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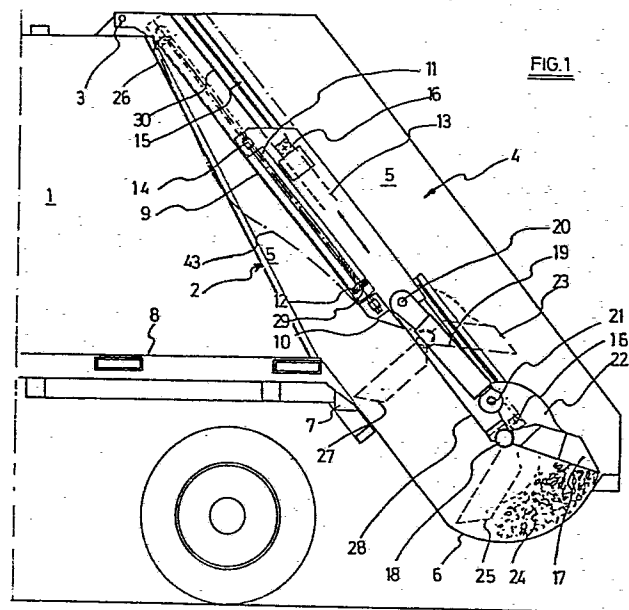
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⑤④ **Loading mechanism for refuse vehicle.**

⑤⑦ The invention relates to a loading mechanism (1) for refuse vehicles, wherein the loading mechanism shares a fixed partition wall (9) with the rear opening (2) of the vehicle body and has a slide member (13) which can move up and down and at whose bottom a pivotable packer blade (17) is provided. A hydraulic pressure cylinder (11) is located between said wall (9) and slide member (13) and fixed near the bottom edge (10) of the wall (9) and to the upperside (14) of member (13).

The invention further comprises also adjustable guiding means (16) for the slide member (13), which means may consist of a combination of friction blocks (34,35) with roller guides (36).

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LOADING MECHANISM FOR REFUSE VEHICLE

The invention relates to a loading mechanism for a refuse vehicle whereby the rear opening extends substantially vertically between the floor and the side-
5 walls of the body of the refuse vehicle. In particular, reference is made to a loading mechanism for a rear-loading refuse vehicle, e.g. for removing household waste.

10 Loading mechanisms of this kind are widely known and are often hingedly mounted on a horizontal spindle at the top of the rear opening of the refuse vehicle body. Sometimes the loading mechanisms share a fixed parti-
15 tion wall with the uppermost part of the rear opening in the refuse vehicle body, as well as a slide member which can move up and down and at whose bottom, hinges are provided for a pivotable packer blade which, in a known manner, coacts with the, possibly curved, floor
20 of the refuse receiver or hopper for any necessary compressing and dumping of the waste into the refuse vehicle body.

It is also known to guide the reciprocating slide mem-
25 ber carrying the packer blade by sliding it in its tracks near the sidewalls of the hopper. The sliding movement is then achieved by driving means, such as hydraulic cylinder-piston combinations attached to these sidewalls and connected to the slide member.

30 In order to simplify the construction of these driving means and to increase their efficiency, it is now suggested to mount them between the fixed partition wall and the slide member and to connect them fixedly to
35 the partition wall near its bottomside, while the

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moving part of the driving means is connected to the upper side of the slide member.

Further characteristics of the loading mechanism according to the invention will be further clarified hereafter with reference to an embodiment shown in the adjoined figures.

Figure 1 is a cross sectional view of the loading mechanism connected to the refuse vehicle ;

Figure 2 is a detailed view of the adjustable guiding means for the slide member in the sidewalls of the loading mechanism.

The rear portion of a refuse vehicle shown in Figure 1 comprises the refuse body 1 with rear opening 2 above which the loading mechanism 4 is pivotably fixed in hinge 3.

When the refuse vehicle 1 is being loaded, the loading mechanism rests with its sidewalls 5 against the rear opening 2 and with its underside or floor 6 against the extension plate 7 which at the bottom of the rear opening 2 is attached to the floor 8 of the refuse vehicle. The sidewalls 5 at both sides of the loading mechanism are connected to each other by a partition wall 9 which with its horizontal underedge connects with a crossbeam¹⁰. On this crossbeam, halfway between the sidewalls, a hydraulic cylinder-piston pressure combination 11, 12 is mounted as driving means, which preferably extends parallel to the slide member 13. In 14 the upperend of the piston rod is connected to the middle of the upperside of the slide member. Hence, by means of the hydraulic pressure means 11, 12 the slide member 13 is able to move up and down and in this process it is guided in suitable elongated slots 15 in

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both sidewalls 5 by means of the guiding means 16 described further on. At the bottom of the slide member the packer blade 17 is pivotably bearing-mounted in a known manner about rod 18. The rotation is also
5 performed by a hydraulic cylinder 19 which has a support 20 in the framework of the slide member and whose piston rod 21 is hingedly attached to an extension piece 22 of the packer blade.

10 The working cycle of the loading mechanism is as follows. We assume that the slide member is in its upper position and the packer blade is in open position 23 (dotted line). The refuse to be loaded is dumped into space 24 on floor 6 of the hopper and the slide member
15 with opened packer blade 23 is slid downwards under the influence of the hydraulic pressure means 11, 12 until the packer blade reaches position 17. The cylinder 19 is now brought into operation and the plate 17 pivots around the rod 18 into its position 25. During
20 this pivoting movement the plate 17 coacts with the floor 6 for compressing the dumped material and shoves it further on towards the rear opening 2. The cylinder 19 keeps its position and the slide member 13 is in coupling 14 again pushed upwards into its upper position 26 by pressure means 11- 12. The packer blade so
25 pushes the dumped material further upwards into the rear opening between the slide member wall 28 and the extension plate 7 towards its position 27.

30 The operation of this loading mechanism permits the use of but one hydraulic pressure cylinder 11 or a similar driving means for the slide member. This simplifies the hydraulic pressure circuit, lowers the weight and the cost of the loading mechanism, as well
35 as the risk of defect of the hydraulic circuit or the

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pressure cylinders. The position of cylinder 11 with fixed support 10 at the bottom also raises the pressure efficiency since the cylinder must exert most force exactly when it must push the slide member and the packer blade (traject from positions 25 to 27) carrying the material to be moved upwards. The entire piston surface 29 is used for this upward movement (without reduction of the piston rod cross section). Moreover, with the position of cylinder 11 between the partition wall 9 and the slide member 13 there is less wear of the guiding slots 15 when the slide member is moved upwards than when the cylinder would have been located on the other side of the slide member. Indeed a smaller couple is formed by the guiding means 16 in the slots 15.

In order, on the one hand, to further reduce the frictional wear of the means 16 in the slots, and, on the other hand, to avoid extremely strict and hardly applicable construction tolerances for the slots 15, the invention suggests as an additional measure to make the guiding means 16 horizontally adjustable. Moreover, these guiding means preferably comprise friction blocks in combination with roller guides as sliding mechanisms as will be described further on with reference to the detailed drawing in Figure 2.

Said figure shows one of the upper corners of the slide member 13 as viewed from the rear side of the refuse vehicle and moving up and down along the inner side 31 of the sidewall 5 of the loading mechanism. The movement of the slide member in slot 15 is guided by guiding means 16 fixed to the upper edge 32 of the slide member. These guiding means 16 essentially comprise a bearing block 33 to whose end, extending in the slot 15,

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a rectangular friction block 34 is fixed and which comprises a sliding plate 35 e.g. made of bronze. The friction block 34 - 35 preferably slides against the walls 37 and 30 of the slot 15. A roller guide 36 is bearing mounted on this shaft end and normally rolls against the bottom transverse surface 30 of the slot 15. The bearing block 33 together with this guiding combination 34, 35, 36 is now preferably horizontally movable in the direction from and towards the sidewall 5. This offers the exceptional advantage that in case of frictional wear, particularly on the inner side 37 of the sidewall 5, the resulting play between the guiding means and wall 37 can be reduced. This is important since it is known by experience that increasing play in the slide member guiding slots leads to faster wear therein and on an average also requires more sliding energy. Moreover, chances increase that the guiding means 16 blocks in case of unequal loading on the packer blade across the width of the loading mechanism.

The bearing block 33 is fixed to the upper side 32 of the slide member by means of bolt-nut connections 38 thereby using an intermediate clamping plate 39 and through suitable bores 40 in block 33. The bores have a elongated cross section with the greater transverse dimension in the direction perpendicular to the sidewall 5 so that a displacement of the bearing block in that direction becomes possible after that the bolts 38 have been slightly released. The displacement distance can be set by means of the nuts 41 against the stop 42 fixed to the upperside of the slide member.

The invention is not limited to the embodiment of the loading mechanism herein described and illustrated.

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For example the partition plate 9 may be convexed
(dotted line 43 in Figure 1) in the direction of the
rear opening of the refuse body in order to stimulate
the compressing process in the rear opening. The slot
5 walls 30 and 37 may also be covered with a sliding
layer. The roller 36 may also be replaced by a sliding
block, for example made of bronze. Cylinder 11 can also
be positioned not parallel with the slide member 13.

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Claims :

1. A loading mechanism (1) for refuse
vehicles whereby the rear opening (2) extends substan-
5 tially vertically between the floor (8) and sidewalls
of the body (1) of the refuse vehicle and whereby the
loading mechanism is hingedly mounted on a horizontal
spindle (3) to the refuse vehicle at the top of the
rear opening and has a fixed partition wall (9) with
10 the rear opening, as well as a slide member (13) which
can move up and down and at whose bottom hinges (20)
are provided for a pivotable packer blade (17) which
coacts with the floor (6) of the loading mechanism for
compressing and dumping refuse into the vehicle body
15 (1) characterized in that the driving means (11, 12)
for the up-and-down movement of the slide member (13)
are located between this slide member and said fixed
partition wall (9) and are fixedly connected near the
bottom edge of the partition wall, while the moving
20 element (12) of the driving means is connected to the
upperside (14) of the slide member.

2. A loading mechanism according to
claim 1, characterized in that the driving means (11,
25 12) consist of one hydraulic pressure cylinder (11)
located half-way between the sidewalls (5) of the
loading mechanism and of which the piston rod (12)
is connected with its upper end (14) to the middle of
the slide member (13).

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3. A loading mechanism according to
claim 2, characterized in that the hydraulic pressure
cylinder (11) extends parallel to the slide member (13).

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4. A loading mechanism according to
claim 1, characterized in that it also comprises adjustable guiding means (16) for the slide member (13) in the sidewalls of the loading mechanism, which guiding
5 means are provided with sliding mechanisms (35, 36).

5. A loading mechanism according to
claim 4, characterized in that the guiding means comprise as sliding mechanisms friction blocks (34; 35)
10 in combination with roller guides (36).

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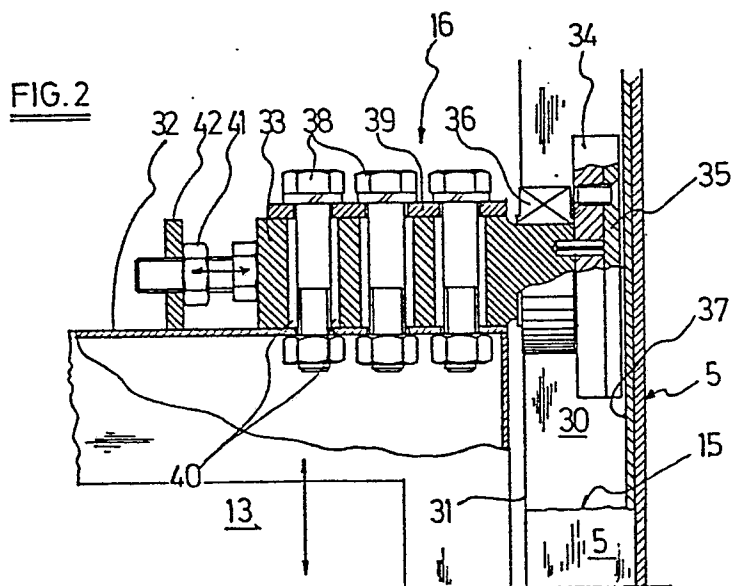
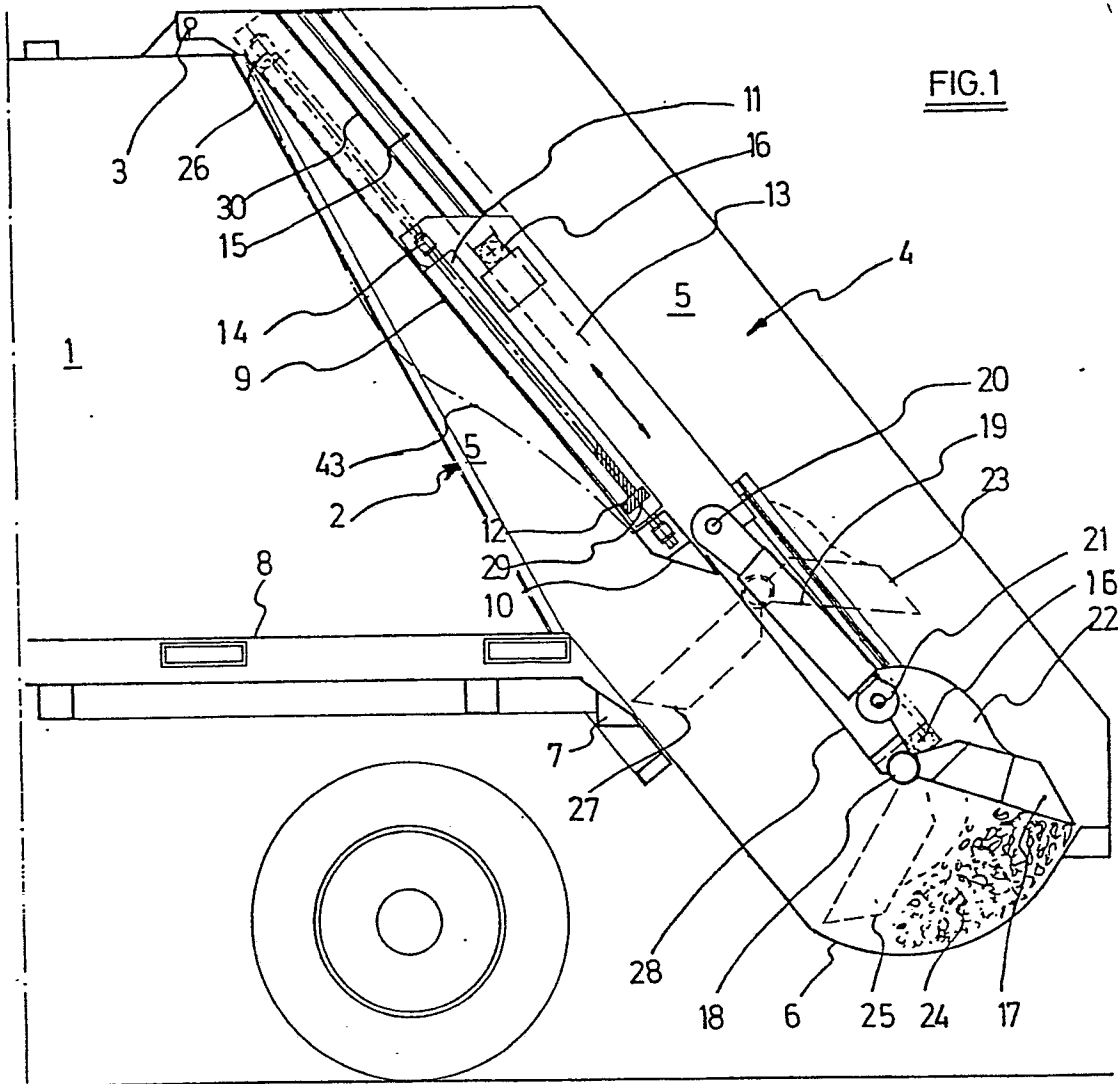
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European Patent
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EUROPEAN SEARCH REPORT

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Application number

EP 81 20 0294

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.3)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	<u>US - A - 3 615 029</u> (O.M. ANDERSON) * column 4, line 10 to column 5, line 21; figures 1 to 3 * --	1	B 65 F 3/20
A	<u>DE - A - 2 736 572</u> (HALLER) * page 4, last paragraph to page 5, paragraph 2; figures 1,2 * --	1,3	
A	<u>FR - A - 2 403 954</u> (HALLER) * page 3, line 24 to page 4, line 9; figure 1 * -----	1,3	TECHNICAL FIELDS SEARCHED (Int. Cl.3) B 65 F
			CATEGORY OF CITED DOCUMENTS X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
			&: member of the same patent family, corresponding document
X The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
The Hague	16-06-1981	MARTENS	