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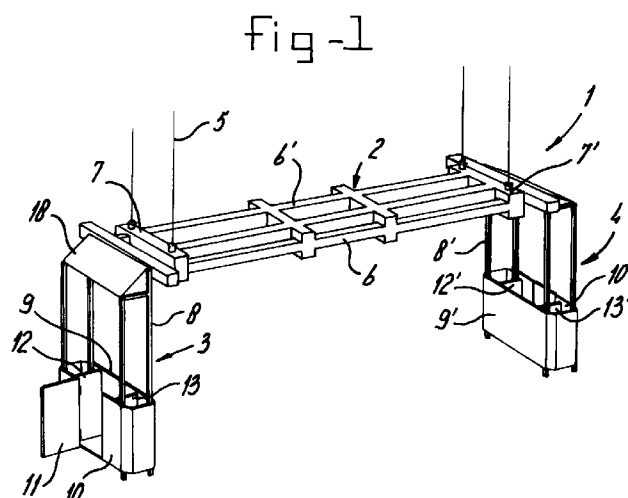
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(54) **Device for removing coupling pieces from containers, as well as enclosure for use in a device of this kind**

(57) The invention relates to a device for removing coupling pieces from containers. The device comprises a carrier (2) with two transverse sides (7,7'), from at least one of which an enclosure (3,4) is suspended, which enclosure is provided with side walls (9,10;9',10') which on a front side (9,9'), which is directed towards the centre of the carrier, are no higher than 1.5m. The enclosure (3,4) is provided with at least one partition (12,13,12',13') which divides the enclosure (3,4) into at least two compartments. An operator can take position in a first compartment of the enclosure (3,4), after which the carrier (2) can move the enclosure (3,4) to the correct height along a series of stacked containers. From the enclosure (3,4), the operator can remove coupling pieces of different designs from the containers and collect said coupling pieces in a compartment without having to bend over. This ensures a rapid and efficient removal of the coupling pieces in combination with an ergonomically sound working position for the operator. In addition, collection of the coupling pieces in one of the compartments prevents the operator from injuring him/herself on these coupling pieces.



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Description

The present invention relates to a device for removing coupling pieces from containers. Transport containers which are stacked on top of one another are connected to one another by means of securing bars, which are attached crosswise along the short sides of the containers and by means of coupling pieces, which are introduced into holes in the region of the corners of the containers. The coupling pieces may be of semiautomatic design and when the containers are stacked can be pressed into the locked position. The wide variety of coupling pieces means that they are removed manually when unloading the containers. During this operation, in order to protect the operator who is removing the coupling pieces, a safety cage is used, having the same dimensions as the containers, with holes cut out of a base plate in the region of the corners. When the safety cage has been placed on a container, the coupling pieces can be removed via the holes in the base plate without there being any possibility of the operator falling off the stacked containers. The safety cage is moved along each time by means of a lifting device.

This method of removing the coupling pieces is relatively laborious and slow. Furthermore, the use of a large safety cage is very expensive. It is an object of the present invention to provide a simple device for removing coupling pieces while ensuring the safety of the operator at all times.

To this end, the device for removing coupling pieces from containers according to the present invention is characterized in that the device comprises a carrier with two longitudinal sides and two transverse sides, an enclosure being suspended from at least one transverse side, the said enclosure having side walls which, on the front side, which is directed towards the centre of the carrier, of the enclosure, are no higher than 1.5 m, and the enclosure being provided with at least one partition which divides the enclosure into at least two compartments.

The operator can take position in the enclosure, which by positioning the carrier above the container, can then be moved so that its front side is at the level of the container edge. After this, the operator can remove the coupling pieces and place them in the collection compartment of the enclosure. As a result, the chamber for the operator remains free of coupling pieces at all times, so that the operator cannot injure him/herself on the said coupling pieces. By moving the carrier, including the enclosure and the operator, along a series of stacked containers, the coupling pieces can be removed quickly and safely. In the process, the operator can continue to stand upright without having to bend over, thus maintaining an ergonomically sound working situation.

Preferably, the carrier is adjustable in terms of length in the direction of the longitudinal side, so that it

can be used for containers of different lengths, such as for example 20, 40 or 45 feet. Preferably, the enclosure is provided on one side with a closeable access door, so that the operator cannot fall out of the enclosure. Preferably, a sloping roof is arranged above the enclosure, so that the operator is protected from effects of the environment. Furthermore, a protection may be arranged in the form of side walls of the enclosure.

Preferably, the enclosure is detachably coupled to the carrier, so that the carrier can also be employed for other purposes, such as for example lifting up separate containers.

One embodiment of the device according to the present invention will be explained in more detail with reference to the appended drawing, in which:

Figure 1 shows a perspective illustration of a device according to the present invention provided with two enclosures, and

Figure 2 shows a partial side view of the device in accordance with Figure 1 in the operating position.

Figure 1 shows a device 1 according to the present invention with a carrier 2, from which two enclosures 3, 4 are suspended. Via cables 5, the carrier 2 is attached to a lifting device (not shown in the figure) and comprises longitudinal sides 6, 6' and transverse sides 7, 7'. The enclosures 3, 4 are suspended from the transverse sides 7, 7' by means of four bars 8, 8'. Each enclosure is provided with a front side 9, 9' and a rear side 10, 10'. At least the front side 9, 9' is of a height which is such that it reaches no further than the waist of an operator of average height. The rear side 10, 10' is provided with a closeable access door 11. The enclosures 3, 4 are divided, by means of two partitions 12, 13, into three separate compartments. The operator can take position in the central compartment, while the removed coupling pieces can be collected in the side compartments. As can be seen from Figure 2, by positioning the carrier 2 above a container 15, the enclosure 3 can be placed at the correct height with respect to the top side of the container. As a result, the operator can remove the coupling pieces in the region of the corners 16 of the container 15 without having to bend over. As is illustrated diagrammatically in Figure 2, the carrier includes two longitudinal arms 17 which, by means of a hydraulic device (not shown in the figure), can be adjusted in terms of length with respect to the stationary central part of the carrier, so as to be adapted to the dimensions of different containers.

As shown in Figures 1 and 2, each enclosure 3, 4 comprises a sloping roof 18, with the result that the operator is protected from weather influences, such as precipitation. Furthermore, the side walls and the rear wall of the enclosures 3, 4 may also be provided, for example, with transparent plastic panels providing further protection for the operator against weather conditions.

Claims

1. Device (1) for removing coupling pieces from containers, characterized in that the device comprises a carrier (2) with two longitudinal sides (6, 6') and two transverse sides (7, 7'), an enclosure (3, 4) being suspended from at least one transverse side (7, 7'), the said enclosure having side walls (9, 10; 9', 10') which, on the front side (9, 9'), which is directed towards the centre of the carrier, of the enclosure (3, 4), are no higher than 1.5 m, and the enclosure (3, 4) being provided with at least one partition (12, 13; 12', 13') which divides the enclosure (3, 4) into at least two compartments.
2. Device (1) according to Claim 1, characterized in that the carrier (2) comprises arms (17) which can be adjusted in terms of length in the direction of the longitudinal sides (6, 6').
3. Device (1) according to Claim 1 or 2, characterized in that the enclosure (3, 4) is provided, on the rear side (10, 10') situated opposite to the front side of the enclosure, with a closeable access door (11).
4. Device (1) according to one of the preceding claims, characterized in that a roof (18) is arranged above the enclosure (3, 4).
5. Device (1) according to one of the preceding claims, characterized in that an enclosure (3, 4) is suspended from both transverse sides (7, 7') of the carrier.
6. Device (1) according to one of the preceding claims, characterized in that the enclosure (3, 4) is detachably coupled to the carrier (2).
7. Enclosure (3, 4) for use in a device (1) according to one of the preceding claims, characterized in that the enclosure (3, 4) is provided with a coupling member for suspending it from the carrier (2) and with side walls (9, 10; 9', 10') which, on the front side of the enclosure, are no higher than 1.5 m, and the enclosure (3, 4) being provided with at least one partition (12, 13; 12', 13') which divides the enclosure into at least two compartments.

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fig -1

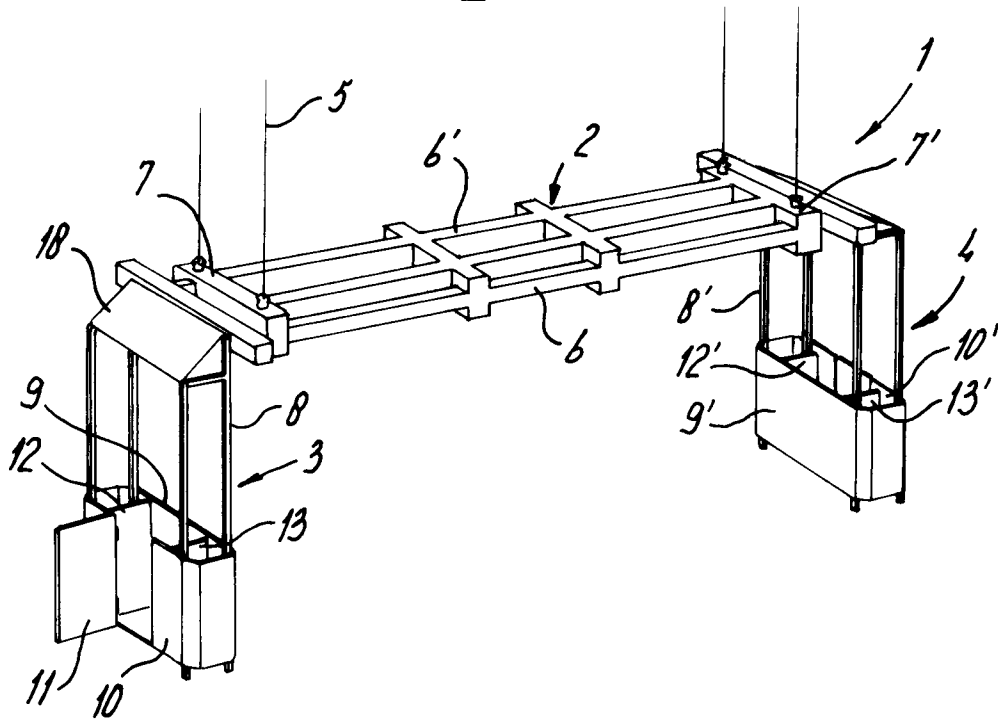
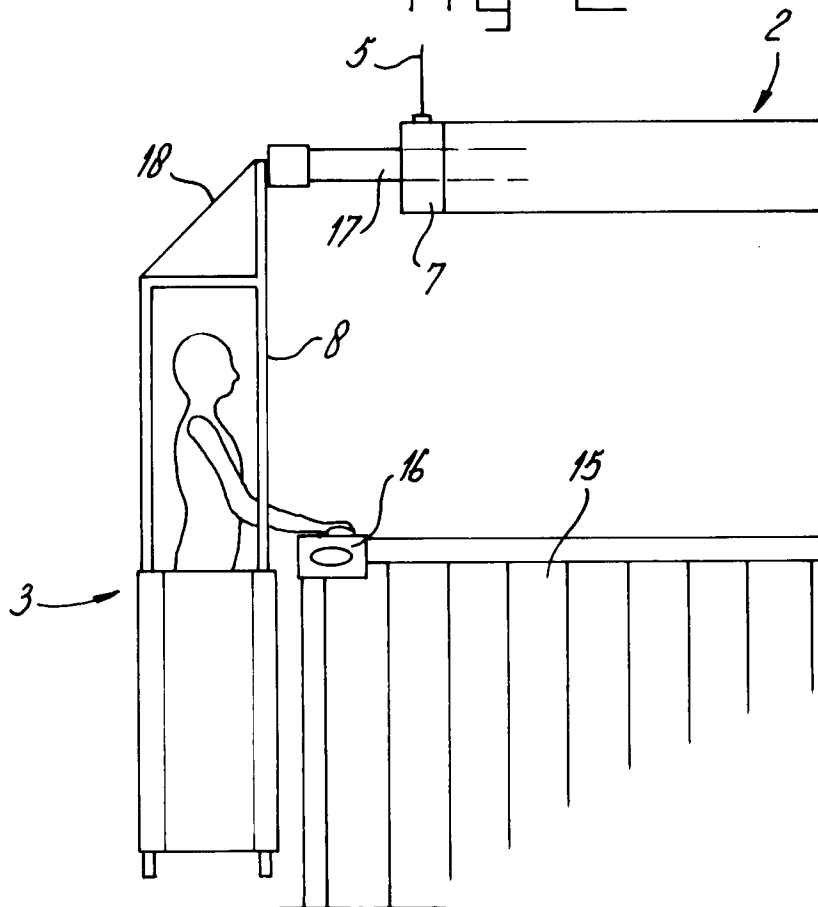


fig -2





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EUROPEAN SEARCH REPORT

Application Number
EP 98 20 2452

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	US 4 705 140 A (DUDLEY) 10 November 1987 * the whole document *	1	B66F11/04
A	US 5 137 115 A (ARNOLD) 11 August 1992		
A	US 4 858 775 A (CROUCH) 22 August 1989		
A	US 4 919 283 A (RILEY) 24 April 1990		
A	US 4 630 708 A (THOMPSON) 23 December 1986		
A	US 4 676 339 A (RYBKA) 30 June 1987		
A	US 5 004 071 A (MALLARD) 2 April 1991		
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B66F B66C
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 22 September 1998	Examiner Van den Berghe, E
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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