



(11) **EP 3 524 734 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:  
**11.11.2020 Bulletin 2020/46**

(51) Int Cl.:  
**E01F 9/70<sup>(2016.01)</sup>**

(21) Application number: **18215937.6**

(22) Date of filing: **31.12.2018**

---

(54) **ROAD SIGNS TRANSPORTATION UNIT**

VERKEHRSZEICHEN TRANSPORTEINHEIT

UNITÉ DE TRANSPORT DE PANNEAUX ROUTIERS

---

(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**

(30) Priority: **30.01.2018 PL 42442118**

(43) Date of publication of application:  
**14.08.2019 Bulletin 2019/33**

(73) Proprietor: **RECAERUS LTD**  
**London,**  
**E14 5LB (GB)**

(72) Inventor: **Robert Kosinski**  
**21-230 Sosnowica (PL)**

(74) Representative: **Malcherek, Piotr**  
**Rzeczniczy Patentowi INVENT Sp. z o.o.**  
**ul. Gen. Ch. de Gaulle'a 8**  
**43-100 Tychy (PL)**

(56) References cited:  
**CH-A- 507 825 FR-A1- 2 264 683**  
**FR-A1- 2 836 494**

**EP 3 524 734 B1**

---

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

---

## Description

**[0001]** The invention relates to a transportation unit, particularly for road signs, designed to store and transport road signs as well as designed for deploying road signs on road roadsides.

**[0002]** In the state-of-the-art there is patent application WO2012071001, which discloses a trailer designed to store and transport road signs. Such a trailer has dedicated support racks for signs with support wheels attached thereto.

**[0003]** Proper marking of roadwork areas is a significant obstacle when the roadworks are in progress. More than a dozen of signs are necessary to properly mark even a single section of roadworks. Each sign is coated with special luminescent film that is extremely vulnerable to scratches and abrasions, which makes the signs illegible and damaged signs must be replaced with new ones. Price of luminescent films that are used for coating road signs is relatively high, so recoating of damaged signs is not practicable, only replacement of signs with new ones is reasonable.

**[0004]** The closest prior art is FR 2 836 494 which discloses a road sign storage, transport and distribution assembly comprises trailer with sections for signs, bases and other accessories. The assembly consists of a trailer with separate storage sections for signs with square tubular posts, bases with sockets for the posts, and other accessories. The bases are stored in corridors at each side of the trailer that have rollers set in the floor and slideways in the roof for easier loading and unloading, and springloaded stops to hold the bases in place. The signs are fitted into sockets projecting from the trailer floor, leaving a central gangway for access.

**[0005]** The present invention relates to a transportation unit for road signs as described in the preamble to the independent claim no. 1. The invention consists in that stopping members (2) are provided on each horizontal level, and the engagement between the locking mechanism (3) and the pole (5) of the road sign board (6) takes place via a socket (4) attached to the pole(5), Axis with wheels is mounted to the upper end of the pole of the road sign board. The distance between wheels matches the span between the shaped sections.

**[0006]** Preferably a further crossbar with feet is attached to the bottom end of the pole of the road sign board and the crossbar is provided with feet, where the distance between feet matches the span between the shaped sections.

**[0007]** Preferably the locking mechanism is designed as a spring-actuated latch.

**[0008]** It is also preferable when the stopping member is designed as a set of hooks suitable to hold the axis or as a bumper suitable to block the wheel.

**[0009]** It is yet again preferable when go-through holes are made in the bottom of the shaped sections to enable water drainage.

**[0010]** The beneficial effect of the invention designed

as a transportation unit for road signs is the possibility to carry a plurality of road signs in steady positions, to unload them quickly from the transportation rack, to have them deployed on a road shoulder, and afterwards to easily and quickly collect them back. The rack design enables to access loaded road signs from both the left side and the right side of the rack. This makes it possible to use the unit for transportation and deployment of road signs on motorways and highways when road signs are placed on both right and left sides of the roadway. Such a solution substantially facilitates and speeds up deployment of road signs, extends the lifetime of purchased road signs and contributes to safety of personnel since they do not have to enter on roadways. Another advantage of the solution consists in easy access to every single sign, in consequence the personnel no longer needs to pop signs that are on top of the heap to access the necessary sign in the bottom.

**[0011]** The invention according to its embodiment is presented in details on the attached drawing, which:

Fig. 1 is a top perspective view of the unit,

Fig. 1a presents the detail A from fig. 1,

Fig. 2 is a bottom perspective view of the unit,

Fig. 2a presents the detail B from fig. 2,

Fig. 3 is a front view of the unit,

Fig. 3a presents the detail C from fig. 3,

Fig. 3b is a cross-section view of the invention illustrated in fig. 3 and taken at D-D plane, and

Fig. 3c is a cross-section view of the invention illustrated in fig. 3 and taken at E-E plane.

**[0012]** The transportation unit, particularly to transport road signs, according to the embodiment presented in drawing includes a rack and two road signs. The rack has a form of a frame 1 made up of four vertical posts 1a being hollow tubes with square cross-section. External crossbars 1b are disposed at various heights between mutually opposite pairs of vertical posts, in particular there are four pairs of external crossbars 1b designed as hollow tubes with square cross-sections. Pairs of shaped sections 1c being channel bar with go-through holes in their bottom are fixed between corresponding external crossbars 1b mounted at the same height defining four horizontal levels. Owing to application of perforated channel bars, i.e. channel bars with go-through holes in their bottom, rainwater is prevented to accumulate in channel bars. On every horizontal level, on both sides of rack there are stopping members 2 attached to upper parts of crossbars 1b and designed as two hooks made of flat steel extending inwardly to the rack to lock axis 7

of wheels 8 of the road sign. Alternatively, the stopping member 2 can be designed as a bumper suitable to block movement of wheels 8. A locking mechanisms 3 designed as spring-actuated latches are attached to outer sides of the crossbars 1b. The latch is engaged with the socket 4 fixed to the pole 5 of the road sign board 6. The upper end of the pole 5 of the road sign board 6 is provided with an axis 7 with wheels 8 mounted at its both ends. The distance between wheels 8 matches the span between shaped sections 1c. In addition, a further crossbar 9 is attached to the bottom end of the pole 5 of the road sign board 6, which is provided with feet 10, where the distance between feet 10 matches the span between the shaped sections 1c, thus the feet 10 rest on said shaped sections 1c.

**[0013]** The number, form and shape of external crossbars, vertical posts and shaped sections presented in this embodiment are merely an example. In case of a rack with more external crossbars, it is able to transport more road signs.

Reference numbers

**[0014]**

1. frame
- 1a. post
- 1b. crossbar
- 1c. shaped section
2. stopping member
3. locking mechanism
4. socket
5. pole
6. road sign board
7. axis
8. wheel
9. further crossbar
10. foot

**Claims**

1. Road signs transportation unit, comprising a rack and road signs with wheels (8), the rack designed as a frame (1) comprises vertical posts (1a) and external crossbars (1b) that are disposed at various heights between mutually opposite pairs of the vertical posts (1a), and pairs of shaped sections (1c) are fixed between corresponding external crossbars (1b) mounted at the same height and defining horizontal levels, whereas stopping members (2) are provided at one side of the rack to prevent displacement of the road signs, whilst a locking mechanism (3) is mounted at the opposite side of the rack for engagement with a pole (5) of the road sign board (6), **characterized in that** the stopping members (2) are provided on each horizontal level, and the engagement between the locking mechanism (3) and

the pole (5) of the road sign board (6) takes place via a socket (4) attached to the pole(5), and an axis (7) with wheels (8) is mounted to the upper end of the pole (5) of the road sign board (6), where the distance between wheels (8) matches the span between the shaped sections (1c).

2. Transportation unit according to claim 1, **characterized in that** a further crossbar (9) is attached to the bottom end of the pole (5) of the road sign board (6) and the crossbar is provided with feet (10), where the distance between the feet (10) matches the span between the shaped sections (1c).
3. Transportation unit according to claim 1 or 2, **characterized in that** the locking mechanism (3) is designed as a spring-actuated latch.
4. Transportation unit according any of claims 1 to 3, **characterized in that** the stopping member (2) is designed as a set of hooks suitable to hold the axis (7).
5. Transportation unit according any of claims 1 to 3, **characterized in that** the stopping member (2) is designed as a bumper suitable to block movement of the wheels (8).
6. Transportation unit according any of claims 1 to 5, **characterized in that** go-through holes are made in the bottom of the shaped sections (1c).

**Patentansprüche**

1. Transportbausatz zum Transport von Verkehrsschildern, einschließlich eines Regals und Verkehrszeichen mit Rollen (8), wobei das Regal die Form eines Rahmens (1) hat und vertikale Streben (1a) aufweist, und zwischen den gegenüberliegenden Paaren der vertikalen Streben auf verschiedenen Höhen außen Querstreben (1b) angebracht sind, wobei zwischen den äußeren Querstreben (1b) auf derselben Höhe Profile in Paaren befestigt sind (1c), die Ebenen bilden, wobei auf der einen Seite des Regals Blockaden (2) zur Vermeidung des Verrutschens der Schilder angebracht sind, und sich auf der gegenüberliegenden Seite des Regals ein Blockademechanismus (3) befindet, der mit dem Standfuß (5) der Verkehrsschildtafel (6) zusammenwirkt, **dadurch gekennzeichnet, dass** die Blockaden (2) auf allen Ebenen vorhanden sind, und das Zusammenwirken zwischen dem Blockademechanismus (3) und dem Standfuß (5) der Verkehrsschildtafel (6) über eine am Standfuß (5) befestigte Buchse (4) erfolgt, und am oberen Teil des Standfußes (5) eine Achse (7) mit Rollen (8) angebracht ist, wobei der Abstand zwischen den Rollen (8) an den Abstand der Profile (1c)

- angepasst ist.
2. Bausatz nach Anspruch 1, **dadurch gekennzeichnet, dass** am unteren Teil des Standfußes (5) der Verkehrsschildtafel (6) eine zusätzliche Querstrebe (9) angebracht ist, an deren Ende Stopper befestigt sind (10), wobei der Abstand zwischen den Stopperrn (10) an den Abstand der Profile (1c) angepasst ist.
  3. Bausatz nach Anspruch 1 oder 2, **dadurch gekennzeichnet dass** der Blockademechanismus (3) aus einem Riegel mit Feder besteht.
  4. Bausatz nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass** die Blockade (2) aus Haken besteht, die zum Blockieren der Achsen dienen (7).
  5. Bausatz nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass** die Blockade (2) aus einem Puffer besteht, der zum Blockieren der Rollen (8) dient.
  6. Bausatz nach einem der Ansprüche 1 bis 5, **dadurch gekennzeichnet dass** am Unterbau der Profile (1c) Löcher angebracht werden.
3. Un ensemble selon la revendication 1 ou 2, **caractérisé en ce que** le mécanisme de blocage (3) consiste en un verrou à ressort.
  4. Un ensemble selon l'une des revendications de 1 à 3, **caractérisé en ce que** le blocage (2) à une forme de crochets adaptés au blocage de l'essieux (7).
  5. Un ensemble selon l'une des revendications de 1 à 3, **caractérisé en ce que** le blocage (2) a une forme de pare-chocs adapté au blocage des roues (8).
  6. Un ensemble selon l'une des revendications de 1 à 5, **caractérisé en ce que**, sur le socle des profilés (1c), il est effectué des trous traversants.

## Revendications

1. Un ensemble de transport pour des panneaux de signalisation, contenant un rack et des panneaux de signalisation avec des roues (8), le rack a une forme d'un cadre (1) et comprend des poteaux verticaux (1a), des traverses extérieures sont situées entre les paires opposées de poteaux verticaux à une différente hauteur (1b), et, entre les traverses extérieures (1b) situées à la même hauteur, des profilés sont fixés par paire (1c) en formant des niveaux, d'un côté du rack il est monté des blocages (2) de déplacement des panneaux, tandis que du côté opposé du rack il est monté le mécanisme de blocage (3), fonctionnant avec un pied (5) du panneau (6) de signal routier, **caractérisé en ce que** les blocages (2) se trouvent à chaque niveau, et le fonctionnement entre le mécanisme de blocage (3) et le pied (5) du panneau (6) de signal routier est réalisée par l'emplacement (4) fixé sur le pied (5), et, sur la partie supérieure du pied (5), il est monté un essieu (7) à roues (8), mais la distance entre les roues (8) est adaptée à l'espacement des profilés (1c).
2. Un ensemble selon la revendication 1, **caractérisé en ce que**, sur la partie inférieure du pied (5) du panneau (6) du signe routier il est montée une traverse complémentaire (9), à l'extrémité de laquelle il se trouve de petits pieds (10), mais la distance entre les petits pieds (10) est adaptée à l'espacement des profilés (1c).

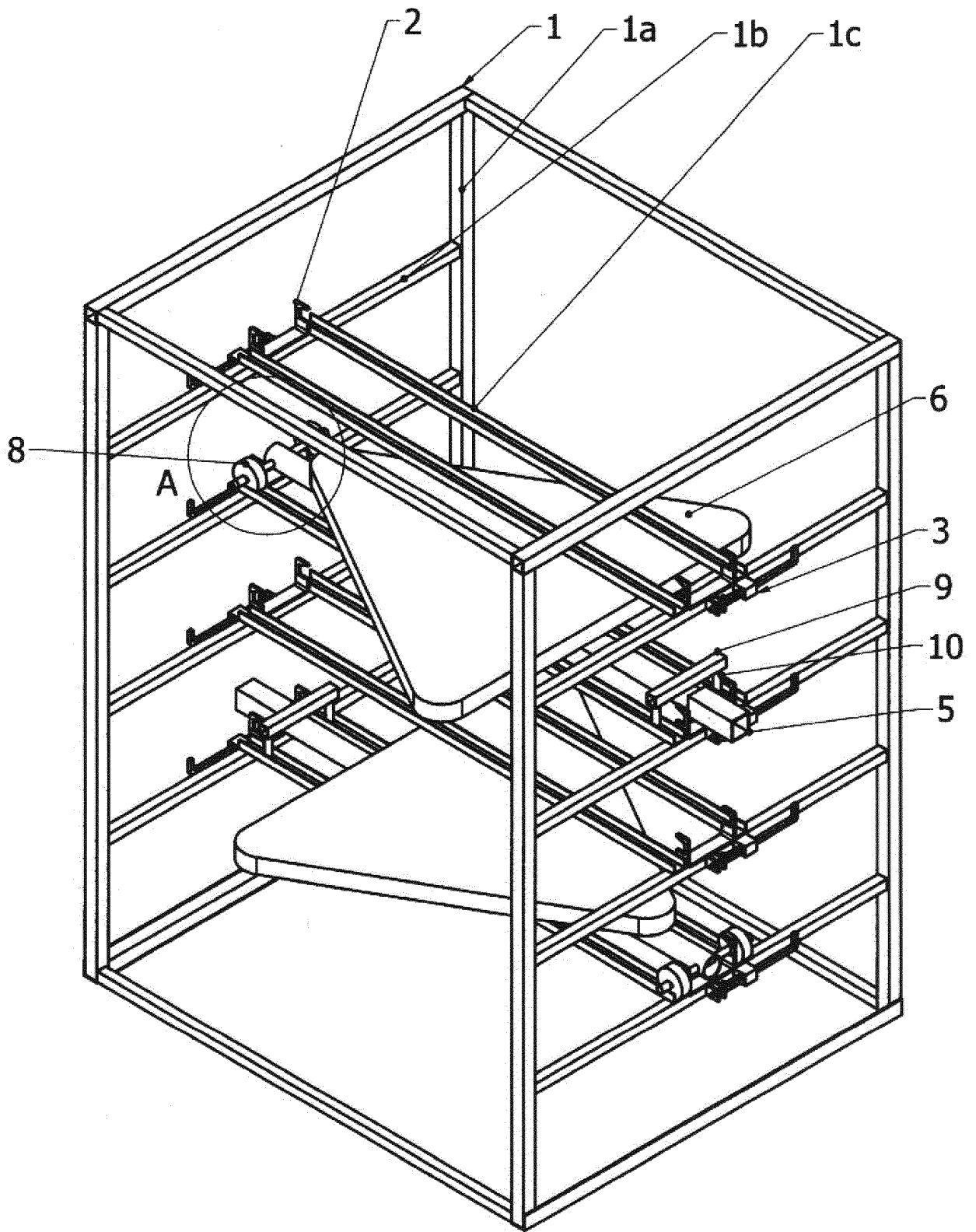


fig. 1

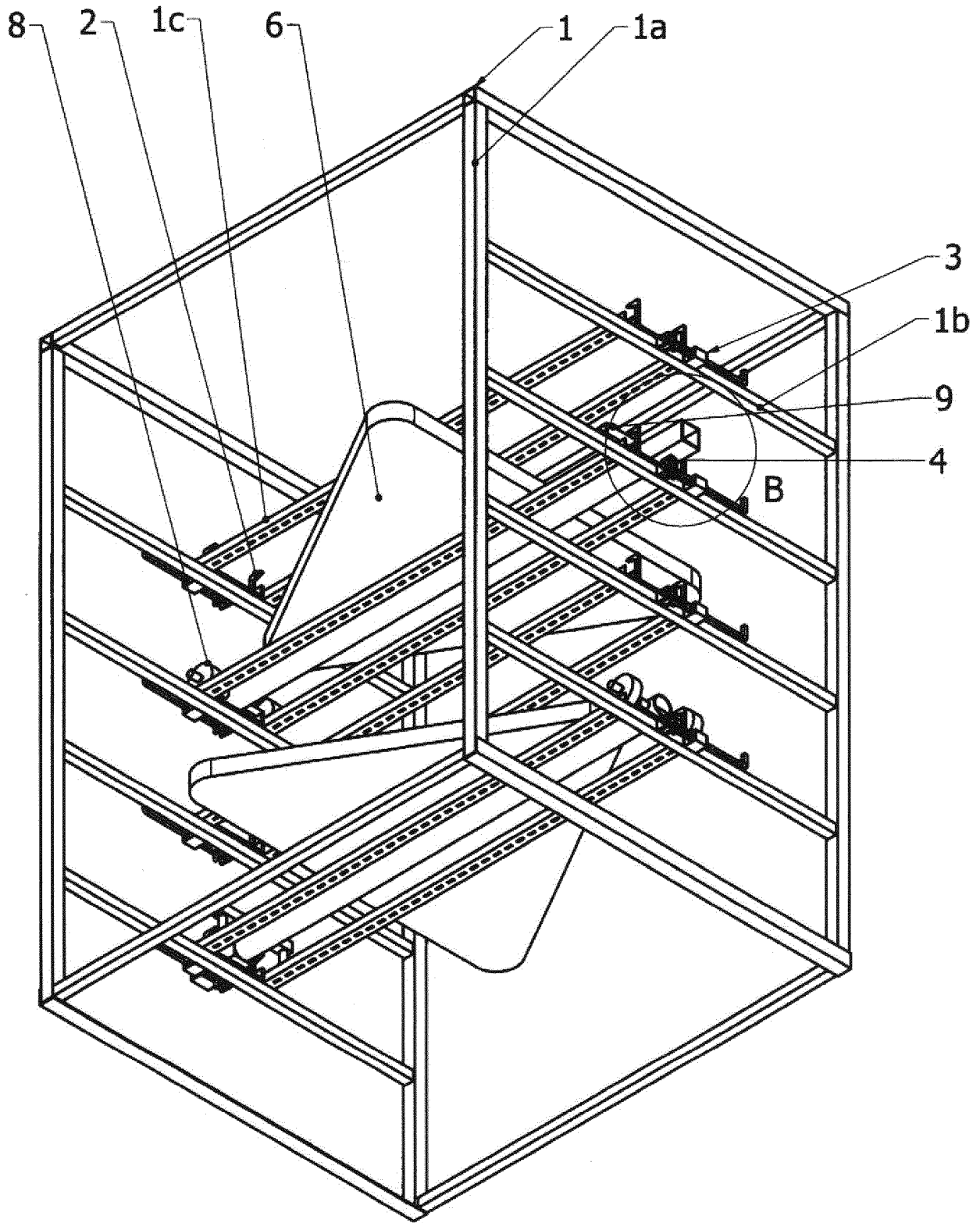


fig. 2

A

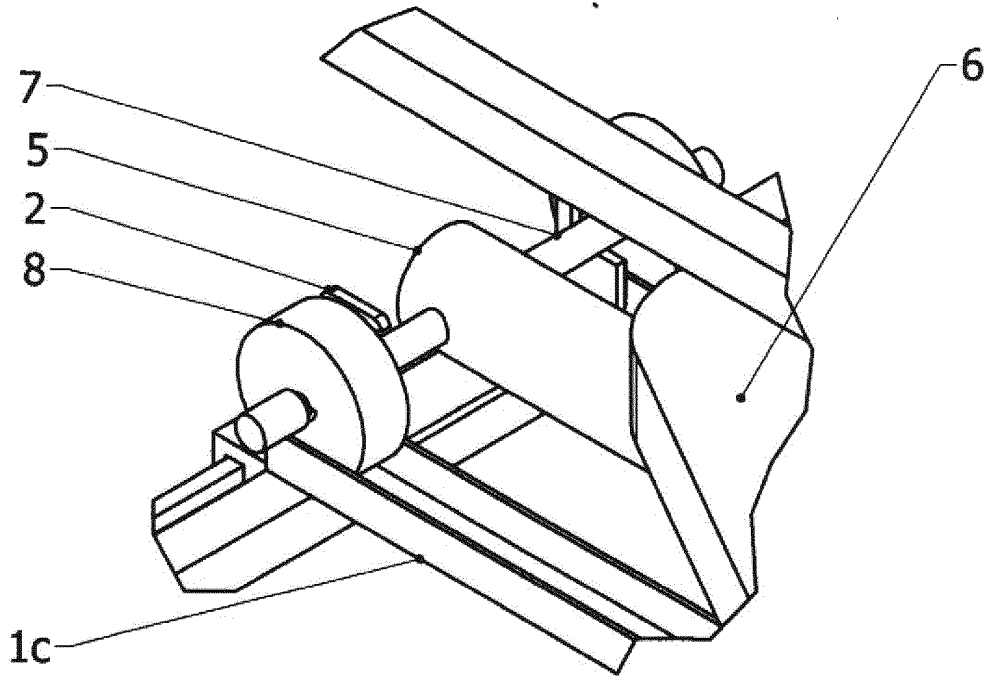


fig. 1a

B

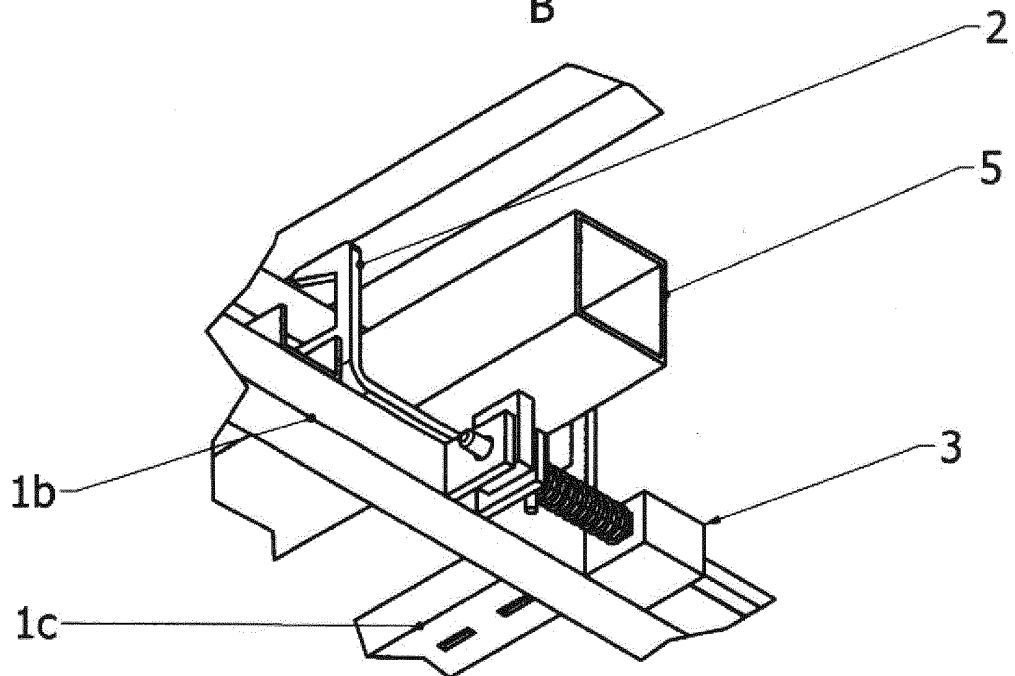


fig. 2a

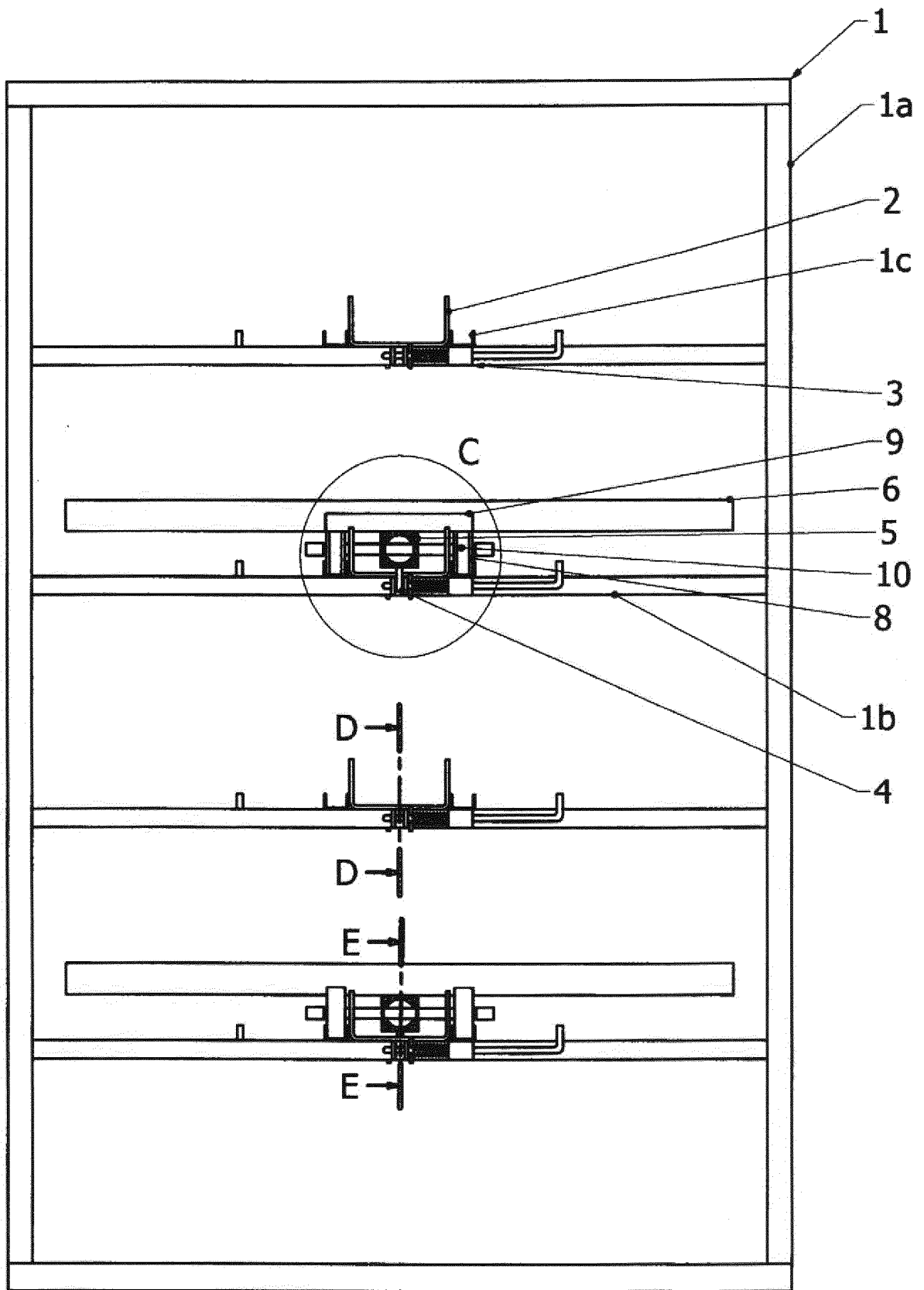


fig. 3

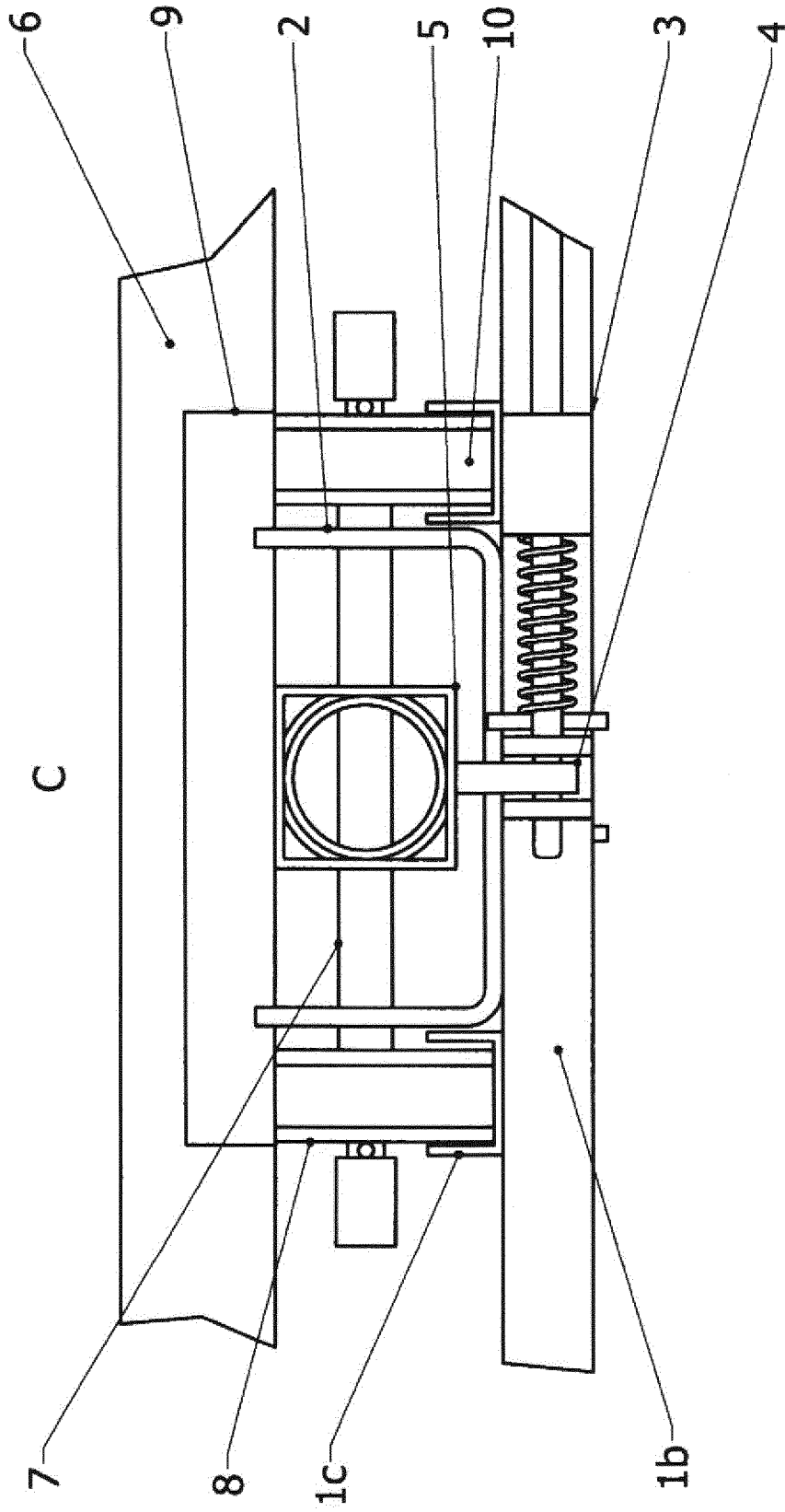


fig. 3a

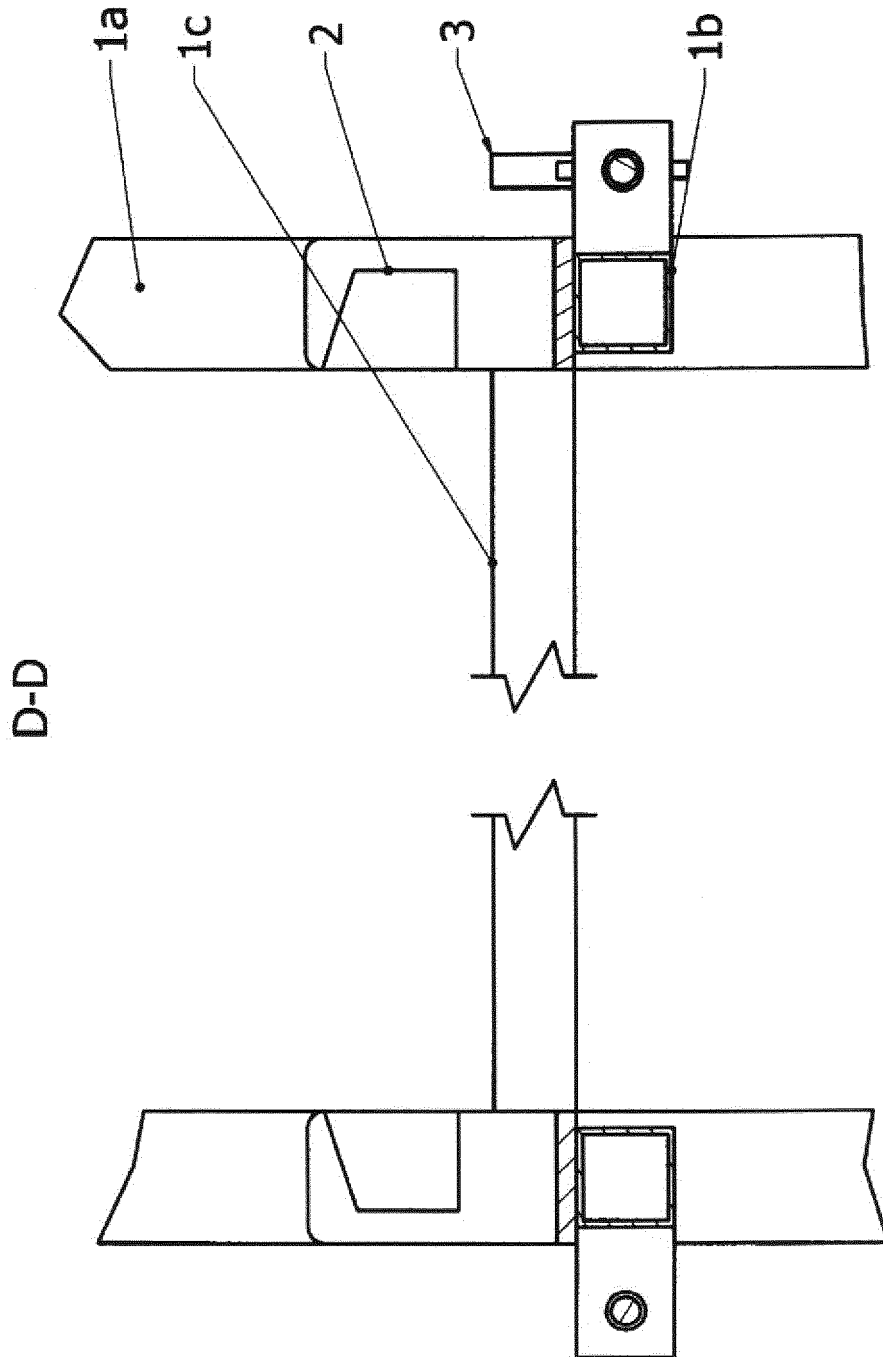


fig. 3b

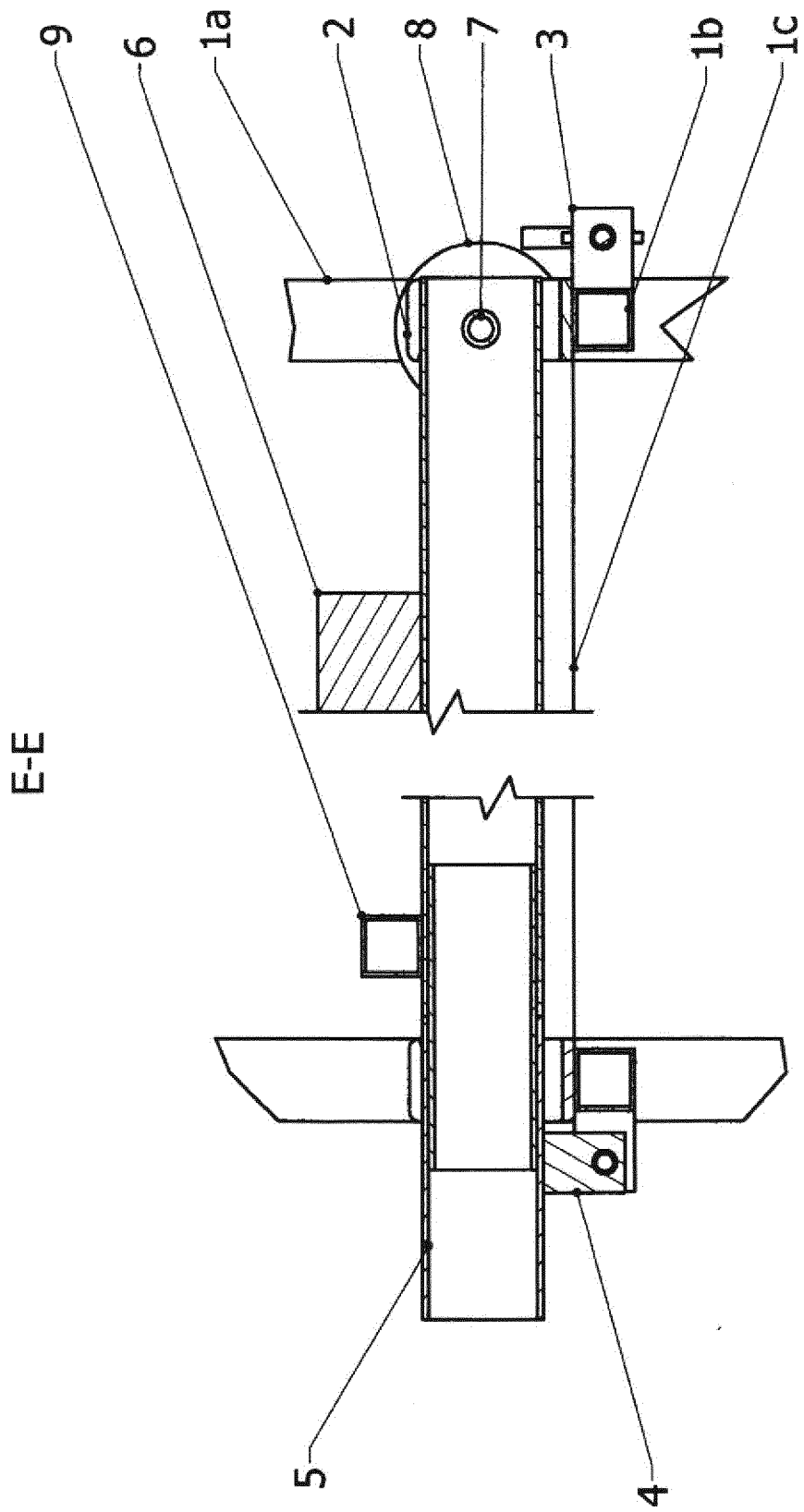


fig. 3c

**REFERENCES CITED IN THE DESCRIPTION**

*This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.*

**Patent documents cited in the description**

- WO 2012071001 A [0002]
- FR 2836494 [0004]