June 8, 1971 SUNAO ISHIZAKA 3,583,042

FASTENER

Filed Nov. 19, 1969 2 Sheets-Sheet 2

FIG. 3

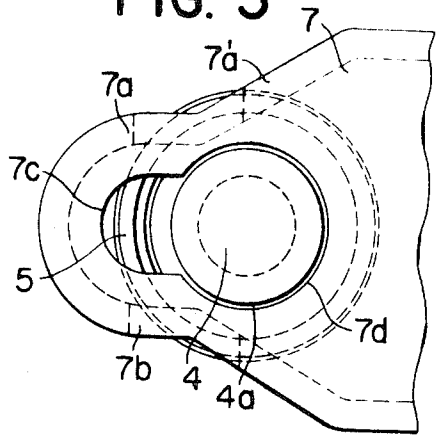
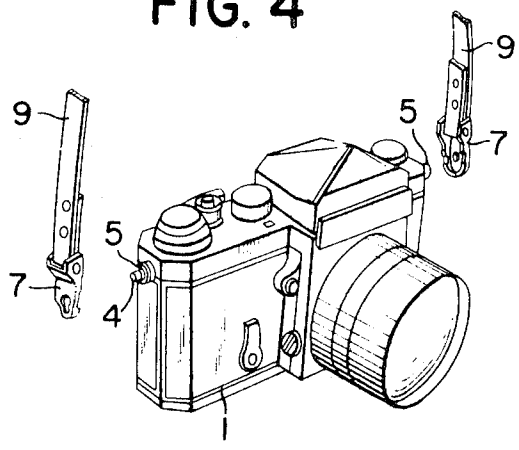


FIG. 4



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ZIP-FASTENER

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U.S. Cl. 24—205 6 Claims

ABSTRACT OF THE DISCLOSURE

A slide fastener is provided with two slide members which can engage each other with unsymmetrical notches formed in their ends while one row of closure members of a zipper is being introduced therein. The unsymmetrical notches are formed from at least one tooth and at least one associated complemental tooth gap, both as seen in top plan view, so that the unsymmetrical notch of one slide fits into the unsymmetrical notch of the other slide for purposes of maintaining alignment. An additional notch may be provided in each slide, as viewed in side-view, for further aligning the two slides.

The invention refers to a zip-fastener provided with two rows of closure members, said rows of closure members being completely separable from one another, and further provided with two slides for opening and closing, respectively, the zip-fastener in opposite direction, said slides being safely held on one row of closure members and being adapted for introducing the end of the other row of closure members when said slides are in engagement with its opposing front faces. With known zip-fasteners of the kind described said both slides bluntly engage one another with its front faces when being in the position for introduction of the end of the free row of closure members while being held in its relative position only by the row of closure members which they are engaging. With the relative position of said both slides being not exactly maintained it becomes quite difficult to correctly introduce the other row of closure members with its end through both slides. Introduction of the end of the other row of closure members into the engaging slides thus requires certain care and skill, particularly when zip-fasteners of ski-dresses have to be handled in the cold. Incorrect introduction into the slides of the end of the other row of closure members, however, results in objectionable malfunction.

The invention now aims at removing said disadvantages and essentially consists in that the opposing front ends of the slides are engaging one another by an unsymmetric notch and in that the front ends of both slides are equally shaped. This arrangement according to the invention provides the advantage that both slides are, by means of its notched front ends, firmly held in a well defined relative position warranting unobstructed introduction of the other row of closure members with its end into both slides. In view of both slides being equally shaped it is possible to manufacture both slides of one zip-fastener with the same tools what materially facilitates production and materially reduces production costs. Provision of one slide with a guide member of special construction would result in different shapes of both slides what would substantially increase production costs.

If the notch is provided in one cover plate of each slide the relative position of the engaging slides may be already satisfactory. Conveniently both cover plates of each slide are provided with meshing notches. According to the invention the flanks of the teeth of the notches

are converging seen in a top plan-view, thus facilitating interengaging of the notches. If the flanks of the teeth are, seen in a cross section perpendicular to the direction of movement of the slides, perpendicular to the planes of the cover plates, the relative position of the meshing slides is secured against laterally acting forces and with this introduction of the end of the free row of closure members is substantially facilitated. According to a preferred embodiment of the invention the slides are with their engaging ends formed such that a notch is present also seen in a lateral view of the slide, said notch preferably having converging flanks too. Such an arrangement provides security against movement of the engaging slides in a direction perpendicular to its cover plates. According to a further preferred embodiment the arrangement may be such that the flanks of the teeth of the notch are, seen in a cross section perpendicular to the direction of movement of the slides, inclined relative to a vertical line on the plane of the cover plates. Such an arrangement is suitable for maintaining the relative position of the engaging slides against both, vertically and laterally acting forces. With the last mentioned embodiment it is possible to provide a simple guide for interengagement of the slides by providing a notch in both cover plates of the slides and by arranging the flanks of the teeth of the notches in the both cover plates of one slide, seen in a cross section perpendicular to the direction of movement of the slide, with opposite inclinations relative to a line perpendicular to the plane of the cover plates.

The invention is further illustrated with reference to the accompanying drawing in which embodiments of a zip-fastener according to the invention are shown.

FIG. 1 is a top plan-view of the meshing slides seen in direction of arrow I of FIG. 2.

FIG. 2 is a cross section along line II—II of FIG. 1 showing only the slide **1**.

FIG. 3 is a lateral view of the meshing slides shown in FIG. 1.

FIG. 4 shows a top plan-view of a further embodiment.

FIG. 5 is a section along line V—V of FIG. 4.

Both slides **1** and **2** (FIGS. 1 and 2) are shown in a position at the end of one row **13** of closure members on which row said slides are guided such that they cannot be lost. Each slide is provided in a manner known per se with a heart piece **17** and a lug **18**.

In the position shown in FIG. 1 the other row **14** of closure members is to be introduced into both slides. For this purpose it is essential that both slides precisely mesh with their front ends **3** so that the lateral walls **15**, **16** of both guide channels for the rows **13** and **14**, respectively, of closure members are exactly aligned. To realize the mentioned relative position of the slides said slides **1** and **2** are of identical shape and are provided at its front ends **3** with an unsymmetric notch. The tooth **4** of one slide is engaging the tooth gap **5** of the other slide and the tooth **6** of one slide is engaging the recess **7** of the other slide, and vice versa. This is enabled by the unsymmetric notch. The meshing teeth hinder the slides **1** and **2** from being shifted relative to one another in the plane *a* (FIG. 2) of the cover plates **9**, **10**. To prevent the slides **1** and **2** also from being relatively shifted in a direction perpendicular to said plane *a*, both slides **1** and **2** are provided with a notch as is shown in a side elevation represented by FIG. 3. Said notch being formed by protrusions **19** engaging corresponding recesses **20** of the tooth **6** over approximately half of its width. For facilitating engagement of the slides **1** and **2** in the position shown in FIG. 1 and for avoiding the slides from becoming jammed in said position the flanks of the teeth and of the tooth gaps and the recesses, respectively, are somewhat inclined relative to the longitudinal axis of the zip-

construction is simple yet has a sufficient strength to retain securely the strap even if an external force is applied thereto, thus providing very useful advantages.

What is claimed is:

1. A device for releasably fastening a strap to a body to be suspended comprising a mounting member fixedly secured to the suspended body and having a head, a neck portion and a flanged portion; a retaining member fixed to said mounting member for slidable movement in the axial direction thereof and having an engaging portion; a spring for pressing said retaining member against said flanged portion of said mounting member; and a connecting member having an aperture consisting of two portions, one portion of said aperture being larger than said head portion of said mounting member and being defined by a first curved portion while the other portion being larger than said neck portion but smaller than said head portion of said mounting member and being defined by a second curved portion, said connecting member having a C-shaped convex portion adapted to engage with said engaging portion of said retaining member and being fastened to the strap.

References Cited

UNITED STATES PATENTS

2,078,010	4/1937	Meepos	24—265CDX
2,723,430	11/1955	Paillard	24—265RX
3,071,832	1/1963	Horton	24—265H

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