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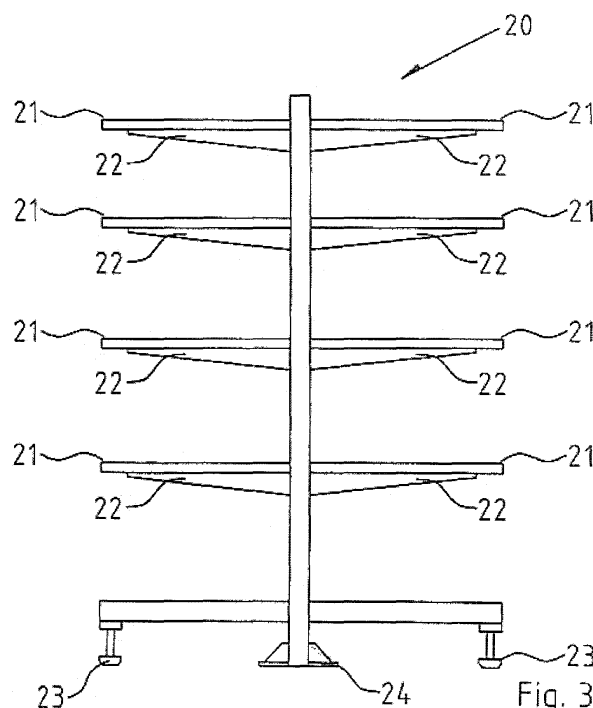
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(54) Shelf and gondola moving device

(57) The present invention is directed to a shelving lifting device (1) for shelving of the type comprising a self standing support gondola (20) carrying shelf supports (22) projecting orthogonally proud of the gondola and shelves (21) carried by the shelf support, in which the shelving lifting device comprises a means to engage the shelves and/or shelf supports (7, 35) to raise them for removal from the gondola and/or a means to engage the frame of the gondola to raise it for removal of the entire

gondola (15, 45). The present invention is also directed to a method for lifting shelving of the type comprising a self standing support gondola (20) carrying shelf supports (22) projecting orthogonally proud of the gondola and shelves (21) carried by the shelf support, wherein the shelves to be lifted are loaded with products and the method comprises the steps of engaging the shelves and/or shelf supports; raising the shelves and/or shelf supports off the gondola; and removing the shelves and/or shelf supports from the gondola



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Description

Introduction

[0001] The present invention relates to a shelving lifting device for shelving of the type comprising a self standing supporting shelving gondola carrying shelf supports projecting orthogonally proud of the gondola and shelves carried by the shelf supports. Further, it relates to a device for lifting the complete gondola.

[0002] Such shelving is used extensively in shops for the display of goods and in particular in large supermarkets and other mega stores.

[0003] The loading of shelves in supermarkets is a major problem and indeed in many supermarkets and other large stores, the contents of the shelves are changed constantly, not just simply by the replenishment of a particular product on a shelf, but with the changing of all the products on one shelf to another type of product, depending on store promotions, etc, and the desire by most stores to revamp and revitalise shelf displays. Further problems arise when the shelves and the gondolas have to be moved from place to place within the store.

[0004] For example, when a store manager or owner wishes to take all the goods from one shelf and place it on another shelf, while in turn taking the goods from the second shelf and placing them on the first shelf, somebody from the staff has to manually take all the goods from the first shelf to clear the shelf, then take the goods from the second shelf and place these goods on the first shelf, and then take the goods that were removed from the first shelf and put it on the second shelf. This swapping of goods, the very simplest of such operations, leads to goods being all over the shop, in the aisles, etc., such that these tasks can only be done effectively out of hours or at least during relatively quiet shopping times, since if it is attempted during busy shopping hours, the length of time that, for example, an aisle in a supermarket is blocked, is unacceptable. However, if this could be done quickly, it would be most advantageous.

[0005] While less frequently, similar problems arise in shop fitting and major reorganisations of a store, when complete gondolas are moved or replaced.

[0006] The present invention is directed towards overcoming these problems.

Statements of Invention

[0007] According to a general aspect of the invention, there is provided a shelving lifting device for shelving of the type comprising a self standing shelving support gondola carrying shelf supports projecting orthogonally proud of the gondola and shelves carried by the shelf supports, in which means are provided to engage the shelves to raise them off the shelf supports for removal by the gondola,

[0008] Further, the invention generally provides means to engage the frame of the gondola to raise it for

subsequent removal,

[0009] According to a first aspect of the invention, there is provided a shelving lifting device for shelving of the type comprising a self standing support gondola carrying shelf supports projecting orthogonally proud of the gondola and shelves carried by the shelf support, in which the shelving lifting device comprises a means to engage the shelves and/or shelf supports to raise them for removal from the gondola and/or a means to engage the frame of the gondola to raise it for removal of the entire gondola.

[0010] Ideally, the shelves are raised of the shelf supports for removal from the gondola.

[0011] Preferably, the shelving lifting device comprises

a mainframe;

ground engaging wheels on the mainframe;

an auxiliary support frame slidably mounted on the mainframe for substantially vertical movement relative to the main support frame;

lifting arms projecting orthogonally from the auxiliary support frame; and

means to raise and lower the auxiliary support frame relative to the mainframe.

[0012] According to one embodiment of the invention, the lifting arms comprise

a. Shelf underside engaging arms which engage and raise the shelf off the shelf supports; and/or

b. Orthogonally mounted arms to engage the frame of the gondola which are laterally movable to a gondola engaging position such that the gondola can be raised with the auxiliary support frame.

[0013] It should be noted that unlike many forklifts, these lifting devices need sensibility of movement, since they are moving into packed shelving in order to relocate the merchandise. The whole purpose is to be able to move shelves full of product without causing damage to the product. It will be noted that the device according to the invention will operate in confined spaces.

[0014] In one specific embodiment of the invention, the shelving lifting device comprises:

a mainframe;

ground engaging wheels on the mainframe;

an auxiliary support frame slidably mounted on the mainframe for substantially vertical movement relative to the main support frame;

shelf underside engaging arms projecting orthogonally from the auxiliary support frame; and

means to raise and lower the auxiliary support frame relative to the mainframe.

[0015] In another specific embodiment of the invention, there are provided means to engage the gondola comprising orthogonally mounted arms on the auxiliary support frame laterally movable to a gondola engaging position. The gondola can then be raised with the auxiliary support frame.

[0016] Optionally, the shelving lifting device comprises a combination of one or more shelf underside engaging arms and/or one or more orthogonally mounted arms. This provides the advantage that the shelving lifting device may be used for a combination of shelf and gondola raising and moving. Alternatively, the shelving lifting device may comprise a plurality of shelf underside engaging arms only.

[0017] According to another embodiment of the invention, the lifting arms are removably mounted on the auxiliary support frame. Ideally, slots are provided in the auxiliary support frame for reception of the lifting arms. Alternatively, a further removable frame is provided for placement over the auxiliary support frame which comprises a means for reception of the lifting arms, such as slots.

[0018] According to yet another embodiment of the invention, the shelf underside engaging arms comprise a pair of spaced apart arms provided with mounting slots which support a roller and are moved by knobs. The arm may also comprise a distal support arm engaging pin. This has the advantage that the pin engages the conventional dimple in the shelf support arm. In use the knobs are used to move the roller so it engages on the underneath of the shelf support to tilt it slightly and enable it to be raised and moved by the shelf lifting device. Ideally, the shelf underside arms are mounted on slotted bars on a cross member which are provided on the auxiliary support frame. This specific construction has the advantage that it can easily be used to engage the shelf support arms and shelves to raise them off the gondola,

[0019] According to another embodiment of the invention, the orthogonally mounted arms comprise side support members, having projecting lugs, mounted on the auxiliary frame wherein the arms are slidable on two spaced-apart arms. This provides the advantage that the shelving lifting device stably supports the underneath of the gondola frame or support and enables the complete gondola to be removed. This also has the advantage that it is not essential to remove the products already on the shelves. The spaced-apart arms may also be provided with handles and locking screws.

[0020] According to a more specific embodiment of the invention, the side support member comprises a pair of laterally adjustable arms with mounting gondola engaging lugs.

[0021] Preferably, the ground engaging wheels are castor wheels and are ideally pivotal through 360 degrees.

[0022] The shelving lifting device may be fully or partially motorised or hand operated. According to one embodiment, the shelving lifting device comprises the means to raise and lower the auxiliary support frame relative to the mainframe comprises a hydraulic ram operated by a pump and an actuating arm connected between the mainframe and the auxiliary frame,

[0023] According to a second aspect of the invention, there is provided a method for lifting shelving of the type comprising a self standing support gondola carrying shelf supports projecting orthogonally proud of the gondola and shelves carried by the shelf support, wherein the shelves to be lifted are loaded with products and the method comprises the steps of

- a. engaging the shelves and/or shelf supports;
- b. raising the shelves and/or shelf support off the gondola; and
- c. removing the shelves and/or shelf supports from the gondola.

[0024] Preferably, the method involves engaging the shelves; raising the shelves off the shelf supports; and removing the shelves from the gondola.

[0025] The method may also comprise the further steps of

- a. engaging the underside of the gondola frame or foot until it is fully supported by the shelving lifting device; and
- b. moving the complete gondola.

[0026] According to one embodiment of this invention, the method comprises the steps of

- a. moving the shelving lifting device according to the invention towards the shelving,
- b. placing the lifting arms beneath the shelves, shelf supports and/ or beneath the gondola foot,
- c. raising the auxiliary frame to enable the lifting device to engage the shelves, shelf support and/or gondola foot until they are fully supported; and
- d. pulling the lifting device away to remove the shelves and/or shelf support from the gondola or to move the complete gondola.

[0027] According to one embodiment of the invention, the auxiliary frame is raised by the operating pump and hydraulic ram. Alternatively, the lifting device may be

hand operated.

[0028] According to another embodiment of the invention, the method comprises the further steps of moving the side support members outwards so that the projecting lugs are moved beneath the gondola foot to engage the gondola foot; engaging the locking screws and raising the gondola. This provides a method for raising and moving an entire gondola. The shelf underside engaging arms may also be engaged to provide further support when moving the gondola.

[0029] According to a preferred embodiment, one or more shelving lifting devices may be used in combination to raise and move one set of shelves and/or an entire gondola. Preferably, at least two shelving lifting devices are used to lift a complete gondola. This provides an advantage in terms of stability when moving large shelves or shelves and gondolas already stocked with items/products.

Detailed Description of the Invention

[0030] The invention will be more clearly understood from the following description of an embodiment thereof, given by way of example only, with reference to the accompanying drawings, in which:

Fig. 1 is a rear view of the device according to the invention,

Fig. 2 is a front view of the device,

Fig. 3 is a side view of the device,

Fig. 4 is a side view of the device offered up to a gondola,

Fig. 5 is a side view of the device showing the device in a shelf-engaging position,

Fig. 6 shows the device removing shelves from a gondola,

Fig. 7 is a rear view of the device removing shelves to a gondola,

Fig. 8 is an end view of two of the device offered up to a gondola in a position to raise the gondola,

Fig. 9 is a rear view showing the gondola raised,

Fig. 10 is a side view of the raised gondola,

Fig. 11 is a side view of two devices being offered up to a gondola to raise it,

Fig. 12 shows the gondola being raised by four devices,

Fig. 13 shows a larger gondola being raised by four devices.

Fig. 14 is a rear view of a device offered up to a shelf,

Fig. 15 is a side view of a device offered up to a shelf,

Fig. 16 is a perspective view of an arm forming part of the device of Figs. 14 and 15, and

Fig. 17 is a perspective view of an alternative construction of unit for use with a device according to the invention.

[0031] Referring to Figs. 1 and 2, there is illustrated a shelf and gondola raising device, indicated generally by the reference numeral 1, comprising a mainframe 2 having ground engaging castors 3. The mainframe 2 mounts an auxiliary frame 5 having slots 6 for reception of lifting arms 7. These are conventional slots, as are the lifting arms which are socketed within the holes 5.

[0032] A hydraulic ram 10, operated by a pump 11 and actuating arm 12, is connected between the mainframe 2 and the auxiliary frame 5. Further, mounted on the auxiliary frame 5 are side support members 15 having projecting lugs 16 and slidable on two spaced-apart arms 17 and movable by handles 18. Locking screws 19 are provided.

[0033] Finally, there is illustrated a gondola 20 mounting a plurality of shelves 21 on support arms 22, each gondola having adjustable ground engaging stabilisers 23 and ground engaging pads 24.

[0034] In operation, to remove the shelves 21 from the gondola 20, the device 1 is offered up to the gondola, as illustrated in Fig. 3. Then, as shown in Fig. 4, the device is moved towards the shelves with the arms 7 beneath the shelves 21. Then the auxiliary frame 5 is raised by operating the pump 11 and hydraulic ram 10. As the auxiliary frame is raised, the arms 7 engage beneath the shelves 21, as shown in Fig. 5. Then, with the shelves 21 fully supported, the device 1 is pulled away from the gondola, also removing the shelves, as illustrated in Fig. 6.

[0035] When it is desired to move one small gondola, one of the devices may be used, as shown in Figs. 7 to 9. Firstly, the device 1 is offered up against the gondola and the side support members 15 are moved outwards so that the projecting lugs 16 engage under the gondola. The locking screws 19 are engaged and then the gondola is raised, as shown in Fig. 9. However, generally, it will be necessary to use more than one device to move a large gondola and this is illustrated clearly in Figs. 11 and 12, where four devices are used to move the gondola. They are offset and thus staggered along the gondola to balance the load. Generally speaking, more than four gondolas would be moved and this is illustrated in Fig. 13.

[0036] Referring now to Figs. 14 to 16 inclusive, there is illustrated and shelf and gondola raising device, indi-

cated generally by the reference numeral 30, in which parts similar to those described with reference to the previous drawings, are identified by the same reference numerals. In this embodiment, there are provided lifting arms 35, illustrated in more detail in Fig. 16, each lifting arm 35 comprising a pair of spaced-apart arms 36 mounting slots 37 which in turn support a roller 38 moved by knurled knobs 39. The arm 35 further comprises a distal support arm engaging pin 40. The arms 35 are mounted on conventional slotted bars 34 on a cross member 33.

[0037] In operation, the pin 40 engages within the conventional dimple formed in the support arm 22 and the knurled knobs 39 are used to move the roller 38 so that it engages on the underneath of the shelf support arm 22 to tilt it slightly. Thus, when the arm 35 engages the shelf support arm 22, the shelf support arm 22 will be raised with the shelf and removed as heretofore.

[0038] Fig. 17 illustrates a further side support arm, indicated generally by the reference numeral 45, comprising a pair of laterally adjustable arms 46 mounting gondola engaging lugs 47. In operation, the lugs 47 can be moved beneath the gondola foot to allow the gondola to be raised.

[0039] It will also be appreciated that the device can be totally motorised instead of being hand operated.

[0040] In the specification the terms "comprise, comprises, comprised and comprising" or any variation thereof and the terms "include, Includes, included and including" or any variation thereof are considered to be totally interchangeable and they should all be afforded the widest possible interpretation and vice versa,

[0041] The invention is not limited to the embodiment hereinbefore described, but may be varied in both construction and detail.

Claims

1. A shelving lifting device (1) for shelving of the type comprising a self standing support gondola (20) carrying shelf supports (22) projecting orthogonally proud of the gondola and shelves (21) carried by the shelf support, in which the shelving lifting device comprises a means to engage the shelves and/or shelf supports to raise them for removal from the gondola and/or a means to engage the frame of the gondola to raise it for removal of the entire gondola.
2. The shelving lifting device according to claim 1 wherein the shelves (21) are raised off the shelf supports (22) for removal from the gondola (20).
3. The shelving lifting device (1) according to claim 1 or claim 2 comprising
 - a mainframe (2);
 - ground engaging wheels (3) on the mainframe;
 - an auxiliary support frame (5) slidably mounted

on the mainframe for substantially vertical movement relative to the main support frame; lifting arms (7, 15, 35, 45) projecting orthogonally from the auxiliary support frame; and means to raise and lower the auxiliary support frame relative to the mainframe (10, 11, 12).

4. A shelving lifting device according to claim 3 wherein the lifting arms (7, 15, 35, 45) comprise
 - a. Shelf underside engaging arms (7, 35) which engage the shelf and/or shelf supports and raise the shelf off the gondola; and/or
 - b. Orthogonally mounted arms (15, 45) to engage the frame of the gondola which are laterally movable to a gondola engaging position such that the gondola can be raised with the auxiliary support frame,
5. A shelving lifting device according to claim 4 comprising a combination of one or more shelf underside engaging arms (7, 35) and/or one or more orthogonally mounted arms (15, 45).
6. A shelving lifting device according to any of the preceding claims wherein the lifting arms are (7, 15, 35, 45) are removably mounted on the auxiliary support frame (5).
7. A shelving lifting device according to claim 6 wherein slots are provided in the auxiliary support frame (5) for reception of the lifting arms (7, 15).
8. A shelving lifting device according to any of claims 4 to 7 wherein the shelf underside engaging arms (7, 35) comprise a pair of spaced apart arms (36) provided with mounting slots (37) which support a roller (38) and are moved by knobs (39).
9. A shelving lifting device according to claim 8 wherein the arm (35) comprises a distal support arm engaging pin (40).
10. A shelving lifting device according to claim 8 or claim 9 wherein the arms (35) are mounted on slotted bars (34) on a cross member (33).
11. A shelving lifting device according to claim 4 (b) wherein the orthogonally mounted arms comprise side support members (15), having projecting lugs (16), mounted on the auxiliary frame (5) wherein the arms are slidable on two spaced-apart arms (17).
12. A shelving lifting device according to claim 11 wherein the spaced-apart arms (17) further comprise handles (18) and locking screws (19).
13. A shelving lifting device according to claim 11 or

- claim 12 wherein the side support member (15, 45) comprises a pair of laterally adjustable arms (46) with mounting gondola engaging lugs (16, 47).
- 14.** A shelving lifting device according to any of the preceding claims wherein the ground engaging wheels are castor wheels (3), preferably pivotal through 360 degrees.
- 15.** A shelving lifting device according to any of the preceding claims which is fully or partially motorised or hand operated.
- 16.** A shelving lifting device according to claim 15 wherein the means to raise and lower the auxiliary support frame (5) relative to the mainframe (2) comprises a hydraulic ram (10) operated by a pump (11) and an actuating arm (12) connected between the mainframe (2) and the auxiliary frame (5).
- 17.** A method for lifting shelving of the type comprising a self standing support gondola (20) carrying shelf supports (22) projecting orthogonally proud of the gondola and shelves (21) carried by the shelf support, wherein the shelves to be lifted are loaded with products and the method comprises the steps of
- a. engaging the shelves and/or shelf supports;
 - b. raising the shelves and/or shelf supports off the gondola; and
 - c. removing the shelves and/or shelf supports from the gondola.
- 18.** The method of claim 17 further comprising the steps of
- a. engaging the underside of the gondola frame or foot until it is fully supported; and
 - b. moving the complete gondola.
- 19.** The method according to claim 17 or 18 comprising the steps of
- a. moving the shelving lifting device according to any of claims 1 to 16 towards the shelving,
 - b. placing the lifting arms (7, 15) beneath the shelves or beneath the gondola foot,
 - c. raising the auxiliary frame to enable the lifting device to engage the shelves, shelf supports and/or gondola foot until they are fully supported; and
 - d. pulling the lifting device to remove the shelves and/or shelf supports from the gondola or to move the complete gondola.
- 20.** The method according to any of claims 17 to 19 wherein the shelves are raised off the shelf supports.
- 21.** The method according to any of claims 17 to 20 wherein the auxiliary frame (5) is raised by the operating pump (11) and hydraulic ram (10).
- 22.** The method according to any of claims 17 to 21 wherein the side support members (15,45) are moved outwards so that the projecting lugs (16,47) are moved beneath the gondola foot to engage the gondola foot; the locking screws are engaged and the gondola is raised.
- 23.** The method according to any of claims 17 to 22 wherein one or more shelving lifting devices are used in combination,
- 24.** The method according to claim 23 wherein at least two shelving lifting devices are used to lift a complete gondola.
- 25.** A shelving lifting device and method substantially as herein described with reference to and as illustrated in the accompanying drawings.

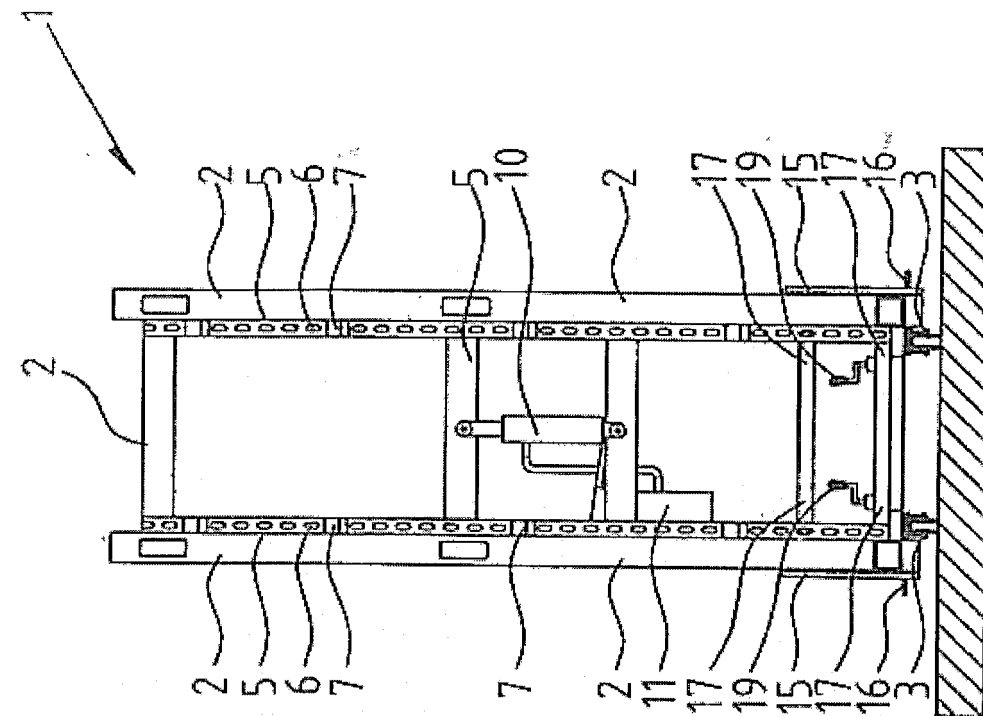


Fig. 2

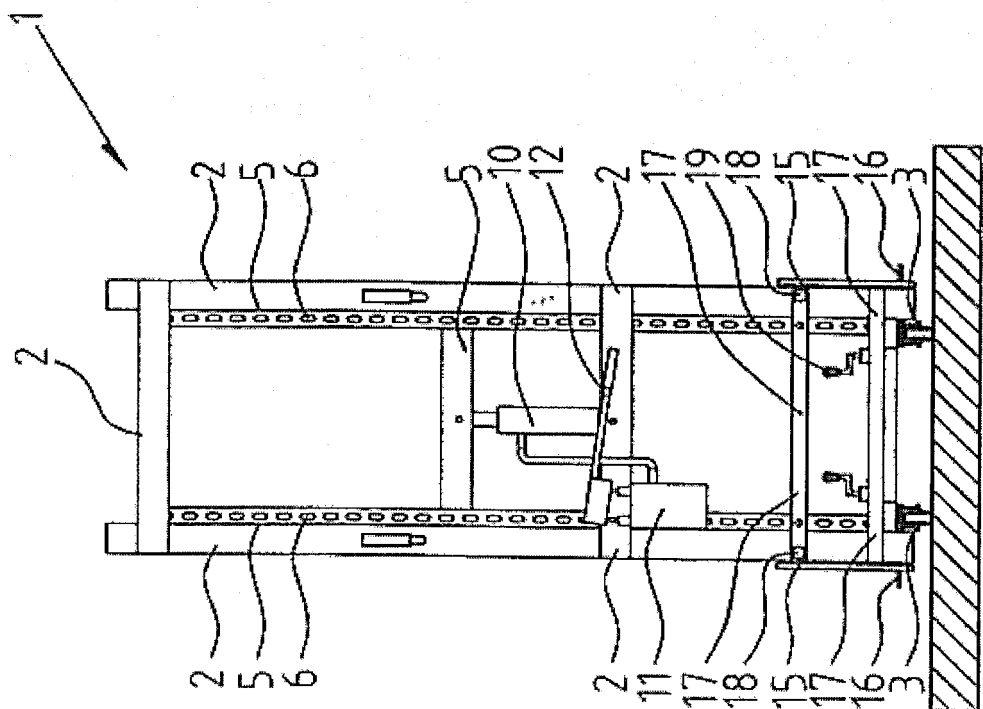


Fig. 1

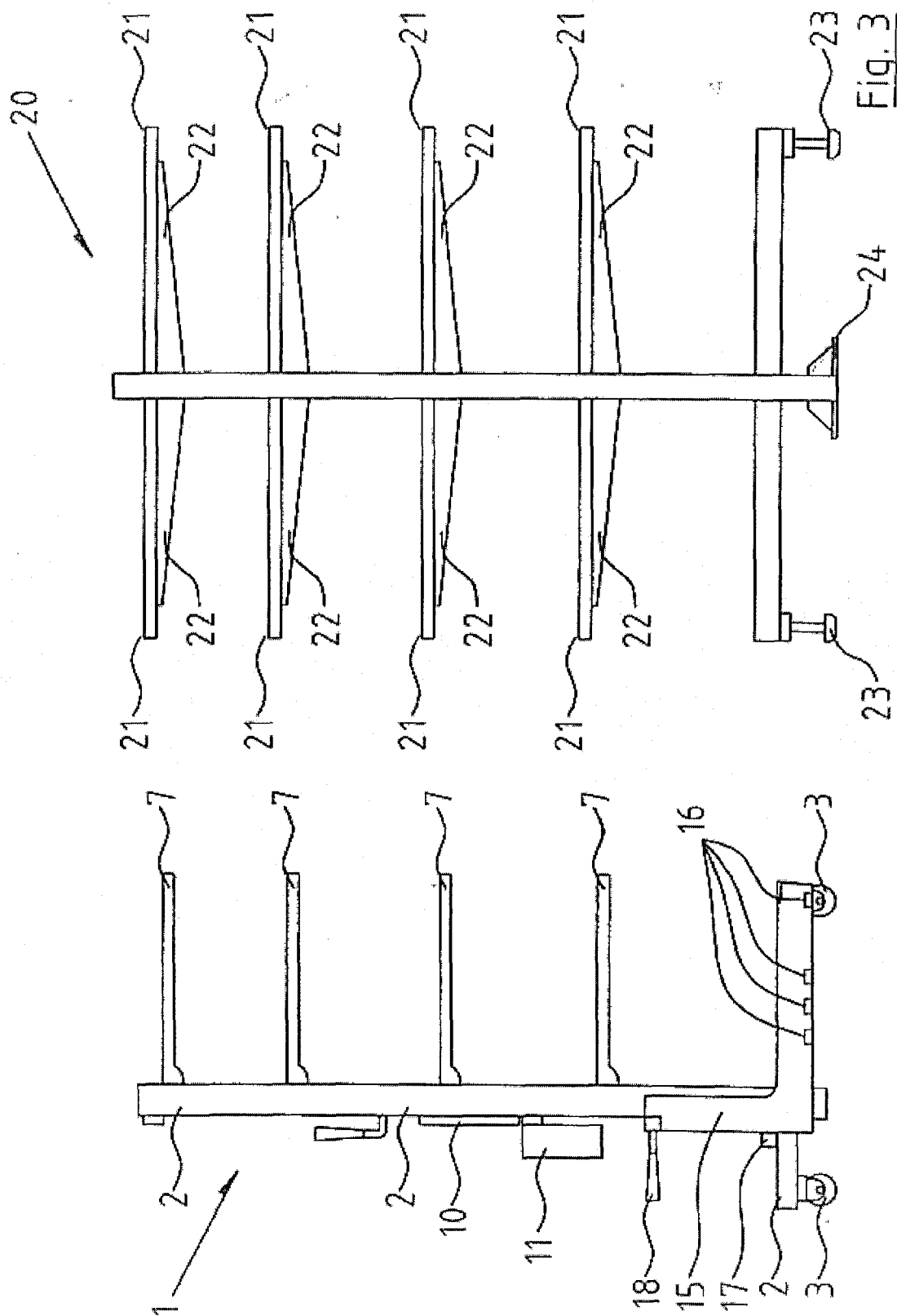


Fig. 3

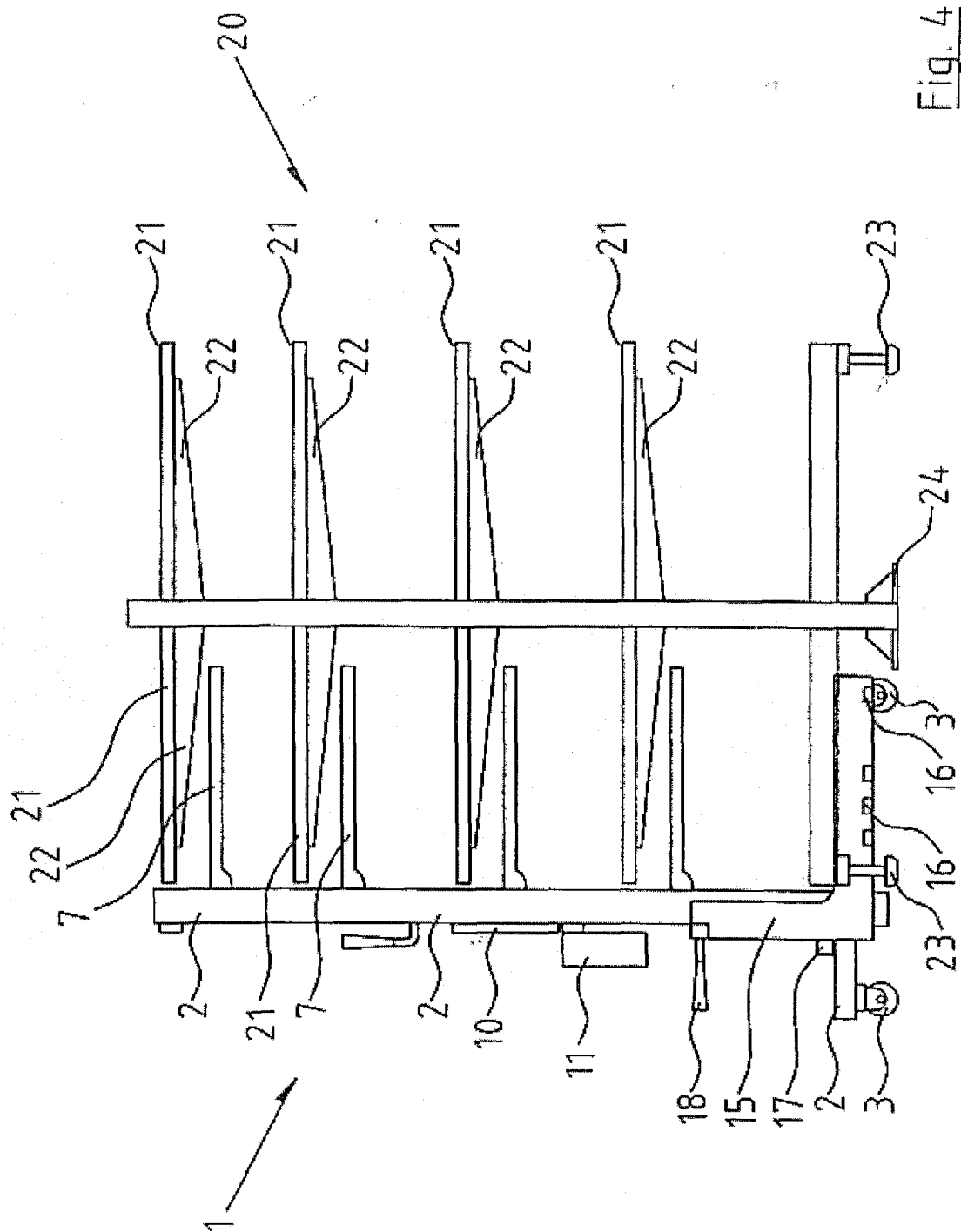


Fig. 4

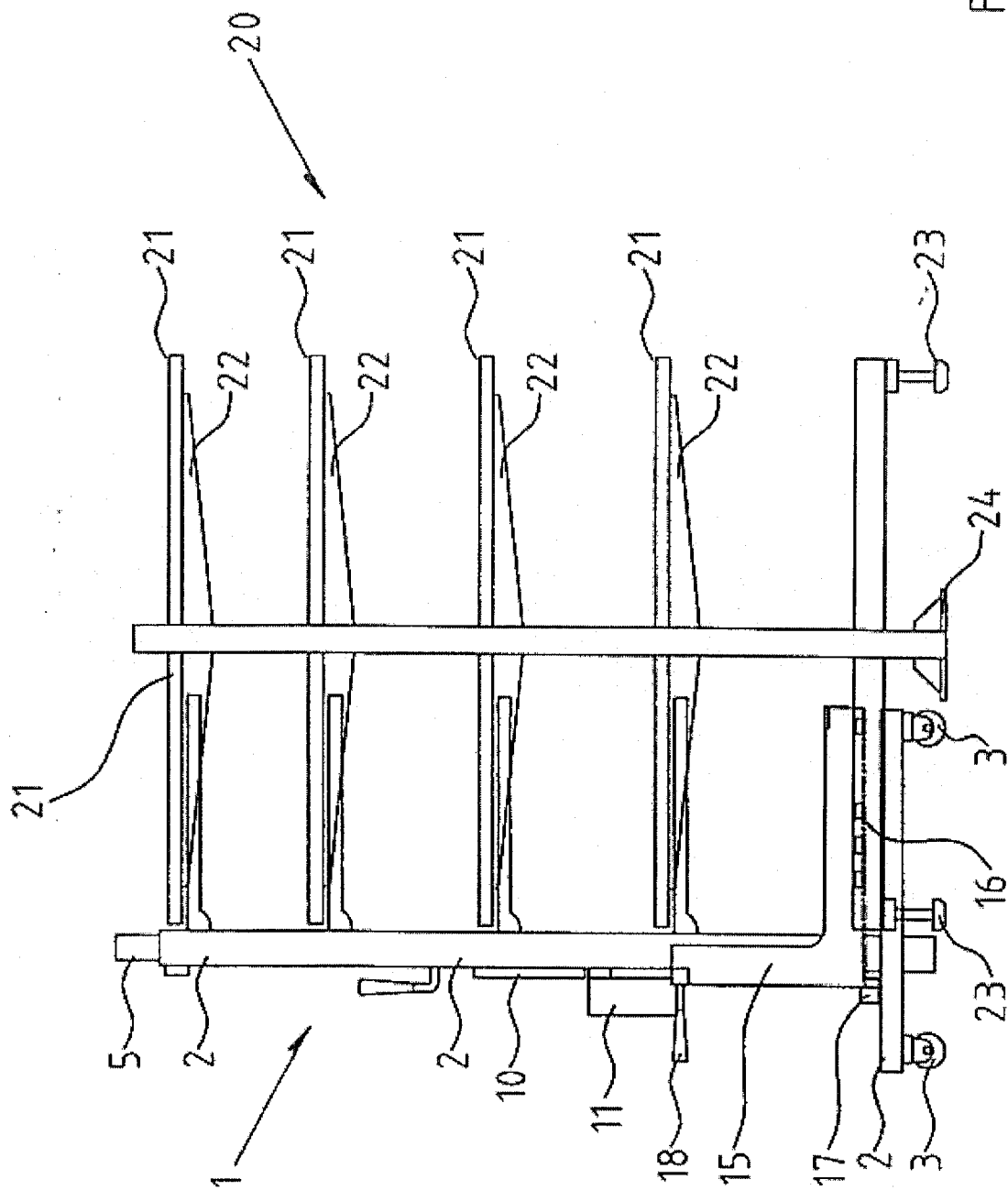
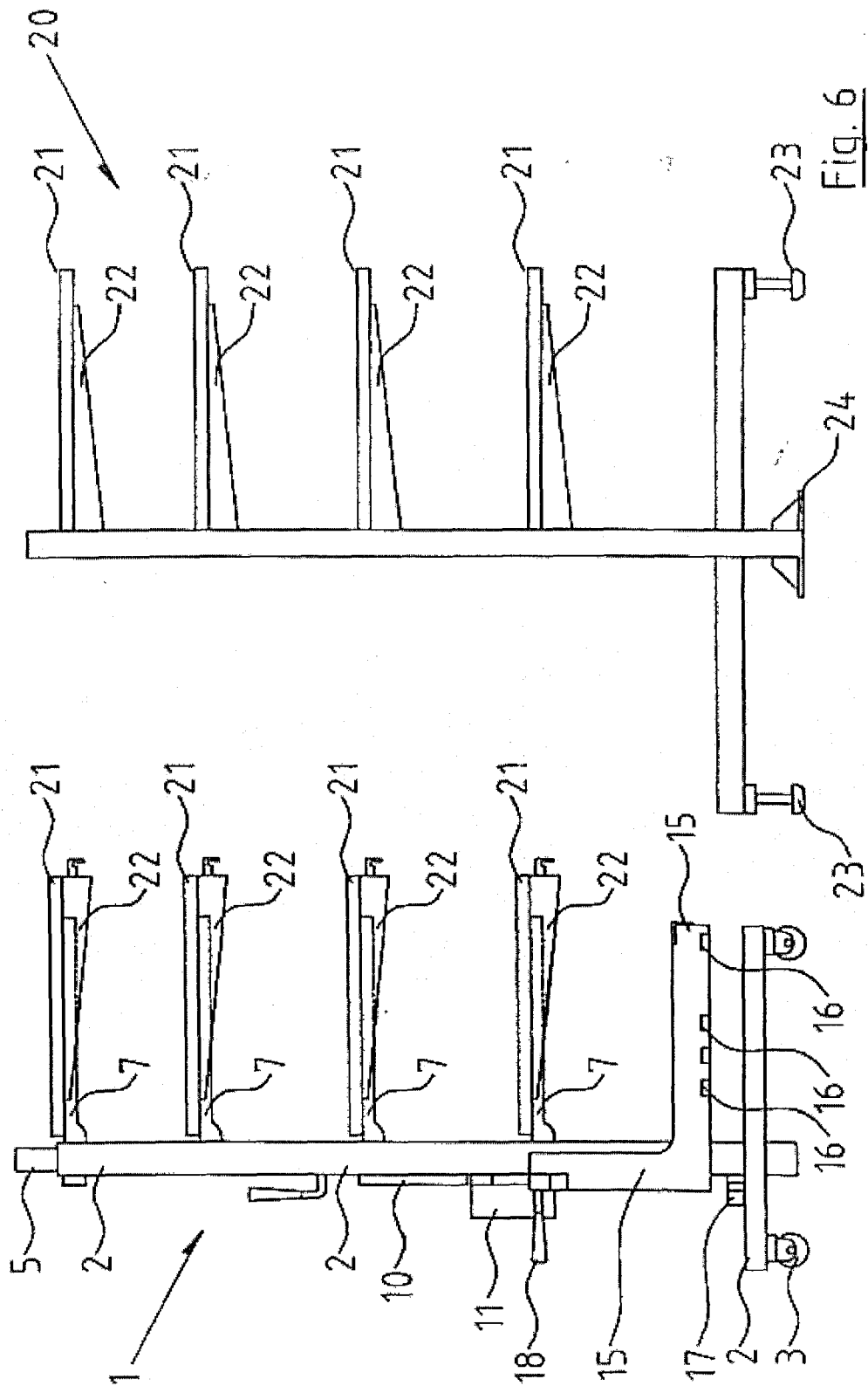


Fig. 5



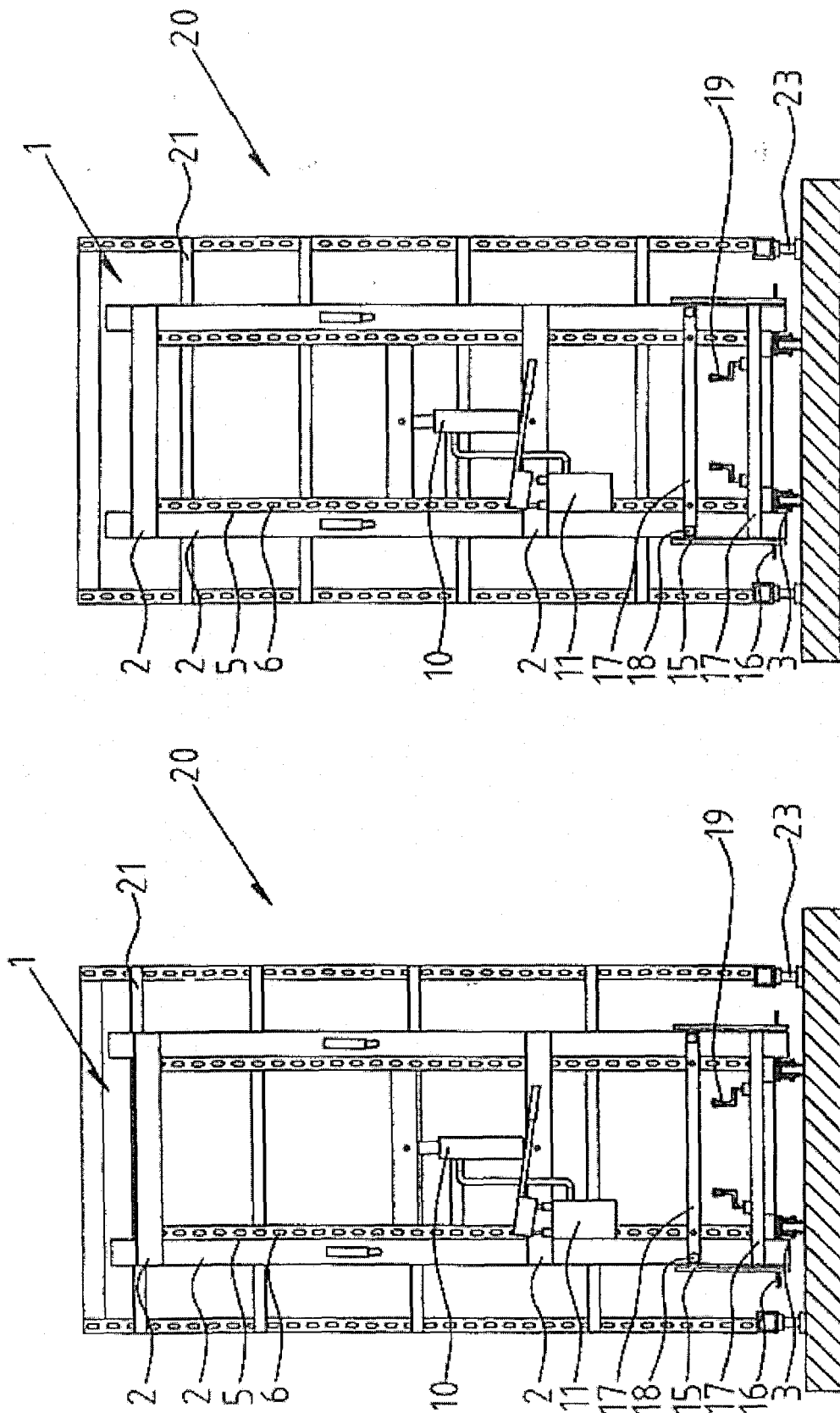


Fig. 8

Fig. 7

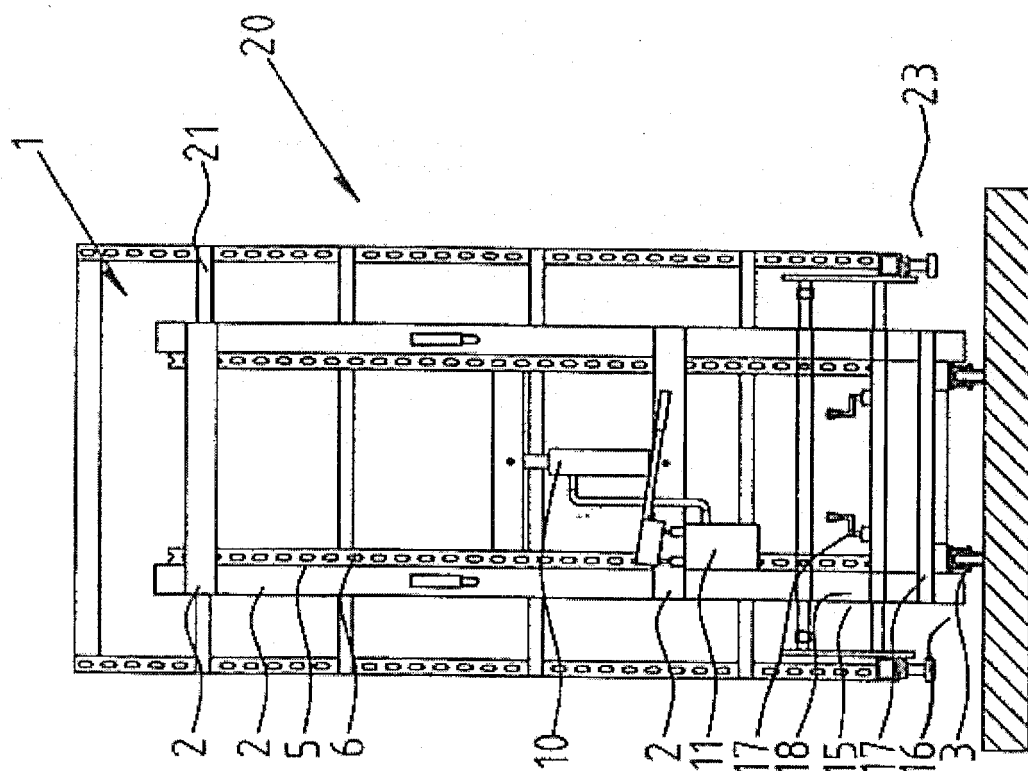


Fig. 9

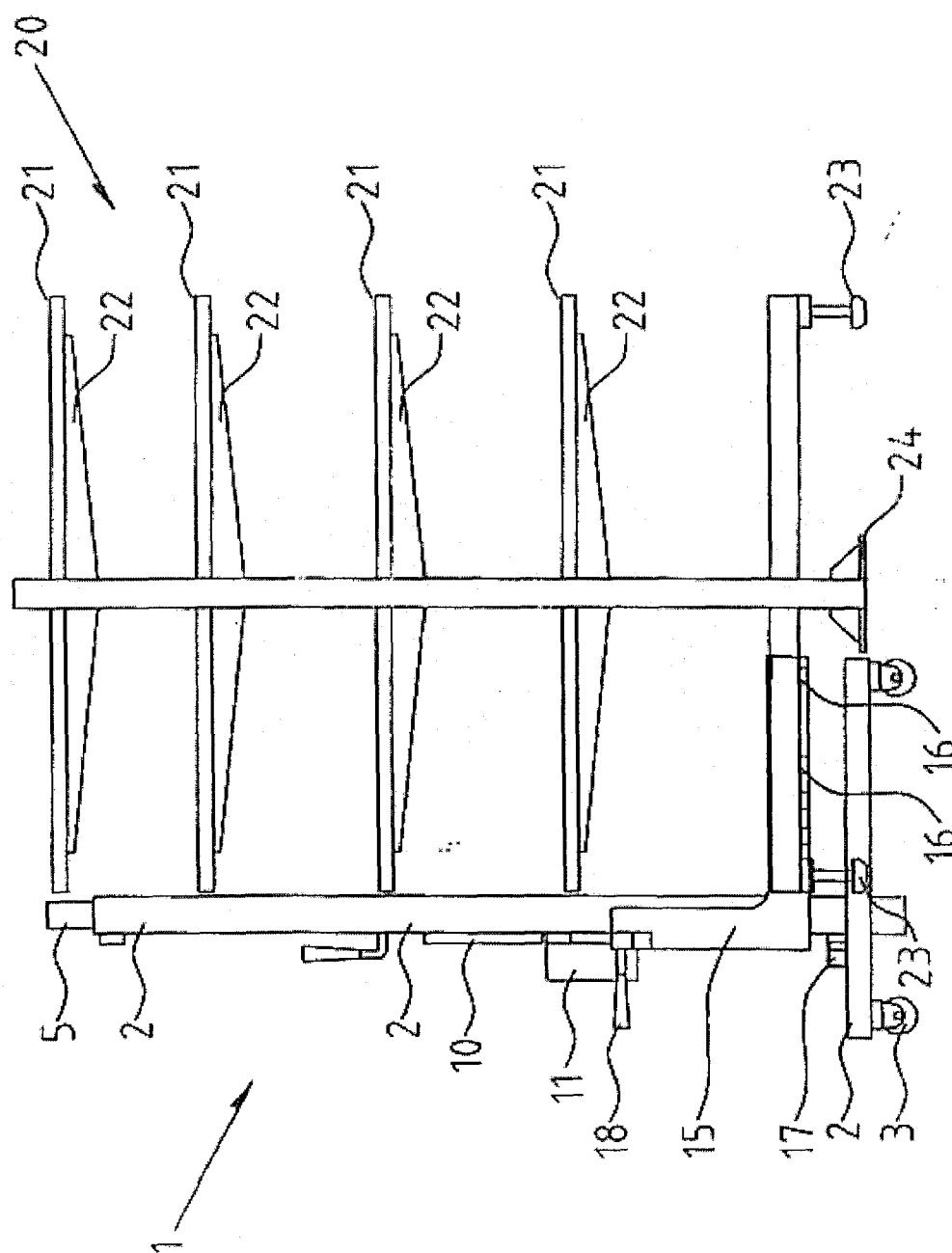


Fig. 10

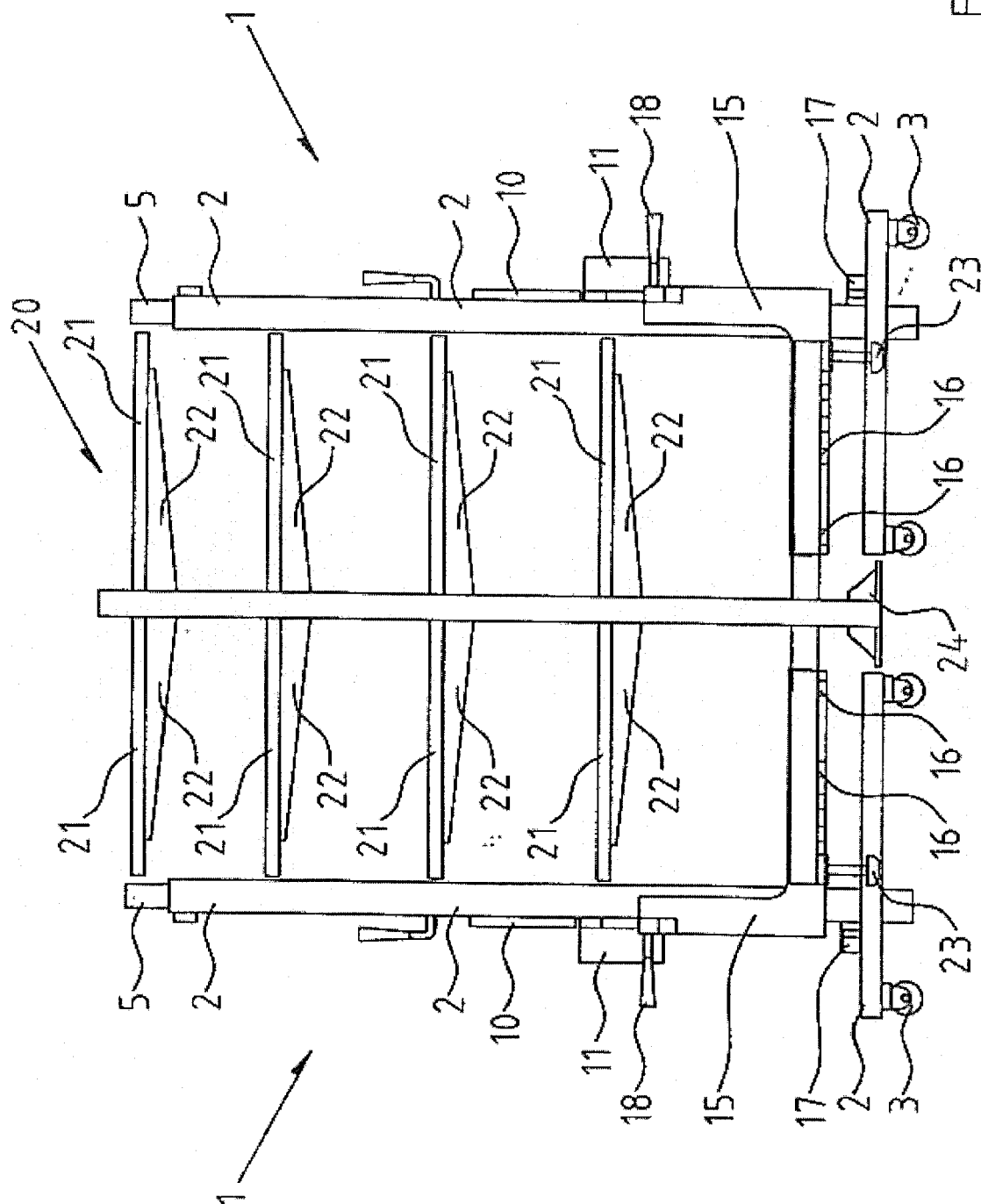


Fig. 11

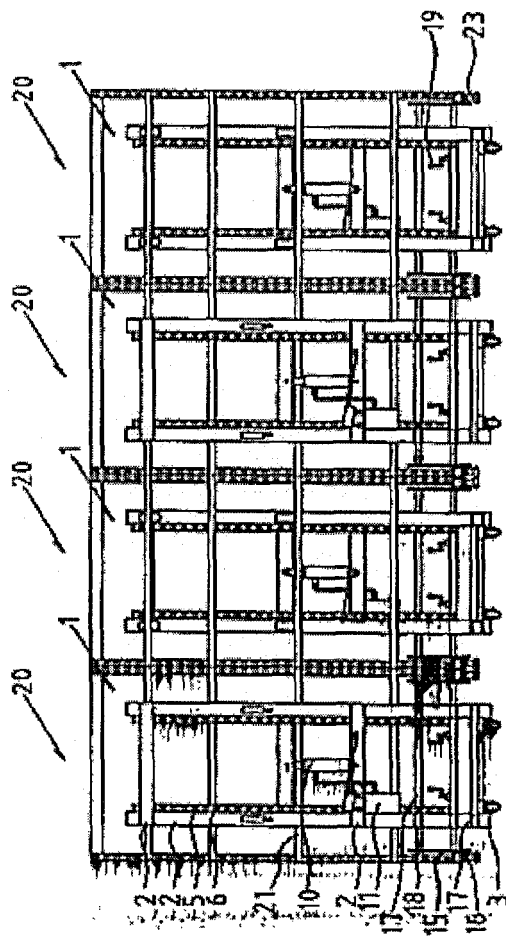


Fig. 12

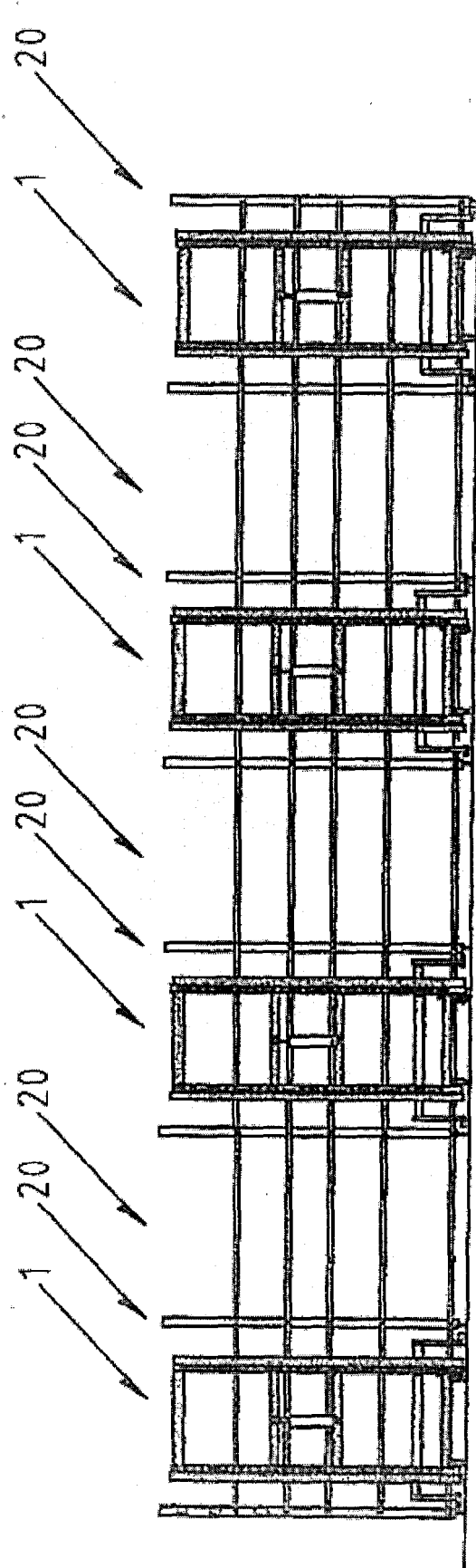


Fig. 13

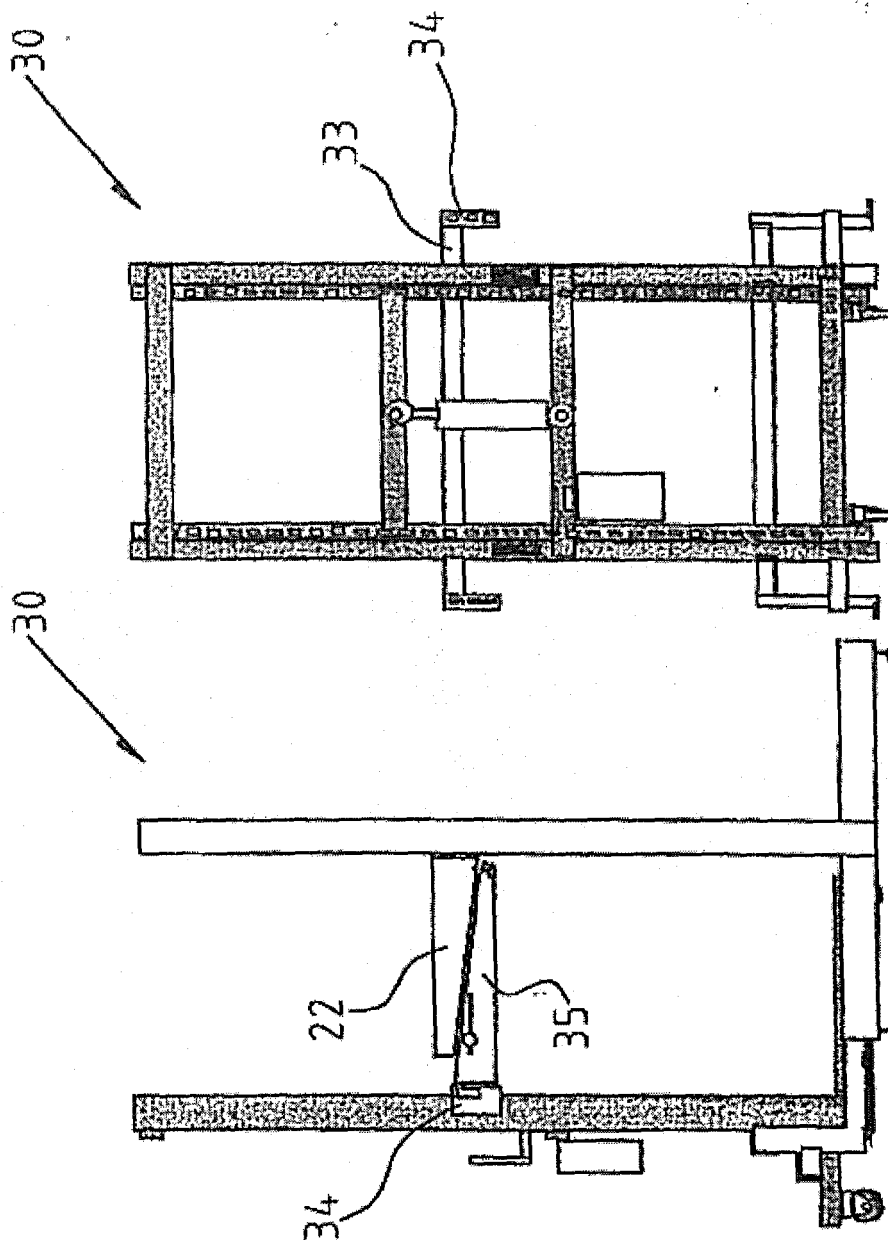


Fig. 14

Fig. 15

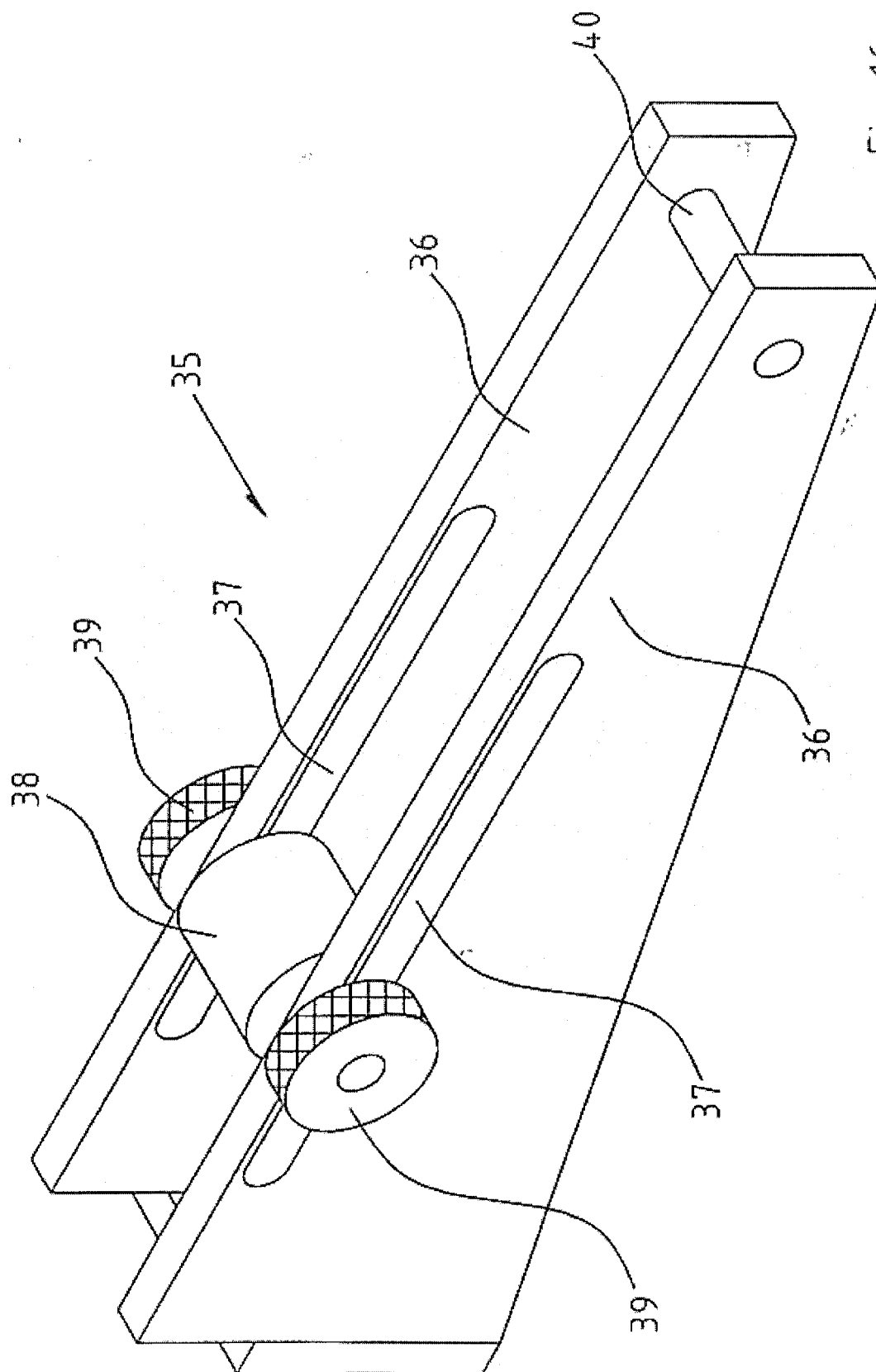


Fig. 16

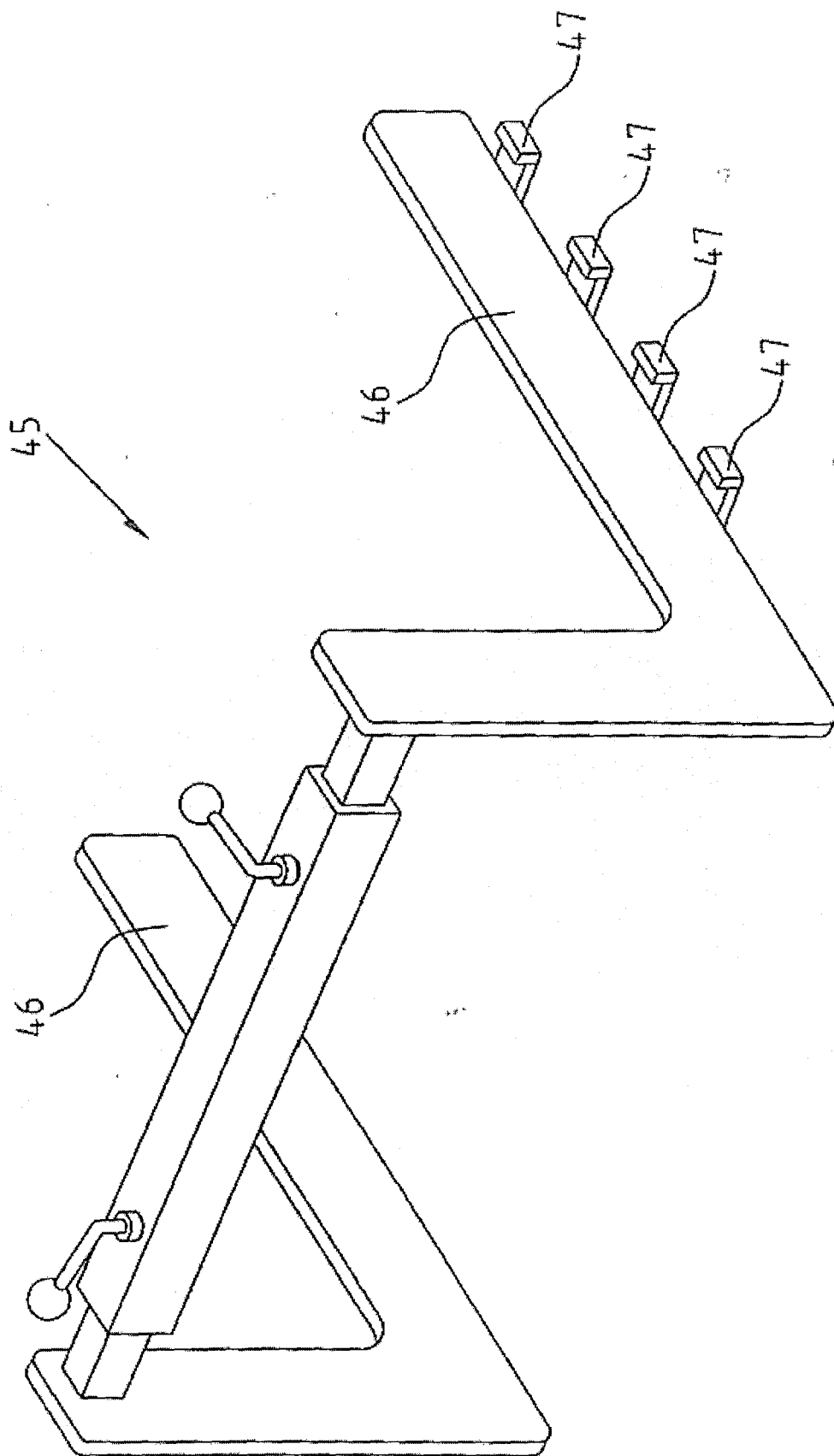


Fig. 17



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 06 11 4122

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	US 4 987 976 A (DAUGHERTY ET AL) 29 January 1991 (1991-01-29)	1-7,10, 14,15, 17-20, 23,24	INV. B66F9/12
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			TECHNICAL FIELDS SEARCHED (IPC)
			B66F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 24 August 2006	Examiner Alff, R
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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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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
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24-08-2006

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