

(19)



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(11)

EP 1 483 192 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
18.10.2006 Bulletin 2006/42

(21) Application number: **03712328.8**

(22) Date of filing: **07.03.2003**

(51) Int Cl.:
B66C 23/66 ^(2006.01) **B66C 3/00** ^(2006.01)

(86) International application number:
PCT/GB2003/000988

(87) International publication number:
WO 2003/078294 (25.09.2003 Gazette 2003/39)

(54) **HOIST**

HEBEVORRICHTUNG

APPAREIL DE SUSPENSION

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PT RO SE SI SK TR**

(30) Priority: **13.03.2002 GB 0205899**

(43) Date of publication of application:
08.12.2004 Bulletin 2004/50

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- **PATENT ABSTRACTS OF JAPAN** vol. 2000, no.
15, 6 April 2001 (2001-04-06) & JP 2000 345786 A
(KINOSHITA SHINJI), 12 December 2000
(2000-12-12)

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Description

[0001] The present invention relates to hoists, in particular to the attachment of accessories to the suspension point of a lifting arm connected to a hoist column.

[0002] It is known to attach accessories to the suspension points of the lifting arm of a mobile hoist by the provision of pivot pins through holes in the suspension point and the accessory, and securing the pivot pins by a removable retainer at one or both ends, for example keyrings or the like. However, removable retainers such as keyrings are generally awkward to handle and can damage the operator's nails during their removal. Also, the keyrings once removed are frequently misplaced resulting in the hoist being inoperable until replacements are found.

[0003] JP-A-2000 345786 shows a hoist arrangement where the accessory is attached to a pivot pin provided at the lifting end of the lifting arm by fixed retainers. With the use of such fixed retainers, the accessory cannot be removed once used without the aid of tools, so that changing accessories quickly is not possible. If the retainers and pivot pin are removed to allow the fitting of a different accessory, there is no guarantee that they will be refitted to the manufacturers original specification or that a retainer such as an 'e'-ring would not be damaged in a manner that reduces its performance.

[0004] The aim of the invention is to provide a safe, quick releasable fastening for attaching a hoist accessory to a hoist. The accessories, for example, a spreader bar, weigh scale or stretcher attachment can be fitted and removed quickly and easily to the lifting arm of a hoist without any tools or without removing any component parts from the accessory or hoist and ensuring that the accessory cannot be detached accidentally from the hoist.

[0005] Accordingly, the invention comprises a hoist arrangement comprising a lifting arm with its lifting end having a pivot pin, and a hoist accessory including retaining means characterised in that the retaining means releasably engages the pivot pin on the lifting arm for pivotal movement thereof, the retaining means also having locking means to automatically lock the pivot pin into position upon engagement with the retaining means.

[0006] Preferably, the locking means is biased to a locking position, the biasing force being spring means.

[0007] By enabling the accessory to be used without the removal of any components or the need for tools it is possible to attach or detach any accessory within seconds without confusion or difficulty.

[0008] Preferably, the locking means needs a positive action to be moved to its unlock position. An embodiment of the present invention is described below, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a schematic diagram of a hoist lifting arm and spreader bar retainer according to the invention;

Figure 2 is a schematic diagram of the hoist and spreader bar of Figure 1 with the retainer in locked position; and

Figure 3 is an exploded view of the retainer of Figures 1 and 2.

[0009] Referring to Figures 1 and 2, a spreader bar 2 is connected to a hoist lifting arm 1 with a retainer according to the invention. The retainer comprises a hook 4 upstanding from the spreader bar 2 to engage with a pivot pin 9 of the hoist lifting arm 1. As shown in Figure 3, the retainer has a sleeve 3 urged to a locking position covering the hook opening by a spring 7. To attach an accessory to the hoist lifting arm 1, in this case the spreader bar 2, the hook 4 is slid over the pivot pin 9 locking sleeve 3 is urged by spring 7 to a locking position preventing the escape of the pivot pin 9 from the hook 4. To unlock the spreader bar 2 from the lifting arm 1, the retainer sleeve 3 is pushed downwards to disengage the hook 4 from the pivot pin 9. The retainer sleeve 3 is designed in a manner where it will not release if only one side is depressed. This causes the bore through the fabrication to lock onto the spacer 6 as shown in Figure 3. Both sides of the retainer sleeve 3 must be depressed for the mechanism to work reducing the chance of a spreader bar or similar accessory becoming inadvertently detached.

[0010] The spreader bar 2 can be used and then removed without the removal of any components or the need for tools, allowing the attachment of any accessory within seconds without confusion or difficulty. Where the hoist is repeatedly moved from one site to another in a car or other small vehicle, the invention reduces moving and handling risks by enabling the dismantling of the hoist lifting arm and accessories easily to reduce the overall weight of parts being lifted when loading/unloading the vehicle.

[0011] Figure 3 is an exploded drawing of the retainer according to the invention. The hook 4 has a greased pivot pin 5 located in a hole allowing it to rotate freely. The retainer sleeve 3 is placed over the pivot pin and pushed up to the hook 4. The spacer 6 is slid over the pivot pin 5 and inside the bore of the retainer sleeve 3. The spacer 6 maintains a constant gap between the underside of the hook 4 and the top of the spreader bar 2. The pivot pin 5 is then placed through a hole in the centre of the spreader bar 2 and a collar and spiral pin 8 hold it into position. The force of the spring 7 will ensure that the retainer sleeve 3 always returns to its locked position.

[0012] Instead of the spreader bar 2 any other hoist accessory for example, a weigh scale, or stretcher attachment or similar can be releasably attached with the pivot pin and retainer combination of the invention.

Claims

1. A hoist arrangement comprising a lifting arm (1) with

its lifting end having a pivot pin (9), and a hoist accessory (2) including retaining means (4), **characterised in that** the retaining means (4) releasably engages the pivot pin (9) on the lifting arm (1) for pivotal movement thereof, the retaining means (4) also having locking means (3) to automatically lock the pivot pin (9) into position upon engagement with the retaining means (4).

2. A lifting arm (1) as claimed in claim 1 **characterised in that** the locking means (3) is biased to a locking position. 10
3. A lifting arm (1) as claimed in claims 1 or 2 **characterised in that** the locking means (3) requires positive action to return to its unlocked position. 15

Patentansprüche

1. Hebevorrichtung mit einem Hebearm (1), der an seinem Hebeende einen Lagerstift (9) aufweist, und einem Hebezusatz (2) mit Festhaltemitteln (4), **dadurch gekennzeichnet, dass** die Festhaltemittel (4) lösbar an dem Lagerstift (9) an dem Hebearm (1) für dessen Schwenkbewegung angreifen, wobei die Festhaltemittel (4) auch Blockiermittel (3) aufweisen, um automatisch den Lagerstift (9) bei Eingriff mit den Festhaltemitteln (4) in seiner Position zu blockieren. 20 25 30
2. Hebearm (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** das Blockiermittel (3) in eine Blockierstellung federbelastet ist. 35
3. Hebearm (1) nach Ansprüchen 1 oder 2, **dadurch gekennzeichnet, dass** das Blockiermittel (3) einer aktiven Einwirkung bedarf, um es in seine nicht blockierte Position zurück zu führen. 40

Revendications

1. Agencement de treuil comprenant un bras de levage (1) avec son extrémité de levage comportant un axe de pivotement (9), et un accessoire de treuil (2) comprenant un moyen de retenue (4), **caractérisé en ce que** le moyen de retenue (4) engage de façon amovible l'axe de pivotement (9) sur le bras de levage (1) pour son pivotement, le moyen de retenue (4) comportant également un moyen de verrouillage (3) pour verrouiller automatiquement l'axe de pivotement (9) en position lors de l'engagement avec le moyen de retenue (4). 45 50
2. Bras de levage (1) selon la revendication 1, **caractérisé en ce que** le moyen de verrouillage (3) est sollicité vers une position de verrouillage. 55

3. Bras de levage (1) selon la revendication 1 ou 2, **caractérisé en ce que** le moyen de verrouillage (3) requiert une action positive pour regagner sa position déverrouillée.

Figure 1

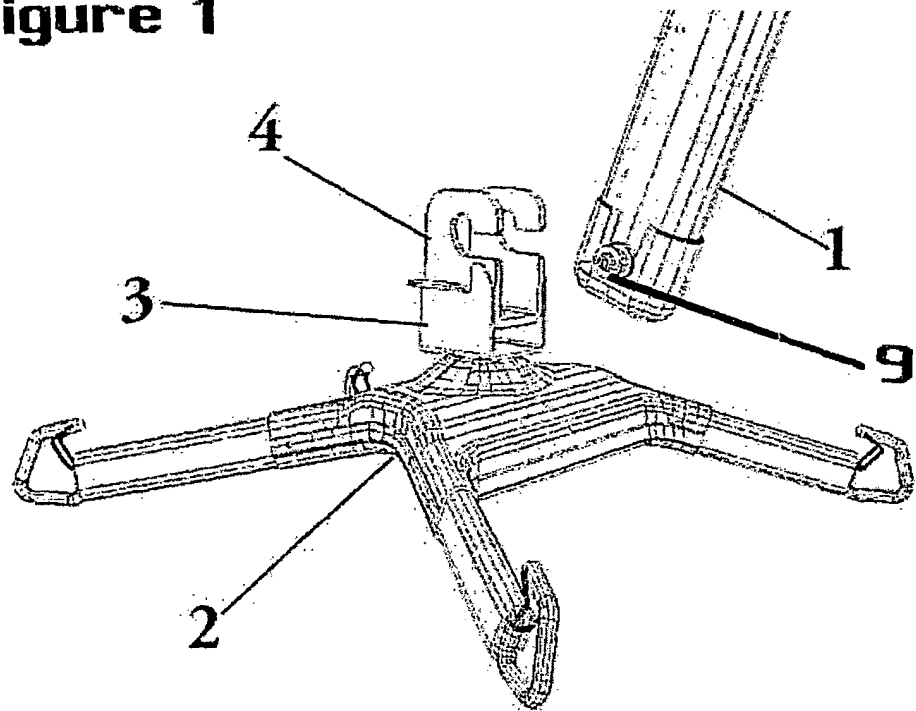


Figure 2

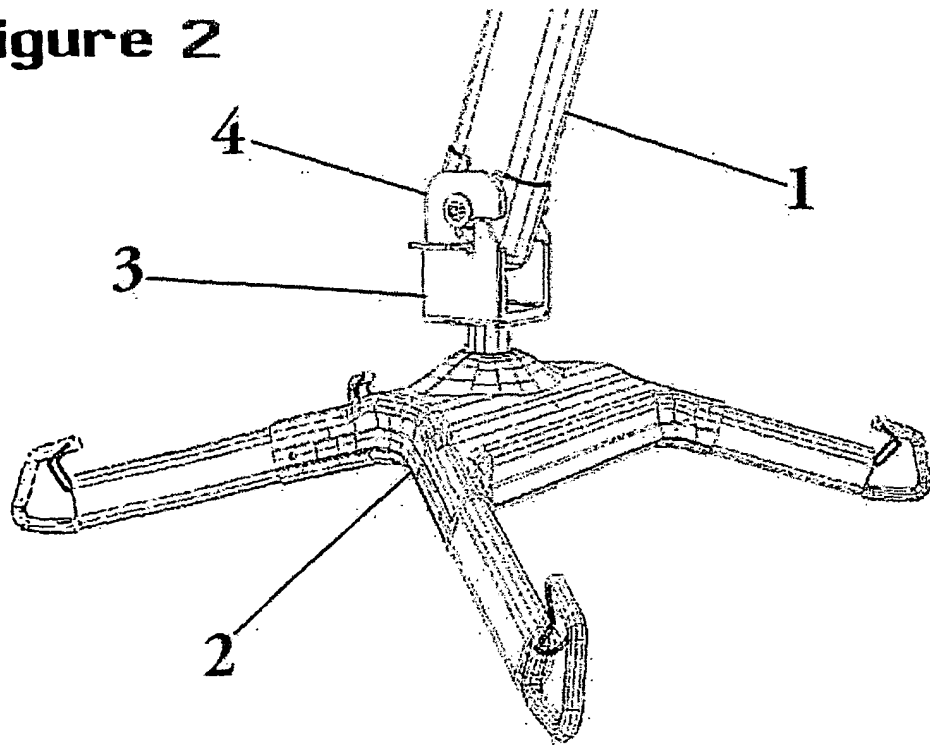


Figure 3

