April 8, 1930. F. S. CARR 1,754,209

FASTENER

Original Filed Oct. 23, 1925

Fig. 1.

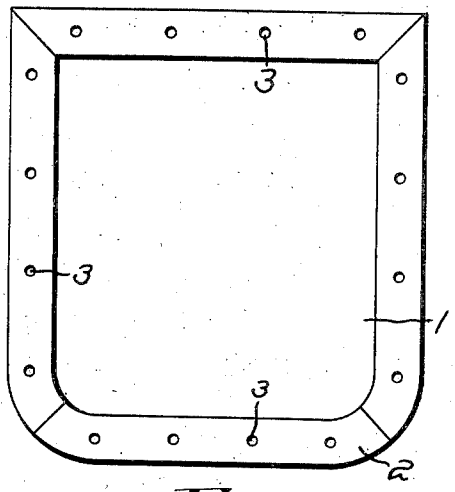


Fig. 2.

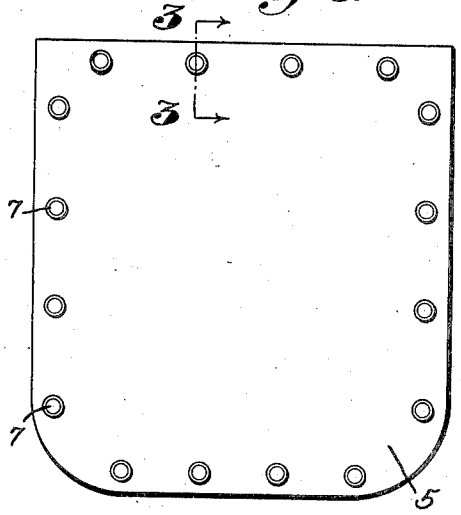


Fig. 3.

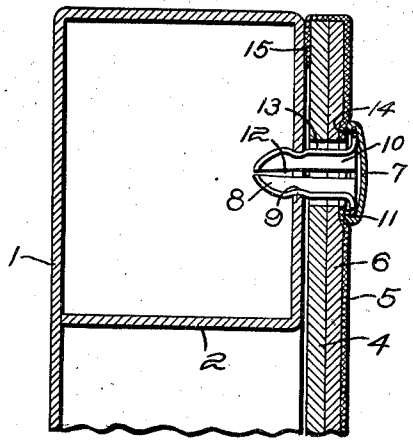


Fig. 4.

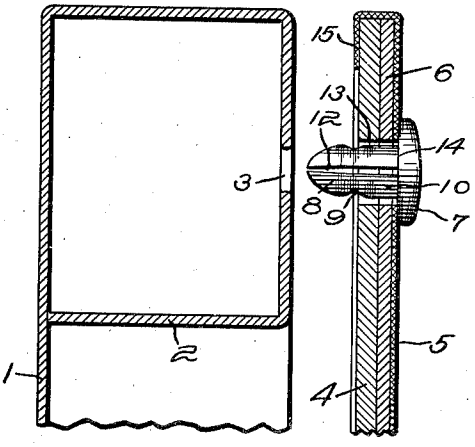


Fig. 5.

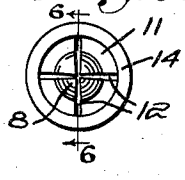


Fig. 6.

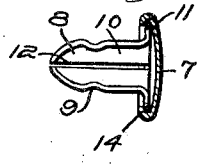
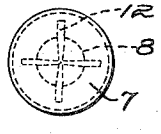


Fig. 7.



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UNITED STATES PATENT OFFICE

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FASTENER

Original application filed November 1, 1924. Serial No. 747,229. Divided and this application filed October 23, 1925. Serial No. 64,345. Renewed February 9, 1929.

This invention aims to provide an improved fastener stud particularly, though not exclusively, useful for securing upholstery to a framework.

The application is a division of my prior application Serial No. 747,229, filed November 1st, 1924.

In the drawings, which illustrate a preferred embodiment of my invention:—

Figure 1 is an elevation view of the inside of an automobile door before the upholstery is secured thereto;

Fig. 2 is an elevation view of the door after the upholstery has been secured thereto by a plurality of fastener elements;

Fig. 3 is a section on the line 3—3 of Fig. 2;

Fig. 4 is a section of the parts shown in Fig. 3, but showing the upholstered part disengaged from the frame of the door and showing a fastening member in elevation;

Fig. 5 is an end elevation of one of the fastening members;

Fig. 6 is a section on the line 6—6 of Fig. 5; and

Fig. 7 is an end elevation of the fastening member as viewed from the opposite end from that shown in Fig. 5.

Referring to the drawings, I have shown an upholstery installation which comprises a part to be upholstered, an upholstered part for covering one side thereof and a plurality of fastener studs which engage with the part to be upholstered to hold the upholstered part in assembled relation therewith.

The part to be upholstered is, as illustrated, an automobile door 1 having a metal frame 2 which presents a plurality of stud-receiving apertures 3 preferably punched or drilled into the frame before the door is formed, thereby to simplify the manufacture of the door.

The upholstered part comprises a relatively stiff backing 4 shaped to cover one side of the door 1 and covered with a flexible covering 5 of leather, fabric or the like to provide a neat and finished appearance to the inside of the door when secured to the door frame 2. Between the backing and covering, I have provided a layer of wadding or padding 6, which may be omitted, but which, as illustrated in Figs. 3 and 4, provides a softer surface to the upholstered part.

While tacks have been used in securing upholstery to framework, I prefer to use a plurality of studs which, when secured to the frame, present cap portions or caps 7 adjacent the periphery of the upholstery part which provide the same effect as tacking. The studs, however, are more easily and quickly applied than tacks and can be easily removed to permit cleansing or removal of the upholstered part.

The studs for use in connection with the installation, as illustrated, are provided with a head 8, a neck 9, a relatively long shank portion 10, flat base portion 11 and a plurality of slots 12, which extend throughout the entire length of the head, neck and shank and into the base portion far enough to permit the greater part of the contraction and expansion of the stud to take place upon straight lines passing through the material of the base 11 between the ends of the slots. The slots, as illustrated in Figs. 5 and 6, converge from the neck of the stud to the end of the head so that initial contraction of the head 8 of the stud, during entrance in a stud-receiving aperture 3, is effected upon the lines between the ends of the slots in the base, until the outer ends of the stud contact. Final contraction of the head, after the resilient portions of the head of the stud engage each other, is effected by flexing the resilient portions between the point where they contact at the head of the stud and the ends of the slots in the base portion. Thus when the studs are entered through the apertures 13 in the upholstered part and the heads 8 enter the stud-receiving apertures 3 in the frame 2 of the door 1, the heads initially contract under slight pressure upon the caps 7 while final contraction to force the head through the aperture is only effected by a relatively greater push upon the caps 7, thereby engaging the necks 9 with the wall surrounding the stud-receiving aperture 3. The studs are then tightly secured to the frame 2 of the door 1, as illustrated in Fig. 3.

The caps 7 are secured to the bases 11 of the studs by bending a portion of the periph-

ery of each cap 7 over the base portion 11 of the stud, as illustrated in Figs. 3 and 4, and the caps are preferably convex in cross-section so as to be spaced away from the base 11 of the stud to permit contraction of the base upon the lines between the ends of the studs without interference from the cap 7. These caps are pressed from metal and while they may be covered with an upholstery material to match the covering 5 of the upholstered part, I prefer to press imitation leather grain marks in the face of them (Fig. 7) and cover them with enamel or paint of any desired color.

The apertures 13 in the upholstered part are relatively larger in diameter than the diameter of the shanks 10 of the studs, and therefore permit engagement of the studs with the apertures without necessity of absolute alignment within a fraction of an inch of the apertures in the upholstered part with the apertures in the frame.

When the upholstered part is secured to the door by the studs, as illustrated in Figs. 2 and 3, the caps 7 cover the apertures 13 in the upholstered part and the inwardly bent portion 14 of the cap 7 presses into the upholstered part to provide a tension on that part, thereby to hold it tightly against the frame 2 and grip the overlapped edge 15 of the covering 5 tightly between the frame 2 and the backing 4, as best illustrated in Fig. 3.

While I have shown and described my invention as applied to an automobile door, it will be understood that upholstery may be secured to other framework in substantially the same manner without departing from the scope of my invention, which is more fully set forth in the appended claims.

Claims:

1. A separable fastener stud including a head, a neck, a shank and a base portion, a plurality of slots extending from the end of said head a substantial distance into the base of said stud to permit contraction of said head, said slots being relatively narrower adjacent the end of the head than at the base portion, thereby to permit initial contraction of said head by flexing the material between the ends of the slots in said base portion and thereafter to provide for final contraction of said head by flexing the material between the abutting ends of the resilient portions of said head and the base of said stud.

2. A separable fastener stud including a head, a neck, a shank and a base portion, a plurality of slots extending from the end of said head a substantial distance into the base of said stud to permit contraction of said head, said slots being relatively narrower adjacent the end of the head than at the base portion, thereby to permit initial contraction of said head by flexing the material between the ends of the slots in said base portion and thereafter to provide for final contraction of said head by flexing the material between the abutting ends of the resilient portions of said head and the base of said stud, and a cap secured to the base of said stud, said cap spaced away from the base of said stud adjacent the ends of said slots to permit flexing of said base toward said cap.

3. A separable fastener stud having a head, a neck and a base, said head and neck being divided by a number of slots to provide a number of yieldable portions between said slots and said yieldable portions being arranged to have the edge of one closer to the edge of another adjacent to the end of the head than at their other ends to permit contact of the said edges adjacent to the head prior to complete contraction of the stud when being engaged with a cooperating socket.

In testimony whereof, I have signed my name to this specification.

FRED S. CARR