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2,771,653

SNAP FASTENER SOCKET

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Fig. 1

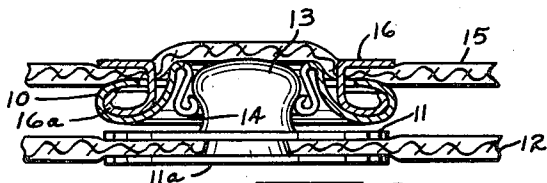


Fig. 3

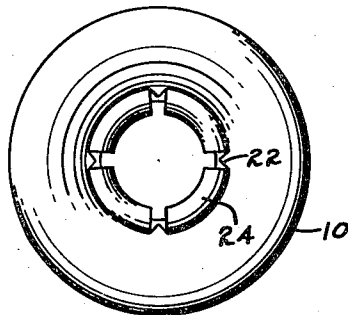


Fig. 2

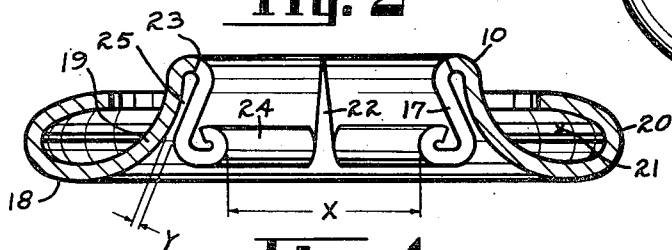


Fig. 4

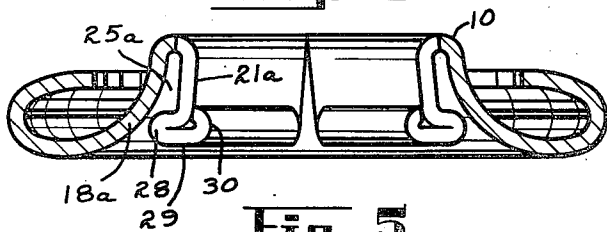
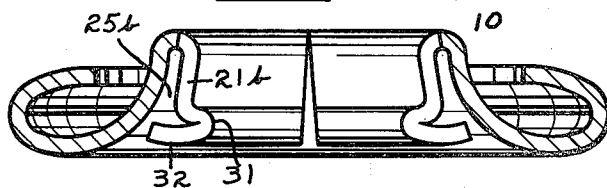


Fig. 5



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2,771,653

SNAP FASTENER SOCKET

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2 Claims. (Cl. 24—216)

This invention relates to improvements in snap fastener sockets and particularly to laundry-proof types of socket such as disclosed in the Fenton Patent No. 2,106,728.

In the above referred to patent the socket there disclosed was occasionally liable to some amount of damage during the laundering of the garment to which the fasteners were attached. Also if the fingers were subjected to any excessive lateral strains or stresses when the complementary stud was assembled to the socket the fingers might be sprung beyond the elastic limits. This laundry-proof fastener was formed with a curved breast portion surrounding the fingers, which breast portion constituted an anvil against which the prongs of a prong fastener member were engaged to direct them properly into clinching engagement with this socket device. In this earlier construction a relatively wide annulus between the free end of the fingers and the breast portion necessarily resulted because of the outward slope of the anvil wall relative to the spring fingers. In laundering a garment with this type of fastener sometimes the head of the stud would perchance become lodged in this annulus during the ironing or mangling operation and could then distort one or more of the resilient fingers inwardly out of their normal set position and thus destroy their resilient characteristics. To eliminate this fault heretofore resort was made to a protecting ring assembled to the socket in the manner as disclosed in the Dews Patent No. 2,129,825. This added to the cost of the manufacture and still was not without its faults inasmuch as during the setting operation of the socket to a garment the protecting ring might be eccentrically set relative to the socket and thus interfering with the normal operation of the resilient fingers. In my invention the extra ring is eliminated and the ends of the fingers are so formed by radially enlarging the free or gripping ends of the fingers so as to substantially close up the opening into the annulus between the fingers and the breast portion to prevent the stud head from becoming lodged therewithin.

A further advantage of the enlarged gripping ends of the fingers is that the enlarged portion of the fingers is positioned close enough to the breast so that the fingers cannot be bent laterally out of their normal set position such as beyond their elastic limits and still permit the fingers to function properly in engaging and disengaging the head of a stud.

It is, therefore, the principal object of this invention to provide a laundry-proof socket having relatively delicate fingers for snap engagement with a complementary stud member and which fingers are constructed with enlarged beaded or gripping ends of a character to support the fingers against the breast of the socket and prevent them from being distorted beyond their normal elastic limits.

The foregoing and other objects, as well as various features of the invention may be more fully understood from a consideration of the following description in the light of the accompanying drawing, in which

Fig. 1 is a sectional view of a snap fastener installation,

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including a conventional stud member engaged by the complementary resilient parts of a socket member constructed in accordance with the present invention.

Fig. 2 is a sectional view of the socket member, per se, on an enlarged scale.

Fig. 3 is a plan view of the socket member on a scale comparable to Fig. 1, and

Figs. 4 and 5 show modified forms of construction of the improved socket.

For the purpose of illustrating the general assemblage of a snap fastener, I have shown in Fig. 1 of the drawing a socket part 10 and a stud part 11. The stud part 11 is secured to a suitable support 12 such as a piece of fabric material in the usual manner as by a rivet stud 11a. The stud is formed with the usual enlarged head 13 and reduced neck 14, which head and neck are adapted to enter the socket member 10 in coupling the parts together.

The socket 10 is mounted upon a suitable support 15 as by means of an attaching prong ring 16 of the character disclosed in the above referred to Fenton patent. As more clearly shown in Fig. 2 the socket member comprises a series of delicate spring fingers 17 circularly arranged within an annular breast portion 18. The breast portion consists of an anvil section 19 to which the fingers 17 are integrally joined as at 23 and which section extends downwardly and away from the fingers 17 as shown in Fig. 2. The anvil section 19 joins or leads into a prong clinching rim 20 of U-shape in cross section and provides for a hollow space 21 in which the prongs 16a of the attaching ring may be collapsed during the assembly of the socket to the support 15. In order to provide the right amount of resiliency to the spring fingers 17 and obtain an easy off-and-on action for the stud, I prefer to use four individual fingers 17 separated by slits 22 extending the entire length of said fingers and into the U-shaped connecting portion 23.

In the first form of invention shown, as represented by Fig. 2, the fingers are inclined outwardly and lie relatively close to the adjacent surface of the anvil section 19 and terminate in relatively large inwardly formed beads 24 that are so rolled as to provide an opening that is dimensioned to be slightly less than the largest diameter of the stud head 13, this dimension being indicated by the letter X. The position at which the beaded ends join to the spring fingers properly is at substantially the closest distance to the adjacent surface of the anvil section 19 and may be of the order of from .004" to .006", this dimension being represented by the letter "Y." In this form of invention the fact that the fingers 17 are inclined outwardly and lie relatively close to the anvil section 19 of the breast portion 18 allows only a very small annular clearance 25 between the spring fingers and the anvil section that serves to prevent a stud head from becoming lodged therewithin, in case a stud head should become aligned therewith during the ironing operation. Furthermore, the close position of the fingers to the anvil section will also prevent the fingers from being distorted laterally outwardly after the stud is assembled to the socket when severe side forces are exerted upon the stud relative to the socket.

In the modified form as shown in Fig. 4 the spring fingers 21a are cylindrically arranged and therefore provide a greater space or clearance 25a between the spring fingers and the breast section 13a. In this modification the free ends of the fingers are first formed with an outwardly rolled bead 28 that extends into a flattened section 29 terminating in an inward bead 30 that is dimensioned to have the usual engagement with the stud head. The outwardly rolled bead is proportioned also to lie relatively close to the adjacent surface of the breast anvil section in the order of the dimension indicated for the

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form of socket shown in Fig. 1 as a support so that the spring fingers cannot at any time be sprung outwardly beyond their elastic limits.

In the form shown in Fig. 5 the fingers 21b are likewise cylindrically arranged similarly to the Fig. 4 construction and thus Figure 5 has an annular clearance 25b of comparable dimensions to Fig. 4. In this latter form, however, the free ends of the fingers 21b are first beaded inwardly as at 31 to a suitable dimension to have snap action with the head of the stud in the usual manner. This bead is then extended outwardly into an arcuate flange 32 that terminates relatively close to the annular section of the sloping anvil wall within the order of the dimensions given for the above described forms with like advantages.

Since certain changes may be made in the constructions as illustrated which are well within the skill of the ordinary mechanic, it is intended that the foregoing shall be considered in a descriptive rather than a limiting sense.

I claim:

1. A snap fastener socket member comprising a circular series of resilient fingers and a surrounding annular breast portion, said breast portion being in the form of a curved anvil section starting and sloping outwardly from one end of the fingers and terminating in an inturned curved clincher rim, said fingers being arranged in substantially cylindrical formation and terminating in rolled beaded ends, said beaded ends being flattened to extend inwardly and outwardly of the finger walls to an extent where the inward surfaces of the beads define an opening

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adapted to have snap locking engagement with a stud head, and the outward surfaces of the beads being positioned sufficiently close to the anvil section to prevent said fingers from being bent beyond their elastic limits by lateral stresses.

2. A snap fastener socket member comprising a circular series of resilient fingers and a surrounding annular breast portion, said breast portion being in the form of a curved anvil section starting and sloping outwardly from one end of the fingers and terminating in an inturned curved clincher rim, said fingers being arranged in substantially cylindrical formation and terminating in a formed end of a character wherein inwardly formed beads are provided that define an opening adapted to have snap locking engagement with a stud head, and said beads terminating in outwardly projecting flanges having their ends positioned sufficiently close to said anvil section to prevent said fingers from being bent beyond their elastic limits by lateral stresses.

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