Oct. 18, 1927. 1,646,345

F. S. CARR

FASTENER

Filed Dec. 20, 1924

Fig. 1.

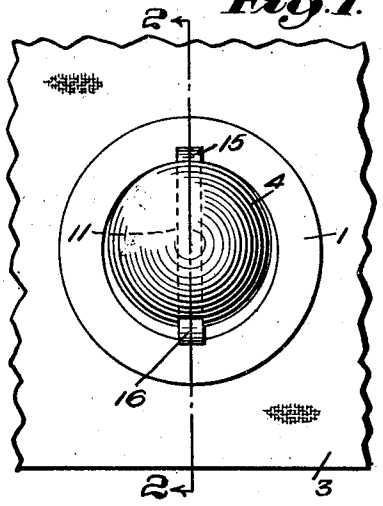


Fig. 2.

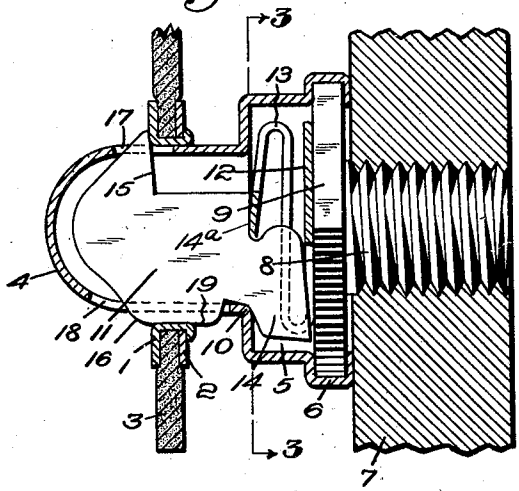


Fig. 3.

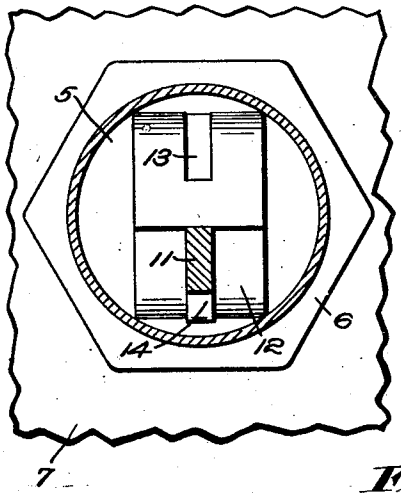


Fig. 4.

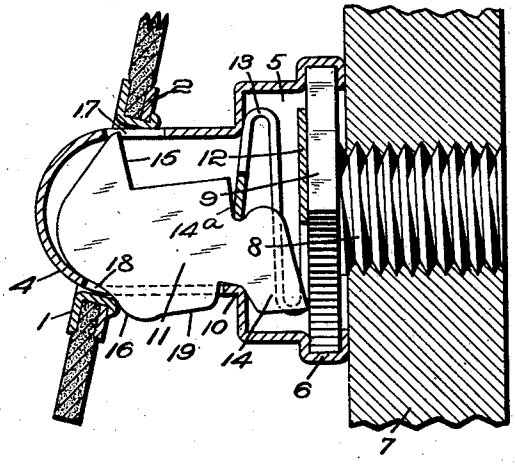
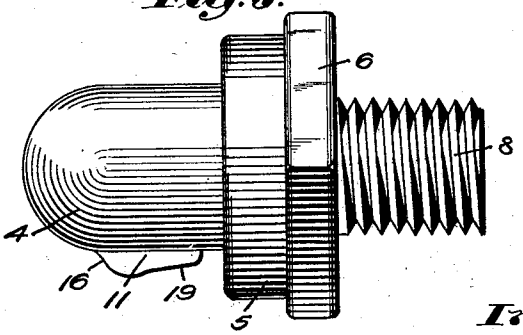


Fig. 5.



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UNITED STATES PATENT OFFICE.

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FASTENER.

Application filed December 20, 1924. Serial No. 757,156.

This invention aims to provide an improved stud and socket fastener.

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

Figure 1 is a front elevation of the fastener;

Fig. 2 is a section on the line 2—2 of Fig. 1, being partly in elevation;

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

Fig. 4 is a section similar to Fig. 2, but showing the socket being engaged with the stud; and

Fig. 5 is a side elevation of the preferred form of stud.

Referring to the drawings, I have shown, as illustrated, a socket of the simple grommet type which includes a front plate 1 and back plate 2 secured to the curtain 3 of an automobile, or the like, in the usual manner for engagement with the improved stud which is secured to the body of the car.

The stud, as illustrated, comprises a hollow shank portion 4, a spring retaining chamber 5 and a hexagonal base portion 6, all pressed from a single piece of metal and secured to the body 7 of an automobile, or the like, by the screw 8 having a hexagonal head 9 cooperating with and secured to the base portion 6 of the stud. The stud is also provided with an annular shoulder 10 (Figs. 2 and 4) between the shank portion 4 and spring-retaining chamber 5 upon which I have pivoted a latch 11 held in position against its pivot by a relatively wide S-shaped spring 12 having a relatively narrow slot in the center thereof through which the tail 14 of the latch (Figs. 2 and 3) passes to assist in maintaining the latch in a vertical position. The spring 12 is, as illustrated, in Figs. 2 and 4, seated at one end against the face of the head 9 of the attaching screw 8 and at the other end against an abutment 14^a substantially in the plane of the annular shoulder 10, so as to maintain the latch 11 upon the annular shoulder as a pivot for the latch and also to maintain the latch under tension at all times.

In the normal position of the latch 11 (Figs. 4 and 5), only a portion of it is exposed at the lower surface of the shank 4, but when the shank is engaged with the socket or grommet (Fig. 2), portions of the latch are exposed at the upper and lower exterior surface of the shank for engagement with the grommet.

When the grommet is secured to the stud, the abrupt portion 15 of the latch protrudes through the slot 17 in the upper part of the shank 4 and engages the front plate 1 of the grommet (Fig. 2) and the cam-shaped portion 16, of the latch, protrudes through the slot 18 in the lower part of the shank 4 and the straight part 19 of the cam-shaped portion engages the tubular part of the grommet. Thus the stud and socket are engaged and may be separated only by a pull at the lower edge of the curtain 3, as more fully hereinafter described.

In securing the stud and socket together, the grommet first engages the exposed cam-shaped portion 16 of the latch and the pressure exerted upon the grommet causes it to tip slightly relative to the shank 4, as shown in Fig. 4, whereby a further push on the grommet 1 operates upon the cam-shaped portion 16 of the latch 11 to force the abrupt shoulder portion 15 through the slot 17 and in front of the front plate 1 of the grommet, as best illustrated in Fig. 2. In this view, the grommet is shown locked, by the abrupt shoulder 15, to the stud against separation by a strain exerted on the curtain from the top and both sides, thus providing a three-side lock fastener.

Separation of the fastener is effected by a pull at the lower edge only, because the grommet may be tipped in that direction with the abrupt shoulder portion 15 acting as a pivot point for the grommet until that portion of the grommet which engages the cam portion 16, of the latch, passes over the high point of the cam edge and permits the spring 12 to draw the abrupt shoulder 15 into the hollow shank so that the grommet may pass over it and be released from the shank of the stud.

While I have shown and described a preferred embodiment of my invention, it will be understood that changes involving omission, substitution, alteration and reversal of parts, and even changes in the mode of operation, may be made without departing from the scope of my invention, which is best defined in the following claims.

Claims:

1. A stud and socket fastener comprising, in combination, a grommet secured to a flex-

ible socket-carrying medium, a stud secured to a rigid support and presenting a hollow shank, a shoulder integral with said shank, a latch pivoted upon said shoulder, said latch being wider adjacent the outer end of the shank than the diameter of the shank, cam means provided at one edge of said wide portion and a locking shoulder provided at the opposite edge for preventing separation of the fastener except by a pull adjacent to said cam means, and a spring for positioning said latch upon said shoulder, thereby to provide a pivot about which said latch may swing when engaging and disengaging said grommet.

2. A fastener stud comprising a hollow shank having diametrically opposed slots parallel to the axis of said shank, attaching means secured to the base of the stud for securing the stud to a support, a recess interposed between said base and said hollow shank, a shoulder between said recess and said hollow shank, a latch pivoted upon said shoulder and presenting socket-engaging portions through said slots when the socket is engaged with said hollow shank, and a spring in said recess for maintaining said latch in pivotal relation with said shoulder and operatively urging said latch into its normal position.

3. A fastener stud comprising a hollow shank having diametrically opposed slots parallel to the axis of said shank, attaching means secured to the base of the stud for securing the stud to a support, a recess interposed between said base and said hollow shank, a shoulder between said recess and said hollow shank, a latch pivoted upon said shoulder and presenting socket-engaging portions through said slots when the socket is engaged with said hollow shank, and a return bend spring in said recess for maintaining said latch in pivotal relation with said shoulder and operatively urging said latch into its normal position.

4. A fastener stud comprising a hollow shank having diametrically opposed slots parallel to the axis of said shank, attaching means secured to the base of the stud for securing the stud to a support, a recess interposed between said base and said hollow shank, a shoulder between said recess and said hollow shank, a latch pivoted upon said shoulder and presenting socket-engaging portions through said slots when the socket is engaged with said hollow shank, and a relatively wide S-spring in said recess for maintaining said latch in pivotal relation with said shoulder and operatively urging said latch into its normal position, and a slot in said spring for maintaining said latch in an upright position relative to said shank.

5. A fastener stud including a shank portion, a spring-retaining chamber, and a base portion formed from a single piece of metal, a shoulder between said chamber and shank, a latch pivoted upon said shoulder at one side of the shank and presenting an edge portion for engagement with a socket at the opposite side of the shank from which the latch is pivoted and a spring in said chamber seated at one end against said latch, to maintain said latch on said shoulder and normally maintain said socket-engaging edge within said shank to permit engagement of a socket with said stud.

6. A fastener stud comprising a hollow shell having a shank portion, presenting diametrically opposed slots parallel with the axis of the stud, an internal shoulder formed integral with the shank portions, a latch positioned upon said shoulder and a spring seated upon said latch at one end to hold said latch in position upon said shoulder, said latch normally presenting a cam-shaped edge through one of said slots, and a locking shoulder opposite said cam-shaped edge for presentation through one of said slots when a socket is engaged with the stud to lock the stud and socket together.

7. A fastener stud having a hollow shank portion presenting opposed slots, a latch pivoted upon said shank portion and presenting means for engagement with a socket at two diametrically opposed sides of said shank, a relatively wide spring seated at one end against the inner end of said latch to maintain said latch upon its pivot and a slot in said spring to permit passage therethrough of the tail of said latch for maintaining said latch in cooperative relation with the slots in said shank portion.

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

FRED S. CARR.