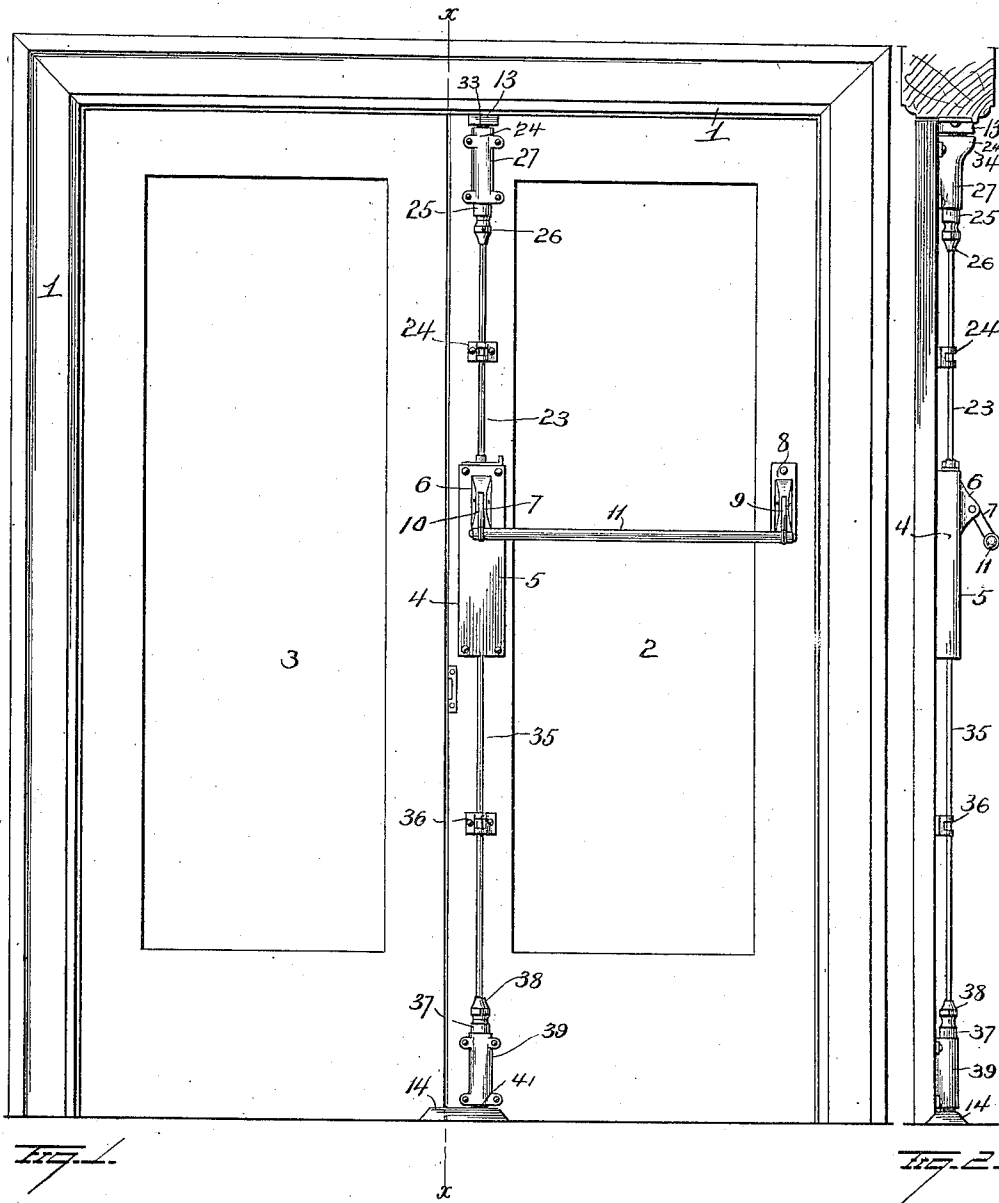


C. J. ERICSON.
 LOCKING MECHANISM FOR DOORS.
 APPLICATION FILED NOV. 15, 1911.

1,014,960.

Patented Jan. 16, 1912.

2 SHEETS—SHEET 1.



WITNESSES
E. Nottingham
G. J. Downing

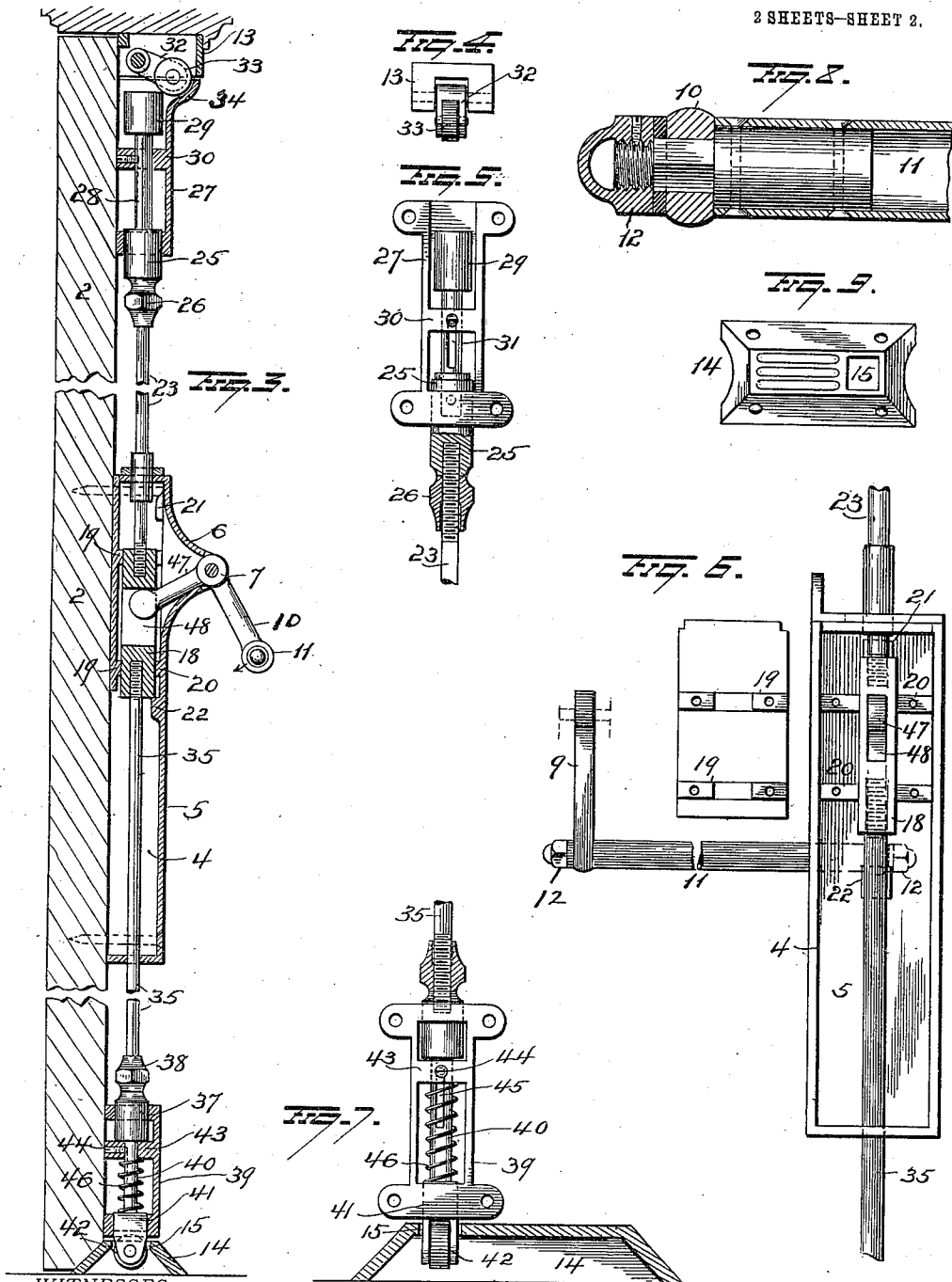
INVENTOR
C. J. Ericson
D. H. Seymour
 Attorney

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2 SHEETS—SHEET 2.



WITNESSES
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UNITED STATES PATENT OFFICE.

CHARLES JOS. ERICSON, OF SALT LAKE CITY, UTAH.

LOCKING MECHANISM FOR DOORS.

1,014,960.

Specification of Letters Patent.

Patented Jan. 16, 1912.

Application filed November 15, 1911. Serial No. 660,365.

To all whom it may concern:

Be it known that I, CHARLES J. ERICSON, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented certain new and useful Improvements in Locking Mechanism for Doors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in locking mechanism for doors and more particularly to devices of the type disclosed in Letters-Patent granted to me on the 3rd. day of January 1911 and designated by Number 980,229.

One object of my present invention is to simplify, improve and cheapen the construction of door locking mechanism such as disclosed in my said patent.

A further object is to provide simple and efficient means for connecting the operating bar with the vertical rod which controls the locking means.

A further object is to so construct the devices that they shall be reversible and be thus made applicable to either of two co-acting doors.

With these and other objects in view, the invention consists in certain novel features of construction and combinations of parts as hereinafter described and pointed out in the claims.

In the accompanying drawings, Figure 1 is an elevation of two doors showing the application of my improvements. Fig. 2 is a longitudinal sectional view on the line $x-x$ of Fig. 1. Fig. 3 is a view in vertical section taken through the casing 4 and Figs. 4, 5, 6, 7, 8 and 9 are detail views.

1 represents a portion of a door frame and 2-3 the doors therein. The meeting edges of the doors may be beveled so that the locking of one of the doors will suffice to lock both.

A casing 4 is secured to the door 2, near its free edge and approximately midway between its ends. The cover 5 of this casing is made with a hollow enlargement 6 in which a bell-crank 7 is pivotally supported. A bracket 8 is secured to the door 2 in proximity to the hinged edge thereof and in this bracket, one end of a link 9 is pivotally connected. The link 9 and the arm 10 of the bell-crank 7 are connected by an oper-

ating bar 11 and the latter is provided at its respective ends with shanks which project through openings in said link 9 and arm 10 and said shanks are threaded at their free ends to receive nuts 12 which serve to properly hold the bar 11 to the arms 9 and 10.

A hollow bracket 13 is secured to the door frame at the top thereof and depends therefrom in position to form an abutment for the upper end of the door,—an abutment for the bottom of the door being provided by means of a strike plate 14, the latter serving as an abutment for both doors and this strike plate is made with a socket 15 to receive a bolt 41, as will be more fully hereinafter explained. It will be observed that the strike plate is of such construction that it is reversible so that the socket therein may be located at the lower edge of either of the two doors. The casing 4 and all the mechanism (hereinafter described) associated therewith can be placed on either of the doors. Should it be desired, for instance to remove the locking mechanism from the door 2 and apply it to the door 3, the casing 4, the locking devices and the parts 13 and 14 could be transferred without alteration. In order to adapt the operating bar 11 to the changed position it would be necessary to disconnect it from the link 9 and arm 10 and then again connect these parts after the bracket 8 has been secured to the door 3. The mechanism is therefore adaptable to either a right or left hand door and is reversible.

Within the casing 4, a slide 18 is located and guided between lugs 19 in the casing and lugs 20 projecting inwardly from the cover 5 of the casing. Longitudinal movement of this slide is limited by lugs 21-22 secured within the casing. The lower end of a rod 23 passes through the upper end of the casing 4 and is firmly secured to the upper end of the slide 18. The rod 23 passes through a guide 24 secured to the door and at its upper end, said rod 23 is screwed into a sleeve 25 and secured to the latter by a jam nut 26. The sleeve 25 is movable in the lower end of a casing 27 and carries the upwardly projecting shank provided at its upper end with a plunger 29. The casing 27 is provided with a perforated lug 30 which forms a guide for the shank 28 and this lug is made with a threaded opening for the reception of a pin which enters an elongated

slot 31 in said shank 28 and limits the movement of the latter on the parts connected therewith. A latch 32 is pivotally supported in the hollow bracket 13 and is provided in its free end with a roller 33 to engage the inner face of a lip 34 at the upper end of the casing 27, and in this manner the upper edge of the door is locked to the upper portion of the frame.

A rod 35 passes through the lower end of the casing 4 and is secured at its upper end to the slide 18. This rod extends downwardly and, after passing through a guide 36 secured to the door, is screwed at its lower end into the upper end of a sleeve 37,—locked engagement between the rod 35 and the sleeve 37 being insured by means of a jam nut 38. The sleeve 37 is movable in the upper portion of a casing 39 secured at the lower portion of the door and said sleeve has secured thereto, the upper end of the shank 40 of a bolt 41,—the latter being movable through the lower end of said casing and is provided at its lower end with a roller 42 which enters the socket in the strike plate 14. It will be observed that this strike plate is made with beveled edges so that when the door is moved to a closed position, the roller 42 of the bolt 41 will ride easily onto said strike plate and readily enter the socket therein. The shank 40 of the bolt 41 is guided through a perforated lug 43 within the casing 39 and movement of said shank is limited by means of a pin 44 passing through a wall of the lug 43 and entering a slot 45 in said shank 40. A spring 46 encircles the shank 40 between the lug 43 and the bolt head 41,—said spring serving, in addition to the weight of the rods 23 and 35 and the parts connected with said rods, to normally insure the engagement of the locking bolts 32 and 41 with the bracket 33 on the door and the strike plate 14 respectively.

It has been hereinbefore explained that the operating bar 11 is connected at one end with one arm of a bell-crank lever 7. The other arm, 47, of this bell-crank lever enters an elongated slot 48 in the slide 18 and its normal position therein is approximately at the upper end of said slot 48, so that upward movement of the operating bar 11 will cause the arm 47 of the bell-crank to move in the slot 48 of the slide without affecting the locking devices. When however, the operating bar 11 is pressed inwardly toward the door from the position shown in full lines, Fig. 2, the slide 18 will be caused to move upwardly, thus affecting longitudinal movement of both rods 23 and 35 simultaneously. Upward movement of the rod 23 will cause the plunger 34 to raise the latch 32 out of alinement with the upper edge of the lip 34 of casing 27 and thus unlock or unlatch the upper edge of

the door. The simultaneous upward movement of the rod 35, with rod 23, will operate to withdraw the bolt 41 from the socket in the strike plate 14 and thus the lower edge of the door will be unlocked. The door will now be free to be swung on its hinges,—such opening of the door being effected by continued pressure against the operating bar 11.

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

1. In locking mechanism for doors, the combination with a casing to be secured to the door and locking devices at the top and bottom of the door, of a slotted slide within said casing, rods rigidly secured to the respective ends of said slide and connected respectively with the locking devices at the upper and lower ends of the door, a bell-crank mounted on said casing and having a free, loose connection with the slide whereby the inner member of the bell-crank may be depressed without hindrance from and without actuating said slide, and an operating bar connected at one end with said bell-crank and pivotally connected at its opposite end to the door.

2. In locking mechanism for doors, the combination with a casing to be secured to the door and locking devices to be located at the upper and lower ends of the door, of a slide movable in said casing and having an elongated slot, a bell-crank mounted on the casing and having one arm entering said elongated slot of the slide but disconnected from the latter, an operating bar attached at one end to the other arm of said bell-crank, a pivoted link supporting the other end of the operating bar, and two rods rigidly secured to said slide and connected respectively to the locking devices at the upper and lower ends of the door.

3. In locking mechanism for doors, the combination with a casing to be secured to the door between the ends thereof, a casing secured to the door near the bottom thereof, a casing to be secured to the door near the top thereof, and a strike plate having a socket, of a slide movable in the first mentioned casing, a bolt movable in the lower casing and adapted to engage the strike plate, a rod secured at one end to said bolt and at the other end to the slide, a plunger in the upper casing, a rod connecting said plunger with the slide, a latch pivoted independently of the door and adapted to engage the upper casing and to be raised from engagement therewith by said plunger when the slide is raised to raise the bolt at the lower end of the door from the socket in the strike plate and a bell crank pivoted to the casing carrying the slide, one arm of said bell crank loosely resting within the slot in the slide, whereby it may be moved in one direction without moving the slide.

4. In locking mechanism for doors, the combination with three alined casings, a slide movable in the central casing and an operating bell crank for said slide, the said
5 bell crank having a free loose connection with the slide whereby the inner member of the bell crank may be depressed without hindrance from and without actuating said slide, of a sleeve and a bolt mounted in the
10 lower casing, a shank connecting said sleeve and bolt, a guide lug on the casing through which the shank passes, a spring embracing the shank and bearing against the guide lug and bolt for forcing the latter downwardly,
15 a strike plate to be engaged by the bolt, a rod connecting said sleeve with the slide in the central casing, a plunger movable in the upper casing, a rod connecting the upper end of said slide with the plunger and a
20 latch pivoted to the door frame and adapted to engage the upper casing and to be moved from engagement therewith by the plunger in the upper casing.

In testimony whereof, I have signed this specification in the presence of two sub- 25
scribing witnesses.

CHARLES JOS. ERICSON.

Witnesses:

A. JORGENSEN,

W. T. EDWARD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."