



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
28.11.2018 Bulletin 2018/48

(51) Int Cl.:
E04G 5/00 (2006.01) **B66C 1/62 (2006.01)**
B66F 19/00 (2006.01)

(21) Application number: **18173669.5**

(22) Date of filing: **22.05.2018**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated Extension States:

BA ME

Designated Validation States:

KH MA MD TN

(30) Priority: **23.05.2017 GB 201708237**

(71) Applicant: **Gaydon Henderson Specialist Lifting Equipment Limited**
Hereford, Worcester HR3 5DS (GB)

(72) Inventors:

- **Henderson, Robert Richard**
Hereford, HR3 5HF (GB)
- **Gaydon, Jeffery Andrew**
Brecon, LD3 0SN (GB)

(74) Representative: **Abel & Imray**
Westpoint Building
James Street West
Bath BA1 2DA (GB)

(54) **LIFTING-APPARATUS**

(57) A scaffold-tube lifting-apparatus (1) is provided. The scaffold-tube lifting-apparatus (1) comprises a securing portion (5) mounted upon a main body (3), wherein the securing portion (5) is arranged to securely grip a

scaffold-tube (13), and the main body (3) comprises a lifting attachment point (14) for attaching to a means of lifting.

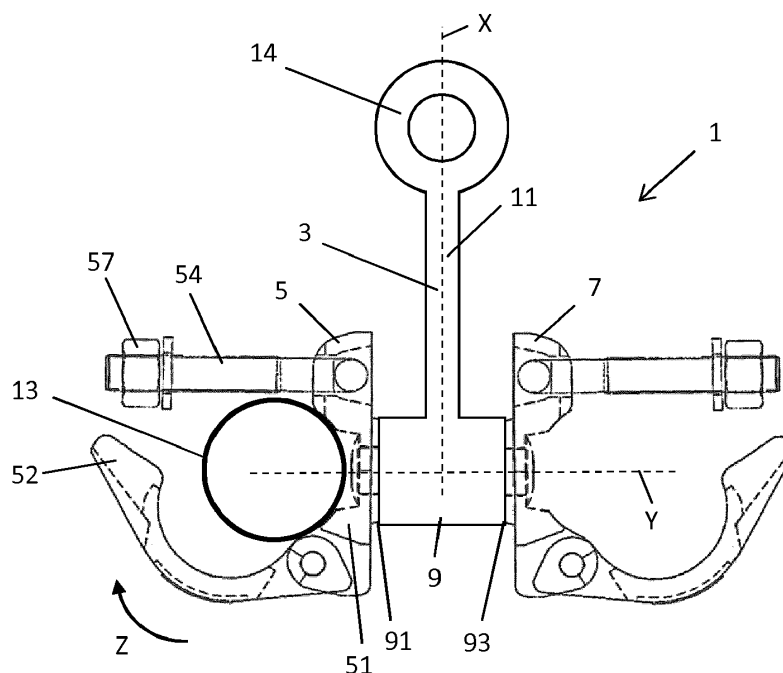


Fig. 1

Description

Field of the Invention

[0001] The present invention concerns lifting-apparatus. More particularly, but not exclusively, this invention concerns scaffold tubing lifting-apparatus.

Background of the Invention

[0002] When building scaffold structures that are used in the construction industry, for example, scaffold tubing must be safely lifted from ground level as the height of the scaffold structure increases. Similarly, scaffold tubing must be safely lowered to ground level when the scaffold structure is being dismantled.

[0003] A conventional method of lifting or lowering scaffold tubing involves securing the scaffold tubing to a rope via a knot made using the rope, and lifting or lowering the scaffold tubing using the rope.

[0004] A problem with this method is the knot used to secure the scaffold-tubes to the rope: human error can result in an unsafe knot being tied and the knot is susceptible to loosening whilst being lifted if the knot comes into contact with the scaffold structure (or any other structure). Failure of the knot can result in serious injury or damage to property if the scaffold tubing is dropped from a height.

[0005] Furthermore, scaffold-tubes are typically knotted together and lifted in pairs in order to improve efficiency. Once the knot is undone, both scaffold-tubes are unsecure. As such, the person who is receiving the scaffold tubing has to safely handle two scaffold-tubes once the knot is undone. Accidentally dropping one or more scaffold-tubes could result in a serious accident.

[0006] The present invention seeks to mitigate the above-mentioned problems.

Summary of the Invention

[0007] The present invention provides, according to a first aspect, a scaffold-tube lifting-apparatus comprising a securing portion mounted upon a main body, wherein the securing portion is arranged to securely grip a scaffold-tube, and the main body comprises a lifting attachment point for attaching to a means of lifting.

[0008] The main body and the securing portion may be formed separately. The main body and the securing portion may be integrally formed.

[0009] The securing portion may be a clamp. The securing portion may comprise a ratchet strap arrangement. The securing portion may comprise a ratcheting buckle and ladder strap arrangement. The securing portion may have a quick release arrangement. The securing portion may be an over centre locking arrangement. The securing portion may comprise a resilient clip or strap. The securing portion may have a quick release arrangement. The securing portion may have a clasp. The se-

curing portion may be any arrangement which is able to grip a scaffold pole by exerting a radial force on the scaffold pole.

[0010] The lifting attachment point may be a hook, hole, ring or the like. The means of lifting may comprise a rope, hook, carabiner or the like for attaching the lifting attachment point.

[0011] It will be understood that the word "lifting" in the context of this patent application relates to the raising or lowering of scaffold-tubes during the process of constructing scaffold structures or any other process requiring that scaffold-tubes be raised or lowered.

[0012] When the scaffold-tube is gripped in the securing portion, the scaffold-tube is securely fastened to the scaffold-tube lifting-apparatus. Arranged as such, the scaffold-tube can be safely lifted or lowered, for example on the end of a rope, when constructing or deconstructing a scaffold structure. This system is not reliant on the worker's skill with knots and mitigates the risk of the scaffold-tube falling from the end of the rope.

[0013] The securing portion may be rotatably mounted upon the main body. When the securing portion is rotatably mounted upon the main body, the position of the gripped scaffold-tube can be easily manipulated with respect to the main body while the lifting means bears the weight of the scaffold-tube. This arrangement facilitates the process of securing and unsecuring the scaffold-tube from the scaffold-tube lifting-apparatus. For example, where a scaffold structure comprises a safety rail, the worker receiving the scaffold tube upon the scaffold structure can, while the lifting means bears the weight of the scaffold-tube, rotate the scaffold tube from a vertical position to a horizontal position in which the scaffold tube can be easily and safely moved over the safety rail.

[0014] The main body may comprise a lifting axis along which the apparatus is arranged to move when being lifted and wherein the securing portion is rotatable about an axis that is substantially perpendicular to the lifting axis. When the scaffold-tube lifting-apparatus is being used to lift or lower a scaffold-tube, the lifting axis may be substantially aligned with the vertical and the axis of rotation of the securing portion may be substantially aligned with the horizontal.

[0015] The main body may comprise an arm that projects outwardly from the main body in a direction that defines the lifting axis, and wherein the lifting attachment point is at a distal end of the arm.

[0016] The securing portion may comprise a clamp which is arranged to securely clamp a scaffold-tube. The securing portion may comprise a clamp arm pivotally mounted upon a clamp body and wherein the securing portion is rotatably mounted to the main body via the clamp body. The clamp arm may be movable away from and towards a first side of the clamp body and the securing portion may be mounted upon the main body via a second, opposite side of the clamp body. The clamp arm may be lockable relative to the fixed portion via a locking member. The locking member may be screw-threaded

and comprise a nut which is arranged to be moved to a position in which the nut contacts the clamp arm in order to exert a force on the locking member.

[0017] The scaffold-tube lifting-apparatus may comprise a plurality of securing portions mounted upon the main body. At least one securing portion may be rotatable about the main body. Each securing portion may be rotatable about the main body. Each securing portion may be independently rotatable about the main body. The scaffold-tube lifting-apparatus may comprise two securing portions. The scaffold-tube lifting-apparatus may comprise three or more securing portions.

[0018] At least two securing portions may be rotatably mounted upon the main body and the axes of rotation of each of the at least two securing portions may be substantially parallel. The axes of rotation of each of the at least two securing portions may be substantially coincident.

[0019] The main body may be positioned between a first securing portion and a second securing portion.

[0020] The apparatus may be constructed from steel. The apparatus may be constructed from one or more of dropped forged steel, EN8 steel, EN16 steel. The apparatus may be constructed from one or more of plastic, or composite materials, metal, or any other suitable engineering material.

[0021] According to a second aspect of the invention, there is provided a method of securing a scaffold-tube comprising the steps of: providing a scaffold-tube lifting-apparatus according to any preceding claim; providing a scaffold-tube; placing the scaffold-tube in a securing portion of the scaffold-tube lifting-apparatus; securing the scaffold-tube in the securing portion of the scaffold-tube lifting-apparatus.

[0022] According to a third aspect of the invention, there is provided a method of lifting a scaffold-tube comprising the steps of the second aspect of the invention and the steps of: attaching a means of lifting to the attachment point; lifting the scaffold-tube by applying a force to the scaffold-tube lifting-apparatus via the means of lifting. It will be understood that the step of attaching a means of lifting to the attachment point may be performed prior or subsequent to the steps of the second aspect of the invention.

[0023] It will of course be appreciated that features described in relation to one aspect of the present invention may be incorporated into other aspects of the present invention. For example, the method of the invention may incorporate any of the features described with reference to the apparatus of the invention and *vice versa*.

Description of the Drawings

[0024] Embodiments of the present invention will now be described by way of example only with reference to the accompanying schematic drawings of which:

Figure 1 is an elevation view of a scaffold-tube lifting-

apparatus according to an embodiment of the invention;

Figure 2 is an isometric view of the first securing portion of the scaffold-tube lifting-apparatus.

Detailed Description

[0025] A scaffold-tube lifting-apparatus 1 according to an embodiment of the invention is shown in Figure 1. The apparatus 1, which is constructed from steel and arranged to lift up to two scaffold-tubes at one time, comprises a main body 3 positioned between a first securing portion 5 arranged to clamp a first scaffold-tube 13 and a second securing portion 7 arranged to clamp a second scaffold-tube (not shown).

[0026] The main body 3 comprises a substantially cylindrical portion 9, an arm 11 that projects outwardly from the outer surface of the cylindrical portion 9 along an axis X in a direction that is substantially perpendicular to an axis Y that passes along the centre of the cylindrical portion 9, and a ring 14 positioned at the outer end of the arm 11, the ring being arranged such that a rope, or other lifting means may be fastened to the lifting-apparatus 1 via the ring 14 for the purpose of lifting scaffold-tubes.

[0027] The first securing portion 5 projects outwardly from a first end 91 of the cylindrical portion 9 of the main body and the second securing portion 7 projects outwardly from a second, opposite end 93 of the body 9. Each securing portion 5, 7 is rotatably mounted upon the cylindrical portion 9, via an axel that projects from the securing portion 5, 7 and is received within the cylindrical portion 9 of the main body 3. The securing portions thereby being mounted on the main body 3 such that they are independently rotatable about the axis Y that passes along the length of the cylindrical portion 9. The securing portions 5, 7, which are arranged on opposite sides of the cylindrical portion 9, are identical in configuration and are, as such, described below with reference to the first securing portion 5 only.

[0028] The first securing portion 5, which is shown in detail in Figure 2, comprises a clamp body 51 and a clamp arm 52 pivotally mounted at a first end 53 of the clamp body 51, the clamp arm 52 being arranged such that the clamp arm 52 is movable away from/towards the clamp body 51. As can be seen from Figure 2, the opposing faces of the clamp body 51 and clamp arm 52 are shaped to fit around the outer surface of a scaffold-tube, the clamp body 51 and clamp arm 52 thereby forming opposing sides of a clamp for clamping a standard size scaffold-tube having an outer diameter of between 30 and 70 millimetres. Standard scaffold-tubes are generally supplied in sizes of between 1 metre and 6 metres and weigh between 1 to 100 kilograms.

[0029] A screw threaded fastening member 54 is pivotally mounted upon a second end 55 of the clamp body 51, the second end 55 of the clamp body 51 being the opposite the first end of the body 51. The thread size on the screw threaded fastening member is 1/2 inch British

standard Whitworth with 12 threads per inch. The screw threaded fastening member 54 projects outwardly from the clamp body 51 and is arranged such that when the clamp arm 52 is moved towards the clamp body 51, the fastening member 54 is received into a cut-out 56 at the distal end of the clamp arm 52. When the fastening member 54 is received within the cut-out 56, a nut 57 on the fastening member 54, positioned outwardly of the clamp arm 52, may be screwed towards and into contact with the clamp arm 52. The nut 57 is a 24 mm nut which is widely used in the scaffold industry, as such the person using the scaffold-tube lifting-apparatus will have easy access to a tool suitable for use with the nut 57. Such tools could include a 21 mm metric spanner, a 7/16 inch British standard Whitworth spanner, or a 1/2 inch British standard spanner.

[0030] To clamp a scaffold-tube 13 within the securing portion 5, a scaffold-tube 13 must be placed between the clamp body 51 and clamp arm 52 of the securing portion 5 as shown in Figure 1, the clamp arm 52 is then moved in the direction of the arrow labelled Z and the screw threaded fastening member 54 moved to a position in which it is received into the cut-out in the clamp arm 52. The nut 57 is then screwed into contact with the clamp arm 52, as shown in Figure 2, and tightened in order to exert a radial clamping force on the scaffold-tube 13, thereby securely clamping the scaffold-tube 13 within the scaffold-tube lifting device 1. This process can be repeated with respect to the second securing portion 7 in order to clamp a second scaffold-tube within the second securing portion 7.

[0031] By attaching a means of lifting, for example a rope, to the ring 14 provided on the main body 3, the scaffold-tube lifting-apparatus 1 may be used to lift or lower scaffold-tubes during the process of building a scaffold structure.

[0032] Whilst the present invention has been described and illustrated with reference to particular embodiments, it will be appreciated by those of ordinary skill in the art that the invention lends itself to many different variations not specifically illustrated herein. By way of example only, certain possible variations will now be described.

[0033] Other embodiments of the invention may comprise a single securing portion, or three or more securing portions. The securing portions may, instead of being clamps, be in the form of a resilient clip or strap, an over-centre locking mechanism, a ratchet strap arrangement or ratcheting buckle and ladder strap arrangement.

[0034] Where in the foregoing description, integers or elements are mentioned which have known, obvious or foreseeable equivalents, then such equivalents are herein incorporated as if individually set forth. Reference should be made to the claims for determining the true scope of the present invention, which should be construed so as to encompass any such equivalents. It will also be appreciated by the reader that integers or features of the invention that are described as preferable,

advantageous, convenient or the like are optional and do not limit the scope of the independent claims. Moreover, it is to be understood that such optional integers or features, whilst of possible benefit in some embodiments of the invention, may not be desirable, and may therefore be absent, in other embodiments.

Claims

1. A scaffold-tube lifting-apparatus comprising a securing portion rotatably mounted upon a main body, wherein the securing portion is arranged to securely grip a scaffold-tube, and the main body comprises a lifting attachment point for attaching to a means of lifting.
2. A scaffold-tube lifting-apparatus according to claim 1, wherein the main body comprises a lifting axis along which the apparatus is arranged to move when being lifted and wherein the securing portion is rotatable about an axis that is substantially perpendicular to the lifting axis.
3. A scaffold-tube lifting-apparatus according to claim 2, wherein the main body comprises an arm that projects outwardly from the main body in a direction that defines the lifting axis, and wherein the lifting attachment point is at a distal end of the arm.
4. A scaffold-tube lifting-apparatus according to any preceding claim, wherein the securing portion comprises a clamp which is arranged to securely clamp a scaffold-tube.
5. A scaffold-tube lifting-apparatus according to claim 4, wherein the securing portion comprises a clamp arm pivotally mounted upon a clamp body and wherein the securing portion is rotatably mounted to the main body via the clamp body.
6. A scaffold-tube lifting-apparatus according to claim 5, wherein the clamp arm is movable away from and towards a first side of the clamp body and the securing portion is mounted upon the main body via a second, opposite side of the clamp body.
7. A scaffold-tube lifting-apparatus according to claim 5 or claim 6, wherein the clamp arm is lockable relative to the fixed portion via a locking member.
8. A scaffold-tube lifting-apparatus according to any preceding claim comprising a plurality of securing portions mounted upon the main body.
9. A scaffold-tube lifting-apparatus according to claim 8, wherein at least two securing portions are rotatably mounted upon the main body and the axes of

rotation of each of the at least two securing portions are substantially parallel.

10. A scaffold-tube lifting-apparatus according to claim 9, wherein the axes of rotation of each of the at least two securing portions are substantially coincident. 5
11. A scaffold-tube lifting-apparatus according to any of claims 8 to 10, wherein the main body is positioned between a first securing portion and a second securing portion. 10
12. A method of securing a scaffold-tube comprising the steps of: 15
- providing a scaffold-tube lifting-apparatus according to any preceding claim;
 - providing a scaffold-tube;
 - placing the scaffold-tube in a securing portion of the scaffold-tube lifting-apparatus 20
 - securing the scaffold-tube in the securing portion of the scaffold-tube lifting-apparatus.
13. A method of lifting a scaffold-tube comprising the steps of claim 12 and the steps of: 25
- attaching a means of lifting to the attachment point;
 - lifting the scaffold-tube by applying a force to the scaffold-tube lifting-apparatus via the means of lifting. 30

35

40

45

50

55

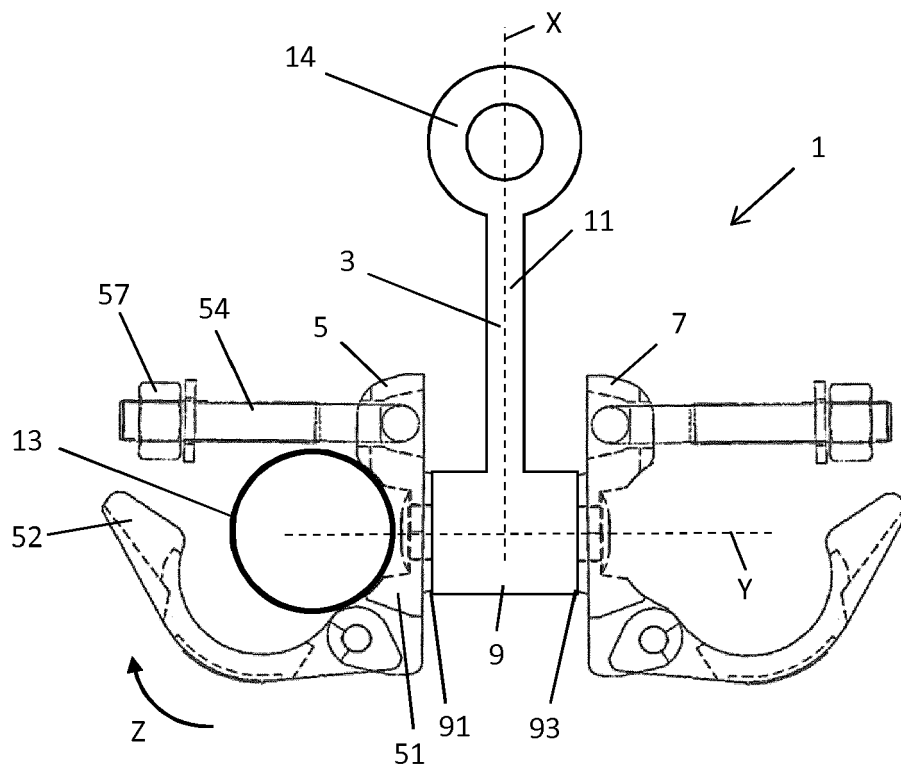


Fig. 1

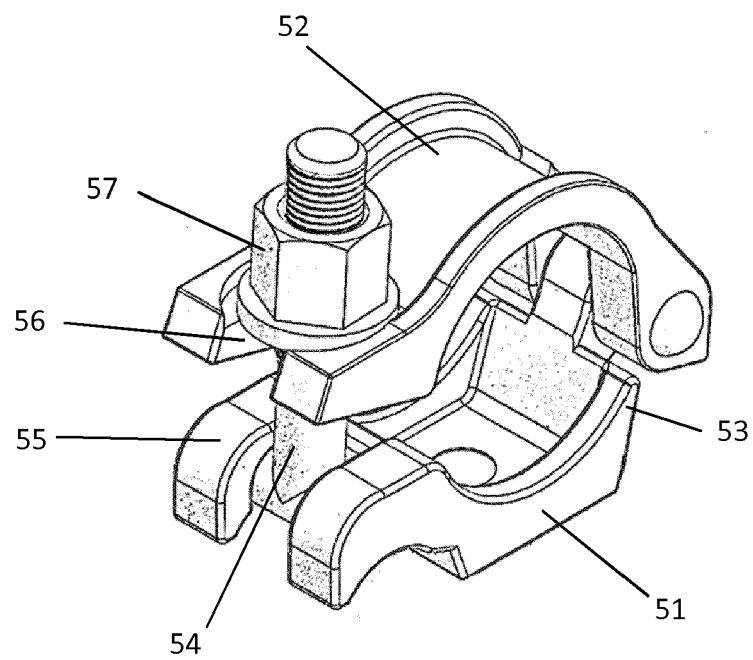


Fig. 2



EUROPEAN SEARCH REPORT

Application Number
EP 18 17 3669

5

10

15

20

25

30

35

40

45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	GB 2 478 965 A (FORREY KIERAN [GB]) 28 September 2011 (2011-09-28) * figures 4-6 *	1,4-10, 12,13	INV. E04G5/00 B66C1/62 B66F19/00
X	GB 2 481 078 A (HUTSON STEPHEN [GB]) 14 December 2011 (2011-12-14) * figures 1-6 *	1,4-10, 12,13	
X	US 5 141 276 A (MCCLURE MATTHEW P [US]) 25 August 1992 (1992-08-25) * figures 1-3 *	1-4,12, 13	
X	JP H09 77458 A (OHBAYASHI CORP) 25 March 1997 (1997-03-25) * figure 1 *	1-11,13	
X	GB 2 320 050 A (CAMPBELL EDWARD JOSEPH RUSSELL [GB]) 10 June 1998 (1998-06-10) * figure 1 *	1-11	
X	US 3 007 727 A (RYAN CHARLES B) 7 November 1961 (1961-11-07) * figures 7-11 *	1,2,4-8, 11	TECHNICAL FIELDS SEARCHED (IPC) E04G B66C B66F F16B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 16 July 2018	Examiner Baumgärtel, Tim
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 18 17 3669

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

16-07-2018

10

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2478965 A	28-09-2011	NONE	
GB 2481078 A	14-12-2011	NONE	
US 5141276 A	25-08-1992	NONE	
JP H0977458 A	25-03-1997	JP 3075152 B2 JP H0977458 A	07-08-2000 25-03-1997
GB 2320050 A	10-06-1998	NONE	
US 3007727 A	07-11-1961	NONE	

15

20

25

30

35

40

45

50

55

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82