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(54) **Arrangement for installing equipment on the roof of a vehicle**

(57) The invention relates to an arrangement for mounting grenade launchers on the rooftop of a military vehicle, notably a weasel. The invention benefits from the roof hatch already included in the vehicle. To mount the launcher, the roof hatch is removed and a specially constructed gutter is installed in the roof aperture. The gutter includes brackets on which the launching gear may be mounted. The gutter also includes brackets whereupon the roof hatch can be re-installed.

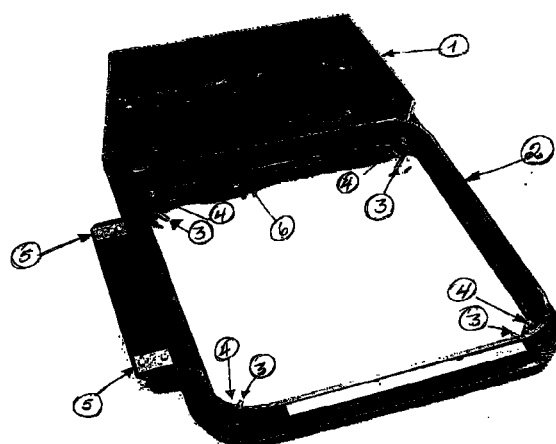


Fig 1

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Description

Field of the invention

[0001] The present invention relates to an arrangement for installing equipment on vehicles with roof hatches.

Background of the invention.

[0002] The Norwegian Army possesses an armoured personnel vehicle, a weasel, Bv 206, which is to be equipped with roof mounted device for launching smoke hand grenades. The placement of this equipment appears to be problematic. According to a proposal from the army, a mounting stand, prototype, has been devised which projects from the roof in front of the car. This stand has the disadvantages of high weight and possibly high production cost. In addition, type approval could prove difficult to obtain, as the stand projects relatively far out from the car.

The invention in summary

[0003] The present invention has as its object to devise an arrangement for mounting equipment on the roof of vehicles that is compact, fast and easily to install without making changes in the vehicle's construction.

[0004] These objects are achieved in an arrangement according to the present invention as revealed in the appended patent claim 1. Other embodiments of the invention appear from the following dependent claims.

Brief description of the drawings

[0005] The invention will now be described in reference to the appended drawings, in which:

Fig. 1 shows a perspective view of a gutter as used in the present invention, seen from above.

Fig. 2 shows a corresponding view of the same gutter from below.

Fig. 3 shows the same perspective view as in Fig. 1, with the launcher installed on the gutter.

Fig. 4 shows a constructional view of a gutter as used in the arrangement according to the present invention comprising an instalment bracket. In addition, sections through the gutter are shown, along the lines A - A, B - B, C - C, showing constructional details.

Fig. 5 shows the same gutter with the launching gear installed, seen from above, from the side and from behind, respectively.

Detailed description of the invention

[0006] Fig. 1 and Fig. 2 shows a gutter according to the present invention, which is intended to be installed in the roof aperture of a weasel. Integrated into the gutter there is a bracket, 1, to which auxiliary equipment, like the launching gear for smoke grenades, can be attached.

[0007] To install the launcher, the roof hatch of the vehicle has to be dismantled and the gutter according to the invention has to be installed in the roof aperture by means of angular mounting brackets 3. The angular brackets are clamped against the inside of the roof by tightening the nuts 4. Thereafter the roof hatch is again mounted onto the fastenings 5 in the installed gutter.

[0008] The equipment for handling the launching gear can be mounted on a bracket 6 which belongs to that part of the gutter which projects into the car. The loading of the launcher is done from an upright position in the roof aperture. Type approval of the instalment should pose no problem, as the attachment bracket 1 will project about 10 cm out in front of the car, i.e. less than the engine casing itself.

[0009] The gutter with brackets is inexpensive in serial production, with a relatively light weight. This can be achieved by casting the gutter in one single piece of polyurethane. Installing (or dismantling) a complete smoke screening device on a weasel with roof hatch could thus be done in a very short time (5-10 min) without making any changes in the car itself.

[0010] The principle at the invention can also be utilised on other vehicles with roof hatch where the space or the possibility of mounting auxiliary equipment is limited.

[0011] The gutter for installing on the weasel, Bv 206, with a prototype of the smoke launcher installed, is shown in Fig. 3.

[0012] The gutter can comprise additional mounting brackets if the vehicle is to carry more launchers for grenades. It is also possible to install branch fenders (not shown) to avoid undue strain on the roof mounted equipment.

Claims

1. Arrangement for mounting auxiliary equipment, preferably a launching unit for grenades, on the roof of vehicles with apertures for roof hatches, **characterised in** that in the roof aperture a gutter is permanently installed with mounting bracket for the roof hatch in addition to mounting bracket(s) for the equipment to be mounted.
2. Arrangement according to claim 1, **characterised in** the gutter comprises at least four angular mounting brackets which project below the roof of the vehicle, and where the other end of the brackets are treaded and tightened after the gutter

is placed in the aperture, whereupon the complete gutter is clamped to the roof.

3. Arrangement according to claim 1 or 2,
characterised in that the gutter is made out of metal 5
4. Arrangement according to claim 1 or 2,
characterised in that the gutter is casted in polyurethane, preferably reinforced. 10
5. Arrangement according to claim 3 or 4,
characterised in that the part of the gutter which protrudes below the root hatch, comprises brackets for attaching auxiliary equipment, preferably a launching unit for the roof mounted launcher and additional grenades. 15
6. Arrangement according to claim 5,
characterised in that the roof bracket can be extended at the sides for mounting additional launchers and the bracket comprises branch fenders which protect the mounted launchers from mechanical strain. 20

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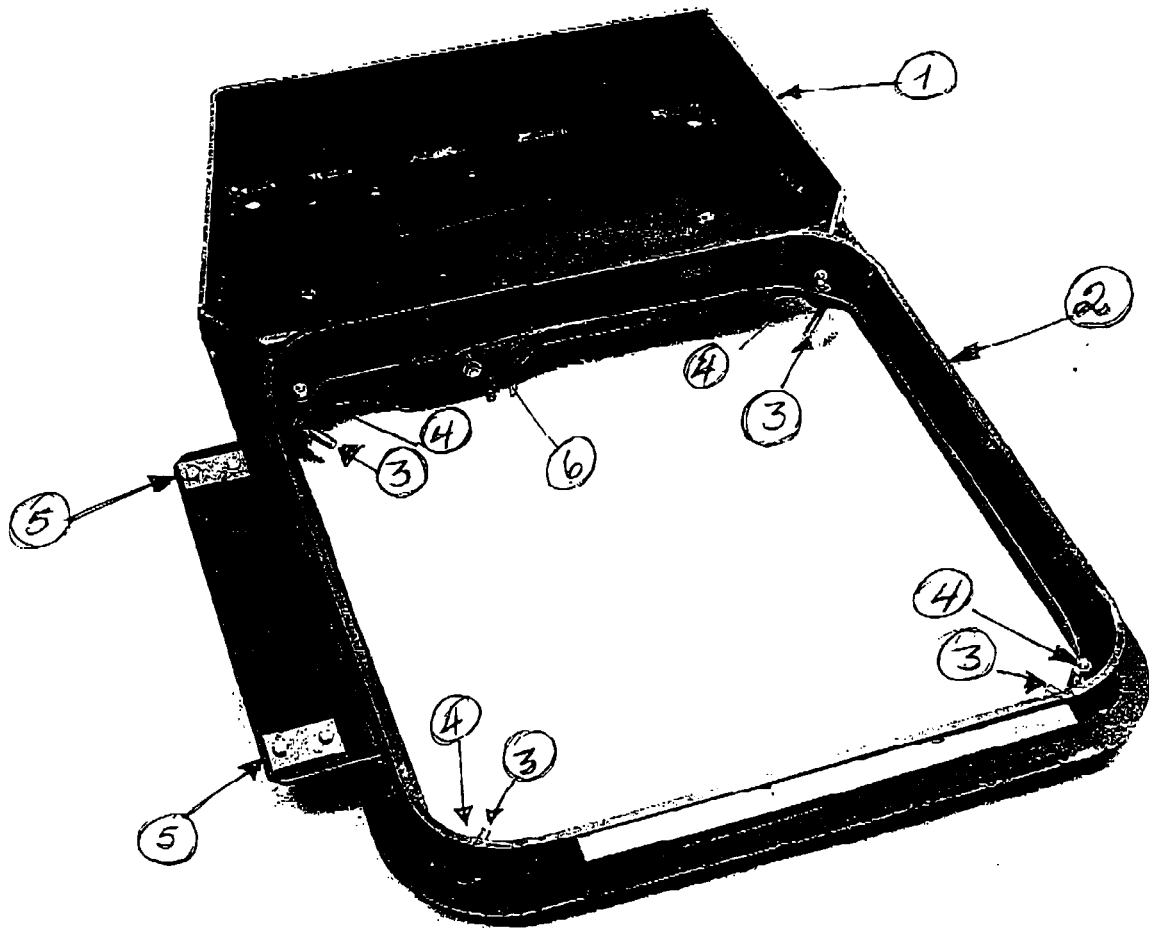


Fig1

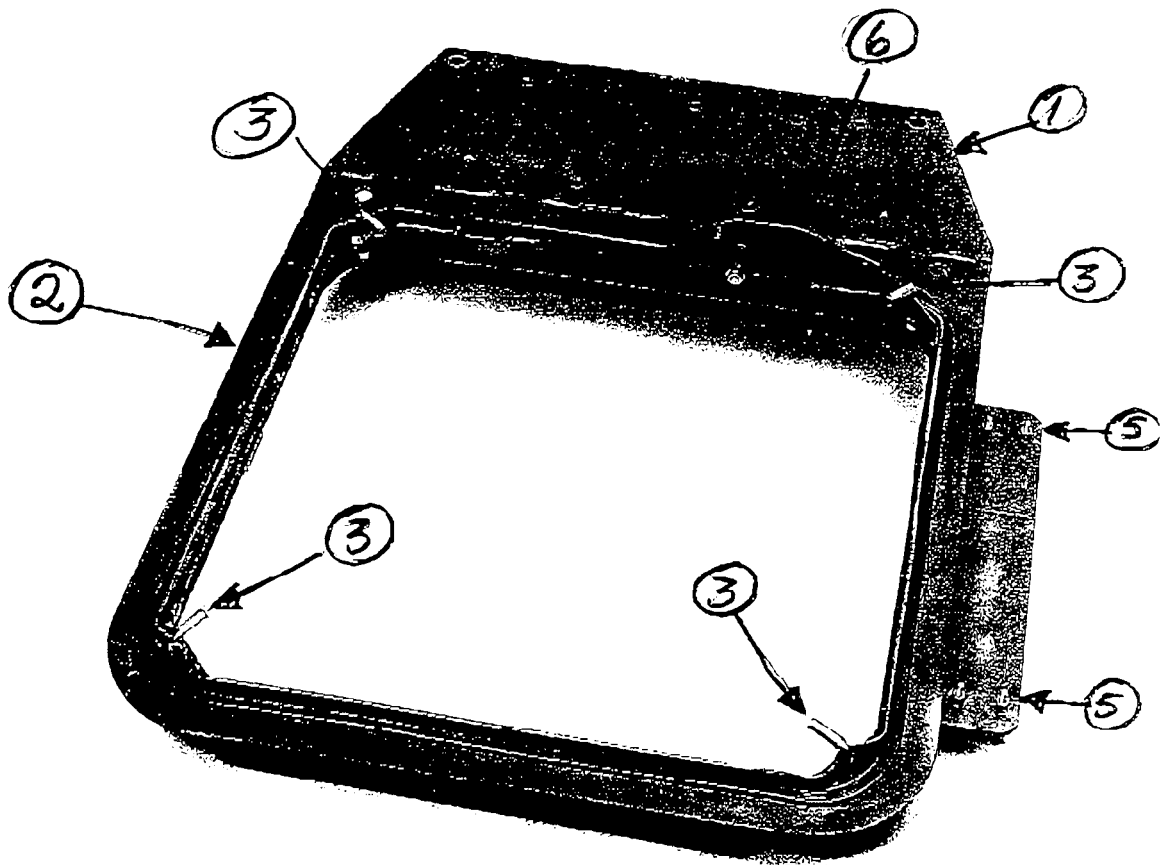


Fig 2

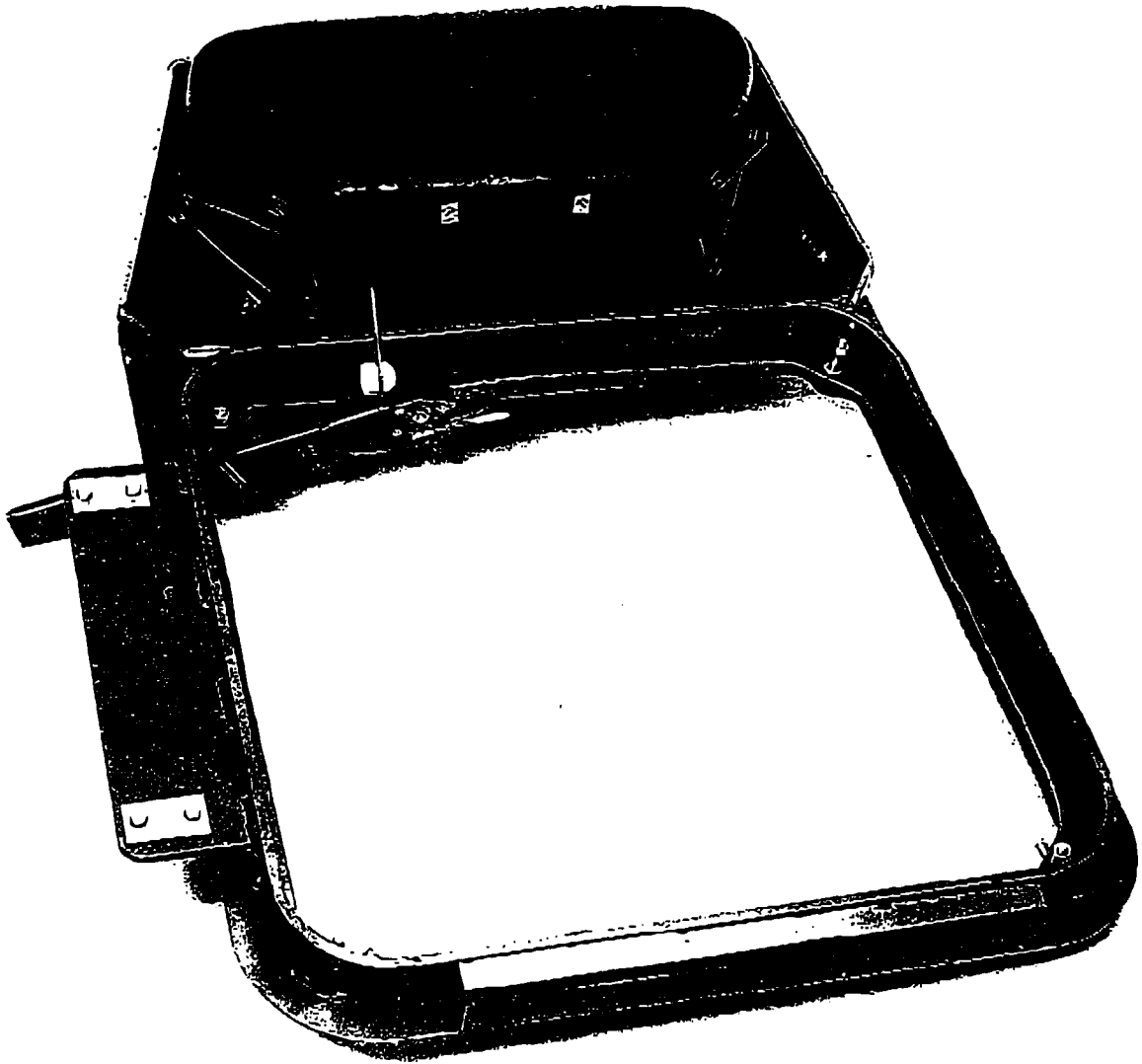


Fig. 3

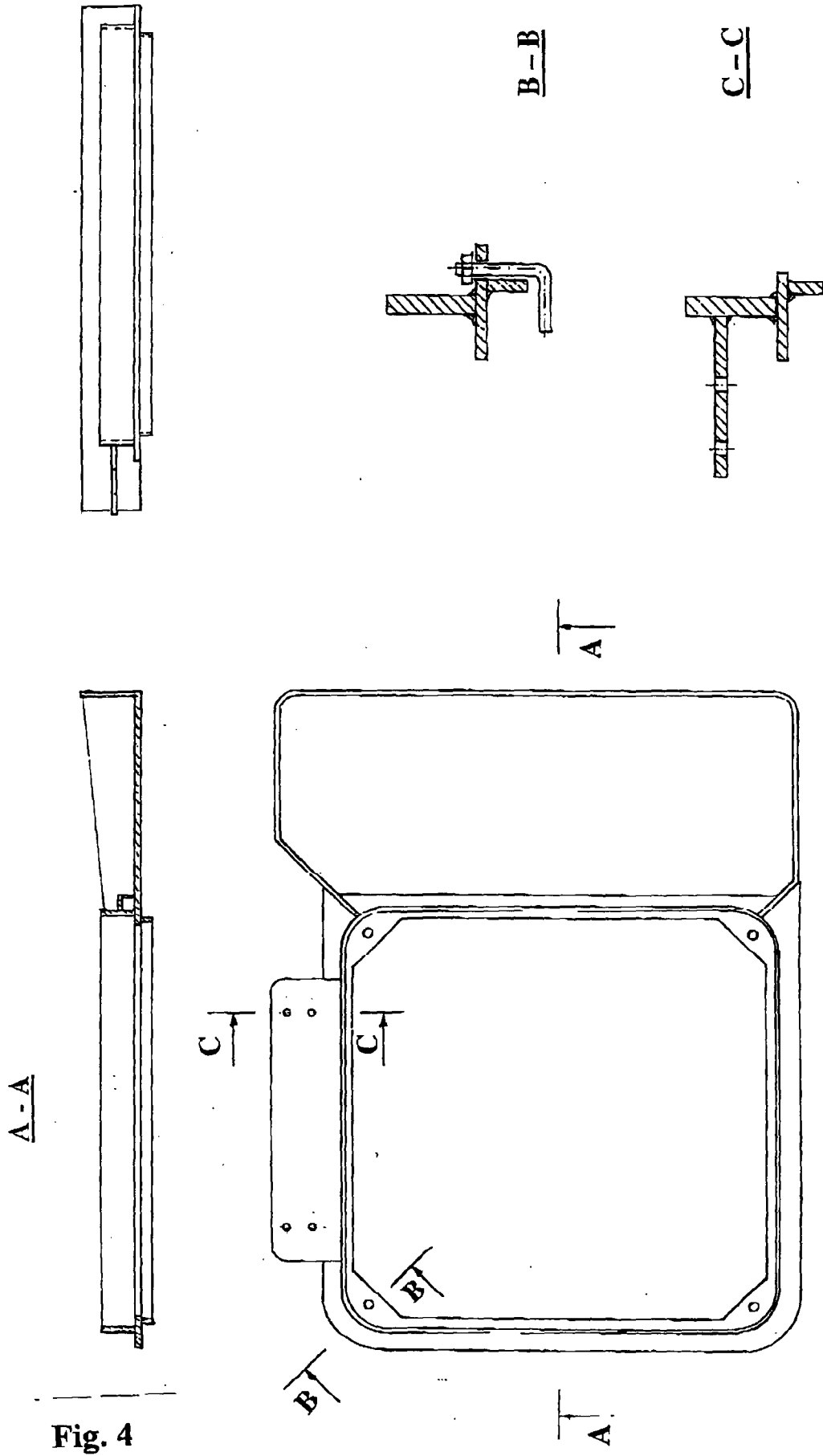


Fig. 4

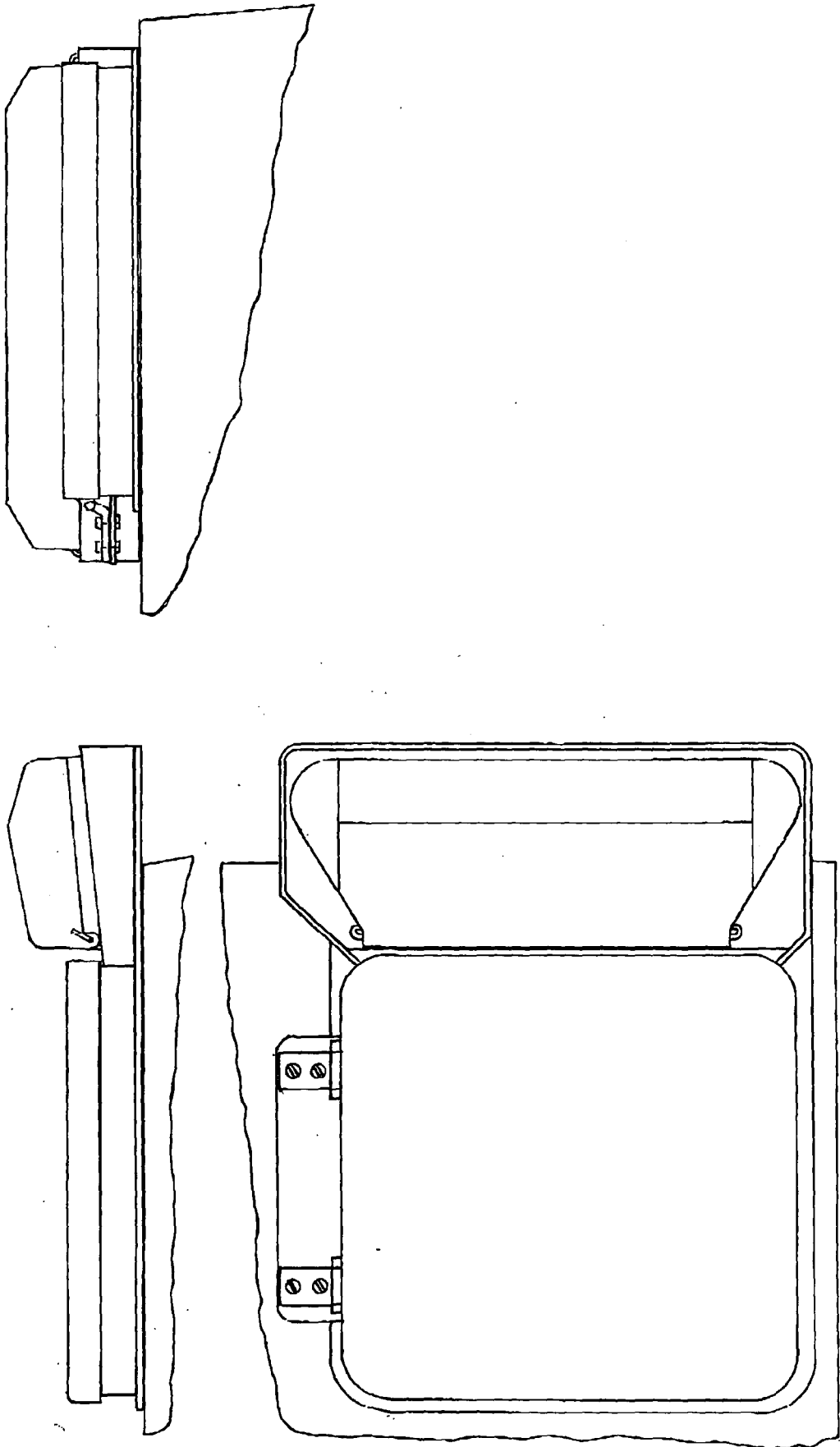


Fig. 5



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EUROPEAN SEARCH REPORT

Application Number
EP 99 61 0070

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A	* abstract; figures 1-4 *	3	F41A23/42
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 4 February 2000	Examiner Giesen, M
CATEGORY OF CITED DOCUMENTS		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	
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Application Number
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Place of search THE HAGUE		Date of completion of the search 4 February 2000	Examiner Giesen, M
<p>CATEGORY OF CITED DOCUMENTS</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>& : member of the same patent family, corresponding document</p>			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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