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1,535,982

F. S. CARR

FASTENER

Filed Jan. 22, 1924

Fig. 1.

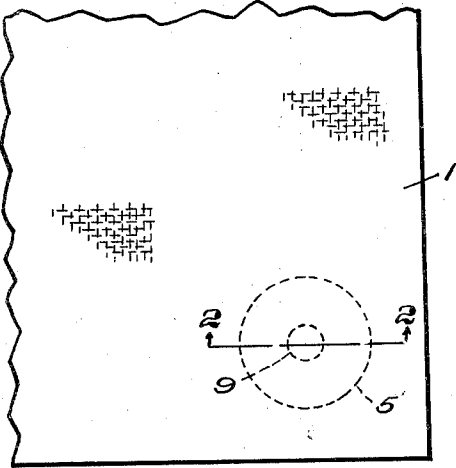


Fig. 2.

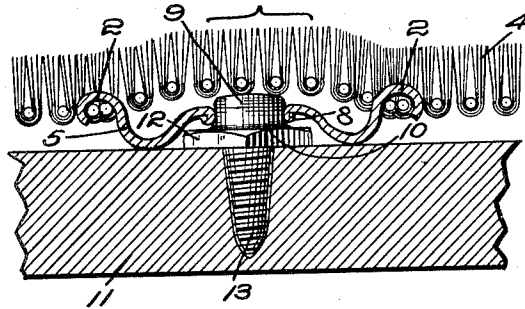


Fig. 3.

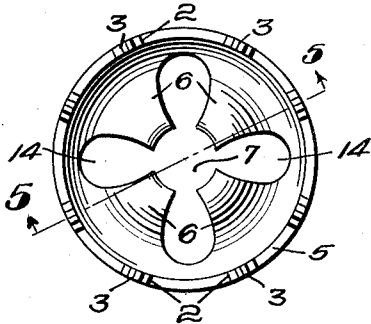


Fig. 4.

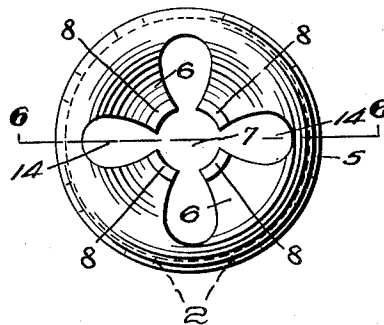


Fig. 5.

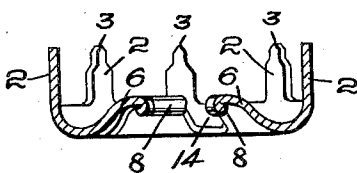
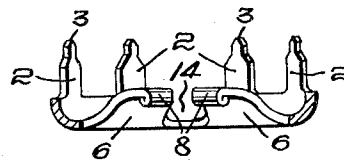


Fig. 6.



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UNITED STATES PATENT OFFICE.

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FASTENER.

Application filed January 22, 1924. Serial No. 687,752.

To all whom it may concern:

Be it known that I, FRED S. CARR, a citizen of the United States, and a resident of Newton, in the county of Middlesex, State of Massachusetts, have invented an Improvement in Fasteners, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention aims to provide improvements in separable fasteners and more particularly, though not exclusively, improvements in carpet fasteners.

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

Figure 1 is a plan view of one corner of a rug or carpet showing the fastener in dotted lines;

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

Fig. 3 is a top plan view of the socket;

Fig. 4 is a bottom plan view of the socket;

Fig. 5 is a section on the line 5—5 of Fig. 3; and

Fig. 6 is a section on the line 6—6 of Fig. 4.

Referring to the drawings and to the preferred form of my invention selected for illustrative purposes, I have shown a socket primarily intended for securing a carpet to an automobile floor, but useful for securing in place any kind of rug, carpet, or the like having warp and weft threads and a pile for concealing the attaching prongs. To secure the socket to the carpet 1, I have shown a plurality of prongs 2 located upon the periphery of the socket, these prongs being adapted to be forced through the carpet and bent outwardly and downwardly into engagement with the warp and weft threads, as fully described in my co-pending application Serial No. 687,751 filed herewith.

When fully clenched, the ends of the prongs preferably pierce the fabric in a downward direction. That the prongs may start to bend very easily when they first come into contact with the die used for upsetting them, I have provided relatively

narrow end portions or points 3 on the prongs, the prongs being of greater width for the remainder of their length than would be the case if, as in my co-pending application, the prongs tapered gradually from their points to their bases. I have found that the cutting of the warp and weft threads is less where the prong, while providing a relatively sharp point, presents relatively blunt thread-spreading shoulders, than where the prong is gradually tapered throughout its length. The present form of prong is also peculiarly advantageous where used as an outwardly projecting hook when securing a fastener member to a carpet web, in that a wider thread-engaging surface is provided beneath the prong and in that the prong is of great strength through that entire portion thereof which may be subjected to bending or crushing strains.

The narrower parts 3 of the prongs 2, as illustrated, bend slightly more than the wider portions thereof, thus hooking slightly under the web of the carpet, while the wider portions of the prongs are more symmetrically curved throughout their entire lengths. When the prongs are thus secured to the carpet, the pile 4 thereof almost completely conceals them.

As in my co-pending application referred to, the curve of the prongs is advantageous in that when under strain the warp and weft threads are pulled into the hooks of the prongs and ride toward the base thereof, thereby reducing the leverage exerted upon the prongs when the carpet is pulled upwardly to release the socket from the stud.

The zone of engagement of the prongs with the carpet backing, being relatively far removed from the stud-engaging jaws, provides a favorable leverage when strain is exerted on the carpet to separate the socket from the stud, thus reducing not only the strain on the prongs but, more important, greatly reducing the strain on the prong-engaged portions of the carpet backing, as compared with socket-attaching systems wherein the engagement between the

socket and the backing practically overlies the stud-engaging jaws.

The socket illustrated may be pressed from a single sheet of metal and has an outer continuous peripheral wall 5 presenting a plurality of resilient fingers 6 curved in cross-section and extending radially towards the stud-receiving aperture 7 in the center of the socket. These fingers 10 are provided at their free ends with stud-engaging jaws, herein shown as reversely bent portions 8 surrounding the stud-receiving aperture 7.

During entrance of the stud into the socket, these fingers 9 yield upwardly until the stud-receiving aperture is enlarged sufficiently to permit passage therethrough of the head of the stud, and then snap downwardly until the jaws 8 are in engagement with the neck of the stud. The outwardly projecting socket-attaching prongs 7 do not interfere, or cause the backing of the carpet to interfere, with the upward yielding of the fingers 9, as would be likely to be the case were the prongs thrown inwardly instead of outwardly. During disengagement of the socket from the stud, the strain is ordinarily at one side of the socket so that it disengages by a tripping action relative 30 to the stud.

The stud illustrated is provided with a relatively flat head 9, which when passed through the stud-receiving aperture 7 extends only slightly above the jaws 6, which 35 are then in engagement with the neck 10 of the stud, so that the carpet is not to any considerable extent pressed upwardly by the head of the stud. The resilient jaws 6, being arched throughout their entire length to 40 provide resiliency, also provide a recess beneath the socket into which the base 12 of the stud may enter, thus reducing the overall height of stud and socket when engaged.

The stud is secured to the floor 11 by a screw 13 having a head secured to the base 45 12 of the stud.

The reversely bent portions 8 of the jaws strengthen the ends thereof and provide a smooth bearing surface for engagement with 50 the neck of the stud, thus permitting easy engagement and disengagement of the socket and the stud. The cut-away portions 14 between the jaws, as best shown in Figs. 3 and 4, are provided so that the jaws will flex 55 over their entire length and thus prevent any tendency of the jaws to "set" after repeated engagement and disengagement with the stud. The arching of the jaws as above described permits the peripheral wall portion 5 to be seated against the floor 11 of 60 the car so that the wall may evenly bear the brunt of any strain exerted upon the socket by the weight of a person standing on the carpet directly over the fastener.

To separate the stud from the socket, the operator merely grasps the edge of the carpet and exerts an upward pull thereon, which causes the socket to tip out of engagement with the stud.

If, referring to Fig. 2, the right hand edge 70 of the carpet is supposed to be lifted in this manner, it will be seen that the peripheral wall of the stud at the left seating on the floor 11 provides a fulcrum about which the socket as a whole may be tipped and that 75 the out-turned prongs 2, being disposed at a relatively great distance from the fulcrum, provide a favorable mechanical advantage or leverage for effecting this releasing movement without undue strain on the carpet 80 web. The provision of said wall seating on a rigid support beneath the carpet, conveniently as in the present instance by being made of such diameter that it will completely surround the stud base and seat on 85 the floor in a plane offset downwardly from the engaging end of the spring fingers 6, besides facilitating the tipping action when it is desired to release the stud, also prevents disengagement of the socket during 90 use. It will be understood that one of the principal strains placed upon the carpet is substantially in its plane, being produced by the sliding or scuffing of the foot there- 95 over. If, referring to Fig. 2, such a strain is applied to the carpet towards the left in the figure, the left hand side of the wall seating on the floor provides a bearing which prevents any downward movement of this 100 side of the fastener and consequent tipping movement of the socket as a whole which might cause it to become disengaged from the stud. In other words, the spring finger 105 at the right of the figure cannot move upwardly over the head of the stud except either by a downward movement of the left hand side of the socket which is prevented by engagement of the same with the floor 11 or a substantially direct upward movement 110 of the right hand side. There is very little tendency towards such upward movement of the further side by a lateral strain such as has been referred to but on the other hand such a strain would tend to pull down the 115 nearer side of the socket if such movement were not prevented in the manner described. The location of the wall contacting with the floor or other rigid supporting surface beneath the carpet between the prongs 2 and 120 at a position outward of the engaging ends of the spring fingers 6 provides a particularly advantageous application of the forces described which resist accidental disengagement of the fastener but permit its intentional disengagement when desired. 125

While I have shown and described a preferred form of one 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 carpet fastener socket including a single piece of metal providing a plurality of resilient fingers arranged about a stud-receiving aperture and each presenting a stud-engaging jaw at its end, said fingers yielding upwardly during entrance of the stud in the stud-receiving aperture, and prongs projecting from the periphery of the socket and bent outwardly to engage the backing of the carpet, in a zone relatively remote from said fingers, whereby said fingers may yield upwardly without interference from said prongs or the carpet backing underlying them.

2. A carpet fastener socket including a plurality of stud-engaging jaws arranged about a stud-receiving aperture, resilient jaw-supporting means integral with said jaws, and prongs projecting from the periphery of the socket and bent outwardly to engage the backing of the carpet in a zone relatively remote from said jaws, whereby a favorable leverage is provided when strain is exerted on the carpet to separate the socket from a cooperating stud.

3. A fastener socket for carpets and the like including a plurality of resilient fingers secured at their outer ends to a base adapted to rest on the floor, said fingers being inclined upwardly from said base to provide a housing for the base of a stud and presenting smooth stud-engaging jaws, all of said fingers adapted to flex upwardly over their entire length to enlarge the stud receiving apertures upon engagement of the socket with a stud.

4. A carpet fastener including a stud part and a socket part, one of said parts presenting upstanding prongs adapted to pierce the backing of the carpet, each of said prongs presenting a relatively strong portion for a part of its length, an easily bendable extension of reduced cross-section on said portion, and a shoulder on said strong portions.

5. A pressed metal carpet fastener socket comprising a continuous peripheral wall, a plurality of carpet-engaging prongs integral with said wall, said prongs piercing the backing of said carpet and bent outwardly and downwardly into engagement with the warp and weft threads of said carpet and concealed from view by the pile of said carpet, said socket also providing a plurality of spring fingers joined to and extending inwardly from said peripheral wall, stud-engaging jaws at the inner ends of said spring fingers, said continuous peripheral wall and said prongs protecting said spring fingers

against distortion when the carpet above said socket is trodden upon.

6. A carpet fastener including a stud having a base for attachment to the floor, and a socket having a continuous peripheral wall, means integral with said peripheral wall for securing said socket to a carpet, a plurality of resilient fingers projecting inwardly from said peripheral wall and providing between their inner ends a stud-receiving aperture, said fingers arched upwardly toward the center of the socket to provide a housing for the base of said stud when engaged with said socket.

7. A carpet fastener comprising a stud adapted to be secured to the floor, and a one-piece, sheet metal socket presenting a stud receiving aperture and spring stud-engaging jaws radiating from said aperture; the outer edge of said socket being bent upwardly and presenting integral upstanding prongs adapted to penetrate the carpet web from the back and be bent outwardly over the web with the ends thereof extending beyond the outer periphery of the socket.

8. A carpet fastener including a stud adapted for attachment to the floor, and a one-piece, sheet metal socket having a plurality of integral stud-engaging fingers radiating from a stud-receiving aperture, said socket presenting a continuous peripheral wall extending above the base thereof and having a plurality of prongs integral with the upper edge to penetrate the back of the carpet web and be bent outwardly and downwardly into hook-shaped engagement with the warp and weft threads of the web.

9. A carpet fastener socket presenting a plurality of attaching prongs bent outwardly and downwardly over the carpet web and concealed by the pile, a plurality of resilient stud-engaging portions, and a wall operatively positioned between the ends of the resilient stud-engaging portions and the bases of the attaching prongs and adapted to seat on a rigid support underlying the socket to oppose such tipping of the socket as would effect disengagement of the socket from the stud when lateral strain is exerted on the carpet.

10. A carpet fastener socket presenting a plurality of attaching prongs bent outwardly and downwardly over the carpet web and concealed by the pile, a plurality of resilient stud-engaging portions and a wall operatively positioned between the ends of the resilient stud-engaging portions and the bases of the attaching prongs and extending downwardly beyond the plane of the former to seat on a rigid support underlying the socket to protect said portions and to oppose such tipping of the socket as would effect disengagement of the socket from the stud when lateral strain is exerted on the carpet.

11. A carpet fastener socket comprising a

single piece of metal bent to provide an annular body having a face to seat on the floor about a stud and inwardly extending resilient stud-engaging arms having their ends offset from said face and means securing said socket to the carpet comprising prongs adjacent the periphery of said body piercing the carpet web and bent outwardly and downwardly about the same and within the pile. 10

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

FRED S. CARR.