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

(11) **EP 3 480 136 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
08.05.2019 Bulletin 2019/19

(51) Int Cl.:
B65F 1/10 *(2006.01)*

(21) Application number: **18204453.7**

(22) Date of filing: **05.11.2018**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(30) Priority: **06.11.2017 IT 201700125948**

(71) Applicant: **Eco Step Italia S.r.l.**
20127 Milano (IT)

(72) Inventors:
- **TOLASI, Stefano**
  23020 Gordona (SO) (IT)
- **SCHMITT, David**
  23020 Gordona (SO) (IT)

(74) Representative: **Rastelli, Franco**
Dott. Franco Cicogna & C. SRL
Via Visconti di Modrone, 14/A
20122 Milano (IT)

(54) **DEVICE FOR CONTROLLING THE INSERTION OF WASTE INTO WASTE CONTAINERS**

(57) A device for controlling the insertion of waste into waste containers, comprising two half-drums (4) inserted coaxially and rotatingly one inside the other, each half-drum comprising two side walls (1) between which a semi-cylindrical wall (2) is fixed, whereby mechanical fixing elements (3), such as screws, rivets, stud bolts with nuts, projecting pins are provided to perform the mechanical fixing between the aforesaid walls (1,2).

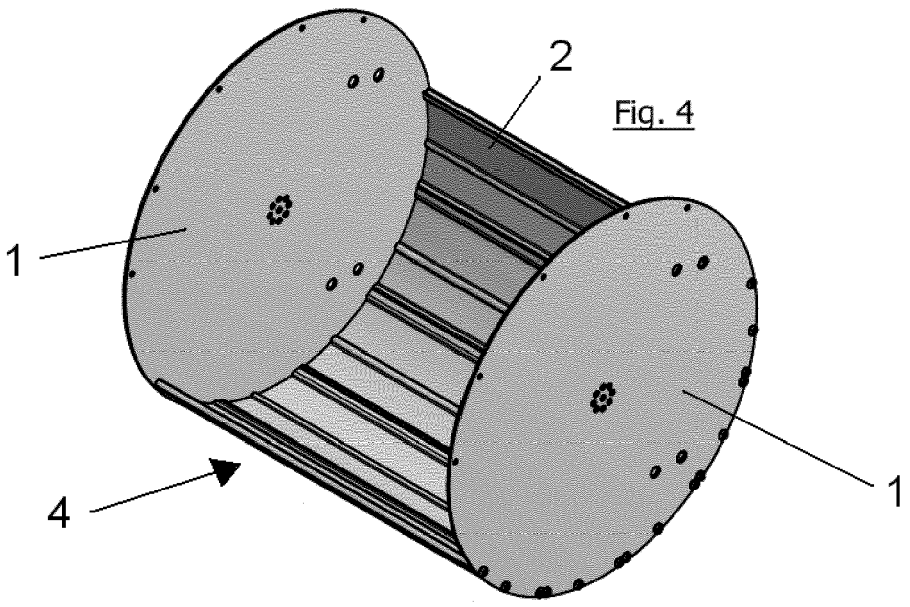


Fig. 4

EP 3 480 136 A1

Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to an improved device for the insertion of waste into a respective container.

[0002] The field of the invention is that of devices used to control the mouth of waste containers, for the purpose of closing them in relation to the outside, while allowing the freedom to insert waste through this mouth.

[0003] The aforesaid devices consist of two half-drums, one having a larger diameter and one having a smaller diameter, housed coaxially and relatively rotatingly one inside the other. The mutual rotation between the aforesaid half-drums first causes the opening of the mouth towards the outside of the device, so as to allow the waste to be loaded into the half-drums, then the closing of the mouth towards the outside and the opening thereof towards the inside of the container, so as to allow the waste to be inserted or unloaded into the latter.

[0004] Conventionally, the semi-cylindrical wall of the aforesaid half-drums is welded directly onto the edge of the side walls of the half-drums, which makes it necessary to produce said wall in a thin sheet metal, cut and calendered, in which the welds cause internal stresses. The half-drums have the drawback of having a certain torsional flexibility, responsible for malfunctions during their relative rotation.

SUMMARY OF THE INVENTION

[0005] The main object of the present invention is to provide a device of the aforesaid type which, unlike similar prior art systems, has greater structural rigidity, suitable to offer greater functional reliability.

[0006] This and other objects are achieved with the device of claim 1. Preferred embodiments of the invention are indicated in the remaining claims.

[0007] In comparison with conventional devices, the device of the invention offers the advantage of having a greater structural rigidity, achieved by the possibility of producing the semi-cylindrical wall of the half-drums with materials other than sheet metal, in particular aluminium, preferably by producing the same semi-cylindrical wall as a composition of a plurality of rigidly coupled interlocking segments.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] These and other objects, advantages and features become apparent from the description below of some preferred embodiments of the device of the invention, illustrated by way of non-limiting examples in the figures of the accompanying drawings,
wherein:

- Fig. 1 illustrates a plan view of the semi-cylindrical wall of a half-drum of the device of the invention;
- Figs. 2 and 3 illustrate one of the two side walls of the half-drum of the device of the invention;
- Fig. 4 illustrates a perspective view of a half-drum of the device of the invention;
- Figs. 5 and 6 illustrate the detail of the coupling of the semi-cylindrical wall to the side walls of the half-drum of Fig. 4;
- Figs. 7 and 8 illustrate an alternative embodiment of the device of the preceding figures.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0009] One of the two half-drums of the device of the invention is indicated as a whole with the reference numeral 4 in Fig. 4. It consists of two disk-shaped side walls 1, to the edge of which the semi-cylindrical wall 2 is fixed.

[0010] According to the invention, the aforesaid fixing is performed by means of mechanical elements, such as screws 3 in Fig. 6, provided at the edges for mutual coupling of the aforesaid walls 1 and 2 of the half-drum 4. In place of the screws 3, rivets, stud bolts with relative nuts, or pins or other projections, suitable to produce the interlocking engagement between the walls 1 and 2, could be used.

[0011] The semi-cylindrical wall 2 can be made in one piece, or as a composition of several segments 5 with an arch section, better visible in Fig. 7, which interlockingly mutually engage at their contiguous edges 6 and 7. Advantageously, the aforesaid segments 5 are made of aluminium.

[0012] In the variant of Figs. 7 and 8, the side walls 1 of each half-drum are obtained by the composition of two semi-circles 8.

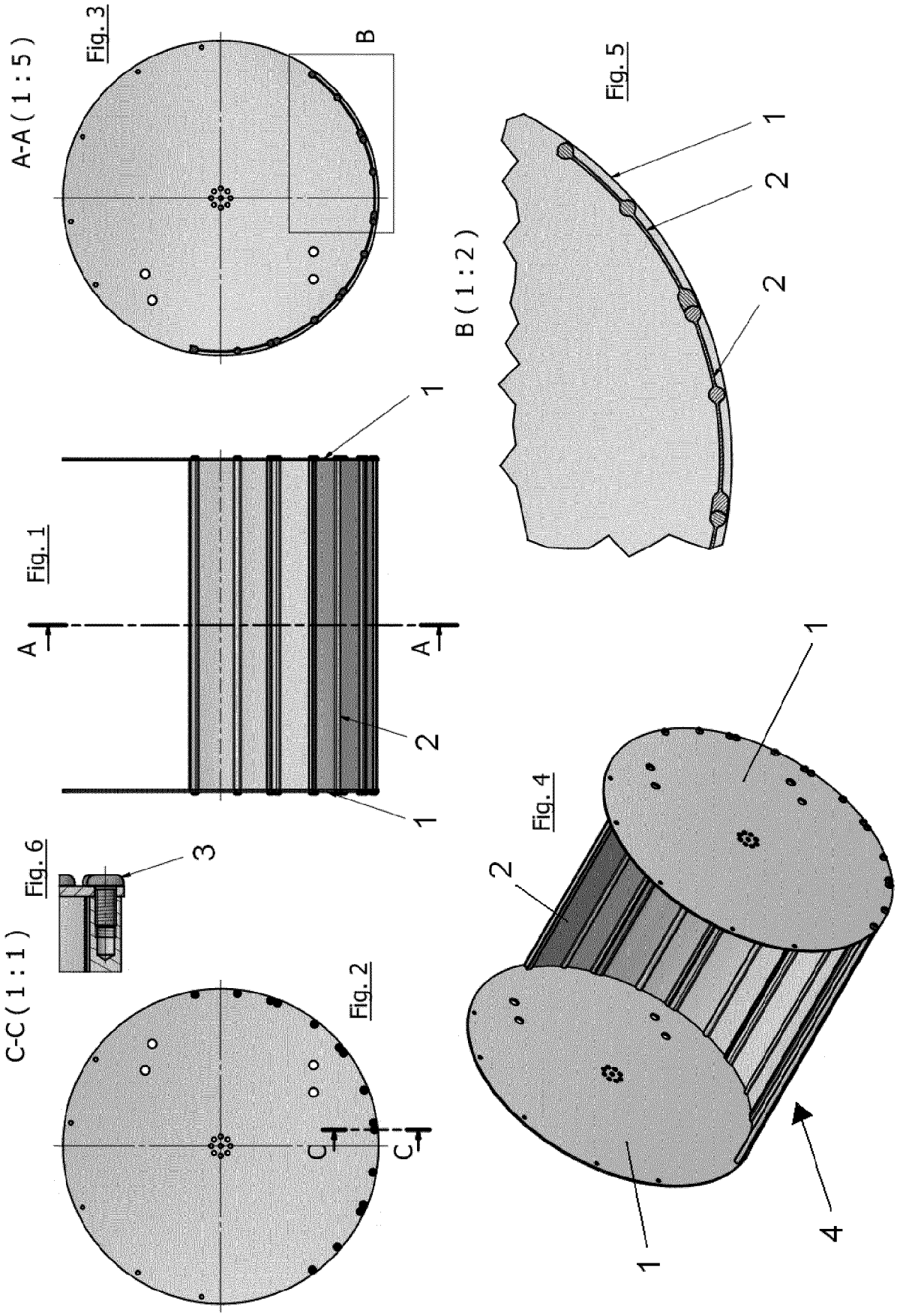
Claims

1. A device for controlling the insertion of waste into waste containers, comprising two half-drums (4) inserted coaxially and rotatingly one inside the other, each half-drum comprising two side walls (1) between which a semi-cylindrical wall (2) is fixed, said device being **characterised in that** it comprises mechanical fixing elements (3) between said walls (1,2) ; said mechanical fixing elements (3) consisting of screws, rivets, stud bolts with nuts, projecting pins and the like; said semi-cylindrical wall (2) being formed by a plurality of segments (5); the contiguous edges (6,7) of mutually coupled segments (5) being structured so as to produce a mutual interlocking coupling.

2. The device according to claim 1, **characterized in that** said segments (5) are made of aluminium.

3. A waste container, **characterized in that** it is pro-

vided with at least one device according to one or more of the preceding claims.


A-A (1 : 5)
Fig. 3
B
A
A
Fig. 1
1
2
1
B (1 : 2)
Fig. 5
1
2
2
C-C (1 : 1)
Fig. 6
3
Fig. 2
C
C
Fig. 4
1
2
1
4

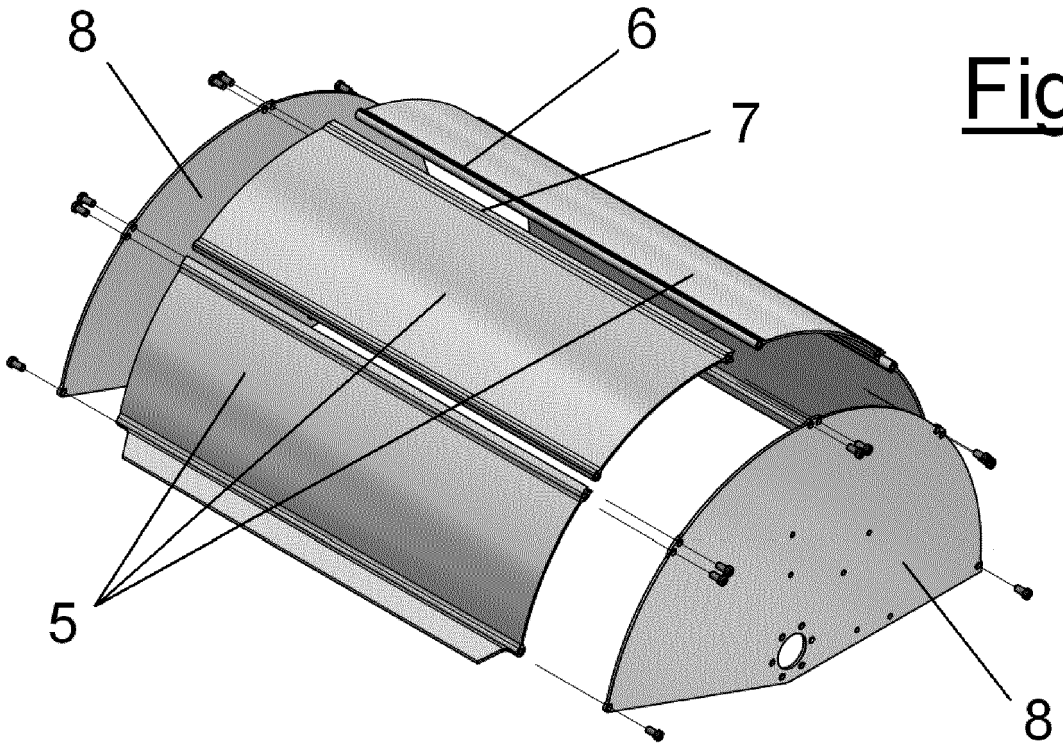


Fig. 7

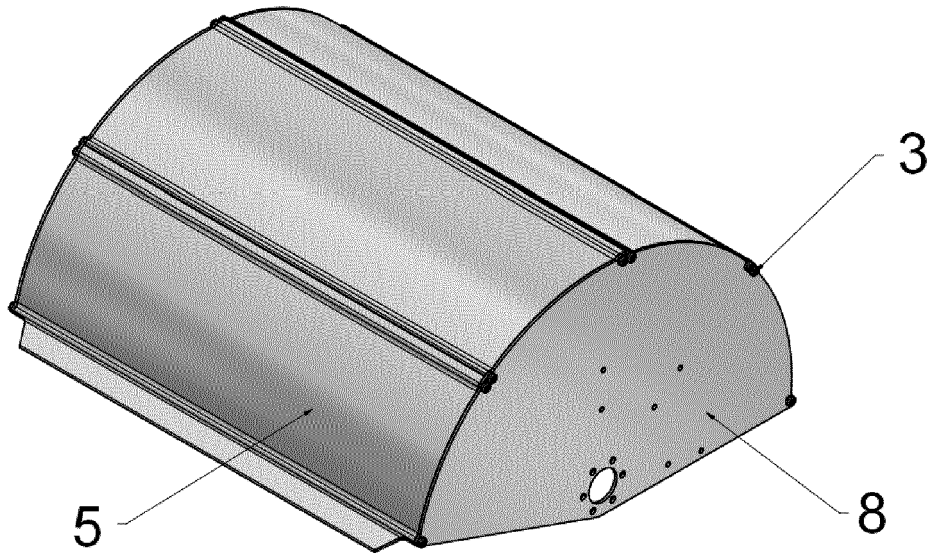


Fig. 8

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 18 20 4453

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	FR 2 962 990 A1 (H. ROUSSEL) 27 January 2012 (2012-01-27) * page 5, line 1 - line 11 * * figures 1,3 *	1-3	INV. B65F1/10
X	DE 20 2004 020144 U1 (HUBANLAGEN-WIEGETECHNIK-KIPPSYSTEM VERTRIEBS-GMBH) 24 March 2005 (2005-03-24) * paragraph [0018] - paragraph [0019] * * figures 1,2 *	1-3	
X	GB 1 086 181 A (HARDALL LTD) 4 October 1967 (1967-10-04) * page 2, line 62 - line 94 * * figure 1 *	1-3	

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	19 December 2018	Smolders, Rob

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 18 20 4453

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.

19-12-2018

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 2962990 A1	27-01-2012	NONE	
DE 202004020144 U1	24-03-2005	DE 202004020144 U1	24-03-2005
		EP 1683744 A1	26-07-2006
GB 1086181 A	04-10-1967	NONE	

EPO FORM P0459

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