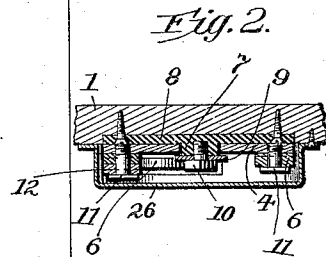
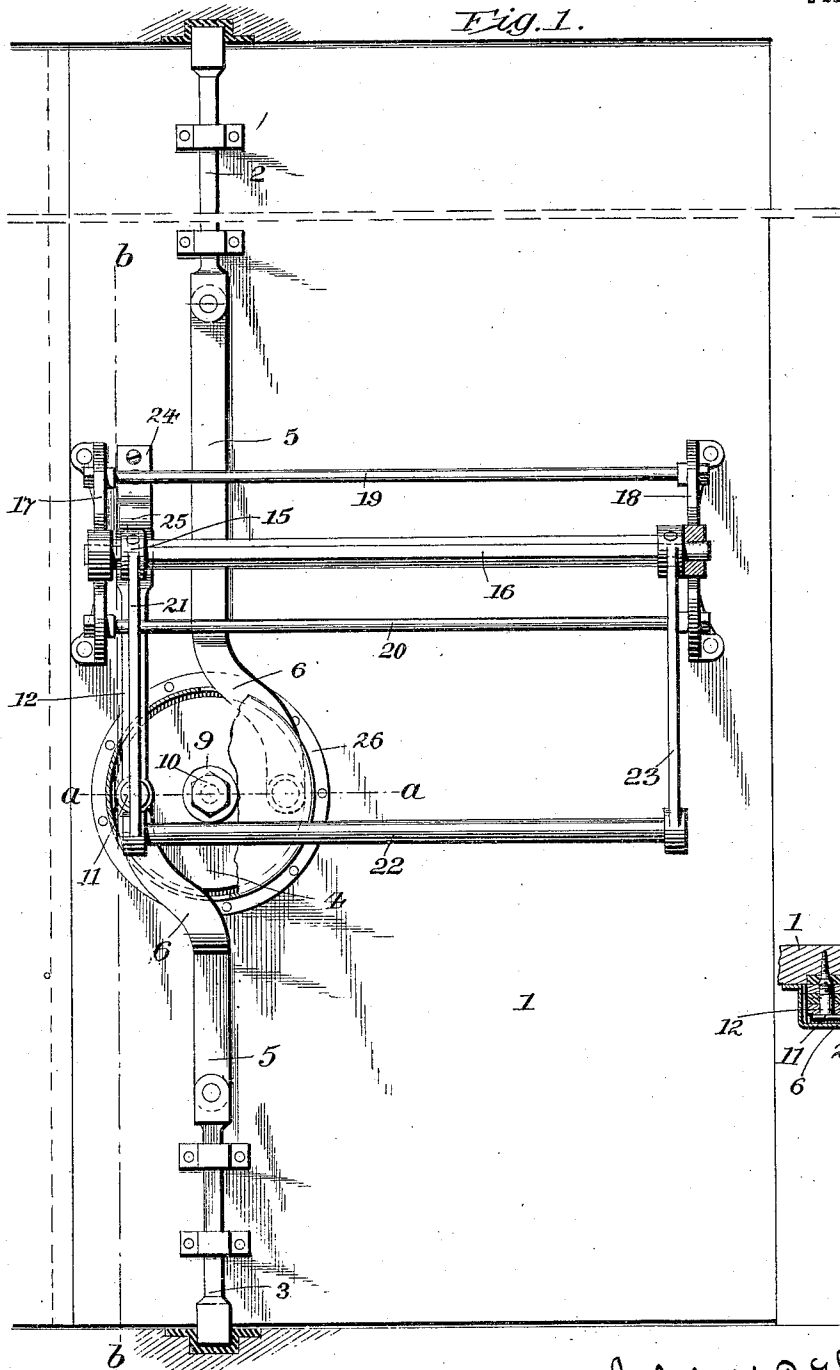


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FASTENING DEVICE FOR EMERGENCY EXIT DOORS.
APPLICATION FILED MAR. 28, 1908.

941,000.

Patented Nov. 23, 1909.

2 SHEETS—SHEET 1.



Witnesses
Chas. H. Hader
Fannie Wise

By

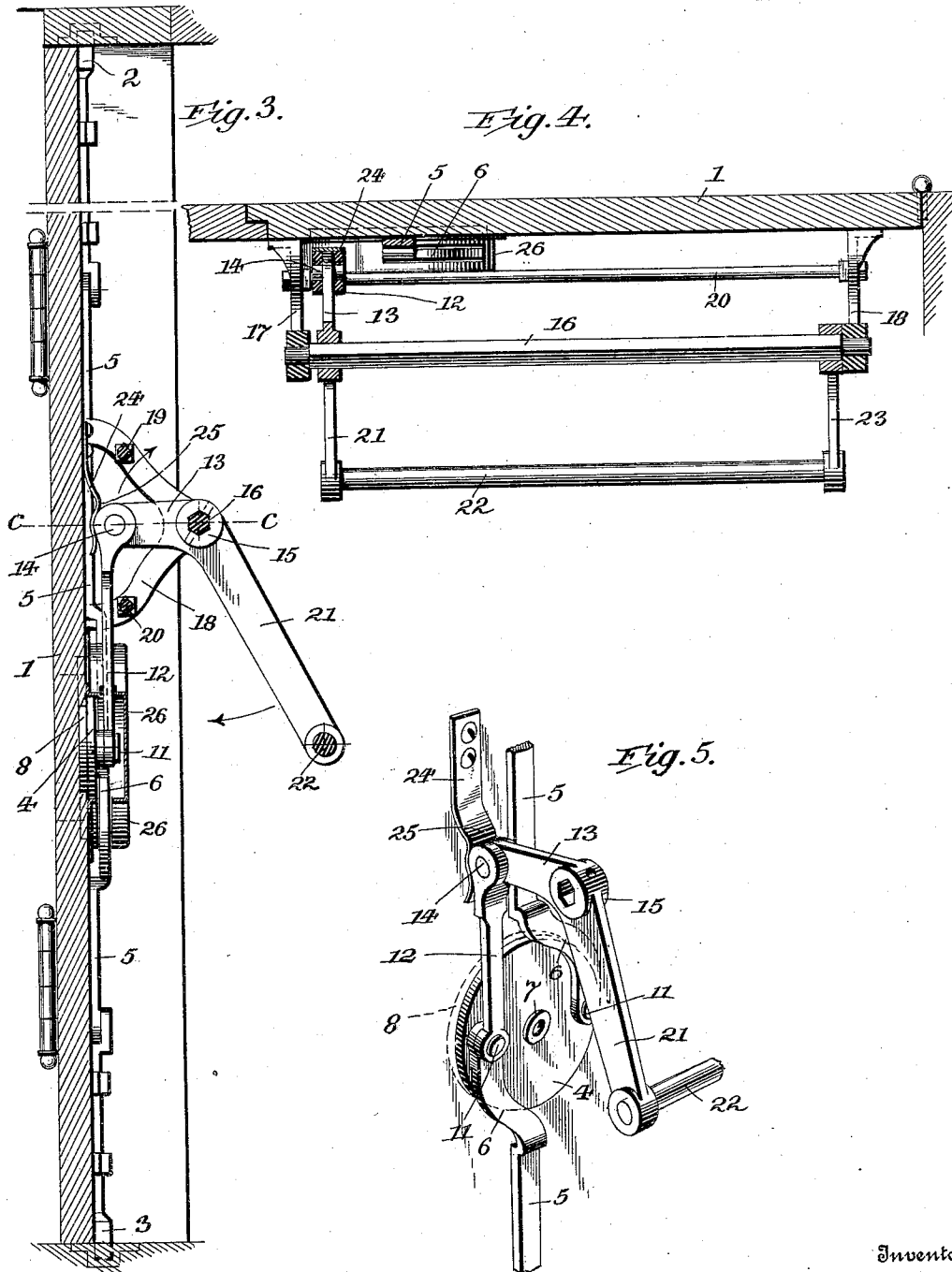
Inventors:
Archibald C. Willison and
James B. Williams,
Dodge and Sons, Attorneys.

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UNITED STATES PATENT OFFICE.

ARCHIBALD C. WILLISON AND JAMES B. WILLIAMS, OF CUMBERLAND, MARYLAND.

FASTENING DEVICE FOR EMERGENCY-EXIT DOORS.

941,000.

Specification of Letters Patent. Patented Nov. 23, 1909.

Application filed March 28, 1908. Serial No. 423,933.

To all whom it may concern:

Be it known that we, ARCHIBALD C. WILLISON and JAMES B. WILLIAMS, citizens of the United States, residing at Cumberland, in the county of Allegany and State of Maryland, have invented certain new and useful Improvements in Fastening Devices for Emergency-Exit Doors, of which the following is a specification.

Our present invention pertains to improvements in bolt-operating mechanisms, the construction and advantages of which will be hereinafter set forth, reference being had to the annexed drawings, wherein:

Figure 1 is a front elevation of the mechanism, shown as applied to a door; Fig. 2 a horizontal sectional view, taken on the line *a-a* of Fig. 1. Fig. 3 a vertical sectional view, taken on the line *b-b* of Fig. 1; Fig. 4 a horizontal sectional view, taken on the line *c-c* of Fig. 3; and Fig. 5 a perspective view of the wrist-plate to which the bolt-rods and the actuating parts are connected.

The object of the present invention is to provide a simple and efficient mechanism for withdrawing the bolts of a door.

The device is designed especially for use in connection with school doors and the like, and is so constructed that the bolts may be readily withdrawn either by a person taking hold of the parts or actuating member and directly moving them, or by pressing against the same.

The device is designed to be attached to an outwardly opening door or doors, and is so positioned and arranged that a child, of say from five years old upward, may by taking hold of the same move the device so as to withdraw the bolts, or if forced against the same likewise withdraw the bolts, or if thrown down by children pushing from behind will inevitably, in the act of throwing up its hands, as would naturally be done, come in contact with or grasp the actuating member of the bolt-releasing mechanism and thereby withdraw the bolts.

In the drawings, 1 denotes the door structure, which is adapted to swing outwardly and is normally held in place by the upper and lower bolts 2 and 3. The bolts are connected to a wrist-plate 4 by links or rods 5, which are preferably formed with an offset and outwardly-projecting portion 6, shown in Fig. 5, so that the body of the rods will lie close to the face of the door, as best shown in Fig. 3. The wrist-plate 4 is ro-

tatably mounted upon a stud 7 (Fig. 2) extending outwardly from a plate 8, which latter is secured in a recess formed in the face of the door. The wrist-plate is maintained in its position with reference to the stud by a washer 9 and a tap-screw 10 which is secured to the stud. Each of the rods 5 is pivotally connected to the wrist-plate, and secured upon a pivot-pin or stud 11, which forms a pivotal connection between the lower rod 5 and the wrist-plate, is a link 12, the upper end of the link being bifurcated or provided with a pair of ears between which extends the inner end of the short arm 13 of an elbow-lever, the parts being pivotally connected by a pin 14 passing there-through. The elbow-lever is provided with a sleeve 15, formed with a polygonal opening therein adapted to receive a polygonal shaft 16. Said shaft is journaled in a pair of brackets or standards 17 and 18, secured to the face of the door and extending downwardly therefrom. As will be seen upon reference to Fig. 4, the ends of the shaft 16 are cylindrical, so that it may freely rotate in the bearings formed in the brackets or standards. Tie-rods 19 and 20 will preferably extend from one bracket or standard to the other, being held in position by suitable jam nuts, so as to stiffen the structure and prevent the shaft 16 from being accidentally withdrawn from its bearings in the brackets. The body of the shaft being polygonal, the parts will be actuated even through the set-screws or the like should become displaced.

The long arm 21 of the elbow-lever hereinbefore referred to projects outwardly and downwardly from the shaft 16, as best shown in Figs. 3 and 5. A rod or bar 22 is secured in the outer end of the lever and extends across, parallel with the shaft 16, to a second arm 23, mounted upon the opposite end of the polygonal shaft 16. It will thus be seen that the rod 22 is supported by the arms 21 and 23 at a point below the shaft 16, so that the inward movement of the rod toward the door will carry the arms 21 and 23 with it, thereby rotating the shaft 16 and drawing up the link 12, which of necessity will rotate the wrist-plate 4 and withdraw the bolts through the connections before described.

In order to prevent any accidental displacement of the bolts by a person jarring the door from the outside, and to likewise hold the bolts in their retracted position,

after the rod 22 and its supporting arms have been drawn downwardly and inwardly, we prefer to employ a spring 24, which is secured to the face of the door in rear of the upper end of the link 12. The spring will be provided with a rounded face or projection 25, which will serve to hold the parts against accidental displacement prior to the retraction of the bolts, and likewise prevent the bolts from being again projected after they have been withdrawn, except by force applied to the rod 22 to move the same outward, in a direction reverse to that indicated by the arrow in Fig. 3.

In order to cover the wrist-plate and its connections to thereby give the structure a neater finish, we preferably employ a cap-plate or cover 26, shown in section in Figs. 2 and 3 and in sectional elevation in Fig. 1.

It is conceivable that the bolts might be formed directly upon the ends of the rods 5 and that said rods might be made straight instead of having their inner ends curved and formed as shown herein. The arrangement illustrated is, however, preferable, inasmuch as the rods are brought into substantially vertical alinement.

By having the inner arm 13 of the elbow-lever occupy a horizontal position when the bolts are protruded, or in their locking position, a slight downward and inward movement of the frame (composed of the bar 22, the arm 23 and outer arm 21 of the elbow-lever) will rotate the wrist-plate, through an upward movement of the link 12, and fully retract the bolts. In other words, the moment pressure or force is applied to the bar 22, or the arms 21 and 23, to move the same downwardly and inwardly the link 12 will be lifted and as a consequence the wrist-plate 4 will be rotated and the bolts withdrawn.

The parts will be so placed upon the door that the rod 22 will stand about on a level with the shoulders of the smallest child in the school, and it will be evident that a slight pressure exerted upon the rod 22, either by the child being pushed against the rod or taking hold of the rod while in a standing position and moving the same inwardly, will actuate the parts and withdraw the bolts. Furthermore, if a child should stumble in its efforts to reach the door it would naturally, in throwing out its hands to save itself, grasp the rod 22 and draw the same downward, thereby effecting the withdrawal of the bolts. Likewise, if the arm of the child should accidentally be thrown over the rod 22 the same action or withdrawal of the bolts would be effected. The results just enumerated are accomplished by reason of the fact that the rod and its support are located below the shaft 16. On the other hand, if the rod 22 were supported above the shaft 16, it is conceivable that a child or

even a grown person might, in falling, throw the arm behind the rod or bar and pull down upon the same, thereby causing the bolts to bind all the tighter.

While we have shown the bar or rod 22 as supported by the arms 21 and 23 it is conceivable that a plate or the like might be employed.

Having thus described our invention, what we claim is:

1. An actuating mechanism for door bolts, comprising in combination, a supporting member adapted to be secured to one face of the door; a rocker-shaft mounted therein; a bolt-operating mechanism secured to the door; and an elbow-lever mounted upon the shaft and movable therewith, the inner end of said elbow-lever being connected to the bolt-operating mechanism and the outer end of said lever extending downwardly and outwardly beyond the shaft, whereby upon the downward and inward movement of the outer end of said lever the bolts will be retracted.

2. An actuating mechanism for door bolts, comprising in combination, a pair of brackets or standards secured to one face of the door; a rocker-shaft carried thereby; a bolt-operating mechanism secured to the door; an elbow-lever secured to the shaft to move therewith, said elbow-lever being provided with a short arm and with a long arm, the short arm extending inwardly toward the door and standing normally in an approximately horizontal plane and the long arm extending downwardly and outwardly; a link pivotally connected to the inner end of the short arm and to the bolt-operating mechanism; a second arm secured to the opposite end of the shaft from that to which the elbow-lever is secured, said arm extending downwardly and outwardly from the shaft in substantially the same plane as that of the longer arm of the elbow-lever; and a rod connecting the longer arm of the elbow-lever and said last-named arm.

3. An actuating mechanism for door bolts, comprising in combination a pair of bolts; a rotatable wrist-plate; connections between said bolts and the wrist-plate; a pair of brackets secured to one face of the door; a shaft journaled in said brackets; an elbow-lever mounted upon said shaft to move therewith, said elbow-lever having a short arm which extends inwardly toward the door and normally lies in a horizontal plane; a link pivotally connected to one end of said arm and likewise connected to the wrist-plate; an arm secured to the opposite end of the shaft from that to which the elbow-lever is secured, said arm lying in substantially the same plane as the long, outwardly and downwardly extending arm of the elbow-lever; and a rod connected to the outer ends of said arms.

4. An actuating mechanism for door bolts, comprising in combination a pair of bolts; a wrist-plate mounted upon the door; a rod extending from each bolt to the wrist-plate
5 and pivotally connected thereto; a pair of brackets secured to the door and extending outwardly therefrom; a shaft journaled in said brackets; an elbow-lever secured upon the shaft, said lever being provided with a
10 short arm which extends inwardly toward the door and normally stands in a horizontal position when the bolts are protruded; a link pivotally connected to the inner end of said arm and likewise connected to the wrist-
15 plate; a spring located in rear of the upper end of said link and serving to normally hold the inner end of the arm of the elbow-

lever in a depressed or elevated position; an arm secured to the shaft at the opposite end from that to which the elbow-lever is secured, said arm extending downwardly and outwardly in substantial alinement with the downwardly-projecting long arm of the elbow-lever; and a rod secured to the lower ends of said arms. 20 25

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ARCHIBALD C. WILLISON.
JAMES B. WILLIAMS.

Witnesses:

J. H. LIPPOLD,
L. W. LIPPOLD.