

SUPPORT FRAME FOR RACKS

Description

Prior art

5 For supporting pallets in storage shelves, it is common to use bars extending in the depth direction of the shelf, which bars are individually placed on pairs of cross-members of the shelf. If the pallets are not lowered onto the bars not vertically and with sufficient accuracy there is a danger for the bars to slip and fail to support the pallets properly.

10 DE 43 01 475 A1 discloses a support structure for a storage shelf in which a specifically constructed profile beam is fixedly connected to the shelf cross-members to support pallets.

WO 2009/114256 A1 discloses a pallet constructed of metal profile members.

15 Summary of the invention

The above problem is met by the support frame defined in claim 1. The fixed connection of C-profile bars, which serve to support goods to be stored, to U-profile bars extending perpendicularly thereto creates a unit which can be simply laid on the shelf cross-members and, if the spacing between the U-profile bars is properly selected, results in an arrangement of the C-profile bars which practically cannot move in the depth direction of the shelf.

In the embodiment of claim 2, the support frame may be assembled at the site, thereby reducing transportation expenditure. The feature of claim 3 prevents the frame from being distorted in a parallelogram manner.

25 The feature of claim 4 not only results in a saving of material and weight but also forms a safety measure. In the embodiment of claim 5, slippage of the stored goods is counteracted.

The feature of claim 6 achieves a spatial fixation of the support frame, wherein the C-profile bars supporting the stored goods do not extend beyond the given depth of the shelf.

30 The feature of claim 7 is of advantage with respect to the stability of the support frame in case a pallet is lowered in a tilted manner.

The combination with a shelf as defined in claim 8, ensures a stable positioning of the support frame which does not slip in the depth direction of the shelf.

Brief description of the drawings

An embodiment of the invention will be explained in detail below with reference to the drawings in which:

Fig. 1 a plan view of a support frame;

Fig. 2 a side view of the support frame taken from below in Fig. 1;

Fig. 3 a side view taken from the left in Fig. 1;

Fig. 4 an enlarged end view of a C-profile bar; and

Fig. 5 an enlarged cross-section of a part of the perforated C-profile bar.

Detailed description of an embodiment

The support frame shown in the drawings consists of a plurality, five in the example shown, of C-profile bars **11** extending parallel to one another, and two U-profile bars **12** extending perpendicularly thereto. At the locations designated by **13**, the mutually facing flanges **14** (Fig. 4) of the C-profile bars **11** are connected by means of screw bolts and nuts to the centre webs **15** of the U-profile bars **12** which face upward in Fig. 2.

In the side view of Fig. 3, two cross-members **16** of a storage shelf are shown in cross-section. The mutual spacing of the U-profile bars **12** of the support frame is so dimensioned that they come to lie inside the shelf cross-members **16** so closely that they substantially prevent the support frame from moving in the depth direction of the shelf. At the same time, they ensure that the support frame can be placed onto cross-members **16** only in such a manner that the C-profile bars **11**, which serve to receive goods to be stored, specifically pallets, extend in the depth direction of the shelf and the overall frame is held in its plane with the proper angular orientation. In addition, the U-profile bars **12** determine the amount by which the C-profile bars **11** extend beyond the cross-members **16** in the depth direction of the shelf, thereby ensuring that the C-profile bars **11** lie within the space available for the overall shelf.

In the embodiment shown in Figs. 1 and 2, two C-profile bars **11** are disposed closely together near either end of the U-profile bars **12** whereas there is a greater spacing between the C-profile bars **11** in the central area of the support frame. Both lateral portions of the support frame are thereby given high stability so that, in case a pallet is lowered in a tilted manner, sufficient load-bearing capacity is available on the respective side of the support frame.

The centre webs of the C-profile bars **11** are provided with a plurality of holes **17**. The holes **17** not only reduce the material usage and weight of the support frame but also provide fire a protection by passing sprinkler water.

5 As shown in Figs. 4 and 5, a part of the holes **17** are embossed upward to form rims **18** protruding form the surface of the C-profile bars **11** facing away from the U-profile bars **12**, which rims prevent or at least impede slippage of the goods stored on the support frame.

Claims

- 1 1. A support frame to be laid on a pair of cross-members (16) of a shelf, com-
2 prising at least two U-profile bars (12) and a plurality of C-profile bars (11) extend-
3 ing transversely thereto and having flanges (14) connected to the centre webs (15)
4 of the U-profile bars (12).
- 1 2. The support frame of claim 1, wherein the flanges (14) of the C-profile bars
2 (11) are screwed to the centre webs (15) of the U-profile bars (12).
- 1 3. The support frame of claim 2, wherein at least some of the C-profile bars
2 (11) have both of their flanges (14) screwed to the U-profile bars (12).
- 1 4. The support frame of any preceding claim, wherein die centre webs of the
2 C-profile bars (11) are perforated.
- 1 5. The support frame of claim 4, wherein at least some of the holes (17) have
2 rims (18) protruding from the surface of the C-profile bars (11) facing away from
3 the U-profile bars (12).
- 1 6. The support frame of any preceding claim, wherein the length of the C-pro-
2 file bars (11) is greater than the space between the U-profile bars (12).
- 1 7. The support frame of any preceding claim, wherein the space between two
2 C-profile bars (11) is smaller near either end of the U-profile bars (12) than in the
3 central area of the support frame.
- 1 8. A combination of a storage shelf having vertical columns and cross-mem-
2 bers (16) connecting them, and a support frame in accordance with any preceding
3 claim, wherein the space between the U-profile bars (12) of the support frame is
4 so dimensioned that they just fit between both cross-members (16) of the storage
5 shelf.