Jan. 15, 1929. 1,699,486

M. F. CARR

FASTENER

Filed Nov. 1, 1924

Fig. 1.

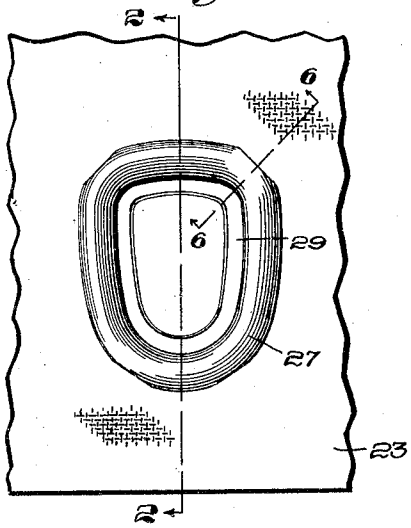


Fig. 2.

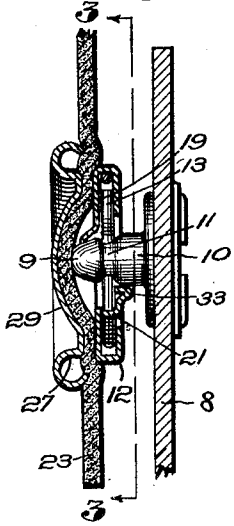


Fig. 3.

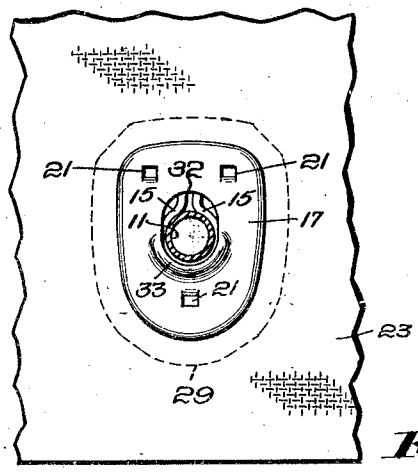


Fig. 4.

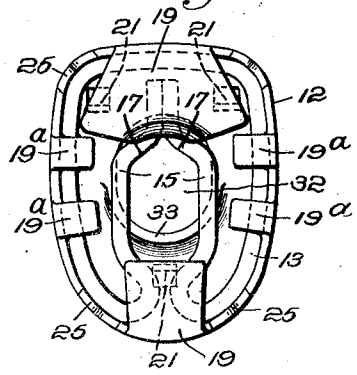


Fig. 5.

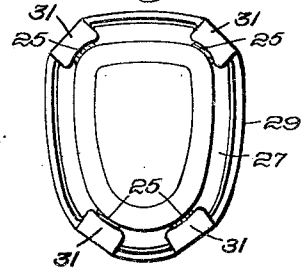


Fig. 6.

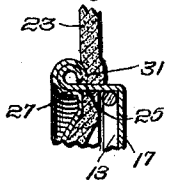
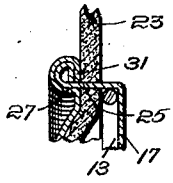


Fig. 7.



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Patented Jan. 15, 1929. 1,699,486

UNITED STATES PATENT OFFICE.

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FASTENER.

Application filed November 1, 1924. Serial No. 747,230.

This invention aims to provide an improved separable fastener.

Referring to the drawings which illustrate a preferred embodiment of my invention,

Fig. 1 is a front elevation of a preferred form of separable fastener;

Fig. 2 is a section on the line 2—2 of Fig. 1;

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

Fig. 4 is a rear view of the socket;

Fig. 5 is a rear view of the clench plate showing the attaching prongs in cross-section;

Fig. 6 is a section on the line 6—6 of Fig. 1, showing an attaching prong before it has been upset; and

Fig. 7 is a section similar to Fig. 6 showing the attaching prong after it has been upset.

Referring to the drawings, I have shown a separable fastener which includes a stud secured to a suitable support and a socket similar to the one shown and described in the copending application to Moses F. Carr, Serial No. 687,748, except that the socket, as illustrated, is located on the back side of the socket-carrying medium. The socket casing also includes the means for preventing separation from the stud by a pull at three sides thereof.

When the socket is secured to the socket-carrying medium, as illustrated, the clench plate conceals the head of the stud and the attachment of the socket to the curtain is stronger than when the socket is secured to the front face of the curtain because the curtain is left intact. Thus the fastener when secured to its support is neater in appearance and is much more durable without increasing the number of parts necessary.

The stud, as illustrated, is secured to a preferably rigid support 8 and presents a socket-engaging head 9, a shank 10, and a neck 11 located between the head and shank of the stud.

The socket, for cooperative engagement with the stud, includes a one-piece socket casing 12 containing a spring 13 having generally parallel jaw portions 15 for engagement with the neck 11 of the stud. The jaws 15, adjacent the free ends thereof, present shoulder portions 17 for closely embracing the neck of the stud while permitting release of the socket from the stud when it is pulled outwardly at the bottom.

In the present embodiment of my invention, the spring is held in place by two large ears 19 and a plurality of smaller ears 19ª substantially as shown and described in the above-mentioned application.

To prevent cramping of the jaws 15 by the inwardly bent ears 19, I have provided a plurality of lugs 21, struck inwardly from the face of the casing thereby to space and support the inwardly bent ears, as illustrated in Figs. 2 and 4.

The upper ear 19, as viewed in Figs. 2 and 4, is bent out of the general plane of the body of the ear adjacent to its inner end to provide for engagement with the head 9 of the stud to assist in preventing separation of the stud and socket.

The casing 12, as illustrated, is secured to the curtain 23 of an automobile, or the like, by a plurality of attaching prongs 25 which extend from the casing 12 and pass through the curtain where they engage and are upset by the anvil portion 27 of the front plate or clench plate 29 located at the opposite side of the curtain 23. Thus the socket is secured in place upon the curtain without making any holes therethrough except for passage of the attaching prongs 25.

The clench plate 29 is so formed that the attaching prongs 25 are preferably bent outwardly and downwardly so as to provide outwardly bent hook portions into which the curtain is pulled when a strain is exerted upon the socket. Adjacent each point on the clench plate 29, at which each prong 25 engages the anvil portion of the clench plate, I have provided inwardly bent portions 31 which are normally curved to support the prongs throughout their entire length, as shown in Fig. 6. After the socket is secured to the curtain, these inwardly bent portions 31 are flattened, (Fig. 7), so as to flatten the end portions of the prongs, thereby to upset the natural curve of the prong and prevent pulling the clench plate free from the prongs when strain is exerted thereupon. Thus I have provided an improved simple and durable means of attaching the socket to the inside face of the curtain.

The front face of the socket has a stud-receiving aperture 32, surrounded by a wall three sides of which fit closely enough to the shank of the stud when the socket and stud are engaged to prevent relative tipping movement between the stud and socket. The upper part of the aperture (Fig. 2) is elon-

gated to provide a clearance to permit tipping of the socket relative to the stud by a pull at the bottom or free edge of the curtain 23. Relative tipping movement between the socket and the stud, in the three other directions, is also opposed by the engagement of the jaw portions 15 of the spring 13 with the shoulder behind the neck of the stud, which, after a limited movement between the socket and stud, is reinforced by engagement of the inner edge of the upper inwardly bent ear 19 with the head of the stud, thereby preventing further tip between the socket and the stud.

While the periphery of the three sides of the aperture 32, which fit relatively close to the shank of the stud, may engage the shank of the stud to prevent separation by an outward strain or a lateral strain on the socket, I prefer to provide an extended bearing surface 33 for engagement with the shank of the stud. This extended bearing surface is formed by a portion of the socket casing which projects first rearwardly, in a direction away from the socket, and then forwardly, terminating adjacent the jaw portions 15 of the spring Thus a bearing surface 33 is provided which is substantially as shown in the above-mentioned application except that, in this instance, it is formed from the socket casing itself, as illustrated in Figs. 2, 3 and 4.

While I have shown and described a preferred embodiment of my invention, it will be understood that I have done so for purposes of clarification, and not for purposes of limitation.

The scope of my invention is best defined by the following claims:

1. A separable fastener comprising, in combination, a stud having a head, a neck and a shank portion, a cooperating socket including a one-piece casing containing a neck-engaging spring held in said casing by a plurality of inwardly bent portions overlying the spring, and means for securing said casing to the inner face of a socket-carrying medium, one of said inwardly bent portions adapted to bear against the head of said stud to prevent separation of said stud and socket by an outward strain exerted upon the curtain from above the socket.

2. A separable fastener comprising, in combination, a stud having a head, a neck and a shank portion, a cooperating socket including a one-piece casing containing a neck-engaging spring held in said casing by a plurality of inwardly bent portions, and means for securing said casing to the inner face of a socket-carrying medium, one of said inwardly bent portions adapted to bear against the head of said stud to prevent separation of said stud and socket by an outward strain exerted upon the curtain from above the socket and a stud-receiving aperture in said casing having a wall closely embracing said stud to co-act with said inwardly bent portion to prevent separation of said socket from said stud.

3. A socket for a three-side lock fastener including a casing formed from a single piece of metal and presenting a face portion, two relatively wide inwardly projecting spring-retaining portions, one of which is extended to closely embrace a portion of the head of a stud and a stud-receiving aperture extending through the face portion of said socket, said aperture presenting a wall having a bearing surface at three sides adapted to relatively closely embrace the shank of a stud, said bearing surface adapted to coact with said extended spring retaining portion to prevent separation of said socket from a stud by tipping strains exerted in three directions, and said stud-receiving aperture being extended at the fourth side to permit separation of a socket from said stud by relative tipping movement in a predetermined direction when the socket is engaged with a stud.

4. A three-side lock fastener socket including a one-piece casing secured to that face of a socket-carrying medium which faces a cooperating stud, a clench plate at the opposite face of said medium for securing said casing to said medium, a spring in said casing for engagement with a cooperating stud, means forming a part of said casing for holding said spring in assembly therewith, and a stud-receiving aperture in said casing having a wall adapted to engage the shank of the stud at three sides while extended at the fourth side to permit tipping of the socket relative to the stud by a pull at the free edge of the socket-carrying medium, a portion of said wall extending from the plane of said casing, first in one direction and then the other, to provide an extended bearing surface at that part of the wall which is adapted to closely embrace the shank of the stud, thereby to prevent separation of said socket from a stud by a lateral strain on the curtain when the socket is engaged with a stud.

5. A separable fastener socket including a spring containing one-piece casing at one side of a flexible socket-carrying medium, a clench plate at the opposite side of the socket-carrying medium and a plurality of attaching prongs extending from said casing through said socket-carrying medium and engaged with and deflected by said clench plate and said clench plate and portions of said prongs being flattened to prevent accidental separation of said clench plate and said casing from the socket-carrying medium.

6. A three side lock fastener socket including a casing having a front face provided with a stud-receiving aperture, a wall extending from said front face for spacing said front face from a support, an ear bent inwardly from the free edge of said wall for engagement with the head of a cooperating stud, said ear co-acting with a wall surround-

ing the stud-receiving aperture to prevent separation of said socket from the stud by tipping movement exerted on three sides thereof and a stud-engaging spring held in said casing and intersecting said aperture for engagement with the neck of the stud, said aperture being extended at the fourth side to permit tipping of said socket out of engagement with the stud.

7. The method of attaching a fastener element to a carrying medium which comprises providing an attaching plate and a fastener part at opposite sides of the carrying medium providing means on one of said parts for deflecting attaching prongs presented by the other part and upsetting and flattening said deflecting means and portions of said prongs to prevent uncurling of said prongs when subjected to stresses and strains.

8. A separable fastener socket installation including a stud-receiving casing part and an attaching part secured to opposite sides of a carrying medium, a plurality of attaching prongs presented by one of said parts and prong-turning means presented by the other part for receiving and turning said prongs and said prong-turning means and the ends of said prongs being flattened to prevent accidental separation of said parts from the carrying medium.

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

MOSES F. CARR.