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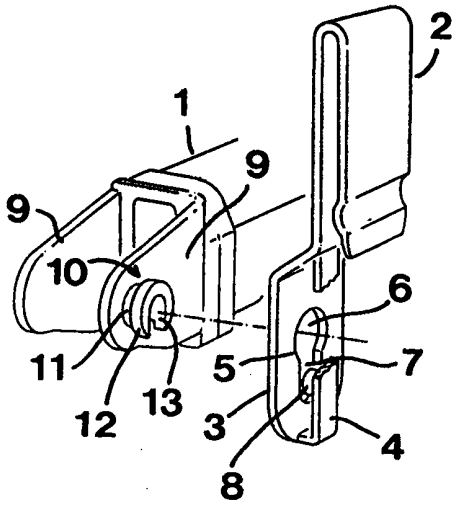
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(54) Title: DETACHABLE JOINT



(57) Abstract

The invention is a means for releasable jointed connection of two items with each other. The first item (2) comprises two flat elements (3, 4), one of which is provided with a hole with one wide section (6) and one narrower section (7), and the other provided with a peg (8) opposite to and facing into the narrower hole section (7). The other item (1) has a horseshoe-shaped protrusion (10) with an inner waist (11) and an outer collar (12), both of which have a lateral opening (13). To connect the items, the horseshoe-shaped protusion (10) with its collar (12) is inserted through the wide section (6) of the hole (5) with the lateral opening (13) oriented towards the peg (8), and then longitudinally moved from the wide section into the narrower to let the horseshoe-shaped protrusion (10) enclose the peg (8). The items are secured by rotating relative to each other.

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DETACHABLE JOINT

Purpose and features of the invention

The present invention has been developed to connect a saw sheath to a holder fastened to a belt in a way that allows the sheath to rotate relative to the holder, and to be easily released from the holder when desired. It can, however, be more generally used to connect two items of arbitrary kind with a detachable joint. A connection means for that purpose according to the invention is defined in the following claims.

Brief description of the drawings

Figure 1 is a perspective view of a saw sheath with a holder, releasably joined to the sheath.

Figures 2 - 5 are perspective views of the connection means in four states of operation.

Detailed description of a preferred embodiment of the invention

In figure 1, a saw sheath (1) is designed to receive a hand saw and to be carried by a belt. For this purpose, the sheath is connected to a holder item (2) which has a U-shaped clasp to be hooked onto the belt. The sheath and the holder can both be made from injection molded polymer material. Figures 2 - 5 show details of the connection means.

The lower part of the holder (2) comprises a first flat element (3) which at its lower edge is connected to a second flat element (4) which is narrower than the first element. The first element (3) is provided with a through hole (5) which is keyhole-shaped, more specifically comprising a wide section (6), preferentially circular, and a narrower section (7) with elongated section. In practise, the round wide section (6) could have a diameter 1.5 to 2 times the width of the narrower section (7). On the inside of the second flat element (4) is a peg (8) located facing the lower portion of the narrow section (7) of the hole. In practise, the peg could be cylindrical and made integral with the flat element (4).

At its upper end the sheath (1) is provided with two parallel flanges (9), each of them provided with a horseshoe-shaped protrusion (10) on its outside. More specifically, the protrusion (10) comprises an inner waist (11) protruding at right angle from the flange (9)

with a collar or thicker portion (12) at the outer end. The waist (11) and the collar (12) have a common lateral opening (13), in the described application facing at right angle to the longitudinal direction of the sheath. The outer diameter of the collar (12) should be slightly less than the diameter of the round hole section (6), but considerably larger than the width of the narrow hole section (7). The diameter of the waist (11) should be slightly less than the width of the narrow section (7).

The function of the connection means is shown from figures 2 - 5. When the sheath is to be connected to the holder, the items are oriented at right angle to each other, and the horseshoe-shaped protrusion (10) is inserted through the wide hole section (6) as shown with an arrow in figure 3. In the next step, shown in figure 4, the horseshoe-shaped protrusion is made to slide down into the narrow hole section (7) until it encloses the peg (8) on the inside of the flat element (4). As a last step according to figure 5, the sheath is rotated 90 degrees to hang freely downwards from the holder. In this position it can swing freely relative to the holder, but is at the same time secured to the holder since the peg (8) penetrates the horseshoe-shaped protrusion and prevents vertical displacement between the sheath and the holder.

Only by rotation of the sheath back to 90 degrees angle to the holder, can the sheath be intentionally disconnected from the holder, by sliding the horseshoe-shaped protrusion up to the wide hole section (6) from where it can be pulled out from the hole.

As shown in figure 1, the lateral opening (13) is located in the same direction as an open groove of the sheath (1). When the sheath is carried hanging down from the belt of an operator, the groove is turned forward. When thus the lateral opening also faces forward, the risk of unintentional disconnecting of the sheath from the holder is minimized, since it can only occur in one position, when it is pointing 90 degrees backwards. It is very unlikely that the sheath should assume this position unintentionally during actual use, and connection or disconnection will thus occur only by intentional positioning of the items.

The invention is not restricted to connecting of a saw sheath to a belt hanger. It can be applied to jointed releasable connection between two arbitrary items, where there is a need for swinging relative mobility combined with releasability of the connection. There are also several obvious variations of the design, such as providing the collar (12) and the wide hole section (6) with centering means to facilitate disconnection after the horseshoe-shaped protrusion has been moved away from the narrow section (7).

Claim

Means for jointed releasable connection of two items, characterized by the first item (2) comprising two different elements (3,4), one of which (3) is provided with a generally keyhole-shaped through hole (5) with one wide section (6) and one narrow section (7) and the other element (4) is provided with a peg (8) located opposite to the narrow section (7) and facing into it, and by the second item (1) being provided with a generally horseshoe-shaped protrusion (10) with an inner waist (11) which carries a collar (12) at the outer end, the waist (11) and the collar (12) having a common lateral opening (13), said horseshoe-shaped protrusion (10) being insertable through the wide hole section (6) with the lateral opening (13) turned towards the peg (8) and thereafter slidable from the wide section (6) into the narrow section (7) to let the horseshoe-shaped protrusion enclose the peg (8), finally securing the items to each other by rotation around the peg.

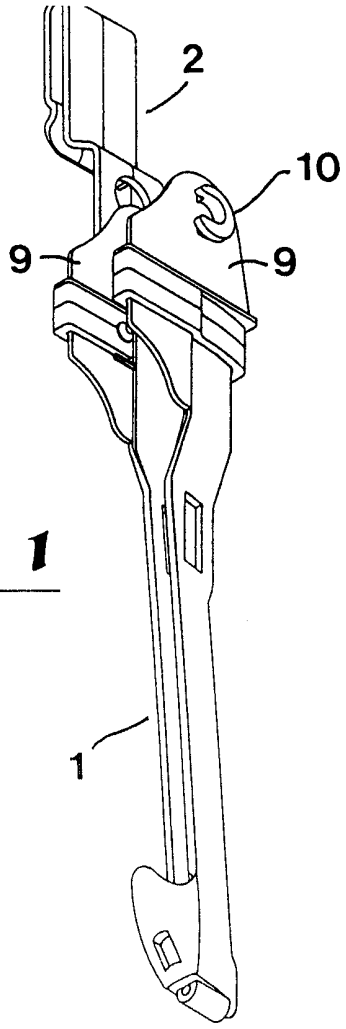


Fig 1

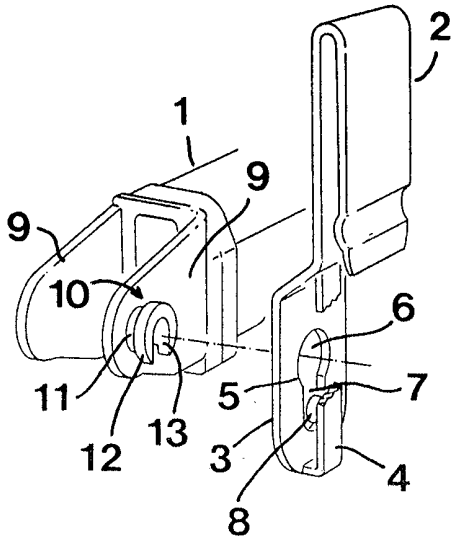


Fig 2

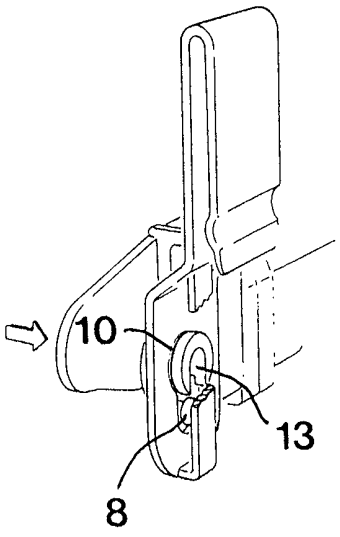


Fig 3

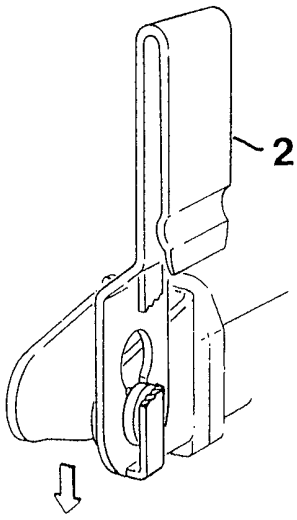


Fig 4

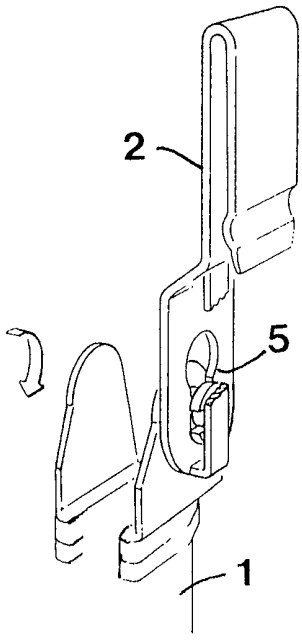


Fig 5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 98/01850

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: F16B 21/09
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)

IPC6: F16B, F16C

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

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2302561 A (ARJO LIMITED), 22 January 1997 (22.01.97), figures 1-3, abstract ---	1
A	GB 2293857 A (ARJO LIMITED), 10 April 1996 (10.04.96), figures 1,2, abstract ---	1

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

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Date of the actual completion of the international search	Date of mailing of the international search report
15 January 1999	27 -01- 1999
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INTERNATIONAL SEARCH REPORT

Information on patent family members

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International application No.
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2302561 A	22/01/97	AU 5159096 A	30/01/97
		GB 9512905 D	00/00/00
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		WO 9701319 A	16/01/97
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		NL 1001127 C	00/00/00