

DESCRIPTION

Magazine-integrated ammunition

5 The invention relates to a magazine or magazine-integrated munitions, in particular for a launcher.

One or more munitions are provided in the corresponding weapon and launcher system individually, in a belt or
10 even in a magazine. Mechanical loads are withstood by the munitions itself. The magazine or the belt represents a munitions holder, storage facility or delivery facility for the weapon in the real sense.

15 A cartridge belt is depicted in AT 345 697 B and AT 346 736 B. Further cartridge belts are known from DE 1 222 824 C, DE 33 36 192 A1 or DE 44 17 782 C2. DE 202 05 689 U1 discloses a cartridge belt with plastic elements.

20 DE 103 46 001 B2 discloses a launcher of the known type for protecting against end phase guided missiles. The launcher comprises juxtaposed disposed launcher chutes, whose covering is opened for ejection of the munitions from the launcher.

25 DE 196 17 701 A1, a further application of the applicant is concerned with a method for providing a decoy target. The active substances are ejected from a launcher and positioned by a shell that is rotated.

30 Such launcher systems are also subject to the wish to increase the range. If the propulsion system for the munitions and their cartridges are changed for this purpose, higher loads then act on the interface between
35 the launcher and the munitions, so that these loads exceed the permissible level. This fact could be countered, for example, by stiffening the cartridge tube for the munitions, but a change of the magazing

of the munitions in the launcher system would also have to be carried out, which in turn is undesirable.

5 The object of the present invention is to provide an arrangement, with which an increase in range can be achieved in a simple manner and taking costs into account.

10 The object is achieved by the features of patent claim 1. Advantageous embodiments are disclosed in the dependent claims.

15 In association with an increase in range for weapons systems and launcher systems, the relocation of functions from the munitions into the area of the magazine is worthy of consideration, since these cannot be undertaken by the munitions alone. Even from the viewpoint of a cost reduction, the colocation of individual functions of the system components should be
20 reconsidered.

The invention is based on the idea that the munitions and the magazine can not only be structurally linked but also functionally linked. The munitions and the
25 magazine are merged into sub-modules, so to speak, wherein a plurality of submodules (e.g. 4) is comparable with the number of conventional munitions (in the launcher or launcher chute). These submodules are then preferably connected together and locked (as a
30 module), which is also comparable with a conventional magazine loaded with munitions. The individual sub-modules include, among other features, rifling, by means of which during firing the munitions/submunitions are set in rotation and thereby stabilized (transfer of
35 a function from the munitions).

According to the invention, the submunitions/projectiles are integrated directly into a

magazine/magazine segment, which in turn can take up the load of the munitions and can undertake munitions-relevant functions. The magazine segments or submodule segments can be connected together to form a magazine
5 as a result of their structural shape. Alternatively, there can also be tilt/latch connections, by means of which the submodules can be connected together.

The magazine is compatible with existing launcher
10 systems and the magazine segments are compatible with each other, which also allows an exchange of the segments within the magazine group (modular design).

The invention will be explained in detail using an
15 example embodiment with drawings.

The drawings show:

- fig. 1 a plan view representation of a magazine
20 formed by the ammunition,
- fig. 2 a side view representation of the magazine
shown in fig. 1,
- 25 fig. 3 a further variant of the submodule,
- fig. 4a, b an alternative connection with hooks and
cups at the lower end of the munitions as
shown in fig. 3,
- 30 fig. 5a, b a connection option in the upper area of
the munitions as shown in fig. 3.

In fig. 1, submodules or magazine segments labeled with
35 1 are shown in a plan view, wherein four submodules 1 (1.1 - 1.4) form a magazine 2. The magazine 2 is preferably closed by a handle or a lock 3.

Cartridges or munitions (active bodies) that are not shown in detail are integrated into the segments 1. The individual submodules/magazine segments 1.1 - 1.4 comprise inter alia rifling 8, by means of which they
5 are set rotating during firing of the munitions/submunitions/active body and are thereby stabilized.

The first submodule 1.1 comprises, preferably on one
10 side, an undercut 5, which is structurally adapted to a protrusion 6 on the further submodules 1.2, 1.3, 1.4, so that both can be connected together. For this reason, the following submodules 1.2 - 1.n comprise, in addition to the protrusion 6, an undercut 5, whereas
15 the first submodule 1.1 comprises only an undercut 5.

The magazine 2 is constructed by connecting the submodules 1.1 - 1.4 together. The handle 3 can be inserted into the undercut of the last submodule 1.4,
20 in particular for transportation, and it is preferably connected with a locking device.

The embodiments described here comprise primarily a magazine 2 for a launcher with four munitions disposed
25 one above the other. This embodiment is preferable, since known magazines generally comprise only four ejector tubes disposed one above the other (cf. DE 103 46 001 B2), which on their part form a launcher chute.

30 It is understood, however, that for other launcher types and/or applications, a plurality of submodules 1 can be joined together. If the submodules 1 were also to comprise lateral undercuts, a connection to further submodules 1 using this interface would also be
35 possible.

A further variant of the design of the munitions package is shown in fig. 3. In this case the submodules 10 (10., 10.2 and so on) are latched together.

- 5 The alternatives for the connection of these submodules 10 to each other are shown in fig. 4a, b and 5a and b.

The submodule 10 comprises at least one hook 11 on one side, preferably in the lower region, which can be brought into engagement with the cup 12 of the next submodule 10. For this purpose, the hook/hooks 11 of one submodule 10 are suspended in the cups 12 of the preceding module 10. In order to ensure a secure connection of the modules 10 in the upper region, a latch 13 can be incorporated. This can take the simple form of a snapper, for which the front module 10 comprises a notch and the next module comprises a protrusion that can engage the notch (not shown in detail). A spring bolt 14 is used as a preferred variant, which can engage behind or in a recess 15 of a part 16 extending away from the module 10.1. This allows easy release of the modules 10.1 and 10.2 from each other, (fig. 5a, b). In fig. 1, the spring bolt 14 is shown and the latch is open; in fig. 4b, the spring bolt 14 is closed and thus the latch is in operation. Moreover, horizontal and vertical slats 17 are located on the submodules 10.1, 10.2. These engage in each other in the latched condition. By means of the slats 17, the external forces, e.g. caused by handling etc., are captured and relieve the load on the hooking devices and the latching devices or the locking devices. The number of slats 17 can be chosen depending on the introduced force to be expected, depending on the material and depending on the configuration.

PATENT CLAIMS

1. A magazine (2) with munitions, in particular for
5 a launcher for protection against end phase-guided munitions, characterized in that the munitions are magazine-integrated, so as to be accepted by submodules (1, 10), and several submodules (1.1 - 1.4, 10.1, 10.2) directly form the
10 magazine (2), which is pushed into the launcher or the launcher chute.
2. The magazine as claimed in claim 1, characterized in that it is closed by a handle and/or a locking device (3), in particular for transportation.
- 15 3. The magazine as claimed in claim 1 or 2, characterized in that the submodules (1.1 - 1.4) are connected together.
4. The magazine as claimed in claim 3, characterized in that the submodules (1.2 - 1.4) comprise
20 undercuts (5) and protrusions (6) for interconnection, wherein the first submodule (1.1) of the magazine does not comprise a protrusion (6).
5. The magazine as claimed in claim 1 or 2,
25 characterized in that the submodules (10, 10.1, 10.2) comprise at least one hook (11), preferably in the lower region, as well as cups (12) corresponding to them for receiving the hook /hooks (11) of the other submodules (10, 10.1,
30 10.2).
6. The magazine as claimed in one of claims 1, 2 or 5, characterized in that a latching device (13) for the submodules (10, 10.1, 10.2) is incorporated, preferably in the upper region of
35 the submodules (10, 10.1, 10.2).
7. The magazine as claimed in claim 6, characterized in that the latching device (13) is provided in the form of a notch and a protrusion that can

latch into it.

8. The magazine as claimed in claim 6, characterized in that the latching device (13) is in the form of a spring bolt (14), which can engage in or
5 behind a recess (15) of a part (16) extending away from the module (10.1).
9. The magazine as claimed in one of claims 1, 2, 5 to 7 or 8, characterized in that horizontal and vertical slats (17) are located on the submodules
10 (10, 10.1, 10.2), which engage in each other in the latched condition.
10. The magazine as claimed in one of claims 1 to 9, characterized in that the submodules (1) comprise rifling (8).
- 15