(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 714 915 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
25.10.2006 Bulletin 2006/43

(51) Int Cl.:
B65F 1/14 *(2006.01)*

(21) Application number: **06008089.2**

(22) Date of filing: **19.04.2006**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK YU

(30) Priority: **19.04.2005 NL 1028803**

(71) Applicants:
- **Ariesen, Pel**
  1241 ES Kortenhoef (NL)
- **Van der Wulp, Pieter**
  1551 AW Westzaan (NL)

(72) Inventors:
- **Ariesen, Pel**
  1241 ES Kortenhoef (NL)
- **Van der Wulp, Pieter**
  1551 AW Westzaan (NL)

(74) Representative: **Verhees, Godefridus Josephus Maria**
De Pinckart 54
5674 CC Nuenen (NL)

(54) Automatic closing device for a container well

(57) Automatically closing covering device (1) for a container well, which has a rim construction (3) that is piaced on the opening of a well, and two covering plates (5), which have a swivel connection around a pivot (7) to the rim construction.
The covering device (1) is provided with a closing device that has two counter-weights (9), which are fastened via cables (11) at a distance from the pivot (7) to the covering plates (5). The cables (11) run from the counter-weight (9) straight upwards, after which they are led near the pivot (7) to a guide wheel (15) at a distance from the pivot an the rim construction (3), after which they are fastened to a side of the covering plates (5).
The coveringplates (5) are provided with locking devices that each has a hook (19), which in the closed position of the covering plate (5) hooks behind a pin (21) behind the rim construction (3) and thus locks the covering plate in the closed position.

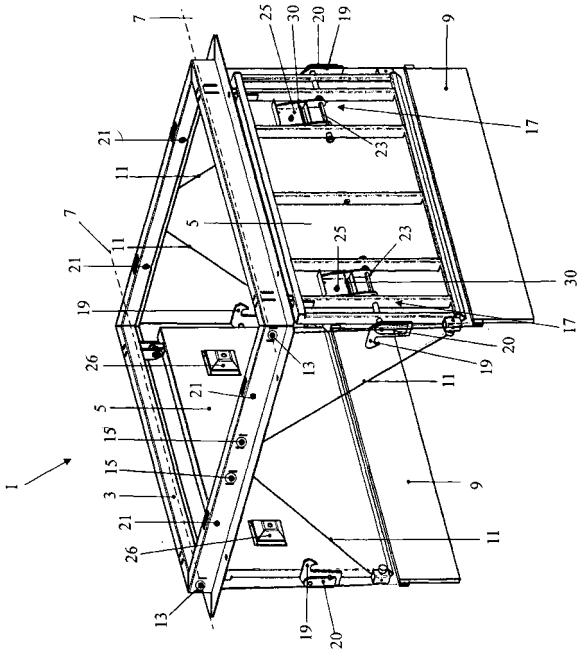

FIG. 2

EP 1 714 915 A1

Description

BACKGROUND OF THE INVENTION:

Field of the invention

[0001] The invention relates to an automatically closing covering device for a container well comprising at least one covering plate, which has a hinged connection to a rim construction present around the opening of the container well, as well as a closing device for automatically placing the covering plate on the opening of the container well after a container has been taken out of the container well. A container well is defined as a container well for placing a container under the ground surface. The covering device must close automatically at the moment acontainer in the containerwell is removed from the well. This is to prevent somebody from accidentally falling into the well. Moreover, the covering device must open automatically when a container is placed in the well.

Prior art

[0002] Such a covering device is known from the French patent application no. 2857948. This well-known covering device has two covering plates, which are turned to the closed position by springs and which must be opened against the spring tension. The disadvantage of this well-known covering device is that should the springs fail to operate for any reason, the covering plates will not come into the correct position to cover the container with all the disadvantages of this occurrence.

Summary of the invention

[0003] An objective of the invention is to provide a covering device of the sort described in the preamble, which is more reliable than the well-known covering device. For this purpose, the covering device according to the invention is characterised in that the closing device comprises at least one counter-weight that is connected to the covering plate via cables at a distance from the pivot, around which the covering plate can turn. The distance of the fastenings points of the cables to the pivot is such that the force exerted by the counter-weight on the covering plate is sufficient to pull this up to the closed position.

[0004] It is noted that a device with counter-weights is known from the French patent application no. 2809474. In this, a frame that can be moved vertically via cables is connected to counter-weights, which can be moved vertically along a side of the construction. If, in the device known from this patent, the frame is replaced by the hinged covering plates known from FR 2857948, it is then not known where the cables are fastened to the covering plates. Moreover, the guide rolls near the top of the rim construction are all present near a side ofthe rim construction and there are no guide rolls on the top at a distance from this side.

[0005] The chance that the covering plate does not automatically go to the covering position is nil if the cables are led over wheels with ball bearings. Preferably, the covering has two covering plates and there are two counter-weights, which are each connected via cables to one of the covering plates.

[0006] The covering plate is preferably hinged around a shaft with bearings in a pipe. The chance of a covering plate hinged around a shaft with bearings in a pipe becomingjammed is much smaller than a scissor construction becoming jammed. Thus the chance that the well will not be automatically covered is much smaller than with the well-known covering device.

[0007] A favourable embodiment ofthe covering device according to the invention is characterised in that the pivot is present along a side of the opening of the container well and in that the counter-weight can be moved vertically along a wall of the container well adjoining this side.

[0008] A further favourable embodiment of the covering device according to the invention is characterised in that the cables from the counter-weight run straight upwards and are led near the pivot by a first guide wheel to a second guide wheel that is present at a distance from the pivot on the rim construction and are then fastened at a distance from the pivot on a side of the covering plate.

[0009] To ensure that the covering plate in the closed position does not inadvertently open, a further embodiment of the covering device is characterised in that the covering plate is provided at a distance from the pivot with at least one swivel hook, which in the closed position of the covering plate hooks behind a pin behind the rim construction and thus locks the covering plate in the closed position. Preferably, there is a hook on each side of the covering plate, so that the covering plate cannot fall open under the influence of the weight on it if one hook should accidentally disengage. Moreover, it must be possible to disengage the hooks independently of each other. The hooks are visible from above so that it can be clearly seen if they are locked or not.

[0010] To ensure that the covering plate is unlocked when a container is brought into the well, a still further embodiment of the covering device is characterised in that the covering device also comprises at least one operating plate, which is fastened to a swivel shaft to which a catch is also fastened that can turn from a locked position when the hook is turned, whereby the hook locks the covering plate, to a released position whereby the hook releases the covering plate, which operatingplate canbe operated from above when the covering plate is closed and whereby the hook disengages from the pin when a downwards force is exerted on the operating plate. The operating plate is present at such a place on the covering plate that when a container is put in place, it presses against the operating plate and pushes the operatingplate away under the influence of its own weight so that the hook disengages from the pin. The container then pushes the covering plate away under the influence

of its own weight so that this swivels around the pivot and thus pulls the counter-weights upwards.

Brief description of the drawings

[0011] The invention will be elucidated more fully below on the basis of drawings in which an embodiment of the covering device according to the invention is shown. In these drawings:

Figure 1 shows an embodiment of the covering device according to the invention in the closed position;
Figure 2 shows the covering device shown in figure 1 in the open position;
Figure 3 shows the covering device in the closed position with the covering plates detached; and
Figure 4 shows a covering plate of the covering device separated into its.

parts.

Detailed description of the drawings

[0012] Figures 1, 2 and 3 show an embodiment of the covering device according to the invention in the closed and open positions respectively. The covering device 1 has a rim construction 3, which is placed on the opening of a well, and two coveringplates 5, which have a swivel connection around a pivot 7 to the rim construction.

[0013] The covering device 1 is provided with a closing device that has two counter-weights 9, which are fastened via cables 11 at a distance from the pivot 7 to the covering plates 5. The cables 11 are led over guide wheels 13, 15, which turn on ball bearings and run from the counter-weight 9 straight upwards, after which they are lednear the pivot 7 by a first guide wheel 13 to a second guide wheel 15 at a distance from the pivot on the rim construction 3, after which they are fastened to a side of the covering plates 5.

[0014] The covering plates 5 are provided with locking devices 17 at a distance from the pivot 7 to hold the covering plates in the closed position, see also figure 4 in which a covering plate 5 is shown separated into parts, and in which the construction of the locking devices 17 is clearly visible. Each locking device has a swivel hook 19, which in the closed position of the covering plate 5 hooks behind a pin 21, which is behind the rim construction 3, and thus locks the covering plate in the closed position. This hook 19 is fastened to a shaft 23 on which an operating plate 25 and a catch 20 are also fastened. This operating plate can be operated from above in the closed position of the covering plate via a cover 26 above this and turns the catch 20, which takes the hook 19 with it and disengages this from behind the pin 21 if a downwards force is exerted on it.

[0015] To prevent somebody from unlocking the covering plate by being on the operating plate, the shaft 23 is connected to a strong spring 30 so that it can only be turned with great force.

[0016] Although in the above the invention is explained on the basis of the drawings, it should be noted that the invention is in no way limited to the embodiment shown in the drawings. The invention also extends to all embodiments deviating from the embodiment shown in the drawings within the context defined by the claims.

Claims

1. Automatically closing covering device for a container well comprising at least one covering plate, which has a hinged connection to a rim construction present around the opening of the container well, as well as a closing device for automatically placing the covering plate on the opening of the container well after a container has been taken out of the containerwell, **characterised in that** the closing device comprises at least one counter-weight that is connected to the covering plate via cables at a distance from the pivot, around which the covering plate can be turned.

2. Covering device according to claim 1, **characterised in that** the pivot is present along a side of the opening of the container well and **in that** the counterweight can be moved vertically along a wall of the container well adjacent to this side.

3. Covering device according to claim 2, **characterised in that** the cables run straight upwards from the counter-weight and are led near the pivot by a first guide wheel to a second guide wheel at a distance from the pivot on the rim construction and are then fastened at a distance from the pivot to a side of the covering plate.

4. Covering device according to one of the preceding claims, **characterised in that** the covering plate is provided with at least one swivel hook at a distance from the pivot, which in the closedposition ofthe covering plate hooks behind a pin present behind the rim construction and thus locks the covering plate in the closed position.

5. Covering device according to claim 4, **characterised in that** the covering device also comprises at least one operating plate, which is fastened to a swivel shaft to which a catch is also fastened that can turn from a locked position when the hook is turned, whereby the hook locks the covering plate, to a released position whereby the hook releases the covering plate, which operating plate can be operated from above when the covering plate is closed and whereby the hook disengages from the pin when a downwards force is exerted on the operating plate.

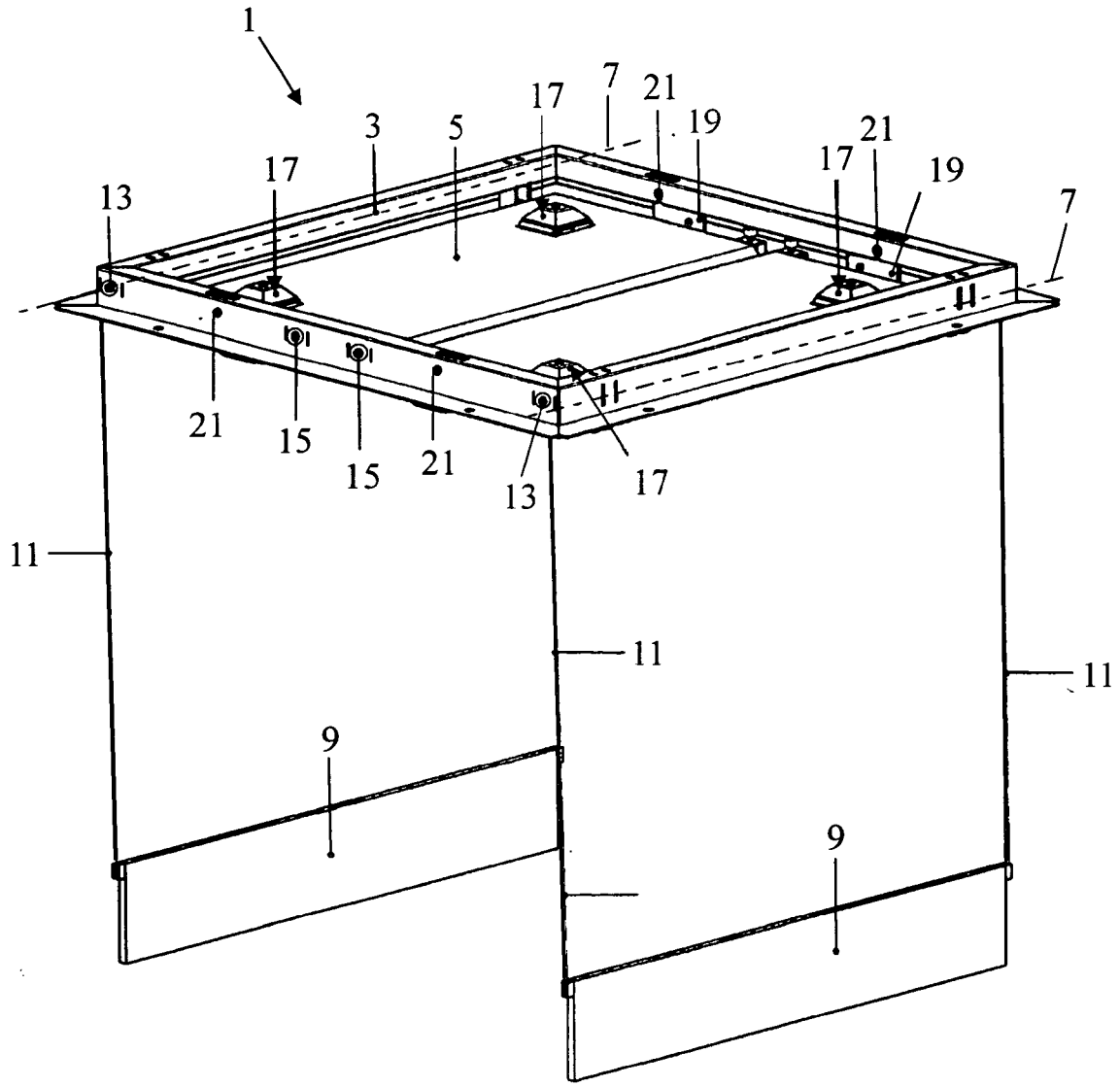

FIG. 1

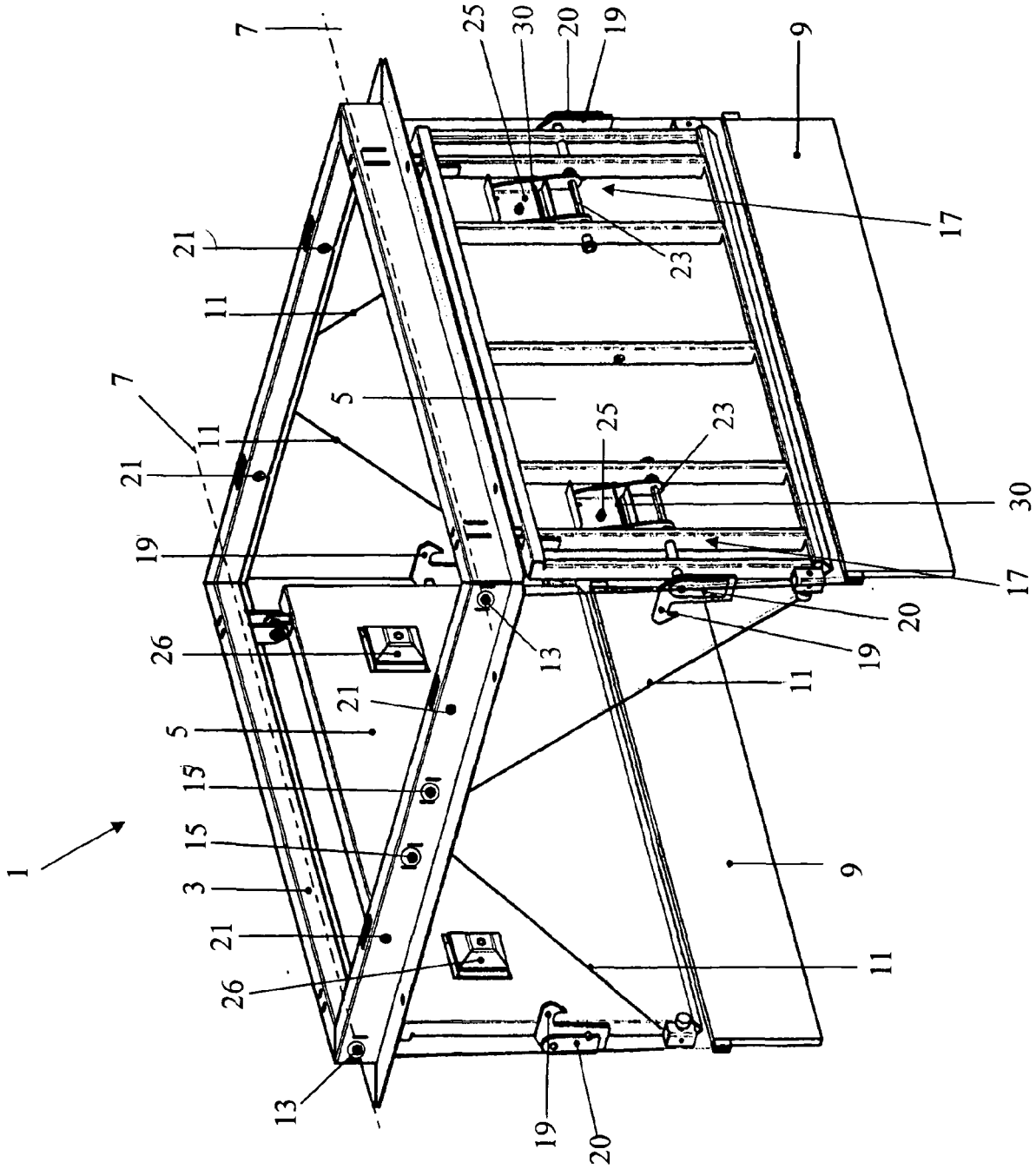
7
25
30
20
19
9
17
21
11
23
5
7
11
25
23
21
30
19
17
20
19
26
13
11
21
5
15
15
1
3
9
21
11
26
13
19
20

FIG. 2

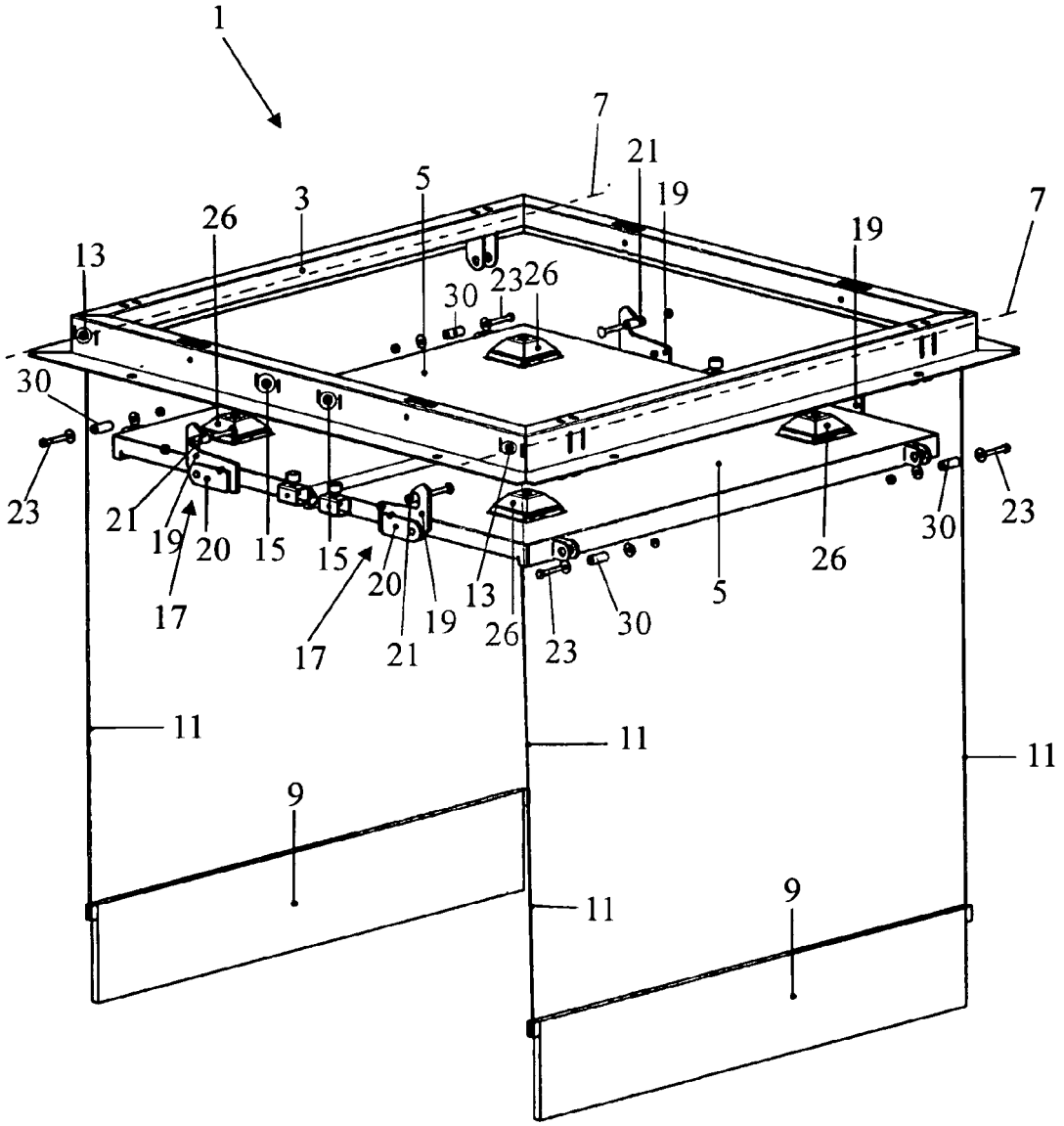
1
7
21
19
5
3
26
13
19
7
23
26
30
30
23
21
19
20
15
15
20
19
13
26
23
30
5
26
30
23
17
17
21
11
11
11
9
11
9

FIG. 3

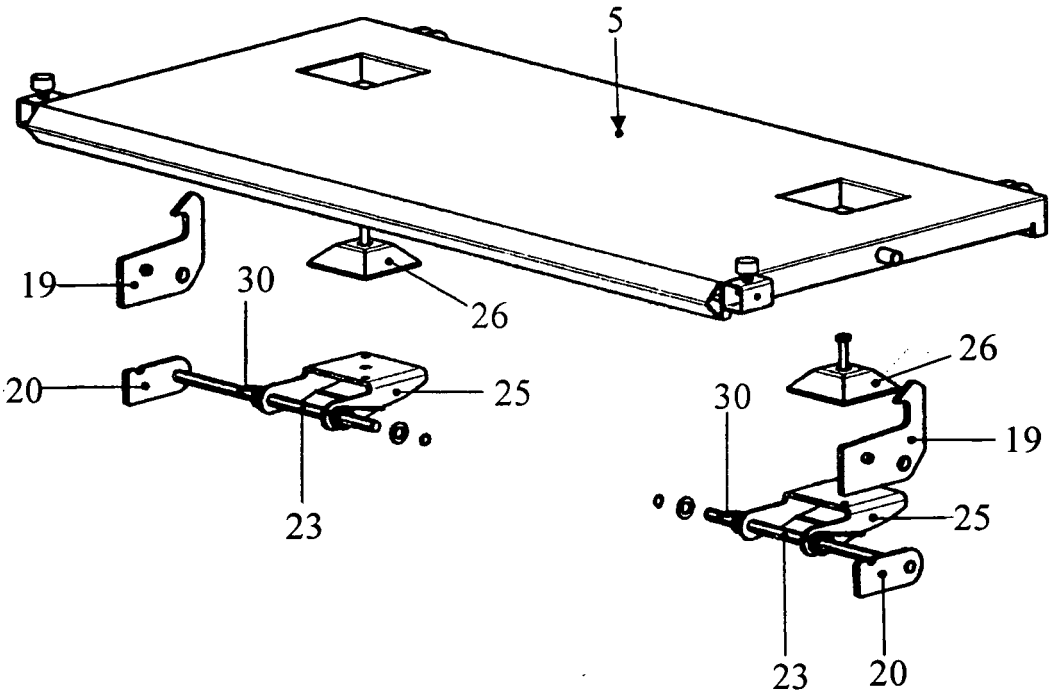

FIG. 4

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 00 8089

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	FR 2 857 948 A (BOUCHER PAUL) 28 January 2005 (2005-01-28) * page 8, line 3 - page 9, line 4; figures 1-10 *	1	INV. B65F1/14
A	FR 2 809 474 A (CAUQUIL DANIEL) 30 November 2001 (2001-11-30) * the whole document *	1	
A	EP 0 650 908 A (ALLIBERT EQUIPEMENT , SOCIETE DITE:; ETABLISSEMENTS G. GENET) 3 May 1995 (1995-05-03)		
A	US 4 655 357 A (HAMPTON, JR. ET AL) 7 April 1987 (1987-04-07)		
A	NL 1 002 026 C1 (METRO WASTE SYSTEMS B.V) 9 July 1997 (1997-07-09)		
A	FR 2 736 901 A (ALLIBERT EQUIPEMENT) 24 January 1997 (1997-01-24)		

TECHNICAL FIELDS SEARCHED (IPC)

B65F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	28 June 2006	Wartenhorst, F

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

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 06 00 8089

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

28-06-2006

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 2857948 A	28-01-2005	NONE	
FR 2809474 A	30-11-2001	NONE	
EP 0650908 A	03-05-1995	AT 160996 T	15-12-1997
		DE 69407259 D1	22-01-1998
		DE 69407259 T2	02-04-1998
		DK 650908 T3	27-04-1998
		ES 2109637 T3	16-01-1998
		FR 2711976 A1	12-05-1995
		GR 3025659 T3	31-03-1998
US 4655357 A	07-04-1987	CA 1269627 A1	29-05-1990
NL 1002026 C1	09-07-1997	NONE	
FR 2736901 A	24-01-1997	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- FR 2857948 **[0002] [0004]**
- FR 2809474 **[0004]**