

[54] PROFILE ELEMENTS FOR JOINING ARMOR PLATES

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[57] ABSTRACT

[30] Foreign Application Priority Data

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A connection for the shell of armored vehicles, wherein the plates of the shell are disposed in an angular, planar or stepwise relationship, thereby forming a hollow space. The plates are connected at the junction points by means of separate profile bars formed as hollow or solid components. The profile bars have shoulders constructed as mounting sections for the plate edges. For multiple wall shells, the profile bars can be provided with shoulders arranged in a stepwise manner.

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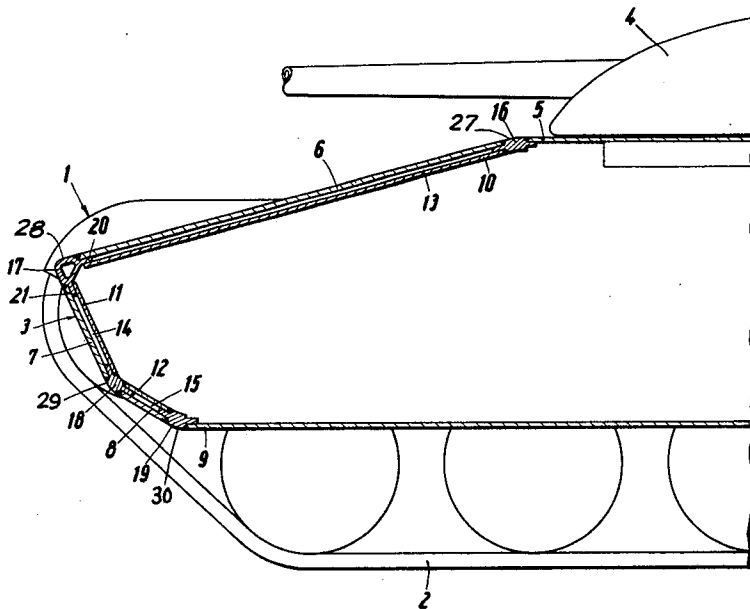
[58] Field of Search89/36 R, 36 A, 36 H; 109/79, 109/82, 83, 84, 85; 161/404; 287/189.36 D, 189.36 H

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7 Claims, 2 Drawing Figures

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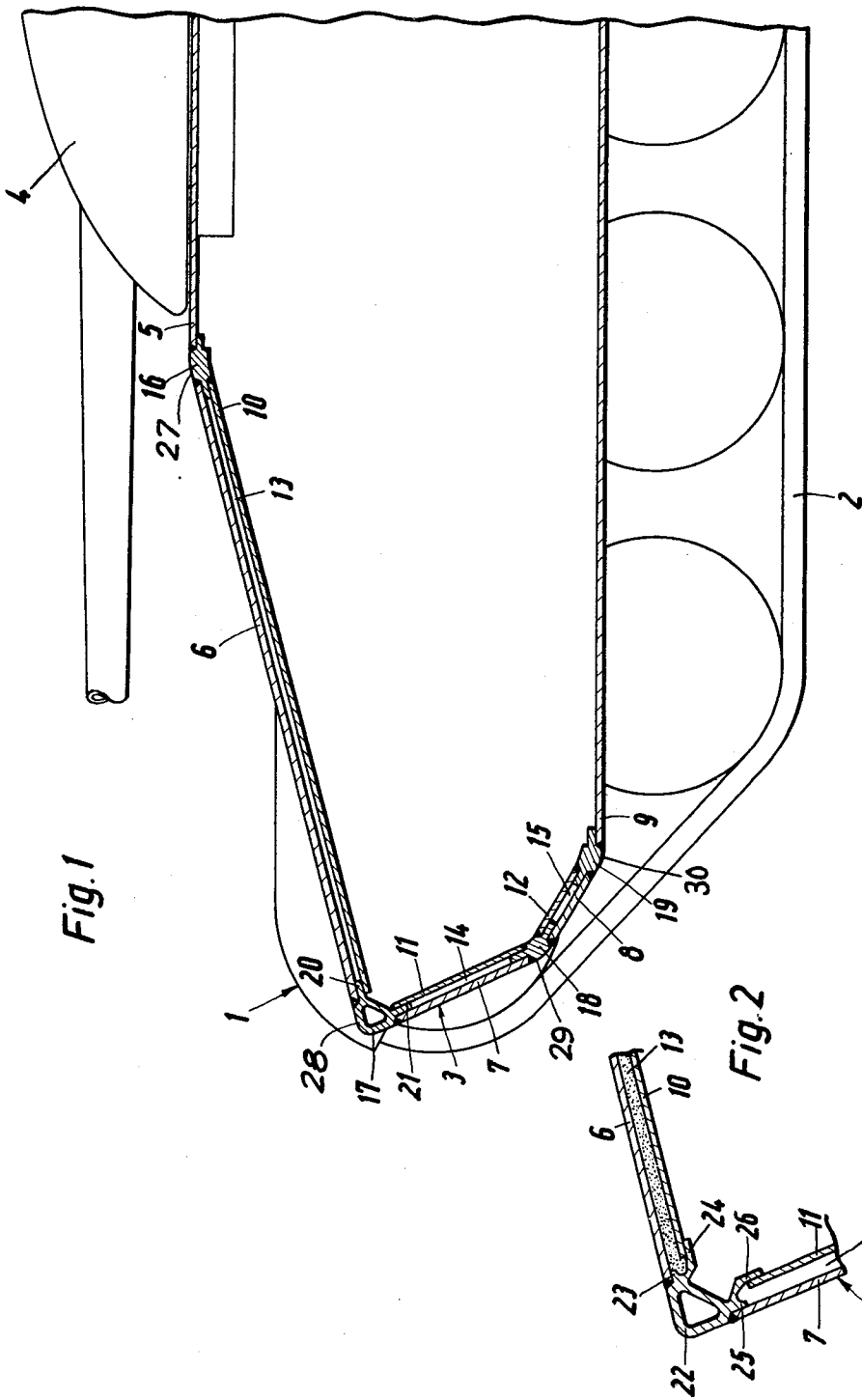


Fig. 1

Fig. 2

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PROFILE ELEMENTS FOR JOINING ARMOR PLATES

BACKGROUND OF THE INVENTION

The present invention relates to a connection for shell plates of armored vehicles, and more particularly, to shell plates which are disposed in an angular, planar, or stepwise or staggered relationship, particularly with the formation of a hollow space.

The connection of armor plates must meet the requirements of being joinable in a simple manner and being able to withstand high stresses. In a conventional plate connection for vehicles of the aforementioned type, the coupled components have sections cooperating with one another in a claw-like fashion, which sections are held in place by screws or rivets. However, the disadvantage of this construction is that means must be provided at the edges of the plates, thereby causing high tool and machining expenses. In this connection, see German Pat No. 865,573.

SUMMARY OF THE INVENTION

The problem underlying the present invention resides in providing edge and butt joints for plates which can be put under a high stress and yet can be readily assembled. In this connection, the accurate and therefore expensive fitting operations carried out on the conventional armor plates are to be eliminated.

The underlying problems are solved in accordance with the present invention by connecting the plates at edges or junctions of the shell by means of separate profile bars or strips, which are formed as hollow or solid members. Therefore, it is advantageous to adapt the profile bars provided for joining the plates with their external surfaces to the configuration of the shell of the vehicle.

It is also advantageous to provide that the profile bars intended for joining the shell plates have shoulders constructed as receiving or mounting sections for edges of the plates.

For shells comprising multiple walls, the profile bars preferably have receiving sections for the edges of the plates. It is advantageous to provide that the receiving sections of the profile bars of the plates have shoulders arranged in a stepwise or staggered fashion. The shoulders of the profile bar are preferably connected to the edges of the walls of the shell by conventional means such as welding.

The advantages of the present invention reside, particularly, in that a very rugged plate connection is created by the use of the profile bars, which connection can be mounted without any difficulties. Furthermore, this construction does away with exact and consequently expensive cutting and fitting operations to which the armor plates had to be exposed heretofore. By means of the stepwise or staggered arrangement of the shoulders of the profile bars, a satisfactory support of inner walls in case of multiple-wall shells is ensured. Also, the assembly of the armor plates is considerably simplified thereby.

BRIEF DESCRIPTION OF THE DRAWING

These and further features, advantages and objects of the present invention will become more apparent from the following description when taken in conjunc-

tion with the accompanying drawing which shows, for purposes of illustration only, several embodiments in accordance with the present invention and wherein;

FIG. 1 is a cross-sectional view of a shell of an armored vehicle; and

FIG. 2 is a section corresponding to FIG. 1, of another embodiment in accordance with the present invention.

DETAILED DESCRIPTION OF THE DRAWING

Referring now to the drawing and, in particular, to FIG. 1, the illustrated vehicle 1 comprises a running mechanism 2 and a shell 3. A rotatably mounted turret 4 is provided above the shell 3. The shell 3 comprises outer walls 5, 6, 7, 8, 9 and inner walls 10, 11, 12, arranged at an angle with respect to one another and constituting armor plates. The inner walls 10, 11, 12 are disposed with respect to the outer walls 6, 7, 8 so as to form hollow spaces 13, 14, 15.

Profile strips 16, 17, 18, 19, which are adapted to the configuration of the shell walls and constructed as hollow or solid bodies, are provided for connecting the outer walls 5, 6, 7, 8, 9 and the inner walls 10, 11, 12, with each other. The profile strips 16, 18, 19 are formed by solid members which basically are of identical construction.

In contrast thereto, the profile strip 17 is composed of a hollow body forming the tip of the front end of the shell. Each profile strip has shoulders 20, 21, which are formed as receiving sections for the edges of the outer walls 5, 6, 7, 8, 9, or inner walls 10, 11, 12, respectively. The outer walls 5, 6, 7, 8, 9 and the inner walls 10, 11, 12 are connected to the profile strips 16, 17, 18, 19 by conventional connecting means such as, for example, welding. However, it is also possible to retain the walls of the shell in position at the profile bars by means of detachable elements.

The exterior surface portions 27, 28, 29, 30 of the profile strips are arranged so as to present a continuous uninterrupted surface in conjunction with the respective adjacent outer walls 6, 7, 8, 9.

According to FIG. 2, the tip of the front end of the shell 3 is formed by a profile strip 22 having shoulders 23, 24 and 25, 26, arranged in a stepwise or staggered manner. The walls 6, 10 and 7, 11 are attached to the profile strips 22 by conventional means such as welding. Due to the stepwise arrangement of shoulders 23, 24 and 25, 26 of the profile bar 22, it is possible to effect the installation and attachment of the walls 6, 10 and 7, 11 from common planes, which represents a substantial simplification of the assembly operation.

As shown in FIG. 2, radiation-protective means are provided in the hollow spaces 13, 14, 15 of the shell 3; such radiation-protective means can consist of liquid, gaseous, or solid substances.

While we have shown and described several embodiments in accordance with the present invention, it is to be clearly understood that the same is susceptible to numerous changes and modifications as will be apparent to one of ordinary skill in the art, and we, therefore, do not wish to be limited to the details shown and described herein, but intend to cover all such changes and modifications within the scope of the present invention.

We claim:

1. An arrangement for connecting armor plates together on an armored vehicle of the type having a plurality of planar shell plates forming a hollow space therewithin; said arrangement comprising profile bar means having a first shoulder means for receiving the edge of an exterior shell plate to be connected thereto and means for fixedly connecting said exterior shell plate to said first shoulder means, said profile bar means including an exterior surface portion extending parallel to the exterior surface of said exterior shell plate, a first outwardly facing surface of said first shoulder means extending substantially parallel to the exterior surface portion of the profile bar means, said first shoulder means including a second surface substantially perpendicular to said first surface, said exterior shell plate being fixedly connected to said profile bar means in abutting relationship with said first and second surfaces, said profile bar means having second shoulder means for receiving the edge of an interior shell plate to be connected thereto, said second shoulder means being spaced inwardly from and extending substantially parallel to said first shoulder means, said interior shell plate being attached by welding to an outwardly facing surface of said second shoulder means such that said interior plate is substantially parallel to said interior plate, said second shoulder means being longer in the longitudinal direction of the associated shell plates than the first shoulder means such that said first shoulder means

does not interfere with the placement of the interior plates in position on the second shoulder means.

2. An arrangement according to claim 1, characterized in that said first surface of said first shoulder means is spaced from the exterior surface portion of the profile bar means by a distance substantially equal to the thickness of said exterior shell plate, whereby said exterior plate and said exterior surface portion form a substantially continuous exterior surface.

3. An arrangement according to claim 1, characterized in that said profile bar means includes two first shoulder means disposed at an angle with respect to one another for connecting to two exterior shell plates.

4. An arrangement according to claim 3, characterized in that said exterior shell plates are welded to said profile bar.

5. An arrangement according to claim 1, characterized in that said profile bar means is constructed as a solid member and in that said exterior shell plate is connected thereto by welding.

6. An arrangement according to claim 1, characterized in that said profile bar means is constructed as a hollow member and in that said exterior shell plate is connected thereto by welding.

7. An arrangement according to claim 1, characterized in that the profile bar means is a hollow member.

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