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(54) A container gripping device for refuse collecting vehicle bodies

(57) This device comprises a pressing section (1) being provided for pressing the rim of the open top of the container being matingly received by a strip (5) being provided for supporting this latter at said rim, said strip corresponding to the container lifting and tipping assembly; said container gripping device being characterised in that the axle (9) on which the lifting and tipping assembly is swivelled at one end (10) is linked to the lifting means and at the opposite end (12) is solidly attached to a cam (13) against which the pressing section (1) leans by means of a cam follower (14), said cam (13) forming a stop (15) being fit to withhold said section (1) for as long as the rim of the open top of the container is not pressed, said stop being then cleared by the cam follower (14) so as to have the pressing section (1) swivelled together with the lifting and tipping assembly.

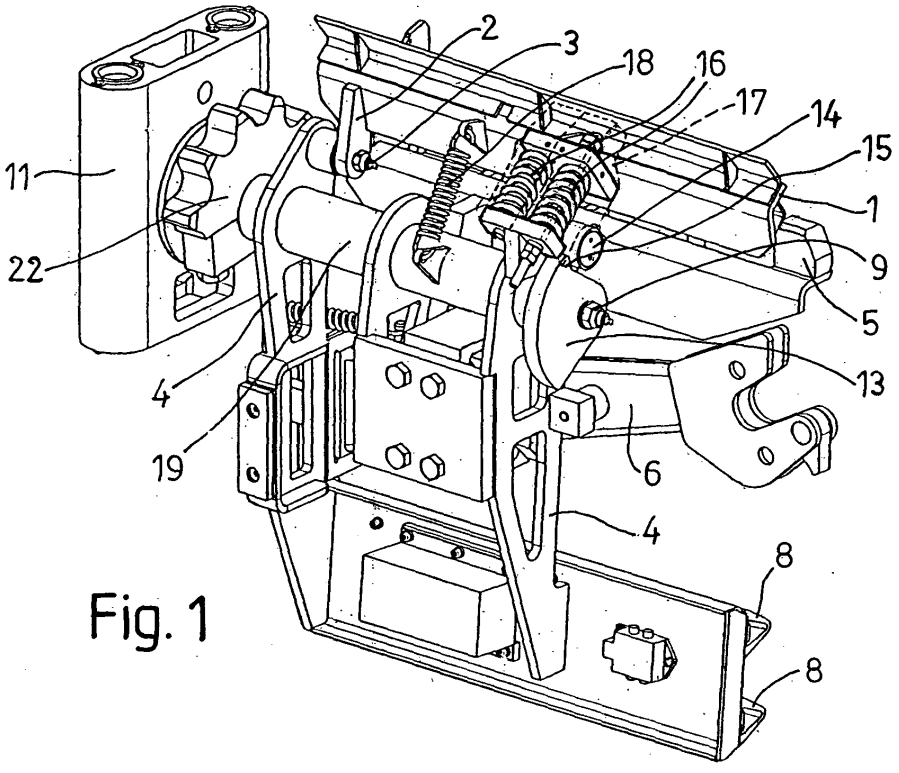


Fig. 1

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Description

FIELD OF THE INVENTION

[0001] This device is applicable to vehicles to which mechanisms are fitted for picking up and dumping refuse containers, said mechanisms comprising a container lifting assembly being arranged below the intake opening giving access to the refuse receiving hopper, said lifting assembly once having lifted the container proceeding to tip and thus overturn it in order to thus have it dumped.

BACKGROUND OF THE INVENTION

[0002] The container lifting assemblies include a container supporting structure forming a strip upwardly forming a by way of hook, a gripping device cooperating with said strip, the rim of the open top of the container being gripped between said strip and the pressing section being provided in said device, the container at its lower portion resting on a front rest being formed on the lifting assembly.

[0003] There are different means for actuating the gripping devices, some being made up by springs, whereas others comprise hydraulic or pneumatic cylinders, all of them being of complex makeup, requiring maintenance and increasing the cost of the assembly making up the gripping device.

SUMMARY OF THE INVENTION

[0004] This invention has as its object a gripping device being of a simple makeup and effectively operable and not requiring complex systems being potential trouble sources.

[0005] A characterising feature of this novel gripping device lies in the fact that the axle on which the lifting and tipping assembly is swivelled at one end is linked to the lifting means and at the opposite end is solidly attached to a cam against which the pressing section leans by means of a cam follower, said cam forming a stop being fit to withhold said section for as long as the rim of the open top of the container is not pressed, said stop being then cleared by the cam follower so as to have the pressing section swivelled together with the lifting and tipping assembly.

[0006] The gripping device comprises cushioning, resilient means that in case of a wrongly arranged container or in face of an excess pressure between the pressing section and the container supporting strip yield and thus offset said excess.

[0007] An also characterising feature lies in the presence of a spring being fit to hold the pressing section in its initial, passive position.

[0008] These and other features will be best made apparent by the following detailed description whose understanding will be made easier by the accompanying two sheets of drawings showing a practical embodiment being cited only by way of example not limiting the scope of the present invention.

DESCRIPTION OF THE DRAWINGS

[0009] In the drawings:

Figs. 1 and 2 are perspective views representing a container lifting and tipping assembly being equipped with the gripping device being the object of the invention, as seen from the back and from the front, respectively;
Fig. 3 illustrates said assembly as seen in a side elevation; and
Figs. 4 and 5 are each a sectional view as per lines IV-IV and V-V of Fig. 3.

DETAILED DESCRIPTION

[0010] According to the drawings this gripping device comprises a pressing section (1) at its backward face being integral with two brackets (2) being each linked in a pin-jointed connection on a respective pin (3) being fitted to a respective upright bracket (4) of the lifting and tipping assembly.

[0011] Numeral (5) designates the supporting strip matingly receiving the container (not shown) at the rim of its open top, the lifting and tipping assembly comprising the conventional arm (6) being linked in a pin-jointed connection on the upright pin (7), the different types of containers being grabbed with said arm, said lifting and tipping assembly inferiorly having resilient front rests (8) being provided for the lower portion of the container to come to rest on them.

[0012] Numeral (9) designates the axle on which the lifting and tipping assembly is swivelled (Fig. 4), said axle at one (10) of its ends being linked to a block (11) being fit to ascend along upright guides (not shown) being fixedly secured to the vehicle body, whereas at the other end (12) said axle is solidly attached to a cam (13) against which the pressing section (1) leans by means of the cam follower (14), said cam forming an inflexion acting as a by way of stop (15) being fit to withhold said section (1) for as long as the rim of the open top of the container is not pressed, said stop being then cleared by the cam follower (14) so as to have the pressing section swivelled together with the lifting and tipping assembly.

[0013] The pressing section (1) is linked to the lifting and tipping assembly by means of two springs (16) being fit to offset any excess pressure between the pressing section (1) and the container supporting strip (5). These springs are covered by a cowling (17).

[0014] Said pressing section is besides linked to the lifting and tipping assembly by means of a spring (18) being fit to hold said section in its initial, passive position.

[0015] The lifting and tipping assembly is solidly attached to the sleeve (19) (Fig. 4) being fit to rotate on the axle (9) by means of ball joints (20) being provided at the

end (10) and by means of rolling bearings (21) being provided at the end (12).

[0016] The toothed wheel (22) is solidly attached onto this sleeve (19) and will bring about the tipping of the container when meshingly acting in cooperation with a respective toothed rack (not shown) during its ascending travel along this latter.

[0017] In the case being shown here the lifting and tipping assembly is made up of two end portions, the represented assembly being here the one that corresponds to the right-hand side portion.

[0018] Numeral (23) designates a detector being fit to detect the presence of the container, and numeral (24) designates the cap being provided for covering the end (10) of the axle (9).

[0019] The invention can within its essentiality be put into practice in other embodiments differing only in detail from the one having been described above only by way of example, said other embodiments also falling within the scope of the protection being sought.

Claims

1. A container gripping device for refuse collecting vehicle bodies, said device comprising a pressing section (1) being provided for pressing the rim of the open top of the container being matingly received by a strip (5) being provided for supporting this latter at said rim, said strip corresponding to the container lifting and tipping assembly; said container gripping device being **characterised in that** the axle (9) on which the lifting and tipping assembly is swivelled at one end (10) is linked to the lifting means and at the opposite end (12) is solidly attached to a cam (13) against which the pressing section (1) leans by means of a cam follower (14), said cam (13) forming a stop (15) being fit to withhold said section (1) for as long as the rim of the open top of the container is not pressed, said stop being then cleared by the cam follower (14) so as to have the pressing section swivelled together with the lifting and tipping assembly.

2. A container gripping device for refuse collecting vehicle bodies as per claim 1, **characterised in that** the pressing section (1) is linked to the lifting and tipping assembly by means of at least a cushioning spring (16) being fit to offset any excess pressure between the pressing section (1) and the container supporting strip (5).

3. A container gripping device for refuse collecting vehicle bodies as per claim 1, **characterised in that** the pressing section (1) is linked to the lifting and tipping assembly by means of at least a spring (18) being fit to hold said section in its initial, passive position.

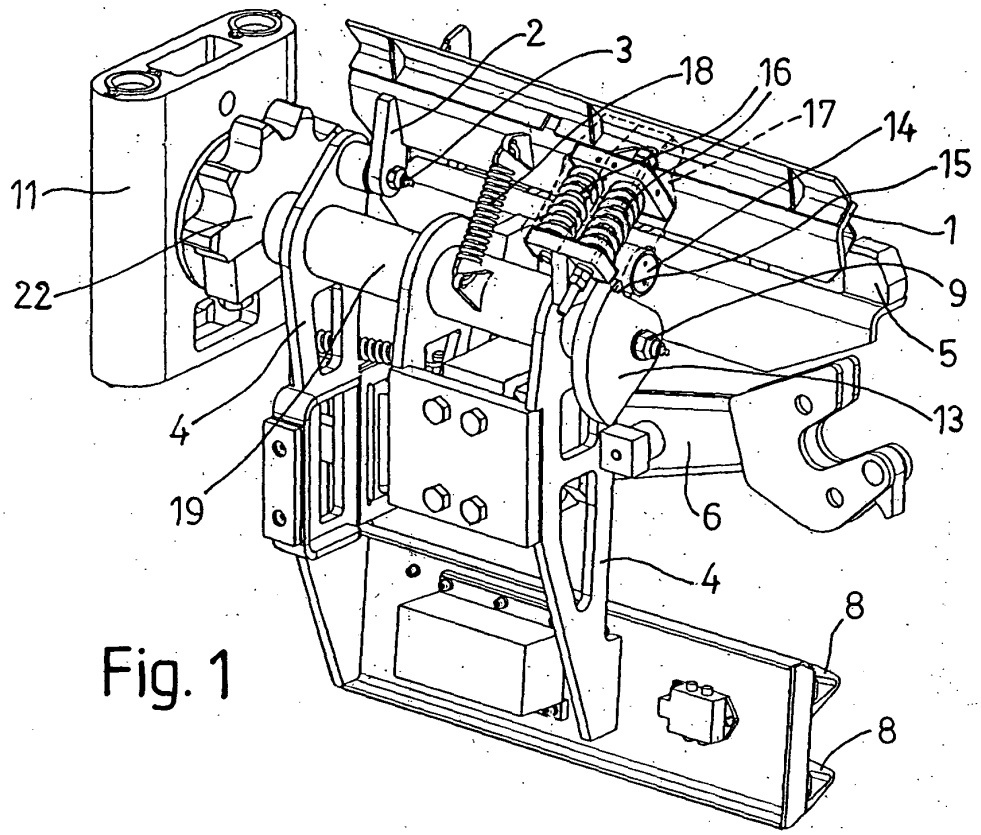


Fig. 1

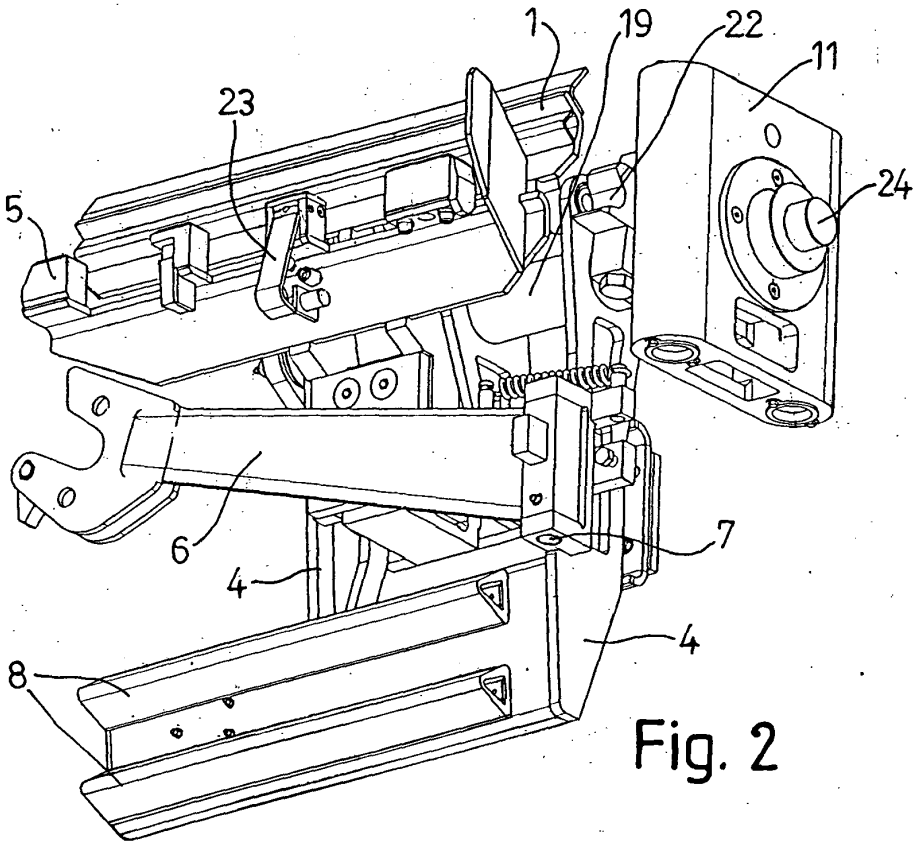


Fig. 2

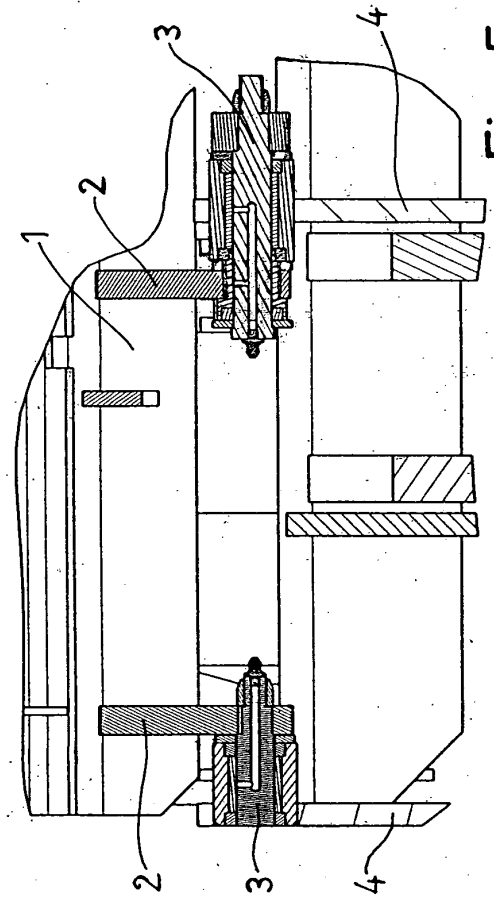


Fig. 5

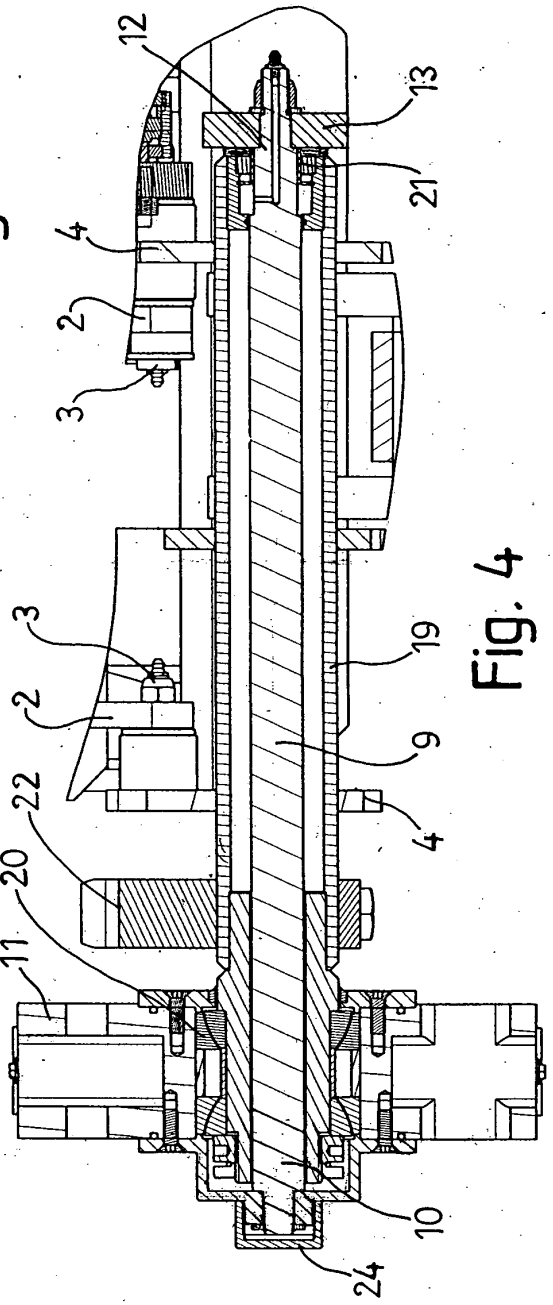


Fig. 4

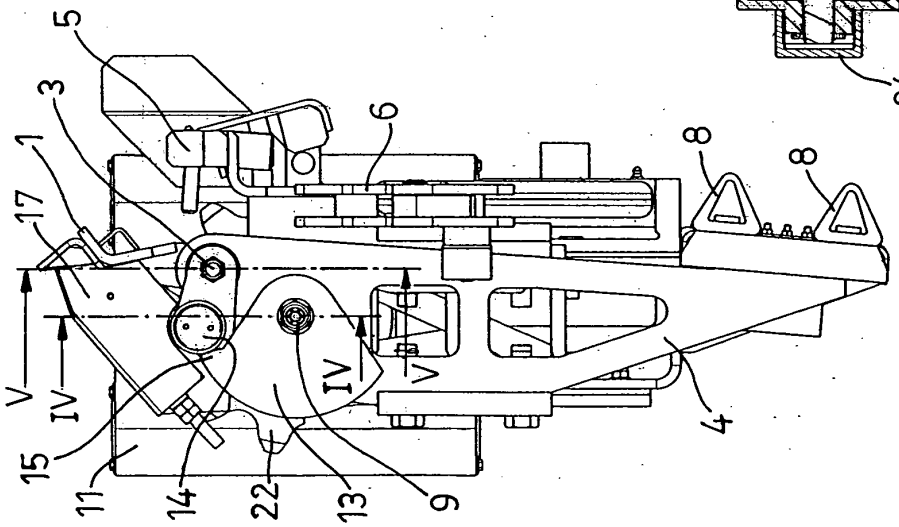


Fig. 3

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EUROPEAN SEARCH REPORT

Application Number
EP 05 38 0105

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)
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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B65F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	27 October 2005	Smolders, R

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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E : earlier patent document, but published on, or after the filing date
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 05 38 0105

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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27-10-2005

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