United States Patent

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[54] **DOOR SECURITY BOLT ASSEMBLY**
8 Claims, 6 Drawing Figs.

[52] **U.S. Cl.** 292/36, 292/139
[51] **Int. Cl.** E05c 1/06, E05c 9/04
[50] **Field of Search** ..... 292/36, 37, 39, 40, 42, 48, 139, 140, 167, 148, DIG. 30; 70/118, 119, 120

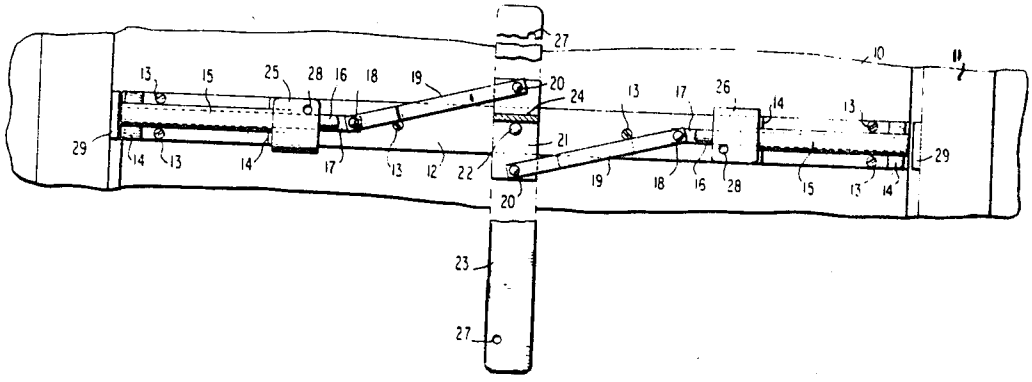
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ABSTRACT: A simplified self-contained high-strength security bolt assembly particularly for the rear and side doors of commercial and industrial establishments, the structure affording security on both sides of the door. The assembly features a main mounting plate or frame which attaches to a door with through bolts, dual bolts which simultaneously engage openings in each side of the jamb, and a sturdy operating linkage which is covered and protected by a handle to prevent tampering when the door is locked.



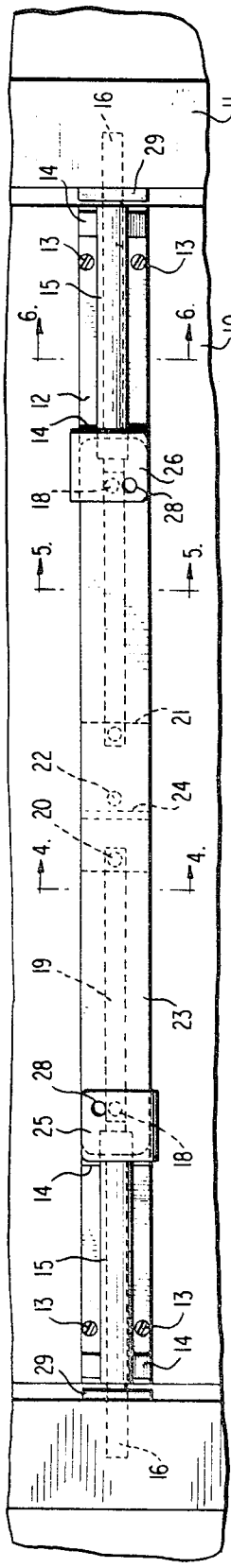


FIG. 1

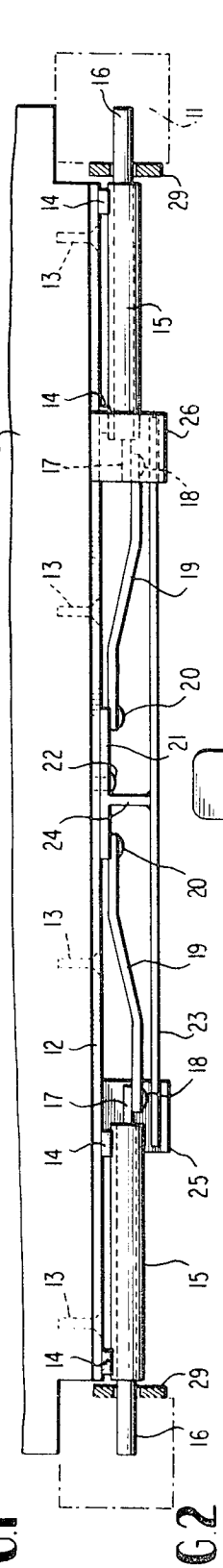


FIG. 2

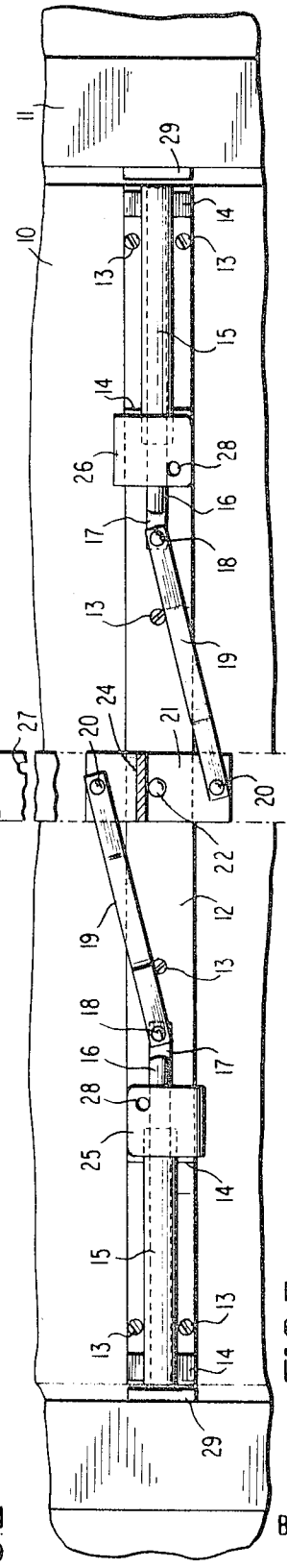


FIG. 3

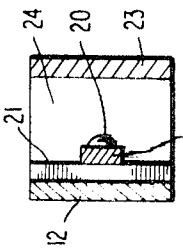


FIG. 4

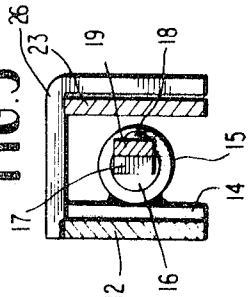


FIG. 5

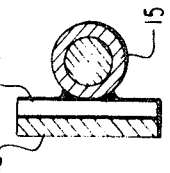


FIG. 6

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DOOR SECURITY BOLT ASSEMBLY

A great need exists today for improved security against burglarizing stores, industrial plants and the like. Very frequently, the burglars will force the rear or side door of such an establishment after hours and where there is the minimum chance of being observed during commission of the crime. While a number of sophisticated and usually expensive locking devices are known, there is a great need for such a device which can be easily installed as an attachment kit to any single leaf door without the necessity for extensive modification of the door structure or frame and preferably in the form of an assembled unit with the operating components already in place and ready for immediate use after installation. It is also essential that the door security device offers security at both sides of the door, i.e., prevents burglars in forcing the door from the outside, or if they enter the building in another manner, prevents them from opening the door from the inside as for loading burglarized merchandise. Simplicity and high strength are also essential features of the device as well as ease of operation and protection of the operating linkage which is somewhat more delicate than the locking bolt structure itself. All of these features and requirements are satisfied by the present invention, and other objects and advantages will be apparent during the course of the following description.

BRIEF DESCRIPTION OF DRAWING FIGURES

FIG. 1 is a side elevation of a door security bolt assembly applied to a commercial or industrial door or the like.

FIG. 2 is a plan view of the assembly, with parts in section.

FIG. 3 is a side elevation, similar to FIG. 1, but showing the assembly in an unlocked condition, the structure being shown locked in FIGS. 1 and 2.

FIG. 4 is an enlarged transverse vertical section taken on line 4—4 of FIG. 1.

FIG. 5 is a similar section taken on line 5—5 of FIG. 1.

FIG. 6 is a similar section taken on line 6—6 of FIG. 1.

DETAILED DESCRIPTION

Referring to the drawings in detail, wherein like numerals designate like parts throughout, the numeral 10 designates any conventional out-swinging door, such as the rear door or side door of a commercial establishment or industrial plant. The door is hung in a frame 11 which, in some cases, is metal and in other cases wooden. The invention will provide full security in either case. The other details of the door and its mounting are unimportant to an understanding of the invention and it should be sufficient to state that the invention with minor modification or adjustment can be successfully applied to practically any out-swinging or in-swinging single leaf door. In the drawings, a preferred embodiment is shown wherein the assembly is mounted on the interior side of an outwardly opening door but the invention certainly is not limited in its application to this arrangement.

The assembly proper forming the subject matter of the invention comprises a sturdy steel mounting bar or plate 12 constituting the main frame or body of the device and being of sufficient length to span the particular door 10 horizontally and transversely. All other components of the assembly, with the exception of padlocks, not shown, are attached permanently to the mounting bar 12 and therefore cannot be misplaced and cannot be improperly installed. Also the unitary assembly eliminates the common necessity of mounting numerous parts individually on a door with resulting alignment and adjustment problems which is very important for reliable operation. The bar 12 is rigidly secured to the interior face of the door 10 by a plurality of sturdy through bolts 13 which may be peened or staked securely after application of nuts thereto.

The assembly further comprises pillow blocks 14 secured by deep penetration welding to the inner face of the bar 12. One pair of pillow blocks 14 is disposed close to the ends of the bar and a second pair is spaced considerably inwardly of the first pair, as shown. These pillow blocks 14 serve as mounting seats

for a pair of axially aligned open-ended cylindrical bolt sleeves 15 whose opposite end portions are securely welded to the pillow blocks with the sleeves disposed at the transverse center of the bar 12 and at the opposite ends of the bar. It might be mentioned at this point that a feature of the invention rendering it practical and economical is that the component parts are all formed of stock material which can be cut to size and no complicated castings or expensive forgings are employed. Rugged steel stock is used throughout the assembly along with deep penetration welding.

Slidably mounted within each sleeve 15 is a reciprocating bolt 16, each carrying a rear-flattened extension 17 pivoted by a rivet 18 or the like to a control arm or link 19, having its opposite end securely pivoted in a similar manner at 20 to a rotary crank plate 21, in turn pivoted at its center directly to the main mounting bar 12 by another sturdy pivot element 22. By means of this linkage, it will be readily apparent that turning of the crank plate 21 on its pivot 22 will effect simultaneous extension or retraction of the bolts 16.

The two bolts and the associated linkage are operated by a handle 23 in the form of an elongated bar having secured rigidly to its longitudinal center a strut or web 24 which in turn is secured as by welding to the crank plate 21 near the pivot 22. This strut maintains the handle 23 spaced from the main mounting bar 12 and parallel therewith in overlying relationship to the arms 19 and crank plate, as clearly shown in FIG. 2. This, incidentally, forms an important feature of the invention in that the handle 23 when in the locking position, FIGS. 1 and 2, extends for the full distance between the sleeves 15 and covers and protects the operating linkage against tampering. This linkage is substantially enclosed between the bar 12 and the handle. The handle 23 is merely grasped near its two ends and turned about the pivot 22 with the crank plate 21 to effect the retraction or extension of the two bolts.

Means are provided to secure the handle 23 in the locking position with the bolts 16 extended and this means further encloses and protects the linkage. The means comprises a pair of very sturdy L-shaped handle-locking brackets 25 and 26 disposed adjacent the inner ends of the sleeves 15 and welded, respectively, to the bottom and top edges of the bar 12, FIG. 2, taken in reference to the use position of the assembly. Therefore, the two brackets 25 and 26 are disposed to overlie the end portions of the pivoted handle 23 and the bracket 25 is open at the top while the bracket 26 is open at the bottom so that counterclockwise movement of the handle 23 from its right angular position of FIG. 3 to the locking position will cause the ends of the handle to enter the locking brackets and to bottom in the same, whereby the brackets also serve as positive stops for the handle in the locking position. In this position, FIG. 1, the handle is parallel to the bar 12 and with the two brackets 25 and 26 protects the bolt-operating linkage, as stated.

For securing the handle 23 in the locking position, the same is provided near opposite ends and near opposite longitudinal edges with small openings 27 adapted to register with similar openings 28 in the two brackets 25 and 26, when the handle is in the locking position. When the openings 27 and 28 are in registration, two padlocks, not shown, may have their shackles pass through these openings to securely lock the handle to the brackets 25 and 26.

In order to reinforce the door jamb on each side, apertured keeper or escutcheon plates 29 are provided to receive the two bolts 16 when the latter are extended into the jamb at both ends of the assembly for locking the door.

It may now be seen that the assembly secures the industrial door on both sides thereof and the assembly is extremely strong and the parts are arranged to protect the bolt-operating linkage. Also the assembly is unitized so that it can be readily mounted on a door with a minimum of labor and without complication caused by alignment and adjustment of individual parts. The main bar or frame 12 attaches directly to the door with the through bolts 13 and all other parts of the assembly are on this bar and ready for operation as soon as the device is installed.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to, without departing from the spirit of the invention or scope of the subjoined claims.

I claim:

1. A door security bolt assembly comprising a main mounting bar adapted to be secured to one side of a door by bolt means which may extend through the door, bolt guide sleeves rigidly secured to end portions of said bar in axial alignment, sliding bolts within said sleeves, a crank plate pivoted to said bar between said bolts and sleeves, operating links pivotally interconnecting the bolts with the crank plate so that turning of the crank plate on its pivot will cause extension or retraction of the bolts, a handle having a connection with the crank plate and being spaced from the crank plate and said bar and adapted when parallel to the bar to lie over and protect the crank plate, links and the interior ends of the bolts where they connect with the links, the handle being apertured near its opposite ends, and a pair of locking brackets rigid with the bar and positioned near the inner ends of the sleeves and receiving the opposite end portions of the handle when the handle is parallel to the bar, the brackets having apertures which register with the apertures of the handle so that a locking device may be passed through said registering apertures to secure the handle in a locked position, the bolts being then extended from the opposite ends of the assembly.

2. The structure as defined in claim 1, and said locking brackets each comprising a generally L-shaped member connected with one opposite edge of the main mounting bar, whereby the brackets face in opposite directions from said edges to receive the ends of the handle and to serve as positive stops for the handle in a locking position.

3. The structure as defined in claim 1, and a pair of pillow blocks between each guide sleeve and the main mounting bar and serving to space the guide sleeves and the bolts from the main mounting bar.

4. The structure as defined in claim 1, and a pair of apertured escutcheon plates adapted to receive said bolts and being mountable upon the opposite faces of the door jamb or frame.

5. A door security bolt assembly comprising an elongated main mounting bar adapted to be bolted to a door and adapted to extend horizontally substantially across the door between opposing jambs which have bolt-receiving opening means, a pair of bolt guides on said mounting bar near the ends thereof, a pair of sliding bolts in said guides aligned with the opening means of the jambs when the door is closed, a linkage connected with the bolts to extend and retract the same including a member pivoted to said bar near its center, a handle secured to said member and being elongated and extending substantially on opposite sides of the pivot of the member and lying over and protecting said linkage when the handle is extending longitudinally of the mounting bar, the linkage then lying between the mounting bar and the handle, and a pair of handle-locking brackets on the mounting bar in spaced relation and receiving the opposite ends of the handle when the handle is longitudinally of the mounting bar and said bolts are extended into the opening means of the jambs, said handle and locking brackets provided with openings which register when said bolts are extended so that padlocks may secure the ends of the handle to said brackets with the handle protecting said linkage.

6. The structure of claim 5, and said linkage further comprising a pair of bolt-operating links pivotally interconnecting said pivoted member and the inner ends of the bolts inwardly of said guides.

7. The structure of claim 6, and a strut rigidly interconnecting the pivoted member with said handle near the longitudinal center of the handle and spacing the handle from said mounting bar, links and guides.

8. The structure of claim 7, and said brackets comprising opposing L-shaped members welded to opposite edges of the mounting bar and each having an abutment web to engage one edge of the handle and a right angular web to lie immediately outwardly of the handle when the bolts are extended and the handle is longitudinally of the mounting bar.

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