The invention relates to an armoured cab for a vehicle, such cab incorporating at least one floor onto which at least one side wall is attached.

This cab is characterised in that floor and/or at least one side wall is constituted by an armoured plate having at least one curved zone that at least partially covers the mechanical organ or the mobility means.
ARMOURED VEHICLE CAB

TECHNICAL FIELD OF THE INVENTION

[0001] The technical scope of the invention is that of armoured cabs for vehicles and in particular devices that ensure the protection of the floors of such cabs.

TECHNICAL BACKGROUND OF THE INVENTION

[0002] It is known to position add-on protection under the floors of vehicles and in particular add-on armour that is placed at a distance from the floor.

[0003] However, the floors are generally made by assembling and welding different metal plates together. Such an assembly is all the more necessary that different organists must be housed under the floor. The latter must therefore be adapted to the volumes of these organs and, in practical terms, it is necessary to make mechano-welded cases, integral with the floor and enclosing said organs.

[0004] The welding zones of such plates thus constitute embrittlement zones where the floor risks fracturing when subjected to impacts and to the blast from the explosion of a mine or else the explosion of an improvised explosive device.

[0005] The provision of add-on armour, even if it enables the effects of impact and blast to be mitigated to some extent, does not reliably prevent the fracture of the floor at the zone thus embrittled.

DISCLOSURE OF THE INVENTION

[0006] The aim of the invention is to propose an armoured cab that is able to overcome such drawbacks.

[0007] Thus, the invention relates to an armoured cab for a vehicle, such cab incorporating at least one floor onto which at least one side wall is attached, such floor or wall being positioned above at least one mechanical organ or mobility means, such cab wherein the floor and/or at least one side wall is constituted by an armoured plate having at least one curved zone that at least partially covers the mechanical organ or the mobility means.

[0008] The floor may incorporate at least one curved zone covering an axle.

[0009] Advantageously, the curved zone or zones of the floor extend over substantially the full length of the cab, the floor thus incorporating at least two substantially plane parts that are parallel to one another and that are separated by the curved zone or zones.

[0010] According to another embodiment, the floor or a side wall incorporates at least one curved zone covering at least one part of the mobility means, such as wheels or tracks.

[0011] The curved zone may thus form at least one lateral concave chute.

[0012] The armoured cab may thus incorporate on either side, a lateral chute extending over substantially the full length of the cab.

[0013] The armoured plate may be a plate made of folded aluminium. The thickness of this armoured plate will be at least 20 mm.

DESCRIPTION OF THE DRAWINGS

[0014] The invention will become more apparent from the following description of different embodiments, such description made with reference to the appended drawings, in which:

[0015] FIG. 1 shows a partial longitudinal section of a vehicle equipped with a cab according to a first embodiment of the invention.

[0016] FIG. 2 shows this same vehicle from a top view sectioned along the plane referenced AA in FIG. 1.

[0017] FIG. 3 shows a schematic cross section of a vehicle equipped with a cab according to a second embodiment of the invention, such section made along the plane reference BB in FIG. 4.

[0018] FIG. 4 shows a side view of this same vehicle.

DETAILED DESCRIPTION OF THE INVENTION

[0019] FIG. 1 shows a light armoured vehicle 1 that comprises a cab 2 attached to a chassis 3 equipped with wheels 4. The inside of the cab is accessible by a door 5 and encloses seats 6 that are suspended from the ceiling of the cab 2 by a support frame 7. Such an arrangement is classical and ensures the seats 6 to be isolated from the floor 8 of the cab, thereby protecting the crew from deformations of the floor 8 caused by the explosion of a mine.

[0020] The floor 8 is integral with the side walls 2a, 2b of the cab 2.

[0021] Furthermore, an armouring device for the floor is provided. It comprises an armoured plate 10 (for example, made of steel) that is positioned at a distance from the floor 8 of the cab and is linked to the latter by fastening means 11.

[0022] A mechanical organ 12, for example a gear box, is arranged between the chassis 3 and the floor 8.

[0023] In accordance with this embodiment of the invention, the floor 8 is above the mechanical organ 12 and incorporates at least one curved zone covering the mechanical organ 12 at least partially.

[0024] In practical terms, there are two curved zones 13a, 13b here which have curving that is inverted and tangent with respect to one another. These two are in the form of cylindrical portions.

[0025] As may be seen more particularly in FIG. 2, all the floor 8 (in particular the curved zones 13a, 13b) extend over substantially the full length of the cab 2, from a side wall 2a to the other side wall 2b.

[0026] The floor 8 thus incorporates two substantially plane parts 8a and 8b, parallel to one another, and separated by curved zones 13a, 13b.

[0027] The floor 8 is thus constituted by a thick armoured plate which is a plate of folded aluminium. This plate is at least 20 mm thick. Such thick metallic plates are folded industrially using tools that associates tooling to hold the plate in position, and shape tooling that enables the required curvature to be given and onto which the plate is applied by means of a press that is dimensioned according to the properties of the material forming the plate.

[0028] This shaping of thick metal plates is known, for example, in the domain of tank or vat manufacture. It has, up to date, never been used before to produce a floor or walls for armoured vehicles.

[0029] Such curved shapes made for the floor 8 avoid the implementation of several plates welded together. The brittle zones that give way under the effect of a mine blast are thus also avoided, the thickness of the plate ensuring the protection of the crew occupying the cab.

[0030] The vehicle cab’s 2 resistance is thus considerably reinforced although the mass of the floor 8 is reduced and the assembly process is simplified.
[0031] Naturally, FIGS. 1 and 2 are only schematic illustrations of a particular embodiment. The floor plate 8 may incorporate several curved zones 13 of different shapes. Thus, two curved zones 13 may be provided delimiting three plane surfaces, for example each curved zone covering one of the vehicles axles.

[0032] FIGS. 3 and 4 show another embodiment of cab 2 according to the invention.

[0033] According to this embodiment, the cab 2 incorporates two lower side walls 14a and 14b that are arranged under side walls 2a, 2b.

[0034] These lower side walls are integral firstly with the floor 8 and secondly with an armour plate 10. The side walls 14a, 14b are made in the form of concave chutes whose curvature at least partially covers the mobility means, which here are wheels 4.

[0035] As may be seen more particularly in FIG. 4, the lateral concave chutes 14a, 14b extend over substantially the full length of the cab 2. Each chute 14 thus covers all the wheels 4 positioned on the same side of the cab 2.

[0036] The chutes 14a, 14b are made in the form of thick aluminium plates that are folded into the required shape (thickness of around 20 mm).

[0037] Because of the curvature of the chutes 14a, 14b, there is no risk of any welds fracturing during the explosion of a mine or improvised explosive device.

[0038] Furthermore, the curvature of the chutes 14a, 14b also ensures a deviation of the blast from the explosion thereby further improving the protection provided by these wall elements.

[0039] It is naturally possible for the chutes 14a, 14b to be used to cover mobility means of a different type, for example tracks.

[0040] Depending on the total length of the vehicle, it will be possible for each side wall 14a or 14b to be made, not in the form of a single chute, but by assembling several chutes arranged longitudinally one behind another.

[0041] Each chute will, in this case, be advantageously fastened to a frame integral with the cab.

[0042] It is lastly possible to combine the embodiment shown in FIG. 1 with the embodiment shown in FIG. 3. Thus, a particular shape may be given to the thick floor covering the mechanical organs (for example the axles) associated with thick lateral chutes deviating the blast effect of the explosive devices.

[0043] It is thus possible to produce a light vehicle, with relatively reduced ground clearance, but with a cab that offers excellent protection with respect to mines and improvised explosive devices.

1. An armoured cab (2) for a vehicle, such cab incorporating at least one floor (8) onto which at least one side wall (2a, 2b, 14a, 14b) is attached, such floor or wall being positioned above at least one mechanical organ (12) or mobility means (4), such cab wherein the floor (8) and/or at least one side wall (14a, 14b) is constituted by an armoured plate having at least one curved zone (13a, 13b) that at least partially covers the mechanical organ (12) or the mobility means (4).

2. An armoured cab according to claim 1, wherein the floor (8) incorporates at least one curved zone covering an axle.

3. An armoured cab according to claim 1, wherein the curved zone or zones (13a, 13b) of the floor (8) extend over substantially the full length of the cab, the floor (8) thus incorporating at least two substantially plane parts (8a, 8b) that are parallel to one another and that are separated by the curved zone or zones (13a, 13b).

4. An armoured cab according to claim 1, wherein the floor (8) or a side wall (14a, 14b) incorporates at least one curved zone covering at least one part of the mobility means (4), such as wheels or tracks.

5. An armoured cab according to claim 4, wherein the curved zone forms at least one lateral concave chute (14a, 14b).

6. An armoured cab according to claim 5, wherein it incorporates on either side a lateral chute (14a, 14b) extending over substantially the full length of the cab (2).

7. An armoured cab according to claim 1, wherein the armoured plate (8, 14a, 14b) is a plate of folded aluminium.

8. An armoured cab according to claim 7, wherein the armoured plate has a thickness of at least 20 mm.

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