

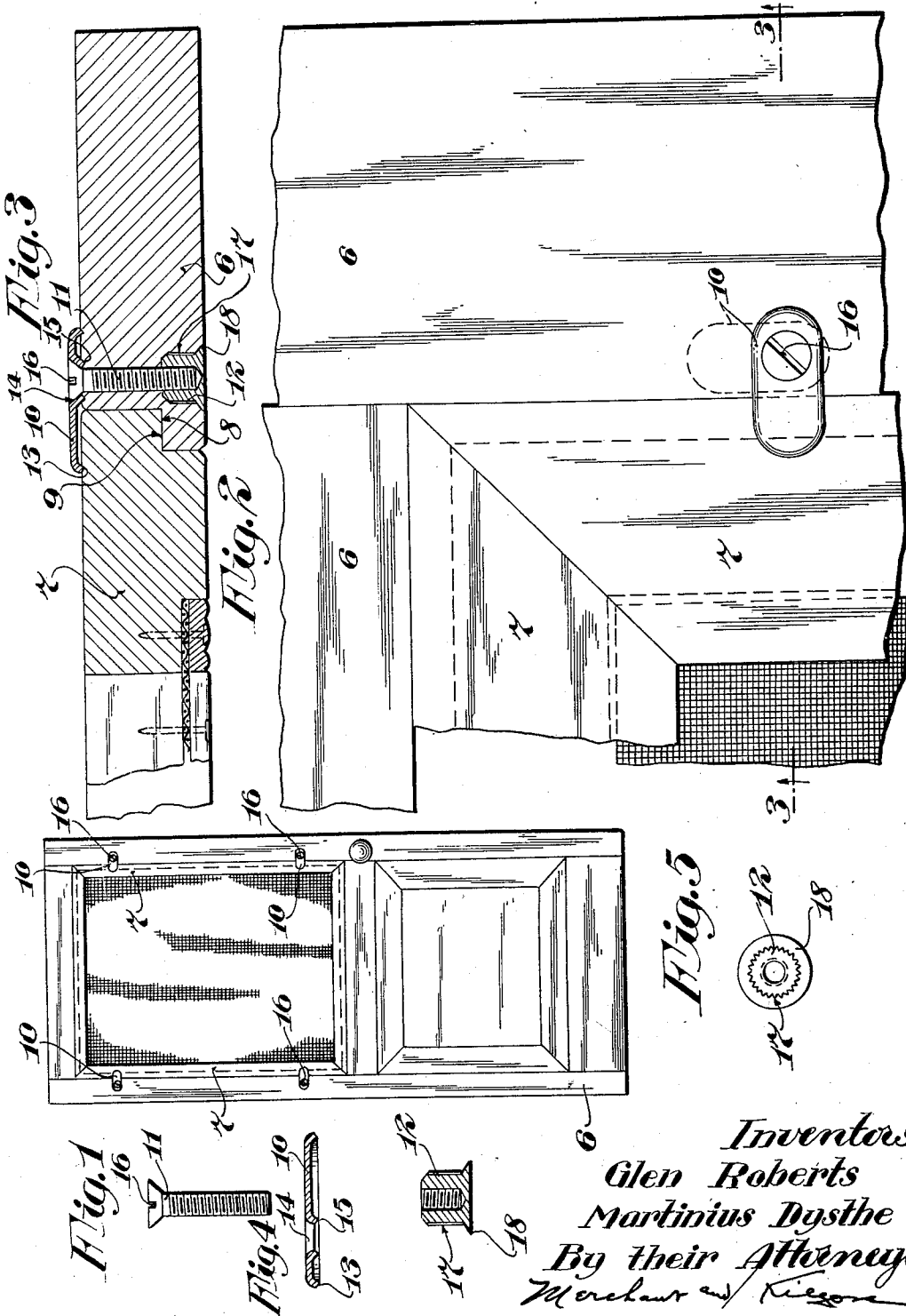
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COMBINATION SASH AND SCREEN DOOR FASTENER

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UNITED STATES PATENT OFFICE

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COMBINATION SASH AND SCREEN DOOR FASTENER

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Our invention has for its object the provision of a simple and highly efficient fastener especially adapted for detachably securing interchangeably usable screen and glazed panels in doors.

To the above end, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claim.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a front elevation of a door having a removable screen panel held in position by a plurality of the improved fasteners;

Fig. 2 is a fragmentary front elevation of the door and screen panel showing the upper right hand fastener, on an enlarged scale;

Fig. 3 is a detail view in section taken on the line 3—3 of Fig. 2;

Fig. 4 is a view partly in elevation and partly in section showing the members of one of the fasteners separated; and

Fig. 5 is an inner end view of one of the nut-acting members.

The numeral 6 indicates a door of the type having interchangeable usable screen and glazed panels the former of which is shown and indicated by the numeral 7. The outer edge portion of the panel 7 is rabbeted at 8 and mounted in a rabbeted seat 9 in the outer face of the door 6.

Applied to the door 6 is a plurality, as shown 4, of the improved fasteners for detachably holding the panel 7 in place. Each fastener comprises a turn-button 10, a screw 11 and a nut-acting member 12.

The turn-button 10 is in the form of a flat elongated plate having rounded ends. On the inner face of the turn-button 10 at the margin thereof is an endless reinforcing rib 13. Formed in the turn-button 10 at its transverse center near the axis of one of its rounded ends is a countersunk hole 14 for the screw 11. An endless reinforcing rib 15 surrounds the hole 14 and is formed with the turn-button 10 on the inner face therewith. As shown, both ribs 13 and 15 are V-shaped in cross section.

The screw 11 has a flat head with a nick 16 for a screw driver. The upper face of the head of the screw 11 is flush with the upper face of the turn-button 10, as best shown in Fig. 3. The nut-acting member 12 is of annular cylindrical form and has in its periphery a multiplicity of circumferentially spaced and longitudinally extended serrations 17. Said nut-acting member 12 has a chamfered inner end and formed therewith at its outer end is an annular external flange 18, the outer face of which is flush with the outer end of said member. The inner face of the flange 18 is transversely beveled from the exterior of the nut-acting member 12 to a sharp edge at the outer face of said member and flange.

The nut-acting member 12 is driven into a bore in the inner face of the door 6 of such a diameter that the serrations 17 cut into the stock of said door and hold said member from turning at the time the screw 11 is either turned into or out of said member. Said screw 11 is mounted in a bore in the door 6 of such diameter that the same will freely turn therein. The fasteners are so positioned in respect to the joint between the door 6 and screen panel 7 that, when turned into inoperative positions, as indicated by broken lines in Fig. 2, they are just outside of said joint so that the screen panel 7 may be freely placed in the seat 8 or removed therefrom. When the turn-buttons 10 are turned into operative positions, as indicated by full lines, they overlap the screen panel 7 and securely hold the same in position.

At the time the screen panel 7 is placed in its seat 8, the turn buttons 10 are turned, as indicated by broken lines in Fig. 2, and then turned into their full line positions after said screen is in position. With the turn buttons 10 in their full line positions, the screws 11 are turned into the nut-acting members 12 by a screw driver and this movement of said screws draws the flanges 18 on said members into the door 6, as shown in full lines in Fig. 3, so that the outer face of the nut-acting member 12 and its flange 18 are flush with the outer face of the door. This tightening action of the screws 11 also

presses the ribs 13 and 15 into the outer face of the door 6 and screen panel 7 so that the turn-buttons 10 cannot turn on the screws 11. As the heads of the screws 11 are flush with the inner faces of the flat turn buttons 10 and the corners of said turn button rounded, there is no danger of scratching the doors 6 when piled one upon the other.

To remove the screen panel 7 from the door 6 it is only necessary to loosen the screws 11 sufficiently to release the ribs 13 and 15 from their biting contact with said door and screen panel 7 to allow the same to swing on the screws 11 into inoperative positions.

The ribs 13 and 15 reinforce the turn-buttons 10 so that comparatively light stock may be used from which they are formed and at the same time have enough rigidity so that they will not bend or warp under the clamping action of the screws 11. The ribs 13 and 15 are formed by upsetting the stock in the turn-buttons 10 at their outer marginal edges and surrounding the holes therein. The upsetting of the stock surrounding the screw hole which forms a rib 15 countersinks the turn-button to receive the head of the screw 11 so that the flat top thereof is flush with the outer face of said turn-button.

What we claim is:

A fastener of the kind described comprising an elongated turn-button having at one end a screw hole and an inwardly extended re-enforcing rib surrounding said hole forming a countersunk seat for a screw head, said turn-button being relatively thin and having on its inner face, at its marginal edge a re-enforcing rib, a screw extending through said hole with its head in said countersunk seat, the outer edges of the ribs being in substantially the same plane, and a nut-acting member applied to the screw and having at its outer end an external flange beveled to a sharp outer edge.

In testimony whereof we affix our signatures.

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