

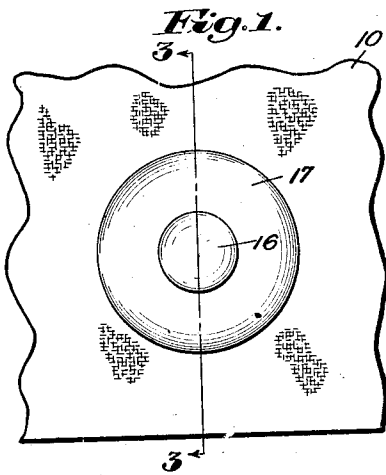
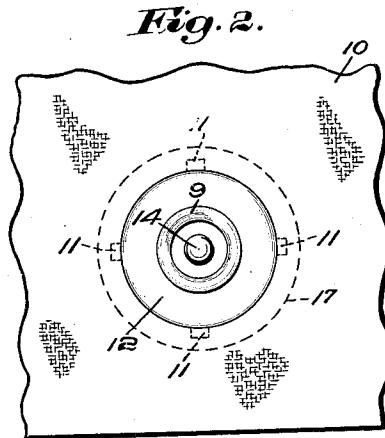
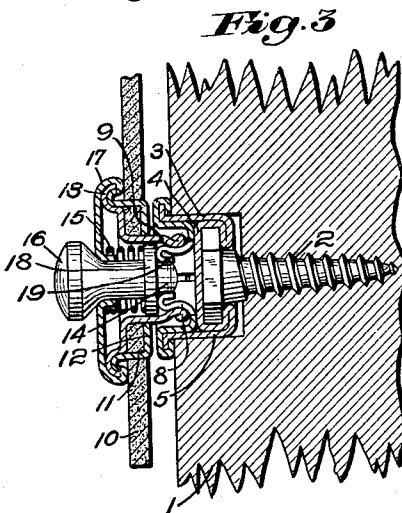
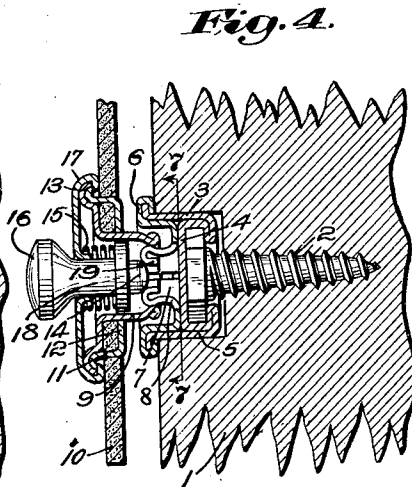
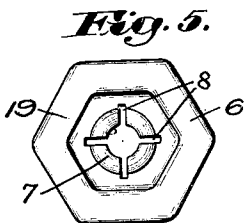
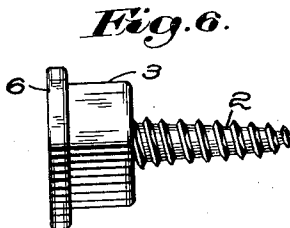
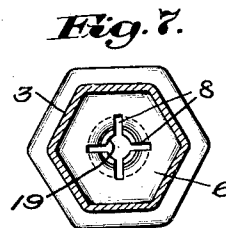
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F. S. CARR

FASTENER

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UNITED STATES PATENT OFFICE.

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FASTENER.

Application filed June 14, 1924. Serial No. 719,928.

This invention aims to provide an improved separable fastener.

In the drawings, which show one illustrative embodiment of my invention:—

Figure 1 is a front elevation of a preferred form of the device;

Fig. 2 is a rear elevation of the socket;

Fig. 3 is a section on the line 3—3 of Fig. 1, being partly in elevation;

Fig. 4 is a section similar to Fig. 3, showing the pull-button out of engagement with the stud;

Fig. 5 is a front elevation of the preferred form of stud;

Fig. 6 is a side elevation of the stud; and

Fig. 7 is a section on the line 7—7 of Fig. 4.

Referring to the drawings and to the preferred form of my invention illustrated, I have shown a fastener particularly useful for securing automobile curtains to the body of the car.

The stud, as illustrated, is countersunk into the body 1 of the automobile and is secured thereto by an attaching screw 2. The casing 3, which is preferably hexagonal in cross-section, presents a recess at the inner end thereof for reception of the hexagonal head of the attaching screw and this recess is formed by pressing a portion of the casing inwardly to provide a wall 4 and a tubular portion 5 projecting beyond the wall. After inserting the head of the screw into the above-mentioned recess, the tubular portion 5 is clenched over the edges of the head of the screw and onto the adjacent face thereof so that there can be no relative movement between the casing and the attaching screw.

The casing also presents a hexagonal flange at the outer end thereof over which is clenched a portion of a hexagonal front plate 6, thereby to secure the parts together and to provide a hexagonal peripheral portion for reception of a socket wrench or the like used to screw the attaching screw into the body of the car. The front plate is pressed inwardly to fit into the casing and presents a socket-engaging head 7 having slots 8 cut therein to permit contraction and expansion thereof. The head is preferably entirely within the casing so that there will be no objectionable projection beyond the surface of the body of the car when the stud is attached thereto.

The socket presents a tubular stud-engaging part 9 which may be secured to the curtain 10 in any suitable manner, but I prefer to secure it thereto by a plurality of prongs 11 presented by a back plate 12 which fits over the stud-engaging part 9. The prongs are forced through the curtain and preferably curved outwardly and downwardly by an anvil part 13 to engage the inwardly bent portion of the front plate 17, which overlies the periphery of the anvil part. Within the socket, I have provided locking means comprising a locking part 14 normally urged forward by a spring 15 seated at one end against a collar 18 secured to the locking means and at the other end against the front plate 17. The locking means passes through the front plate and presents an enlarged knob 16 for manually operating the locking means against the pressure of the spring 15. The front plate 17 holds all the parts of the socket together, limits the movement of the locking means, provides a bearing therefor and presents an annular portion against which the attaching prongs may be clenched to secure the socket in place upon the curtain. Thus most of the assembling of the socket is done at the point of manufacture which aids greatly to reduce the expense of installation to the curtain.

Engagement of the socket with the stud is effected by pressing upon the front plate 17 to urge the stud-engaging part 9 toward the head of the stud. The stud-engaging part 9 engages the head of the stud and forces it to contract slightly before the locking part 14 engages the head of the stud.

Thus the locking part cannot enter the aperture in the head of the stud during the engaging operation, as best illustrated in Fig. 4. Thus the socket is forced over the head of the stud against the pressure of the spring 15 and when it is fully engaged with the stud, the head 7 expands and the locking part 14 is forced into the aperture in the head of the stud by the spring 15, thereby engaging the inwardly bent portions 19 of the stud to prevent contraction of the stud, thereby locking the socket with the stud so that it cannot be separated therefrom except by displacing the locking part.

The fastener may be separated by placing the fingers over the knob 16 and, by pulling or pinching, displacing the locking part

from the head of the stud, thereby permitting contraction and withdrawal thereof from the stud, either by a pull on the curtain or a further pull upon the knob 16.

5 While I have shown and described a preferred form of one embodiment of my invention, it will be understood that changes involving omission, alteration, substitution and reversal of parts, and even changes in
10 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 fastener comprising, in combination,
15 a casing having an attaching screw rigidly secured to one end thereof, a resilient element secured within said casing and presenting a plurality of spring fingers, a cooperating part presenting a recess surrounded
20 by a wall for engagement by said spring fingers and spring finger locking means forming part of the fastener assembly for holding said spring fingers against accidental separation from said cooperating part.

25 2. A fastener comprising, in combination, a casing adapted to be countersunk into a rigid support, means for securing said casing to the support, a fastener element within said casing presenting an aperture at one
30 end thereof surrounded by a plurality of resilient fingers, a cooperating fastener part secured to another support, said part having means providing an internal recess surrounded by a wall for engagement by said
35 resilient fingers and spring pressed locking means of substantially the same cross-sectional area as the normal cross-sectional area of the aperture in said fastener element, said locking means forming part of the
40 socket assembly, said locking means adapted automatically to be pressed into said aperture by the spring thereby to engage said fingers and prevent contraction thereof after
45 said fingers have expanded into engagement with the wall of said recess to lock said fastener parts together, and means also forming part of the socket assembly for dislodging said locking means to prevent separation of the fastener.

50 3. A socket for a separable fastener including a tubular stud-engaging portion passing through a flexible support and extending a substantial distance beyond the
55 inner face of the support, spring-pressed locking and unlocking means shiftable axially relative to said tubular portion and an attaching plate presented at the inner face of the support having a plurality of attaching prongs extended therefrom and passing
60 through the support for engagement with means located at the front face of the support to upset said prongs and secure said tubular stud-engaging portion to the support.

65 4. A separable fastener comprising, in

combination, a flush type stud secured to a rigid support, a contractible and expansible stud head substantially flush with the side of the support and a cooperating socket for engagement with said stud, said socket including a spring-pressed locking part for
70 locking said stud and socket together and a manually operated button for displacing said locking part to permit separation of said stud and socket.

5. A separable fastener comprising, in combination, a flush type stud secured to a rigid support, a contractible and expansible stud head substantially flush with the side of the support and a cooperating socket for engagement with said stud, said socket including a spring-pressed locking part for
80 locking said stud and socket together and a manually operated pull-button for displacing said locking part to permit separation of said stud and socket.

6. A separable fastener comprising, in combination, a casing presenting a countersunk contractible and expansible socket-engaging head having an aperture of substantial size formed in its outer end, a cooperating socket presenting a tubular member for engagement over said head, a locking part and spring part carried by said socket,
90 said spring adapted to press said locking part automatically into the aperture in said head when said tubular part is engaged over said head thereby to prevent separation of said tubular member from said head, said aperture in said head and said locking part being of substantially equal cross-section.

7. A flush type fastener comprising, in combination, a stud including a casing secured to a rigid support, said casing presenting a contractible and expansible head
105 substantially flush with the surface of the stud support, a socket secured to a flexible support and presenting, at one side of the support, a tubular stud-engaging part, locking means forming part of the fastener assembly for locking said head and tubular part together and a button member presented at the front side of the curtain, said
110 button manually operable to displace the locking means, thereby to permit separation of said stud from said socket.

8. A stud for a separable fastener including a casing adapted to be countersunk into a rigid support, a socket-engaging head contained within said casing in fixed relation
120 thereto, an attaching element extending in the opposite direction from said head at the inner end of the casing for attaching said casing to the support, said attaching element including a head held by said casing and a shank extending from said casing away from the stud head.

9. A stud for a separable fastener including a casing adapted to be countersunk into a rigid support, a socket-engaging head con-
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tained within said casing in fixed relation thereto and an attaching screw rigidly secured to the inner end of said casing for securing the stud to the support.

5 10. A stud for a separable fastener including a contractible and expansible socket-engaging head, a casing surrounding said head, an attaching screw secured to one end of said casing and tool-receiving means at 10 the other end of said casing for reception of a tool to screw said attaching screw to a support.

11. A flush type fastener comprising a fastener element presenting a casing adapted 15 to be countersunk within a rigid support, an attaching screw for rigidly holding said casing in countersunk relation to the support, a resilient element presenting spring fingers contained within said casing, in combination 20 with a cooperating fastener element adapted to be secured to a flexible carrying medium and presenting a rigid shoulder having a recess therebehind surrounded by a wall for engagement by said spring fingers, one of 25 said fastener elements including locking means for opposing disengagement of said spring fingers from said recess.

12. A separable fastener socket installation comprising, in combination, a socket unit 30 including a stud-engaging part, a manually operable part adapted to be assembled with the stud-engaging part, said manually operable part being shiftable axially relative to

the stud-engaging part and presenting a portion adjacent to the stud-engaging end 35 of said stud-engaging part for cooperative engagement with a stud to lock the socket thereto, a front plate for holding the parts of the socket in assembly, prong-receiving means provided by the socket assembly and 40 a back plate presenting attaching prongs passing through a flexible socket-carrying medium, said prongs being engaged with the prong-receiving means to secure said socket unit to the flexible carrying medium. 45

13. A flush type stud for a separable fastener including a casing presenting a flange at one end thereof, a contractible and expansible head substantially flush with the 50 outer end of said flange and an attaching screw for securing said casing to a support, said flange seated against the side of the support thereby to present a stud substantially flush with the side of the support 55 to which it is secured.

14. A flush type stud comprising a tubular casing, an attaching element secured to the inner end of said casing for securing said casing to a support, and a socket-engaging element located in said casing between the 60 attaching element and the outer end of the casing.

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

FRED S. CARR.