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(54) **A SUPPORT FOR LOADING AND TRANSPORTING REINFORCING MESH PANELS**

(57) It is disclosed a support (9) for loading and transporting reinforcing mesh panels (11). The support (9) is formed by a frame member with a rectangular body, and comprises a plurality of lashing hooks adapted to support reinforcing mesh panels (11) by means of lashing straps (10), in order to define a load section beneath the frame member. The multiple lashing hooks, arranged

along the frame member of the support (9), ensure that the connection to the panels (11) is made at different points along their area, which restricts their oscillating movement during transport. Additionally, the support (9) is provided with forklift pockets (4.2) adapted to receive the forks (12) of a forklift vehicle (13), which will transport the mesh panels (11).

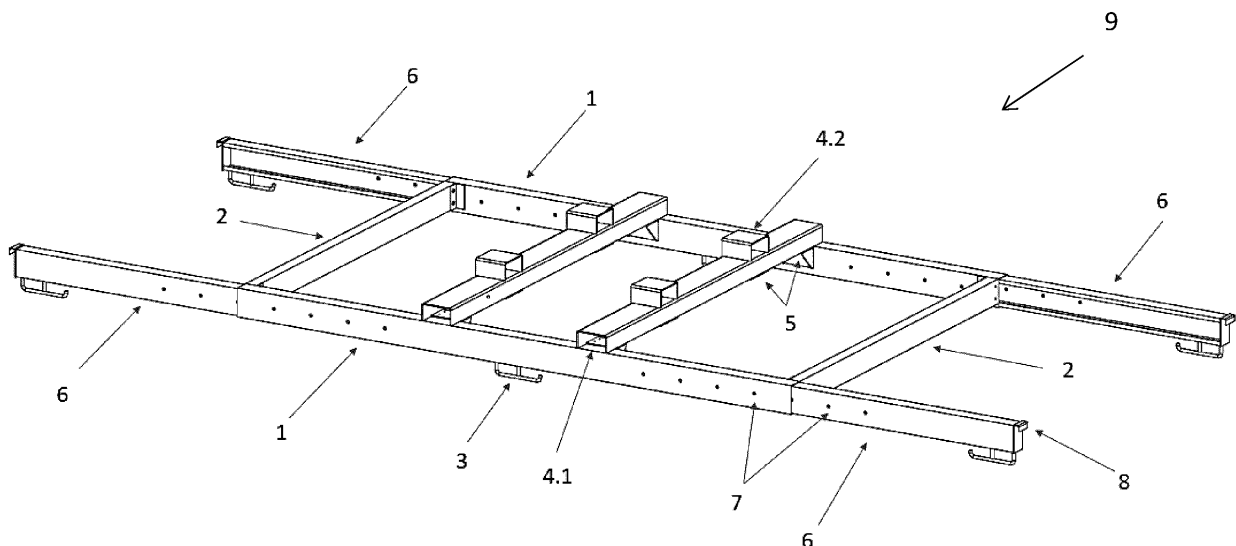


Figure 1

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Description

TECHNICAL FIELD

[0001] The present disclosure is enclosed in the field of civil construction, and relates to equipment for supporting, storing and transporting structures and building materials.

PRIOR ART

[0002] Reinforcing mesh is one of the most commonly used materials in civil construction industries. It is a versatile reinforcement product, that is widely used for a variety of applications, providing the reinforcement of concrete structures and floor slabs, since being immersed in concrete, vastly increases the structural integrity and rigidity of a construction, improving tensile strength and preventing cracks.

[0003] Reinforcing meshes are available in several different varieties, shapes and sizes, and generally consists of steel rods, arranged parallel in two orthogonal directions, forming a square or rectangular mesh, and whose contact points are joined, typically, by electric welding.

[0004] The meshes are available in rolls or panels (flat sheet), and are built in specialized factories and subsequently transported to the construction site. Particularly, when in the form of panels, its handling is normally carried out using a special vehicle such as telescopic forklift, where the panels are placed on the vehicle's forks and fixed to them by means of chains and belts.

[0005] However, given the dimensions and weight that the panels normally have, this form of handling does not prevent the panels from swinging and becoming loose, falling to the floor, which puts the safety of the vehicle operator at risk, as well as the integrity of the panels themselves and the vehicle.

[0006] The present solution intended to innovatively overcome such issues.

SUMMARY OF THE DISCLOSURE

[0007] It is an object of the present disclosure a support for loading and transporting reinforcing mesh panels.

[0008] In advantageous configuration of the support, it is formed by a frame member with a rectangular body, and comprises a plurality of lashing hooks adapted to support reinforcing mesh panels by means of lashing straps, in order to define a load section beneath the frame member. The multiple lashing hooks, arranged along the frame member of the support, ensure that the connection to the panels is made at different points along their area, which restricts their oscillating movement during transport. Additionally, the support is provided with forklift pockets adapted to receive the forks of a forklift vehicle, which will transport the mesh panels.

[0009] Therefore, this support allows reinforcing mesh

panels to be transported in a stable manner, preventing them from swinging during transportation and thus promoting both the integrity of the panels themselves and the safety of the driver of the transport vehicle.

[0010] In an advantageous configuration of the support, the forklifts are position on top of the frame member in order to define a transport section opposite to the load section. Such configuration allows the pockets to be positioned along the frame member to facilitate the insertion of the forklifts of a forklift vehicle and, at the same time, in a central position in relation to the load section, which, by promoting an even distribution of the load in relation to the suspension points, allows the mesh panels to be transported even more stably.

[0011] In another advantageous configuration of the support, it is comprised by four extension arms. Each arm is coupled to the frame member through a mechanical connection, so as to project from the frame member, thereby increasing the length section of the frame member. It therefore provides a better mode of adapting the support to the dimensions of the panels to be transported.

DESCRIPTION OF FIGURES

[0012]

Figure 1 - representation of an embodiment of the support disclosed in the present application, the reference signs represent:

- 1 - first pair of bars;
- 2 - second pair of bars;
- 3 - lashing hook;
- 4.1 - first set of forklift pockets;
- 4.2 - second set of forklift pockets;
- 5 - reinforcing element;
- 6 - extension arm;
- 7 - screw terminals;
- 8 - puller;
- 9 - support.

Figure 2 - representation of an embodiment of the support disclosed in the present application, illustrating its interaction with a forklift vehicle to transport the mesh panels. The reference signs represent:

- 4.2 - second set of forklift pockets;
- 9 - support;
- 10 - lashing straps;
- 11 - mesh panels;
- 12 - forks of a forklift vehicle;
- 13 - forklift vehicle.

DETAILED DESCRIPTION

[0013] The more general configurations of the present disclosure are described in the Summary of the disclosure. Such configurations are detailed below in accor-

dance with other advantageous and/or preferred embodiments of implementation of the present disclosure.

[0014] It is disclosed a support (9) for loading and transporting reinforcing mesh panels (11).

[0015] According to a first embodiment of the support (9), it is comprised by:

A frame member, formed by a first and a second pair of bars (1, 2), the bars of each pair being parallel to each other so that the first and second pair of bars (1, 2) are arranged to form a rectangular body along a horizontal plane. More particularly, the first pair of bars (1) defines a length section of the frame member and the second pair of bars (2) defines a width section of the frame member;

A plurality of lashing hooks (3), formed on a bottom part of the frame member and adapted to sustain reinforcing mesh panels (11) by means of lashing straps (10), in order to define a load section beneath the frame member;

[0016] A plurality of forklift pockets (4.1, 4.2) adapted to receive the forks (12) of a forklift vehicle (13).

[0017] By means of this special configuration, this support allows reinforcing mesh panels (11) to be transported in a stable manner, preventing them from swinging during transportation and thus promoting both the integrity of the panels (11) themselves and the safety of the driver of the transport vehicle (13).

[0018] According to a second embodiment of the support (9), in connection with the first embodiment, the plurality of forklift pockets (4.1, 4.2) is formed in the frame member. More particularly, the pockets (4.1, 4.2) are positioned in order to receive the forks (12) of the forklift vehicle (13) along a perpendicular and/or parallel direction with respect to the length section of the frame member. It allows the transport vehicle's fork (12) to be fitted into the pockets (4.1, 4.2) in a versatile way, making it possible to respond effectively to constraints that may exist, related to the characteristics of the vehicle (13) and the loading and/or storage location on the construction site.

[0019] More particularly, according to a third embodiment of the support (9), in connection with the second embodiment, the forklift pockets (4.1) are hollow bars, and are arranged transversely with respect to the first pair of bars (1) and along the width section of the frame member, being positioned to receive the forks (12) of the forklift vehicle (13) along the perpendicular direction with respect to the length section of the frame member. Alternatively, the hollow bars are arranged transversely with respect to the second pair (2) of bars and along the length section of the frame member, being positioned to receive the forks (12) of the forklift vehicle (13) along the parallel direction with respect to the length section of the frame member.

[0020] Additionally, the support (9) according to the third embodiment may further comprise reinforcing ele-

ments (5), that are arranged to strengthen the connection between the hollow bars and the first or second pair of bars (1, 2) of the frame member.

[0021] According to a fourth embodiment of the support (9), in connection with the second embodiment, the plurality of forklift pockets (4.1, 4.2) is positioned on top of the frame member in order to define a transport section opposite to the load section. Such configuration is illustrated by figure 2, and allows the pockets (4.1, 4.2) to be positioned along the frame member to facilitate the insertion of the fork (12) of a forklift vehicle (13) and, at the same time, in a central position in relation to the load section, which, by promoting an even distribution of the load in relation to the suspension points, i.e., the pockets (4.1, 4.2) that receive the forks (12), allows the mesh panels (11) to be transported even more stably. In this regard, the plurality of forklift pockets is constituted by a first set of pockets (4.1) and by a second set of pockets (4.2). The first set of pockets (4.1) are hollow bars, and are arranged transversely with respect to the first pair of bars (1) and along the width section of the frame member, being positioned to receive the forks (12) of the forklift vehicle (13) along the perpendicular direction with respect to the length section of the frame member. In its turn, the second set of pockets (4.2) are formed on top of the first set of pockets (4.1) and are positioned to receive the forks (12) of the forklift vehicle (13) along the parallel direction with respect to the length section of the frame member. This arrangement allows the second set of pockets (4.2) to be installed along the hollow bars that form the first set of pockets (4.1), which makes it possible to configure suspension points located centrally in relation to the frame member and the load section, favouring stability in the transport of mesh panels (11).

[0022] Additionally, the support (9) according to the fourth embodiment may further comprise reinforcing elements (5), that are arranged to strengthen the connection between:

the hollow bars constituting the first set of pockets (4.1) and the first pair of bars (1) of the frame member; and

the second set of pockets (4.2) and hollow bars constituting the first set of pockets.

[0023] As illustrated by figure 1, in a fifth embodiment of the support (9), in connection with any of the previously described embodiments, it comprises four extension arms (6), each arm (6) being coupled to the frame member through a mechanical connection, so as to project from one end of a bar of the first pair of bars (1), thereby increasing the length section of the frame member. By means of this configuration, it is possible to adapt the support (9) to the dimensions of the panels to be transported.

[0024] In a sixth embodiment of the support (9), in connection the fifth embodiment, the mechanical connection is configured to allow the extension arm (6) to be

folded in relation to the frame member.

[0025] In a seventh embodiment of the support (9), in connection with the fifth embodiment, the first pair of bars (1) are hollow bars and each bar is designed to accommodate inside it two extension arms (6), each arm (6) projecting from each end of a bar (1). According to this embodiment, the mechanical connection is configured to provide a sliding engagement of each extension arm (6) in relation to the respective bar (1), thereby adjusting the length section of the frame member. Additionally, the mechanical connection may be supplemented by a screw connection. More particularly, the first pair of bars (1) and the extension arms (6) comprise screw terminals (7) along its length and adapted to receive screw means to block the sliding of an extension arm (6) along the respective bar (1).

[0026] In an eighth embodiment of the support (9), in connection with the fifth or seventh embodiment, each extension arm (6) comprises at least one lashing hook (3), arranged at its distal end, in relation to the end of the bar (1).

[0027] In a ninth embodiment of the support, in connection with fifth, seventh or eighth embodiment, each extension arm (6) further comprises four pullers (8), wherein each puller (8) is arranged at its distal end, in relation to the end of the bar (1). These elements (8) favour the action of the extension arms, through the sliding engagement in relation to the respective bar (1), in order to adjust the length section of the frame member.

[0028] In a tenth embodiment of the support (9), in connection with any of the previously described embodiments, the constituent material of the frame member is iron, which gives the support strength and robustness, necessary to sustain the weight of the mesh panels (11). Additionally, the first and the second pair of bars (1, 2) forming the frame member may have a cuboid shape.

[0029] In a eleventh embodiment of the support (9), in connection with the any of the previous embodiments fifth to ninth, the constituent material of the extension arms (6) is iron and the extension arms (6) have a cuboid shape. This configuration gives the support (9), including the extension arms (6), strength and robustness, necessary to sustain the weight of the mesh panels (11).

[0030] Of course, the preferred embodiments shown above are combinable, in the different possible forms, being herein avoided the repetition all such combinations.

Claims

1. A support for loading and transporting reinforcing mesh panels, comprising:

A frame member formed by a first and a second pair of bars (1, 2), the bars of each pair being parallel to each other so that the first and second

pair of bars (1, 2) are arranged to form a rectangular body along a horizontal plane; wherein the first pair of bars (1) defines a length section of the frame member and the second pair of bars (2) defines a width section of the frame member; A plurality of lashing hooks (3), formed on a bottom part of the frame member and adapted to support reinforcing mesh panels by means of lashing straps, in order to define a load section beneath the frame member; A plurality of forklift pockets (4.1, 4.2) adapted to receive the forks of a forklift vehicle.

2. The support according to claim 1, wherein the plurality of forklift pockets (4.1, 4.2) is formed in the frame member; the pockets (4.1, 4.2) being positioned in order to receive the forks of the forklift vehicle along a perpendicular and/or parallel direction with respect to the length section of the frame member.

3. The support according to claim 2, wherein the forklift pockets (4.1) are hollow bars; and wherein:

the hollow bars being arranged transversely with respect to the first pair of bars (1) and along the width section of the frame member; the forklift pockets (4.1) being positioned to receive the forks of the forklift vehicle along the perpendicular direction with respect to the length section of the frame member; or
the hollow bars being arranged transversely with respect to the second pair (2) of bars and along the length section of the frame member; the forklift pockets (4.1) being positioned to receive the forks of the forklift vehicle along the parallel direction with respect to the length section of the frame member.

4. The support according to claim 3, further comprising reinforcing elements (5) arranged to strengthen the connection between the hollow bars and the first or second pair of bars (1, 2) of the frame member.

5. The support according to claim 2, wherein the plurality of forklift pockets is positioned on top of the frame member in order to define a transport section opposite to the load section; the plurality of forklift pockets being constituted by a first set of pockets (4.1) and by a second set of pockets (4.2);

the first set of pockets (4.1) being hollow bars arranged transversely with respect to the first pair of bars (1) and along the width section of the frame member; the first set of pockets (4.1) being positioned to receive the forks of the forklift vehicle along the perpendicular direction with respect to the length section of the frame member; and

- the second set of pockets (4.2) being formed on top of the first set of pockets (4.1); the second set of pockets (4.2) being positioned to receive the forks of the forklift vehicle along the parallel direction with respect to the length section of the frame member. 5
6. The support according to claim 5, further comprising reinforcing elements (5) arranged to strengthen the connection between: 10
- the hollow bars constituting the first set of pockets (4.1) and the first pair of bars (1) of the frame member; and
- the second set of pockets (4.2) and hollow bars constituting the first set of pockets. 15
7. The support according to any of the preceding claims, comprising four extension arms (6); each arm (6) being coupled to the frame member through a mechanical connection, so as to project from one end of a bar of the first pair of bars (1), thereby increasing the length section of the frame member. 20
8. The support according to claim 7, wherein the mechanical connection is configured to allow the extension arm (6) to be folded in relation to the frame member. 25
9. The support according to claim 7, wherein the first pair of bars (1) are hollow bars and each bar is designed to accommodate inside it two extension arms (6), each arm (6) projecting from each end of a bar (1); and wherein the mechanical connection being configured to provide a sliding engagement of each extension arm (6) in relation to the respective bar (1), thereby adjusting the length section of the frame member. 30 35
10. The support according to claim 9, wherein the mechanical connection is supplemented by a screw connection; and wherein the first pair of bars (1) and the extension arms (6) comprise screw terminals (7) along its length and adapted to receive screw means to block the sliding of an extension arm (6) along the respective bar (1). 40 45
11. The support according to any of the previous claims 7 to 10, wherein each extension arm (6) comprises at least one lashing hook (3), arranged at its distal end, in relation to the end of the bar (1). 50
12. The support according to any of the previous claims 7 to 11, wherein each extension arm (6) further comprises four pullers (8); each puller (8) being arranged at its distal end, in relation to the end of the bar (1). 55
13. The support according to any of the preceding claims, wherein the constituent material of the frame member is iron.
14. The support according to claim 13 wherein the first and the second pair of bars (1, 2) have a cuboid shape.
15. The support according to any of the previous claims 7 to 14, wherein the constituent material of the extension arms (6) is iron and the extension arms (6) have a cuboid shape.

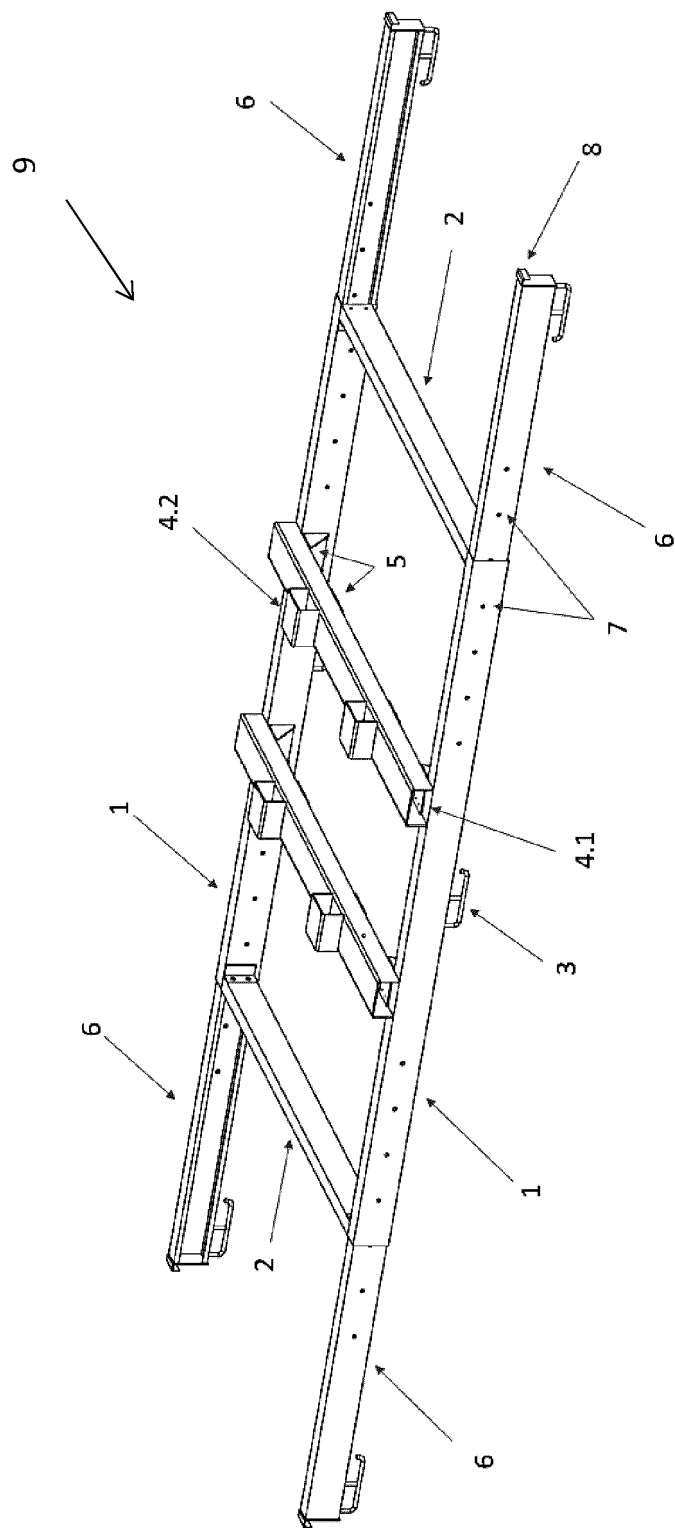


Figure 1

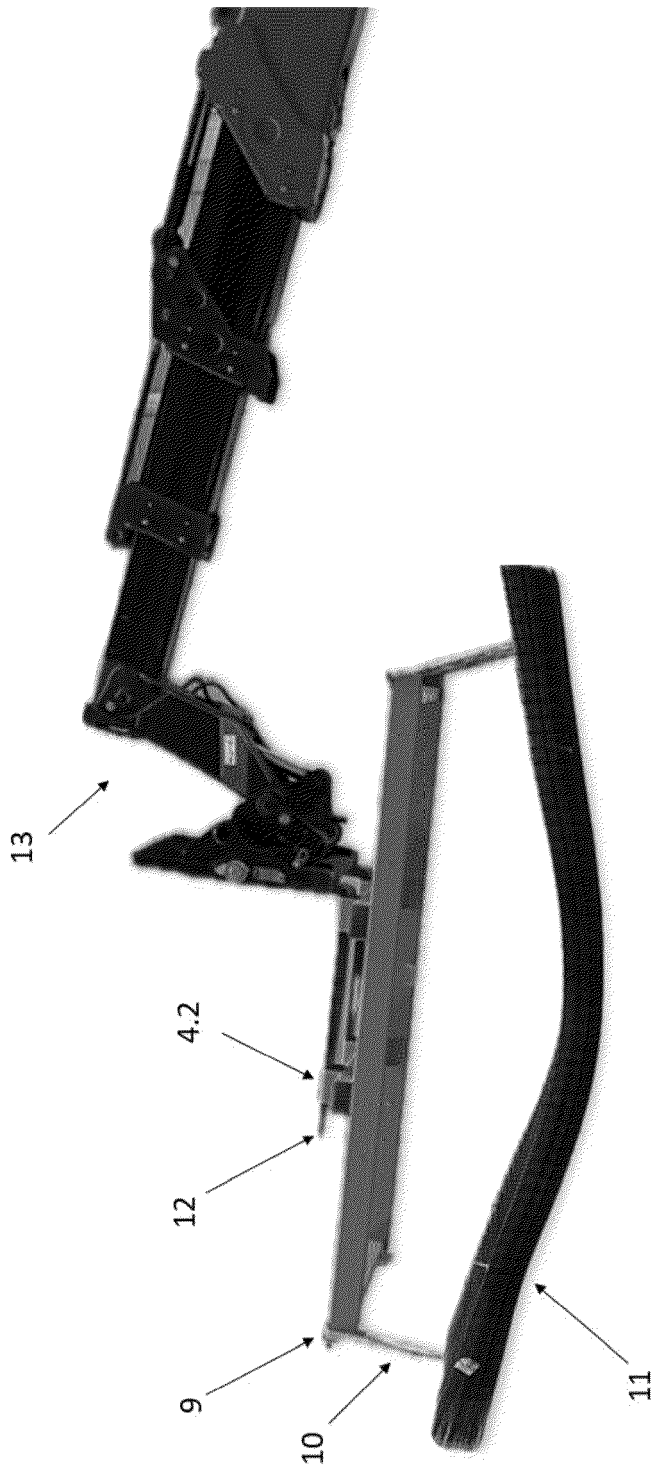


Figure 2



EUROPEAN SEARCH REPORT

Application Number

EP 24 21 2401

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The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		29 March 2025	Tryfonas, N
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

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