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G. JOHNSON

SEPARABLE FASTENER

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Fig. 1.

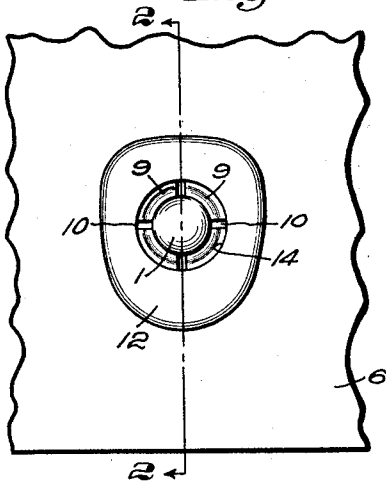


Fig. 2.

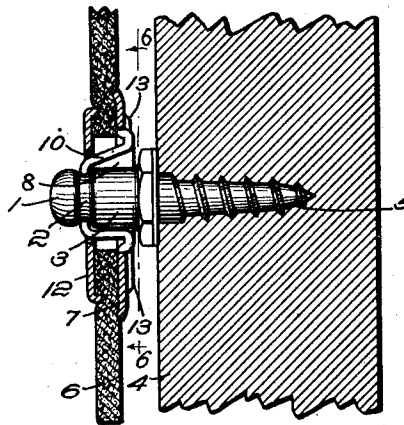


Fig. 3.

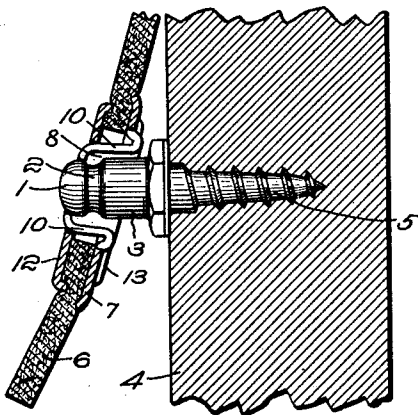


Fig. 4.

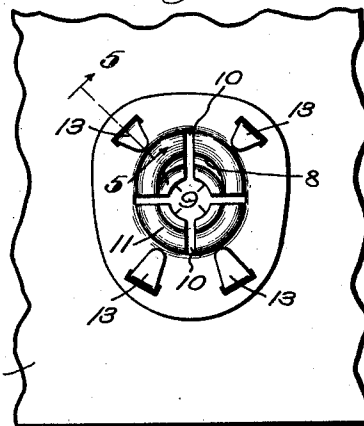


Fig. 5.

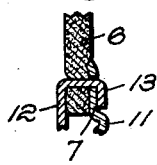
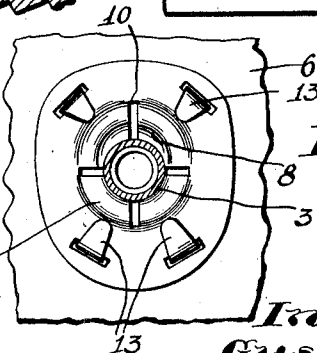


Fig. 6.



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SEPARABLE FASTENER.

Application filed December 20, 1924. Serial No. 757,151.

This invention aims to provide an improved separable fastener, primarily, though not exclusively, for use as a three-side lock fastener.

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

Figure 1 is a front elevation of the stud and socket;

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

Fig. 3 is a section similar to Fig. 2, but showing the socket being tipped out of engagement with the stud;

Fig. 4 is a rear elevation of the socket;

15 Fig. 5 is a section on the line 5—5 of Fig. 4, showing the means for securing the socket to its carrying medium; and

20 Fig. 6 is a section on the line 6—6 of Fig. 2, showing the resilient fingers closely embracing the stud at three sides while being spaced away from the stud at the fourth side adjacent the entrance of the socket.

Referring to the drawings, I have shown a three-side lock fastener which includes the 25 usual stud having a relatively short head 1, neck 2 and shank portion 3 secured to a support 4 (which may be the body of an automobile or the like) by the usual screw 5.

30 The fastener, as illustrated, also includes a simple but effective two-piece socket secured to a flexible socket-carrying material or the curtain 6 of an automobile, as best illustrated in Figs. 2 and 3. One of the socket 35 pieces comprises a back plate 7 presenting a stud-receiving portion in the form of a boss providing a plurality of forwardly extending resilient portions 8 which pass 40 through the curtain 6 and beyond the front face of the curtain. The free ends of the resilient portions are turned inwardly and terminate in a wall surrounding a stud-receiving aperture to provide neck-engaging 45 portions 9 for engagement with the neck 2 of the stud, as best shown in Fig. 2.

45 The resilient portions of the socket are separated only by a number of relatively narrow slots 10 (Fig. 4) which extend slightly into the back plate 7 and the resilient portions 8 are materially strengthened, 50 where they join the back plate 7, by providing an embossed portion 11, as best illustrated in Figs. 2, 3 and 4.

55 The other socket piece comprises a front plate 12, which presents a plurality of attaching prongs 13 passing through the cur-

tain 6 (Fig. 5) and clenched against the back plate 7 to secure both parts of the socket to opposite sides of the curtain. The front plate 12 is also provided with an aperture 14, which closely embraces the outer ends of 60 the resilient portions 8 and back supports them, to prevent undue flexing of the neck-engaging portions 9 when engaging and disengaging the stud. Thus I have provide a simple, inexpensive and durable socket 65 which, when assembled, may be operated an indefinite number of times without distortion of the resilient portions thereof.

When the stud and socket are engaged, the resilient portions closely embrace the shank 70 3 of the stud at three sides thereof as illustrated in Fig. 6, while at the fourth side they are spaced away from the shank. These resilient portions form a housing around the shank of the stud when the socket and stud 75 are engaged, which housing is substantially circular in cross-section adjacent to its outer end, and is substantially oval in cross-section where it joins the back plate 7, as shown in Figs. 2, 3 and 5, and the oval-shaped cross- 80 sectional portion is provided by tapering one side of the stud receiving portion so that it may be spaced away from the shank of the stud at the fourth side, as clearly indicated in Fig. 2. Thus the stud and socket are 85 locked against separation by lateral strain, or a tipping action at three sides thereof, namely from above or at both sides, and the socket can only be separated from the stud 90 by a pull at the bottom edge of the curtain 6, as shown in Fig. 3.

The three-side lock is effected by the close fitting of the resilient portions 8 at the three sides of the shank, thereby preventing sufficient tip of the socket relative to the 95 stud to spread the neck-engaging portions, while tipping and separation of the socket from the stud is permitted by a pull at the bottom of the curtain 6 because the resilient portions 8 slope upwardly and away 100 from the shank 3 at the top thereof (Fig. 2), thereby permitting the socket to tip without interference between the resilient portions and the shank 3 of the stud.

While I have shown and described a preferred embodiment of my invention, it will be understood that my invention is best 105 pointed out in the following claims.

Claims:

1. A separable fastener comprising, in 110

combination, a stud having a head, a neck and a shank portion, a cooperating socket including a back plate and a front plate adapted to be secured to opposite sides of a carrying medium, a boss portion providing a plurality of resilient stud-engaging fingers extending from said back plate through the carrying medium toward said front plate, said fingers surrounding the stud-receiving aperture passing through said back plate, and means extending from one plate through the carrying medium to engage the other plate and secure the socket parts in position.

2. A stud and socket fastener comprising, in combination, a stud having a head and a neck, a cooperating socket including a back plate and a front plate adapted to be secured to opposite sides of a flexible carrying medium, a plurality of contractible and expansible fingers surrounding the shank of the stud and presenting neck-engaging jaw portions for engagement with the neck of the stud, said fingers extending from the back plate through an aperture in the front plate and back-supported by the wall surrounding the aperture in said front plate.

3. A fastener socket including a front plate and a back plate secured to opposite sides of a flexible fabric, a plurality of resilient fingers extending from said back plate toward the front plate and providing adjacent said front plate a plurality of neck-engaging portions for engagement with the neck of a stud and an aperture extending entirely through the socket to permit passage of the head of a stud.

4. A fastener socket including a front plate and a back plate secured to opposite sides of a flexible fabric, a plurality of resilient fingers extending from one of said plates toward the other of said plates and providing adjacent said plate a plurality of neck-engaging portions for engagement with the neck of a stud, said resilient fingers closely embracing the shank of a stud at three sides thereof to prevent separation of the socket from the stud by a tipping strain at three sides thereof and spaced away from the shank at the fourth side to permit disengagement of the socket from the stud by tipping the socket relative thereto by a pull at a predetermined side thereof.

5. A separable fastener socket including a back plate located at the back face of a socket-carrying support and presenting a plurality of resilient portions extending through the support toward the front face thereof, a front plate presenting attaching means for securing said back plate to the socket-carrying support, neck-engaging portions extending from the free ends of said resilient portions beyond the front face of said front plate, and an aperture in said front plate surrounded by a wall closely

embracing the free ends of said resilient portions for limiting the movement of the neck engaging portions.

6. A separable fastener socket including a back plate located at the back face of a socket-carrying support and presenting a plurality of resilient portions extending through the support toward the front face thereof, a front plate presenting attaching means for securing said back plate to the socket-carrying support, neck-engaging portions extending from the free ends of said resilient portions beyond the front face of said front plate, an aperture in said front plate surrounded by a wall closely embracing the free ends of said resilient portions for limiting the movement of the neck-engaging portions, and a stud-receiving aperture in said back plate surrounded by said fingers which closely embrace three sides of the shank of the stud to prevent tipping of the socket relative to the stud by a tipping strain exerted at three sides thereof and extended at the fourth side to permit separation of the socket from the stud by tipping the socket in a predetermined direction relative to the stud.

7. A separable fastener socket including a stud-receiving part formed from a single piece of metal provided with contractible and expansible portions adapted to closely embrace three sides of the shank of a stud while being extended at the fourth side to permit tipping of the socket relative to the stud by a pull at one side only neck-engaging portions extending from the free end of said contractible and expansible part for engagement with the neck of a stud and attaching means whereby said stud-receiving part may be secured to a suitable carrying medium.

8. A separable fastener socket including a stud-receiving plate located at the rear face of a flexible socket-carrying support, said plate having integral resilient stud-engaging means passing through a hole in the flexible socket-carrying medium, a generally oval-shaped wall provided by said resilient means for preventing separation of the socket from a stud by tipping strain exerted at three sides thereof and a front plate located at the opposite side of the support from said stud-receiving plate and providing a plurality of attaching prongs extending therefrom through the carrying medium and engaging and securing said stud-receiving plate to the flexible socket-carrying medium.

9. A separable fastener socket for three-side lock fasteners comprising a plate for attachment to that side of the socket-carrying medium from which the stud enters, means for securing said plate to the carrying medium, said plate presenting a stud-receiving portion extending through an aper-

ture in the carrying medium toward the opposite side thereof, said stud-receiving portion being tapered at one side only and presenting an aperture in its end surrounded by a wall for fastening engagement with a cooperating stud.

10. A separable fastener socket for three-side lock fasteners comprising a plate for attachment to that side of the socket-carrying medium from which the stud enters, means for securing said plate to the carrying medium, said plate presenting a stud-receiving portion extending through an aperture in the carrying medium toward the opposite side thereof, said stud-receiving portion being slotted to provide resiliency and also presenting an aperture in one end surrounded by a wall for making resilient fastening engagement with a cooperating stud, said stud-receiving portion being non-circular in the plane of said plate to permit tipping of the socket relative to the stud in at least one direction while opposing any substantial tipping of said socket relative to the stud in at least the opposite direction.

11. A separable fastener socket for three-side lock fasteners comprising a plate for attachment to that side of the socket-carrying medium from which the stud enters, metallic attaching means securing said plate to the carrying medium, said plate presenting a stud-receiving portion extending substantially at a right angle relative to said plate and through an aperture in the carrying medium toward the opposite side thereof, said stud-receiving portion also extending away from said plate in the opposite direction to provide greater length to the stud-engaging portion and said stud-engaging portion being divided by a plurality of slits throughout its entire length to provide a plurality of relatively long resilient stud-engaging fingers and three-side locking means provided by said fingers.

12. A separable fastener comprising, in combination, a stud having a head, a neck, and a shank, a cooperating socket including a plurality of resilient stud-engaging fingers surrounding the shank of the stud when the stud and socket are engaged, said fingers being generally parallel with the axis of said stud at three sides while being tapered at the fourth side so as to be spaced away from the shank of the stud and a neck-engaging jaw presented at the free end of each of said fingers for engagement with the neck

of the stud thereby to secure the socket to the stud.

13. A three-side lock fastener comprising, in combination, a stud member and a cooperating socket for engagement with said stud member, said socket comprising a stud-receiving part located at the rear face of a socket-carrying medium, said stud-receiving part having integral therewith a plurality of fingers providing a boss portion passing through a hole in the socket-carrying medium, said fingers being provided with jaw means at their outer ends for engagement with said stud, said fingers providing an oval-shaped wall closely embracing the stud at three sides and spaced a substantial distance from the fourth side of the stud thereby providing means for locking the stud and socket against separation except when pulled adjacent to one side thereof and attaching means forming part of the socket installation for securing said stud-receiving part to the carrying medium.

14. A three-side lock fastener socket including a front plate and a back plate secured to opposite sides of a socket-carrying medium, a plurality of resilient stud-engaging fingers extending from one of said plates toward the other plate, jaw portions at the free ends of said stud-engaging fingers and a generally oval shaped wall provided by said fingers, said wall providing for three-side locking cooperation with a stud, thereby preventing separation of the socket from the stud except by a pull at a predetermined side thereof.

15. A three-side lock fastener comprising, in combination, a stud having a head, a neck and a shank, a cooperating socket assembly having a stud-receiving plate secured to a carrying medium, a boss portion extending from said plate and surrounding a stud-receiving aperture, said boss portion being divided by a number of slits to provide a series of independent fingers surrounding the stud-receiving aperture for cooperative yieldable fastening engagement with the stud and three-side locking means provided by some of the said fingers and cooperating with the stud to lock the fastener against separation by stresses exerted at three sides thereof.

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

GUSTAV JOHNSON.