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APPLICATION OF SECURING MEANS TO GLASS DOORS

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Fig. 1.

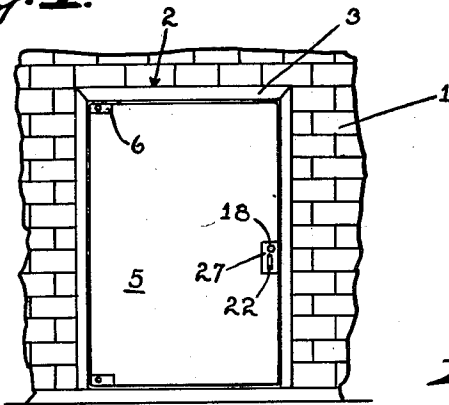


Fig. 4.

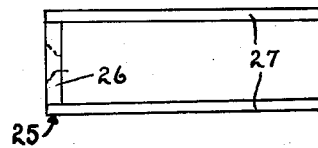


Fig. 2.

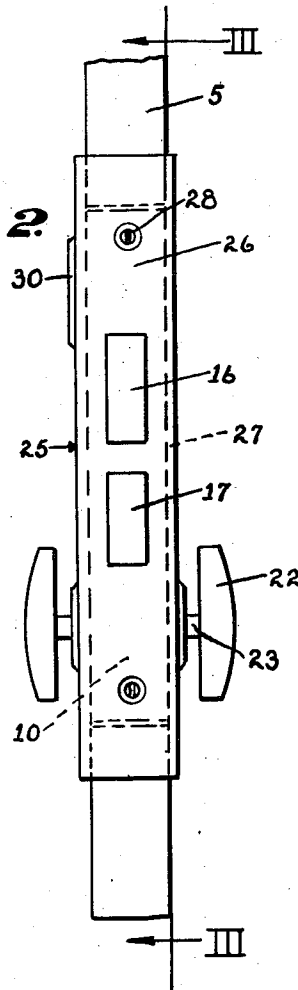
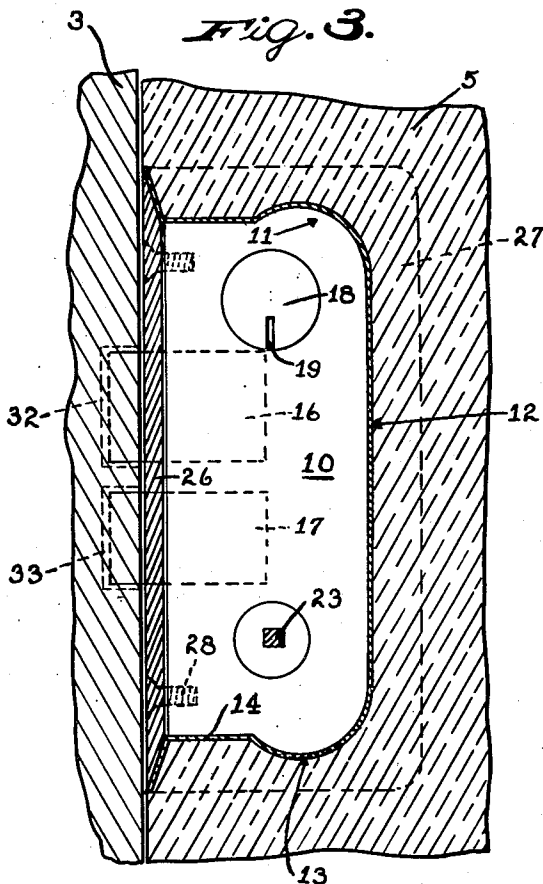


Fig. 3.



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APPLICATION OF SECURING MEANS TO
GLASS DOORSGeorge F. Erath, Queens Village, N. Y., assignor
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4 Claims. (Cl. 20-16)

The present invention relates to securing devices for doors and more particularly to the application of securing devices to doors comprising single panels of tempered glass.

5 The primary object of the invention is the provision of a construction by means of which a lock-case may be mounted in a door comprising a single panel of glass wherein the formation of the customary mortise opening is impossible.

10 Other objects and advantages of the invention will become more apparent during the following detailed description of a preferred embodiment thereof.

For many years glass has been an important building material and the modern trend of architectural design has brought glass into even greater prominence. Today glass is being used in many novel ways and because it may be so treated that its strength is greatly increased, glass construction is being specified in preference to the customary materials.

Tempered glass is ordinarily prepared by heating a panel of glass of the desired shape to approximately 1100 degrees F. and then suddenly cooling it with a blast of cold air. A panel so treated is considerably stronger than plate glass of equal thickness and is capable of withstanding impacts which would break standard plate glass. It is to be understood that the glass panel must be cut to size, drilled, or otherwise fabricated before it is tempered for after the tempering operation the glass cannot be worked. Any attempt to cut a plate of tempered glass will result in its complete disintegration into granules of small size. This characteristic of tempered glass has been considered desirable from the standpoint of safety for the particles of a broken plate are comparatively harmless, there being no sharp edges to the particles.

40 The use of tempered glass for doors has heretofore been proposed and considerable development work has been done to create satisfactory means for positioning the glass panels in the walls of buildings. It will at once be obvious that for most purposes it is necessary that provision be made for locking the doors, but satisfactory locks have not been available therefor. A plate of glass cannot be mortised to receive a lock casing as is the practice with metal or wooden doors, and there has not been suggested any substitute manner of installation.

In accordance with provisions of the present invention, the foregoing difficulties are obviated by forming, for reception of the lock casing, a single notch having undercut top and bottom

edges in the edge of the glass panel and providing bosses or shoulders upon the lock casing of a size sufficient to engage the undercut portions of the notch. A box flange including a front plate and cover plates bridges the notch and is secured to the lock casing by means of screws which draw the casing and flange together to wedge the lock casing securely in the notch.

A preferred embodiment of the invention is illustrated in the accompanying drawing, where- in:

Figure 1 is a fragmentary elevational view of a building wall in which is installed a door embodying the provisions of the present invention.

Figure 2 is a fragmentary side elevational view showing on an enlarged scale the securing device as applied to a glass door.

Figure 3 is a fragmentary elevational view taken substantially along the line III-III of Figure 2.

Figure 4 is an end view of a box flange forming a part of the construction.

Referring to the drawing, a building wall 1 which may be constructed of any material contains an opening 2 within which a door frame 3 is secured. A door panel 5 which consists of a single plate of comparatively heavy tempered glass is mounted within the frame 3 by means of hinges 6. The mounting of the door panel 5 does not form a part of the present invention and may take any one of numerous forms.

Locking means for the door panel 5 comprises a lock casing 10, the rearward corners of which are provided with bosses or shoulders 11, designed to fit within an opening or notch 12 provided in the leading edge of the door panel, and the shoulders 11 engage in arcuate recesses 13 in the upper and lower edges of the opening 12 in such manner as to prevent displacement of the casing 10 in the plane of the door panel. The recesses 13, as shown, are formed at the rear corners of the opening but might be spaced forwardly therefrom if desired. Other means for obtaining undercut portions in the edges of the opening may be employed. It is important to note that the curvature of the recesses 13 must be of a radius at least equal to one half the thickness of the glass panel in order that proper tempering is possible.

A strip 14 of resilient material is interposed between the casing 10 and the edges of the opening 12 of the glass panel to prevent direct contact therebetween. The internal mechanism of the lock conforms to the standard mortised lock construction and is not a part of the present inven-

tion. Accordingly it should be sufficient to remark that the lock includes a dead bolt 16 and a latching bolt 17. The former is actuated through suitable connecting means (not shown) by a rotatable 5 tumbler barrel 18 in which is provided a keyhole 19 for the reception of a key (not shown). The latching bolt may be actuated independently by rotation of a handle 22 secured to a shaft 23 10 extending through the casing 10 and connected by suitable mechanism (not shown) to said bolt.

A box flange 25, as shown in Figure 4, including a front plate 26 and cover plates 27, is disposed upon the forward edge of the glass panel 5 so as to cover the lock casing 10 and screws 28 15 extending through the front plate engage the lock case 10 to draw the case and plate together. The bosses 11 are thus drawn into engagement with the undercut portions of the opening 12 to prevent any possibility of displacement of the lock 20 from the door panel. The cover plates 27 will lie closely against the surfaces of the glass panel and escutcheon plates 30 for the tumbler barrel 18 and the shafts 23 will serve to assist in retaining them in position.

Recesses 32 and 33 are provided in the door jamb 3 for the reception of the dead bolt 16 and the latching bolt 17 respectively. If it is desired, these recesses may be reinforced by the addition of a metal striking plate (not shown) to the 30 jamb 3.

In order to assemble the construction, the lock-case 10 is slipped sidewise into the notch 12. The box flange 25 is then secured thereto by the screws 28 which are tightened until the bosses 11 35 are wedged into engagement with the edges of the recesses 13. Subsequently the escutcheon plates 30, the shaft 23 and handles 22 are placed.

It is not necessary that the present invention be limited to constructions embodying a single 40 door panel. For example, the lock casing could be secured in one door while the retainer or striking plate assembly could be mounted similarly in an adjacent glass door. Other modifications and changes in the arrangements of elements 45 could be had without entailing a departure from the spirit of the invention or the scope of the appended claims.

What I claim is:

1. In combination with a door comprising a glass panel having a notch formed in one edge thereof and recesses formed to communicate with the notch, a lock casing carrying bosses adapted 5 to engage the recessed portions positioned in the notch, a box flange including a front plate and cover plates disposed upon the panel to cover the lock casing, and screws attaching the lock casing to the box flange to wedge the lock casing 10 in the notch.

2. In combination with a door comprising a glass panel having a recessed notch formed in one edge thereof, a lock casing carrying bosses adapted to engage the recessed portions of the 15 notch positioned in the notch, a box flange including a front plate and cover plates disposed upon the panel to cover the lock casing and screws passing through the front plate and threaded into the forward edge of the lock casing to draw 20 the plate and casing together to form an integral unit positively held in the door panel.

3. A construction as defined in claim 2 in which the door is of tempered glass pivotally mounted for movement about an axis adjacent to 25 a vertical edge opposite that edge in which the lock casing is secured.

4. In combination with a panel of glass having a notch formed in one edge and cutting completely through said panel the rear portion of the 30 notch being substantially laterally expanded to undercut at least one of the side edges and to provide a restricted forward opening for the notch, a fitting assembly comprising a body element disposed in the notch and being shaped to 35 the contour of the expanded rear portion, whereby to prevent its withdrawal from the notch through the restricted forward portion, and cover plates upon opposite sides of the body, both plates being secured thereto and overlapping the adjacent edges of the panel to prevent removal of the 40 body by moving it perpendicularly of the plane of the panel, the fitting assembly thus being inherently locked in position in the notch without recourse to additional fastening devices project- 45 ing into the panel.

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