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(54) DEVICE FOR TRANSPORTING AND STORING GOODS

(57) A device for transporting and storing goods, which comprises a substantially flat base (2) and a plurality of posts (3) which are associated with the base (2) and support at least one shelf-like supporting element (4) that is adapted to make it possible to support the

goods above the base (2); the supporting element (4) comprises at least one shelf (4a) that has at least one supporting portion (7) adapted to be extended outward beyond the perimeter of the base (2).

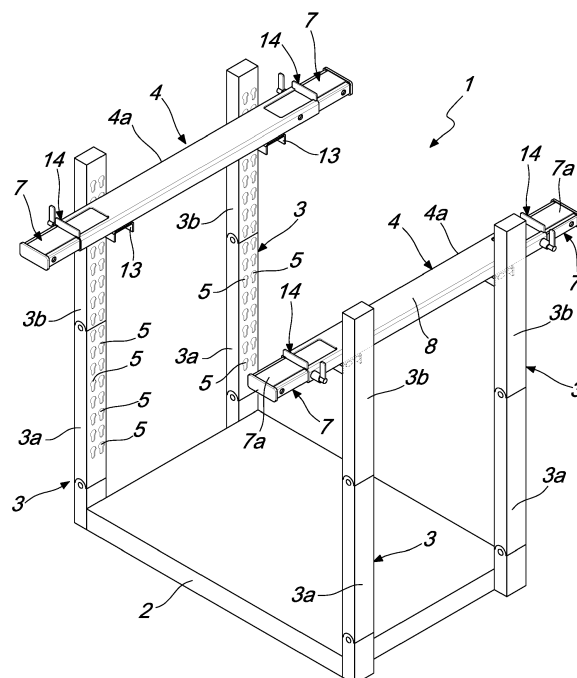


Fig. 1

Description

[0001] The present invention relates to a device for transporting and storing goods.

[0002] As is known, for transporting and storing goods, what are usually used are pallets, optionally provided with foldaway shoulders or walls, or containers, which however do not allow optimization of the spaces occupied by goods that cannot be stacked and which have different volume encumbrances.

[0003] To solve these drawbacks, a device has been proposed for transporting and storing goods which has a base, substantially quadrangular in shape, from which extend a plurality of posts, arranged at the corners of the base or in any case distributed along its perimeter, to which shelves can be coupled, at different heights according to requirements, for supporting the goods to be transported or stored.

[0004] A problem that has been found in the use of this type of device is that of safely transporting or storing goods whose space occupation exceeds the dimensions of the base.

[0005] The aim of the present invention is to provide a device for transporting and storing goods that offers a simple but effective solution to this problem, without needing to avail of a vast range of transport and storage devices that have mutually different base dimensions.

[0006] Within this aim, an object of the present invention is to provide a device for transporting and storing goods that is easy and practical to use.

[0007] Another object of the present invention is to provide a device for transporting and storing goods that can be made at low cost.

[0008] This aim and these and other objects which will become better apparent hereinafter are achieved by a device for transporting and storing goods, according to the invention, as defined in claim 1.

[0009] Further characteristics and advantages of the invention will become better apparent from the description of a preferred, but not exclusive, embodiment of the device for transporting and storing goods, according to the invention, which is illustrated, by way of non-limiting example, in the accompanying drawings wherein:

Figure 1 is a perspective view of the device according to the invention;

Figure 2 is an exploded perspective view of the device according to the invention;

Figure 3 is a perspective view of the device according to the invention in a condition for use;

Figure 4 is a perspective view of a shelf of the device according to the invention;

Figure 5 is a perspective view of the shelf of Figure 4 in an extended condition.

[0010] With reference to the figures, the device for transporting and storing goods, according to the invention, generally designated with the reference numeral 1,

comprises a substantially flat or sheet-like base 2, which preferably is substantially quadrangular and can be, conveniently, structured in order to permit it to be engaged by the lifting forks of forklift trucks.

[0011] A plurality of posts 3 are associated with the base 2 and extend upward and can, for example, be arranged at the corners of the base 2.

[0012] Conveniently, the posts 3 can be folded onto the base 2 in order to reduce the height occupation of the device when it is not in use.

[0013] More specifically, each one of the posts 3 has, advantageously, a lower portion 3a, which is pivoted, at its lower end, to the base 2, so that it can be folded toward the base 2, and an upper portion 3b, which is in turn pivoted, at its lower end, to the upper end of the lower portion 3a, so that it can be folded down onto the lower portion 3a.

[0014] The posts 3 are associated with at least one shelf-like supporting element 4 that supports the goods to be transported or stored, above the base 2.

[0015] Conveniently, there can be several supporting elements 4, arranged at different heights with respect to the base 2, on which goods loaded on pallets can be placed directly, or on which trays can be placed for supporting goods that are not packaged.

[0016] Advantageously, the position of the supporting elements 4 along the posts 3 can be varied, so as to be able to arrange them at different heights with respect to the base 2 according to requirements.

[0017] In particular, the supporting elements 4 are connected to the posts 3 by way of detachable coupling means that comprise a plurality of slots 5, which are defined along the extension of the posts and are selectively engageable by at least one anchoring pin 6 that is associated with each supporting element 4.

[0018] More specifically, a plurality of pairs of slots 5 are defined on each one of the posts 3, and are arranged uniformly mutually spaced apart along the corresponding post 3, and with the slots 5 of each pair arranged along a horizontal direction. The pairs of slots 5 are engageable, selectively, by a pair of anchoring pins 6 that are associated with the supporting elements 4. Conveniently, the anchoring pins 6 have, at their free end, a widened head, while the slots 5 have an upper portion, which can be passed through by the head of the anchoring pins and is connected to a lower portion that cannot be passed through by the head of the anchoring pins and which is engageable by the shank of the anchoring pins 6 by sliding the anchoring pins 6 along the extension of the slots 5.

[0019] According to the invention, at least one of the supporting elements 4 comprises at least one shelf, designated for convenience with the reference numeral 4a, which has at least one supporting portion 7 that is adapted to be extended outward beyond the perimeter of the base 2, so as to be able to support goods whose space occupation exceeds the dimensions of the base 2, without there being portions of such goods that freely protrude from the shelves.

[0020] Advantageously, there can be at least one first shelf 4a coupled to a first pair of posts 3, which are located at one end of the base 2, and at least one second shelf 4a, arranged at the same height as the first shelf 4a and coupled, in turn, to the pair of posts 3 located at the opposite end of the base 2.

[0021] Conveniently, the supporting portion 7 of each shelf 4a is extendable outward, beyond the perimeter of the base 2, in an adjustable manner, so as to be able to positively support goods that have mutually different dimensions.

[0022] In particular, each shelf 4a can, advantageously, be provided by at least one variable-extension element, which comprises, conveniently, a main body 8, with which one or more supporting portions 7 are slideably associated.

[0023] In more detail, as shown in particular in Figures 4 and 5, the variable-extension element is constituted, for example, by an extensible bar and, in such case, the main body 8 advantageously has an elongated tubular shape with a corresponding supporting portion 7 which is coupled slideably and telescopically to at least one of its longitudinal ends and is constituted, for example, by an auxiliary body 7a, which also has an elongated shape and is axially inserted into the main body 8.

[0024] Preferably, at both of the longitudinal ends of the main body 8 there are respective supporting portions 7 which are constituted by a corresponding auxiliary body 7a.

[0025] Conveniently, there are detachable means of locking each auxiliary body 7a with respect to the main body 8.

[0026] Such detachable locking means comprise a plurality of engagement openings 9, which are defined mutually spaced apart along each auxiliary body 7a and are selectively engageable by a corresponding locking pin 10 supported by the main body 8.

[0027] In particular, the locking pin 10 is axially movable between a release position, in which it is disengaged from the engagement openings 9, in order to allow the sliding of the corresponding auxiliary body 7a with respect to the main body 8, and a locking position, in which it is inserted into one of the engagement openings 9, so as to lock the corresponding auxiliary body 7a in the desired position with respect to the main body 8.

[0028] Advantageously, moving each locking pin 10 between the release position and the locking position can be done by a respective lever 11 that is connected to one end of the corresponding locking pin 10 and which slideably engages, as a consequence of its rotational actuation about the axis of locking pin 10, with a cam-like surface 12 that is defined on the main body 8 and has a cam profile that enables it to impart an axial movement to the locking pin 10, when the lever 11 is rotated.

[0029] In particular, the locking pin 10 can move axially, between the locking position and the release position, in contrast with or by the action of elastic means, not shown, which act between that locking pin and the main body 8.

[0030] As illustrated, the main body 8 of each shelf 4a is, conveniently, associated with detachable means of coupling to at least two posts 3 and, more specifically, it is fixed to at least two anchoring blocks 13, each one of which has a respective pair of anchoring pins 6 that can engage in the slots 5 defined on the posts 3.

[0031] Advantageously, each shelf 4a is provided with means of retaining the goods placed thereupon.

[0032] In particular, such retention means comprise, conveniently, one or more stop elements 14 which are associated with the auxiliary bodies 6a of the shelves 4a and are intended to engage the pallet 15 loaded with the goods placed on the shelves 4a.

[0033] For example, as can be seen in Figures 4 and 5, the stop elements 14 comprise, for each auxiliary body 7a, a respective shoulder 14a, which is arranged spaced apart from the free end of the corresponding auxiliary body 7a, and is engageable, as a consequence of sliding the corresponding auxiliary body 7a, against the inner face of the feet 15a of the loading pallet 15, as shown in Figure 3.

[0034] Use of the device according to the invention is the following.

[0035] The posts 3 are deployed in the extended condition so that they can rise up from the base 2.

[0036] According to requirements, at least two shelves 4a are coupled to the posts 3, at the desired height from the base 2, so that they are mutually opposite.

[0037] Based on the dimensions of the goods to be loaded on the shelves 4a, their extension is adjusted, first of all by releasing, by rotating the levers 11, the auxiliary bodies 7a and then making them slide, with respect to the main body 8, until they reach the desired length for the shelves 4a, in order to then lock the auxiliary bodies 7a again by rotating the levers 11 the other way, so as to insert the locking pins into engagement openings 9 defined in the auxiliary bodies 7a.

[0038] At this point the goods to be transported or stored are loaded onto the shelves 4a.

[0039] It should be noted that if these goods are placed on a loading pallet or pallets 15, the shoulders 14a on the auxiliary bodies 7a will engage against the inner face of the feet 15a of the loading pallets 15 so as to ensure the goods are retained on the shelves 4a.

[0040] In practice it has been found that the invention is capable of fully achieving the set aim and objects since it makes it possible in a very practical manner to transport and store goods that have any size of space occupation without needing to have multiple devices with bases of different sizes.

[0041] All the characteristics of the invention, indicated above as advantageous, convenient or similar, may also be missing or be substituted by equivalent characteristics.

[0042] The individual characteristics set out in reference to general teachings or to specific embodiments may all be present in other embodiments or may substitute characteristics in such embodiments.

[0043] The invention, thus conceived, is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0044] In practice the materials employed, provided they are compatible with the specific use, and the dimensions and shapes, may be any according to requirements.

[0045] Moreover, all the details may be substituted by other, technically equivalent elements.

[0046] The disclosures in Italian Patent Application No. 102016000073029 (UA2016A005147) from which this application claims priority are incorporated herein by reference.

[0047] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A device for transporting and storing goods, which comprises a substantially flat base (2) and a plurality of posts (3) which are associated with said base (2) and support at least one shelf-like supporting element (4) that is adapted to make it possible to support the goods above said base (2), **characterized in that** said at least one supporting element (4) comprises at least one shelf (4a) that has at least one supporting portion (7) adapted to be extended outward beyond the perimeter of said base (2).
2. The device according to claim 1, **characterized in that** said at least one supporting portion (7) is extendable in an adjustable manner.
3. The device according to one or more of the preceding claims, **characterized in that** said at least one shelf (4a) comprises a main body (8) with which said at least one supporting portion (7) is slideably associated.
4. The device according to one or more of the preceding claims, **characterized in that** said at least one shelf (4a) comprises a bar that can be elongated, said main body (8) having an elongated tubular shape, said at least one supporting portion (7) comprising at least one auxiliary body (7a) that is coupled slideably and telescopically to at least one of the longitudinal ends of said main body (8).
5. The device according to one or more of the preceding claims, **characterized in that** at both of the longitudinal ends of said main body (8) there are respective supporting portions (7) which are constituted by a

corresponding auxiliary body (7a).

6. The device according to one or more of the preceding claims, **characterized in that** it comprises detachable means of locking said at least one auxiliary body (7a) with respect to said main body (8).
7. The device according to one or more of the preceding claims, **characterized in that** said detachable locking means comprise a plurality of engagement openings (9), which are defined so as to be mutually spaced apart along said at least one auxiliary body (7a) and can be engaged selectively by a corresponding locking pin (10), which is supported by said main body (8) and is axially movable on command between a release position, in which it is disengaged from the engagement openings (9), in order to allow the sliding of the corresponding auxiliary body (7a) with respect to said main body (8), and a locking position, in which it is inserted into one of the engagement openings (9), in order to lock the corresponding auxiliary body (7a) in the desired position with respect to said main body (8).
8. The device according to one or more of the preceding claims, **characterized in that** said locking pin (10) can be actuated in motion between said release position and said locking position by way of a respective lever (11) that is connected to one end of said locking pin (10) and is adapted to slideably engage, as a consequence of its rotational actuation about the axis of said locking pin (10), a cam-like surface (12) defined on said main body (8).
9. The device according to one or more of the preceding claims, **characterized in that** said at least one shelf (4a) is provided with means of retaining the goods placed thereon.
10. The device according to one or more of the preceding claims, **characterized in that** said retention means comprise stop elements (14) which are associated with said auxiliary bodies (7a).

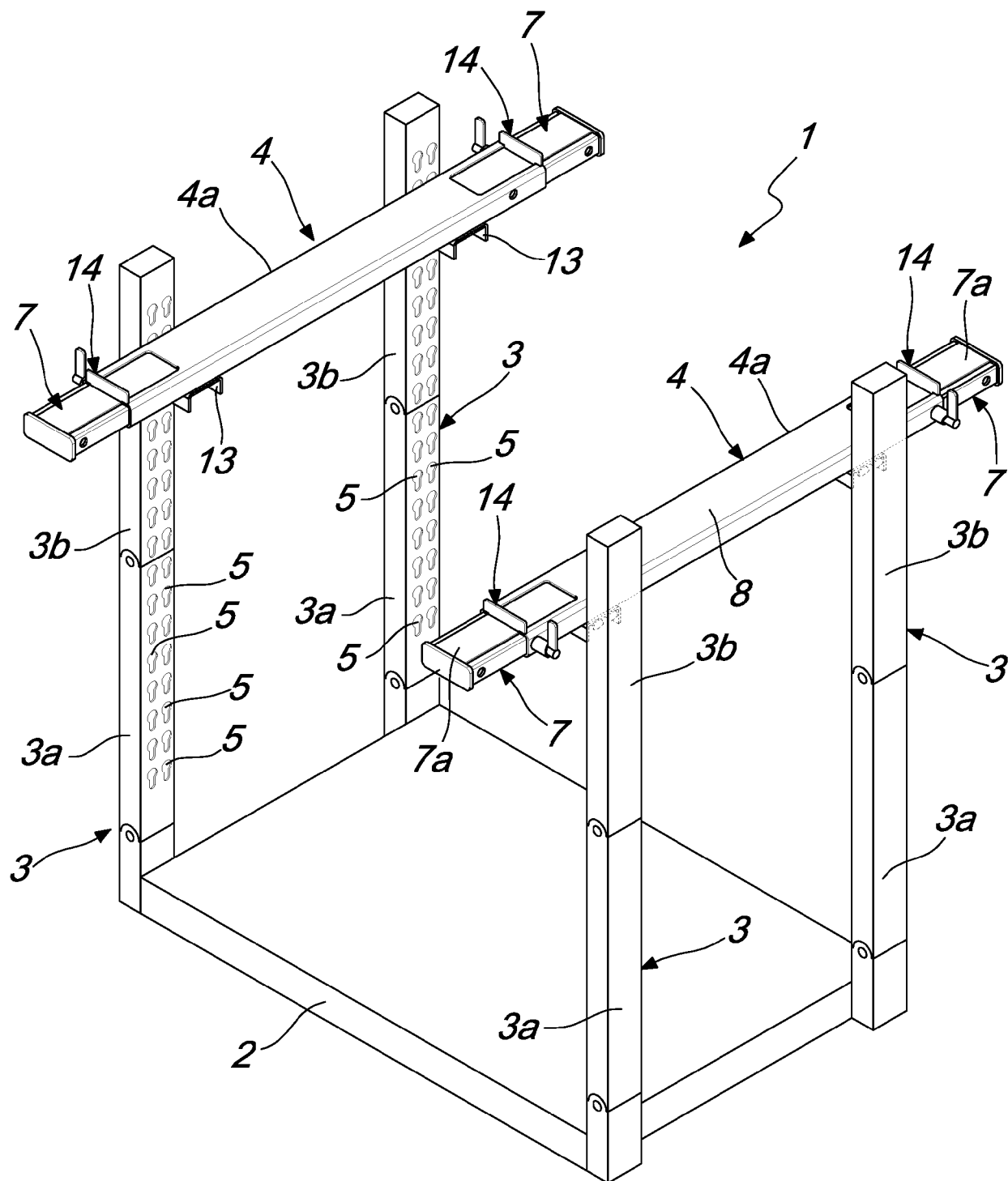


Fig. 1

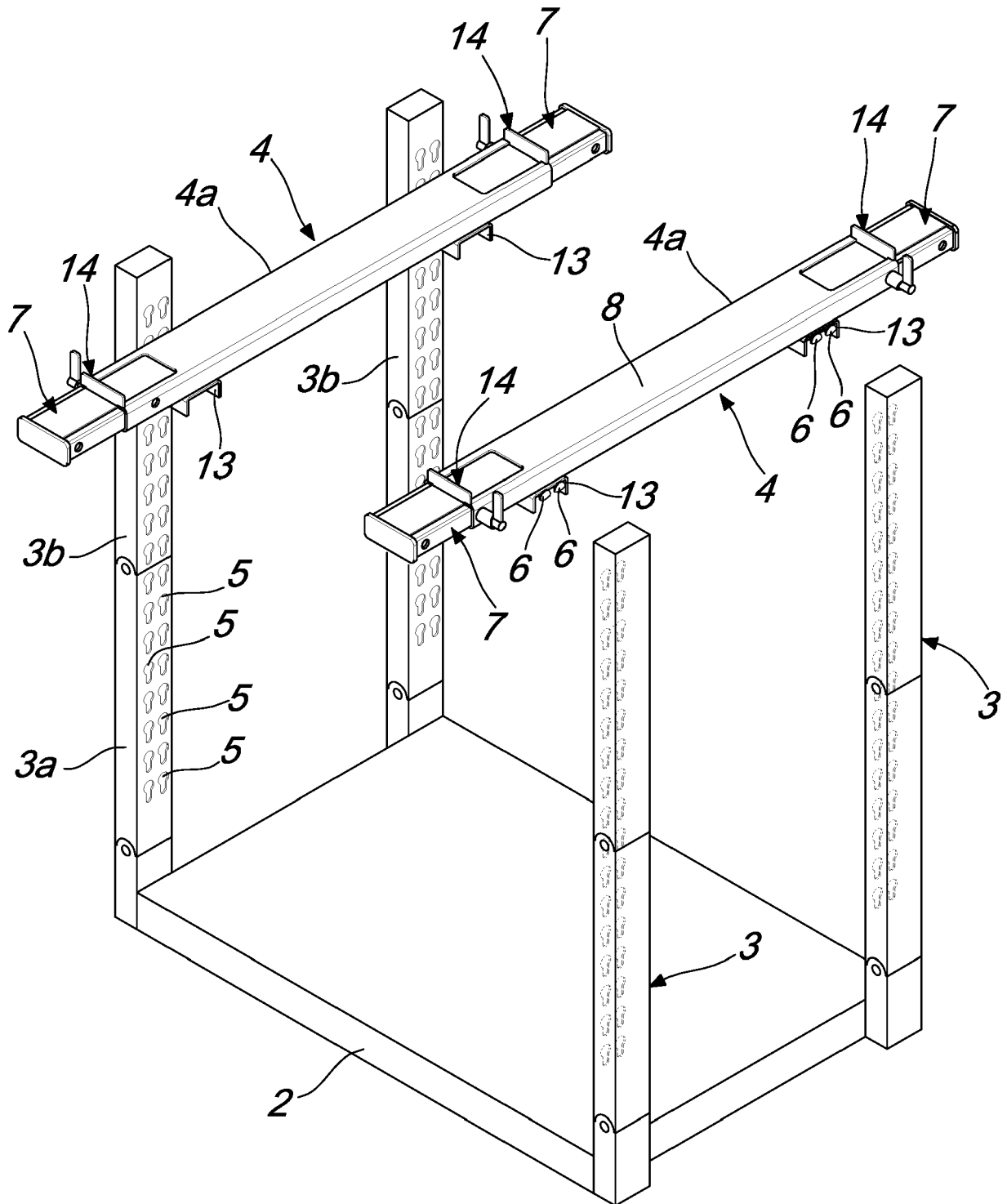


Fig. 2

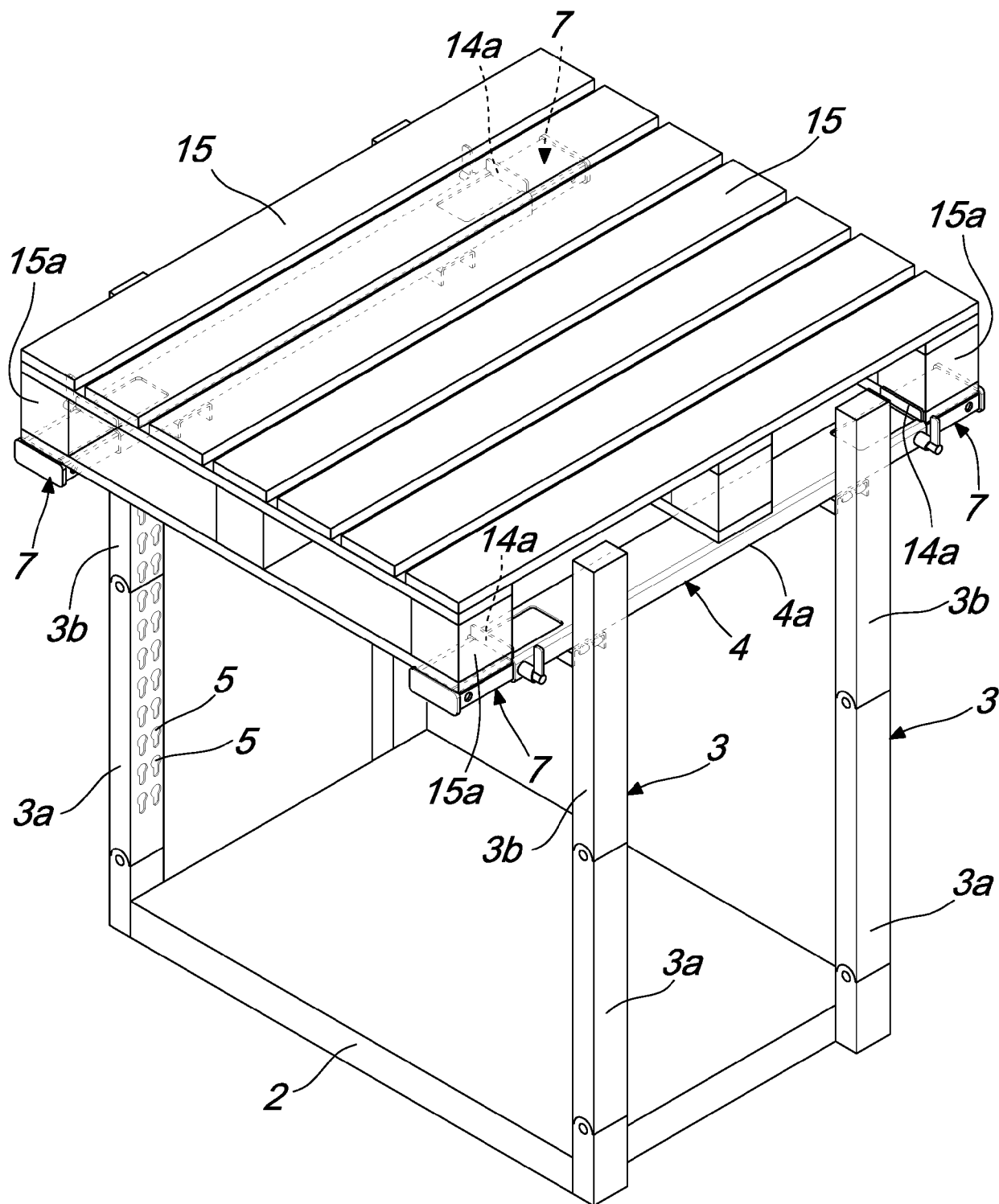
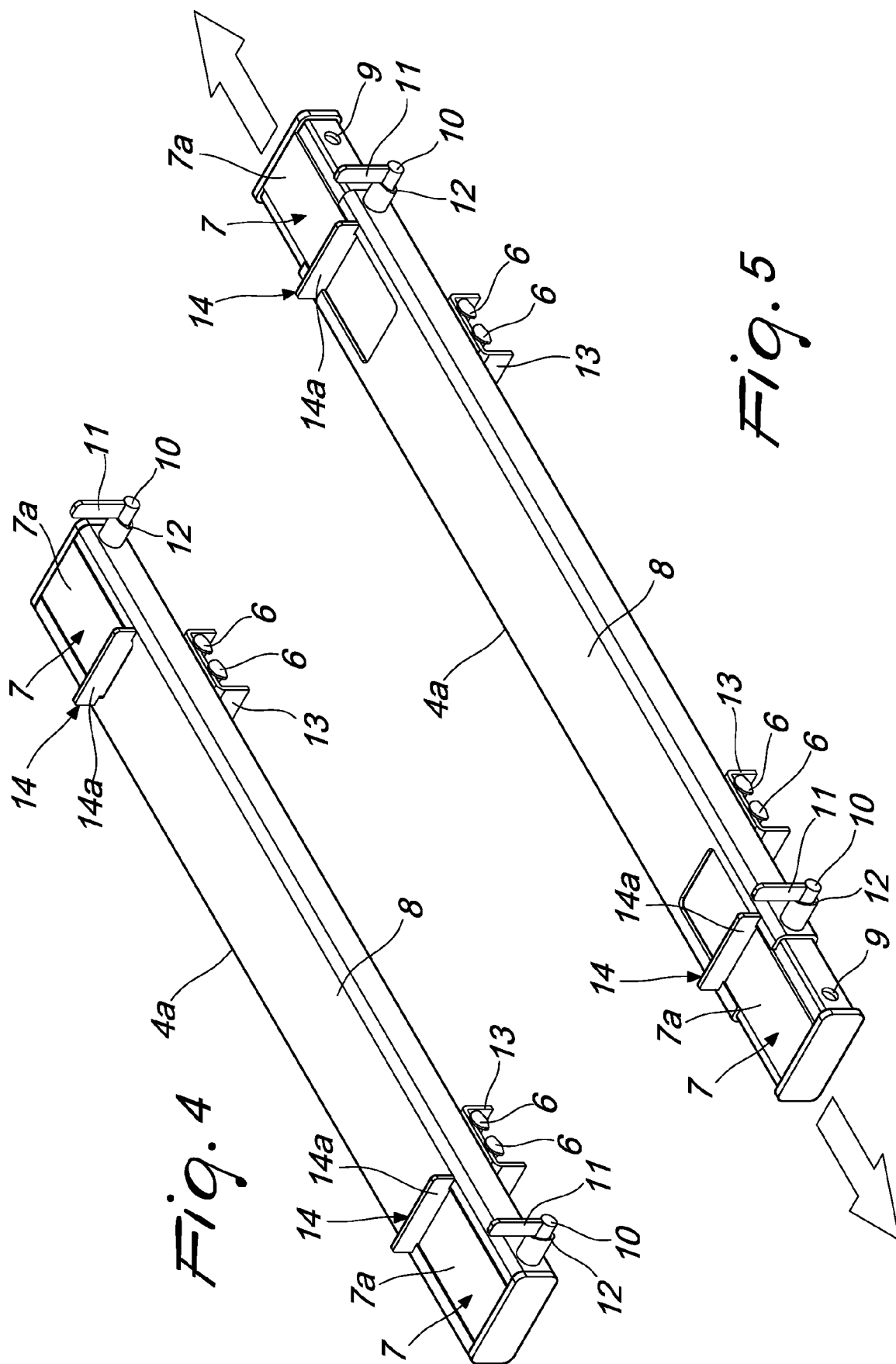


Fig. 3





EUROPEAN SEARCH REPORT

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Place of search Munich		Date of completion of the search 14 September 2017	Examiner Fitterer, Johann
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