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(54) **Title:** ONE-HANDED FASTENER AND METHODS THEREOF

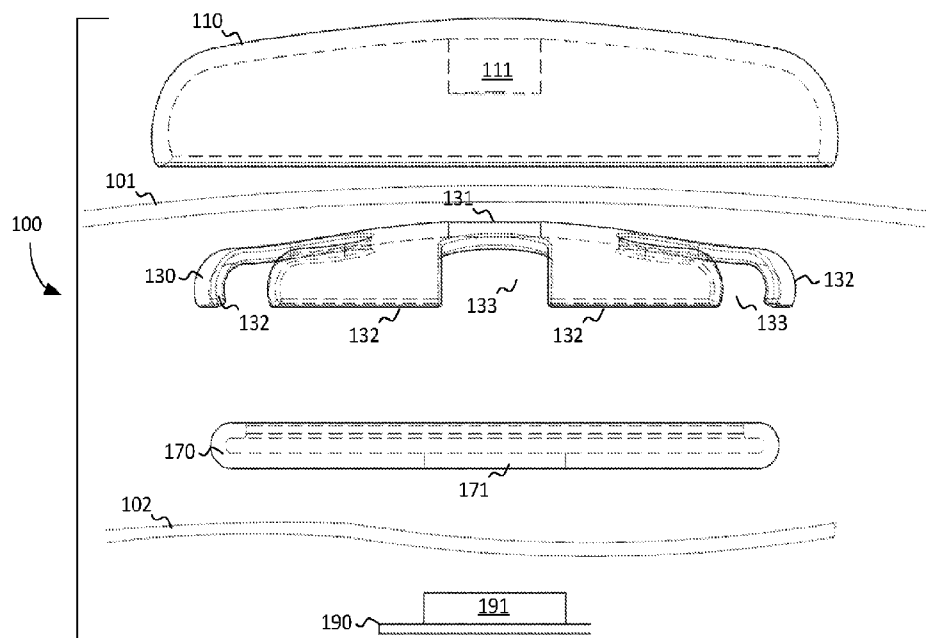


FIG. 1

(57) **Abstract:** A fastener system is disclosed having a clamping portion and a captured portion, wherein each component is secured to a substrate. The clamping component serves to capture and detach from the captured component upon activation by a force from the same direction.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 24/33306

A. CLASSIFICATION OF SUBJECT MATTER

IPC - INV. A44B 17/00 (2024.01)

ADD. F16B 21/07 (2024.01)

CPC - INV. A44B 17/0052, A44B 17/0011, A44B 17/0017, A44B 17/0023, A44B 17/0041, A44B 17/0076, Y10T 24/45775, Y10T 24/45785

ADD. F16B 21/07, F16B 21/073, F16B 21/075, Y10T 24/45618, Y10T 24/45628, Y10T 24/45853

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

See Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

See Search History document

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

See Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2,656,578 A (TWOREK) 27 October 1953 (27.10.1953) entire document	1-3, 7-8, 11-14
X	US 4,099,303 A (PARERA) 11 July 1978 (11.07.1978) entire document	1, 2, 7-16
Y		3-6
Y	US 586,118 A (DOWSE) 13 July 1897 (13.07.1897) entire document	3-6
A	US 2,816,340 A (DOMENECH et al) 17 December 1957 (17.12.1957) entire document	1-16
A	US 651,983 A (STIRCKLER) 19 June 1900 (19.06.1900) entire document	1-16

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"D" document cited by the applicant in the international application

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

06 September 2024

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 24/33306

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
SEE EXTRA SHEET

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-16

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

-* Continuation of: Box No. III Observations where unity of invention is lacking (Continuation of Item 3 of first sheet) -*

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I: Claims 1-16 directed to a first component (clamping part 130; Figs. 1-34) is adapted to reversibly grip a second component (capture part 170; Para. [00151]; Figs. 1-34).

Group II: Claims 17-20 directed to a first component (capture portion 370; Figs. 63-65) is adapted to be reversibly gripped by a second component (clamping portion 330; Paras. [00167]-[00169]; Figs. 63-65)

The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

SPECIAL TECHNICAL FEATURES

The invention of Group I includes the special technical feature of

wherein the first component is adapted to reversibly grip the second component when brought into contact thereto upon application of a first force pushing the first component into the second component;

wherein the first component is adapted to detach from the second component upon application of a second force pushing the first component into the second component;

not required by the claims of Group II.

The invention of Group II includes the special technical feature of a

wherein the first component is adapted to be reversibly gripped by the second component with its concave gripping edge when brought into contact thereto upon application of a first force pushing the first component into the second component;

wherein the first component is adapted to detach from the second component upon application of a second force in the same direction of the first force and pushing the first component into the second component;

not required by the claims of Group I.

COMMON TECHNICAL FEATURES

Groups I-II share the common technical features of a fastener, comprising:

a first component attached to a first substrate; and

a second component attached to a second substrate;

wherein the first component is adapted to reversibly grip the second component when brought into contact thereto upon application of a first force pushing the first component into the second component;

wherein the first component is adapted to detach from the second component upon application of a second force pushing the first component into the second component.

However, this shared technical feature does not represent a contribution over prior art as being anticipated by US 4,099,303 A to Parera (hereinafter referred to as Parera), which discloses a fastener (Abstract; Fig. 1), comprising:

a first component (discoidal flexible piece 8; Fig. 1) attached to a first substrate (lamina 6; Col. 2, Lines 51-60; Fig. 1); and

a second component (male element 11; Fig. 1) attached to a second substrate (second flexible lamina fabric not shown; Col. 2, Line 66 to Col. 3, Line 2);

wherein the first component is adapted to reversibly grip the second component when brought into contact thereto upon application of a first force pushing the first component into the second component (Col. 2, Lines 18-22 and Col. 3, Lines 65-67; Figs. 1 and 2; where the legs are first pivoted outwardly by pressing down on the disc 8 in order to insert the male element 11 into the female element);

wherein the first component is adapted to detach from the second component upon application of a second force pushing the first component into the second component (Col. 3, Lines 19-29; Figs. 1 and 2).

As the common technical features were known in the art at the time of the invention, these cannot be considered special technical feature that would otherwise unify the groups.

Therefore, Groups I-II lack unity under PCT Rule 13 because they do not share a same or corresponding special technical feature.