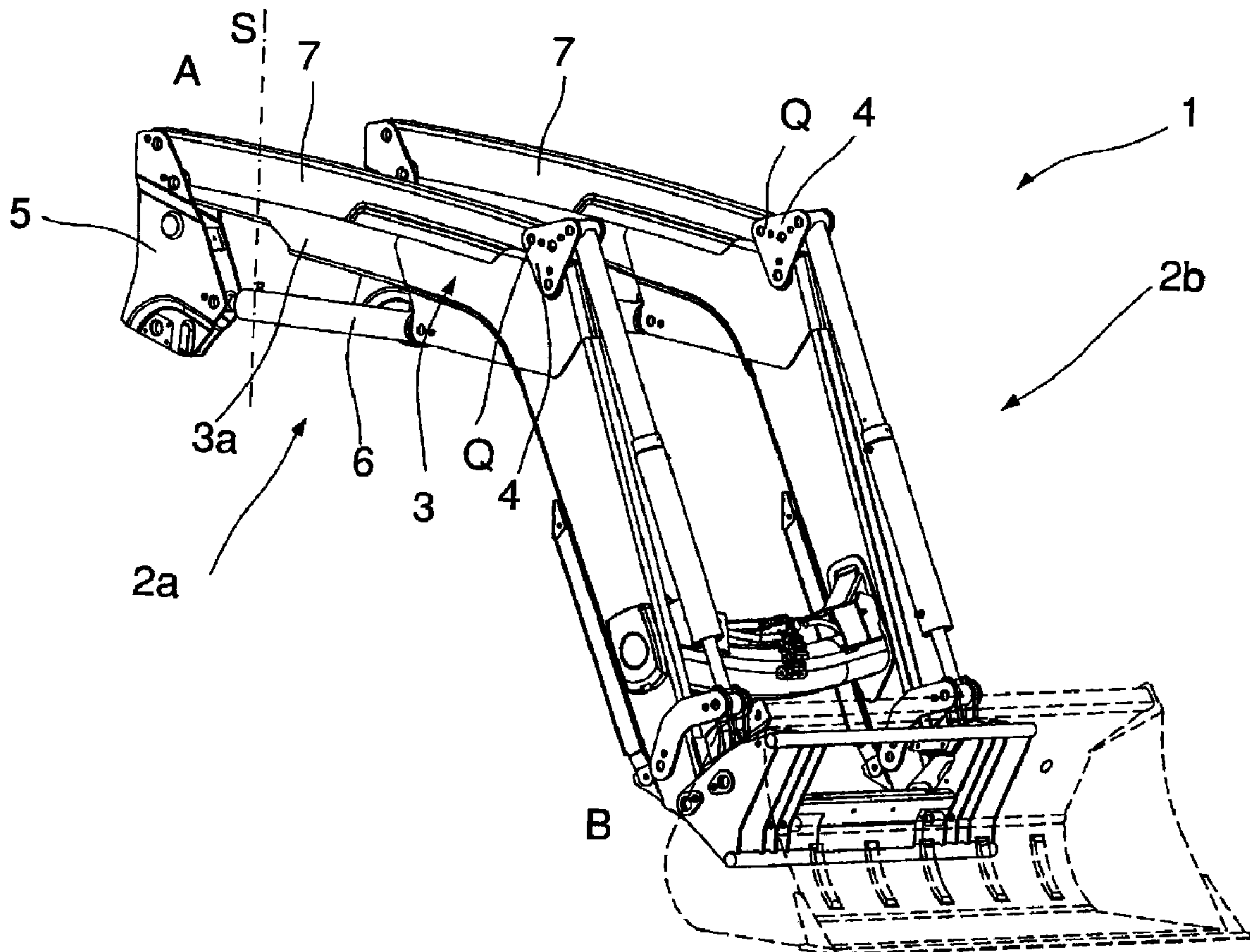




(86) Date de dépôt PCT/PCT Filing Date: 2005/09/20
(87) Date publication PCT/PCT Publication Date: 2006/04/06
(45) Date de délivrance/Issue Date: 2011/08/16
(85) Entrée phase nationale/National Entry: 2007/03/27
(86) N° demande PCT/PCT Application No.: SE 2005/001372
(87) N° publication PCT/PCT Publication No.: 2006/036105
(30) Priorité/Priority: 2004/09/29 (SE0402364-4)

(51) Cl.Int./Int.Cl. *E02F 3/43* (2006.01),
E02F 3/38 (2006.01)
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(54) Titre : CHARGEUR COMPORTANT DES SECTIONS DE BRAS ET DES JAMBES PARALLELES PRESENTANT
UNE SECTION TRANSVERSALE OUVERTE
(54) Title: LOADER COMPRISING ARM SECTION AND PARALLEL STRUTS WITH AN OPEN CROSS SECTION



(57) Abrégé/Abstract:

The present invention concerns a loader comprising two arm constructions (2a, 2b) arranged parallel to each other, and which in turn constitute extended arm sections (3, 3a) and parallel struts (7) arranged above the extended arm sections (3, 3a). The

(57) **Abrégé(suite)/Abstract(continued):**

invention is characterised in that each parallel strut (7) is constituted by an extended beam construction with an open cross-section demonstrating a longitudinal opening (Y) directed towards the arm section (3, 3a).

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
6 April 2006 (06.04.2006)

PCT

(10) International Publication Number
WO 2006/036105 A1

(51) International Patent Classification⁷: **E02F 3/43, 3/38**

(21) International Application Number:

PCT/SE2005/001372

(22) International Filing Date:

20 September 2005 (20.09.2005)

(25) Filing Language:

Swedish

(26) Publication Language:

English

(30) Priority Data:

0402364-4 29 September 2004 (29.09.2004) SE

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

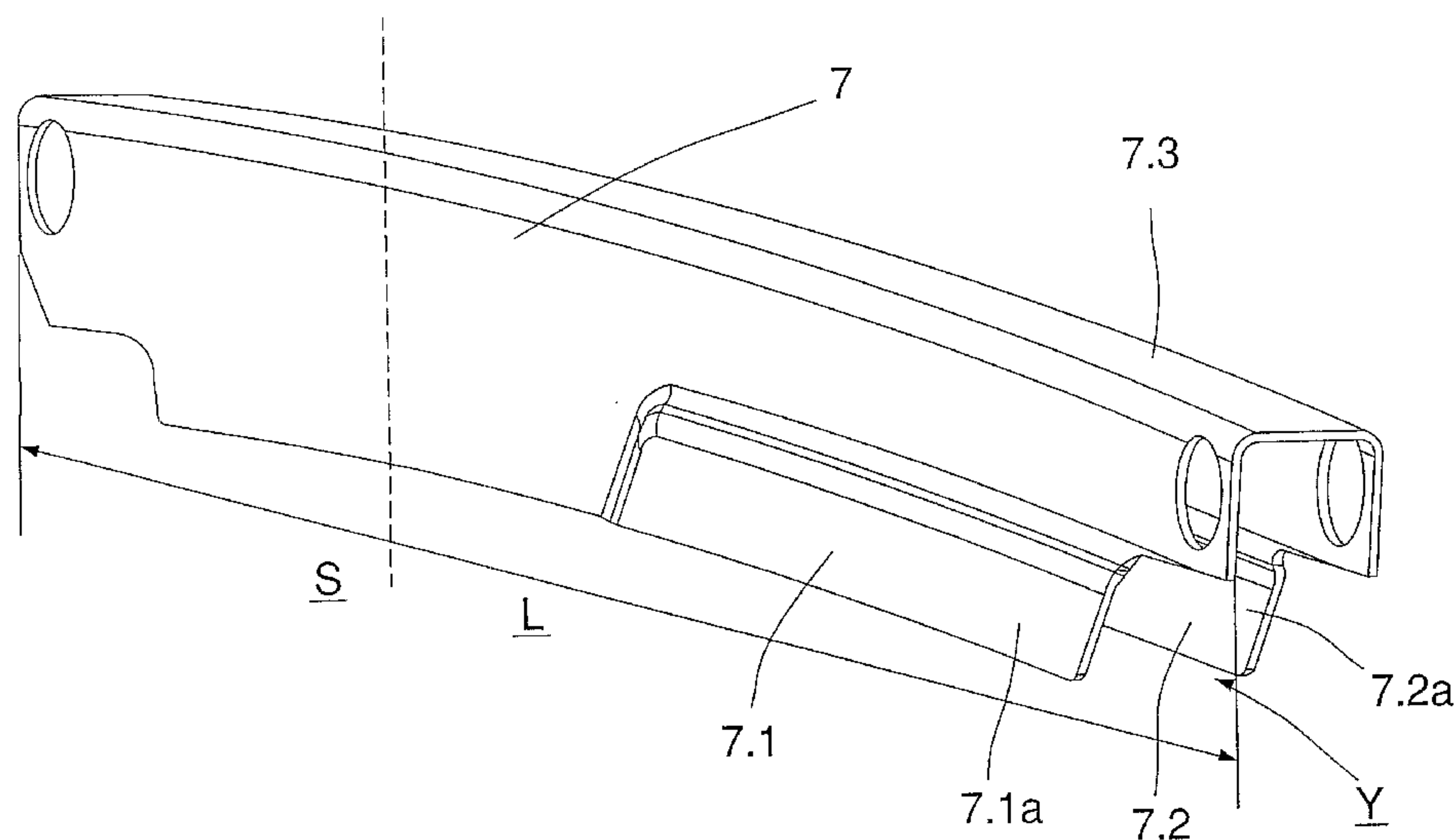
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **LOADER COMPRISING ARM SECTION AND PARALLEL STRUTS WITH AN OPEN CROSS SECTION**



(57) Abstract: The present invention concerns a loader comprising two arm constructions (2a, 2b) arranged parallel to each other, and which in turn constitute extended arm sections (3, 3a) and parallel struts (7) arranged above the extended arm sections (3, 3a). The invention is characterised in that each parallel strut (7) is constituted by an extended beam construction with an open cross-section demonstrating a longitudinal opening (Y) directed towards the arm section (3, 3a).

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LOADER COMPRISING ARM SECTION AND PARALLEL
STRUTS WITH AN OPEN CROSS SECTION

The present invention concerns a loader.

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Vehicles, usually tractors used of various types of work, for example lifting work, are previously known. The vehicles are normally provided with a construction, for example, a base, fastening irons, brackets, or similar, on which an arm construction, usually known as a "loader", is mounted.

10

The loader is an extended construction, an arm construction, comprising two arms arranged parallel to each other and comprising extended arm sections, linkage systems and joint constructions. The loader has at one of its ends, the end that is facing towards the vehicle, two parts, arranged parallel to each other and terminating the arms, to which cylinders and other arm parts are attached. These parts are known as "bearing boxes". Each bearing box is mounted onto, connects with, the vehicle.

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The loader has at its second end, the foremost end, the end that faces away from the vehicle, towards the working area, an attachment arrangement that makes it possible to attach equipment at the outermost end of the loader.

20

The arm construction of the loader comprises two arm sections, which extend from the relevant bearing box to a first joint in the relevant arm, and an essentially square or rectangular beam element, with a closed profile, or a rod construction, which acts as a parallel strut at each arm. Dirt, soil, snow and similar material in the surroundings of the loader tend to become trapped between the parallel strut and the arm, and this affects negatively the cleanliness aspects of the loader and it impairs the mobility of the loader.

25

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One aim of the present invention is to offer a parallel strut and a loader with a design that is such that the problem described above is solved or at least reduced.

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According to the invention there is provided a loader comprising two arm constructions arranged parallel to each other, and which in turn comprise extended arm sections and parallel struts arranged above the extended arm sections. Each of the parallel struts is free of fixed attachment to the
5 respective arm section to allow individual movement between each strut and its respective arm section in use of the loader. Each parallel strut is constituted by an extended beam construction with an open cross section demonstrating a longitudinal opening directed towards the arm section, each parallel strut having a bent form in its longitudinal direction. The
10 parallel strut comprises two side sections and a central section. The two side sections of the parallel strut extend downwards a certain extent on each side of the arm section and the central part is located above the arm section.

15 The invention will be described in more detail below, with reference to the drawings.

Figure 1 shows a loader according to the present invention.

20 **Figure 2** shows a parallel strut according to the invention.

Figure 3 shows a cross-section S through the arm section of the loader and the parallel strut according to the invention.

25 Figure 1 shows a loader 1 according to the present invention. The loader 1 is constituted by an extended construction, an arm construction, comprising two arms 2a and 2b arranged parallel to each other. Those parts that are present on both arms and that have the same design have been given the same reference number.

30

Each arm 2a and 2b comprises in turn extended arm sections 3 and joints 4. The loader has at one of its ends A, the end that faces the vehicle, two parts 5 that are parallel to each other and that terminate the arm parts to

2a

which control cylinders 6 and other arm parts are attached. These parts 5 are known as "bearing boxes". Each bearing box 5 is mounted onto and connects with the vehicle, not shown in the drawing.

- 5 The first extended arm section 3a of the two arms extend between the relevant bearing box 5 and the first joint 4 of the relevant arms 2a and 2b.

Each respective arm 2a and 2b comprises parallel struts 7 according to
10 the present invention. The parallel struts 7, two such for each loader, are arranged above the first extended sections 3a of the two arms and they are attached at their first end 7a to the relevant bearing box 5 and at their second end 7b to the relevant joint 4.

- 15 Each parallel strut 7 is constituted by an extended beam construction with an open cross-section, see Figure 2. The beam construction has essentially the form of a "C" or a "U" when seen in a section perpendicular to the longitudinal direction of the beam construction. The C form or the U form entails the beam having two side sections 7.1 and 7.2 and a
20 central section 7.3 that connects the side sections to each other. The side sections 7.1 and 7.2 are arranged essentially parallel to each other. An open inner space X arises within the side sections 7.1 and 7.2 and the central section 7.3, and an extended opening Y that extends along the complete length L of the parallel strut is formed between the outer parts
25 7.1a and 7.2a of the side sections. The parallel strut 7 in its basic design is open at the end sections 7a and 7b, but in order to make it possible to mount the parallel strut 7 with surrounding parts in the arm construction and in this way make possible the transfer of force from the parallel strut 7 to the parts that are arranged closest, there are at the end sections 7a
30 and 7b of the parallel strut welded attached bush locations Q that offer attachment points and mounting points. These bush locations Q occupy part of the space within the end sections of the parallel strut.

3

Each parallel strut 7 is located such that the central section 7.3 is arranged above and along the relevant first arm section 3a, see Figure 3. The opening Y of the parallel strut is directed downwards towards the arm section 3a. The parallel strut 7 is arranged relative to the first arm section 3a such that, the parallel strut 7 sits astride the first arm section 3a. The side sections 7.1 and 7.2 are extended downwards a certain amount Z on each side of the first arm section 3a and cover in this way a region on each outer side 3.1 and 3.2 that is on each opposite side and facing in the opposite direction of the relevant extended first arm section 3a. The space X is then limited by and surrounded by the parallel strut 7 together with the first arm section 3a. The parallel strut 7 and the first arm section 3a are not fixed attached to each other, and this allows the flexibility that is necessary between these parts 3a and 7 since they carry out individual movements when the loader is used.

Since it can be said that the parallel strut 7 and the first arm section 3a form together a unit and since there is now no longer any space, no surfaces or volumes between the parallel strut 7 and the first arm section 3a, where dirt or snow can become trapped, the loader has become easier to keep clean, and its mobility has improved.

Since the parallel strut 7 has, according to the invention, the form of a C or U, and thus has a round upper section represented by the central section 7.3, dirt and snow will slide off of the parallel strut 7, which further improves the possibility of maintaining the loader 1 clean, and which also improves the mobility of the loader.

The parallel strut 7 demonstrates a form that is, partially or wholly, bent along its longitudinal direction. The parallel strut 7, the central section 7.3, is, along its complete length L or along parts of its length, bent. This bend along the longitudinal direction further contributes to facilitating the gliding off of snow and dirt from the parallel strut 7.

This description is not to be seen as a limitation of the invention. It is to be seen as a guide to full understanding of the invention in all of its parts. It should be realised that other designs are also possible than those that have been described above and shown in the drawings, and parts are possible within the framework of the innovative concept specified in the attached claims.

CLAIMS

1. A loader comprising two arm constructions arranged parallel to each other, and which in turn comprise extended arm sections and parallel struts arranged above the extended arm sections, wherein:

each said parallel strut is free of fixed attachment to the respective arm section to allow individual movement between each strut and its respective arm section in use of the loader,

each parallel strut is constituted by an extended beam construction with an open cross section demonstrating a longitudinal opening directed towards the arm section, each parallel strut having a bent form along its longitudinal direction,

the parallel strut comprises two side sections and a central section,

the two side sections of the parallel strut extend downwards a certain extent on each side of the arm section, and

the central part is located above the arm section.

2. The loader according to claim 1 in which each side section sits astride the arm section.

3. The loader according to claim 1 in which a space is limited by the parallel strut and the arm section.

4. The loader according to claim 1 in which the parallel strut is principally C-shaped or U-shaped when seen in a section transverse to the direction of extension of the parallel strut.

5. The loader according to claim 1, further comprising a pair of bearing boxes and a pair of joints, wherein each parallel strut includes a first end attached to one of the pair of bearing boxes and a second end attached to one of the pair of joints.

6. The loader according to claim 5, wherein each arm section includes a first end attached to one of the bearing boxes and a second end attached to one of the joints.
7. The loader according to claim 6, wherein the parallel struts and arm sections are attached adjacent one another on the respective bearing boxes and the joints.
8. The loader according to claim 1, wherein each end of the each said parallel strut includes circular fittings through each side section thereof each providing a bush location.

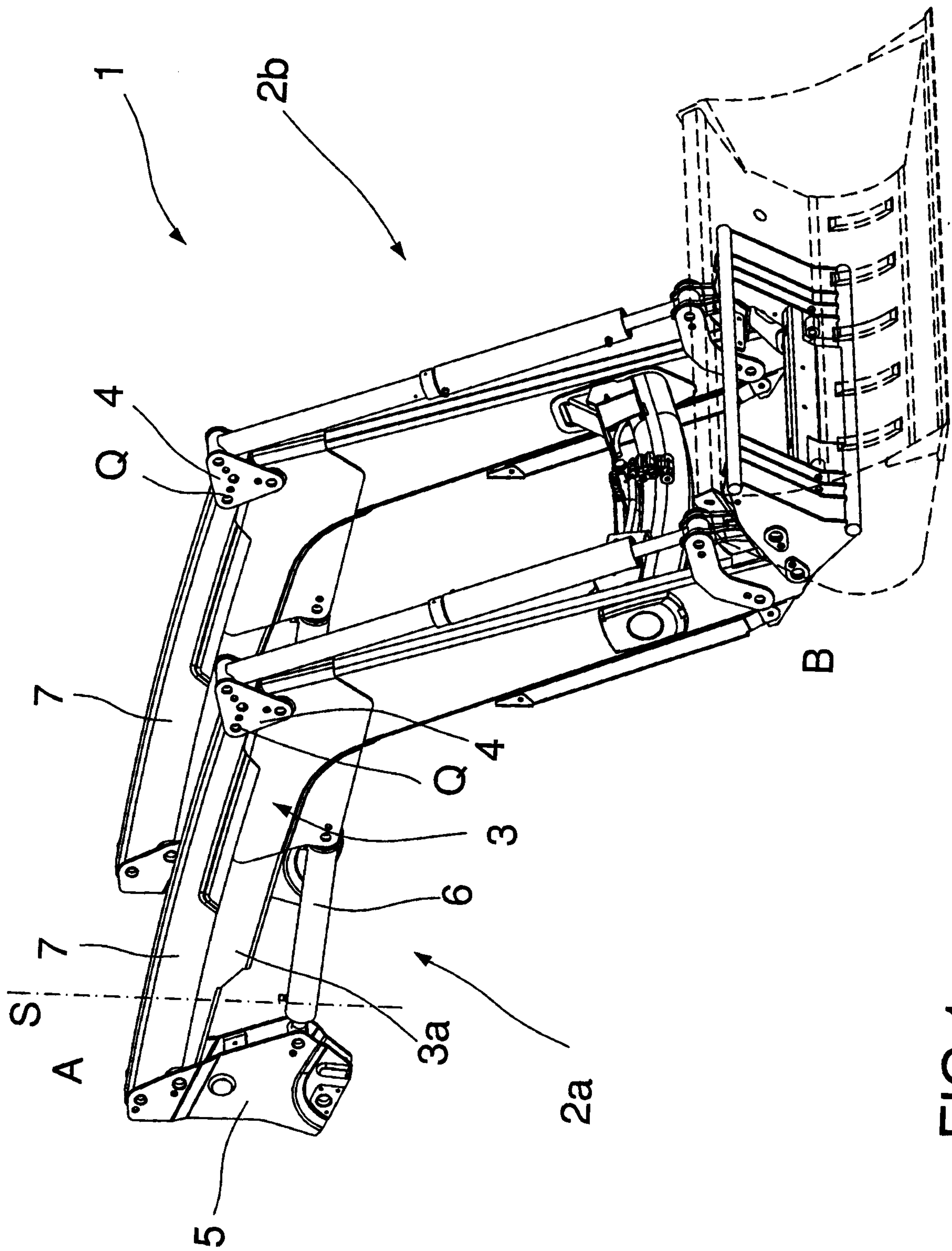


FIG. 1

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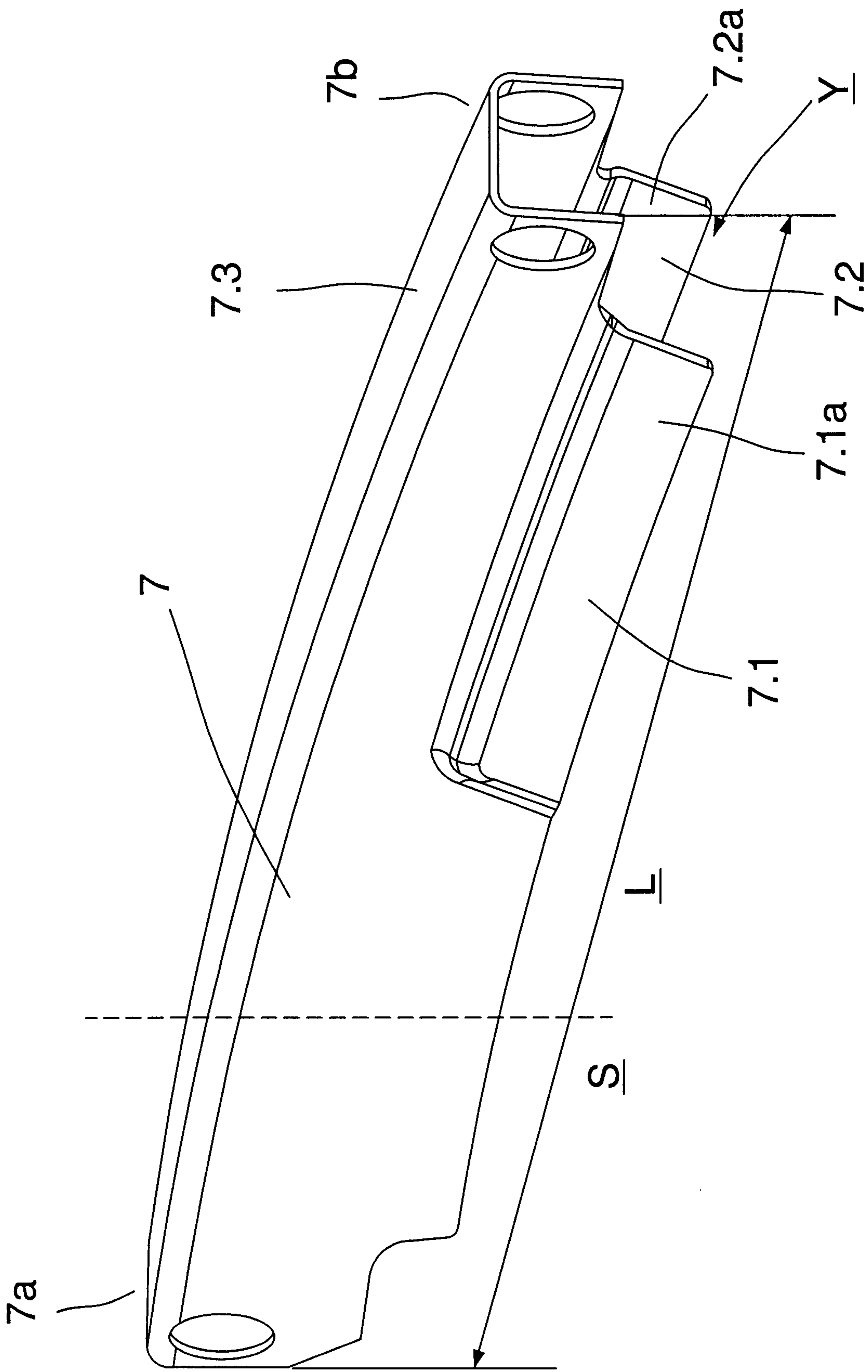


FIG. 2

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