July 27, 1926. 1,593,944

E. C. LOETSCHER

PANEL FASTENER FOR DOORS

Filed July 27, 1925

Fig. 1.

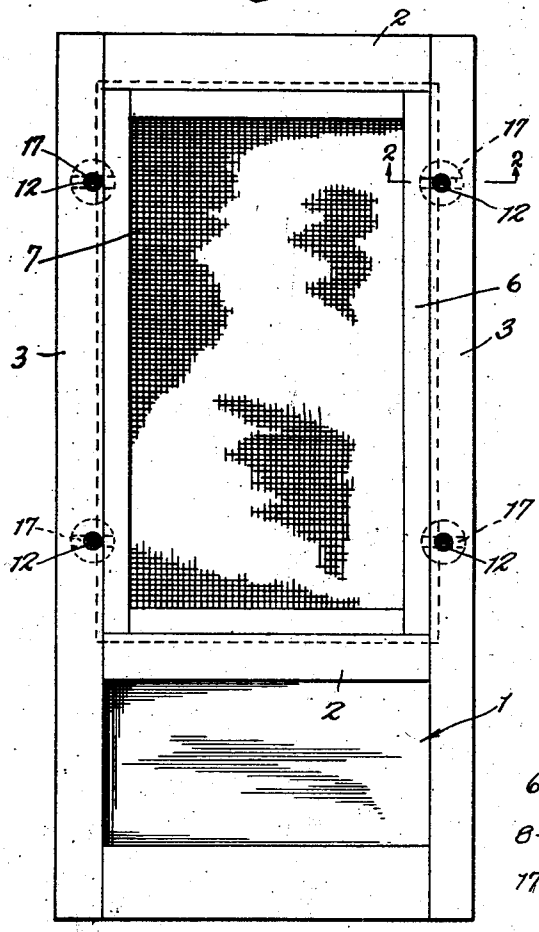


Fig. 2.

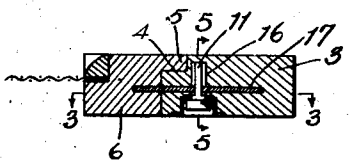
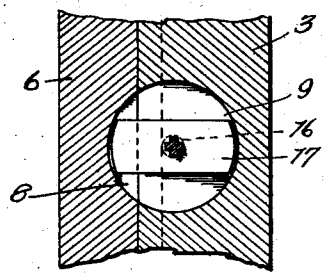


Fig. 3



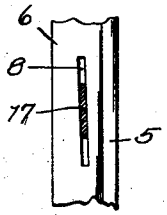


Fig. 4.

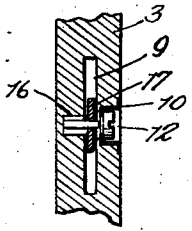


Fig. 5.

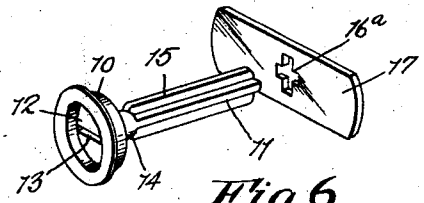


Fig. 6.

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UNITED STATES PATENT OFFICE.

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PANEL FASTENER FOR DOORS.

Application filed July 27, 1925. Serial No. 46,422.

This invention relates to improvements in fastening devices and more particularly to a novel fastening device for securing screen panels or sash panels to a storm-door.

The primary object of the invention is to provide an inexpensive fastening means which may be readily operated by a screw driver or the like for wedging or camming a panel in a door.

Another object of the invention is to provide fastening means adapted to lock a panel in position from one side of the door without leaving any evidence on the other side of the door as to the manner of fastening the panel in place.

With the foregoing objects outlined and with other objects in view which will appear as the description proceeds, the invention consists in the novel features hereinafter described in detail, illustrated in the accompanying drawing and more particularly pointed out in the appended claims.

Referring to the drawing:

Fig. 1 is an inner side view of a door with a screen panel held in position by the improved fastening means.

Fig. 2 is a sectional view of the same taken on line 2—2 of Fig. 1.

Fig. 3 is a fragmentary sectional view taken on line 3—3 of Fig. 2.

Fig. 4 is a fragmentary view of one edge of the screen panel with an inclined recess therein to receive the locking bar of the improved fastening means.

Fig. 5 is a fragmentary sectional view taken on line 5—5 of Fig. 2.

Fig. 6 is a perspective view of the main elements of the locking means in disassembled relation.

In the drawing, 1 designates the door having cross-bars 2 and side bars 3 forming a rectangular frame. The inner edges of this frame are rabbeted as shown in 4 to receive a flange or bead 5 which extends around the edge of a panel frame 6. In the present instance the panel frame carries wire netting 7 but it is obvious that the frame might carry a wood panel or the like.

For the purposes of the present invention the edge of the panel frame 6 is provided at spaced points with a number of slots 8 which are inclined relatively to the side surfaces of the frame 6, as best shown in Fig. 4.

At corresponding points on the frame formed by the bars 2 and 3 of the door, recesses 9 are provided and these recesses may have their side surfaces parallel to the side surfaces of the door.

At each point where a recess 9 is located, a socket 10 is placed on the door and this socket is preferably secured in place by frictional contact. Each socket is associated with a rotatable stem 11, best shown in Fig. 6. The stem has a head 12 which is rotatably mounted in the socket and has a groove 13 to receive the end of a screw driver. The portion of the stem adjacent the head is cylindrical, as at 14 to facilitate the turning movement of the stem. The main or major portion of the stem is cruciform in shape as shown at 15 and this portion rotates in a cylindrical bore 16 in the door. The stem intersects the recess 9 and passes through a cross-shaped slot 16^a in a locking plate 17. This locking plate aligns with the groove 13 and is of a length to be housed within the recess 9 when the plate is in vertical or substantially vertical position, and in such position it will not project beyond the inner edge of the frame formed by the door and interfere with the introduction of the frame 6 into the frame formed by the bars 2 and 3. When the frame 6 has been placed in the door, the stems 11 are turned by means of a screw-driver or the like and this will cause the locking plates 17 to enter the inclined recesses 18 and wedge the flange 5 into the rabbet 4.

In order to permit this wedging action, the locking plate 17 will have to cant over as it enters the recess 8, and for this purpose the slot 16 is of slightly larger area than the cross sectional area of the portion 15 of the stem. In other words, the plate 17 has a loose fit on the stem so that the plate may rock slightly in the axial direction of the stem and the recess 9 is preferably made slightly wider than the thickness of the locking plate to facilitate the canting of the latter when the stem is rotated.

Each pair of recesses 8 and 9 preferably form a circular cavity as shown in Fig. 3.

From the foregoing it is believed that the construction, operation and advantages of the invention may be readily understood and it is obvious that after a panel has been secured in position by the improved fastening means, that it cannot be removed from one side of the door and may only be removed from the other side of the door, by using a screw driver or the like. Furthermore, after the fastening devices have locked the panel

in position, the panel will remain tight and will not rattle due to wind and the like.

It is apparent that changes may be made in the details disclosed without departing from the spirit of the invention as expressed in the claims.

What is claimed and desired to be secured by Letters-Patent is:

1. A fastening device for securing two slotted members together comprising a rotatable stem adapted to be mounted in one of said members, a flat locking plate loosely mounted on said stem and capable of rocking slightly in the axial direction of the stem, said locking plate being adapted to engage the slots of the members when the stem is rotated, and means for keying the plate on the stem for causing the plate to rotate with the stem.

2. A fastening device for securing two slotted members together comprising a rotatable stem of non-circular cross section, a locking plate loosely mounted on said stem, rotatable with the latter and capable of a slight rocking movement in a plane parallel to the axis of the stem, said plate being adapted to cross the slots of said members when the stem is rotated in the proper direction, and means for mounting the stem in one of said members.

3. A fastening device for locking two slotted members together comprising a rotatable stem adapted to be mounted in one of said members, a flat locking plate having a slot through which the stem extends, said plate being adapted to normally occupy one of said slots and to move into the other one of said slots when the stem is rotated, and means for causing the plate to rotate with the stem and permitting the plate to move slightly in the axial direction of the same.

4. In combination, a door having a frame and a panel mounted in the frame, one of said parts having an inclined slot and the other part having an opposed slot arranged at an angle thereto, a stem rotatably mounted in the member having the last mentioned slot and intersecting said slot, a flat locking plate loosely mounted on said stem for rocking movement in the axial direction of the stem, said plate being movable in the slots when the stem is rotated, and cooperating means on the stem and plate for causing the plate to rotate with the stem.

5. In combination, a door having a frame member and a panel member mounted in the frame member, one of said members having a flange to prevent the panel member from being passed entirely through the frame member, one of said members having an inclined slot and the other member having a slot opposed to the inclined slot, a socket countersunk in one of said members in close proximity to the slot of that member, a stem rotatably mounted in said socket and having a portion of non-circular cross section, and a locking plate mounted on the non-circular portion of the stem and capable of rocking in a plane parallel to the axis of the stem but prevented from rotating relatively to the stem, said locking plate being adapted to occupy one of said slots and to be moved into the inclined slot when the stem is rotated for forcing the flange of the flanged member against the other member.

6. A locking device including a socket adapted to be countersunk in a member that is to be locked to another member, a head rotatably mounted in the socket, a stem integral with the head and projecting from the socket, said head being provided with means to enable the same to be readily rotated, said stem being provided with a longitudinally extending key, and a locking plate mounted on the stem for movement axially of the latter and prevented from rotation relatively to the stem by the key.

In testimony whereof I affix my signature.

EMIL C. LOETSCHER.