Dec. 4, 1934. L. COX 1,983,070

SLIDE FASTENER AND METHOD OF MAKING SAME

Filed April 21, 1933

Fig.1.

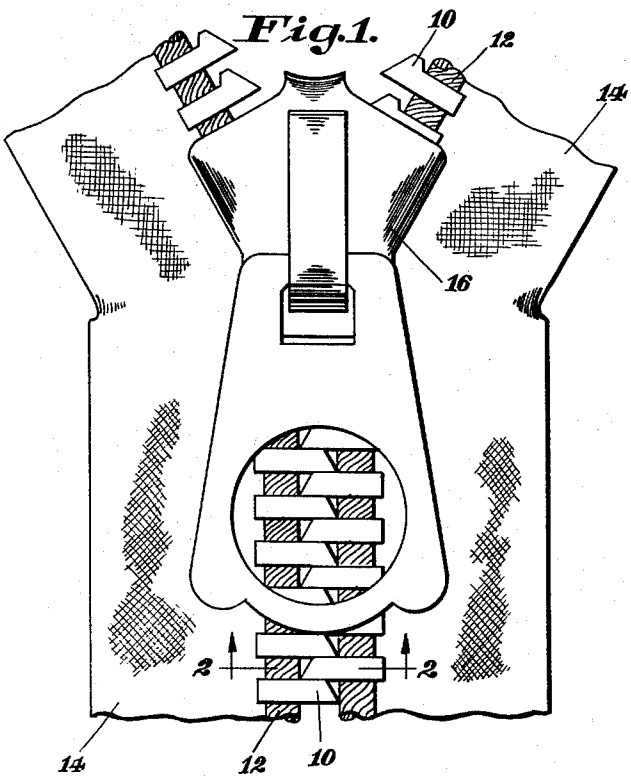


Fig.3.

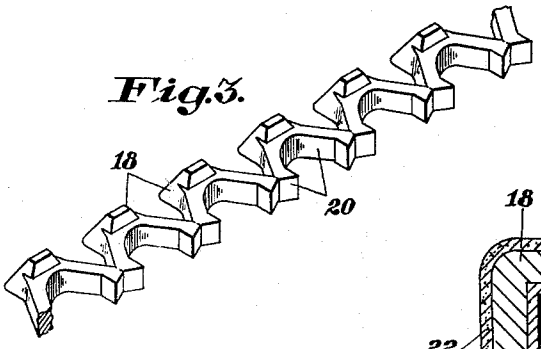
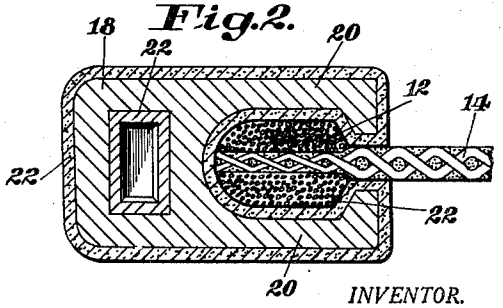


Fig.2.



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SLIDE FASTENER AND METHOD OF MAKING SAME

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4 Claims. (Cl. 29—148)

This invention relates to slide fasteners of the type shown in the patent to Sundback 1,219,881, in which a pair of flexible carriers or tapes have rows of interlocking elements attached along their adjacent edges, which are interlocked or disengaged by a slider movable along the rows.

Fasteners of this type have been extensively used and with increasing demands for their application to fine garments, attempts have been made to construct strong, but light fasteners. To this end it has been proposed to make the fastener elements of aluminum and while satisfactory fasteners have been made of this material, they are objectionable for some purposes because they soil light colored fabrics. The slider wears off leaving a smudge on the fabrics supporting the interlocking elements and the friction of the slider on the interlocking elements themselves wears away aluminum which increases the soiling of the article. This may occur even where the aluminum is lubricated. It is probably due both to the peculiar jagged molecular construction of aluminum and to its softness.

I have found that fasteners made of metals composed principally of aluminum and coated with aluminum oxide, especially by the electrolytic or anodic process, do not soil light colored fabrics. This may be due both to the hardness of surface imparted by the layer of oxide and partly to the molecular structure of the oxide which presents a smoother surface than that of aluminum.

Accordingly it is one of the objects of this invention to provide a cheap, light, strong fastener of attractive appearance which does not unduly wear or soil fabrics, and to provide an economical and effective method of manufacturing fasteners.

In the accompanying drawing:

Fig. 1 is a plan of a complete fastener.

Fig. 2 is a cross section on an enlarged scale of a fastener element taken on the line 2—2 of Fig. 1 and constructed in accordance with the present invention.

Fig. 3 is an isometric view of a strip of fastener elements arranged for application of the oxide coating.

Fasteners of the type under consideration include a series of interlocking elements 10 secured to the beaded edge 12 of a carrier member in the form of a flexible fabric tape 14. The two rows of interlocking elements are embraced by a slider 16 which interlocks or disengages the elements 10. Each element may have an interlocking head 18 and legs 20 constituting a bifurcated base portion by which they are clamped to the tape.

In carrying out the invention, I first form the interlocking elements with their bases spread apart, as shown in Fig. 3, either as individual elements or by stamping in a strip in which the individual elements are integrally connected, as shown in Fig. 3. The metal used for this may be aluminum or any suitable aluminum alloy, such as duralumin. After being formed the elements are coated with aluminum oxide, preferably by the known electrolytic processes in which the aluminum forms the anode of the electrolytic circuit. If the elements are individually formed this may be done in the usual electroplating basket, but I prefer to form the elements in strips and use the strips as anodes in the electrolytic bath. Passing of the electric current through a relatively small number of large groups of elements facilitates and cheapens the process of oxidizing and satisfactorily coats the individual elements. After being oxidized, the elements are broken apart and applied to the tape by any suitable apparatus, for example any of the known hoppers and applying machines which arrange the elements in an orderly fashion and clamp them individually to a tape.

The basket process of oxidizing has the advantage that each element is coated over its entire surface, as shown in Fig. 2, wherein 22 designates the film of oxide. However, it has the disadvantage that it is difficult to deposit thick coatings of oxide because the electrical contact between loose interlocking elements which is necessary to the depositing of the oxide, is broken as soon as a thin film of oxide is formed. Fasteners coated in the strip, as shown in Fig. 3, will have small uncoated spots where they are broken apart but this process has the advantages of economy and ease of carrying out the oxidizing process, and of depositing a heavy coating.

Another advantage of forming the fasteners of aluminum or aluminum alloys coated with aluminum oxide is that they may be readily colored. Certain dyes, for example aniline dyes, color the oxide producing a colored coating on the fastener which does not readily wear off or scratch and does not soil articles to which the fastener is applied. After forming, oxidizing and applying the elements to the tape, the whole is dipped in a suitable aniline dye which renders tape and metal the same color, producing an attractive fastener.

While I have shown and described in this application embodiments which my invention may assume in practice, it will be understood that these embodiments are merely for the purpose of illustration and description and that various other

forms may be devised within the scope of my invention as defined in the appended claims.

What I claim as my invention is:—

1. A slide fastener having in combination a flexible carrier strip and a plurality of interlocking elements attached thereto, the elements being formed of metal containing a predominant proportion of aluminum, and covered with a non-pulverulent coating of colored aluminum oxide.

2. The method of making slide fasteners of the type having a plurality of interlocking elements secured to a flexible carrier, which consists in forming from metal containing a predominant proportion of aluminum a strip containing a plurality of interlocking elements integrally joined together, electrolytically treating the strip to form a non-pulverulent oxide coating, severing the strip into individual interlocking elements each coated with aluminum oxide, and applying the elements to the carrier.

3. The method of making colored slide fasteners of the type having a plurality of metallic interlocking elements secured to a flexible carrier which consists in forming interlocking elements from metal containing a predominant proportion of aluminum, coating the elements with non-pulverulent aluminum oxide by anodic treatment, applying the elements to a flexible carrier, and simultaneously dyeing the aluminum oxide and carrier.

4. A slide fastener for use on garments and the like having cooperating series of interlocking elements for attachment to the edges of a garment, the elements being formed of metal containing a predominant proportion of aluminum, and a coating of non-pulverulent aluminum oxide of uniform texture and thickness.

LEONARD COX.