

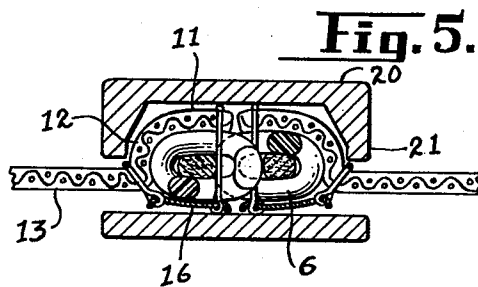
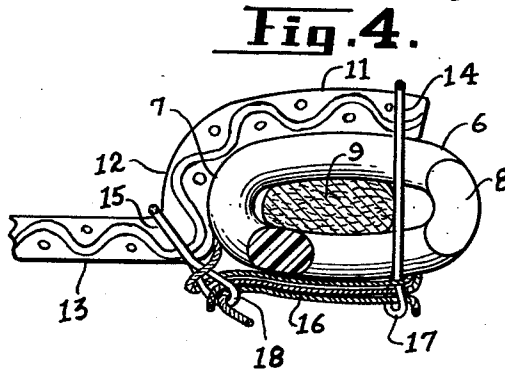
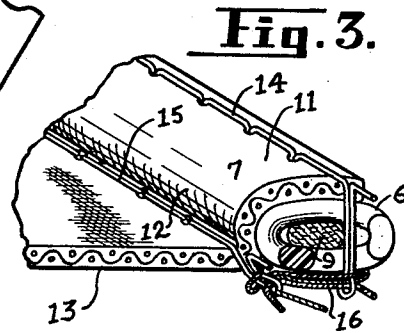
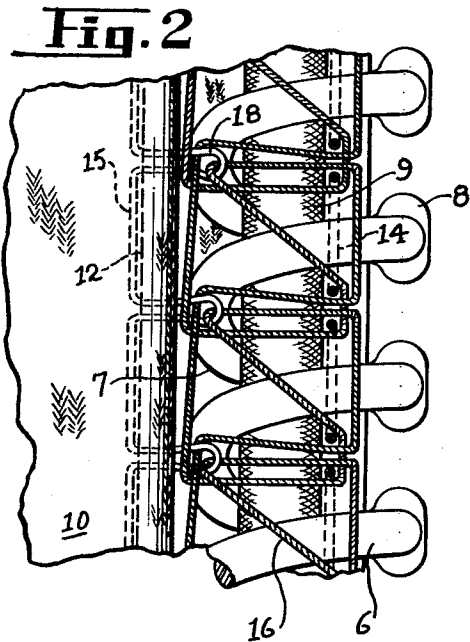
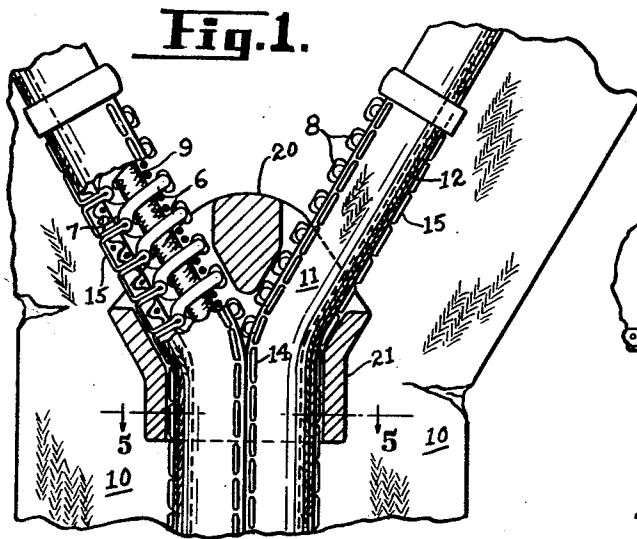
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3,135,036

ZIPPER FASTENER STRUCTURE

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3,135,036

ZIPPER FASTENER STRUCTURE

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My invention relates to zipper fastener structures of the type employing a plastic filament, preferably of the flattened coil type.

The general object is to improve the securement of the coil structure to a plain textile supporting tape.

A further object is to secure the coil to the tape in such a way that the coil is well shielded, not only on both sides, but along the inner edges, and to accomplish this without the use of specially shaped tapes or without the use of more than one tape.

Another object is to provide a zipper fastener structure of the kind described wherein the flanges of the slider will not bear directly against the plastic filament, but rather ride over a portion of the fabric supporting tape.

Other objects and advantages of the invention hereinafter will more fully appear.

In the accompanying drawings, I have shown for purposes of illustration, one embodiment which my invention may assume in practice. In the drawing:

FIG. 1 is a front view of a portion of a complete zipper according to my invention with portions broken away to facilitate illustration;

FIG. 2 is a back view on an enlarged scale of one stringer of the zipper;

FIG. 3 is a perspective view of one of the stringers;

FIG. 4 is a cross-section on an enlarged scale through one of the stringers; and,

FIG. 5 is a cross-section through the completed fastener on line 5-5 of FIG. 1.

Each stringer of the fastener structure utilizes a plastic filament having a generally flattened coil shape, the individual filaments being designated 6 and having inner edge portions 7 and head portions 8 along the outer edge.

Extending through each such coil is a filler cord 9 which is preferably a flattened textile cord occupying the greater part of the space in the coil but not extending close enough to the heads 8 to interfere with the interlocking of the heads of one stringer with those of a mating stringer.

The supporting tapes, generally designated 10, each consists merely of a plain textile tape which is woven flat. In the finished structure, each tape has its outer edge portion 11 overlapping one side of the coil which is preferably the front side. The outer edge of the tape extends to a zone beyond the filler cord 9. The tape then turns around the inner edge of the coil forming a wear section 12 and then extends laterally to form a free portion 13 by which the fastener structure can be secured to an article of clothing or the like.

The means for securing the coil structure to the tape and for holding the tape in the shape which has been described, includes a first line of stitching 14 along the outer edge which extends through the edge portion 11 of the tape through the coil between the convolutions thereof to the other side. A second line of stitching 15 is spaced a slight distance away from the coil and penetrates only the tape itself and not the coil or cord. These stitches may be mutually interlocking chain stitches or they may be interconnected by a third thread 16 which crosses back and forth on the underside of the coil to connect the loops 17 of the needle thread 14 and the loops 18 of the needle thread 15. This is a standard form of stitching shown as

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Stitch Type 402 in Fed. Std. No. 751, entitled "Stitches, Seams & Stitchings," so that it need not be further described in detail. The important thing to note however, is that this type of stitching employed in the manner shown, provides a covering effect or shield to the back side of the coil.

Another important factor is to maintain this stitching, and especially the thread 15, under sufficient tension to draw the tape around the inner edge of the coil as shown, so as to provide the wear section 12 against which the flanges of the slider may ride. The slider itself is generally designated by the numeral 20 and the flanges as seen in FIGS. 1 and 5, are designated 21.

One advantage of my improved construction is that it reduces the difficulty in sewing as compared to a structure requiring a plurality of needles to be passed through the coil. In making the present structure, only one needle passes through the coil while the other is completely outside the coil, thus avoiding crowding of the needles with the coil filament. Preferably, the outer line of stitching 14 goes around the cord 9, but if desired, it could be made to penetrate the cord.

As a result of the invention, it will be evident that an improved zipper fastener structure has been made possible and one which can be manufactured economically. The plastic filament is protected not only on both sides, but also around the inner edge leaving only the interlocking head portions exposed, and even they need not be exposed when the fastener is closed, as seen in FIG. 1. This is all accomplished without any extra tapes or specially shaped tapes, and only by the use of a single stitching operation.

What I claim is:

1. A zipper fastener structure comprising

- (a) a plastic filament coil;
- (b) a cord extending axially through the convolutions of said coil;
- (c) a flexible support tape, one edge portion of which overlaps one side of said coil; and,
- (d) securing means including a first line of stitching passing through said tape edge portion and through said coil between the convolutions thereof, and a second line of stitching passing through said tape and being spaced slightly away from said coil;
- (e) said lines of stitching being interconnected on the side of the coil opposite the overlapping tape portion and being maintained under sufficient tension to pull the tape around the inner edge of said coil out of the general plane of said overlapping edge portion.

2. A zipper fastener structure as defined in claim 1 wherein said first line of stitching passes through the coil between the cord and outer edge portion of the coil.

3. A zipper fastener structure as defined in claim 1 wherein the threads forming said lines of stitching are connected on the back side of the coil by a third thread which crosses the coil of a plurality of times for each stitch so as to provide a covering effect for the back side of the coil.

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