

B. L. DAVIDSON & E. B. WELCH.

BOLTS FOR DOORS.

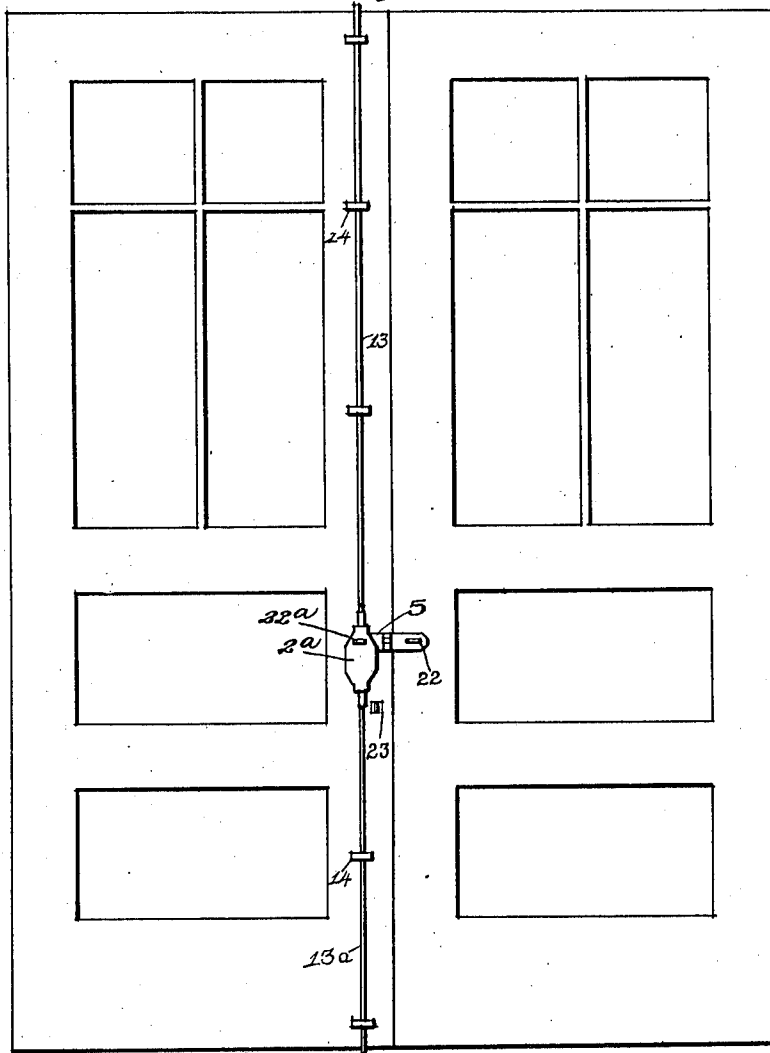
APPLICATION FILED JULY 28, 1910.

1,027,035.

Patented May 21, 1912.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses
B. L. Davidson
E. B. Welch

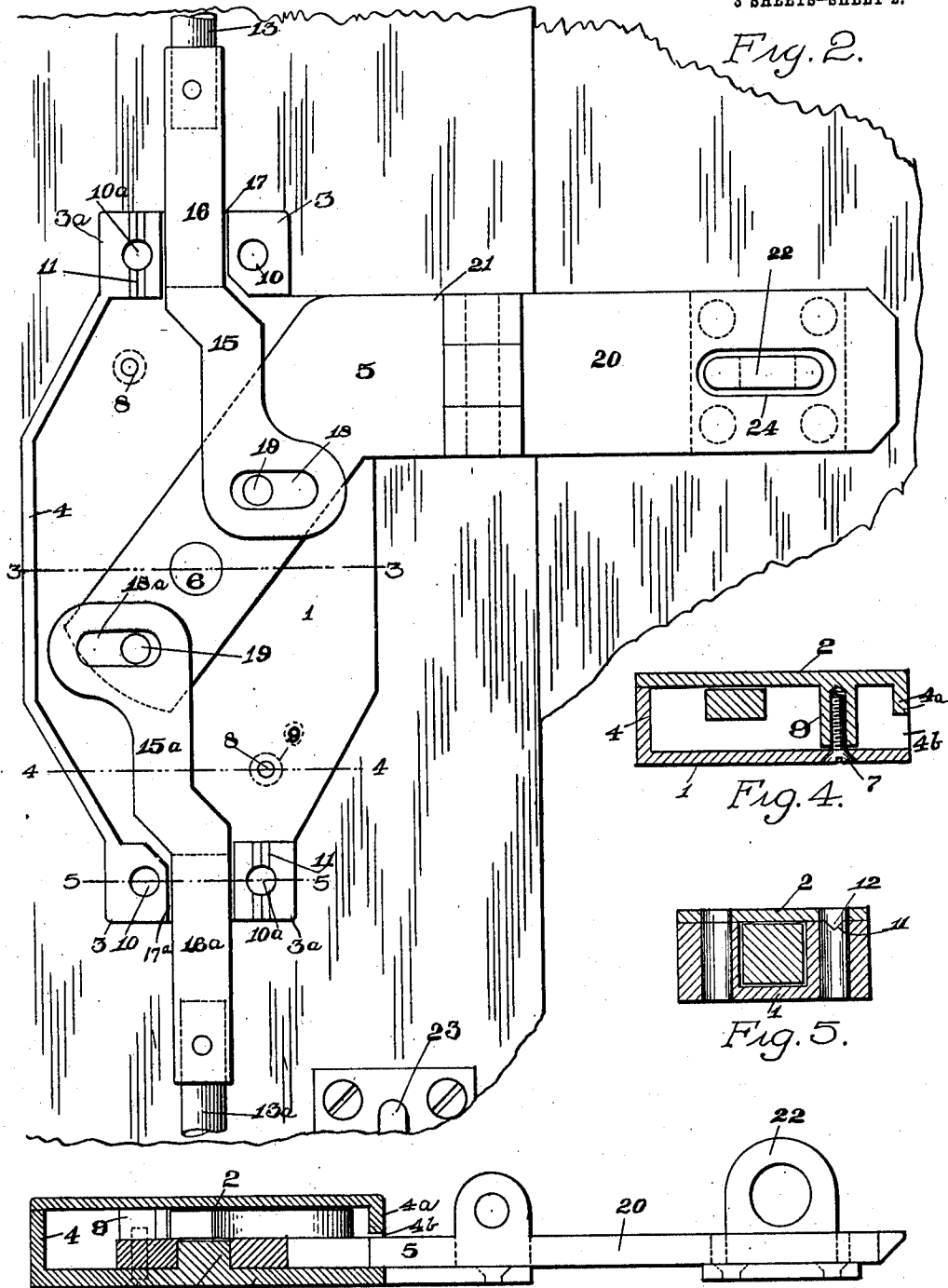
Inventors
B. L. Davidson & E. B. Welch
per Harry Freese
Attorney

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Ruth C. Miller
Chas. O. Rostetter

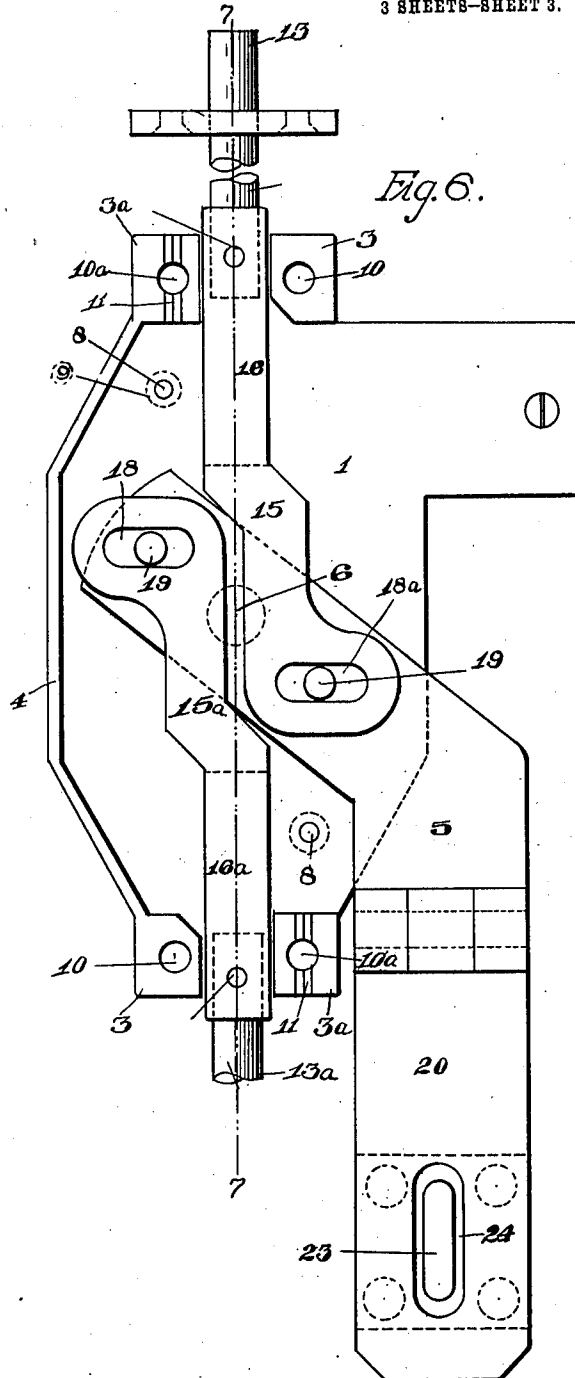
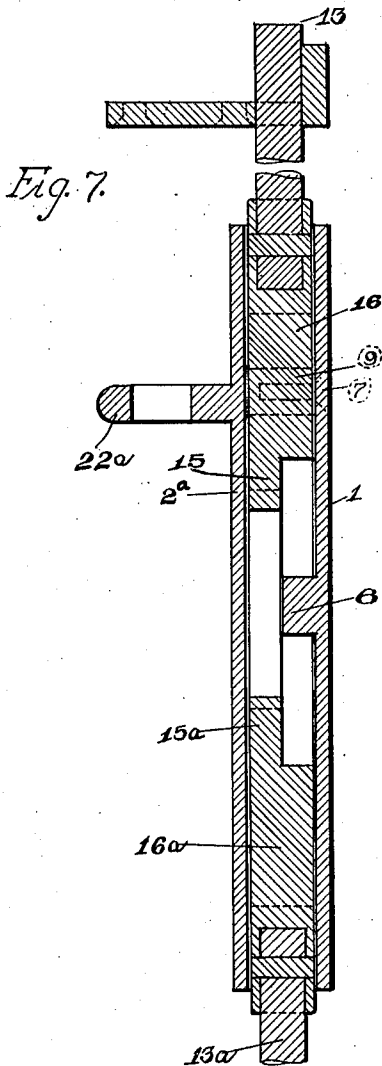
Fig. 3. Bruce L. Davidson & Elias B. Welch
per Harry Freese
Attorney.

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W. O. Rastetter

Inventors
Bruce L. Davidson & Elias B. Welch
per Harry Freese
Attorney

UNITED STATES PATENT OFFICE.

BRUCE L. DAVIDSON AND ELIAS B. WELCH, OF CLEVELAND, OHIO.

BOLTS FOR DOORS.

1,027,035.

Specification of Letters Patent.

Patented May 21, 1912.

Application filed July 28, 1910. Serial No. 574,298.

To all whom it may concern:

Be it known that we, BRUCE L. DAVIDSON and ELIAS B. WELCH, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Bolts for Doors, of which the following is a specification.

The invention relates to bolts for doors, and especially for large and heavy doors required to be locked to the head jamb and the door sill. Such doors are frequently used in schools, churches and other public buildings where large numbers of people congregate; and it is desirable for convenience that the upper and lower bolts shall be operated in unison by a single accessible operating lever, and that the bolts shall be secured in their locked position of engagement with the door jamb and sill; and it is furthermore desirable for safety that the bolts may be secured in their unlocked or disengaged position to prevent an unintentional, accidental or malicious locking of the doors in their closed position when they are supposed to be unlocked and free to open. These objects are attained by the construction, mechanism and arrangement illustrated in the accompanying drawing, forming part hereof, in which—

Figure 1 is an elevation of a pair of doors showing the improved bolt thereon in locked position; Fig. 2, a face elevation of the operating mechanism, with the cover plate removed, showing the mechanism secured in locked position; Fig. 3, a transverse section on line 3—3, Fig. 2, showing the cover plate in place; Fig. 4, a section on line 4—4, Fig. 2, showing the cover plate in place; Fig. 5, a section on line 5—5, Fig. 2, showing the cover plate in place; Fig. 6, a face elevation of the operating mechanism, with the cover plate removed, showing the mechanism secured in unlocked position; and Fig. 7, a vertical section on line 7—7, Fig. 6, showing the cover plate in position and provided with a staple.

Similar numerals refer to similar parts throughout the drawings.

The operating mechanism is preferably mounted in a case composed of the back plate 1 and the cover plate 2 or 2^a, the same being held apart by suitable end guide lugs 3 and 3^a. One side is closed by the edge flange 4 on the back plate, and the other side is partially closed by the edge flange 4^a

on the cover-plate; the space 4^b between the edge of the flange 4^a and the back plate being open for the operating lever 5 which is mounted in the case on the pivot 6. The back and cover plates are held together by the screws as 7 passed through the apertures 8 provided in the back plate into the bosses 9 formed on the face plate; and the case thus formed by the joined plates is secured to the door by means of screws, not shown, passed through the apertures 10 and 10^a provided in the guide lugs of the plates; and the grooves 11 are preferably provided on at least one guide lug at each end and are adapted to receive the corresponding flanges 12 formed on the cover plate, and serve to hold the two plates in proper position with reference to each other.

The bolts 13 and 13^a are mounted and adapted to move endwise in the guide bearings 14 which are secured to the door, and on the inner ends of the bolts are formed or secured the cam plates 15 and 15^a, the shanks 16 and 16^a of which are mounted and adapted to move endwise in the guides 17 and 17^a formed by the lugs and plates at the respective ends of the case. The cam plates are deflected preferably laterally from their respective shanks so as to clear and overlap each other, and in their inner ends are provided the laterally disposed slots 18 and 18^a, in which slots the stud pins 19 formed or secured on the sides of the operating lever project and are adapted to operate, the respective edges of the slots forming cams against which the stud pins slidably abut to move the bolts outward or inward as the case may be.

The arm 20 is hinged to the end 21 of the operating lever which protrudes from the case, and the parts are so arranged that this arm is preferably located in a horizontal position when the lever is rotated to throw the bolts into their locked position, as shown in Figs. 1 and 2; and is in a vertical position when the lever is rotated to draw the bolts inward to their unlocked position, as shown in Fig. 6.

The horizontal staple 22 is formed or secured either on the adjacent door, in case the bolts are applied to double doors, or to the adjacent frame in case the bolt is applied to a single door, and the vertical staple 23 is formed or secured on the same door to which the bolts are applied, as shown in Figs. 1 and 2; which staples are adapted to enter

the slot 24 provided in the hinged arm 20 to secure the operating lever and the bolts either in their locked position as shown in Figs. 1 and 2, or in their unlocked position as shown in Fig. 6, and an ordinary pad lock or other device may be employed for retaining the arm in engagement with the respective staples.

The horizontal staple 22^a is provided on the door, and is preferably located on the cover 2^a of the lock-mechanism case, as shown in Figs. 1 and 7, with which alternate staple the arm is adapted to be engaged by being folded back across the face of the case for securing the lever and the bolts in their locked position, thus leaving the companion door free to be opened when the bolted door is secured in its locked position. The bolts are usually and preferably placed on the inner sides of doors, and while it is ordinarily desirable to secure the bolted door in its locked position by engaging the operating lever with an adjoining door or frame member yet it is no less desirable to secure the bolted member of at least one pair of doors in its locked position by engaging the operating lever with the same door, thus leaving the companion door free to be opened and closed and then locked from the outside by a custodian leaving the building after he has locked on the inside all the other bolted doors; which advantage is attained by the use of the alternate staple 22^a as described.

It will be noted that all the operating parts of the improved lock are contained

within a case, and by reason of the deflection and overlapping of the adjacent ends of the cam plates the dimensions of such case are reduced to a minimum thus making a lock small enough to be sightly and unobjectionable, notwithstanding its prominent place on the door. Furthermore, the overlapping of the inner ends of the cam plates permits the maximum endwise movement of the bolts by action of the stud pins 19 with a minimum amount of rotation of the operating lever. And finally the absence of cog gears and other like cumbersome mechanism, not only simplifies the operating parts but renders them less liable to be interfered with and rendered inoperative by malicious manipulation.

We claim:

A door with two staples thereon, an adjacent member with one staple thereon, a lock on the door including two endwise movable bolts and a lever geared to the bolts to operate them in opposite directions, the lever being arranged to engage one of the staples on the door to secure the bolts in one position, and being hinged and adapted to fold on itself to engage either the other staple on the door or the staple on the adjacent member to secure the bolts in another position.

BRUCE L. DAVIDSON.
ELIAS B. WELCH.

Witnesses:

TERESA DARLING,
EUGENE P. WOOD.