Dec. 2, 1941. L. H. MORIN 2,264,326

METHOD OF MAKING SEPARABLE FASTENERS

Filed Aug. 11, 1938

Fig. 1.

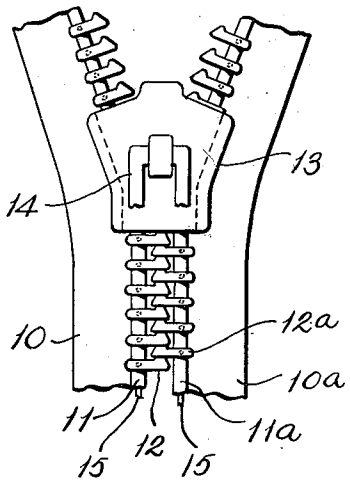


Fig. 2.

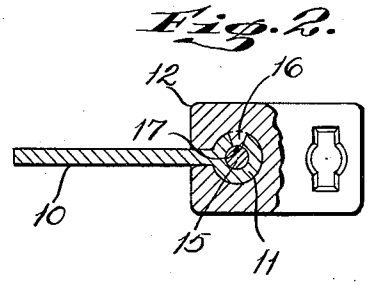


Fig. 3.

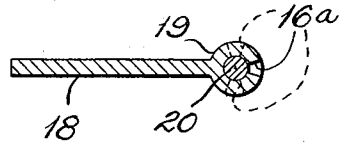
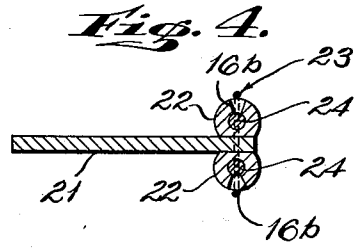


Fig. 4.



INVENTOR
LOUIS H. MORIN
BY
Howard C. Thompson
ATTORNEY

Patented Dec. 2, 1941

2,264,326

UNITED STATES PATENT OFFICE

2,264,326

METHOD OF MAKING SEPARABLE FASTENERS

Louis H. Morin, Bronx, N. Y., assignor to Whitehall Patents Corporation, Bronx, N. Y., a corporation of New York

Application August 11, 1938, Serial No. 224,270

4 Claims. (Cl. 204—23)

This invention relates to separable fasteners and particularly to devices of this kind employing metallic links arranged longitudinally of the stringers and adapted to be electroplated to give desired protection or color to the links. More particularly, the invention relates to a manner of constructing the mounting or stringer tapes of fasteners of the character described to provide one or more electric conductors arranged longitudinally thereof and imbedded in the material of the tape or a bead forming the strand attached to the tape, and further to the provision of means exposing the imbedded conductor outwardly through the resulting tape or strand to expose the same to the coupling links or scoops attached thereto to establish an electric contact of all of the links or scoops with said conductor to facilitate the electroplating of said links as well as in the method of constructing the fasteners as herein set forth. The novel features of the invention will be best understood from the following description and annexed drawing in which certain embodiments of the invention are disclosed and in which the separate parts are designated by suitable reference characters in each of the views, and in which:

Fig. 1 is a plan view of a part of two fastener stringers made according to the invention and showing a slider arranged thereon.

Fig. 2 is a transverse section through one of the fastener stringers showing one of the links partially in section thereon.

Fig. 3 is a sectional detail view showing a modified form of stringer tape which may be employed; and,

Fig. 4 is a view similar to Fig. 3, showing another modification.

The invention herein disclosed constitutes an improvement over the invention described and claimed in my prior Patent #2,063,515, issued December 8, 1936, and differentiates therefrom primarily in the provision of what might be termed an imbedded conductor; that is to say, a conductor imbedded in the stringer tape or in a strand or element coupled therewith, the tape or strand being so fashioned as to form a series of openings exposing the conductor to the exterior of the tape to contact a coupling link secured thereon and especially in forming die cast links upon the stringer.

It is one of the distinctive features of my invention to provide mounting or stringer tapes for separable fastener stringers of the character described having incorporated therein, or in the edge portion of the tape to which the metallic links are secured, a wire or metallic strand or what is commonly referred to as a tinsel; that is to say, a fabric strand or thread wrapped spirally with a fine wire so that each link attached to the tape contacts the metallic strand thereby completing an electric circuit to all of the links facilitating the electroplating of said links. This plating is not only for the purpose of applying the conventional nickel, chromium, silver, brass, copper, and other platings, but also for the purpose of applying various color platings to the links in accordance with more recent processes. In connection with the color plating, the same has been applied successfully on devices composed of aluminum; and in this connection it will be understood that the links of the stringers may be composed of aluminum, or if desired, may be suitably plated prior to the application of the color platings thereto.

The color plating of the links of separable fastener stringers is desirable in many uses of the fasteners to match or blend the links to the merchandise or products in connection with which the same are used. By constructing the stringer tapes in the manner herein described, a very simple and economical means is provided for performing the electroplating operations upon the links of the stringers, while at the same time producing thoroughly and completely plated links or scoops which will result in a neat and finished appearance.

My invention lends itself especially to the formation of stringer tapes where the links or scoops are made from die cast materials which may be die cast upon the tape directly in a successive series of casting operations or separately cast and attached to the stringer tapes. It will thus be seen that cast aluminum links may be employed or zinc castings or other metal castings may be provided and plated in the manner set forth.

In Figs. 1 and 2 of the drawing I have shown one adaptation of the invention; and in Fig. 1, 10, 10*a* represents two similar stringer tapes having beaded edges 11, 11*a* to which the coupling links or scoops 12, 12*a* are secured. At 13 is indicated a slider movable along the stringer to couple and uncouple the same in the conventional manner, and at 14 is shown a part of a finger piece or pull employed for operating the slider.

In that the structure of both stringers 10, 10*a* is identical, the brief description of one will apply to both. In Fig. 2 I have shown a cross-section of the stringer 10 and in the beaded edge 11 of the stringer is imbedded a conductor strand 15 preferably composed of a flexible wire or a number of flexible wire strands or a combination of a cotton strand with a coiled wire thereon form-

ing what is commonly termed a tinsel, as is taught in the patent heretofore named. The beaded edge 11 of the stringer tape 10 is rendered porous or provided with a multiplicity of closely arranged apertures, one of which is shown at 16 in Fig. 2 of the drawing, to expose the conductor 15 through said bead so that the material of the link 12, especially when formed as a die cast link, will extend through the aperture 16 to contact the conductor 15 as indicated at 17. In this connection it will be understood that in forming die cast links directly upon the tape and the beaded edge thereof, the pressure of the cast metal extends through the interstices of the braid and may, apart from the aperture 16, establish an electric contact with the conductor 15. However, by providing a series of the openings 16 which may in fact constitute a porous or openwork structure of the bead, and arranging the same in close proximity to each other, the contact of the link with the conductor is positively established.

At this time it will be apparent that the illustration in Fig. 1 of the drawing is purely diagrammatic; and while a series of apertures may be formed on one surface only of the bead, the openwork or porous structure of the bead would form a series of irregularly arranged apertures circumferentially of the bead as is represented in Fig. 3 of the drawing. In Fig. 3, 18 represents the tape, 19 the beaded edge, 20 the conductor strand, and 16*a*, a series of the circumferentially as well as longitudinally spaced openings. In a unitary construction of the type under consideration where the bead is an integral part of the tape, it will appear that the weaving of the unitary product may be such as to provide an openwork structure at the beaded edge by simply removing some of the threads in forming this bead. As these expedients are well known in the art no specific illustration thereof is deemed here to be necessary, the fundamental principle being to provide the closely arranged longitudinally and otherwise spaced openings exposing the links to the conductor regardless of any particular spacing of the links upon the conductor.

In Fig. 4 of the drawing I have shown a modification wherein a plain stringer tape or strand 21 is used, to opposite surfaces of which are secured cords 22 in any desired manner, for example by means of stitching as indicated at 23. Each cord or strand has imbedded therein a filler or core strand 24 at least one of which is so constructed as to form an electric conductor extending longitudinally of the strand 22 and likewise longitudinally of the tape 21 so as to contact all of the links attached thereto by reason of openings 16*b* formed in the strands 22 or by reason of an openwork structure of said strand to expose the links attached to the stringer tape to the conductor or conductors 24 to facilitate electroplating of all of the conductors in one treatment of a complete stringer.

After the stringer tapes have been formed, the same may be passed through suitable machines for the attachment of the links or scoops 12, 12*a*, thereon. These scoops may be formed and applied in any desired manner or be directly die cast on the beaded edges of the tapes. It will also be apparent that the links or scoops may be constructed of any suitable metals, and in the case of producing what I term color plated links in accordance with my process, I may use links composed entirely of aluminum or aluminum alloys, or links composed of metals or other alloys, in which latter event the same will be first suitably plated and then passed through the color plating process to produce the desired color on the resulting links in accordance with the anodic method or other processes.

In connection with the plating operation of the links of the stringers, it will be understood that these stringers may be plated as stringer units or a successive series of stringer sections may be plated in one operation in accordance with conventional practice in what is termed a continuous chain-like plating operation. After the plating operation, the separate stringer lengths are subdivided.

From the foregoing it will be understood that the links or scoops are not formed directly upon or attached to the conductors but are attached to conventionally beaded edges which are either formed as an integral part of the stringer tape or by the cords or fabric strands attached thereto as is taught in Fig. 4 of the drawing. In all instances, the conductor is imbedded within a fibrous body, and the fibrous body is either apertured or otherwise constructed of openwork or porous material to establish contact of each of the links with the conductor. If the links are pre-formed and then applied to the mounting or stringer tapes, such links will be so constructed as to provide elements adapted to pass through the openings or openwork structure of the bead to positively engage the conductor at least when attached to the bead of the tape under pressure. In the use of die cast links formed directly upon the beaded edges, the pressure of the cast metal will positively penetrate the openings formed in the bead to engage the conductor or conductors employed.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. The herein described method of manufacturing stringers of separable fasteners to permit electroplating of the separate links of the stringers which consists in providing an elongated mounting tape of fibrous material having an enlarged body longitudinally of one edge thereof, arranging an electrically conductive core member within said enlarged body, forming said enlarged body so as to provide a series of closely arranged and longitudinally spaced openings therein to expose said core member through said openings at close intervals longitudinally of said body, applying metallic links to said enlarged body and adjacent portion of the tape and providing on said metallic links portions extending through said openings to engage the core member thereby establishing an electric circuit to all of said links through said core member to facilitate simultaneous electroplating of all of the links on a stringer tape of predetermined length, and electroplating said links.

2. The herein described method of manufacturing stringers of separable fasteners to permit electroplating of the separate links of the stringers which consists in providing an elongated mounting tape of fibrous material having an enlarged body longitudinally of one edge thereof, arranging an electrically conductive core member within said enlarged body, forming said enlarged body so as to provide a series of closely arranged and longitudinally spaced openings therein to expose said core member through said openings at close intervals longitudinally of said body, applying metallic links to said enlarged body and adjacent portion of the tape and pro-

viding on said metallic links portions extending through said openings to engage the core member thereby establishing an electric circuit to all of said links through said core member to facilitate simultaneous electroplating of all of the links on a stringer tape of predetermined length, applying one plating to said links, and then applying another color plating to said preplated links, and at least one of the platings being formed by electrodeposition.

3. The herein described method of manufacturing stringers of separable fasteners to permit electroplating of the separate links of the stringers which consists in providing an elongated mounting tape of fibrous material having an enlarged body longitudinally of one edge thereof, arranging an electrically conductive core member within said enlarged body, forming said enlarged body so as to provide a series of closely arranged and longitudinally spaced openings therein to expose said core member through said openings at close intervals longitudinally of said body, applying metallic links to said enlarged body and adjacent portion of the tape and providing on said metallic links portions extending through said openings to engage the core member thereby establishing an electric circuit to all of said links through said core member to facilitate simultaneous electroplating of all of the links on a stringer tape of predetermined length, then treating the resulting product to form a suitable plating on the links, then subjecting the resulting plated product to a further plating treatment for color plating the links of the stringer in a predetermined color and at least one of the platings being formed by electrodeposition.

4. The herein described method of forming a stringer tape to which metallic links are secured to adapt the same for the electroplating of the links attached thereto, which consists in providing an elongated mounting tape of fibrous material, providing two strands of fibrous material at least one of which is in the form of an openwork body having closely arranged openings extending longitudinally of said strand, and including a core forming an electric conductor arranged longitudinally of said strands and exposed through said openings, arranging the strands upon opposite surfaces of said tape at one edge portion thereof, then securing the strands to the tape applying metallic links to the edge of the tape having the strands secured thereto to contact the conductor through the openings in one of said strands, and then electroplating said links.

LOUIS H. MORIN.