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(54) **BOOM OF CONCRETE PUMP TRUCK AND CONCRETE PUMP TRUCK**
AUSLEGER FÜR EIN BETONPUMPFAHRZEUG UND BETONPUMPFAHRZEUG
FLÈCHE DE CAMION POMPE À BÉTON ET CAMION POMPE À BÉTON

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(73) Proprietors:
• **Zoomlion Heavy Industry Science and**
Technology Co., Ltd.
Changsha, Hunan 410013 (CN)
• **Cifa S.P.A.**
20030 Senago, Milano (IT)

(72) Inventors:
• **WU, Binxing**
Changsha
Hunan 410013 (CN)

- **KUANG, Hao**
Changsha
Hunan 410013 (CN)
- **HUANG, Ke**
Changsha
Hunan 410013 (CN)
- **CIPOLLA, Davide**
I-22063 Cantù (IT)
- **PIRRI, Nicola**
I-20146 Milano (IT)
- **MACERA, Alessandro**
I-22070 Senna Comasco (IT)

(74) Representative: **Petraz, Gilberto Luigi et al**
GLP S.r.l.
Viale Europa Unità, 171
33100 Udine (IT)

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Description

TECHNICAL FIELD

[0001] The present invention relates to a conveying equipment for conveying concrete or other building materials, in particular, to a boom of concrete pump truck and a concrete pump truck with the boom.

BACKGROUND ART

[0002] A concrete pump truck for conveying concrete (abbreviated as "concrete pump truck" or "pump truck") is a concrete conveying apparatus in which a concrete pump and a folding boom are mounted on an automobile chassis, a concrete delivery pipe is laid along the boom, and concrete is outputted through a terminal hose ultimately. The folding boom has a folded state and a unfolded state. In the folded state, the boom is folded onto the chassis, so that the pump truck can run on the road. In the unfolded state, the boom is stretched, so that concrete can be distributed in a long distance.

[0003] It is well-known that the boom folding forms mainly include R-shaped, Z-shaped, and RZ-shaped folding forms. The R-shaped folding form means that a plurality of boom sections can be folded in a turning or rolling manner in a direction (e.g., a clockwise direction), and can be stretched in the reversed direction (e.g., a counter-clockwise direction). The Z-shaped folding form indicates that a plurality of boom sections can be folded or stretched in a reversed direction in turn. The RZ-shaped folding form is a combination of the R-shaped folding form and the Z-shaped folding form. More boom sections are required to obtain a longer concrete delivery distance. However, the pump truck is inevitably subjected to restrictions of the road conditions when it runs on the road with the boom in folded state, for example, with the boom in folded state, the length, width and height of the pump truck are subjected to restrictions of the road transportation rules. Therefore, it is impossible to add boom sections without limitation. At present, the boom sections on a concrete pump truck are usually not more than six sections.

[0004] For a long time, it has been a difficult problem in the art, i.e., how to extend the concrete conveying distance as far as possible in the unfolded state, and ensure the pump truck to meet the road transportation rules in the folded state.

[0005] WO-2006/097827 discloses an articulated boom substantially comprising two parts folded to each other in different planes, which can be connected by a "deviated" section. In this document, each section of the boom is folded as an unitary segment onto the adjacent section.

[0006] CN-102182319 discloses different combinations of folding of a boom with six or seven sections. In this document too, each section of the boom is folded as an unitary segment onto the adjacent section.

[0007] CN-102359277 discloses the folding of a generic boom with six sections with a "deviated" section which can be arranged on different sides according to the type of boom. Also in this document, each section of the boom is folded as an unitary segment onto the adjacent section.

SUMMARY OF INVENTION

[0008] An object of the present invention is to provide a boom of concrete pump truck, which can extend the concrete delivery distance as far as possible when it is in unfolded state, and essentially doesn't increase the overall dimension of the pump truck when it is in folded state.

[0009] To achieve the object described above, the present invention provides a boom of concrete pump truck having the features of claim 1. In addition, the present invention further provides a concrete pump truck, comprising an automobile chassis, a swivel table and a boom mounted on the automobile chassis via the swivel table, wherein, said boom is the boom according to the present invention.

[0010] With above technical solution, the boom sections of the boom are arranged in two longitudinal planes, in addition, a unique folding form is utilized, i.e., the first to the fifth boom sections are folded in a first direction, while the sixth and seventh boom sections are folded onto the fifth boom section in a second direction reversed to the first direction, the concrete delivery distance can be extended as far as possible when the boom is in unfolded state, and the overall dimension of the pump truck is not increased essentially when the boom is in folded state.

[0011] Other characteristics and advantages of the present invention will be further detailed in the embodiments hereunder.

DESCRIPTION OF ACCOMPANYING DRAWINGS

[0012] The accompanying drawings are provided here to facilitate further understanding on the present invention, and are a part of the description. They are used together with the following embodiments to illustrate the present invention, but should not be regarded as a limitation to the protection scope of the present invention, in which:

Figure 1 is a side view of a concrete pump truck according to an embodiment of the present invention.

Figure 2 is a perspective view of a boom of the concrete pump truck shown in Figure 1.

Figure 3 mainly shows the structure between a swivel table, a first boom section and a second boom section.

Figure 4 is a side view of the structure shown in Figure 3.

Figure 5 mainly shows the structure between the second boom section and a third boom section.

Figure 6 is a side view of the structure shown in Figure 5.

Figure 7 mainly shows the structure between the third boom section and a fourth boom section.

Figure 8 is a side view of the structure shown in Figure 7.

Figure 9 mainly shows the structure between the fourth boom section and a fifth boom section.

Figure 10 is a side view of the structure shown in Figure 9.

Figure 11 mainly shows the structure between the fifth boom section, a sixth boom section and a seventh boom section.

Figure 12 is a side view of the structure shown in Figure 11.

Figure 13 shows a part of the boom in unfolded state.

Figure 14 shows another part of the boom in unfolded state.

DETAILED DESCRIPTION OF EMBODIMENTS

[0013] Hereunder the embodiments of the present invention will be detailed described with reference to the accompanying drawings. It should be noted that the embodiments described herein are only provided to illustrate and explain the present invention, but shall not be deemed as a limitation to the present invention.

[0014] As shown in Figure 1, the concrete pump truck 10 mainly comprises an automobile chassis 11 including a driving cab 12 and a vehicle frame 13, and a boom 15 is mounted on the vehicle frame 13 via a swivel table 16. The boom 15 shown in Figure 1 comprises seven boom sections 21-27, i.e., first boom section 21, second boom section 22, third boom section 23, fourth boom section 24, fifth boom section 25, sixth boom section 26, and seventh boom section 27 in sequence starting from the swivel table 16, in which the adjacent boom sections are hinged to each other. The boom 15 can be rotated by means of the swivel table 16 around axis X; preferably, it can be rotated within 0-360° range. In unfolded state, the maximum length of the boom 15 can be 80m or more. For the convenience of description, when the boom is in fully unfolded state (referring to Figure 13 and 14), a side of each boom section facing toward the ground is referred to as the "inside surface" and marked by 19, and another side facing away from the ground is referred to as the "outside surface" and marked by 20.

[0015] In the boom of concrete pump truck in the present invention, the boom sections can be grouped into two groups, i.e., as shown in Figure 2, when the boom 15 is in folded state, the first and second boom sections 21, 22 are located in a first longitudinal plane P and constitute a first boom section group 17, and the fourth to the seventh boom sections 24-27 are located in a second longitudinal plane T and constitute a second boom section group 18, wherein the first longitudinal

plane P and the second longitudinal plane T are parallel to each other and spaced with a predefined interval D, and the third boom section 23 extends between the first longitudinal plane P and the second longitudinal plane T. The first to the fifth boom sections 21-25 (Figure 13 and 14) are provided to be folded in a first direction V1 (i.e., forming a R-shaped folding form), the sixth boom section 26 can be folded onto the fifth boom section 25 in a second direction V2 that is reversed to the first direction V1 (i.e., the fourth to the sixth boom sections 24-26 are folded in Z-shaped folding form). The seventh boom section 27 and the sixth boom section 26 are arranged in a linear form and folded onto the fifth section 25 together. With such an arrangement, the dimensions (i.e., length, width, and height) of the pump truck can be minimized as far as possible, when the boom is in folded state. The length of the boom can be maximized as far as possible, when the boom is in unfolded state.

[0016] It is noted that, in the present invention, the seventh boom section 27 and the sixth boom section 26 are arranged in a linear form and folded onto the fifth section 25. Hereunder the boom of concrete pump truck in the present invention will be detailed described.

[0017] Figure 3 mainly shows the structure between the swivel table 16, the first boom section 21 and the second boom section 22. Figure 4 is a side view of the structure shown in Figure 3.

[0018] As shown in Figures 3 and 4, one end of the first boom section 21 is hinged to the swivel table 16 in a known form, and the other end of the first boom section 21 is hinged to the second section 22. The reference number 29 represents a first driving mechanism (e.g., a hydraulic cylinder), which is used to drive the first section 21 to rotate relative to the swivel table 16 in the vertical direction, and the range of the angle of rotation is preferably 0-90°. The reference number 31 represents a second driving mechanism (e.g., a hydraulic cylinder), which drives the second boom section 22 via a first link mechanism 30 to rotate relative to the first boom section 21, so as to fold the first and second boom sections 21, 22 together or unfolded apart, and the range of the angle of rotation is preferably 0-180°. The reference number 32 represents a supporting seat, via which the second driving mechanism 31 is hinged to the first boom section 21. In addition, there provided connecting brackets 67 on each boom section, via which a concrete delivery pipe 63 (see Figure 1) is connected to the boom 15, and the boom 15 and the concrete delivery pipe 63 together form a placing boom of the concrete pump truck.

[0019] Moreover, it can be seen from Figure 3 and 4 that, for the facilitation of hinged connection between the first and second boom section 21, 22 and rotation relative to each other, the corresponding hinged ends of the two boom sections are bent to each other, so that the second driving mechanism 31 and the link mechanism 30 can be arranged conveniently between the two boom sections.

[0020] Figure 5 mainly shows the structure between

the second boom section 22 and the third boom section 23. Figure 6 is a side view of the structure shown in Figure 5.

[0021] The first boom section 21 and the second boom section 22 are substantially located in the same longitudinal plane P, but the orientation of the third section 23 is different. It is clearly seen from Figure 5, the third boom section 23 extends between the first longitudinal plane P and the second longitudinal plane T, i.e., the third boom section 23 is formed in an overall 'bent' shape, and includes a first part 40, a middle part 41 and a second part 42 along its length direction, wherein the first part 40 is positioned in the first longitudinal plane P, the second part 42 is located in the second longitudinal plane T, and the middle part 41 is between the first part and the second part so as to provide a transition function. The first longitudinal plane P and the second longitudinal plane T are parallel to each other and spaced with predefined interval D, the size of the interval D can be designed appropriately according to the actual condition of the pump truck, e.g., the maximum width of the pump truck, the width of the boom sections, etc., Such a design is easy to understand and carried out for those skilled in the art, and will not be detailed here.

[0022] As can be seen from Figures 3 and 5, a groove 35 is formed on the inside surface 19 of the second boom section 22, and the groove 35 is suitable for accommodating a third driving mechanism 36 at least partially, wherein one end of the third driving mechanism 36 is hinged to the second boom section 22, and the other end of the third driving mechanism 36 drives the third boom section 23 via a second link mechanism 39, so that the third boom section 23 can be folded or stretched relative to the second boom section 22. In such the structure form, the distance between the two boom sections can be reduced as far as possible, and thereby the structure may be more compact.

[0023] Moreover, similar to the first boom section 21 and the second boom section 22, the corresponding hinged ends of the second boom section 22 and the third boom section 23 are preferably bent to each other, so that the third driving mechanism 36 and the second link mechanism 39 can be arranged between them conveniently.

[0024] In other embodiments, corresponding hinged ends of the other adjacent boom sections are bent to each other so as to form a space suitable for accommodating the relative link mechanism.

[0025] Figure 7 mainly shows the structure between the third boom section 23 and the fourth boom section 24. Figure 8 is a side view of the structure shown in Figure 7.

[0026] Similar to the second boom section 22, a groove (not shown) is formed on the inside surface of the second part 42 of the third boom section 23, so as to accommodate a fourth driving mechanism 43 at least partially, wherein one end of the fourth driving mechanism 43 is hinged to the second part 42 of the third boom section

23, and the other end of the fourth driving mechanism 43 drives the two boom sections 23, 24 via a third link mechanism 47 to fold together or unfolded apart relative to each other. Other structures of the two boom sections 23 and 24 are substantially the same as described above, and therefore will not be detailed here.

[0027] Figure 9 mainly shows the structure between the fourth boom section 24 and the fifth boom section 25. Figure 10 is a side view of the structure shown in Figure 9.

[0028] Similar to the structure described above, one end of a fifth driving mechanism 53 is hinged to the fourth boom section 24, and the other end of the fifth driving mechanism 53 drives the fourth section 24 and the fifth section 25 via a fourth link mechanism 54 to fold together or unfolded apart relative to each other. Moreover, the corresponding hinged ends of the two sections are bent to each other, so as to form a space to accommodate the fifth driving mechanism 53 and the fourth link mechanism 54. Other structures are similar to those described above, and therefore will not be detailed here.

[0029] Figure 11 mainly shows the structure between the fifth boom section 25, the sixth boom section 26 and the seventh boom section 27. Figure 12 is a side view of the structure shown in Figure 11.

[0030] As shown in Figure 11 and 12, different to five boom sections above described, the sixth boom section 26 is preferably folded in a second direction V2 relative to the fifth boom section 25, so that the outside surface 20 of the sixth boom section 26 faces the outside surface 20 of the fifth boom section 25. Sixth driving mechanism 57 and fifth link mechanism 59 are suitable to articulate the fifth 25 and the sixth boom section 26. In addition, the seventh boom section 27 and the sixth boom section 26 are arranged in a linear form in relation to each other. Such an arrangement can improve the flexibility of concrete delivery.

[0031] In addition, as can be seen from Figure 11, a groove 60 is formed on the inside surface 19 of the sixth boom section 26, so that a seventh driving mechanism (not shown) for driving the sixth boom section 26 and the seventh boom section 27 to fold together or unfolded apart relative to each other can be accommodated in the groove 60. The sixth boom section 26 can be folded relative to the seventh boom section 27 in the first direction V1, and the angle of rotation between the sixth boom section 26 and the seventh boom section 27 can be 0-90°. In other embodiments, the range of the included angle between the sixth and the seventh boom section is 90°-180°.

[0032] The angle of rotation between the fifth boom section 25 and the sixth boom section 26 can be 0-210°.

[0033] Each of the boom sections 21-27 is made of a metallic material, such as steel or aluminum alloy, etc. Preferably, at least some boom sections or at least a part of each boom section are made of carbon fiber material, so as to reduce the overall weight of the boom greatly.

[0034] For example, the length of each section may be 13-15m, but the length of the sixth and the seventh boom

sections 26, 27 may be 6-7m respectively.

[0035] The concrete delivery pipe 63 is connected to the boom 15 in a known manner, for example, it can be connected to the boom 15 via a plurality of connecting brackets 67, so as to deliver concrete.

[0036] For example, the length L of the concrete pump truck may be about 18m, the height H is about 4m, and the width is about 2.5m.

[0037] Referring to Figures 13 and 14, wherein the boom 15 is unfolded to its maximum length, i.e., all of the boom sections are approximately in the same line. When the boom is folded from unfolded state to folded state, the seventh boom section 27 and the sixth boom section 26 are together folded onto the fifth boom section 25 in counter-clockwise direction V2, and the fifth boom section 25 is folded to the fourth boom section 24 in clockwise direction V1, therefore, the fourth, fifth, and sixth boom sections 24-26 are folded in Z-shaped form. Next, the fourth boom section 24 is folded onto the third boom section 23 in clockwise direction V1, the third boom section 23 is folded onto the second boom section 22 in clockwise direction V1, and the second boom section 22 is folded onto the first boom section 21 in clockwise direction; therefore, the first to the fifth sections 21-25 are folded in R-shaped form. With such a unique folding form and the bent structure of the third boom section 23, the concrete conveying distance can be extended as far as possible when the boom is in unfolded state, and the overall dimension of the pump truck are not increased when the boom is in folded state.

[0038] Although some preferred embodiments of the present invention are described above with reference to the accompanying drawings, the present invention is not limited to the details in those embodiments. Those skilled in the art can make modifications and variations to the technical solution of the present invention, without departing from the spirit of the present invention. However, all these modifications and variations shall be deemed as falling into the protection scope of the present invention.

Claims

1. A boom of concrete pump truck having a folded state and an unfolded state, wherein said boom comprises seven boom sections (21 - 27) hinged in sequence, in said folded state, the first (21) and second boom sections (22) of said boom sections are located in a first longitudinal plane (P), and the fourth (24) to the last boom sections (25, 26, 27) are located in a second longitudinal plane (T), the first longitudinal plane (P) and the second longitudinal plane (T) are parallel to each other and spaced with a predefined interval (D), the third boom section (23) extends between the first longitudinal plane (P) and the second longitudinal plane (T), the first to the fifth boom sections (21-25) are provided to be folded in a first direction

(V1), and the sixth boom section (26) and the seventh boom section (27) are provided to be folded onto the fifth boom section (25) in a second direction (V2) reversed to the first direction (V1) so that an outside surface (20) of the sixth (26) and seventh (27) boom section face an outside surface (20) of the fifth boom section (25), wherein the sixth (26) and seventh boom sections (27) are arranged linearly and are folded onto the fifth boom section (25) together.

2. The boom of concrete pump truck according to claim 1, **characterized in that** said sixth boom section (26) can be folded relative to said seventh boom section (27) in said first direction (V1), whereas said sixth (26) and seventh (27) boom sections, when arranged linearly to each other, can be folded in a second direction (V2) opposite to the first direction (V1) onto the fifth boom section (25).

3. The boom of concrete pump truck according to claim 1 or 2, **characterized in that**, said third boom section (23) comprises a first part (40), a middle part (41) and a second part (42), the first part (40) is located in the first longitudinal plane (P), the second part (42) is located in the second longitudinal plane (T), and the middle part (41) is between the first part (40) and the second part (42).

4. The boom of concrete pump truck as in any claim hereinbefore, **characterized in that**, among the first to the fifth boom sections (21-25), the range of the included angle between adjacent boom sections is 0-180°.

5. The boom of concrete pump truck as in any claim hereinbefore, **characterized in that**, the range of the included angle between the fifth boom section (25) and the sixth boom section (26) is 0-210°.

6. The boom of concrete pump truck according to claim 2, **characterized in that**, the range of the included angle between the sixth boom section (26) and the seventh boom section (27) is 90-180°.

7. The boom of concrete pump truck as in any claim hereinbefore, **characterized in that**, adjacent boom sections can be driven by a hydraulic driving mechanism (29, 31, 36, 43, 53, 57) and a link mechanism (30, 39, 47, 54, 59) to fold together or unfolded apart.

8. The boom of concrete pump truck according to claim 7, **characterized in that** at least one of two adjacent boom sections has a groove (35, 60) which is suitable for accommodating the hydraulic driving mechanism (36, 43) at least partially.

9. The boom of concrete pump truck according to claim 7 or 8, **characterized in that**, the corresponding

hinged ends of adjacent boom sections (21-26) are bent to each other so as to form a space suitable for accommodating the link mechanism (30, 39, 47, 54, 59).

10. A concrete pump truck, comprising an automobile chassis (11), a swivel table (16) and a boom (15) mounted on the automobile chassis (11) via the swivel table (16), **characterized in that** said boom is the boom according to any one of the claims 1-9.

Patentansprüche

1. Betonpumpfahrzeug-Ausleger mit einem eingeklappten Zustand und einem ausgeklappten Zustand, wobei der Ausleger sieben in Reihe aneinander angelenkte Auslegerabschnitte (21 - 27) umfasst, im eingeklappten Zustand der erste (21) und zweite Auslegerabschnitt (22) der Auslegerabschnitte in einer ersten Längsebene (P) liegen und der vierte (24) bis letzte Auslegerabschnitt (25, 26, 27) in einer zweiten Längsebene (T) liegen, die erste Längsebene (P) und die zweite Längsebene (T) parallel zueinander liegen und mit einem vordefinierten Abstand (D) zueinander beabstandet sind, der dritte Auslegerabschnitt (23) sich zwischen der ersten Längsebene (P) und der zweiten Längsebene (T) erstreckt, der erste bis fünfte Auslegerabschnitt (21 - 25) dazu vorgesehen sind, in einer ersten Richtung (V1) eingeklappt zu werden, und der sechste Auslegerabschnitt (26) und der siebte Auslegerabschnitt (27) dazu vorgesehen sind, in einer zur ersten Richtung (V1) umgekehrten zweiten Richtung (V2) auf den fünften Auslegerabschnitt (25) eingeklappt zu werden, so dass eine Außenfläche (20) des sechsten (26) und siebten (27) Auslegerabschnitts einer Außenfläche (20) des fünften Auslegerabschnitts (25) gegenüberliegen, wobei der sechste (26) und siebte Auslegerabschnitt (27) linear angeordnet und zusammen auf den fünften Auslegerabschnitt (25) eingeklappt sind.
2. Betonpumpfahrzeug-Ausleger nach Anspruch 1, **dadurch gekennzeichnet, dass** der sechste Auslegerabschnitt (26) gegenüber dem siebten Auslegerabschnitt (27) in der ersten Richtung (V1) geklappt werden kann, wohingegen der sechste (26) und siebte (27) Auslegerabschnitt, wenn diese linear zueinander angeordnet sind, in einer der ersten Richtung (V1) entgegengesetzten zweiten Richtung (V2) auf den fünften Auslegerabschnitt (25) eingeklappt werden können.
3. Betonpumpfahrzeug-Ausleger nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** der dritte Auslegerabschnitt (23) einen ersten Teil (40), einen mittleren Teil (41) und einen zweiten Teil (42) um-

fasst, der erste Teil (40) in der ersten Längsebene (P) liegt, der zweite Teil (42) in der zweiten Längsebene (T) liegt und der mittlere Teil (41) zwischen dem ersten Teil (40) und dem zweiten Teil (42) liegt.

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4. Betonpumpfahrzeug-Ausleger nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** unter dem ersten bis fünften Auslegerabschnitt (21 - 25) der Bereich des zwischen benachbarten Auslegerabschnitten eingeschlossenen Winkels 0 - 180° beträgt.
5. Betonpumpfahrzeug-Ausleger nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der Bereich des zwischen dem fünften Auslegerabschnitt (25) und dem sechsten Auslegerabschnitt (26) eingeschlossenen Winkels 0 - 210° beträgt.
6. Betonpumpfahrzeug-Ausleger nach Anspruch 2, **dadurch gekennzeichnet, dass** der Bereich des zwischen dem sechsten Auslegerabschnitt (26) und dem siebten Auslegerabschnitt (27) eingeschlossenen Winkels 90 - 180° beträgt.
7. Betonpumpfahrzeug-Ausleger nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** benachbarte Auslegerabschnitte durch einen hydraulischen Antriebsmechanismus (29, 31, 36, 43, 53, 57) und einen Gelenkmechanismus (30, 39, 47, 54, 59) antreibbar sind, um sich zusammenzuklappen oder auseinandergeklappt zu werden.
8. Betonpumpfahrzeug-Ausleger nach Anspruch 7, **dadurch gekennzeichnet, dass** mindestens einer von zweien benachbarten Auslegerabschnitten eine Nut (35, 60) aufweist, die geeignet ist, den hydraulischen Antriebsmechanismus (36, 43) zumindest teilweise aufzunehmen.
9. Betonpumpfahrzeug-Ausleger nach Anspruch 7 oder 8, **dadurch gekennzeichnet, dass** die entsprechenden angelenkten Enden benachbarter Auslegerabschnitte (21 - 26) zueinander gekrümmt sind, um einen Raum zu bilden, der geeignet ist, den Gelenkmechanismus (30, 39, 47, 54, 59) aufzunehmen.
10. Betonpumpfahrzeug, umfassend ein Kraftfahrzeug-Fahrgestell (11), einen Schwenktisch (16) und einen über den Schwenktisch (16) am Kraftfahrzeug-Fahrgestell (11) gelagerten Ausleger (15), **dadurch gekennzeichnet, dass** es sich beim Ausleger um den Ausleger nach einem der Ansprüche 1 - 9 handelt.

Revendications

1. Flèche de camion pompe à béton, ayant un état plié et un état déplié, dans laquelle la flèche comprend au moins sept sections de flèche (21 - 27) articulées en séquence, et, dans ledit état plié, les première (21) et deuxième (22) sections de flèche sont dans un premier plan longitudinal (P), les quatrième (24) à dernière sections (25, 26, 27) de flèche sont dans un second plan longitudinal (T), le premier plan longitudinal (P) et le second plan longitudinal (T) sont parallèles l'un à l'autre et espacés ; la troisième section de flèche (23) s'étend entre le premier plan longitudinal (P) et le second plan longitudinal (T), les première à cinquième sections de flèche (21 - 25) peuvent être pliées dans une première direction (V1), et la sixième section de flèche (26) et la septième section de flèche (27) peuvent être pliées sur la cinquième section de flèche (25) dans une seconde direction (V2) inversée par rapport à la première direction (V1) de manière qu'une surface extérieure (20) de la sixième (26) et de la septième (27) sections de flèche font face à une surface extérieure (20) de la cinquième section de flèche (25), dans laquelle la sixième (26) et la septième (27) sections de flèche sont agencées de façon linéaire et sont pliées ensemble sur la cinquième section de flèche (25). 5 10 15 20 25
2. Flèche de camion pompe à béton selon la revendication 1, **caractérisée en ce que** ladite sixième section de flèche (26) peut être pliée par rapport à ladite septième section de flèche (27) dans ladite première direction (V1), alors que lesdites sixième (26) et septième (27) sections de flèche, lorsqu'elles sont agencées de façon linéaire l'une par rapport à l'autre, peuvent être pliées dans une seconde direction (V2) opposée à la première direction (V1) sur la cinquième section de flèche (25). 30 35
3. Flèche de camion pompe à béton selon la revendication 1 ou 2, **caractérisée en ce que** ladite troisième section de flèche (23) comprend une première partie (40), une partie moyenne (41) et une seconde partie (42), la première partie (40) est située dans le premier plan longitudinal (P), la seconde partie (42) est située dans le second plan longitudinal (T) et la partie moyenne (41) est située entre la première partie (40) et la seconde partie (42). 40 45
4. Flèche de camion pompe à béton selon n'importe laquelle des revendications précédentes, **caractérisée en ce que**, de la première à la cinquième sections de flèche (21 - 25), l'angle compris entre sections de flèche adjacentes est de 0 à 180°. 50 55
5. Flèche de camion pompe à béton selon n'importe laquelle des revendications précédentes, **caractérisée en ce que**, l'angle entre la cinquième (25) et la sixième (26) sections de flèche est de 0 à 210°.
6. Flèche de camion pompe à béton selon la revendication 2, **caractérisée en ce que**, l'angle entre la sixième (26) et la septième (27) sections de flèche est de 90 à 180°.
7. Flèche de camion pompe à béton selon n'importe laquelle des revendications précédentes, **caractérisée en ce que** les sections de flèche adjacentes peuvent être entraînées par un mécanisme d'entraînement hydraulique (29, 31, 36, 43, 53, 57) et un mécanisme de liaison (30, 39, 47, 54, 59) pour être pliées l'un vers l'autre ou dépliées pour se séparer.
8. Flèche de camion pompe à béton selon la revendication 7, **caractérisée en ce qu'**au moins une des sections de flèche adjacentes comporte une rainure (35, 60), conçue pour loger le mécanisme d'entraînement hydraulique (36, 43) au moins en partie.
9. Flèche de camion pompe à béton selon la revendication 7 ou 8, **caractérisée en ce que** les extrémités à charnière correspondantes des sections de flèche adjacentes (21-26) sont pliées l'une vers l'autre de façon à former un espace conçu pour loger le mécanisme de liaison (30, 39, 47, 54, 59).
10. Camion pompe à béton, comprenant un châssis automobile (11), une table pivotante (16) et une flèche (15) montée sur le châssis automobile (11) par le biais de la table pivotante (16), **caractérisé en ce que** ladite flèche est la flèche selon n'importe laquelle des revendications 1 à 9.

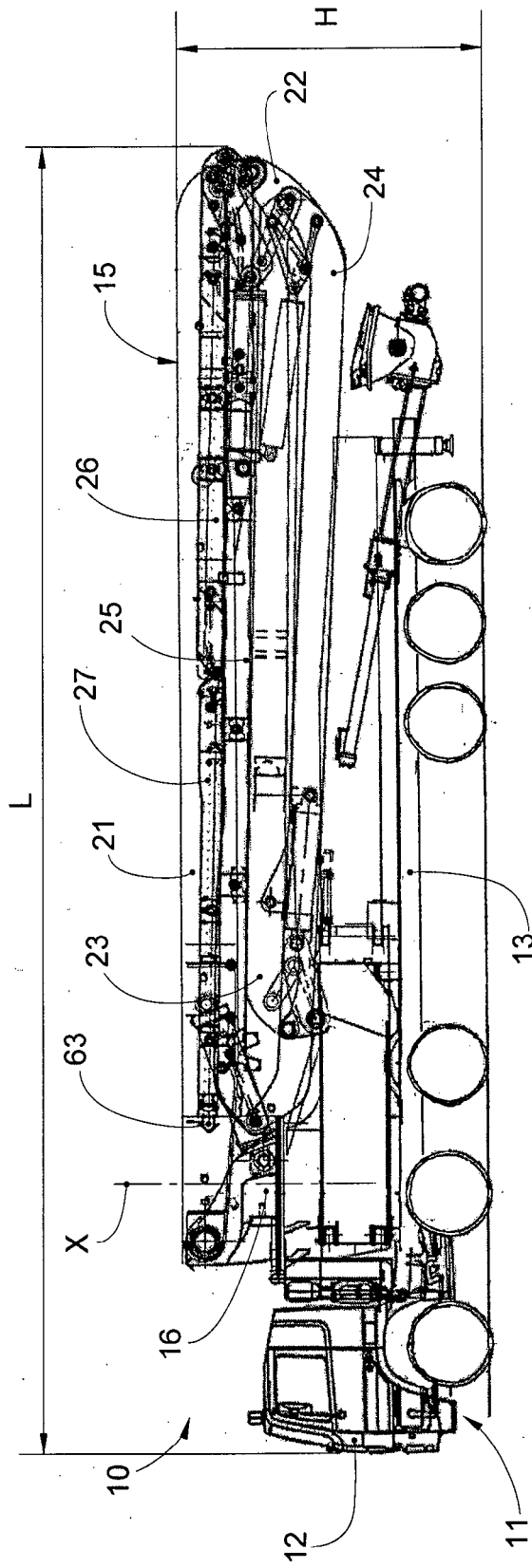


fig.1

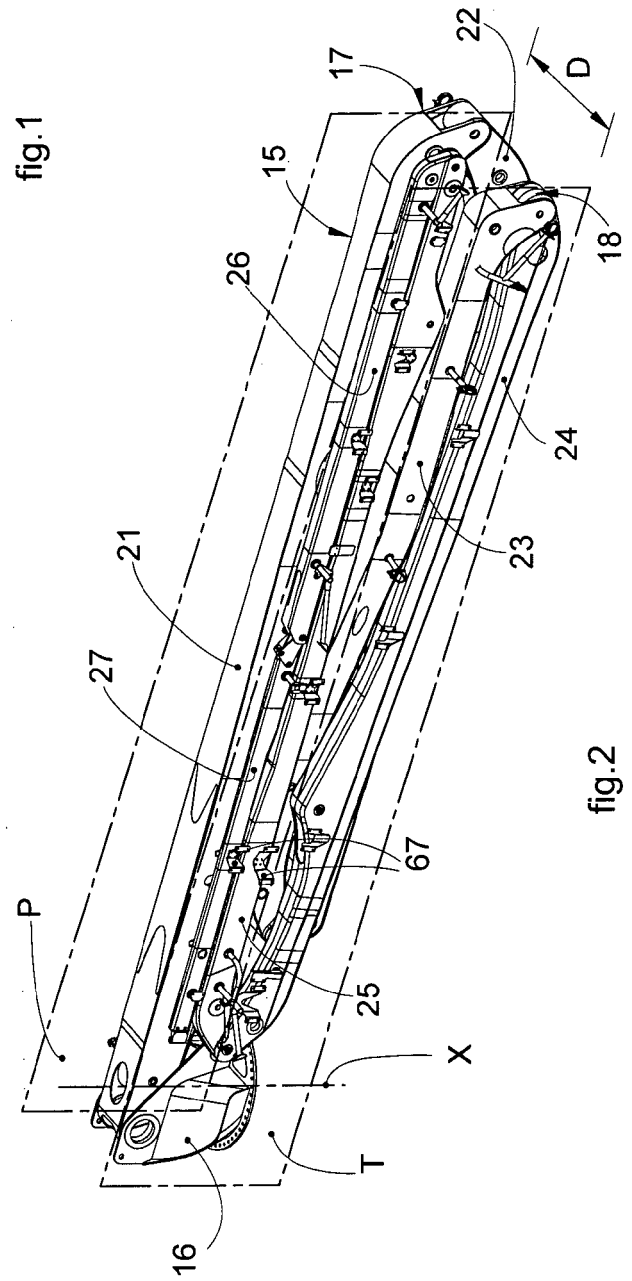
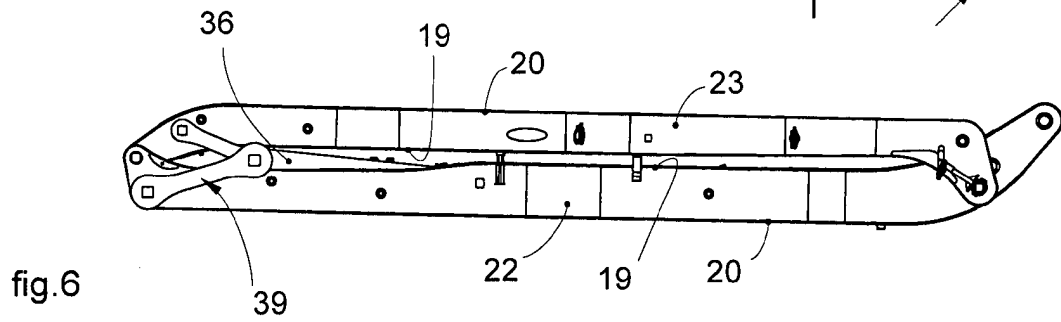
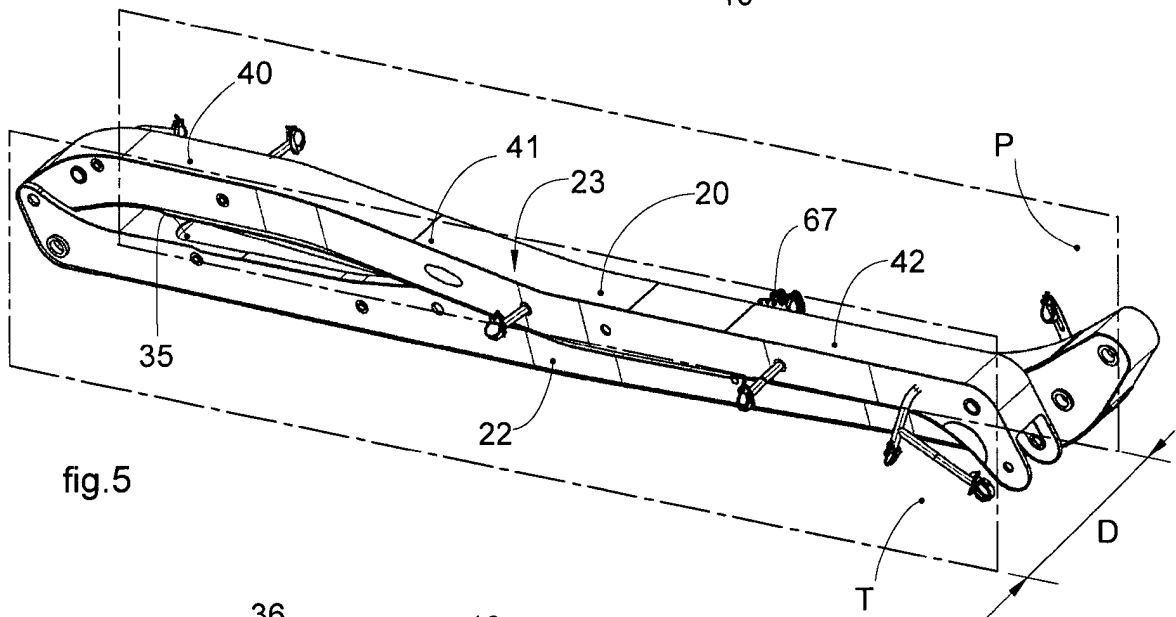
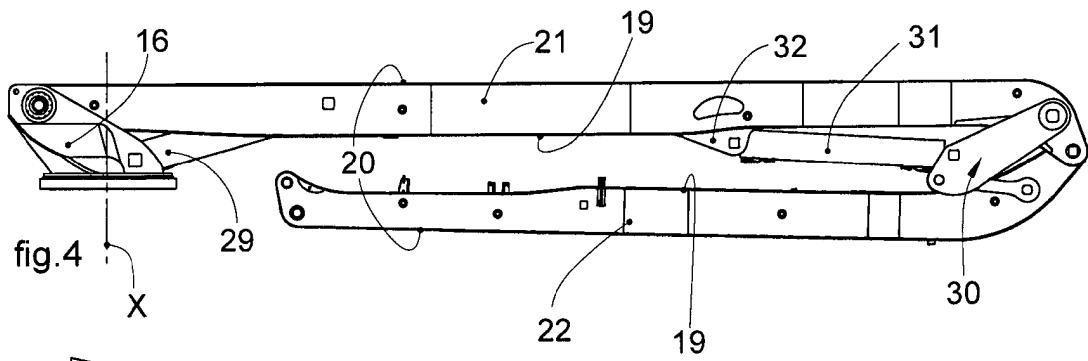
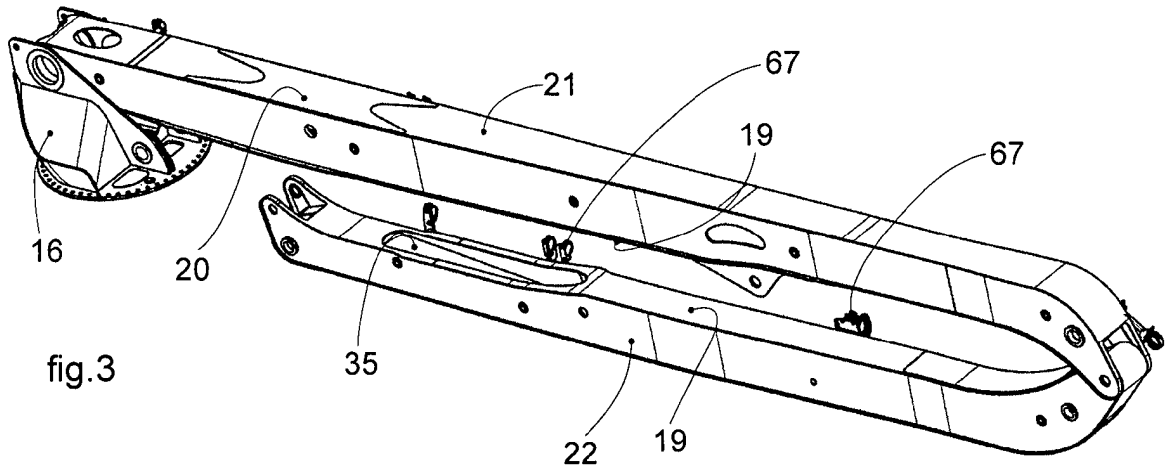
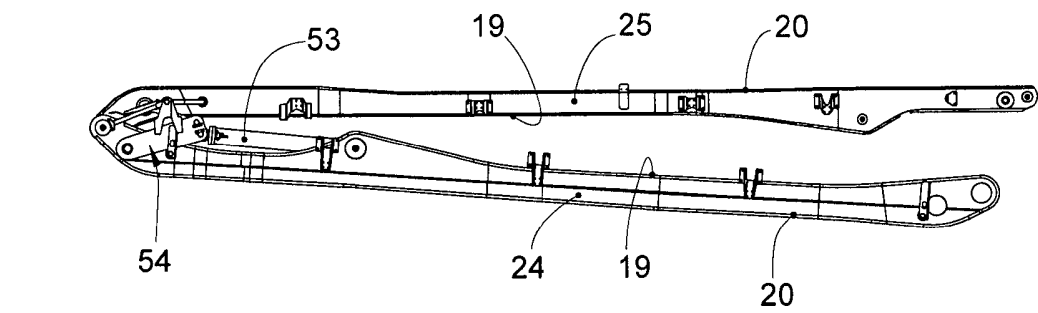
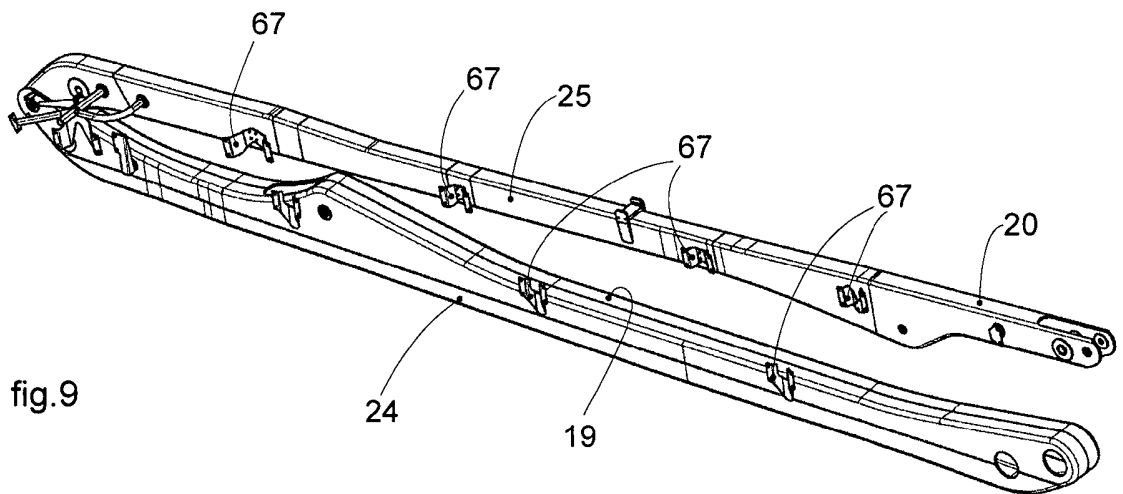
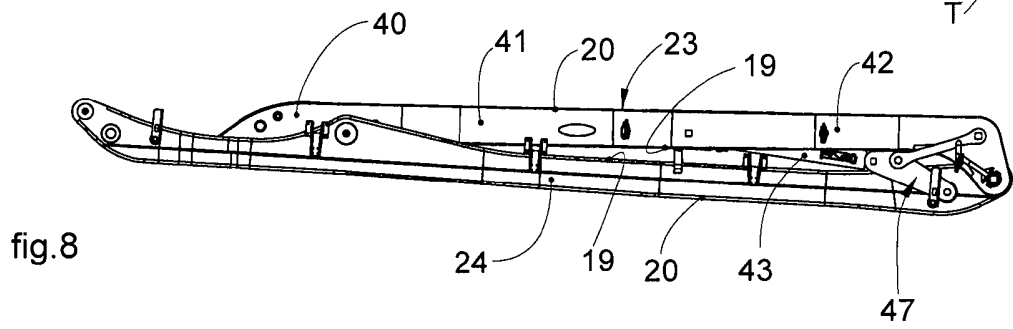
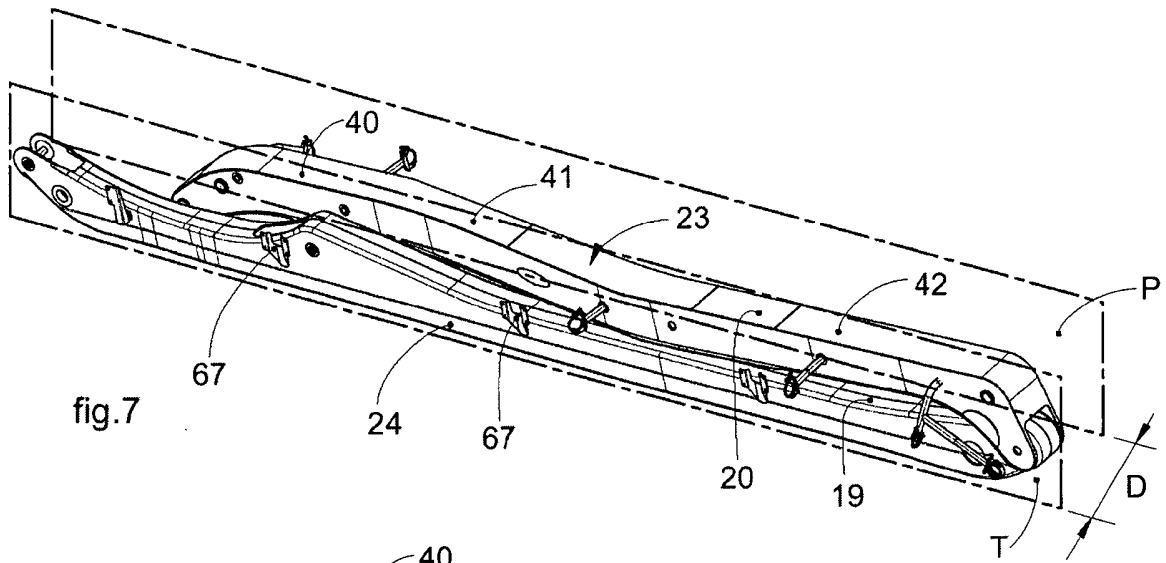


fig.2





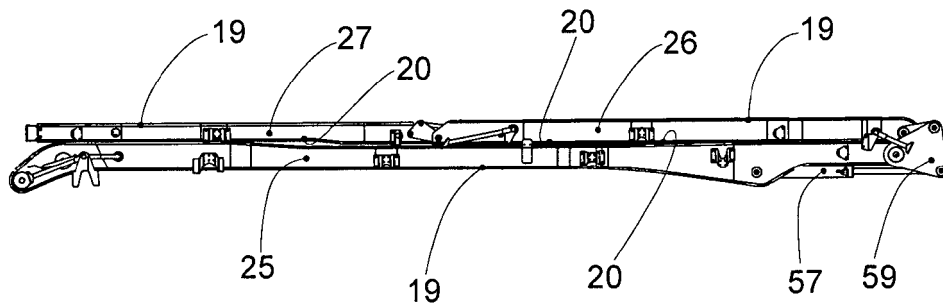
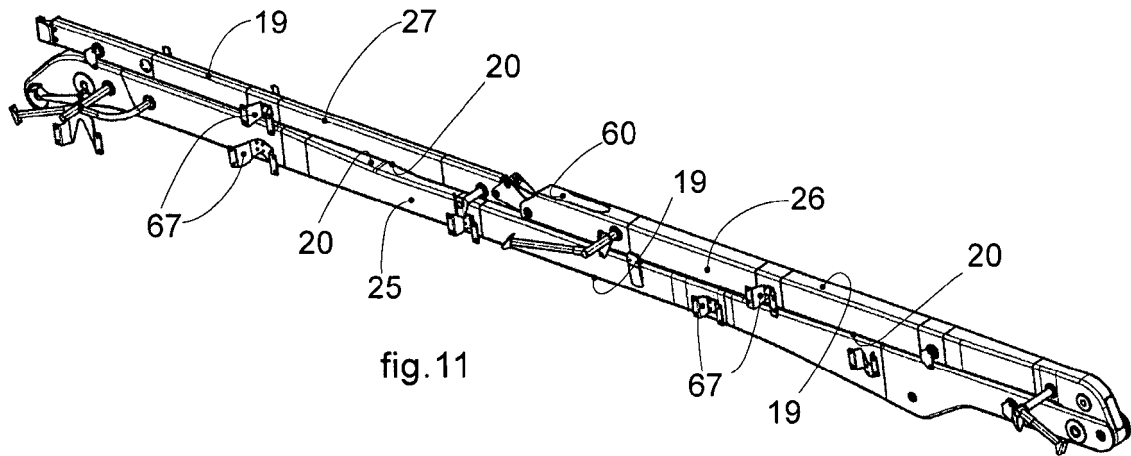


fig.12

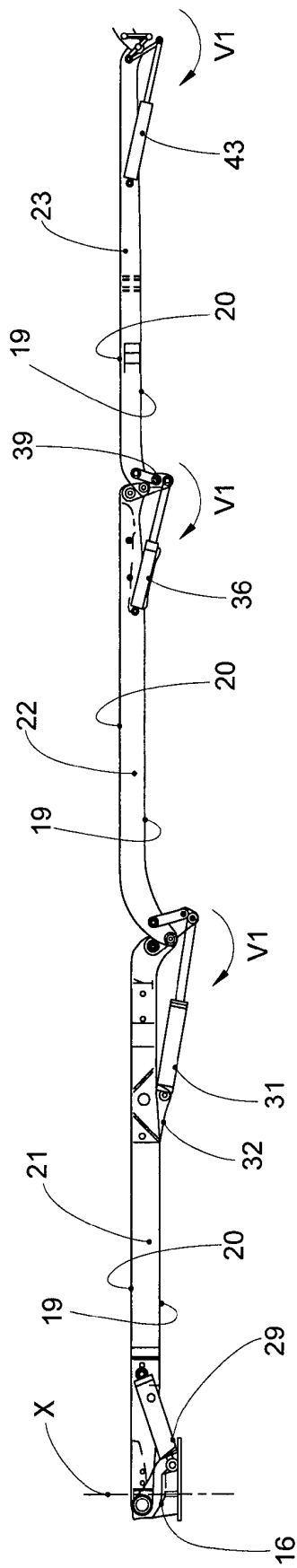


fig.13

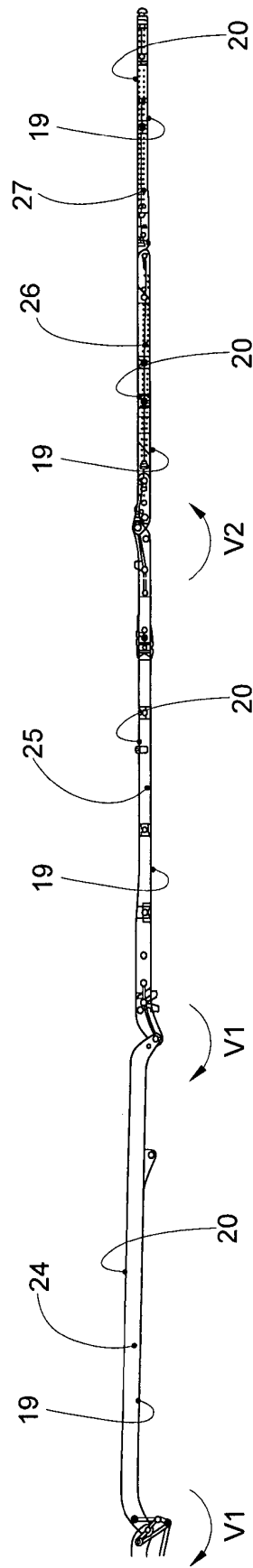


fig.14

REFERENCES CITED IN THE DESCRIPTION

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