

RECEIVING DEVICE FOR A CONTAINER

The invention relates to a receiving device for a container on a chassis of a transport vehicle, namely harbour
5 vehicle, said chassis extending in a longitudinal direction parallel to the ground and including, on both sides of a median plane perpendicular to the ground and parallel to said longitudinal direction, a first and a second side end edge, said device including, on both sides of said median plane, at
10 least a first side guide designed capable of forming a stop for a container, and at least a second side guide designed capable of forming a stop for a container.

The present invention is related to the field of handling of containers, at the level of harbour, airport, railroad, road
15 or mixed facilities.

The invention relates in particular to a vehicle, in the form of a motor vehicle, or a trailer capable of being coupled to a tractor vehicle, this vehicle being designed capable of receiving one or several standardised sea-going containers,
20 served by loading means such as crane or bridge lifting beams, referred to as spreaders, or also by lifting devices such as lifting trucks, or special harbour vehicles.

The immobilisation of a ship at the quay is very expensive and, in large harbours, all efforts are made to
25 minimise the loading and unloading operations.

The unloading of the ships occurs by means of cranes, which now have lifting beams with pulley blocks, referred to as spreaders, capable of taking several containers simultaneously, whether they are aligned or in parallel, or also in several
30 rows of aligned containers.

In the absence of suitable receiving means, these spreaders generally place the containers on the ground. The containers are taken up by cranes or by spreaders for two containers aligned lengthwise, in order to be placed onto a
35 traditional trailer designed for a 40-feet container, or for two 20-feet containers, according to the ISO 668 standard.

The containers are generally seized at their upper portion by the handling devices and placed, as quickly as possible, on the receiving means formed by towed trailers, wagons, or also motor vehicles, which will transport them to
5 their later site of use.

The handling at the harbours generally occurs by trains of trailers. Therefore, the placing of each container, or of each group of containers, should occur as quickly as possible. In order to increase the productivity, it often occurs that a handler, after
10 having performed its positioning approach, releases a container before the latter fully rests on its receiving means. Such a dropping can occur, for example, at 20 centimetres above the receiving area. Since the manoeuvre is very quick, it can also occur, to the contrary, that the placing occurs with a vertical, or even skew, downward thrust
15 under the action of the weight and the inertia of the handling device. In particular, one should consider the case in which the mass of the spreader is momentarily added to that of the container or containers it places. One understands that the harbour vehicles, namely trailers, are subjected to many such treatments, which shorten their life time.

20 In addition, it is known to install, on the edges of the longitudinal beams such harbour vehicles include, container guides for the operation of receiving and unloading the latter. Such guides are mounted on arms extending externally to the size of the vehicle.

One understands that this increase in general size of the
25 vehicle becomes a nuisance when this vehicle has to be transported from its place of manufacturing to its place of use. Indeed, the side guides of the vehicle do no longer permit the latter to be able to be transported in a standardised container according to the NF ISO 668 standard.

30 Therefore, one is obliged to use a bulk vessel representing a much higher transport cost than that for the transport of this vehicle in a container.

It should be noted that, in particular from DE-UI-299.09.687, is known a chassis of a transport vehicle, namely harbour vehicle,
35 including, on both sides of a longitudinal median plane and at the

side end edges, side guides of a removable nature and designed capable of forming a stop for a container.

The invention is aimed at coping with the drawbacks of the state of the art by providing a device for equipping a vehicle, namely a trailer or a motor vehicle, designed and calculated to support the impulses following the brutal manoeuvres by the handler, both during the frontal impacts and the vertical impacts, while ensuring a good positioning and a good centring of each load, as well as a so equipped vehicle. Preferably, the vehicle according to the invention includes side guides and is designed capable of being accommodated in an ISO 668 container.

To this end, the invention relates to a receiving device for a container on a chassis of a transport vehicle, namely harbour vehicle, said chassis extending in a longitudinal direction parallel to the ground and including, on both sides of a median plane perpendicular to the ground and parallel to said longitudinal direction, a first and a second side end edge, said device including, on both sides of said median plane, at least a first side guide designed capable of forming a stop for a container, and at least a second side guide designed capable of forming a stop for a container, characterised in that at least said first side guide or at least said second side guide is removable and designed capable of being inserted protruding with respect to said first edge or to said second edge, respectively, on said chassis through at least one plate fixed, in turn, protruding outwardly on said first end guide or on said second end guide, respectively.

According to other features of the invention, at least the first or the second side guide cooperates with one or several plates, the plate or plates including receiving, bearing and fixing means.

According to another feature of the invention, the plate is incorporated into a cross beam or a frame extending perpendicular to the median plane said chassis includes.

According to yet another feature of the invention, said cross beam or said frame is removable.

The invention also relates to a vehicle equipped with such a device.

Further features and advantages of the invention will become clear from the following detailed description of non-restrictive embodiments of the invention, when referring to the attached drawings, in which :

- 5 - Figure 1 is a schematic and perspective view of the receiving device according to the invention ;
- Figure 2 is a schematic and perspective view of a chassis of a harbour vehicle including the device according to the invention ;
- Figure 3 is a schematic and perspective view of a plate the
10 device according to the invention includes ;
- Figure 4 is a schematic and perspective view of a plate of the receiving device according to an embodiment of the invention ;
- Figure 5 is a schematic and perspective view of a frame formed of cross beams and including at least one plate the device according
15 to the invention includes ;
- Figure 6 is a schematic and perspective view of a removable cross beam according to different embodiments of the receiving device according to invention ; and
- Figure 7 is a schematic and perspective view of a removable
20 frame according to an embodiment of the invention.

The invention relates to a receiving device for a container on a chassis of a transport vehicle.

The present invention is related to the field of handling of containers, at the level of harbour, airport, railroad, road
25 or mixed facilities.

Preferred embodiments of the invention are shown in the figures.

The receiving device 1 for a container is mounted on a chassis 2 of a transport vehicle 3, namely harbour vehicle.

Such a vehicle 3 can be designed in the form of a trailer or
30 motor vehicle including rolling means.

Turning back to the chassis 2 and as can be seen in Figure 2, it extends in a longitudinal direction 4 parallel to the ground and has advantageously the form of a central ladder-like structure having dimensions adapted for receiving containers, namely 20-feet, 30-feet
35 or also 40-feet containers in compliance with the ISO 668 standard. As a matter of fact, the invention permits to easily adapt a vehicle to

different container formats, and namely of uncommon lengths, the widths being, in turn, standardised.

In this respect, it should be noted that this chassis 2 includes at least two longitudinal beams 5 and 6 extending parallel to the median plane P and cross beams 7 extending perpendicular to the median plane P.

Preferably, it includes, on both sides, a median plane P perpendicular to the ground and parallel to the longitudinal direction 4 a first side end edge 8 and a second side end edge 9.

Advantageously, the longitudinal beams 5 and 6 define the first side end edge 8 and the second side end edge 9, respectively, in the longitudinal direction 4 of the chassis 2.

Advantageously and again as can be seen in Figure 2, the receiving device 1 also includes, on both sides of the median plane P, at least a first side guide 10 designed capable of forming a stop for a container, and at least a second side guide 11, also designed capable of forming a stop for a container. These guides 10 and 11 can adopt a higher or a wider form so as to be adapted to the containers present on the chassis 2.

In particular, according to the invention at least the first side guide 10 or at least the second side guide 11 is removable and designed capable of being inserted protruding with respect to said first end edge 8 or said second end edge 9, respectively, on said chassis 2 through at least one plate 12 fixed, in turn, protruding outwardly on the first end edge 8 or the second end edge 9, respectively.

Furthermore and as can be seen in Figure 3, the plate 12 is in the form of a sheet plate 13 having any shape, but preferably a rectangular shape, fixed or welded to the first end edge 8 or the second end edge 9 defined by the longitudinal beams 5 and 6, respectively.

Advantageously, this plate 12 includes receiving means 14 designed capable of cooperating with a guide, namely at least the first side guide 10 or at least the second side guide 11.

Advantageously, the plate 12 also includes bearing means 15 in the form of a rim extending over all or part of the plate 12 on which

rests, fully or partially, the first 10 or the second 11 side guide when the latter is in a mounted position.

According to another feature of the invention, the plate 12 includes positioning means 16, preferably made in the form of at least one bore 17, and preferably two bores, for the passing through of alignment means 18 such as at least one pin or at least one pin bolt 19.

Advantageously, the plate 12 also includes at least one passage 20, here too in the form of a bore 17 or an opening, for the passing through of fastening means 21 formed by at least one screw 22 or one bolt or the like.

In this respect, it should be noted that at least the first side guide 10 or at least the second side guide 11 includes bumper slides 23 advantageously forming a protection against trapping of and the impacts on the plate 12 during the manoeuvres of the vehicle or the movements of other vehicles in the vicinity, in order to avoid tearing-off of the plate 12 or/and of the guide it supports. These bumpers 23 thus protect the receiving 14, bearing 15, positioning 16 means, and the passage 20, which are associated to this plate 12.

According to the preferred embodiment of the invention and yet as can be seen in Figure 3, at least the first side guide 10 or at least the second side guide 11 is fixed to the chassis 2 through at least two plates 12. The side guides 10 and 11 are thus advantageously inserted along the receiving means 14 until, on the one hand, they abut against the first end edge 8 or the second end edge 9 of the longitudinal beams 5 and 6 and, on the other hand, they rest, fully or partially, on the bearing means 15 the plate 12 includes.

Advantageously and in this position, the positioning means 16 of the plate 12 are aligned with the complementary positioning means 24, substantially similar to the positioning means 16, the first and second side guides 10 and 11 include and into which is inserted at least one pin 19. The pin 19 being designed capable of cooperating with the positioning means 16 and the complementary positioning means 24 for their bringing into alignment.

Preferably, at least the first side guide 10 or the second side guide 11 includes a passage 25 for fastening means 21. This passage 25

is aligned with the passage 20 of the plate 12 in order to permit the insertion of the screw 22. This screw 22 is maintained against the inner wall 26 or 27, respectively, of the first side guide 10 or of the second side guide 11 by means of a screw or the like.

5 According to a preferred embodiment of the invention, the screw 22 of the fastening means 21 is arranged between two pins 19 of the alignment means 18, so that the screw 22 is not subjected to shearing.

10 In this respect, it should be noted that, when the removable side guide or guides 10 and 11 are in a position mounted through the plate 12 on the chassis 2, the latter has an upper transversal size of the length of the side guide or guides 10, 11.

15 In an innovating way, during the transport of the chassis 2 from its place of manufacturing to its place of use, the first or the second removable side guides 10 and 11 are removed from the chassis 2, in order to reduce the size of this chassis 2 and to facilitate its transport.

20 According to a first embodiment of the invention as can be seen in Figure 4, the plate or plates 12 are incorporated into one of the cross beams 7 the chassis 2 includes. This embodiment advantageously permits to make use of the rigidity of the latter.

25 According to another embodiment of the invention and as can be seen in Figure 5, the plate or plates 12 are incorporated into a frame 28 comprised of several cross beams 7 said chassis 2 includes. In this configuration, each cross beam 7 includes a plate 12 at least at one end and the widths of the removable side guides 10 and 11 are adapted to the distance separating the cross beams 7.

 According to another embodiment, the cross beam 7 or the frame 28 is removable.

30 In particular, the cross beam 7 or the frame 28 is designed capable of cooperating with a recess 29 said chassis 2 includes.

35 According to another embodiment of the invention visible in Figure 6, the recess 29 of the chassis 2 is a through opening 30, but non-emerging, for the passing through of a cross beam 7 including at least one plate 12. This opening 30 thus permits a quick and easy mounting and dismantling of the receiving device 1.

Advantageously, this opening is made at the level of the longitudinal beams 5 and 6 of the chassis 2, in order to insert in a direction perpendicular to the median plane P and parallel to the ground a cross beam 7 through the openings 30 so that the latter
5 passes through at least one of these openings at the level of at least one of the two side end edges the chassis 2 includes.

According to a second embodiment of the invention, visible in Figure 6, the recess 29 is a through-going and emerging slot 31 for encasing the removable cross beam 7 or the removable frame 28 from
10 above.

Preferably, at the level of the longitudinal beams 5 and 6 of the chassis 2 is provided for the slot 31. This slot thus permits to arrange the removable cross beam 7 in a direction parallel or perpendicular to the median plane P and perpendicular or parallel to
15 the ground, respectively, or to arrange the removable frame 28 in a direction parallel to the median plane P and perpendicular to the ground, visible in Figure 7.

The invention also relates to a chassis 2 including at least one such receiving device 1 for a container.

Advantageously, this chassis 2 has a maximal size of the ends of all said plates 12 it includes and which are protruding out of said first and/or second side end edge, in a transversal direction parallel to the ground and perpendicular to said longitudinal direction 4, which is smaller than the size of the inner width of a standardised
25 ISO 668 transport container.

The invention also relates to a vehicle including a chassis 2 including, in turn, at least one such receiving device 1 for a container.

CLAIMS

1. Receiving device (1) for a container on a chassis (2) of a transport vehicle, namely harbour vehicle, said chassis (2) extending in a longitudinal direction parallel to the ground (4) and including, on both sides of a median plane (P) perpendicular to the ground and parallel to said longitudinal direction (4), a first and a second side end edge (8, 9), said device (1) including, on both sides of said median plane (P), at least a first side guide (10) designed capable of forming a stop for a container, and at least a second side guide (11) designed capable of forming a stop for a container, characterised in that at least said first side guide (10) or at least said second side guide (11) is removable and designed capable of being inserted protruding with respect to said first end edge (8) or to said second end edge (9), respectively, on said chassis (2) through at least one plate (12) fixed, in turn, protruding outwardly on said first end guide (8) or on said second end guide (9), respectively.
2. Receiving device (1) for a container according to claim 1, characterised in that at least the first (10) or at least the second side guide (11) cooperates with one or several plates (12), the plate or plates (12) including receiving (14), bearing (15), positioning (16) and fastening (21) means.
3. Receiving device (1) for a container according to claim 1 or 2, characterised in that at least the first (10) or at least the second side guide (11) includes bumper slides (23).
4. Receiving device (1) for a container according to any of the preceding claims, characterised in that the plate (12) is incorporated into a cross beam (7) extending perpendicular to said median plane (P), or into a frame (28) said chassis (2) includes.

5. Receiving device (1) for a container according to any of the preceding claims, characterised in that said cross beam (7) is removable and designed capable of cooperating with a recess (29) said chassis (2) includes.

5 6. Receiving device (1) for a container according to claim 4, characterised in that said cross beam (7) or said frame (28) is removable and designed capable of cooperating with a recess (29) said chassis (2) includes.

7. Chassis (2) including at least one such receiving
10 device (1) for a container according to any of the preceding claims.

8. Chassis (2) according to the preceding claim, characterised in that the maximum size of the ends of all said plates (12) it includes and which are protruding from said
15 first (8) and/or second side end edges (9), in a transversal direction parallel to the ground and perpendicular to said longitudinal direction (4), is smaller than the size of the inner width of a standardised ISO 668 transport container.

9. Vehicle including a chassis (2) according to claim 7 or
20 8, including at least one such receiving device (1) for a container according to claims 1 to 6.