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54 Tool to fit to the self-moving tractor for cleaning the road edges.

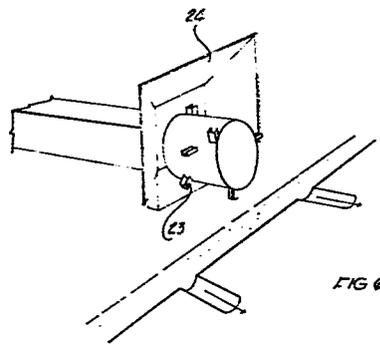
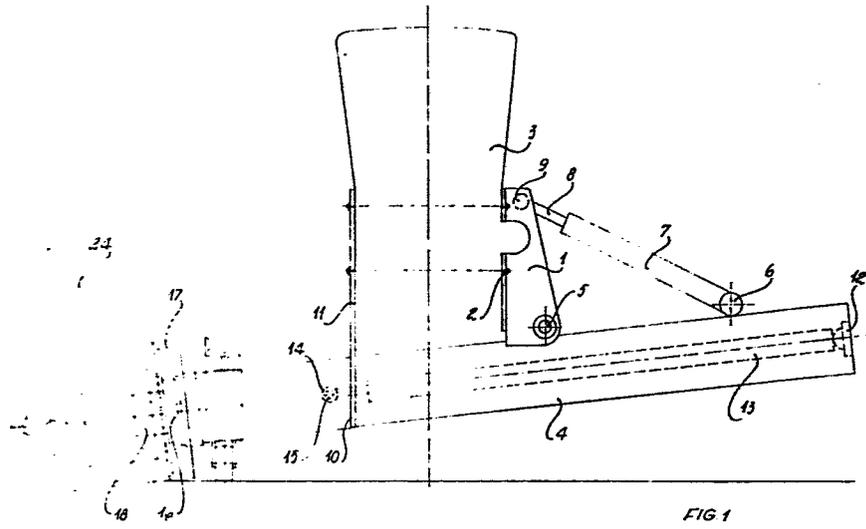
57 A bracket (1) is foreseen fitted on the left side of a tractor (3), supporting a tool holder (4) of line, in two points on rotating knuckles (5,6) and on a jack (7): the tool holder (4) underlies to the movement on a vertical plane by a fork guide (11) on the right side of the tractor (3), permitting in this way to the tool (22) a suspended position when not used and another position of contact to the ground.

The tool holder (4) supports a motor assembly on a flange (17) for driving a milling cylindrical piece with circular generating blades (23) permitting to move freely the material from the edge, when the tractor (3) is advancing, allowing a rectilinear edge. For shielding the tool (22), a bonnet (24) is foreseen to be fitted by means of a hinge on the above mentioned flange (17), thus allowing to change its position to adjust the throw of the earth.

For adjusting the tool holder (4) to the job requirements, an adjustable tension control is foreseen on the end of the tool holder (4) by means of a screw (26) enabling to set the position of the wheel (27) leaning on the ground. The motor assembly can be gradually advanced by means of a jack (13) contained in the tool holder (4) to allow, when the tractor (3) is stationary, to carry out transversal drains for the rain water downflow.

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" Tool to fit to the self-moving tractor for cleaning the road edges".

The invention refers to a tool which, when fitted on the tractor, permits to carry out the cleaning of the road edges with rectilinear brim by means milling, and to carry out transversal drains, which properly intervalled enable the downflow of the rain water into the lateral trunk lines.

In order to maintain the efficiency condition of the road seat, avoiding the grass mantle invasion or even that of the ground on the edges in the country roads periodical operations are required for restoring the track limits. At present wuch heavy operations are performed by means of hand digging and hoeing. The invention permits to go on speedily with the above operation and employing only one operator who while driving the self-moving tractor, controls the operation phases too. This is possible because the tool is fitted on the self-moving tractor using an adjusting bracket to be fixed of the left wall of the vehicle. The said bracket supports on two points the tool in a transversal position on rotating knuckles, the external of which is movable by means of a bracket joint while the inside one is stationary. When getting the bracket to return, the tool can be brought from the suspended position of not employ to the lowered one in contact with the ground. This movement is made on a vertical plane as is further conditioned to it by the position on the right side of the self-moving vehicle of the guide device with vertical split fork. This makes the tool integrally operating with the driving tractor permitting only displacements on vertical plane for the adjustment of the working share and for performing the dripping drains:

The tool holder supports the motor assembly on a flange and bears the

30 milling tool consisting of cylindrical piece with circular generating  
blades on a shaft. The operator arrived on the working line controls the  
lowering of the tool holder and regulates the tracer point for adjusting  
the tool to the working depth, letting then the tractor advance thus per-  
mitting to remove the exceeding part of road edge and consequently for-  
35 ming a rectilinear one. For shielding the tool and regulating the throw  
of the milling product, a bonnet is foreseen to be fitted by means of  
hinges to the flange supporting the motor assembly. By properly regu-  
lating the position on the bonnet vertical plane, the milling product  
throw can be adjusted. The motor assembly can be gradually brought for-  
40 ward axially through a jack longitudinal fitted inside the tool bearer.  
With the tractor stationary, the operator controls through the said  
jack the execution of a transversal drain for the downflow of the rain  
water.

45 An execution version, which is not limiting, is illustrated on the dra-  
wings of tables 1 and 2, where fig. 1 is the schematic view of the tool  
transversally fitted on the tractor and showing the supporting bracket  
made integral with the vehicle and holding the tool on an inside rota-  
ting knuckle to an outside jack joint. Fig. 2 is a view of the guidi-  
50 ng fork which is applied on the right side and makes the tool integr-  
ally working with the tractor and allows but displacements on a verti-  
cal plane. Fig. 3 is a partially sectioned view of the motor assembly.  
Fig. 4 shows the regulation device of the tracer point for determini-  
ng the working depth. Fig. 5 is the view from above of the shielding  
55 bonnet in employ condition and showing partially dashed the tool fit-  
ted on the shaft of the motor assembly. Fig. 6 is the view of the to-  
ol holder end bearing the tool shielded by the bonnet raised up and,  
below, a view of the working performed on the road rectilinear edge  
as well as of two dripping drains. According to the execution illüs-  
60 trated in a merely indicative way and, consequently not limiting, a  
bracket 1 is foreseen, to be fixed by means of four bolts 2 to the  
tractor 3 right side. The longitudinal tool holder 4 is with rectan-  
gular section and can be fitted on the tractor on rotating knuckles

5 and 6, this last one determined by jack 7, the stem 8 of which is articulated in 9 to bracket 1. By means of the jack, the tool can be brought from a suspended position to an operating one. The tool is allowed to make but vertical movements by the fork guide 11 fitted through bolts on the tractor right side. For the longitudinal movement of the motor assembly, jack 13 is foreseen inside 12 on 14 by means of pin 15 to axial part 16 which gets out from coaxial 4. At the end of part 16, flange 17 is foreseen supporting rotor 18 which bears shaft 19 on bearings 20 with motor 21. On the other side, the shaft bears tool 22 with cylindrical piece and circular generating blades 23. For the toll shielding, a bonnet 24 is foreseen to be fitted on flange 17 by means of hinge 18 which allows the bonnet control to adjust the milled product throw. To increase the throw, bonnet 24 is fitted in a higher position. On the tool holder end 4, a tracer point device 25 is foreseen with a screw adjustment 26 regulating the height travel of wheel 27 moving on the ground. The device can be fitted according to different connections to several types of tractors.

In practice, the particulars of execution, the materials, the accessories and the fitting means can be differently foreseen.

Claims.

1) Tool to fit to the self-moving tractor for cleaning the road edges, characterized by the fact that the tool is fitted on the self-moving tractor using an adjusting brack~~t~~ to be fixed of the left wall of the vehicle. The said bracket supports on two points the tool in a transversal position on rotating knuckles, the external of which is movable by means of a bracket joint while the inside one is stationary. When getting the bracket to return, the tool can be brought from the suspended position of not employ to the lowered one in contact with the ground.

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2) Tool to fit to the self-moving tractor for cleaning the road edges, according to the previous claim, characterized by the fact that this movement is made on a vertical plane as is further conditioned to it by the position on the right side of the self-moving vehicle of the guide device with vertical split fork.

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3) Tool to fit to the self-moving tractor for cleaning the road edges, according to the previous claims, characterized by the fact that the tool holder supports the motor assembly on a flange and bears the milling tool consisting of a cylindrical piece with circular generating blades on a shaft .

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4) Tool to fit to the self-moving tractor for cleaning the road edges, according to the previous claims, characterized by the fact that the operator arrived on the working line controls the lowering of the tool holder and regulates the tracer point for adjusting the tool to the working depth, letting then the tractor advance thus permitting to remove the exceding part of road edge and consequently forming a rectilinear one.

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5) Tool to fit to the self-moving tractor for cleaning the road edges, according to the previous claims, characterized by the fact that for shielding the tool and regulating the throw of the milling product, a bonnet is foreseen to be fitted by means of hinges to the flange sup

35 porting the motor assembly. By properly regulating the position on the bonnet vertical plane, the milling product throw can be adjusted.

6) Tool to fit to the self-moving tractor for cleaning the road edges, according to the previous claims, characterized by the fact that the  
40 motor assembly can be gradually brought forward axially through a jack longitudinally fitted inside the tool bearer. With the tractor stationary, the operator controls through the said jack the execution of a transversal drain for the downflow of the rain water.

45 7) Tool to fit to the self-moving tractor for cleaning the road edges, according to the previous claims characterized by the fact that a bracket 1 is foreseen, to be fixed by means of four bolts 2 to the tractor 3 right side. The longitudinal tool holder 4 is with rectangular section and can be fitted on the tractor on rotating knuckles 5 and  
50 6, this last one determined by jack 7, the stem 8 of which is articulated in 9 to bracket 1. By means of the jack, the tool can be brought from a suspended position to an operating one.

8) Tool to fit to the self-moving tractor for cleaning the road edges,  
55 according to the previous claims, characterized by the fact that the tool is allowed to make but vertical movements by the fork guide 11 fitted through bolts on the tractor right side. For the longitudinal movement of the motor assembly, jack 13 is foreseen inside 12 on 14 by means of pin 15 to axial part 16 which gets out from coaxial 4.

60 9) Tool to fit to the self-moving tractor for cleaning the road edges, according to the previous claims, characterized by the fact that at the end of part 16, flange 17 is foreseen supporting rotor 18 which bears shaft 19 on bearings 20 with motor 21. On the other side, the  
65 shaft bears tool 22 with cylindrical piece and circular generating blades 23. For the tool shielding, a bonnet 24 is foreseen to be fitted on flange 17 by means of hinge 18 which allow the bonnet control

to adjust the milled product throw.

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70 10) Tool to fit to the self-moving tractor for cleaning the road edges, according to the previous claims, characterized by the fact that to increase the throw, bonnet 24 is fitted in a higher position.

75 11) Tool to fit to the self-moving tractor for cleaning the road edges, according to the previous claims, characterized by the fact that on the tool holder 4, a tracer point device 25 is foreseen with a screw adjustment 26 regulating the height travel of wheel 27 moving on the ground.

FIG. 2

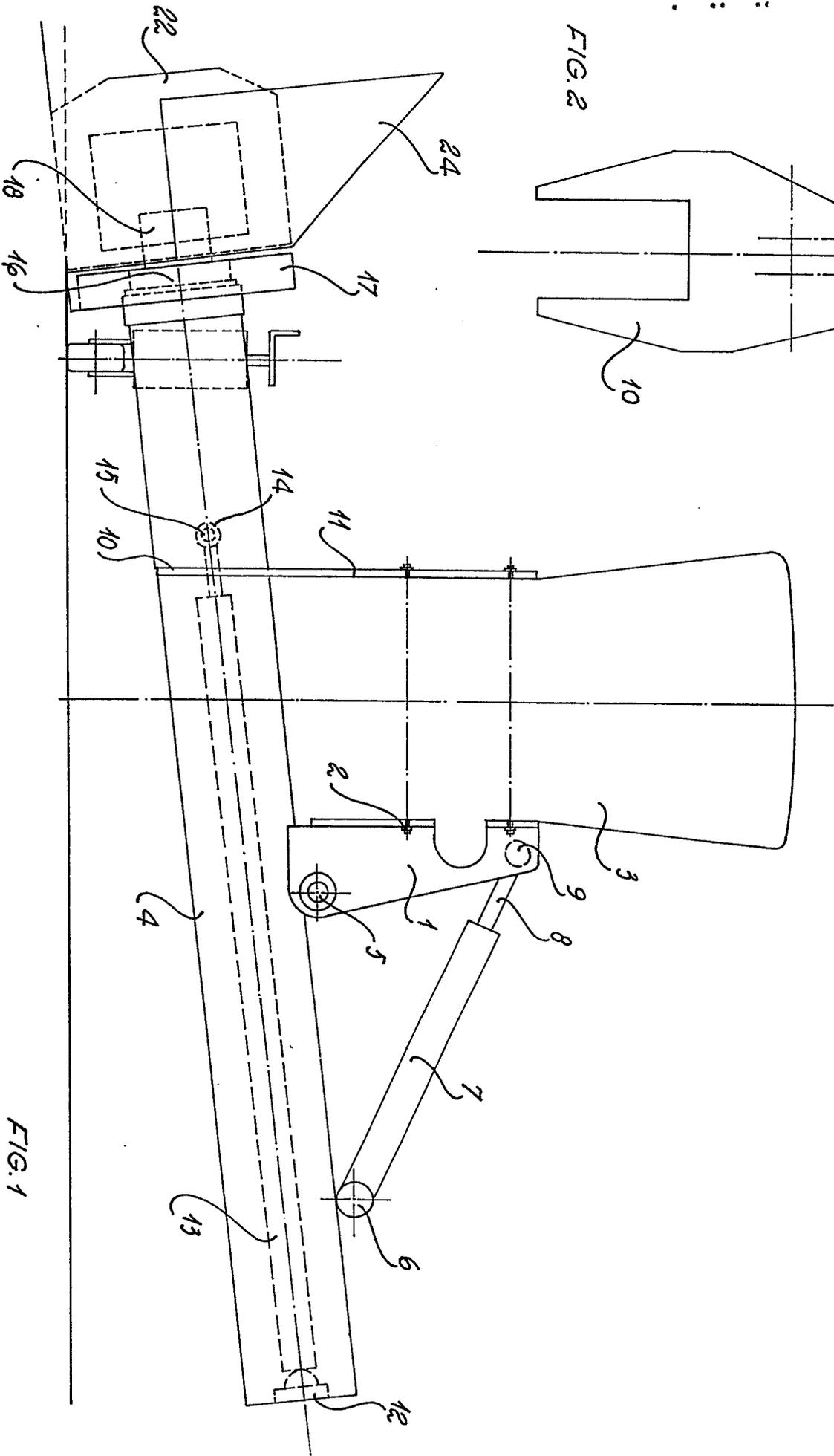
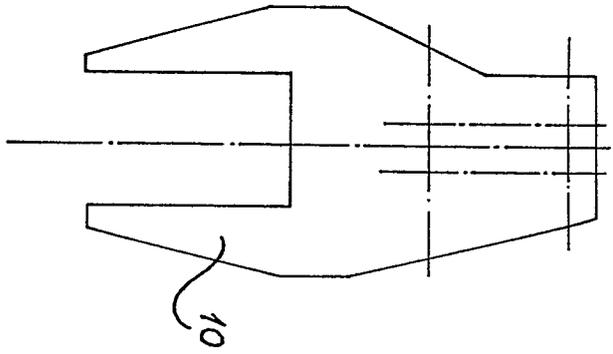


FIG. 1

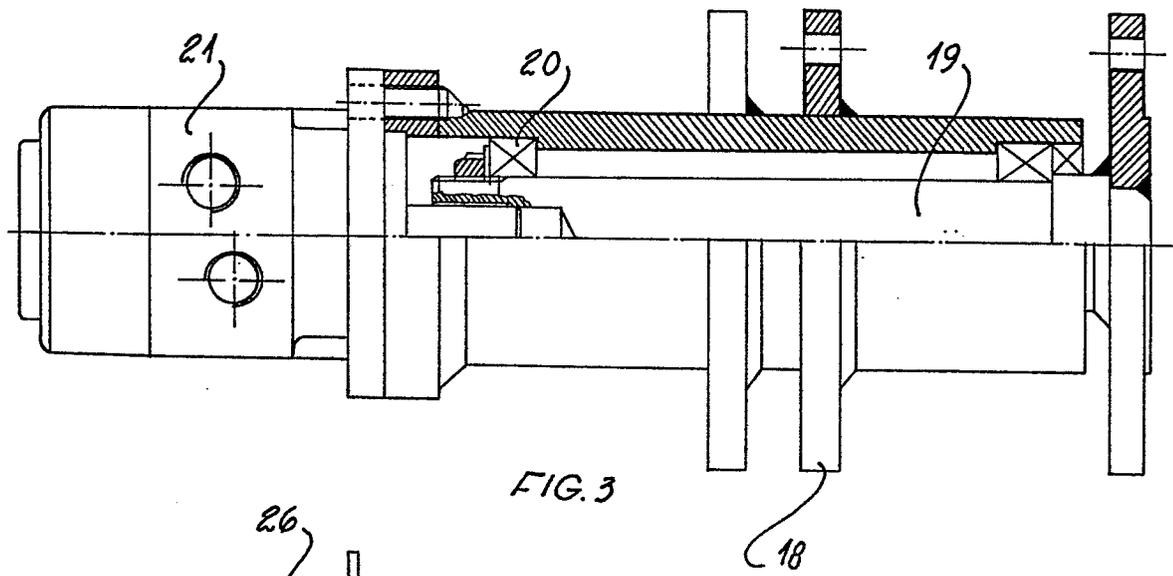


FIG. 3

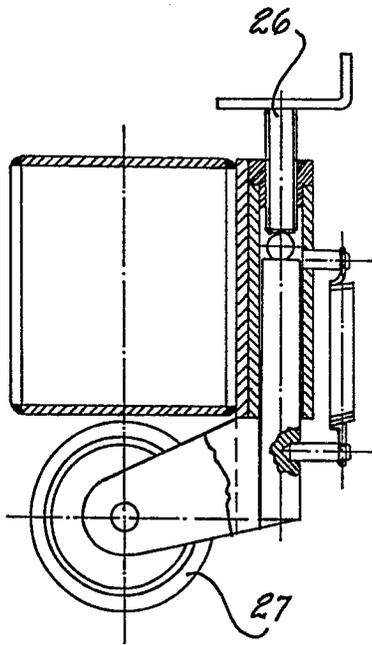


FIG. 4

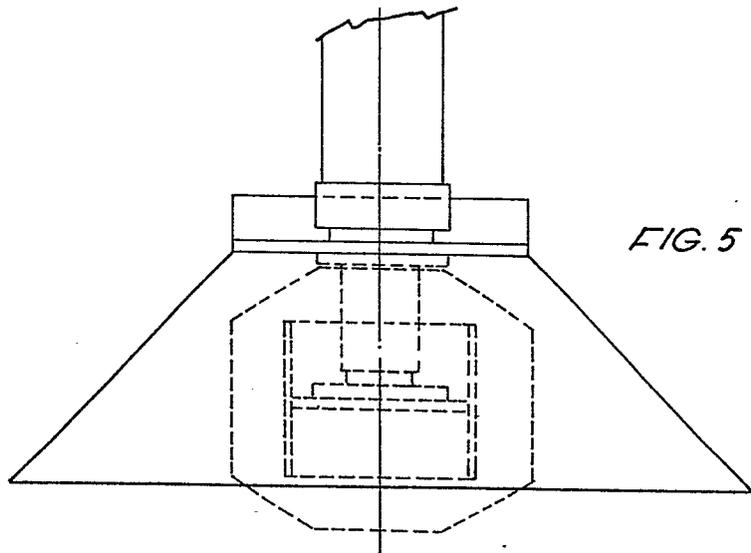


FIG. 5

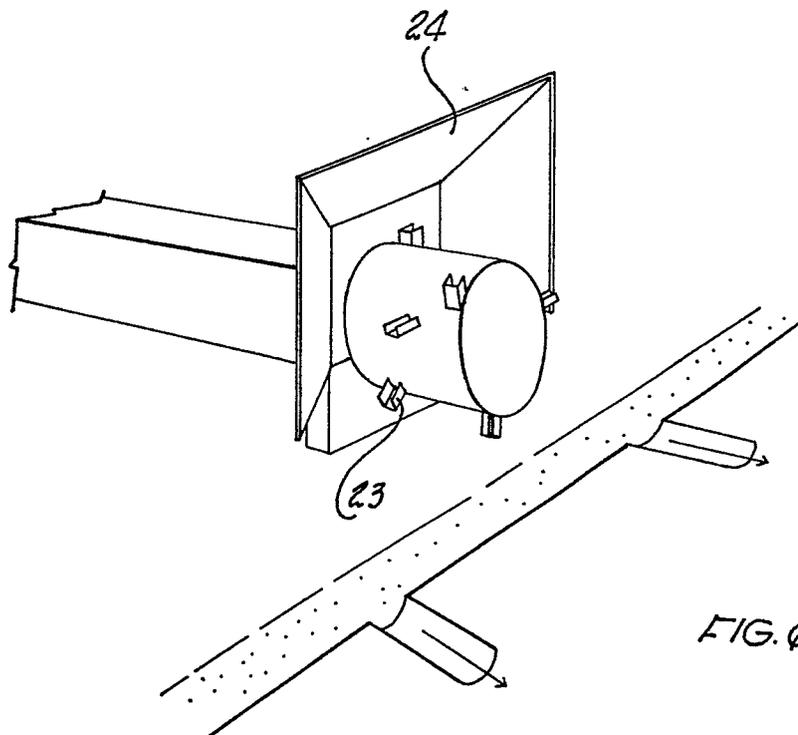


FIG. 6



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. 8)
A	DE-A-2 843 909 (DÜCKER KG) *Page 4, lines 19-22; page 5, lines 5-8, 12-18; page 6, lines 16-18; page 7, lines 2-7; page 8, lines 14-20; figures 1,2*	1,6-8	E 02 F 5/00 E 01 H 1/00 E 02 F 3/78 E 02 F 5/04
A	DE-A-2 317 287 (CAVICCHIOLI) *Page 1, line 1 - page 3, line 5; page 3, lines 19-25; page 4, lines 1-3; figures 1-4*	1,3,5-7,9	
A	US-A-3 698 487 (RUTH) *Column 1, lines 52-67; column 2, lines 1-37; figures 1,2,5-7*	1,6,7	
A	DE-A-2 210 689 (DÜCKER KG) *Page 1, line 12 - page 4, line 14; page 8, lines 7-14; page 9, lines 1-7, 23-25; page 10, lines 12-26; figures 1-3 *	3-5,9-11	TECHNICAL FIELDS SEARCHED (Int. Cl. 8)  A 01 D E 01 H E 02 F
A	GB-A- 898 452 (WHITTINGTON ENGINEERING C LTD) *Page 1, lines 9-16, 64-74; page 2, lines 46-52; figures 1,2*	2,3,8,9	
A	FR-A-1 564 640 (DEFLANDRE) *Page 1, left-hand column, lines 1-3, 23-31; right-hand column, lines 14-17, 23-26; figures*	4,11	
	-/-		
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		05-08-1982	SPIEGEL R.P.
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone		T : theory or principle underlying the invention	
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A : technological background		D : document cited in the application	
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P : intermediate document		& : member of the same patent family, corresponding document	



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. <sup>3</sup> )
A	DE-A-2 745 230 (WEHRLE)  -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl. <sup>3</sup> )
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 05-08-1982	Examiner SPIEGEL R.P.
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>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</p> <p>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</p> <p>&amp; : member of the same patent family, corresponding document</p>			