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(54) **Cage-type container**

(57) A cage having a rectangular base (1) comprising side edges (8) and end edge mountings (9, 7), a side wall (2) hinged in both the side edges and an end wall

(3) hinged in both the end edge mountings. An intermediate shelf (13) is hinged above the base in both of two opposed walls (3), the intermediate shelves forming together an intermediate base (4).

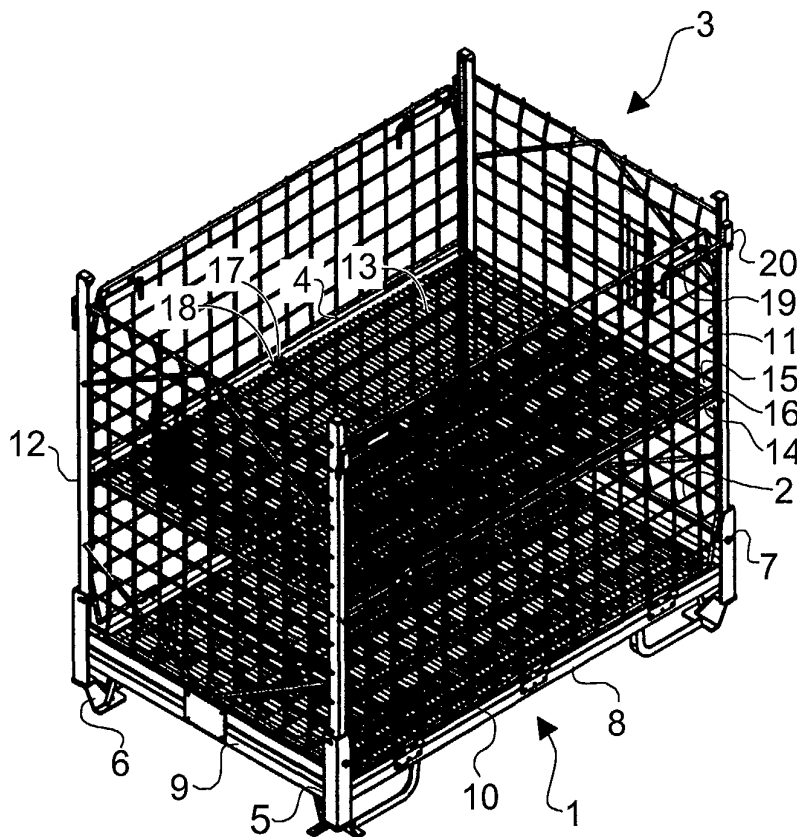


Fig. 1

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Description

Technical background

[0001] The invention relates to goods transport cages, which comprise a rectangular base and side walls and end walls, which are hinged to the base and which can be swung inwardly on the cage bottom when the cage is empty. In upright position, the walls are locked to each other at their corners. Filled cages can be stored on top of each other. For this purpose, adequately solid vertical posts are provided at the corners. Collapsed empty cages are piled on top of each other for return transport. At the corners of the base, corner pieces equipped with base piling pads are provided, the piles being formed supported on these corner pieces.

[0002] Cages are also used, which comprise a separate plane forming an intermediate base, which is fitted so as to bear against the cage walls, between the base and the upper edge of the walls. The purpose of the intermediate base is to prevent goods placed in layers in the cage from collapsing in a detrimental way. Such goods are for instance empty packages, such as food packages, which are carried empty from the package manufacturer to the user. In prior art cages, the walls are made of a steel wire mesh and the base and the intermediate base are made of a perforated plate or a steel wire mesh with smaller apertures.

[0003] When the interlocking of the walls of an empty cage is released and the walls are folded down, the intermediate base is to be fitted on the cage bottom before the walls. However, this operation is often neglected, so that the separately carried intermediate base tends to get lost or damaged.

General description of the invention

[0004] A cage as defined in claim 1 has now been invented. The remaining claims define some embodiments and applications of the invention.

[0005] In the cage of the invention, the intermediate base covering the cage consists of two pivoted intermediate shelves hinged in opposite walls. When the cage is filled, the shelves are lowered into horizontal position. When an empty cage is collapsed, the intermediate shelf is raised in vertical position against the wall, and then the wall is swung down against the base.

[0006] An intermediate base that is fixed to the cage will always be carried along with the cage. In addition, such an intermediate base is easy to handle, and it is not easily damaged during return transport. With the intermediate base shelves raised in vertical position, the cage can be filled without using the intermediate base.

[0007] The walls, as well as the base and the intermediate base, can be made of a mesh suitable for the purpose of use. The intermediate base may also be a perforated plate, for instance. The metal, such as steel or aluminium, can have an appropriate surface finish.

The material is preferably such that can be washed and repels dirt as much as possible.

[0008] Walls without intermediate shelves are preferably additionally hinged to be foldable in the middle, so that the upper part forms a fold-down half gate. Before being collapsed on the base, the shelf can first be folded. Walls equipped with intermediate shelves are most preferably hinged at a higher point than walls without intermediate shelves, and they are thus swung down on the base on top of the walls without intermediate shelves. The intermediate shelves are preferably placed in the shorter end walls.

[0009] The intermediate shelf and the related wall preferably comprise a locking mechanism, by means of which the intermediate shelf can be locked in vertical position. The locking mechanism may be an integrated part of the hinge mechanism of the intermediate shelf. It may comprise a groove and a pin fitted in the groove.

[0010] The intermediate shelf may be removable, so that the same basic cage can be delivered and used also without intermediate shelves, if desired.

[0011] The cage wall that has no intermediate shelf preferably comprises a rest for supporting the horizontally lowered intermediate shelf. The intermediate shelf may comprise a special rest counter-piece. The rest and the counter-piece may be for instance a recess and a matching pin.

[0012] The walls having hinged intermediate shelves comprise corner posts preferably made of angle iron at their edges, the intermediate shelf being swung between these.

[0013] The cages can be used for instance for storage and transport of empty packages, such as food packages.

Description of the drawings

[0014] Some embodiments of the invention are described in detail below. The accompanying drawings pertain to the description.

Figure 1 shows an open cage of the invention.

Figure 2 shows the cage as collapsed.

Figure 3 is a side view of the side wall and end walls of the cage.

Figure 4 is an end view of the end wall of the cage.

Figure 5 is a top view of the walls and the intermediate base of the cage.

Figure 6 shows the intermediate shelf of the cage.

Figure 7 shows the upper end of the corner post of the end wall of the cage.

Detailed description of an embodiment of the invention

[0015] The cage illustrated in the figures has a rectangular base 1, side walls 2, end walls 3 and an intermediate base 4.

[0016] At the corners of the base 1, corner pieces 5 made of angle iron are provided together with associated piling pads 6. The corner pieces have upper extensions 7, which extend to a distance above the base. Side beams 8 and end beams 9 are provided at the edges of the base.

[0017] The side wall 2 has a lower part 10 hinged in the base side beam 8 and an upper part 11 with equal height hinged in the lower part, the upper part forming a fold-down half-gate. When the side wall is collapsed on the base, the lower part is swung inwardly on the base 1 and the upper part is swung outwardly on top of the lower part.

[0018] The height of the end walls 3 is smaller than the length of the base (parallel with the side wall).

[0019] The end wall 3 has a corner post 12 made of angle iron at its each side edge. The corner post is disposed inside the upper extension 7 of the base corner piece and is hinged to the upper side of the base by means of horizontal pins, allowing the end wall to be swung down on top of the side walls 2 collapsed on the base.

[0020] The intermediate base 4 has two opposite shelves 13 hinged in the end walls 3 at half of their height. In order to allow pivoting, the side wall of the vertical post 12 has a hole 14 and the side edge of the shelf has a groove 15 parallel with the shelf plane. The shelf is fixed to the vertical post by means of a bolt 16 inserted through the hole and the groove. When the shelf is turned in vertical position and allowed to sink freely, with the bolt bearing against the upper end of the groove, the shelf will be retained in vertical position. When it is desirable to turn the shelf in horizontal position, the shelf is lifted to make the lower end of the groove coincide with the bolt, allowing the shelf to swing. A recess 17 is provided on the side at both the front edges of the shelf. Accordingly, an upwardly directed pin 18 is provided on the inner side at the upper edge of the lower part 10 of the side wall, the recess in the lowered shelf engaging this pin.

[0021] At each upper corner of the upper part 11 of the side wall, a pivoted locking bolt 19 is provided, and the vertical post has a corresponding locking link 20, allowing interlocking of the raised walls.

[0022] Inside the upper end of the corner post 12, the end wall has been shaped with a suitably oblique guide surface in order to make it easier to lift the shelf in vertical position and to lower it again.

intermediate shelves forming together an intermediate base (4).

2. A cage as defined in claim 1, **characterised in that** the end edge (9) is shorter than the side edge (8) and that the intermediate shelf (13) is hinged in the end wall (3).
3. A cage as defined in claim 1 or 2, **characterised in that** the end edge (9) is shorter than the side edge and that the end wall (3) is hinged at a higher point than the side wall (2).
4. A cage as defined in any of claims 1-3, **characterised in that** the intermediate shelf (13) and the wall (3) have a locking mechanism (14, 15, 16) for locking the raised shelf into vertical position.
5. A cage as defined in claim 4, **characterised in that** the locking mechanism comprises a groove (15) and a pin (16) inserted into the groove.
6. A cage as defined in claim 5, **characterised in that** the groove (15) is in the intermediate shelf and the pin (16) is in a hole made in the corner post (12) at the side edge of the wall.
7. A cage as defined in any of claims 1-6, **characterised in that** inside the wall (2), in which no intermediate shelf is hinged, a rest (17) is provided to support the lowered shelf in horizontal position.
8. A cage as defined in claim 7, **characterised in** comprising a support arrangement formed of a recess (17) in the wall (2) in which no intermediate shelf is hinged and a pin (18) in the intermediate shelf.
9. A cage as defined in any of claims 1-8, **characterised in that** corner posts (12) made of angle iron are provided at the side edges of the wall in which an intermediate shelf is hinged.
10. Use of the cage of any of claims 1-9 for the storage of empty packages.

Claims

1. A cage having a rectangular base (1) with side edges (8) and end edge mountings (9, 7), a side wall (2) hinged in each side edge and an end wall (3) hinged in each end edge mounting, **characterised in that** an intermediate shelf (13) is hinged above the base in both of the two opposed walls (3), the

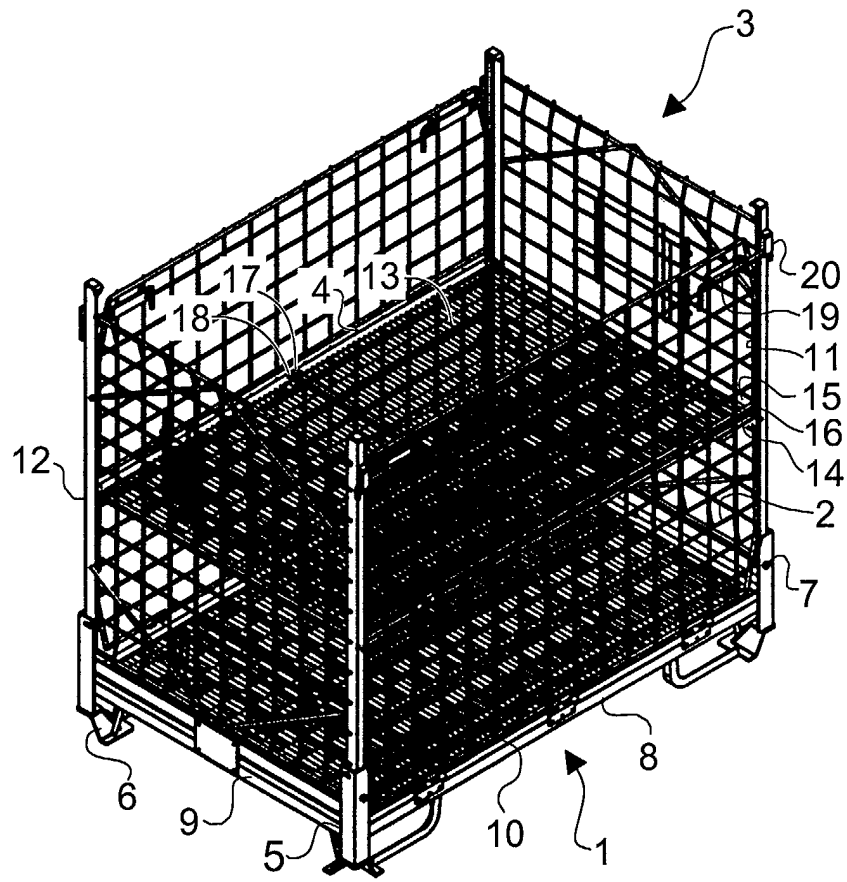


Fig. 1

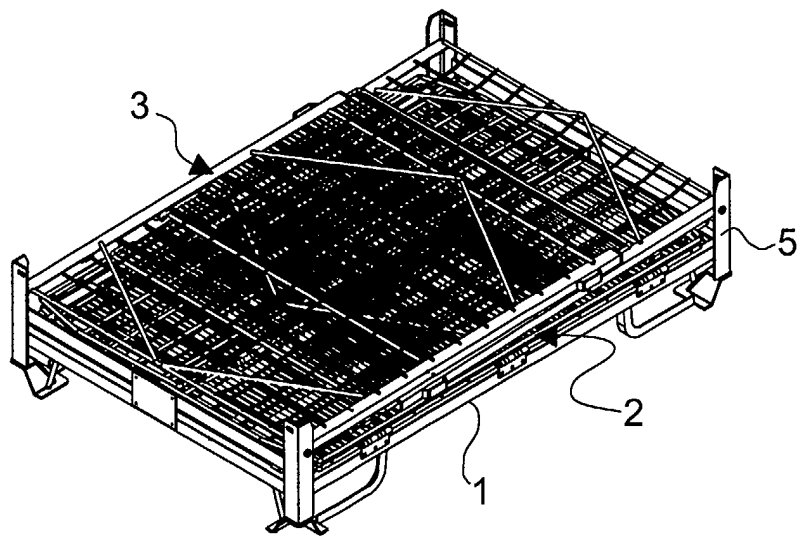


Fig. 2

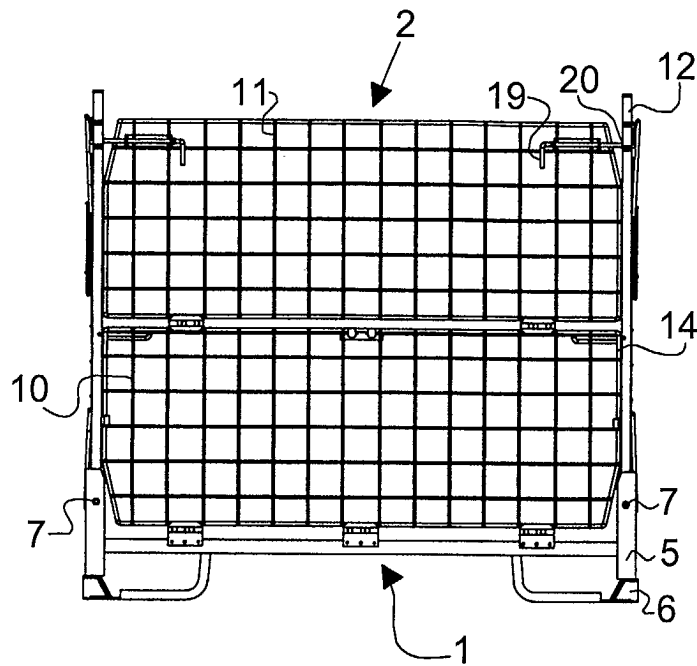


Fig. 3

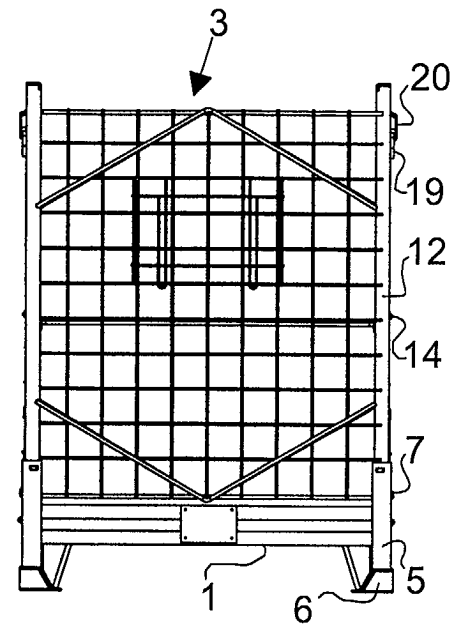


Fig. 4

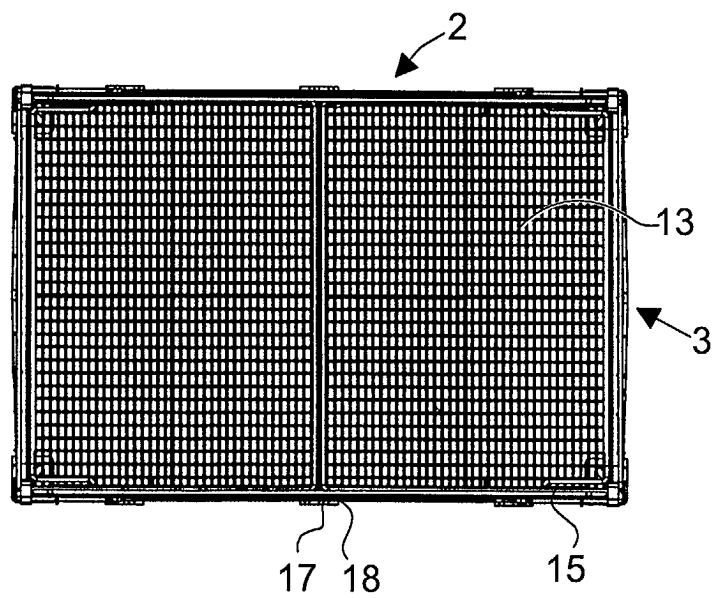


Fig. 5

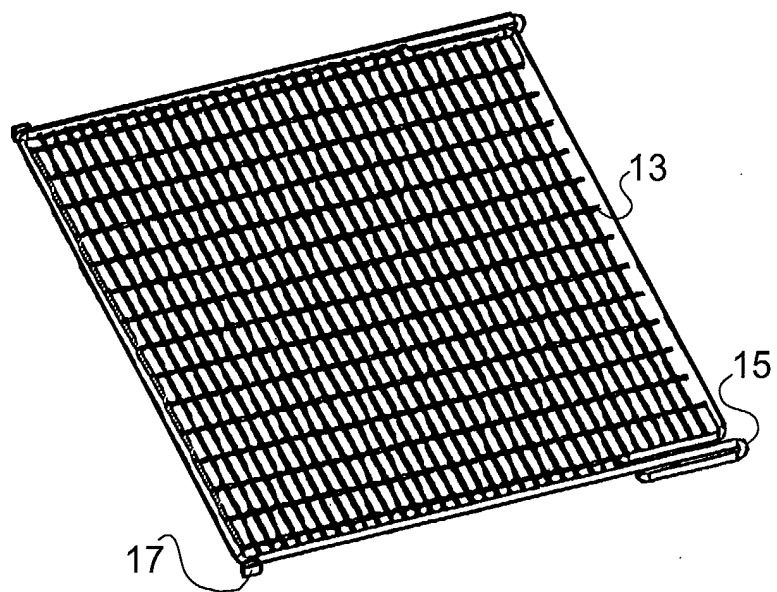


Fig. 6

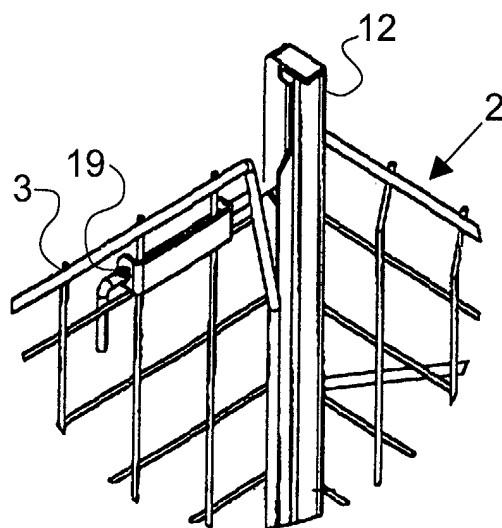


Fig. 7



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EUROPEAN SEARCH REPORT

Application Number
EP 02 39 6028

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.7)
A	FR 2 780 035 A (CADDIE ATEL REUNIS) 24 December 1999 (1999-12-24) * page 5, line 3 - line 28; figures 1,12 *	1-10	B65D19/12
A	EP 0 192 889 A (ELOPAK LTD) 3 September 1986 (1986-09-03) * page 1, line 12 - line 17; figures 1,2 *		
A	EP 0 476 970 A (ELOPAK SYSTEMS) 25 March 1992 (1992-03-25) * figures 1,4 *		
A	US 2 466 220 A (FERGUSON ARCHIE R) 5 April 1949 (1949-04-05) * figures 1,2 *		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7) B65D B65B B62B
Place of search MUNICH		Date of completion of the search 13 June 2002	Examiner Bevilacqua, V
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ON EUROPEAN PATENT APPLICATION NO.**

EP 02 39 6028

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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13-06-2002

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
FR 2780035	A	24-12-1999	FR	2780035 A1	24-12-1999
EP 0192889	A	03-09-1986	EP	0192889 A2	03-09-1986
			FI	854766 A	31-05-1986
EP 0476970	A	25-03-1992	DE	69124895 D1	10-04-1997
			EP	0476970 A1	25-03-1992
			FI	914333 A	18-03-1992
			FI	953312 A	05-07-1995
			NO	913648 A	18-03-1992
US 2466220	A	05-04-1949	NONE		