

[54] FASTENING DEVICES

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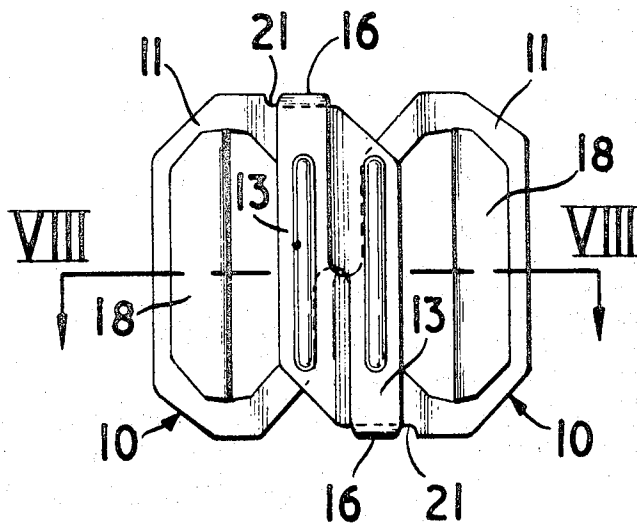
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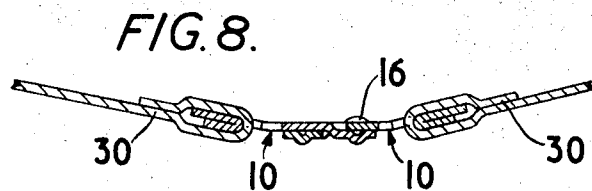
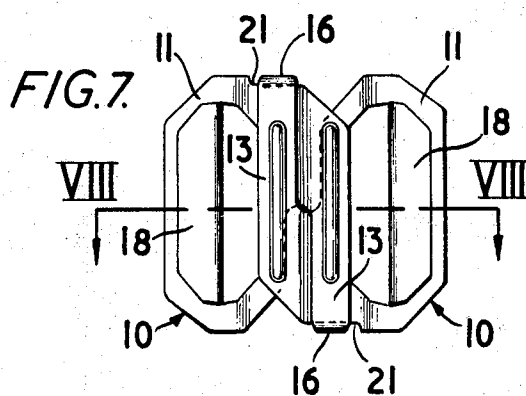
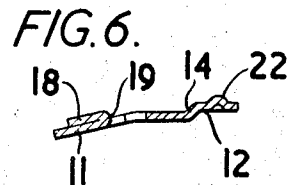
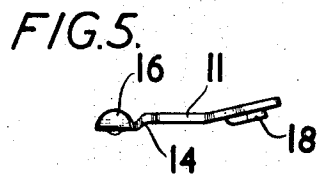
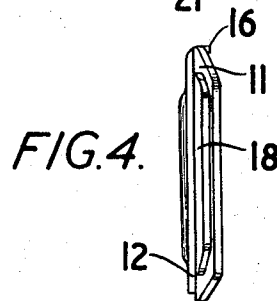
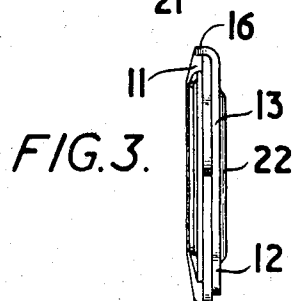
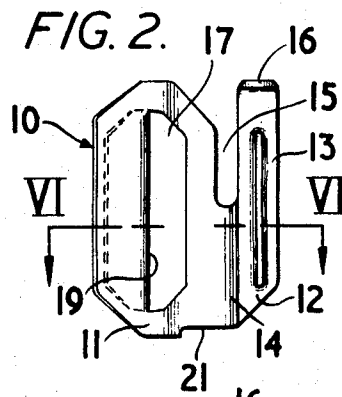
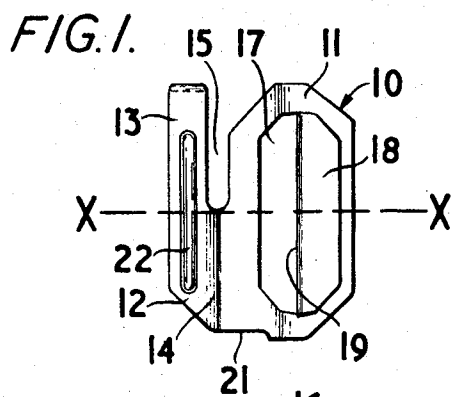
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[57] ABSTRACT

A two-part releasable fastening device for connecting strap or band portions of wearing apparel comprises two separate and identical component parts which slot and interlock together and which each consist of a plate member having a substantially planar body portion and an adjacent substantially planar offset coupling portion integrally interconnected by a transversely-extending cranked portion substantially in alignment with a re-entrant transversely-extending open-ended coupling slot. The coupling portion provides a relatively narrow transversely-extending tongue terminating in a latching projection or tab which establishes additional interlocking engagement with the other component part, and the plate member of each part may have a shallow curvilinear form in longitudinal cross-section.

4 Claims, 8 Drawing Figures





## FASTENING DEVICES

The present invention relates to a two-part releasable fastening device of a kind which comprises two interengageable separate component parts and which is suitable for use with garments or other articles of wearing apparel to connect together, for example, respective free end portions of strap or band portions thereof.

An object of the invention is to provide a simple fastening device of improved construction.

More particularly, the invention provides a fastening device, of the kind referred to, wherein the two separate component parts are adapted to be coupled by slotting together to produce an interlocking fastening engagement, each component part comprising a plate member having a substantially planar body portion adapted for securing or anchoring to a respective free end portion of a pair of strap or band portions to be connected, and an adjacent substantially planar coupling portion offset from the general plane of the body portion, said body portion and coupling portion being integrally interconnected by a cranked portion providing a shallow step extending in a direction transversely across the plate member and substantially in alignment with a re-entrant transversely-extending open-ended slot which enables the coupling of the said two component parts to be effected by bringing their re-entrant slots opposite to one another and then moving said parts laterally together into mesh so that the slot of each part embraces or accommodates the cranked portion of the other part whilst the body portions of both parts lie substantially in alignment.

In accordance with a particularly important and advantageous feature in preferred embodiments of the invention, the coupling portion of each component part, conveniently a free edge thereof adjacent the open end of the re-entrant slot, has secondary retaining means, such as for example a latching projection or tab, adapted to establish additional interlocking hooking or latching engagement with the other component part when said two component parts are fully coupled together.

The plate member forming each component part may be formed of sheet metal and is preferably of substantially rectangular shape with the cranked portion and re-entrant slot disposed adjacent one end so that the coupling portion provides a transversely-extending tongue which is narrow relative to the width of the body portion. The latching projection or tab, referred to above, is conveniently formed by a rearwardly bent free extremity of such transversely-extending tongue.

The re-entrant slot of each part furthermore extends preferably as far as a median longitudinal axis of the plate member and the two parts are advantageously of identical form in all respects so that manufacture and use is considerably simplified.

Also, the plate member of each component part advantageously has a shallow curvilinear or angular form in longitudinal cross-section whereby said two component parts when coupled together follow a shallow substantially arcuate contour so as to conform to curvature of the body of a wearer of an article of wearing apparel upon which the fastening device is used.

For attaching to a strap or band of a garment, the body portion may have an aperture or closed slot through which a portion of the strap or band can be

threaded and looped back on itself in order to be secured by stitching in a conventional manner.

By way of example, the invention will now be more particularly described by reference to the accompanying drawing which illustrates a fastening device, composed of two identical component parts, having a structure in accordance with one preferred form of the invention.

In said drawings,

FIG. 1 shows a front view of one of the said component parts;

FIG. 2 is a rear view of said component part;

FIG. 3 is an end elevation of the outer or leading end;

FIG. 4 is an end elevation of the opposite inner or trailing end;

FIG. 5 is a top plan view;

FIG. 6 is a section in line VI — VI of FIG. 1;

FIG. 7 is a front view showing the two parts of the fastening device connected together as when in use; and

FIG. 8 is a longitudinal section on line VIII — VIII of FIG. 7, with the two parts shown additionally as being attached to strap or band portions of an article of wearing apparel.

Referring to the drawing, each component part of the device consists of a sheet-metal plate member 10 of approximately rectangular form which includes a generally planar rectangular body portion 11 with bevelled corners and, offset from the general plane of this body portion, an adjacent, generally planar, coupling portion 12.

As indicated, the coupling portion 12 is integrally connected to the body portion 11 by a cranked portion 14 providing a shallow step extending in a direction transversely across the plate member 10 and substantially in alignment with a re-entrant transversely-extending open-ended slot 15. The slot 15 extends between the upper edge of the plate member 10, in the position shown in FIG. 1, and the median longitudinal axis  $x - x$ , and the cranked portion 14 and the slot 15 are both offset towards one end of the plate member 10 so that the coupling portion 12 provides a transversely-extending tongue 13 which is narrow in relation to the width of the body portion 11.

As shown in the drawing, the free end of the tongue 13, which represents a free edge of the coupling portion 12 lying adjacent the open end of the re-entrant slot 15, is bent rearwardly through substantially 90° to provide a latching projection or tab 16 adapted to hook or latch over an inset edge portion 21 of the body portion of the other component part when said two identical component parts are fully coupled together as hereinafter described. As is also shown, the coupling portion 12 of each part is provided with an embossed strengthening rib 22 which extends into the tongue 13.

For securing or anchoring the plate member 10 to a respective free end portion of a pair of strap or band portions to be connected, the body portion 11 is formed with a substantially rectangular closed slot or aperture 17 through which a part of the respective garment strap or band portion 30 (see FIG. 8) can be passed and looped back on itself for securing, such as by stitching, in a conventional manner. The slot or aperture 17 is conveniently formed by stamping or chopping out to sever along three sides a portion of the sheet-metal blank from which the component is formed so as to produce a broad tongue, indicated at 18, which is folded over against the front face of the body portion

11 so as to provide a smooth rounded surface 19 along the edge of the slot against which the material of the strap or band portion 30 bears during use, thereby reducing risk of fraying or similar damage to the material.

In use, the two identical parts of the fastening device, anchored to their respective parts 30, 30, of the material which are to be connected, are coupled together to produce an interlocking fastening engagement by bringing their re-entrant slots 15 opposite to one another and the parts are then moved together and meshed so that the slot 15 of each embraces or accommodates the cranked portion 14 of the other part. The parts are thereby interlocked together, as illustrated in FIGS. 7 and 8, with their body portions 10 lying in alignment in substantially the same plane due to the stepped or cranked formation of portions 14 so that a desirable shallow substantially flush fitting is provided. The security of the coupling is considerably improved by the provision of the latching projections or tabs 16, and also, it will normally be enhanced during use by tension in the connected parts 30, 30, of the material. But, when required, the fastening is readily released merely by displacing the parts slightly angularly and then laterally so as to move them out of mesh.

Although the plate members 10, 10, of the two component parts are generally of planar form, it will be noted that each has, in longitudinal section, a shallow curvilinear or angular form. As a result, when coupled together these two parts follow a shallow substantially arcuate contour as clearly indicated in FIG. 8, thereby to conform more closely to curvature of the body of a wearer of an article of wearing apparel upon which the fastening device is used.

Although the particular structure of fastener hereinabove specifically described represents an especially satisfactory preferred embodiment of the invention, it will of course be understood that numerous modifications and alterations in the precise structural form can be made, if desired, within the scope of the invention as defined in the appended Claims.

I claim:

1. A fastening device usable for connecting together respective free end portions of strap portions of articles of wearing apparel, said fastening device consisting of two identical separate component parts which releasably couple by slotting together to produce an interlocking fastening engagement, each said component part comprising a sheet-metal plate member having a substantially planar body portion, slot means for securing to said body portion a respective free end portion of the strap portions to be connected, a substantially planar coupling portion adjacent to but offset from the general plane of said body portion, a cranked portion providing a shallow step integrally interconnecting said body portion and coupling portion and extending in a direction transversely across the plate member, a re-

entrant transversely-extending open-ended coupling slot which is substantially in alignment with said cranked portion and which extends as far as a median longitudinal axis of the respective plate member, said coupling portion of each component part including a transversely-extending tongue which is narrow relative to the width of said body portion and which bounds one side of said re-entrant coupling slot, said coupling portion of each component part further comprising a latching tab formed by a rearwardly-directed projection at a free extremity of said transversely-extending tongue, said tab being adapted to latchably engage a recessed edge portion of the plate member of the other component part when said two component parts are fully coupled together to establish an additional interlocking engagement, said coupling portion of each component part further having reinforcing rib means extending into said tongue in the direction of the length of said tongue, and said body portion of each plate member having first and second edge portions bounding the second side of the re-entrant coupling slot adjacent the inner and outer ends respectively of said slot, said first edge portion being parallel to the tongue and to the axis of said slot and said second edge portion being at an oblique angle to the tongue and to the axis of said slot thereby to provide a tapering entrance to said slot and provide a guide surface to facilitate coupling engagement of the two component parts.

2. A fastening device according to claim 1 wherein the slot means in said body portion of each plate member comprises a closed slot to accommodate a looped end portion of the strap portion which is secured thereto, and each plate member further comprises a sheet metal tongue disposed in overlying relationship with said body portion and an arcuate bend portion integrally connecting said tongue to said body portion along an edge boundary of the closed slot, said bend portion providing a smooth curved bearing surface for engaging the looped end portion of the strap portion.

3. A fastening device according to claim 2, wherein the plate member of each component part has a shallow bent configuration in longitudinal cross-section whereby said two component parts when coupled together follow a shallow substantially arcuate contour so as to conform to curvature of the body of a wearer of an article of wearing apparel to which the fastening device is fitted.

4. A fastening device according to claim 1 wherein the plate member of each component part has a shallow bent configuration in longitudinal cross-section whereby said two component parts when coupled together follow a shallow substantially arcuate contour so as to conform to curvature of the body of a wearer of an article of wearing apparel to which the fastening device is fitted.

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