BURGLAR BAR FOR OUTSWING DOOR

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ABSTRACT
A burglar bar is provided which prevents both ingress and egress from an outswinging single or double door. It comprises an elongated, unitary bar mounted solely on the inside of the door in spanning relationship thereto, with no mounting structure of any kind being required on the circumscribing door frame. The bar includes stop structure on the distal ends thereof which precludes outward movement of the door even when the separate door lock and hinge pins are removed during an attempted forced opening of the door. Additionally, mounting means are provided which prevents the bar from being twisted or pried free from the door, thus enhancing the overall security function of the bar.

15 Claims, 6 Drawing Figures
BURGLAR BAR FOR OUTSWING DOOR

This invention relates to security bars which are adapted to be mounted across a door to prevent forced entry therethrough; more particularly, it is concerned with such a bar that is mounted on the inside of an outswinging door and is effective in preventing both ingress and egress through the door.

During the past quarter-century many businesses, schools, and even homes have been provided with outswinging doors, due primarily to increasingly stringent fire regulations. These doors are conventionally mounted in a door frame with the hinges situated within the exterior vertical space between the door and frame. Additionally, it is common to provide upstanding door stops proximal to the inside of the door along the vertical marginal edges thereof which are in covering relationship to the inner vertical spaces between the frame and the door.

Coincident with the increasing use of outswinging doors, there has also been a tremendous increase in the incidence of crime, especially burglary or other theft. A common expedient of many burglars has been to enter a building through a relatively unsecured window or the like and then force open a door from the inside. In this manner, the valuables within the building can be easily removed without arousing suspicion. Therefore, in combating such practices, a security device that is effective in preventing both ingress and egress through the outswinging door is a necessity.

When the security bars of the prior art have been employed for this purpose, they have generally been found deficient in several important respects. Most importantly, while they usually provide good security against an attempted opening of the door from the outside of the building, they are generally less effective in stopping a forcible opening from the inside thereof. A primary reason for this problem lies in the fact that such bars have heretofore always required separate mounting structure attached to the circumscribing door frame. This is troublesome because the separate frame-mounted structure must be firmly secured in order to be burglar-proof, and this generally requires extensive renovation of the frame and door, which cannot be done without considerable expense. Further, because there are of necessity connections between the bar and associated frame mounted structure, the entire device is generally weakest at these points, thereby rendering the whole device susceptible to attack.

Moreover, such frame-mounted structure remains in place even when the security bar is not in use, thus lessening the overall appearance of the doorway, which is an objectionable feature when it is desired to use the latter for commercial purposes. Similarly, in such instances the frame mounted structure can be so large as to impair the full use of the doorway by obstructing a portion of the space normally provided.

Therefore, there is the need in the art for a unitary burglary bar which prevents both ingress and egress from an outswinging door, while at the same time being usable without the need of separate mounting structure attached to the door frame.

SUMMARY

Accordingly, it has been found that the aforementioned difficulties can be overcome by the use of an elongated, integral burglary bar which is adapted to be removably mounted solely on the inside of an outswinging door in substantially spanning relationship thereto. The bar includes stop structure mounted on the opposed distal ends thereof which is configured and dimensioned to simultaneously overlay a portion of the upstanding doorposts which are a conventional part of outswinging door frames. When such a bar is mounted on the door, the latter is prevented from opening in either an inward or outward direction. Outward movement is precluded due to the abutment of the distally mounted stop structure against the stop of the door frame, while inward movement is prevented due to the hinging arrangement of the door as well as the abutment of the door itself against the frame stop.

In preferred forms, the burglary bar of the present invention is a closed, hollow metal tube of rectangular or square cross-section, and the distally mounted stop structure is welded or otherwise integrally mounted to the bar at the opposed ends thereof to enhance its security function. Such stop structure can advantageously comprise a plate-like member welded to the opposed butt ends of the bar, the plate being dimensioned to substantially cover the width of the door stop. A laterally projecting stop portion extends from the plate-like member in an axial direction away from the bar. The forward face of the stop portion abuts the rearward end of the inwardly projecting frame stop associated with the overall door frame to thereby positively prevent the door from swinging outwardly during an attempted forcible opening.

The burglary bar is preferably mounted on the inside of the door by means of a pair of channel-defining members bolted or otherwise positively affixed to the inside of the door. The bar is then provided with a pair of L-shaped angles welded to the bar with one leg of each angle depending from the top of the bar and being spaced therefrom to allow insertion of the depending legs into the channel-defining members. Such mounting hardware aids in the securement of the door because it effectively prevents the bar from being twisted or pried free from the door, as for example when a crowbar or other like instrument is employed during an attempted opening.

The security bar can be selectively locked within the mounting means through the use of a first locking plate attached to the bar and a second locking plate mounted on the door; these mounting plates are each provided with an aperture and are constructed and arranged to mate upon attachment of the bar to the inside of the door. When so mated, a padlock can be inserted through the mated aperture to complete the installation of the burglary bar and thus secure the door.

DRAWINGS

FIG. 1 is a fragmentary, front elevational view showing the burglary bar of the present invention operatively installed on the inside of an outswinging door;

FIG. 2 is a side elevational view in section showing the burglary bar of the present invention prior to installation thereof on an outswinging door;

FIG. 3 is a top elevational view partially in section showing the burglary bar installed on an outswinging door, a portion of the door being cutaway to show the preferred mounting apparatus;

FIG. 4 is a fragmentary, perspective view showing the preferred mounting hardware for use in installing the burglary bar;
FIG. 5 is a top plan view of the burglar bar of the present invention installed on a single outswinging door; and FIG. 6 is a fragmentary top plan view of a burglar bar in accordance with the present invention mounted on a set of double outswinging doors.

DETAILED DESCRIPTION

There is shown in FIG. 1 a burglar bar in accordance with the present invention mounted on a conventional single, outswinging door denoted by the numeral 10. The overall door-way includes a circumscribing frame 12 having a pair of opposed, upstanding doorstops 14 and 16 which are connected to the frame proximal to door 10 along the inside vertical marginal edges thereof in covering relationship to the vertical spaces between the frame 12 and door 10. The burglar bar 18 of the present invention is shown in its operative position mounted in spanning relationship on door 10 and secured in place by padlock 20.

Attached to the opposed, distal ends of the bar 18 is identical stop structure 22. As best shown in FIG. 3, the stop structure is configured and dimensioned such that it abuts the rearward face 24 of inwardly projecting doorstop 16; as shown in FIG. 3, this rearward face is spaced from and does not communicate with door 10. In preferred embodiments, a plate-like member 26 is welded or otherwise integrally mounted on each butt end of bar 18 and extends rearwardly from the bar to substantially cover the width of doorstop 16. Along the rearward portion of plate-like member 26, a laterally extending member 28 of substantially square cross-section is provided which projects axially away from bar 18 such that the forward face 28a thereof abuts rearward face 24 of doorstop 16.

A bar as described above, when mounted on the inside of an outswinging door, precludes both ingress and egress therefrom in the following manner. First, if the door is attempted to be opened by breaking any locks present on the outside of door 10 and swinging open the latter in the conventional manner, the integral stop structure 22 disposed away from the hinged vertical edge of door 10 abuts the associated doorstop. Similarly, if the pins of externally facing hinges 30 are removed in an attempt to wholly remove door 10 from its frame, both distally mounted stop structures 22 operate to preclude significant movement of the door.

If the door 10 is sought to be opened from the inside of the building, the burglar bar of the present invention nevertheless presents a serious obstacle. First, the abutment of door 10 along the vertical marginal edges thereof with the door stops 14 and 16 precludes any direct inward movement. Moreover, because there is no frame mounted structure associated with bar 18 with consequent interconnections therebetween, there is little possibility of quickly removing the stop structures 22 from the body of bar 18. Therefore, the likelihood is remote that a criminal could first remove stop structure 22 and then break any separate door locks and hinging mechanisms to allow the door to be swung or moved directly outwardly to open door 10.

Referring now to FIG. 2, a burglar bar in accordance with the present invention is shown as substantially square in cross-section and being composed of a hollow metal material forming essentially a tube-like bar. Welded on the upper face of the bar 18 is an L-shaped angle or tongue means 32 which is positioned such that a depending leg 34 is provided which is spaced from the forward edge 36 of bar 18 which is proximal to door 10 upon mounting of the burglar bar. The depending leg 34 is adapted to be received within a channel-defining member or bracket 38 which is bolted or otherwise secured to the door. The channel-defining member 38 comprises a pair of spaced-apart attachment plates 40 and 42 and a cover plate 44 in overlying relationship to the attachment plates to form a channel for reception of leg 34 during mounting of bar 18 on door 10. In preferred forms, a plurality of angles 32 and channel-defining members 38 are employed in order to most effectively mount burglar 18 to the inside of door 10. If, as shown in FIG. 5, a pair of mated angles 32 and brackets 38 are employed which are identically spaced from the opposed portions of the door-frame, the bar is "even-handed" so that it can be installed without the necessity of registering a particular end thereof with a corresponding portion of door frame 12.

The channel-defining members or brackets 38 can be securely installed on door 10 in the following manner. First, the door 10 is bored as at 54 (see FIG. 2), and an internally threaded sleeve 56 inserted therein as shown in FIG. 3. The bracket 38 is then installed on the internal surface of door 10 by means of conventional bolts 62 which extend through apertures 64 and 65 provided in the attachment plates.

As can be appreciated, the above-described mounting assembly remains intact even if the external plate 88 is removed. Such a removal in no way effects the threaded mounting of the internal bracket 38, because the bolts 62 are totally independent of the external plate, the latter being provided only to increase the overall strength of the assembly.

Another advantage of the preferred mounting system results from the fact that when the bar 18 is installed, all internal bolts used in attaching the brackets 38 are covered, thereby making it impossible to remove the latter without first removing bar 18. Additionally, the bar 18 cannot be twisted or pried loose from the door because of the cooperation between angle 32 and padlock 20 used in securing the bar when installed; that is, if it is attempted to pry the bar 18 from door 10 by inserting a crowbar or like instrument behind the bar to impart an arculate twisting motion thereto, either padlock 20 or angle 32 serves as an effective means to limit such motion and thereby preclude such a forcible removal.

In still further preferred embodiments, a first locking plate 46 is attached to bar 18 along the underside thereof in a depending fashion, and a second locking plate 48 is mounted on door 10 or preferably on one of the channel-defining members 38. The first and second locking plates are each provided with apertures 50 and 52 and the plates are configured and arranged such that when the bar 18 is installed, the apertures mate and form a common passageway for the insertion of the shackle of a padlock 20. The padlock 20 can be of any conventional variety, but it has been found advantageous to employ a padlock which is essentially "crowbar-proof". This type of padlock is shown in FIG. 1 and is characterized by the fact that little or no free space remains between the body of the lock and its shackle when the lock is installed. Due to this arrangement, it is impossible to insert a crowbar between the shackle and body of the lock to twist or otherwise break it free of the locked structure.
Referring now to FIGS. 5 and 6, the function of the burglar bar of the present invention in both single and double outswinging doors will be explained. The single outswinging door 110 is shown in FIG. 5 as hingedly mounted along the vertical right-hand edge thereof. Burglar bar 118 is shown mounted in the manner described above, and includes identical stop structure 122 integrally mounted at the opposing ends thereof. If a forcible opening of door 110 were attempted from the outside, the left-hand stop member 122 would prevent any outward motion of door 110 in the manner described. Similarly, if the vertical pins of hinges 130 were removed in an attempt to forcibly open door 110, both stops 122 would prevent such a result due to their respective configurations which serve to simultaneously abut rearward faces 124 of the doorstop 116.

In an analogous fashion the burglar bar of the present invention is effective in preventing both ingress and egress from a set of double doors 210 and 210a. In this situation, the bar 18 itself prevents conventional opening of the door due to the fact that it is in a secure, spanning relationship to both doors, thereby making it impossible to open either door in an outward fashion. In this case, the stop structures 222 at each end of the bar 218 is not essential to the securingment of the doors 210 and 210a. However, if the hinge pins are removed as described above in an attempt to forcibly open the door, the stop structure cooperates in the same manner as described for a single door to prevent the forced opening. It is also evident that in the case of either a single door or a set of double doors, an attempt to open the doors from the inside of the building will likewise be fruitless. As described above, the abutment of the respective doors against the communicating portions of the vertical door stops will act to stop any such attempted opening.

I claim:

1. A security device for use in preventing both ingress and egress from an outswinging door mounted in a frame therefor having opposed, upright doorstops thereon proximal to said door along the inside vertical marginal edges thereof, said device comprising: an elongated, unitary bar adapted to be removably mounted in spanning relationship on the inside of said door; structure on the distal ends of said bar for preventing outward movement of said door when said bar is mounted thereon by virtue of the abutment of said structure against said doorstops; means adapted to be secured to said door for removably mounting said bar thereon; and means for releasely locking said bar on said mounting means when the latter are secured to said door with said bar mounted thereon.

2. The burglar bar of claim 1, wherein said bar is a closed, hollow metal tube of rectangular cross-section.

3. The burglar bar of claim 2, wherein said bar is of square cross-section.

4. The burglar bar of claim 1, wherein said structure mounted on the distal ends of said bar is integral with said bar.

5. The device as set forth in claim 1 wherein said structure mounted on the distal ends of said bar is integral therewith, said structures comprising plate-like members mounted on the butt ends of said bar of width to substantially cover the width of said doorstops, and stop members attached to said plate-like members projecting outwardly therefrom and adapted to abut the edges of said doorstops remote from said door when said bar is mounted on the door.

6. The burglar bar of claim 5, wherein said plate-like structure is integrally mounted on said bar.

7. The burglar bar of claim 6, wherein said plate-like member is welded onto said bar.

8. The device as set forth in claim 1 wherein said means adapted to be mounted on said door for removably mounting said bar thereon comprises: at least one channel-defining member adapted to be secured to the inside of said door; and at least one tongue means attached to said bar and having a portion thereof spaced from the bar and adapted to be received within said channel-defining means when the latter is secured to said door.

9. The device as set forth in claim 8 wherein said bar is of square cross-section and said tongue means comprises an L-shaped angle welded to said bar with a leg thereof depending from the top of the bar, said depending leg being spaced from said bar to allow insertion thereof into said channel-defining member when the latter is secured to said door.

10. The device as set forth in claim 9 wherein said means for mounting said bar on said door comprises a pair of channel-defining members adapted to be mounted on said door, and a pair of L-shaped angles welded to said bar, said separate angles having depending legs spaced from said said bar and adapted to be received within said channel-defining members when the latter are mounted on said door.

11. The device as set forth in claim 10 wherein said locking means comprises: a first apertured locking plate integrally attached to and depending from said bar, and a second apertured locking plate integrally attached to one of said channel-defining members, said first and second locking plates being configured and arranged to mate with the respective apertures thereof in alignment when said channel-defining members are attached to said door and said bar mounted thereon; and padlock means adapted to be inserted through said aligned apertures to lock said bar.

12. The device as set forth in claim 1 wherein said means adapted to be secured to said door for removably mounting said bar thereon comprises: a pair of spaced internally threaded sleeves adapted to be mounted in said door through substantially the entire thickness thereof; and an apertured plate adapted to be mounted on the external face of said bar by means of threaded bolts adapted to be operatively inserted through said apertures and into said sleeves; and an apertured channel-defining portion adapted to be mounted on the inside of said door by means of threaded bolts adapted to be operatively inserted through said apertures in said channel-defining portion and into said sleeves, said last-mentioned apertures being arranged such that when said bar is mounted on said channel defining portion said apertures are covered.

13. In combination with an outswinging door mounted in a frame therefor having opposed, upright
doors thereon proximal to said door along the inside vertical marginal edges thereof, a security device for use in preventing both ingress and egress from said door, comprising:

an elongated, unitary bar of length to span the inside of said door;

means removably mounting said bar on said door;

structure on the distal ends of said bar configured and arranged to abut said doorstops to prevent outward movement of said door; and

means releasably locking said bar on said mounting means.

14. The combination as set forth in claim 13 wherein said door is a single door.

15. The combination as set forth in claim 13 wherein said door is a double door comprising a pair of doors separately hingedly mounted along one opposed, upright portion of said frame.