C. E. WALRAVEN.

FASTENING DEVICE FOR DOORS.

APPLICATION FILED OCT. 31, 1916.

1,215,752. Patented Feb. 13, 1917.

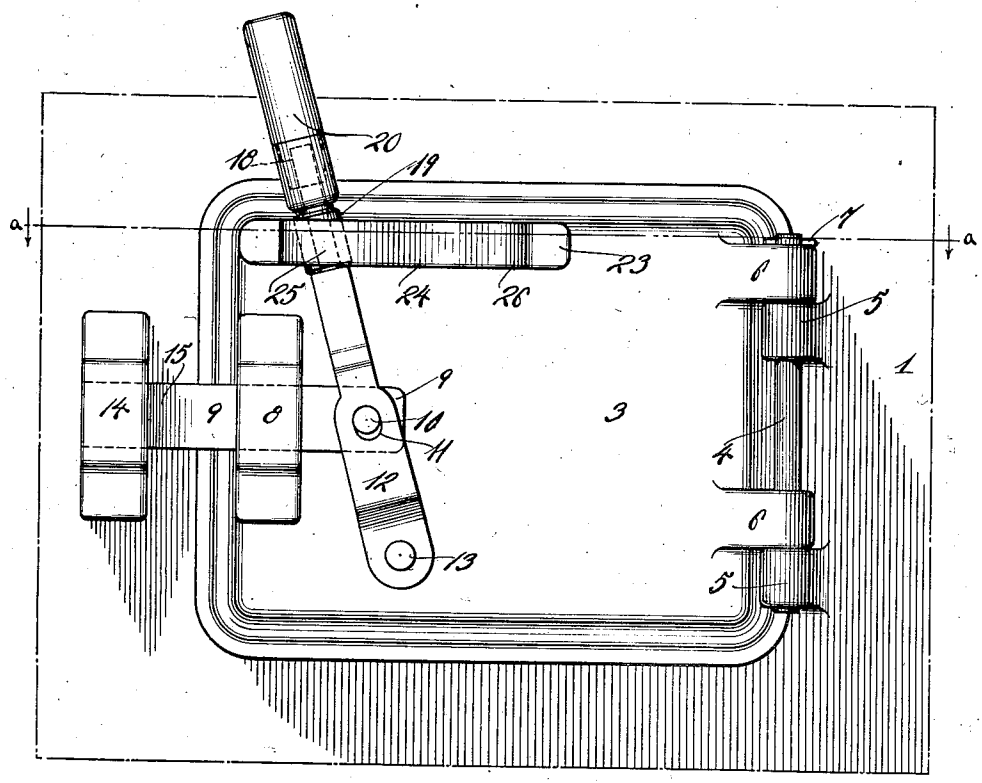


Fig. 1.

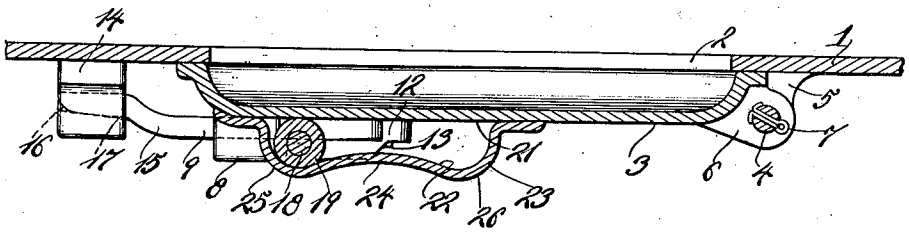


Fig. 2.

Witnesses

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FASTENING DEVICE FOR DOORS.

1,215,752. Specification of Letters Patent. Patented Feb. 13, 1917.

Application filed October 31, 1916. Serial No. 128,652.

To all whom it may concern:

Be it known that I, CHARLES E. WALRAVEN, a citizen of the United States, residing at Woodbury, in the county of Gloucester and State of New Jersey, have invented certain new and useful Improvements in Fastening Devices for Doors, of which the following is a specification.

My invention consists of an improved fastening device for doors, and is particularly serviceable for use on furnace doors.

It is well known that furnace doors for tubular boilers are often blown open due to the blowing out of a tube in the boiler and firemen have often been injured by the hot coals and gases when the doors have been blown open as above described. Therefore, one of the objects of my invention is to provide a fastening device which when used on furnace doors will prevent accidental opening of the door, either by the blowing out of tubes in the furnace or any other reasons.

Another object of my invention is to provide a door fastening device which will be of comparatively simple construction, durable, and which can be manufactured and applied to furnaces at a reasonable cost.

These objects, and other advantageous ends which will be described hereinafter, I attain in the following manner, reference being had to the accompanying drawings in which

Figure 1 is a front elevation of my invention forming a fastening device for a furnace door.

Fig. 2 is a section on the line *a—a* of Fig. 1.

Referring to the drawings, 1 represents the front plate or casing of a furnace having an opening 2 designed to be closed by a door 3, the latter is pivotally supported by means of a rod 4 which passes through lugs 5 on the furnace plate 1 and lugs 6 on the door 3 in the usual manner of pivoting a furnace door, the upper end of the rod 4 being provided with a cotter pin 7 to prevent longitudinal movement of the rod 4 and also to retain the door thereon.

The door 3 is provided adjacent one edge with a staple 8. This staple 8 may be cast integral with the door 3 as illustrated or it may be made of a separate piece if so desired.

A bolt 9 slides through the staple 8 and has a pin 10 which engages within a short slot 11 in a handle lever 12, the latter being pivoted at 13 to the door 3 as clearly shown in Fig. 1.

A second staple 14 is integral with or secured to the furnace casing and has its internal surface 17 beveled as clearly shown in Fig. 1. The forward end portion 15 of the bolt 9 is slightly curved inwardly and made wedge shape as shown at 16 at its outer end, so that a forward sliding movement of the bolt 9 causes the wedge portion 16 to engage the inner beveled surface 17 of the staple 14, and thereby cause the door to snugly fit adjacent the edge portion of the plate 1 which provides the opening 2.

The handle lever 12 has a cylindrical stem 18 which forms the bearing for a roller 19, and a detachable handle 20, preferably of wood, is provided at the extreme upper end of the handle lever 12. The roller 19 is designed to move between the outer surface 21 of the furnace door and the inner surface 22 of a spring member 23, said spring member being secured in any suitable manner to the outer surface of said door 3.

The spring member 23 has an inwardly projecting central portion 24 which normally assumes a position closer to the outer surface of the door 3 than the outermost portion of the roller 19, however, the end portions 25 and 26 of the spring member 23 provide sufficient space for the position of the roller 19 in either of its two extreme positions into which the handle lever 12 may be moved.

It will be noted that a swinging movement of the handle lever 12 from the position illustrated to a position sufficient to remove the bolt 9 from the staple 14 requires that the roller 19 will engage and move outwardly the portion 24 of the spring member 23. However, as soon as the roller 19 passes said portion 24, the latter will automatically return to its normal position.

It will thus be seen that the provision of the spring member 23 assists in holding the handle lever 12 in either of two positions, namely, to lock the door by the engagement of the bolt 9 with the staple 14 or to unlock the door by the removal of the bolt 9 from the staple 14. When the bolt 9 is in engagement with the staple 14, the spring member 23 will prevent any internal pressure within the furnace from opening the door, the reason being that the opening movement of the door is transverse to the longitudinal move-

ment of the bolt, and also for the reason that it requires considerable force to move the roller 19 past the portion 24 of the spring member 23, so that the bolt 9 can not accidentally move longitudinally.

By the use of my invention, I provide a secure door fastening device which is of simple construction, which may be easily operated and efficiently operates to close the opening in a furnace casing or other construction. The handle 20 is preferably detachably connected and may be removed after the door 3 has been locked.

While I have described my invention as taking a particular form, it will be understood that the various parts of my invention may be changed without departing from the spirit thereof, and hence I do not limit myself to the precise construction set forth, but consider that I am at liberty to make such changes and alterations as fairly come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A fastening device for a door, comprising a bolt, means pivoted to said door for moving the bolt, an elongated resilient member having its ends curved inwardly and secured to said door, said bolt-moving means being operative between said resilient member and the door, said resilient member having a central inwardly projecting portion normally operative to hold the bolt-moving means in different positions against accidental pivotal movement, substantially as described.

2. A fastening device for a door, comprising a bolt, a handle lever pivoted to said door and having a pin and slot connection with said bolt, an elongated resilient member having its ends curved inwardly and secured to said door and having an inwardly projecting portion designed to be engaged and moved outwardly by said lever when the latter is manually operated to move the bolt into and out of operative position, said inwardly projecting portion being designed to retain the handle lever in different positions adjacent opposite ends of the resilient member, substantially as described.

3. A fastening device for a door, comprising a bolt, a handle lever pivoted to said door and having a pin and slot connection with said bolt, a cylindrical stem on said lever, a roller on said stem, an elongated resilient member mounted on said door and having an inwardly projecting portion designed to be engaged by said roller when the lever is manually operated to move the bolt into and out of operative position, said inwardly projecting portion being designed to retain the handle lever in different positions adjacent opposite ends of the resilient member, and being movable outwardly by said roller during a swinging movement of the handle lever, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES ELWOOD WALRAVEN.

Witnesses:
J. W. ANDERSON,
E. W. ANDERSON.