Jan. 10, 1928. 1,656,037

F. S. CARR

FASTENER

Filed July 22, 1925

Fig. 1.

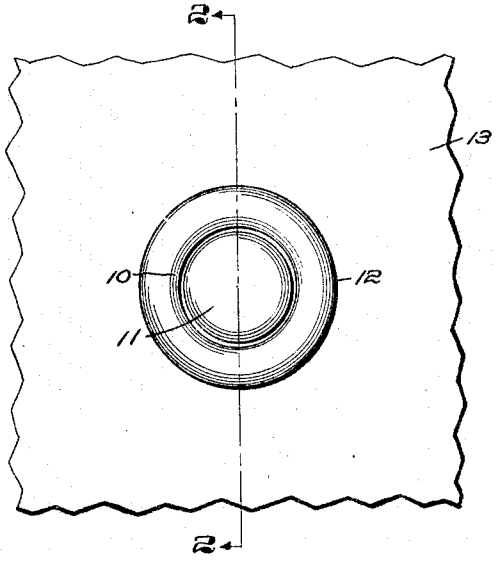


Fig. 2.

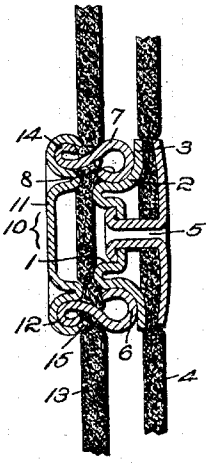


Fig. 3.

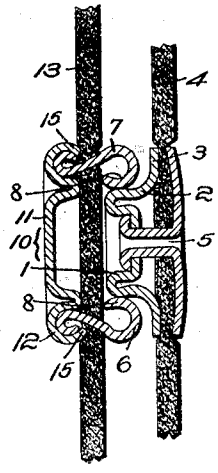


Fig. 4.

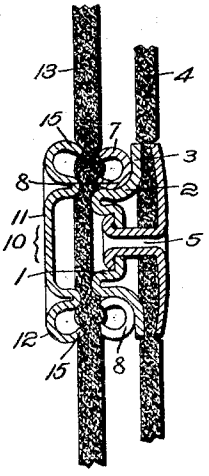


Fig. 5.

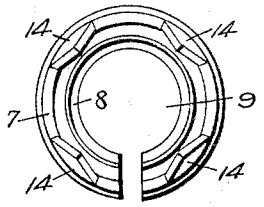
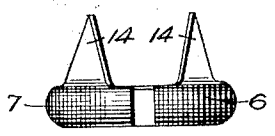


Fig. 6.



Inventor:
Fred S. Carr:
by Emery Booth Jarney, Varney
Attys

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UNITED STATES PATENT OFFICE.

FRED S. CARR, OF NEWTON, MASSACHUSETTS, ASSIGNOR TO CARR FASTENER COMPANY, OF CAMBRIDGE, MASSACHUSETTS, A CORPORATION OF MAINE.

FASTENER.

Application filed July 22, 1925. Serial No. 45,269.

This invention aims to provide improvements in separable fasteners.

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

Figure 1 is a front elevation of the fastener as secured to its support;

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

Fig. 3 is a section on the same line as Fig. 2, but showing the maximum expansion of the socket as the stud is being engaged therewith;

Fig. 4 is a section through the split in the stud-receiving part of the socket showing the carrying medium as gripped between the parts of the socket;

Fig. 5 is a plan view of the resilient part of the socket; and

Fig. 6 is a side elevation of the resilient part of the socket.

Referring to the drawings, I have shown a simple, inexpensive and durable snap fastener which is particularly, though not exclusively, useful as a fastener for garments which are laundered by machinery. Its rugged construction prevents its being crushed or distorted to such an extent that the stud and socket cannot be engaged or disengaged properly.

The stud is formed from a single piece of metal, and has a head 1, a neck 2 and base portion 3. It may be secured to the stud-carrying fabric 4 by a rivet 5 substantially as shown and described in my co-pending application, Serial No. 45,265, filed herewith.

The socket installation includes a one-piece stud-receiving part having a split ring body part 6 presenting an outer wall 7 and an inner wall 8 surrounding a stud-receiving aperture 9 for engagement with the neck of the stud. The second part of the socket installation is a cap or prong-receiving attaching member 10 having a central dome-shaped portion 11 surrounded by an anvil portion 12 generally curved in cross-section.

Between the cap and the stud-receiving part lies the socket-carrying fabric 13 to which both parts are secured by a plurality of attaching prongs 14 extending from the wall 7. These prongs pass through the fabric 13 and are bent outwardly and downwardly by the anvil portion 12 of the attaching part 10, thus gripping the fabric between the edge of the anvil portion 12 and the wall 7, as illustrated in Fig. 2.

The upset portions of the prongs conform to the general contour of the anvil portion 12, so that the portions of the prongs which contact with the cap are held rigidly thereby. That portion of each prong which lies between the first point of contact with the cap 10 and the edge of the wall 7 is free to expand and contract slightly. Thus the stud-engaging part expands and contracts about points A, as illustrated in Fig. 3, because of the flexibility of the fabric 13 and the annular space between the prongs and the inturned edge 15 of the attaching member 10.

During engagement of the stud with the socket, the head 1 passes into the stud-receiving aperture 9, engages the curved wall 8 (Fig. 3) and expands the stud-receiving part 6 to permit the head to pass into the socket as illustrated in Fig. 2. During expansion, the body portion 6 pivots about the points within the anvil portion 12 and squeezes the fabric tighter between the inturned edge of the cap 10 and the upper edge of the wall 7. When disengaging the socket from the stud, the above-described gripping action insures a tighter grip on the fabric as the strain is increased on the parts of the socket, thereby preventing the parts from being loosened from their carrying fabric when a pull is exerted upon the fabric.

While some of the claims of this application are broad enough to read on structures shown by other applications of applicant filed on the same date as this application, they are not broad enough to conflict with the claims of applicant's above mentioned co-pending application. Applicant has in this application elected to claim specifically the particular type of attachment wherein the prongs are presented by the resilient fastener element, portions of the prongs being held rigidly by an attaching part while the remaining portions may flex with the resilient element.

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 rather than limitation, my invention being best defined in the appended claims.

I claim—

1. A fastener unit comprising, in combination, a body part for engagement with a cooperating fastener element, a plurality of prongs presented by said part for securing it to a suitable carrying medium and a cap for receiving and upsetting portions of said prongs at the opposite side of the carrying medium from said body part to secure said parts to the carrying medium, the upset portions of said prongs being held in a fixed relation with said cap while permitting the remaining portions of said prongs to yield with said body part during engagement with and disengagement from its cooperating fastener element.

2. A fastener socket comprising, in combination, a slit stud-receiving part presenting a plurality of attaching prongs and prong-receiving means located on the opposite side of a socket-carrying medium from said stud-receiving part, portions of said prongs passing through the socket-carrying medium and gripped rigidly by said prong-receiving means, said socket-carrying medium and the remaining portions of said prongs yieldable to permit free engagement or disengagement of said receiving part with a stud.

3. A fastener socket including a split ringlike stud-engaging part presenting a plurality of integral attaching prongs penetrating a flexible socket-carrying fabric and having their ends rigidly engaging a prong-receiving cap member located at the opposite side of the fabric while the remaining portions of the prongs remain free to yield with said stud-engaging part.

4. A separable fastener installation including a resilient element, a cap member, a fastener-carrying medium between said resilient element and said cap member and attaching prongs for securing said element and member to the carrying medium, said prongs having their ends upset and gripped tightly by one of said parts while being yieldable beyond said upset portions to permit free expansion and contraction of said resilient element.

5. A fastener socket including a one-piece split ringlike stud-engaging part presenting a plurality of integral attaching prongs penetrating a flexible socket-carrying fabric and bent outwardly and downwardly by a cap member located at the opposite side of the carrying fabric from said stud-engaging part, the outwardly and downwardly bent portions of said prongs being held rigidly by said cap and the remainder of said prongs together with said stud-engaging part being distortable relative to the cap for engagement with a stud.

6. A separable fastener including a fastener engaging element having a resilient ringlike portion contractible and expansible as a whole, said ring-like portion presenting a plurality of attaching prongs penetrating a flexible carrying fabric and having their free ends substantial rigidly engaging a prong-receiving cap member located at the opposite side of the fabric to secure the parts of the fastener to the carrying medium, said prongs also providing means for driving the fastener-engaging element and cap member toward each other when the fastener-engaging element is expanded, thereby to provide a tight grip on the carrying medium.

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

FRED S. CARR.