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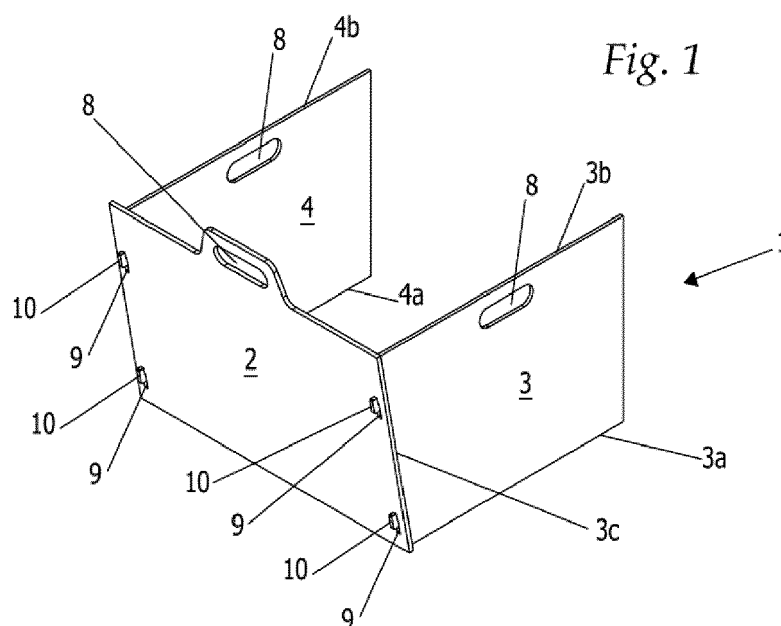
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(54) **BALLISTIC PROTECTION**

(57) The invention is intended for the shooting training sector, and in particular concerns a ballistic protection (1) for a target (100) of the type comprising a silhouette (101), a movement device (102) and at least one arm (103) arranged between said silhouette (101) and said movement device (102) for said silhouette (101) and adapted to rotate approximately 90° to make said silhouette (101) visible or conceal it.

Said ballistic protection (1) comprises:

- at least one front plate (2) and a first (3) and a second (4) lateral plate, adapted to cooperate with each other to screen said movement device (102) and said at least one arm (103);
- interlocking reversible coupling means between said plates (2, 3, 4), adapted so that said ballistic protection (1) can be assembled and disassembled, comprising a plurality of slots and a plurality of tabs adapted to engage said slots.



Description

Technical field of application

[0001] The invention is intended for the shooting training sector, and in particular concerns a ballistic protection for a disappearing target of the type comprising a movable silhouette which is shot at when it is made visible, a movement device for said silhouette and at least one connection arm between the two, adapted to rotate approximately 90°, controlled by said movement device, to make said silhouette visible to or conceal it from a shooter.

Prior art

[0002] Long-distance shooting training is typically carried out in open-air shooting ranges: naturally circumscribed and delimited places where shooting is practised with military or civil firearms, without causing external damage.

[0003] Open-air shooting ranges were developed to allow long-distance shooting, even well over 1000 metres, and to provide training in the use of firearms in different weather conditions. Said shooting ranges consist of large open-air areas, often abandoned quarries or uninhabited valleys, without buildings or equipped with simple structures to protect against weather conditions (canopies or sheds).

[0004] It is fundamental that the only exposed part of the disappearing target is the silhouette which the shooters have to shoot at; the movement device, on the other hand, must be well protected in order to prevent the bullets shot outside the silhouette from damaging it.

[0005] Currently, it is common practice to dig ditches or holes in which said movement devices are arranged, so as to put them under cover in the ground, leaving only the silhouette protruding when in the raised position and therefore visible. It is also common practice to surround the movement device with sandbags and/or small earth embankments.

[0006] Disadvantageously, the areas selected as open-air shooting ranges, for safety reasons, are mostly valleys, located in areas difficult to access and with rocky ground.

[0007] It is obviously difficult to dig holes or trenches in which to conceal said movement devices in said conditions and likewise, there are obvious difficulties with transporting and laying the sandbags or gathering soil to raise small embankments.

Presentation of the invention

[0008] The object of the invention is to overcome this limit.

[0009] The object of the invention is to provide a ballistic protection for a disappearing target, in particular for the silhouette movement device, which is effective as a

screen, functional, strong and long-lasting, easy to transport and assemble and position in open-air shooting ranges, even the most remote.

[0010] The objects are achieved by a ballistic protection for a target of the type comprising a silhouette, a movement device for said silhouette and at least one arm arranged between said silhouette and said movement device and adapted to rotate approximately 90° to make said silhouette visible or conceal it, where said ballistic protection is characterised in that it comprises:

- at least one front plate and a first and a second lateral plate, adapted to cooperate with each other to screen said movement device and said at least one arm;
- reversible interlocking coupling means between said plates, adapted so that said ballistic protection can be assembled and disassembled, comprising a plurality of slots and a plurality of tabs adapted to engage said slots.

[0011] In a preferred variation, said first and second lateral plate have a trapezoidal shape and each comprise a smaller base, a larger base and at least one oblique side, and said front plate cooperates with and rests on the oblique side of each of said first and second lateral plates, thus being inclined forward.

[0012] In a particularly preferred embodiment of the invention, said ballistic protection comprises an upper plate, adapted to cooperate with said first and second lateral plate by means of said interlocking reversible coupling means, to further screen said movement device positioning itself between said device and said silhouette, when the latter is concealed.

[0013] Advantageously, said upper plate comprises at least a recess adapted to allow the rotation of said at least one arm.

[0014] According to a further possible embodiment variation, said ballistic protection further comprises a rear plate, adapted to cooperate with said first and second lateral plate and with said upper plate by means of said interlocking reversible coupling means, to further screen said movement device.

[0015] According to a further aspect of the invention, said front plate, lateral plate, upper plate and rear plate each comprise an opening, adapted to act as a gripping handle.

[0016] Furthermore, said front plate, lateral plates, upper plate and rear plate are made completely of ballistic steel.

[0017] The advantages of the invention are evident.

[0018] The protection subject of the invention is configured as an external structure, made of ballistic sheet steel, that protects the target movement device leaving on view only the silhouette when in the shooting position, namely visible to the shooter.

[0019] To solve the problem of the considerable weight of the ballistic sheet steel and the fact that it cannot be welded and bent without compromising its strength, the

protection is made in pieces, namely in plates that weigh less and are therefore easy to transport even to places that are difficult to access.

[0020] The different plates can be interlocked by reversible coupling means so that the protection can be assembled and disassembled; it therefore has a modular structure so that it can be easily assembled directly in situ.

[0021] The forward-inclined front plate advantageously deviates the bullets downwards.

[0022] The upper plate and the rear plate offer further screening also for deviated or ricocheted bullets.

[0023] The ballistic protection produced according to the invention is therefore transportable, strong, stable and long-lasting.

Brief description of the drawings

[0024] These and other advantages will be more evident below, where preferred embodiments of the invention are described, by way of nonlimiting example, and with the help of the drawings in which:

Fig. 1 and 2 show, in axonometric view and longitudinal section respectively, along a vertical plane, a ballistic protection according to a first variation of the invention;

Fig. 3 and 4 show, in axonometric view from two different angles, a ballistic protection according to a further variation of the invention;

Fig. 5 and 6 show, in an overhead plan view and in longitudinal section along a vertical plane respectively, the ballistic protection of Fig. 3 and 4;

Fig. 7 shows, in an exploded axonometric view, the ballistic protection of Fig. 3 and 4 during assembly; Fig. 8 and 9 show, in longitudinal section along a vertical plane, the ballistic protection of Fig. 3 and 4 during use, in two different operating configurations; Fig. 10 and 11 show, in axonometric view from two different angles, the same ballistic protection as Fig. 8 and 9.

Detailed disclosure of preferred embodiments of the invention

[0025] Referring to Figures 1-2, a ballistic protection 1 is illustrated of the type that can be used to screen at least partially a disappearing target 100, particularly of the type used in an open-air shooting range.

[0026] The targets 100, as mentioned above, comprise a movable silhouette 101, for example in the form of a dummy, and a movement device 102 for said silhouette 101, adapted to allow rotation by approximately 90°, so as to keep it normally concealed and make it visible only when shooting is allowed.

[0027] For said purpose, said silhouette 101 is supported by at least one supporting arm 103, revolvingly associated with said movement device 102. In the variation illustrated, as will be seen below, there are two of

said arms 103, hinged along the sides of said movement device 102.

[0028] In the more simplified version illustrated in Figures 1-2, said ballistic protection 1 comprises:

- a front plate 2, a first 3 and a second 4 lateral plate, adapted to cooperate with one another to screen at least said movement device 102 forming part of the target 100;
- interlocking reversible coupling means between said plates 2, 3 and 4, so that said ballistic protection 1 can be assembled and disassembled.

[0029] Said front plate 2 has a substantially quadrangular shape; said lateral plates 3, 4 have a trapezoidal shape and each comprise a smaller base 3a, 4a, a larger base 3b, 4b and at least one oblique side 3c, 4c.

[0030] Said interlocking reversible coupling means comprise:

- a plurality of slots 9 obtained on said front plate 2, in a peripheral position,
- a corresponding plurality of tabs 10, adapted to engage said slots 9, projecting from said lateral plates 3, 4.

[0031] Said tabs 10 are L-shaped and project from the oblique sides 3c, 4c of said lateral plates 3, 4.

[0032] In detail, there are four of said slots 9, split into two pairs; said first lateral plate 3 comprises two tabs 10 adapted to cooperate with a first pair of slots 9; said second lateral plate 4 comprises two tabs 10 adapted to cooperate with a second pair of slots 9.

[0033] Said front plate 2 cooperates with and rests on the oblique side 3c, 4c of each of said first 3 and second 4 lateral plates, thus being forward-inclined, so as to deviate downwards, and therefore towards the ground, any bullets that may hit it.

[0034] Said front plate 2 is shaped and comprises an opening 8 adapted to act as a gripping handle. Advantageously, also said lateral plates 3, 4 could comprise openings adapted for said purpose, as shown in the variations illustrated in the following Figures.

[0035] With particular reference to Figures 3-11, a more complete version of the ballistic protection 1 is illustrated, adapted to screen, from any angle, the movement device 102 of the target 100, with particular attention also to any ricocheting bullets.

[0036] Said ballistic protection 1 therefore comprises, in addition to said front plate 2 and said first 3 and second 4 lateral plate, also an upper plate 5 and a rear plate 7.

[0037] Said upper plate 5 is adapted to cooperate with said first 3 and second 4 lateral plate, again via said interlocking reversible coupling means, positioning itself between said movement device 102 and said silhouette 101.

[0038] In particular, said first 3 and second 4 lateral plate each comprise a pair of slots 11; said upper plate

comprises corresponding L-shaped tabs 12, projecting from two opposite sides thereof, and adapted to engage said pair of slots 11.

[0039] Said upper plate 5 comprises two recesses 13, obtained along a side thereof proximal to said front plate 2, adapted to allow the passage of said arms 103 supporting the silhouette 101 and the free rotation thereof in order to raise (Fig. 8) or lower (Fig. 9) the silhouette.

[0040] Said rear plate 7 is adapted to cooperate with said first 3 and second 4 lateral plate and with said upper plate 5, also via said interlocking reversible coupling means.

[0041] Said first 3 and second 4 lateral plate each comprise a corner indentation 14; said rear plate 7 comprises two tabs 15, protruding laterally, not L-shaped but of step type, adapted to occupy said indentations 14.

[0042] Said upper plate 5 comprises two slots 16 obtained near a distal side thereof relative to said front plate 2; said rear plate 7 comprises two tabs 17 protruding at the top, not L-shaped but of the step type, adapted to occupy said slots 16.

[0043] In the variation of Figures 3-11, said front plate 2, said lateral plates 3, 4, and said upper plate 5 each comprise an opening 8 adapted to act as gripping handle.

[0044] Said rear plate 7 comprises a cut-out 18, necessary for handling the plate during assembly of the ballistic protection 1.

[0045] All the plates that compose the protection are made of ballistic steel; optimal results in terms of resistance to bullet shots have been obtained with plate thickness of 6.5 mm, except for the front plate for which a thickness of 8 mm is preferred.

Claims

1. A ballistic protection (1) for a target (100) of the type comprising a silhouette (101), a movement device (102) and at least one arm (103) arranged between said silhouette (101) and said movement device (102) for said silhouette (101) and adapted to rotate approximately 90° to make said silhouette (101) visible or conceal it, where said ballistic protection (1) is **characterised in that** it comprises:

- at least one front plate (2) and a first (3) and a second (4) lateral plate, adapted to cooperate with each other to screen said movement device (102) and said at least one arm (103);
- interlocking reversible coupling means between said plates (2, 3, 4), adapted so that said ballistic protection (1) can be assembled and disassembled, comprising a plurality of slots and a plurality of tabs adapted to engage said slots.

2. The ballistic protection (1) according to claim 1, **characterised in that** said first (3) and second (4) lateral plate have a trapezoidal shape and each comprise

a smaller base (3a, 4a), a larger base (3b, 4b) and at least one oblique side (3c, 4c), and said front plate (2) cooperates with and rests on the oblique side (3c, 4c) of each of said first (3) and second (4) lateral plate, thus being inclined forward.

3. The ballistic protection (1) according to claim 1, **characterised in that** it comprises an upper plate (5), adapted to cooperate with said first (3) and second (4) lateral plate by means of said interlocking reversible coupling means, to further screen said movement device (102) positioning itself between said device and said silhouette (101), when the latter is concealed.

4. The ballistic protection (1) according to claim 3, **characterised in that** said upper plate (5) comprises at least a recess (6) adapted to allow the rotation of said at least one arm (103).

5. The ballistic protection (1) according to claim 1, **characterised in that** it further comprises a rear plate (7), adapted to cooperate with said first (3) and second (4) lateral plate and with said upper plate (5) via said interlocking reversible coupling means, to further screen said movement device (102).

6. The ballistic protection (1) according to any one of the preceding claims, **characterized in that** said front plate (2), lateral plates (3, 4), upper plate (5) and rear plate (7) each comprise an opening (8), adapted to act as a gripping handle.

7. The ballistic protection (1) according to any one of the preceding claims, **characterized in that** said front plate (2), lateral plates (3, 4), upper plate (5) and rear plate (7) are made completely of ballistic steel.

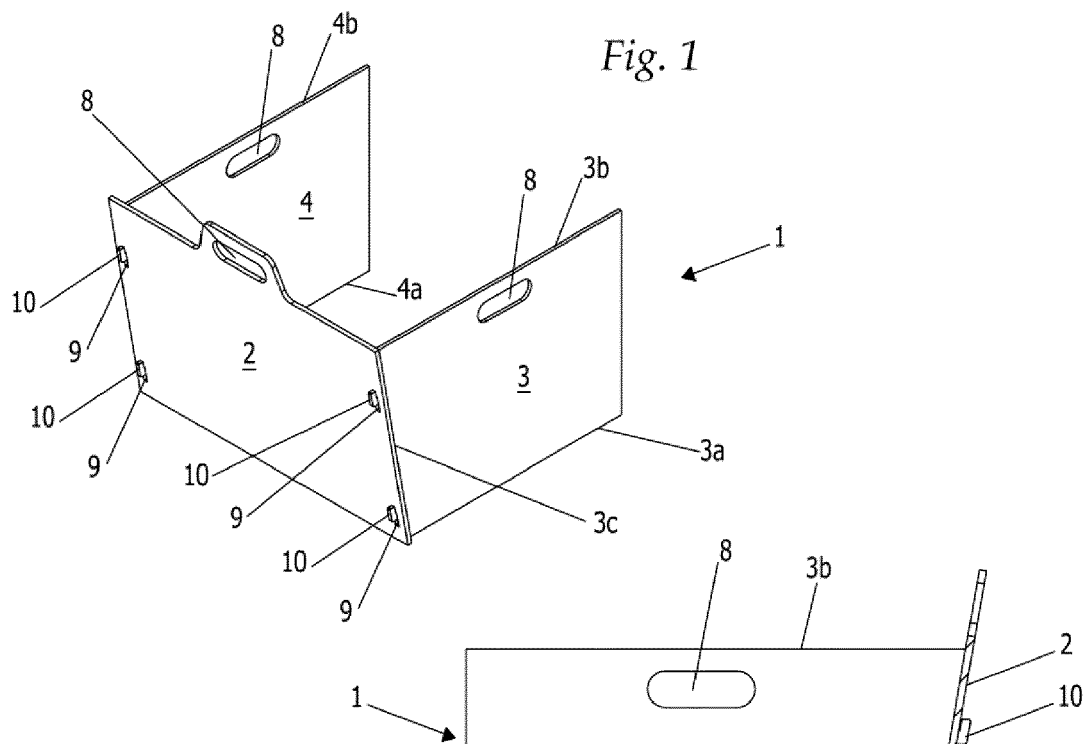


Fig. 2

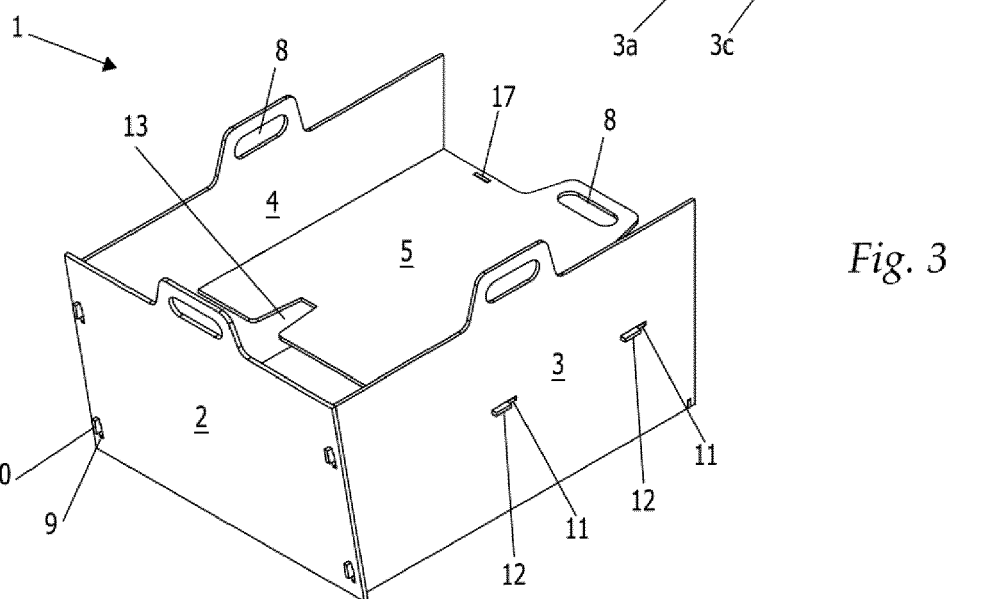
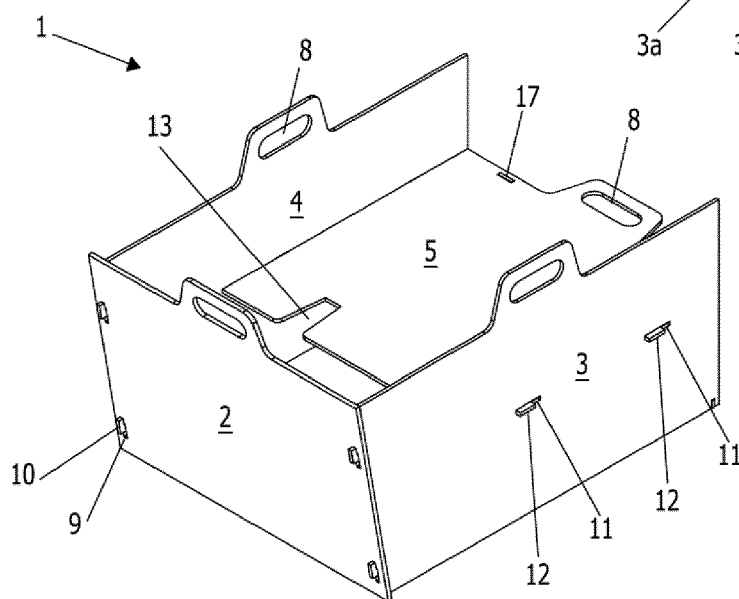


Fig. 3



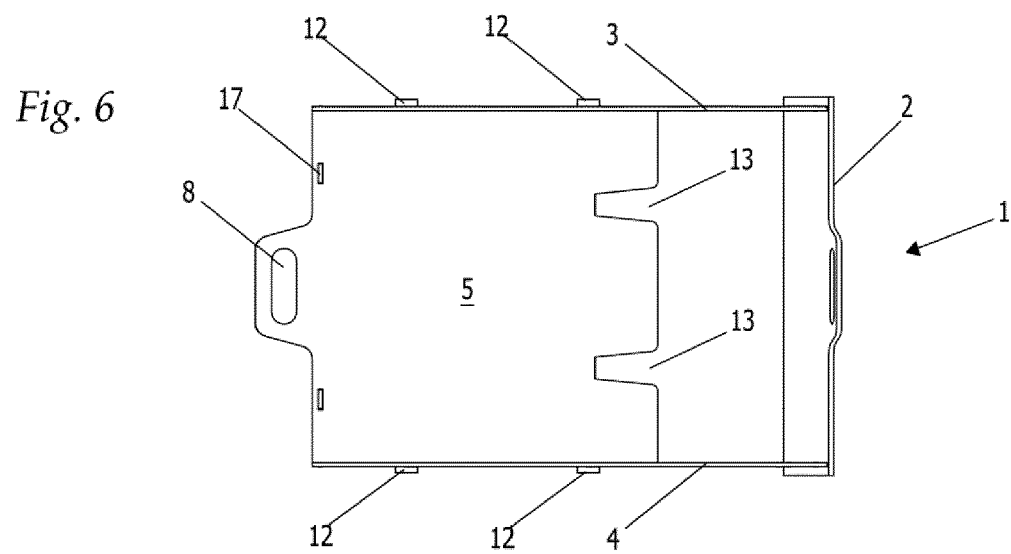
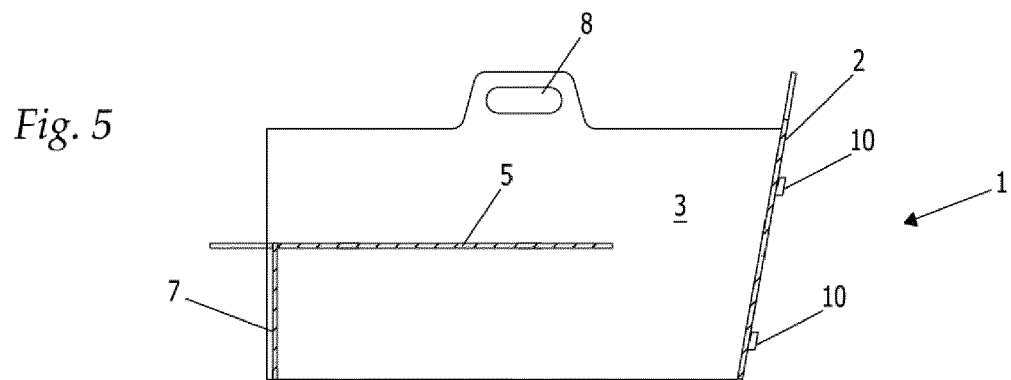
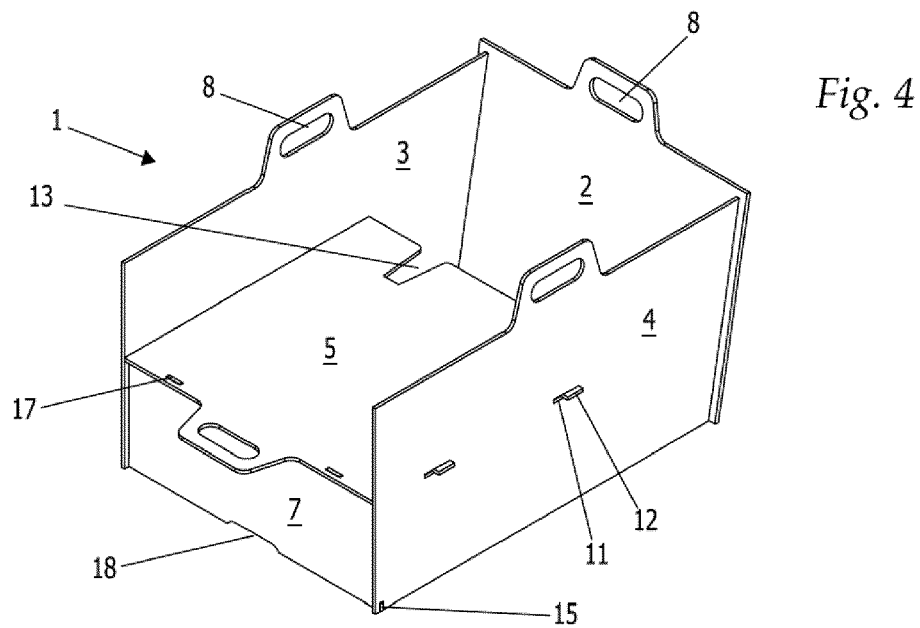


Fig. 7

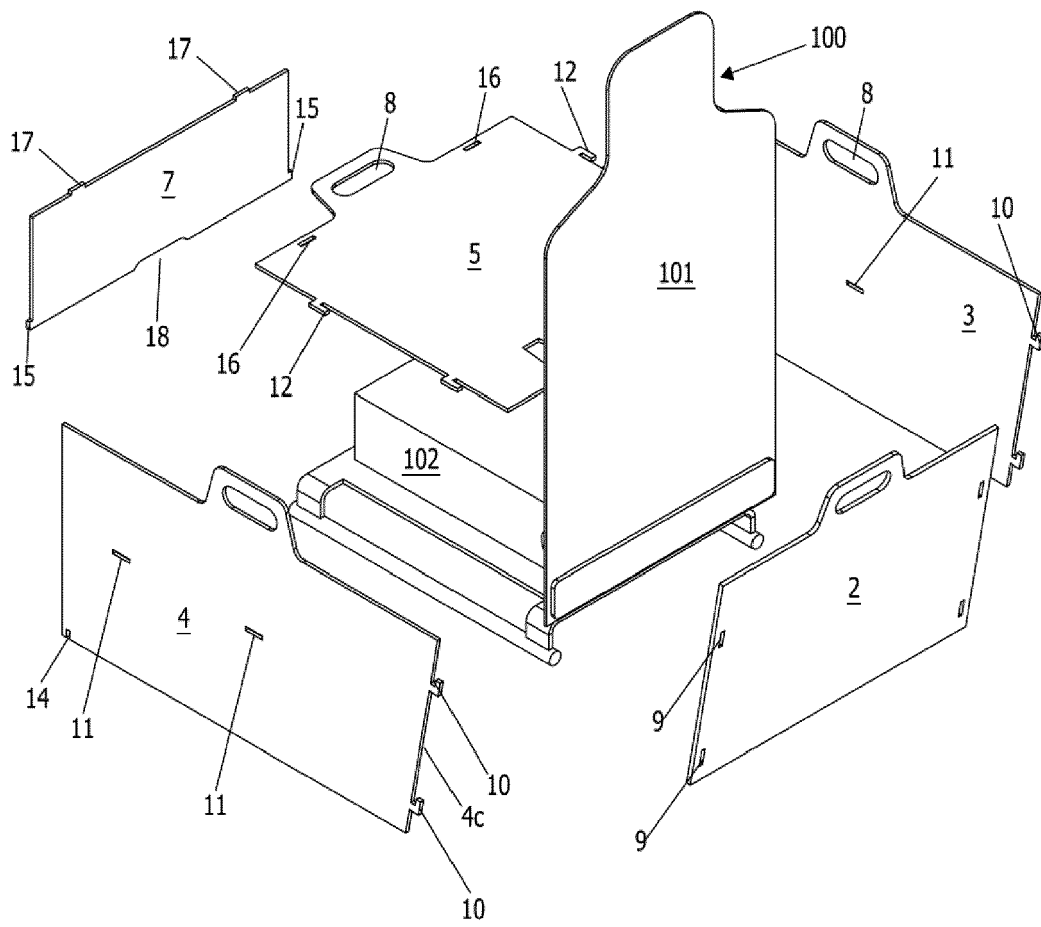


Fig. 8

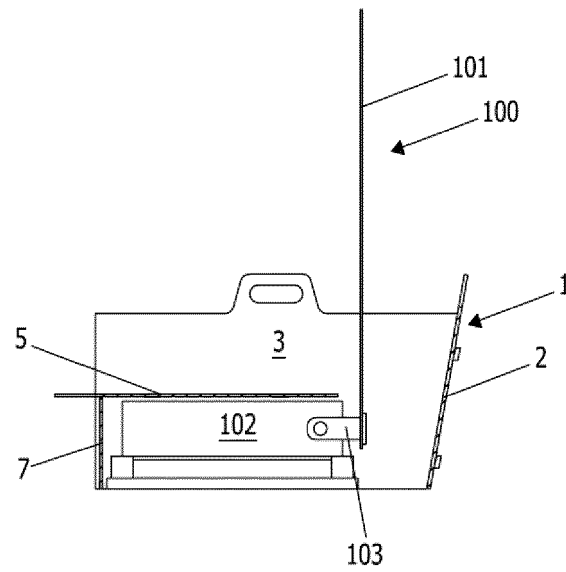


Fig. 9

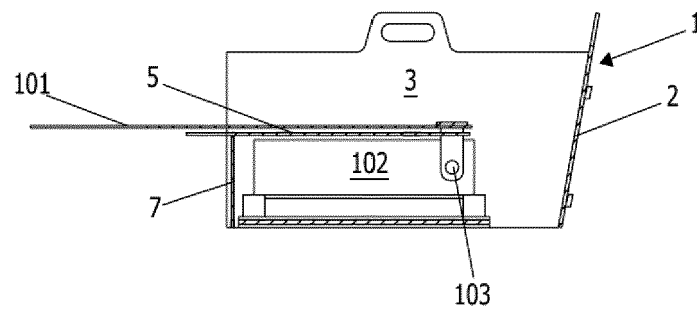


Fig. 10

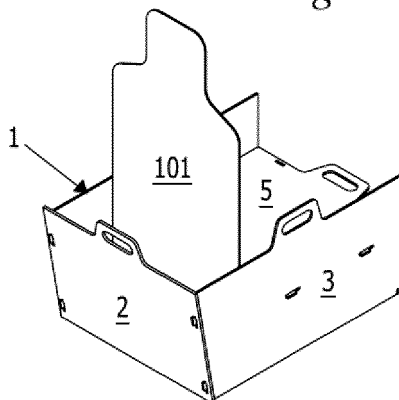
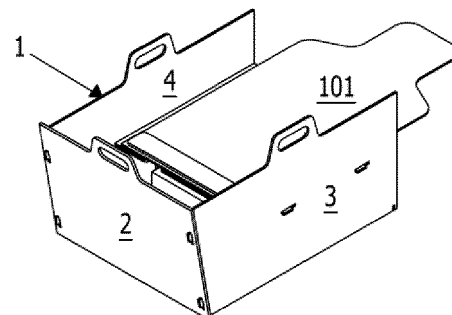


Fig. 11





EUROPEAN SEARCH REPORT

Application Number

EP 23 18 3481

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EPO FORM 1503 03.82 (P04C01)

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	AU 2019 222 972 A1 (GENG PTY LTD [AU]) 19 March 2020 (2020-03-19)	1	INV. F41J7/00
Y	* claim 1; figures 1,2 *	2	F41H5/24
A	----- US 2011/175293 A1 (BRUNE THOMAS M [US]) 21 July 2011 (2011-07-21) * paragraphs [0043], [0048], [0049]; claim 1; figures 1-11c *	3, 4	F41H5/013
Y	----- WO 2021/256919 A1 (VAN RIEL RUDOLF EMANUEL JOHANNES [NL]) 23 December 2021 (2021-12-23) * page 4, line 11; claim 1; figures 2-4, 7-9 *	2	
A	----- * page 9, line 1 - line 2 *	1, 5-7	

			TECHNICAL FIELDS SEARCHED (IPC)
			F41J F41H
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 26 October 2023	Examiner Beaufumé, Cédric
CATEGORY OF CITED DOCUMENTS 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		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	

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 23 18 3481

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

26-10-2023

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