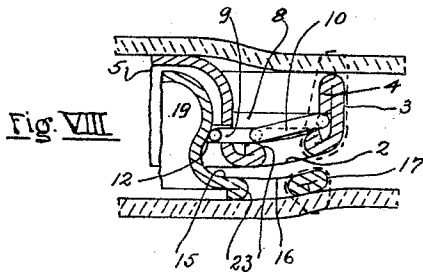
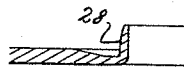
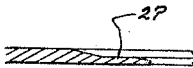
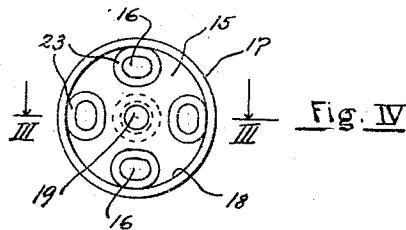
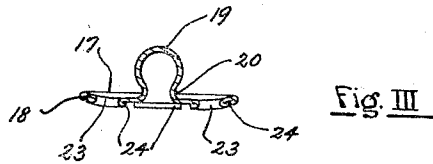
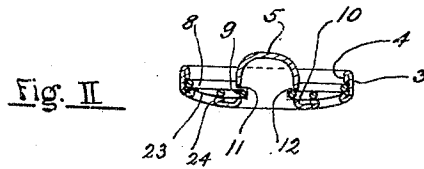
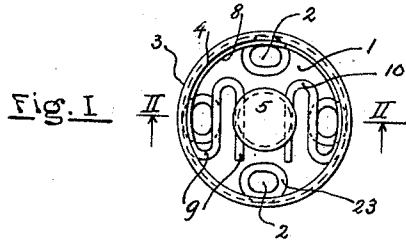


J. A. LUNDSTROM.
FASTENER.
APPLICATION FILED JULY 20, 1917.

1,366,574.

Patented Jan. 25, 1921.



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UNITED STATES PATENT OFFICE.

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FASTENER.

1,366,574.

Specification of Letters Patent.

Patented Jan. 25, 1921.

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To all whom it may concern:

Be it known that I, JOHN A. LUNDSTROM, a citizen of the United States, and a resident of the borough and county of Bronx, in the city and State of New York, have invented certain new and useful Improvements in Fasteners, of which the following is a specification.

This invention relates to fasteners of the type wherein a stud and a socket formed on opposite plates are made to engage each other, and it more especially appertains to that species thereof in which a resilient element is employed to hold the said plates releasably together.

One of the objects of the invention is to produce a fastener of the character described having plates with thread openings formed therein in such a manner that they will serve to reinforce the respective plates, or either one thereof, instead of weakening the same.

A further object is the production of a fastener of the type specified in which the openings made for the thread through the said plates will have each a smoother edge, that is, less sharp or angular, than has hitherto been provided; and as a consequence will present a better contacting surface for the thread as it is drawn from any of the openings over the rim of either plate, or from one opening to another, according to the particular method followed in sewing on the fastener.

Another object is to provide a fastener of the nature set forth equipped with a resilient element so arranged that the inherent force thereof will be enhanced through the peculiar marginal conformation of the thread-openings aforementioned.

Still another object is the provision of a fastener of the species referred to wherein the reinforcing portions of the said thread-openings are so disposed on both the stud and the socket plates as to become invisible when the respective plates are attached to the garment parts to be united thereby.

A still further object is to devise a simple and safe method of construction enabling the said fastener to be made of comparatively weak-grained metal, if desired, while insuring it all the necessary strength and durability.

An additional object is to so design the structure of the said fastener that each member thereof can be made of a single blank and

produced entirely by following known processes of manufacture, so that the finished product will be as easily and economically obtained as any other article of similar nature.

Other objects and advantages will become apparent as the specification proceeds.

With the aforesaid objects in view the invention consists of the improvements, novel construction, arrangements and combinations of parts hereinafter described, defined in the subjoined claims and illustrated in their preferred embodiments by the annexed drawing wherein like elements are designated by the same reference characters throughout the several views.

In the said drawing,—

Figure I is a plan view, showing the interior of a socket member pertaining to a snap-fastener made in accordance with the present invention;

Fig. II is a transverse section of the above-named socket member, viewed from the line II—II of the preceding figure, in the direction of the arrows;

Fig. III is a similar view of a stud member forming part of the same fastener, looking from the line III—III of Fig. IV, again as pointed out by the arrows, but in a reverse direction;

Fig. IV is a bottom plan view of the said stud member;

Figs. V, VI and VII are sectional diagrammatic views illustrating a series of successive steps involved in the process of manufacture preferably followed in practising a certain form of invention; and

Fig. VIII is a transverse section of one-half of the fastener, representing one moiety of each of its said socket and stud members attached to opposite parts of garments in conjoined relation.

It will be noted at the outset that all of the said figures have been greatly enlarged from normal size, that is, exaggerated and magnified, that a clear and distinct view of the various details of the invention may be afforded.

As shown in Figs. I and II, the socket-member of a snap-fastener embodying the invention is preferably made circular in outline, and therefore includes a discoidal plate 1, having a plurality of openings 2, permitting the passage of a needle and thread, by means of which it can be secured to some

article of wearing-apparel, for example. Circumscribing the plate 1, is a flange 3, formed integral therewith and turned inwardly upon itself, as at 4. On the same
 5 side of the plate as this in-turned flange, and centrally with relation thereto, is a hollow element 5, constituting the socket proper of the fastener, that is, the element intended to receive the button of the stud member
 10 hereinafter described. The parts now enumerated as pertaining to the said socket member are usually made of thin sheet-metal, cut into strips, and stamped, drawn, rolled, or otherwise operated upon, pursuant to well-
 15 known metal-working methods, in order to produce the desired object.

A resilient element 8, conveniently consisting of a wire spring, is placed inside the said flange 3, so as to follow approximately
 20 two-thirds of the inner periphery thereof, and thence is curved inward to form two parallel U-shaped portions 9, 10, respectively located one on each side of the said socket 5. These portions constitute the terminals of the spring and are caused to enter slits or
 25 kerfs 11, 12, cut transversely into opposite sides of the socket. Thus arranged, the spring terminals project partly into the path of the stud which the socket is designed to
 30 receive, as will be readily understood.

The stud member aforesaid also includes a plate 15, preferably discoidal in contour, and formed with a plurality of thread-openings 16, as represented in Figs. III and IV.
 35 The plate 15 is further provided with a circumferential flange 17, turned inwardly upon itself, as at 18, and in the center thereof is a hollow element 19, which forms the stud or button of the member. The stud or but-
 40 ton, it will be noted, is substantially globular and of a size to fit the interior of the socket 5 of the other member, previously described. When inserted into the socket 5, the said stud or button 19 is forced past the before men-
 45 tioned terminals 9, 10 of the spring 8, which serve to embrace it from opposite sides and hold it yielding in position. For the latter purpose, the stud or button is contracted at or near its base by forming around it an
 50 annular groove 20, which is suitably rounded to receive properly the extremities of the spring that project laterally thereof through the slits 11, 12 in the socket 5, and to permit
 55 at the same time the retraction of the stud or button by exerting on it a moderate drawing pressure. Like the socket member, the stud member coacting therewith is made of sheet metal, preferably, and produced in a similar manner.

60 Pursuant to the invention, reinforcements are provided for both series of sewing apertures 2 and 16, respectively formed in the said socket and stud members, or at least for the series in either fastening member that
 65 may be subjected to the greater strain. This

is accomplished by thickening and rounding the margins of the several apertures, so that the stitches made with the thread passed therethrough will not bear against sharp or angular edges and gradually become severed, due to the relative movement occurring
 70 between either the socket or stud member and the fabric to which the same is attached.

By preference, the reinforcements above spoken of are produced by first punching or
 75 piercing the metal plate, 1 or 15, of either of the said members, so as to form smaller openings therein than the complete sewing apertures will finally provide. Next, the metal around these openings is drawn out
 80 in the shape of circumambient flanges 23, one of which is intended to encircle each sewing aperture. Then, each flange 23 is laid back or over the metal surrounding its opening, which became larger by drawing, and
 85 there is produced a double, reinforced edge, as at 24, that is rounded throughout and as a consequence affords a most appropriate contacting surface for the thread used for sewing the fastener to the garment or other
 90 object furnished with the same.

The flanges 23 that bound the sewing apertures, 2 or 16, in the manner recited, are preferably turned inwardly of or under their
 95 respective members of the snap-fastener, so that when these members have been sewed on to a garment or other object, as shown in Fig. VIII for instance, the several flanges will be altogether invisible and out of contact with anything that might otherwise rub or
 100 brush against them on the outside. It is for this reason that the said flanges 23 are positioned on the same side as the protruding socket head 5 and the resilient element 8 interiorly of the plate 1, whereas the flanges
 105 on the plate 15 are at the bottom thereof, on the side opposite that where the button or stud 19 rises.

When punching the initial small openings hereinbefore mentioned, for the formation
 110 of the said sewing apertures, inside the rims or outer peripheral beadings, 3 and 17 respectively, of the said socket and stud members, these openings are spaced sufficiently far inward in the plates 1 and 15 away from
 115 their beadings, to obtain the requisite clearance in each case for turning down or over the edges of the several flanges 23.

This enables the flanges to be readily forced down or flattened in an outward di-
 120 rection without any interference whatsoever with the inner faces of the said rims or beadings.

It will be observed, with particular reference to the said socket member, that some of the aperture-bordering flanges 23 therein
 125 underlie, and form supports for, the segmental portion of the spring 8 and adjoining parts of its U-shaped terminals. The said segmental portion is held at regular inter-
 130

vals between the underlying flanges and the perimetral flange 4, which coact in forming keepers for the same. The extremities of the spring enter the slits 11, 12 in the socket 5 at a somewhat lower plane, and therefore this arrangement serves to impart to the spring, on opposite sides of its stud engaging portions, a slight twist which to a certain extent increases its power of resistance. It is evident that the terminals of the spring are the better enabled thereby to resist any tendency of being pried apart incidental to the relative movement of the socket and stud members toward or away from each other. In other words, the gripping power of the spring's terminals is enhanced by virtue of the arrangement or disposition of parts set forth. Obviously also, the same holding power as one ordinarily obtains with the spring disposed as in former constructions may be gained with a lighter wire spring arranged like in the present invention, thereby effecting economy in the use of wire.

With regard to the said stud member, it may be noted further that the flanges 23 of the apertures 16 therein are folded up against the underside of the plate 15, preferably in such a position that they will lie within the height of the peripheral bead 17 bordering the said plate. See Figs. III and VIII.

In cases where the metal from which the said socket and stud members are made is too brittle or weak-grained to be bent directly upon itself, or else is of a thickness that would produce a bulky appearing flange, when folded over or down around a sewing aperture, the initial opening of the latter is originally punched larger than when the material is either thin enough or sufficiently pliable to admit of being folded upon itself directly. If a larger opening of this sort is made, the edge around the same is squashed or pressed to a thickness of about one-half of the adjoining metal section, as indicated at 27, Fig. V. Subsequently a flange or margin 28, Fig. VI, is raised or depressed as the case may be, from approximately the middle of the thinned edge obtained by the squashing or pressing. The flange 28 is produced simply by drawing the said edge up or down as required. Finally, this flange is laid back over and

upon the inner half of the thinned edge, as represented at 29, Fig. VII. Manifestly, the thinned edges, doubled up together as just described, will only about equal in thickness the original dimension of the metal, but the margins of the sewing apertures formed thereby will have rounded contours that will enable the stitching or sewing threads to ride thereagainst without danger of being injuriously affected.

Although the sewing apertures 2 and 16 have been shown in the annexed drawing as slightly elongated or elliptical, it is understood that they may be of any other suitable configuration.

Having described my invention what I desire to secure by Letters Patent and claim is:—

1. A fastener of the character described, comprising a socket member with thread openings flanged on the same side as the socket part thereof, and a flange extending inwardly from the perimeter of said member so as to provide keepers between the same and the flanges of said openings at the outer side, combined with a spring held at certain intervals by said keepers and formed with double U-bends including substantially straight terminals and intermediate portions, said terminals being depressed below the keepers and engaging said socket, said intermediate portions being supported by the flanges of said thread openings on the inside thereof approximately at the same level as the terminals, whereby an interrelative twist is imparted to said U-bends, terminals and intermediate portions, which increases the gripping action of said spring.

2. A fastener of the character described, including a member with sewing apertures having reduced edges folded upon themselves to the original thickness of the member.

3. A fastener of the character described, including coacting socket and stud members having thread openings with reduced edges folded upon themselves in opposite directions from the contacting faces of said members, said folded edges merging into the original thickness of the members on the sides away from their said contacting faces.

JOHN A. LUNDSTROM.