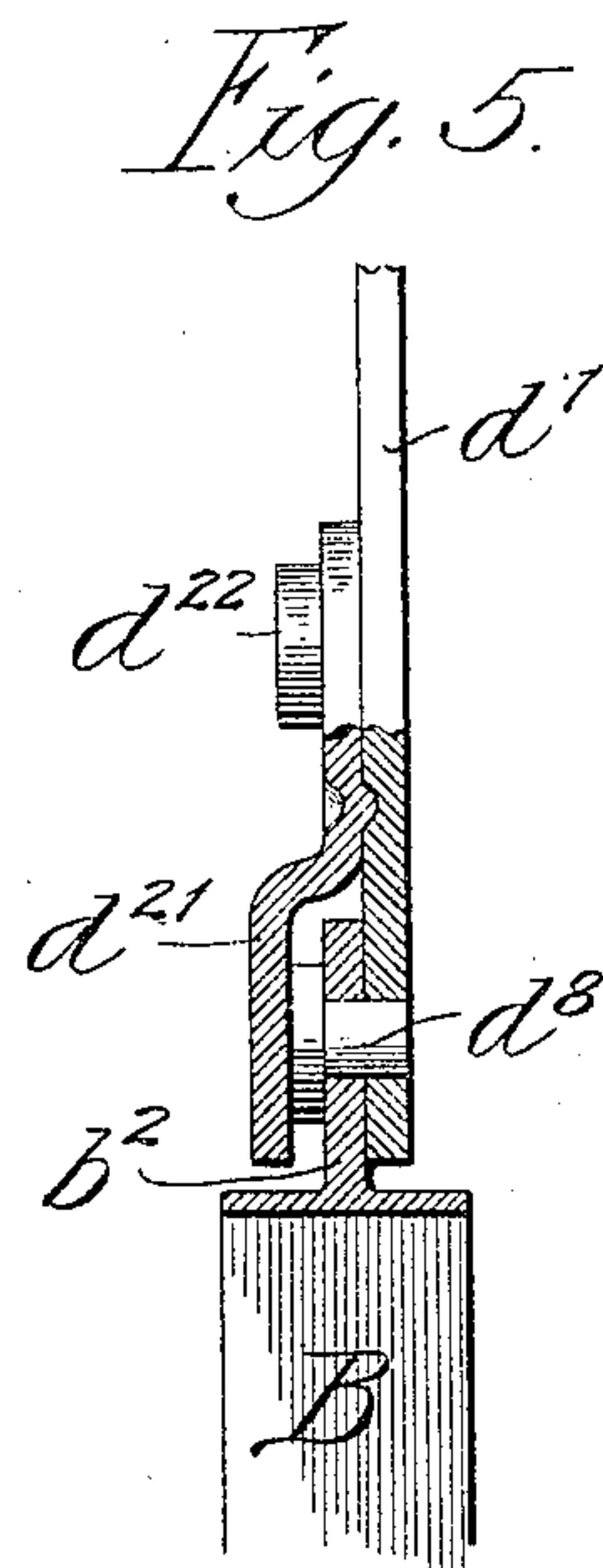
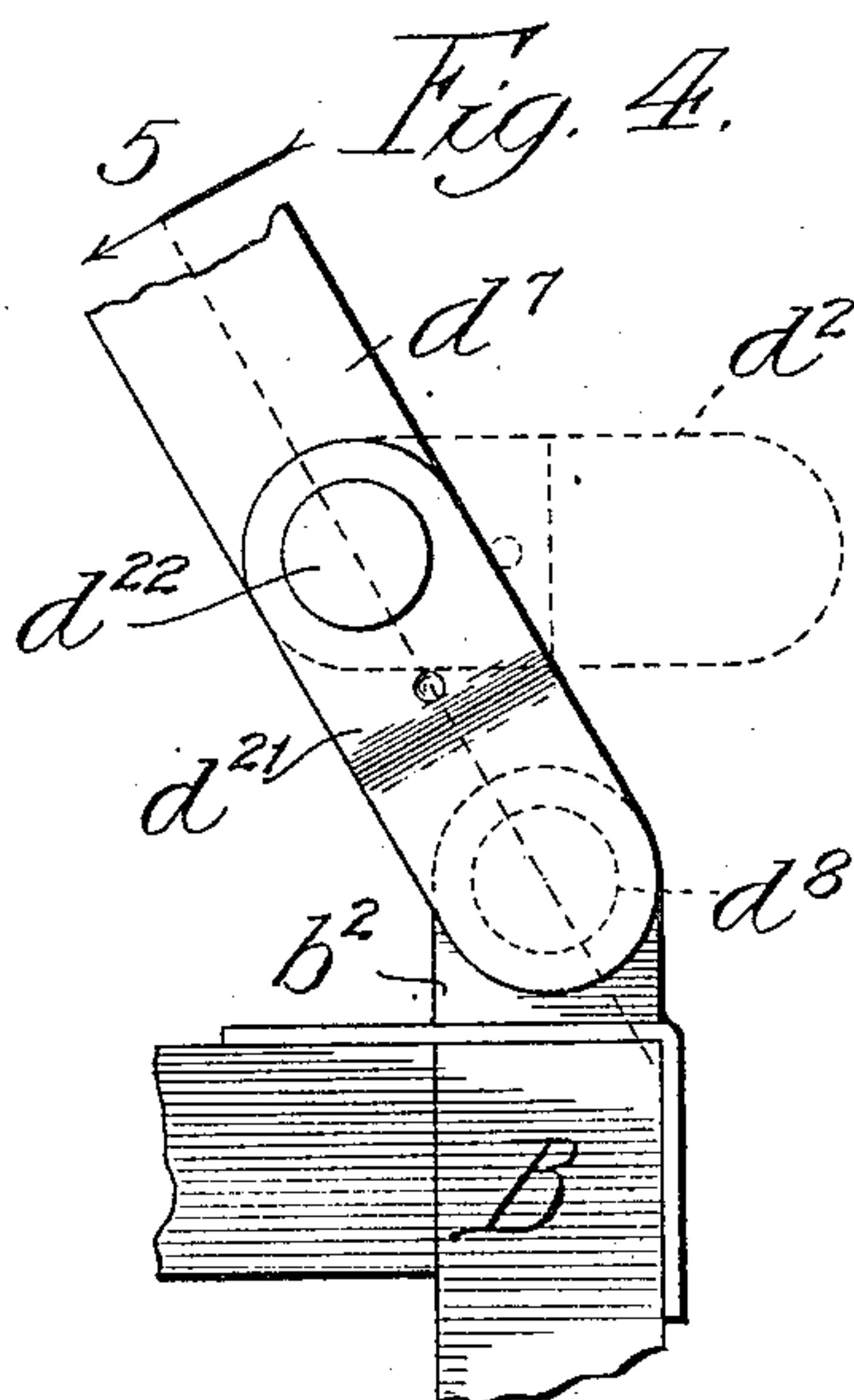
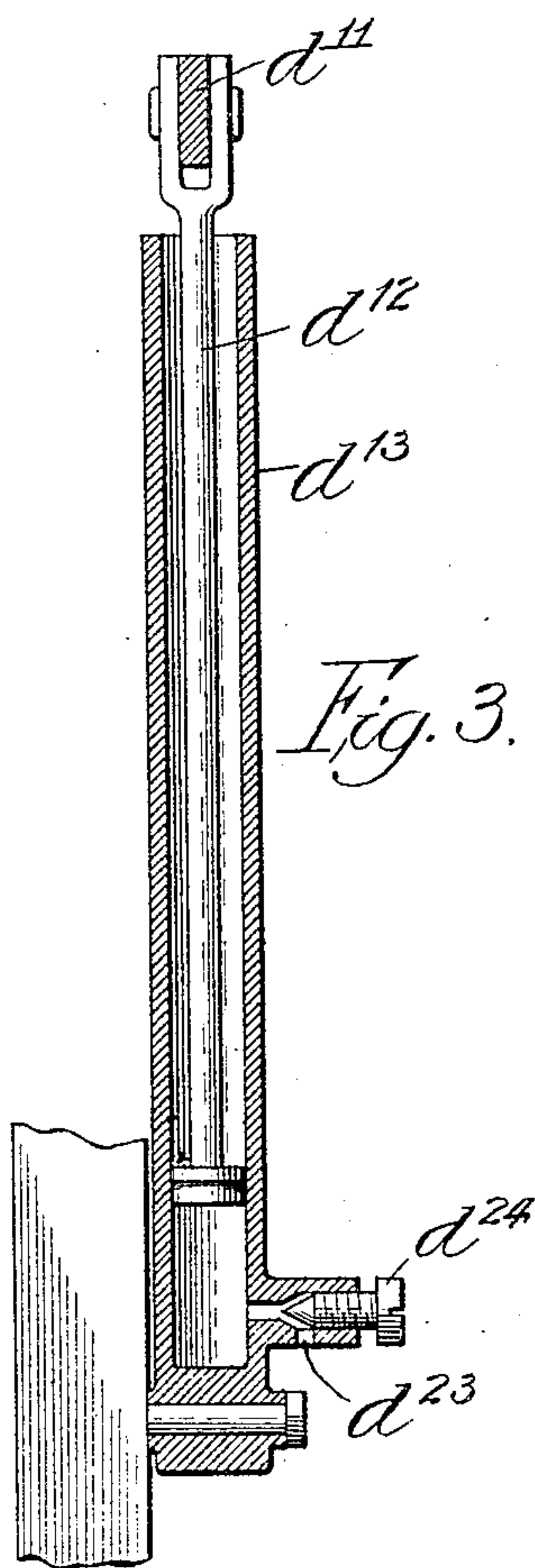
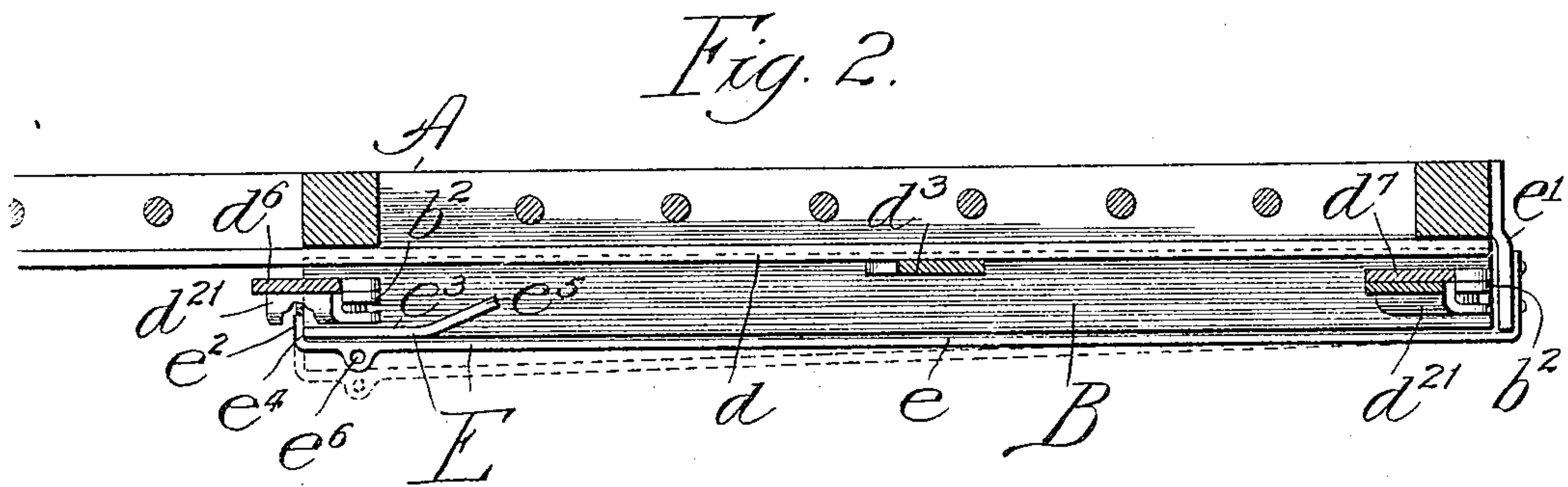


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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

GEORGE T. BUDDLE, OF CHICAGO, ILLINOIS.

## DOOR.

No. 801,356.

Specification of Letters Patent.

Patented Oct. 10, 1905.

Application filed March 15, 1905. Serial No. 250,200.

*To all whom it may concern:*

Be it known that I, GEORGE T. BUDDLE, a citizen of the United States, residing at 1087 Kimball avenue, Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Doors, of which the following is a specification.

My invention relates particularly to doors for elevator-shafts; and my primary object is to provide a door of simple construction which may be very easily actuated and which will be automatically locked when the door is closed, the locking being inaccessible except from within the elevator-cage.

The invention is illustrated in its preferred embodiment in the accompanying drawings, in which—

Figure 1 represents an inner view of a portion of an elevator-shaft with my improved door applied thereto; Fig. 2, a plan section taken as indicated at line 2 of Fig. 1; Fig. 3, a vertical section taken as indicated at line 3 of Fig. 1; Fig. 4, a broken view showing a connection between the elevator-door and one of the links which supports it; Fig. 5, a broken section taken as indicated at line 5 of Fig. 4, and Fig. 6 a broken section taken as indicated at line 6 of Fig. 1.

In the construction shown, A represents a portion of the grating or frame of an elevator-shaft; B, a door connected with the same; C, a portion of the floor adjacent to the elevator-shaft which is equipped with a door-guide C', with which the lower end of the door is slidably connected; D, the mechanism serving for suspending and actuating the door, and E a locking device for the door.

The door is provided at its lower end with depending projections  $b$ , having grooves  $b'$ , engaged by the guide C', and at the upper end of the door are provided lugs  $b^2$ , through the medium of which the door is suspended.

The mechanism D comprises a fixed horizontal member  $d$ , virtually forming a part of the framing of the elevator-shaft; a link  $d'$ , parallel with the member  $d$ ; parallel links  $d^2$   $d^3$ , joined by pivots  $d^4$  to the member  $d$  and by pivots  $d^5$  to the link  $d'$ ; parallel links  $d^6$   $d^7$ , connected with the pivots  $d^5$  and having their lower ends joined by pivots  $d^8$  to the lugs  $b^2$  of the gate, the link  $d^7$  having an extension  $d^9$  at its upper end; an actuating-lever  $d^{10}$ , joined at one end by a pivot  $d^{11}$  to the frame of the shaft and equipped at the other end with a plunger  $d^{12}$ , working in a vertical cylinder  $d^{13}$ , attached to the frame of the shaft;

a link  $d^{14}$ , having one end joined by a pivot  $d^{15}$  to the frame of the shaft and the opposite end connected by a link  $d^{16}$  with the central portion of the lever  $d^{10}$ , the upper end of the extension  $d^9$  of the link  $d^7$  being joined by a pivot  $d^{17}$  with the central portion of the link  $d^{16}$ , and a pulley  $d^{18}$ , journaled on a pivot  $d^{15}$  and receiving a cable  $d^{19}$ , having one end attached to the lever  $d^{10}$  adjacent to the plunger  $d^{12}$  and having a depending end equipped with a hand-piece  $d^{20}$ . Normally the links  $d^6$   $d^7$  incline in one direction and the links  $d^2$   $d^3$  in the other direction, forming inverted V's, as shown. As shown in Fig. 5, the pivots  $d^8$  enter perforations in the members which they connect and are provided with heads engaged by locking members  $d^{21}$ , joined by pivots  $d^{22}$  to the links. The locking members are capable of being swung from their normal position, as indicated by the dotted lines in Fig. 4, to enable the pivots  $d^8$  to be withdrawn and the door detached. A similar expedient may be employed for securing the pivots at any of the connections shown. The cylinder  $d^{13}$  is an air-cylinder having a vent-passage  $d^{23}$  at its lower end controlled by an adjustable valve  $d^{24}$ .

The locking device E comprises a resilient rod  $e$ , having one end firmly secured to a member  $e'$ , which projects inwardly from the frame of the shaft at the opening edge of the door, said rod extending across the door and having an outwardly-turned end  $e^2$ , affording a locking-shoulder, and a locking member  $e^3$ , attached to the rear margin of the door and having a locking-shoulder  $e^4$  at its rear end. The opposite end of the member  $e^3$  is bent to an oblique position to afford a cam  $e^5$ . The free end portion of the member  $e$  is provided with a perforation  $e^6$ , through which the cable or flexible member  $d^{19}$  passes.

The operation is simple. The operator in the elevator-cage, through the medium of the cable  $d^{19}$ , releases the lock of the gate and then raises the free end of the lever  $d^{10}$ , thereby exerting a pull upon the link extension  $d^9$ , which operates to turn the links  $d^2$   $d^3$  about their stationary pivotal supports  $d^4$ , the links  $d^6$   $d^7$  operating at the same time by a parallel link movement to carry the gate to the open position. (Shown by dotted lines in Fig. 1.) It may be stated that after the links  $d^2$   $d^3$  have swung past the vertical position both the momentum and the weight of the gate tend to complete the movement. The connection  $d^{17}$  is approximately in line with the



median vertical line of the gate, so that the actuating mechanism evidently will work in either direction. When the gate is thrown to the closed position, the latch rides upon the cam  $e^5$  and automatically locks the gate. In the unlocking operation it is necessary to draw the cord inwardly away from the gate somewhat. This can only be accomplished from the elevator-cage, which is an important consideration. The connection between the lower end of the gate and its guide is such as to prevent lateral motion only of the gate—that is, motion perpendicular to the plane of the gate. The purpose of the pneumatic check on the gate-actuating mechanism is to prevent too sudden stoppage of the gate with consequent shock and noise.

As will be appreciated, the improved door is capable of being quickly, easily, and certainly operated, and effectual automatic locking of the door in the closed position is accomplished.

What I regard as new, and desire to secure by Letters Patent, is—

1. The combination of a door, a pair of parallel links having their lower ends supported on stationary pivots above the door, a horizontal link, a pair of parallel links having pivotal connection at their lower ends with the upper portion of the door, a pivot connecting each end of said horizontal link with the upper end of one member of each of said pairs of parallel links, an actuating-lever working in a plane parallel with said links and connected with one of said links, and flexible lever-actuating means depending at a side of the door, for the purpose set forth.

2. The combination with a door of a pair of parallel links supported on stationary supports and a pair of parallel links connected with the first-named links and with the upper portion of the door, a link joining the upper

portions of said pairs of links, an extension on one of the links and actuating means connected with said extension, for the purpose set forth.

3. The combination with a door of a pair of parallel links supported on stationary supports and a pair of parallel links connected with the first-named links and with the upper portion of the door, a link joining the upper portions of said pairs of links, an extension on one of the links, an actuating-lever, connections between said lever and said extension and a flexible member connected with the actuating-lever and extending to a position accessible to the operator, for the purpose set forth.

4. In combination with the frame of an elevator-shaft, a door, link mechanism above said door serving to support and actuate the door, a lock connected with the upper portion of the door, a link-actuating lever, a cable connected therewith and depending therefrom at the inner side of the door, and connection between said cable and lock, whereby the cable serves both to unlock and then actuate the door, for the purpose set forth.

5. The combination with the frame of an elevator-shaft of a door, means for supporting and actuating the door, including a flexible member depending at the inner side of the door and a lock comprising a resilient horizontally-disposed member equipped with a locking-shoulder, and a stationary locking member provided with a cam-surface, the resilient locking member having connection with said flexible member for the purpose specified.

GEORGE T. BUDDLE.

In presence of—

J. H. LANDES,  
J. H. LEE.