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(54) **Pallet intended for transport of long elements, especially plastic sections**

Palette für den Transport länglicher Elemente, insbesondere Kunststoffteile

Palette pour le transport d'éléments allongés, notamment des éléments en plastique

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EP 1 860 036 B1

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Description

[0001] Subject of the invention is a pallet intended for transport of long elements, especially plastic sections, as i.e. vehicle bumpers.

[0002] There is a known invention registered in Poland under no. 353901 "Paleta ładunkowa do długich towarów" [The freight handling pallet intended for transport of long products".] The device consists of two parallel longitudinal members of a frame, connected by several cross-bars and posts perpendicular to them installed in certain distances from each other. Particular pallets can be stacked one on the other with shift by the post width as well as one on the other the way that the loading space required by the pallets is small.

Other known solution according to the patent application PCT/SE00/01660, Polish application no. 356818 named "Paleta ładunkowa przestrzenna" [Spatial freight handling pallet] consists of two sidewalls that connected with the pallet form a box opened at the top side. The pallet is equipped with a middle wall, dividing the loading space to the parts and is equipped with at least one holder supporting back side of the opposite side wall. The device is also equipped with expanding device, which changes the mutual position of the holder and the middle wall.

[0003] Another pallet according to the preamble of claim 1 is known from DE-A-39 03 964. This pallet comprises a rotary frame mounted in the center of the pallet base and is intended for the transport of vehicle bumpers.

[0004] The pallet intended for transport of long elements according to the invention consists of a frame base structure with rectangular outline. In the rectangle corners perpendicular posts are installed, between which, along the longer rectangle sides, rectangular rotary frames are installed symmetrically. On the external surfaces of the longer sides of each frame hook shape spring clamps are installed at a uniform distance, with a holder which longer arm passes through opening in the frame and which is equipped with spring wound on it, limited by a nut at the bottom and by the bottom part of the frame side from the top. The distances between spring clamps are different at each side of the frame. The frame is equipped with lock, which enable blocking it stable in reference to the base in at least two positions. The lock consists of a movable mandrel installed at one end of the frame, at its shorter side in some distance from the rotation axis and of at least two openings made in the post or other fixed component of the pallet, symmetrically in reference to the frame rotation axis. Between internal surfaces of the pallet base shorter sides, two beams of rectangular cross-section are hung symmetrically. Perpendicular to the opposite beams surfaces fixed stabilisation elements are installed, which consist of hooks at one side and pins at the other side. The distances between those components are corresponding to the distances between spring clamps of the side frames. At one end of each beam there is a flat, perpendicular arm with movable mandrel at the end and in the opposite pallet

side there are two openings symmetrically located in reference to the beam rotation axis. Placing the mandrel in one of the openings stabilises the beam in one of two working positions shifted by 180°. In front surface of the shorter base side there are two passable recesses with spacing between them corresponding to the distance between a fork lift truck forks.

[0005] The main advantage of the pallet according to the invention is the possibility of the transported elements stabilisation the way that the elements do not contact each other and the same are not subject of paint damages or breaking of details with simultaneous maximum use of the loading space. The rotary frames and beams of the pallet provide quick preparation of the pallet for transport of at least two types of elements with different depth and after stabilisation of the frame at various angles in reference to the base, also preparation of the pallet for transport of elements with different length is provided.

[0006] The invention is explained in details on the figures presenting example of the pallet made for transport of two vehicle bumpers types with different depth. Fig. 1. presents perspective view of the device, fig. 2 the side view, fig. 3 view of the pallet side part with enlarged frame lock components and the spring clamps in perspective, fig. 4. view of the corner with frame lock seen from the pallet inside in perspective, fig. 5. view of the pallet corner with beam lock seen from the pallet inside in perspective.

[0007] In the base 1 corners of the pallet the perpendicular posts 2 are installed. Between the posts, the rectangular rotary frames 4 are hung on axes 3 equipped with rows of spring clamps 5 and 6. On the side 7 of the frame there is a movable mandrel 8 and in the post there are two openings 9 and 10 located opposite to the mandrel in two positions of the frame when it is perpendicular to the base 1. The mandrel 8 inserted to the opening 9 or 10 stabilises the frame in this position. The spring clamp 5, 6 is in the shape of hook, which arm 11 passes through the opening in the frame side 4 and is equipped with spring 12 secured with nut 13. Each spring clamp is equipped with holder 14. Inside the base 1 there are two symmetrical beams 15 hung on axes 16. Each of the beams 15 is equipped at one end with arm 17 with movable mandrel 18 and in the side of the pallet base 1 there are two openings 19 and 20 symmetrically arranged in reference to the axis 16.

Inserting the mandrel 18 in one of the openings 19 or 20 stabilizes the beam 15 in one of two positions, in which the stabilising elements perpendicular to its two opposite surfaces can be utilised: the hooks 21 located at one surface or pins 22 located on the opposite surface. In the base 1 the recesses 23 are made for fork lift truck.

[0008] Depending of the type of transported vehicle bumpers, the frames 4 are set with use of mandrels 8 and the beam 15 with use of mandrels 18 in positions, in which the arrangement of the spring clamps 5, 6 on the top sides of the frames 4 and the stabilising elements 21, 22 on the top surfaces of the beams 15 enables contact free placing of the bumper, one after each other be-

tween the frames 4. The clamps 5 or 6 are intended for fixing particular bumpers in the places that are invisible after installation of bumper on the vehicle and the hooks 21 or pins 22 additionally stabilises the bumper using their installation openings. Number of the bumpers on the pallet is equal to the number of clamps on the frame side corresponding to this bumper size. Such design of the pallet provides optimal use of the transport space and simultaneously provides maximum protection against damages during transport.

Claims

1. A pallet intended for transport of long elements, especially plastic sections, comprising a fixed frame base (1) with rectangular outline and perpendicular posts (2) installed in the rectangle corners of said frame base, **characterised in that** between said posts (2), along the longer rectangle sides, two rectangular rotary frames (4) are placed symmetrically, with uniformly spaced spring clamps (5, 6) fixed to the frames, wherein the distances are different between the clamps fixed to one frame but on different sides.
2. The pallet according to claim 1, **characterised in that** within the base (1) two parallel, rotary beams (15) are hung, with rectangular cross-section, equipped with fixed stabilising components (21, 22) perpendicular to the beam surfaces, the distances between said components corresponding to the distances between the rotary frames (4).
3. The pallet according to claim 1, **characterised in that** a single spring clamp (5, 6) is formed in the shape of a hook, which longer arm (11) is placed in the frame opening and is equipped with a spring (12) wound between the bottom frame side and a nut (13), fixed on its end, equipped with a holder (14) over the top surface of the frame side.
4. The pallet according to claim 1, **characterised in that** it is equipped with a lock of at least two frame positions (4) consisting of a movable mandrel (8) located in the shorter frame side in some distance from the rotation axis (3) and symmetrical in reference to the rotation axis (3) and openings (9, 10) made in the stable part of the pallet.
5. The pallet according to claim 2, **characterised in that** at one end of each beam (15) there is a flat, perpendicular arm (17) with a movable mandrel (18) at the end and in the opposite pallet side there are two openings (19, 20) symmetrically located in reference to the beam rotation axis (16), which enable the beam lock in two working positions, shifted by 180 degrees.

6. The pallet according to claim 2, **characterised in that** the stabilising components (21,22) perpendicular to one beam surface are in the shape of pins (22) and the components perpendicular to the opposite beam (15) are in the shape of hooks (21).
7. The pallet according to claim 2, **characterised in that** in a front surface of the shorter base side there are two passable recesses (23) with spacing between them corresponding to the distance between fork lift truck forks.

Patentansprüche

1. Palette zum Transport langer Elemente, insbesondere Kunststoffprofile, die einen unbeweglichen, rechteckigen Untersatz (1) hat, in dessen Ecken senkrechte Pfosten (2) vertikal eingebettet sind, **dadurch gekennzeichnet, dass** zwischen den Pfosten (2), die größeren Seiten des Untersatzes (1) entlang, zwei drehbare rechteckige Rahmen (4), die auf ihren längeren Seiten gleichmäßig angeordnete Klemmen (5,6) enthalten, symmetrisch angebracht sind, wobei die Entfernung zwischen den Klemmen auf einem Rahmen, aber auf seinen anderen Seiten, unterschiedlich ist.
2. Palette wie im Anspruch 1., **dadurch gekennzeichnet, dass** sie innerhalb des Untersatzes zwei parallele, symmetrisch und drehbar aufgehängte Balken (15) mit rechteckigem Querschnitt besitzt und auf den Balken, senkrecht zu ihren waagerechten Flächen, feste Stabilisierungselemente (21,22) gleichmäßig angeordnet werden, wobei die Abstände zwischen diesen Elementen den Abständen zwischen den Klemmen auf den Seiten der drehbaren Rahmen (4) entsprechen.
3. Palette wie im Anspruch 1., **dadurch gekennzeichnet, dass** die einzelne Klemme (5,6) Form eines Hakens hat und der längere Arm (11) des Hakens in der Öffnung des Rahmens (4) befestigt ist und eine Feder (12) besitzt, welche zwischen der unteren Fläche der Rahmenseite und der, an seinem Ende befestigten Mutter (13) gewunden wird und über der oberen Fläche der Rahmenseite einen Griff (14) hat.
4. Palette wie im Anspruch 1., **dadurch gekennzeichnet, dass** sie eine Blockierung wenigstens zwei Stellungen des Rahmens (4) hat, in Form eines beweglichen Bolzens (8), welcher in der kürzeren Rahmenseite, in einer gewissen Entfernung von der Drehachse (3) angeordnet ist und der, gegenüber die Drehachse (3) symmetrischen Öffnungen (9,10), die in dem stabilen Teil der Palette gebohrt werden.
5. Palette wie im Anspruch 2., **dadurch gekennzeichnet,**

net, dass an einem Ende jedes Balkens (15) ein flacher, senkrechter Arm (17) mit beweglichem Bolzen (18) ausgeführt ist, und an seinem Ende, in der gegenüberliegenden Seite des Ansatzes (1) zwei, gegenüber der Drehachse des Balkens (16) symmetrische Öffnungen (19,20) da sind, welche die Blockierung des Balkens in zwei, um 180° verschobenen Betriebsstellungen möglich machen.

6. Palette wie im Anspruch 2., **dadurch gekennzeichnet, dass** die Stabilisierungselemente (21,22), die zu einer Balkenfläche senkrecht sind, die Form der Bolzen (22) und die Elemente, die zu der gegenüberliegenden Fläche des Balkens (15) senkrecht sind, Hakenform haben.

7. Palette wie im Anspruch 2., **dadurch gekennzeichnet, dass** sie in der Stirnfläche der kürzeren Seite des Untersatzes (1) zwei Durchgangsnischen (23) hat, deren Abstand dem Abstand zwischen den Gabeln eines typischen Gabelstaplers gleich ist.

Revendications

1. La palette pour transporter de longs éléments surtout de profilés en plastique, comprenant un châssis immobile rectangulaire (1) dans les coins duquel reposent en position verticale des poteaux (2), **caractérisée en ce qu'**entre les poteaux (2) le long des côtés plus longs du châssis (1) on a disposé symétriquement deux cadres rectangulaires rotatifs (4) possédant sur leurs côtés plus longs des pinces (5, 6) disposées d'une manière homogène, la distance entre les pinces fixées sur un seul cadre mais sur différents côtés étant différente.

2. La palette selon la revendication 1 **caractérisée en ce qu'**elle possède à l'intérieur du châssis deux poutres (15) parallèles suspendues symétriquement en rotation, de section rectangulaire, possédant des éléments stabilisateurs fixes (21, 22) disposés d'une manière homogène perpendiculairement à leurs surfaces horizontales, les distances entre ces éléments correspondant aux distances entre les pinces sur les côtés des cadres rotatifs (4).

3. La palette selon la revendication 1 **caractérisée en ce que** la pince simple (5, 6) a une forme de crochet dont le bras plus long (11) est placé dans le trou du cadre (4) et possède un ressort (12) enroulé entre la surface inférieure du côté du cadre et un écrou (13) fixé à son extrémité par contre au-dessus de la surface supérieure du côté du cadre elle possède une poignée (14).

4. La palette selon la revendication 1 **caractérisée en ce qu'**elle possède un système de verrouillage d'au

moins deux positions du cadre (4) sous forme d'une tige mobile (8) située sur le côté plus long du cadre et éloignée de l'axe de rotation (3) ainsi que des trous (9, 10) symétriques à l'axe de rotation (3) et réalisés dans la partie stable de la palette.

5. La palette selon la revendication 2 **caractérisée en ce qu'**à l'une des extrémités de chaque poutre (15) il y a un bras plat et perpendiculaire (17) avec une tige mobile (18) et à son extrémité située en face du côté du châssis (1) il y a deux trous (19, 20) symétriques à l'axe de rotation de la poutre (16), permettant de verrouiller la poutre dans deux positions de travail déplacées de 180 degrés.

6. La palette selon la revendication 2 **caractérisée en ce que** les éléments stabilisateurs (21, 22) perpendiculaires à la surface de la poutre ont une forme de goupilles (22) et les éléments stabilisateurs perpendiculaires à la surface de la poutre opposée (15) ont une forme de crochets (21).

7. La palette selon la revendication 2 **caractérisée en ce que** sur la surface frontale du côté plus court du châssis (1) elle possède deux creux traversants (23) dont l'entraxe correspond à la distance entre les poignées du chariot à fourches type.

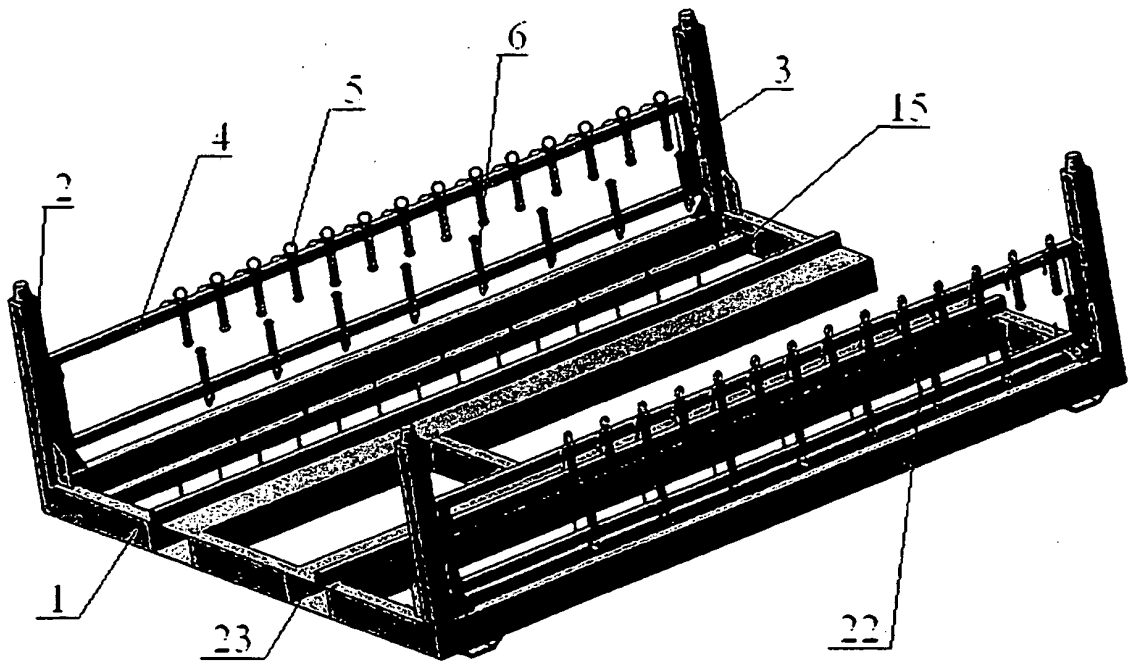


FIG. 1.

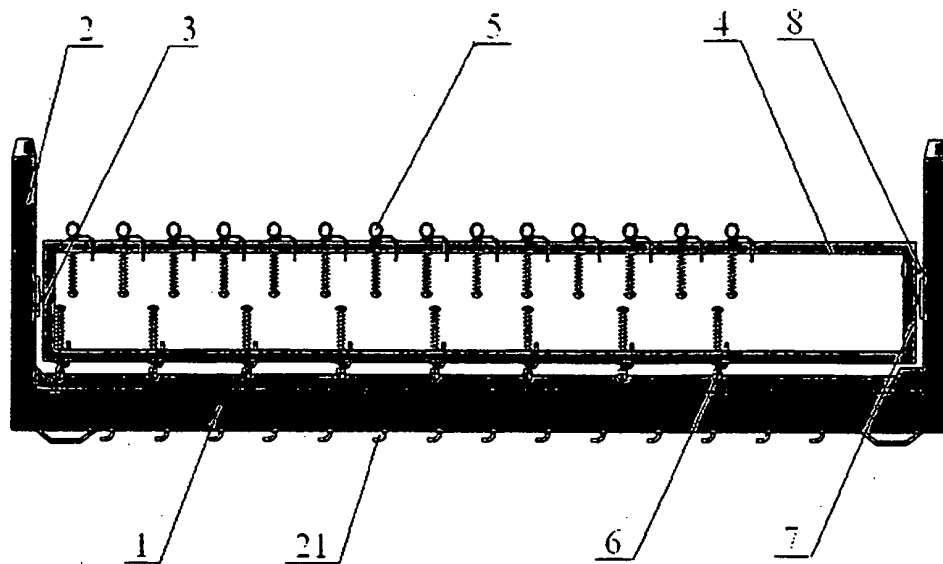


FIG. 2.

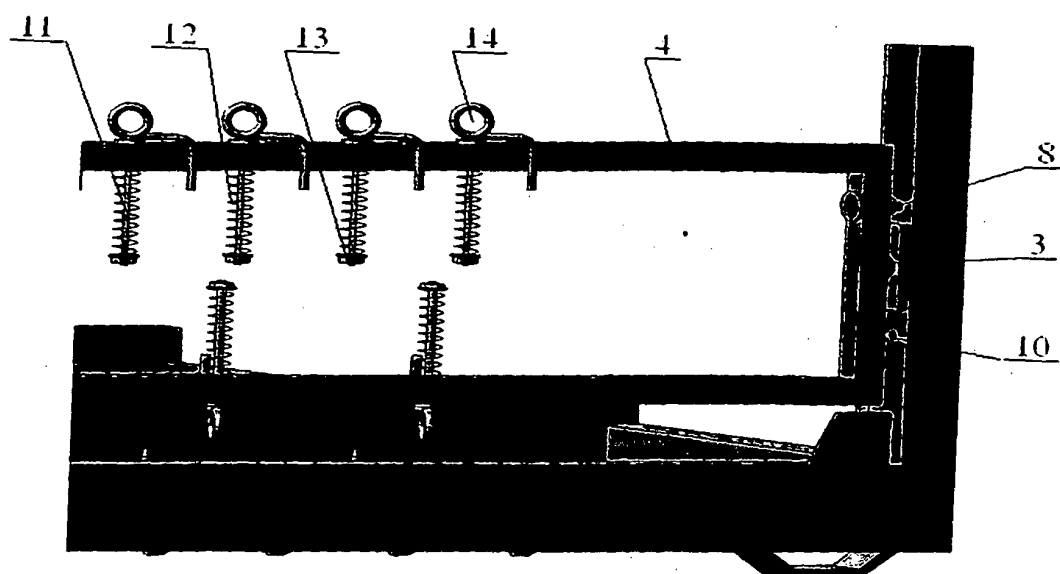


FIG. 3.

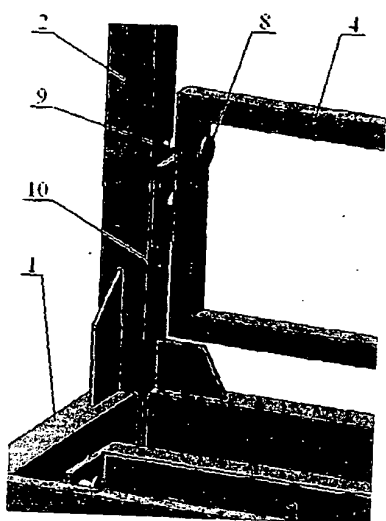


FIG. 4.

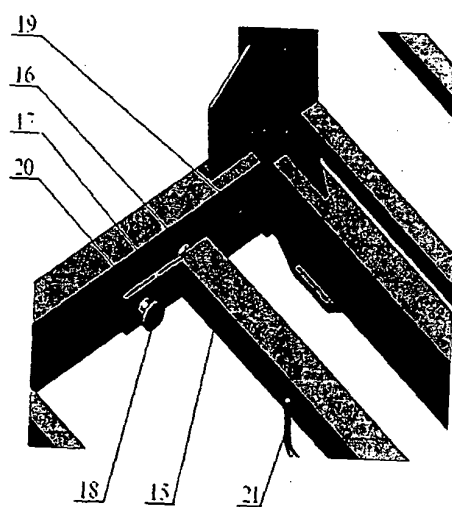


FIG. 5.

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REFERENCES CITED IN THE DESCRIPTION

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