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(54) **Discharging assembly for concrete auto-mixer with side rotating shift winnowing device.**

(57) A discharging channel (1) is supported by two arms (7, 10) lying in a vertical plane, held in rotating joint, one (10) of which is extensible to allow variability of the discharging height. The channel (1) holds a winnowing device (12) on a rotating knuckle (13), to let it reach the position of non-employ, by means of a hand traction only, on the support (16) of a splash board (17) and, with an inverse movement, to lay it as an extension of the channel (1), while the setting is stabilized by means of quick engaging hooks.

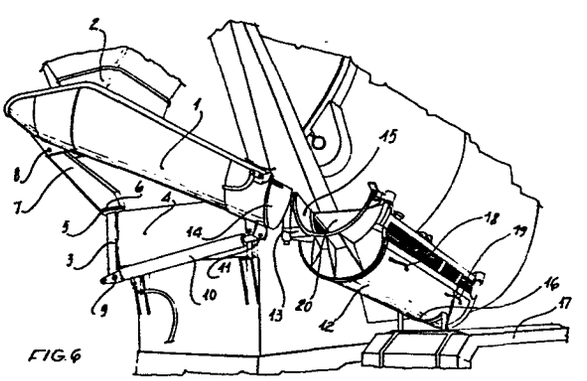


FIG.6

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"Discharging assembly for concrete auto-mixer with side rotating shift winnowing device."

The invention refers to a discharge winnowing device for concrete automixers, to be brought from the transport position to the settling one as a prosecution of the discharging channel of the fixed part on the means by operating by manual traction only with side rotating travel.

The solidarily operating condition between the parts can be obtained by means of a quick engaging part. When the contrivance is disactivated, the divece can be brought again in transport position, which permits the shape return, by acting in the inversed sense by bearing it, up to the travel limit, to lay on a support held by the relevant splash board. For discharging the auto-mixers, at present, an additional duct lenght is foreseen articulated with a discharging channel fitted on a plane, to be brought by hand in lowering position. The mobility of this part is required to bring the product on the discharging point: on the floor, into formwork shuttering or anything else, and in a non-employ phase the return in shape for transport.

The employ of the mobile part requires a manual alternate movement on a vertical plane; when lowering to get settling and when rising to return to shape, it turns out to be particularly wearing and dangerous. For a sudden overturning or any movement whatever which should unbalance the catch settling, this part falls like a

scissor motion on the operator. The invention enables to solve the problems by means of the connection of the initial articulated part to the plane frame of the winnowing device on rotating knuckle with side setting, to permit the movement in only one sidewise trip. This avoids the effort for supporting the part and, consequently, the dangerousness of the motion.

From the transport position, where the end part of the winnowing contrivance lies on the support held by the relevant splash board, the winnowing part is brought by rotation with side trip into employ position, and the duct assembly is made solidarily operating by means of a quick engaging device. For transport the bound is disactivated and the device is brought again on the splash board support by a side trip in the inverted sense.

A not limiting execution version is illustrated by the drawings of Tables 1 and 2, where Fig. 1 is the side view of the duct assembly in employ position and showing its supporting contrivance enabling its rotation as well as the inclination variability. Fig. 2 is the side view of the only duct of the winnowing device. Fig. 3 is the schematic view in correspondence of the two conduit components. Fig. 4 is the view of the duct assembly in employ condition. Fig. 5 is the view of the same assembly with unbound components and showing the discharging opening for the product. Fig. 6 is the view of the conduit component assembly. The esecution form foresees the initial duct with converse 1 into which hopper 2 discharges the product: this part is stabilized on the frame with the concrete mixer. Duct 1 is supported with rotating knuckle which allows the variability of the discharging point on an arc beyond 180°, on two arms lying on a vertical plane; each arm is articulated on one of the ends of the vertical pin 3 in coaxial seat on the vertex of bracket 4 with isosceles sides and integral with the frame. Pivot 3 bears on its top crown

5 integral with a corresponding part 6 to operate altogether as a rotation plane of arm 7 supporting duct 1 on knuckle 8. Below, pin 3 is articulated in 9 to arm 10 that can be extended to lifting jack 10 supporting, on the other point, duct 1 in knuckle 11.

By adjusting the duct assembly inclination, the height of the discharging opening can be changed according to the different requirements, such as: discharging on the floor, into formwork shutterings or else. The winnowing device 12 is supported on a side rotating knuckle 13 on the discharging opening 14 of duct 1, and above channel 15 is foreseen which, in employ condition is set as a longitudinal prosecution for the duct. From the transport position, in which the lower end of 12 lies on arched support 16 held by splash board 17 which retains it, it is possible to bring opening 20 of the device on opening 14 by traction only on handles 18 e 19 in side trip and to compose thus the canalization. To make the conduit components integral, hook with quick engagement is applied. Duct 15 brings the products on winnowing net 21 which keeps back the exceedingly large grains, permitting the product discharge into the lower duct 22 from which it falls through opening 23. The winnowing device is equipped with net 21 supported on the four frame top points by elastic shock absorbers 24 that transmit the vibration effect of the vibrating assembly 25. This permits to increase the discharging speed. The material kept back, scrap of the discharge product, is discharged by opening door 27 on hinge 26 fitted on the top, by acting on tension rod 28.

The devices are singularly variable and, if necessary, alternatively fitted on the two components.

CLAIMS

1) Discharging assembly for concrete auto-mixer with side rotating shift winnowing device, characterized by the fact that a starting unloading duct is foreseen supported on two arms lying on a vertical plane and sustained in rotating articulation, one of which arms can be extended to allow different unloading point and height. On the opening side part, this holds a selecting device to let it reach a non-employ position, by hand traction only, on a support of the relevant mud-guard and, with an inverted movement, to bring it as a prosecution of the beginning duct stabilizing its setting by means of quick insertion hook. In comparison with the present unloading ducts, which can be settled by lowering, the invented system permits to avoid the risks arising from a possible scissor-like fall of the part, to limit the physical effort and to increase the discharging speed.

2) Discharging assembly for concrete auto-mixer with side rotating shift winnowing device, according to the previous claim, characterized by the fact that foresees the initial duct with converse 1 into which hopper 2 discharges the product: this part is stabilized on the frame with the concrete mixer. Duct 1 is supported with rotating knuckle which allows the variability of the discharging point on an arc beyond 180°, on two arms lying on a vertical plane; each arm is articulated on one of the ends of the vertical pin 3 in coaxial seat on the vertex of bracket 4 with isosceles sides and integral with the frame. Pivot 3 bears on its top crown 5 integral with a corresponding part 6 to operate altogether as rotation plane of arm 7 supporting duct 1 on knuckle 8. Below, pin 3 is articulated in 9 to arm 10 that can be extended to lifting jack 10 supporting, on the other point, duct 1 in knuckle 11. By adjusting the duct assembly inclination, the height of the discharging opening can be changed according to the different requirements, such as: discharging on the floor, into formwork shutteringsor else.

3) Discharging assembly for concrete auto-mixer with side rotating shift winnowing device, according to the previous claims, characterized by the fact that the winnowing device 12 is supported on a side rotating knuckle 13 on the discharging opening 14 of duct 1, and above channel 15 is foreseen which, in employ condition is set as a longitudinal prosecution for the duct. From the transport position, in which the lower end of 12 lies on arched support 16 held by splash board 17 which retains it, it is possible to bring opening 20 of the device on opening 14 by traction only on handles 18 and 19 in side trip and to compose thus the canalization. To make the conduit components integral, hook with quick engagement is applied.

4) Discharging assembly for concrete auto-mixer with side rotating shift winnowing device, according to the previous claims, characterized by the fact that duct 15 brings the products on winnowing net 21 which keeps back the exceedingly large grains, permitting the product discharge into the lower duct 22 from which it falls through opening 23. The winnowing device is equipped with net 21 supported on the four frame top points by elastic shock absorbers 24 that transmit the vibration effect of the vibrating assembly 25. This permits to increase the discharging speed. The material kept back, scrap of the discharge product, is discharged by opening door 27 on hinge 26 fitted on the top, by acting on tension rod 28.

1/2

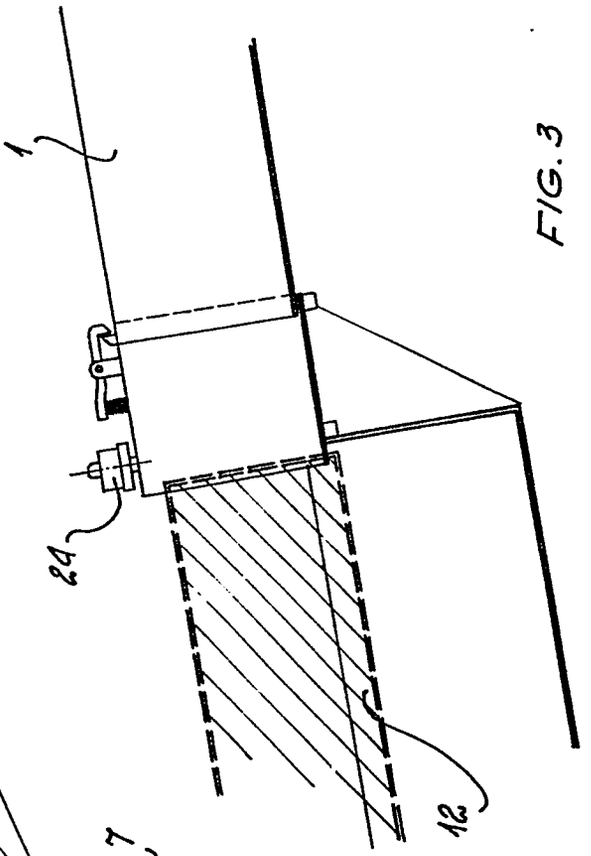



FIG. 3

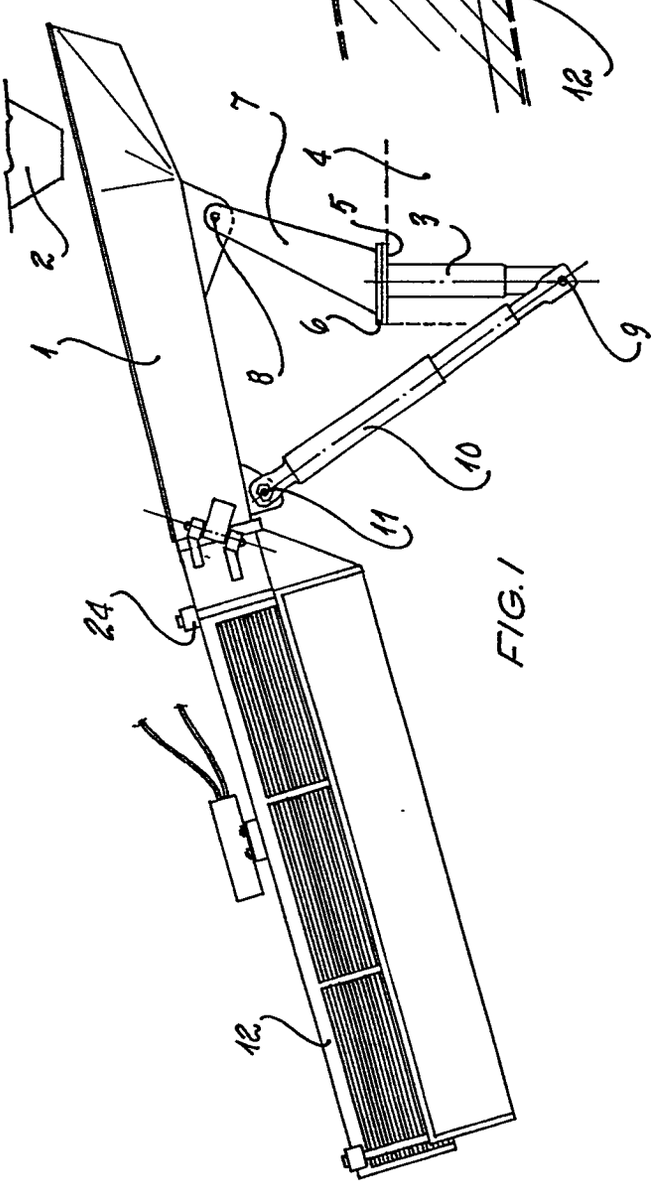



FIG. 1

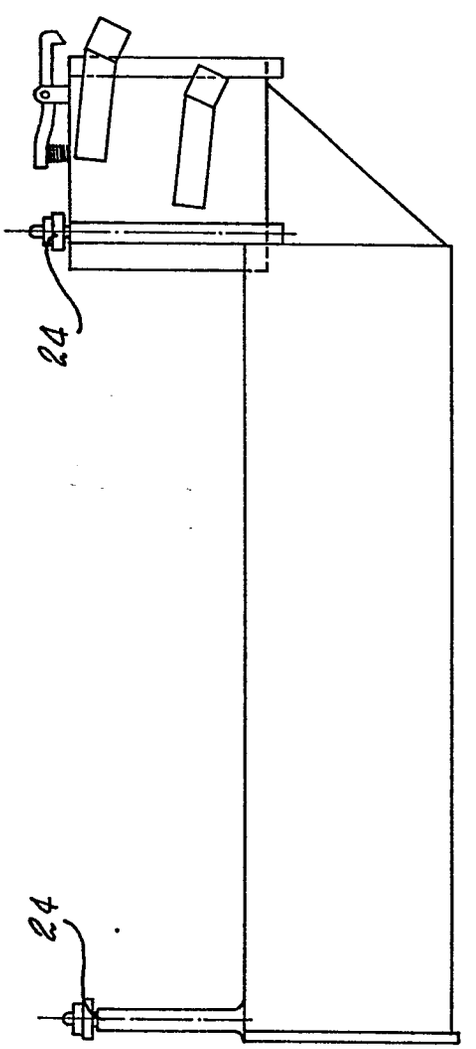



FIG. 2

FIG. 4

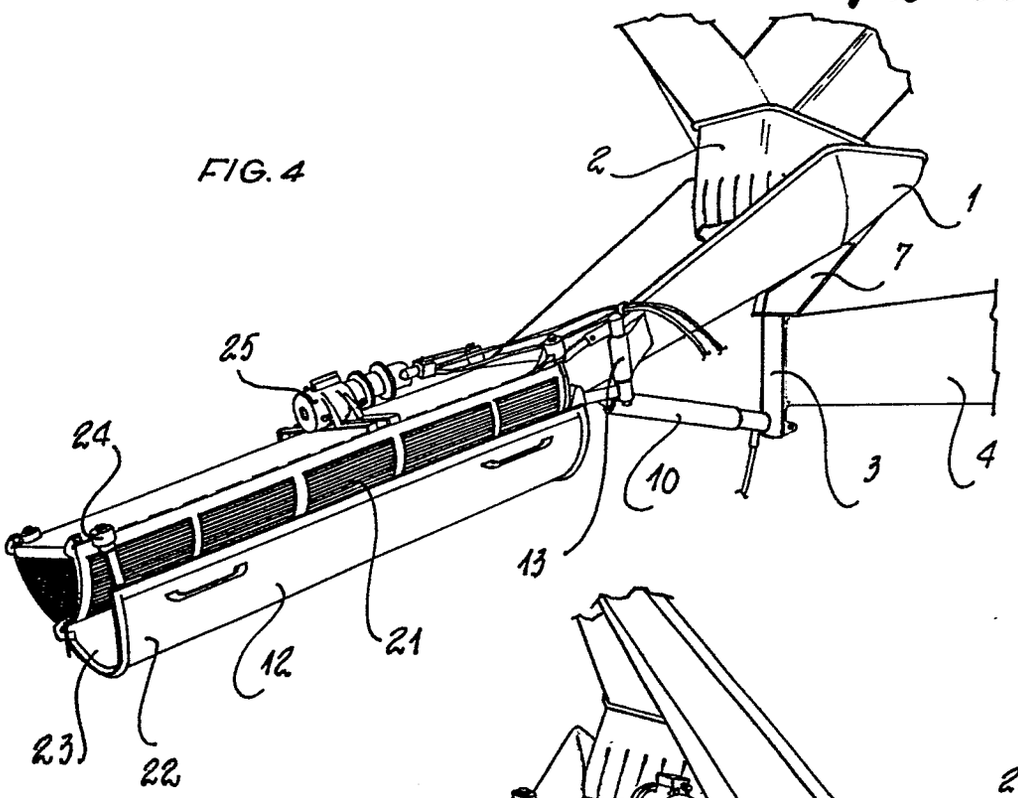
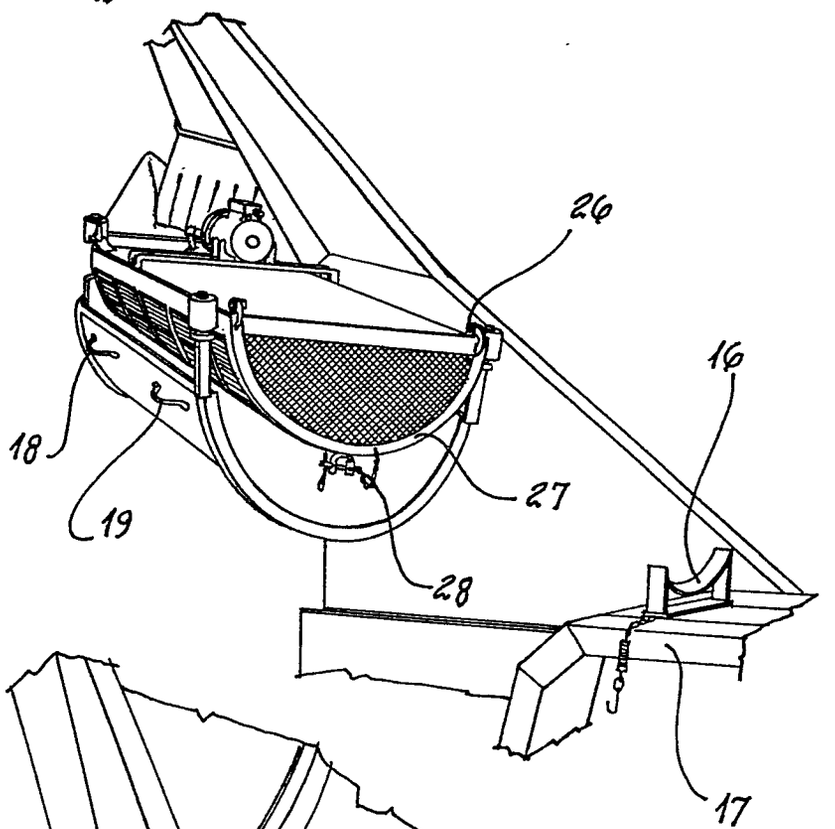



FIG. 5



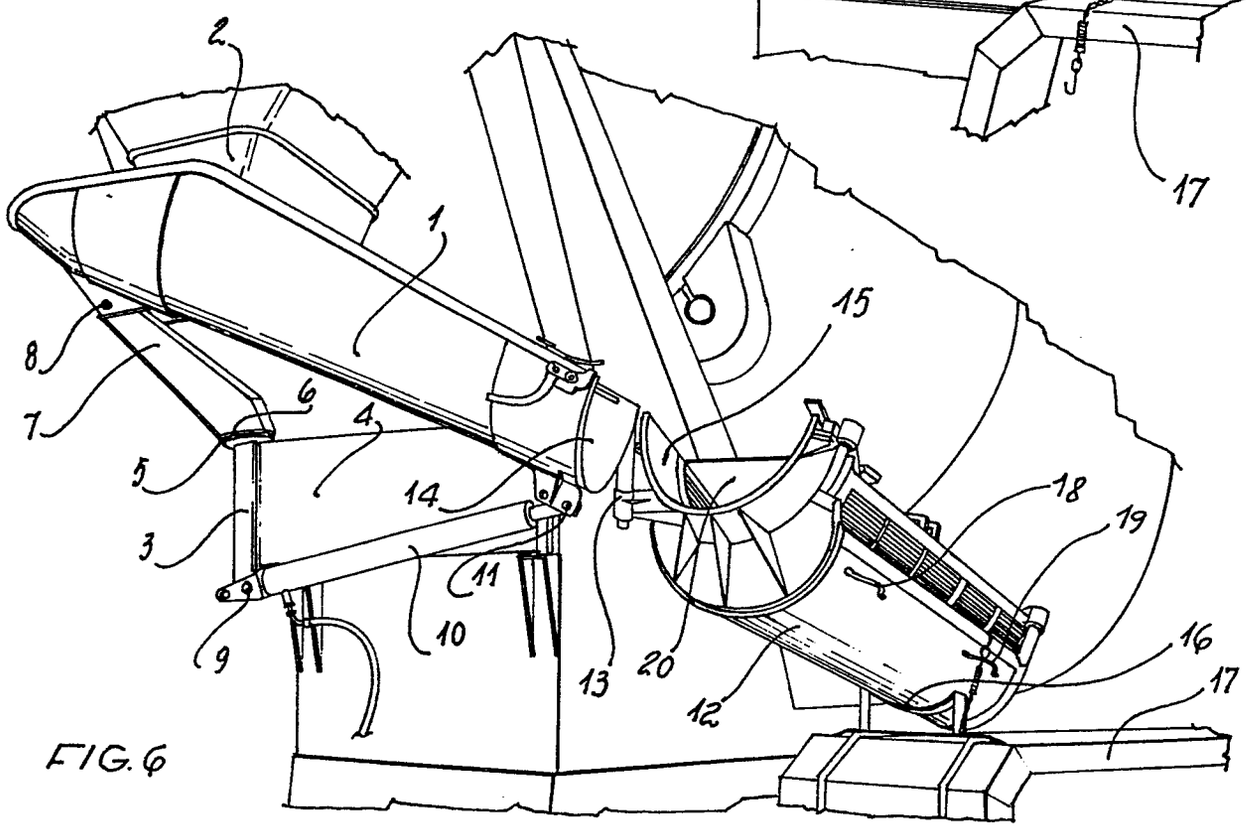




FIG. 6

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# EUROPEAN SEARCH REPORT

0079415
Application number

EP 81 83 0222.6

## DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim |
|---|---|---|
| Y | DE - U1 - 8 111 859 (STETTER GMBH)<br>* claims 1, 3; page 3, line 1 to page 4, line 7; fig. 1 * | 1,2 |
| Y | US - A - 2 672 327 (OURY)<br>* column 1, line 1 to column 5, line 23 * | 1,2 |
| Y | US - A - 2 601 449 (NICHOLSON)<br>* fig. 1, 2, 4 * | 1,2 |
| Y | US - A - 3 456 769 (PRICHARD et al.)<br>* column 4, lines 50 to 53; fig. 1 * | 1 |
| A | US - A - 3 774 741 (JOHNSON)<br>* column 1, lines 2 to 30 * | 1 |
| A | US - A - 2 968 382 (OURY)<br>* column 1, lines 15 to 33 * | 1 |
| A | US - A - 2 488 292 (HILKEMEIER)<br>* column 1, lines 1 to 18 * | 1 |
| A | DE - B2 - 2 100 680 (ROSSI) | |
| A | GB - A - 1 187 542 (ROSSI) | |

CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)

B 60 P 3/16
B 28 C 5/42
B 65 G 11/12

TECHNICAL FIELDS SEARCHED (Int.Cl. 3)

B 28 C 5/00
B 28 C 7/00
B 28 C 9/04
B 60 P 3/00
B 65 G 11/00

CATEGORY OF CITED DOCUMENTS

X: particularly relevant if taken alone
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L: document cited 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 |
|---|---|---|
| Berlin | 24-06-1982 | SIMON |

EPO Form 1503.1 06.78