Nov. 7, 1939. D. I. REITER 2,178,918

METHOD OF MAKING SNAP FASTENER SOCKETS

Filed July 14, 1938

Fig. 1.

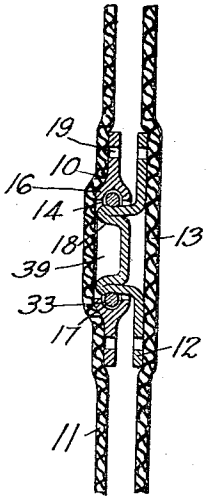



Fig. 2.

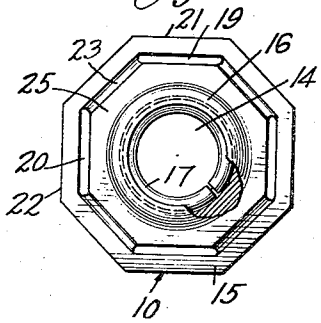



Fig. 3.

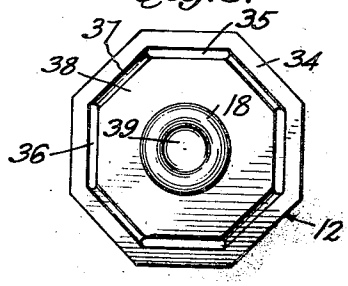



Fig. 5.

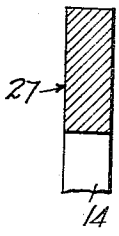



Fig. 6.

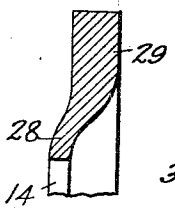



Fig. 7.

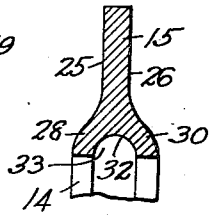
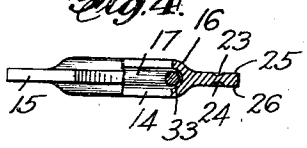



Fig. 4.




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# UNITED STATES PATENT OFFICE

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## METHOD OF MAKING SNAP FASTENER SOCKETS

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Application July 14, 1938, Serial No. 219,123

5 Claims. (Cl. 29—148)

This invention relates to fasteners and particularly to fasteners used in such garments as underwear, and which are intended to be secured as by sewing to the garment in position to prevent contact of the metal of the fastener with the body of the wearer.

My invention contemplates the provision of a resilient socket comprising a one-piece holding member and a ring, and adapted to be readily sewn to a garment, and provided with means for receiving the sewing threads.

My invention further contemplates the provision of a simple and inexpensive fastener socket of preferably symmetrical form adapted to be secured as by sewing to a garment and operative regardless of which face thereof is outermost.

My invention further contemplates the provision of a simple and inexpensive method for making a one-piece ring-holding part of a socket.

The various objects of the invention will be clear from the description which follows and from the drawing, in which,

Fig. 1 is a vertical section of a pair of garment parts showing my improved fastener in operative position thereon.

Fig. 2 is a plan view, partly broken away, of my new socket showing either face thereof.

Fig. 3 is a plan view of the cooperating stud for the socket.

Fig. 4 is a partial elevation and partial section of my new socket.

Fig. 5 is a fragmentary sectional view of the blank from which the socket is formed.

Fig. 6 is a similar view of the blank after it has been partly formed to make one side of the ring-holding part of the socket.

Fig. 7 is a similar view of the finished socket showing how part of the unbent material of the blank is swaged over to form the other ring-holding part of the socket.

In the practical embodiment of the invention which I have shown by way of example, the socket 10 is secured to a flap or other garment part 11, preferably by sewing as will be hereinafter more fully described. Similarly, the stud part 12 of the fastener is secured to the garment part 13, the stud entering the stud-receiving opening 14 of the socket. Said socket comprises the annular and preferably flat plate portion 15, shaped, at its inner part surrounding the central opening 14 therein, so as to provide a suitable ring-holding portion 16 into which the resilient split ring 17 is arranged in such a manner that the inner half of the surface of said ring overhangs the opening 14.

The enlarged head 18 of the stud 12 when forced through said opening 14, expands the ring 17 to permit the stud head to pass said ring, whereafter the ring 17 contracts below the stud head to separably secure the stud in the socket. Preferably, the socket 10 is symmetrical about a plane passing through the annular axis of the ring 17. The ring-holding plate 15 is provided with a series of spaced slots 19, 20 preferably parallel to the respective adjacent peripheral edges as 21, 22 of the socket plate. Joining the ends of the adjacent slots 19, 20 are the opposed recesses 23, 24, the former being made in one face 25 of the socket plate and the other being made in the other face 26 thereof, said recesses extending inwardly toward each other and being of sufficient depth to receive the sewing threads resulting from the sewing operation on the passage of the sewing needle and thread back and forth through the adjacent ends of the slots 19 and 20.

The inner bifurcated peripheral portion 16 of the socket plate surrounding the opening 14 is formed preferably as is shown in Figs. 5, 6 and 7. The flat blank 27 of Fig. 5, which is preferably of uniform thickness and of polygonal outline, having been provided with its central opening 14, the inner peripheral part thereof surrounding the opening is pressed laterally in one direction into the shape of Fig. 6 to provide one of the ring-holding parts as 28 which at its innermost periphery is reduced in thickness as compared to the remaining thickness of the blank. Thereafter, the material designated by the numeral 29 at the peripheral portion of the socket plate surrounding the socket opening 14 and on the side of said plate opposite to the part 28 is swaged inwardly and also laterally in the other direction against a suitable tool by a swaging operation to form the other circular half 30 of the ring-holding part 16 and to reduce the thickness of the peripheral plate portion 15 of said plate.

The slots 19, 20 and the connecting recesses 23, 24 on both faces of the plate may then be made in said peripheral portion 15 as by a stamping operation to complete the socket plate, the ring 17 being then inserted in the annular recess 33 formed by the parts 28 and 30. Said recess is formed with a wall surface 32 which is semi-circular in cross-section and terminates in circular aligned edges, the recess being adapted to loosely receive the outermost half of the resilient ring 17. By the operations above described, the ring-holding portion 16 surrounding the opening 14 is formed and the parts 28, 30 and 15 are

of substantially the same thickness and integrally formed.

The parts 28 and 30 while preferably symmetrical with respect to each other and with respect to the peripheral plate part 15 of the socket plate 10, may be unsymmetrically arranged, if desired, in a manner which is obvious and hence need not be further described nor illustrated, it being desirable only that said parts form a recess which is substantially semi-circular in cross-section.

The stud 12 is preferably made of a single piece of sheet material, the stud head 18 being arranged centrally thereof and being preferably formed with a suitable recess or depression as 39 to strengthen said head. The plate portion 34 of the stud is, similarly to the socket plate, provided with spaced slots as 35, 36 joined by the recesses 37 made in both the upper face and in the lower face of the plate portion 34 and corresponding to the recesses 23, 24 of the socket plate. It will be understood that the recess 37 made on the face 38 of the stud plate is arranged opposite the corresponding recess made in the opposite face of said plate, the recesses being designed to receive the sewing threads passed through the slots 35, 36 to secure the stud to the garment portion 13 in the same manner as has been explained in connection with the socket plate 10.

It will be seen that the stud 12 may be engaged with and separated from its socket 10 without the necessity for the user touching the metal and that when so engaged neither the socket nor the stud can directly engage the body of the wearer, one of the garment portions 11 or 13 being interposed between the fastener and the body of the wearer.

It will further be seen that by means of the method hereinbefore described it becomes possible to make the socket plate 10 of a single piece of material by an inexpensive swaging operation and it also becomes possible to make said socket plate symmetrical about a plane midway between its two faces so that said plate may be laid with one face or the other face uppermost on the garment portion 11 and quickly and easily secured thereto by sewing through the slots 19 and 20.

It will also be seen that the sewing threads lie in the recesses 23 or 24 and do not project beyond the faces 25 and 26 and therefore do not form any lumps which might unduly press on the body of the wearer and cause pain or discomfort. This is also true of the stud plate 34, the stud 12 being, however, necessarily secured to the garment portion 13 with the stud head 18 outstanding therefrom.

It will therefore be seen that I have provided a fastener and particularly a resilient socket adapted for economical manufacture in large quantities and therefore well adapted to meet practical requirements.

While I have shown and described certain specific embodiments of my invention, I do not wish to be understood as limiting myself thereto but intend to claim the invention as broadly as may be permitted by the state of the prior art and the scope of the appended claims.

I claim:

1. The method of making a one-piece snap fastener socket comprising providing a flat blank with a central opening, pressing the inner portion of the blank surrounding the opening laterally in one direction to one side of the blank and beyond one face thereof while reducing its thickness, and swaging the remaining outer material of the other face of the blank inwardly and laterally in the other direction and beyond said other face while reducing the thickness thereof.

2. The method of making a one-piece socket comprising pressing the inner part of a flat blank laterally in one direction and beyond a face of the blank to form a bend of a predetermined shape, and inwardly swaging sufficient material from the outer part of the other face of the blank and from part of the thickness thereof to form a corresponding opposed bend of the same shape extending laterally in the other direction.

3. The method of making a one-piece ring-holding socket out of a flat blank of uniform thickness having a perforation therein comprising depressing and simultaneously thinning an inner portion of the material of the blank surrounding the perforation, and swaging inwardly and simultaneously thinning the remaining outer peripheral portion of the blank.

4. The method of making a one-piece ring-holding socket out of a flat blank having an opening therein comprising depressing beyond one face of the blank, an inner annular portion of the blank while simultaneously reducing the thickness of said portion and swaging inwardly part of the material at and adjacent to the other face of the blank and outwardly of the inner annular portion while simultaneously reducing the thickness of the outer portion of the blank.

5. The method of making a one-piece ring-holding socket having a bifurcated inner peripheral portion out of a perforated disc-like blank of uniform thickness having flat faces comprising pressing an annular inner portion of the material of the blank surrounding the perforation in a direction parallel to the axis of the blank to form a cup constituting half of the bifurcated portion while at the same time reducing the thickness of said portion to a thickness less than said uniform thickness, then swaging the remainder of the blank to reduce said uniform thickness and simultaneously to move the excess material thereof inwardly into opposition to the cup while shaping said excess material to form a similar cup and to complete the bifurcated portion.

DANIEL I REITER.