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(54) **CONVERTIBLE BULLET PROOF DEVICE**

(57) A convertible bullet-proof device (1) comprising a body (2) made of bullet-proof material (B) and further comprising fastening means (6), characterized in that the body (2) is made of a foldable material and in that the fastening means (6) are suitable for removable coupling. The convertible bullet-proof device (1) is arranged to be reversibly switched between a first closed position (P1) when the fastening means (6) are mutually engaged, securing the body (2) in a folded position around a first symmetry axis (A-A) for use as a bag (10), and a second open position (P2) for use as a shield (11) when the fastening means (6) are released, letting the body (2) unfold.

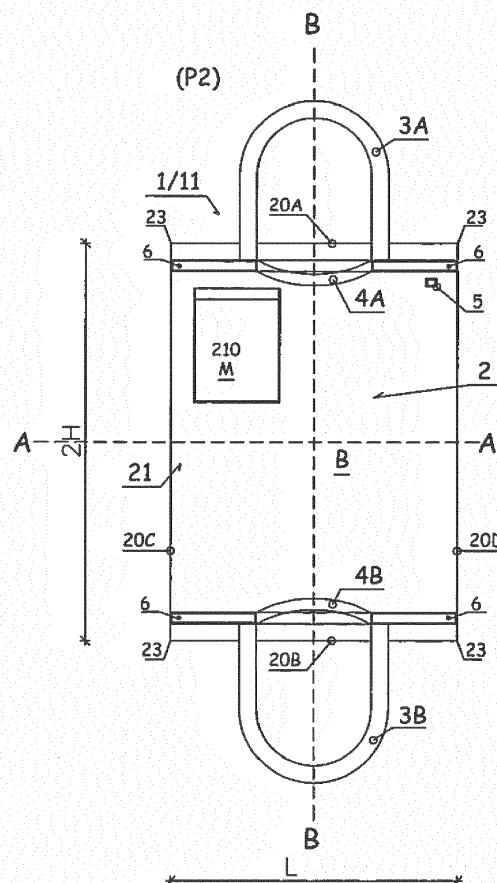


Fig.2A

DescriptionTechnical field

5 **[0001]** The invention relates both to a fashion accessory and a bullet proof device. More specifically, it relates to a convertible piece of luggage that can also be used as a shield for personal use against bullets, shrapnels or fire.

Background

10 **[0002]** Nowadays, we are unfortunately faced with an increasing number of terrorist attacks, generating a level of insecurity that had never been reached hitherto in densely populated zones. This especially applies to shopping malls, transport terminals or stations such as railway stations or subway stations of great cities at peak times, but also to airports, and also any places like stadiums or halls where sport events or concerts are organized, possibly gathering many thousands of people.

15 **[0003]** Under these exceptional circumstances, it can be appreciated that a growing number of policemen or army men are present in public places, including touristic places, that need to be considered as risk areas. Although the provided deterrence effect is likely to preemptively avoid most of such attacks, it cannot be ensured that they can be totally eradicated, and therefore, people tend to rely at least as much on themselves in terms of protecting gear for their personal protection as on civil protection through the help of third parties.

20 **[0004]** Precisely due to the heightened concerns of safety in situations where no police or military persons would be available, bullet proof vests turns out to be a simple device for civilians offering excellent protection while being unobstrusive, easy to use and easy to carry, for every day life. These bullet proof devices have been known for years, precisely as being worn by policemen or bodyguards. However, despite their efficiency as a shielding device for the upper body, these kinds of vests are too visible to let the wearers thereof go unnoticed in the crowd; moreover, they are very extremely
25 hot, unfashionable, heavy and constraining for everyday use by regular civilians.

[0005] Other protection devices such as bullet proof shields consisting of hard material also exist, but they are equally difficult to carry around and heavy, unfashionable.

[0006] The patent document US2003/0132260 describes a bag-like alternative solution to provide ballistic protection intended for a more practical use, while being used a container for transporting articles otherwise. This dual use shielding
30 device includes, on the one hand, a first bullet proof portion integrated in a bag compartment, and, on the other hand, a detachable panel coupled to the bag body with a strap, that can be placed over the shoulder of a user. As a result, this wearable shield allows for front and back protection of the torso. However, a first drawback of this device is that it is not quickly deployable, because the wielding of the detachable panel may not prove to be an easy task in an extremely urgent situations; moreover, another critical drawback of this device is that the straps can become untangled, leading
35 in the worst case to strangulation, and in any case straining the neck, trapezius and shoulders during use. Moreover, these functional straps are highly unattractive and cannot be easily concealed inside the bag when used for transporting goods without being prejudicial to the bag's capacity.

[0007] There is hence a need for a new convertible bullet-proof shielding device free from all these known limitations.

40 Summary

[0008] The present invention is aimed at offering a new optimized dual use convertible device that is at the same time a bag with large capacity used as a piece of luggage, while also acting as a highly reliable shield when used as a bullet-proof device as well.

45 **[0009]** To this end, the present invention concerns a convertible bullet-proof device according to main claim 1, comprising a body made of bullet-proof material It's further comprising fastening means, that is characterized in that the body is made of a foldable material and in that the fastening means are suitable for removable coupling, wherein the convertible bullet-proof device is arranged to be reversibly switched between a first closed position where the fastening means are mutually engaged, securing the body in a folded position around a first symmetry axis for use as a bag, and
50 a second open position for use as a shield when the fastening means are released, letting the body unfold.

[0010] An advantage conferred by the claimed convertible bullet-proof device according to the present invention is that it provides a piece of luggage, that can efficiently contain and transport large good items, while also being swiftly and reliably deployable as a shield in case of attacks. According to a preferred embodiment, this piece of luggage is preferably designed as a handbag or a purse that be carried over a shoulder of the person carrying it and therefore very
55 easily manipulated for carrying out the unfolding process. The capacity of such a handbag is moreover not affected at all by the features of the convertible apparatus for transforming the bag into the shield.

[0011] Another advantage conferred by the claimed convertible bullet-proof device according to the present invention is that it is much more practical to use as compared to such known devices, since it is made of lighter and softer material.

Moreover, it is designed to be more easily transportable when used as a regular bag in its first closed position, for every day life, while allowing for a very quick and effortless release of the fastening means to transform the bag into a shield.

[0012] Yet another advantage conferred by the claimed convertible bullet-proof device according to the present invention is that it provides a definitely more fashionable device. Indeed, when used in its first closed position as a bag, its external side is preferably made of good looking textile fabric as opposed to the known rigid panels or thick wearable jackets. Furthermore, such a layout allows not to disclose any of the sought bullet-proof properties towards the outside when moving into the crowd; this allows to remain inconspicuous and not raise the level of insecurity. Yet according to another preferred embodiment, the external pockets could also be made of a fashionable bullet-proof material too, in order to contain the shrapnels in case the items should be broken inside the pocket due to a hit, which could hurt the owner of this device.

[0013] A further advantage conferred by the claimed convertible bullet proof device according to the present invention is that the provided shield is more reliable and more efficient, since it is now deprived of any line of weakness, unlike panels articulated around a hinge. Moreover, according to a preferred embodiment, the shield can be used either as a wearable piece of clothing or as protection cover to hide under or behind depending on the parts of the body that are likely to be hit and where the risk emanates from. As a result, maximal flexibility is provided, and possibly integral protection is granted, including for the head, which does not apply for panels directed to the torso only.

[0014] Further advantageous features are discussed in the following detailed description, with reference to the drawings illustrating preferred embodiments for the present invention.

Brief description of the drawings

[0015] The invention will now be described in greater detail with reference to accompanying figures, in which:

Figures 1A, 1B and 1C show respectively a front side view, a rear side view and a profile view of the convertible bullet-proof device according to a preferred embodiment for the present invention illustrated when used as a bag;

Figures 2A, 2B and 2C show respectively an inside view, an outside view and a profile view of the convertible bullet-proof device according to a preferred embodiment for the present invention illustrated when used as a shield.

Fig 3 shows an enlarged sectional view of the body and an external pocket according to a preferred embodiment for the present invention, highlighting the various layers of material used.

Fig. 4 shows an enlarged view of the inside view of Fig. 2A, focusing on a preferred seaming pattern for the handles.

Figs. 5A, 5B, 5C and 5D show a set of sketches illustrating how the convertible bullet-proof device according to the present invention can be used in various situations, and namely as being carried as a regular shoulder bag (Fig. 5A), as a back-pack shield (Fig. 5B), as a shield in a standing position (Fig. 5C) and finally as a shielding cover when kneeled down on the floor (Fig. 5D).

Detailed description

[0016] In the following, a preferred embodiment for the convertible bullet-proof device is described in detail, that can be used both as a handbag or as a shield. This preferred illustrated embodiment is given by way of example only and shall not, however, be construed in a restrictive manner for determining the scope of protection for the present invention. Some other possible variant embodiments will therefore also be briefly hinted at, while yet not been exemplified on the same level of detail.

[0017] All the following figures illustrate the very same convertible bullet-proof device 1, that is represented according to different views while being used as handbag (set of figures 1A, 1B, 1C), i.e. when the body 2 of the device is folded and secured in a first closed position P1, therefore corresponding to the bag 10 mode use. In contrast, the set of figures 2A, 2B, 2C show similar views of the body 2 yet now in second open position P2 where the body is now totally unfolded, hence corresponding to the shield 11 mode use.

[0018] As it can be appreciated in view of all the figures, the foldable body 2 is an essential part for the present invention since it makes up a kind of "base" onto which all functional features both of the bag 10 as a container and of the shield 11 as a bullet-proof protective device are integrated; such a layout also allows to merge the known plurality of shielding panels into one single shielding element with enhanced protective properties, since no more line of weakness that usually occurs at least at the hinge level between articulated panels needs to be dealt with, thereby providing consistent, uniform shielding properties throughout the overall surface of the shield.

[0019] According to the preferred illustrated embodiment depicted on all the figures, the convertible bullet-proof device

1 is of rectangular shape, which applies then of course to the first closed position P1 where the body 2 is folded around its symmetry axis A-A as well as to the second open position P2 where the body is unfolded. However, other symmetrical geometrical shapes could be considered, and the ones that will be preferred will be the ones that maximize the overall surface in order to both increase the bag capacity while simultaneously also increasing the shield covering surface; e.g. an hexagonal shape for the shield corresponding, in the folded position, to a trapezoidal shape for the bag with a longer lower base and the upper base, i.e. a larger bottom edge as the upper longitudinal edge, would fit in with these objectives.

[0020] According to the preferred embodiment illustrated according to different views on Figs. 1A, 1B, 2A & 2B, the convertible bullet-proof device 1 of the present invention has a length L of at least 60cm and a height H of at least 45cm in the first closed position P1 for use of the as a bag 10. As a result, when the convertible bullet-proof device 1 is unfolded in the second open position P2 depicted in Fig 2A, the overall height 2*H that can be measured along each of the first and second lateral edges, respectively labelled with reference numbers 20C & 20D, is at least close to 1 meter, so that a person of a regular size can best hide behind it when kneeling down or even sitting and crawling down in case of an attack.

[0021] When comparing the first set of figures 1A, 1B, 1C of the convertible device 1 in the first closed position P1 with the second set of figures 2A, 2B and 2C in the second open position P2, it can be appreciated that, according to this depicted preferred embodiment, the two sets of functional features associated with the bag 10 and the ones associated with the shield 11 are totally dissociated and arranged respectively on the external side 22 of the body 2 as far as the bag 10 is concerned, and on the internal side 21 of the body 2 as far as the shield is concerned.

[0022] Indeed, a set of external pockets 220, including here a first external pocket 220A for a PC or laptop, visible on figures 1A & 2B, and a second external pocket 220B and a third external pocket 220C of equal sizes, visible on figures 1B & 2B, symmetrically arranged around a second symmetry axis B-B for the sake of enhancing the design and appearance of the bag, and that could be used for other purposes, are foreseen to provide the containing function of the bag 1. This set of external pockets 220 as well as the overall outer surface of the bag on its external side 22 are preferably made of stylish textile T fabric, so that the aesthetical appearance is best without disclosing any of the shielding function that may also likely be provided by the convertible bullet-proof device. In contrast, the internal side 21 of the body 2 is dedicated to the shielding function: that is where the bullet-proof material B, that is also arranged to be simultaneously fireproof and waterproof in case of explosion resulting in the burning of surrounding materials and also possibly the pouring of dangerous corrosive liquids, is inserted. As a result, the convertible bullet-proof device 1 according to this illustrated preferred embodiment can be considered as some kind of double-face apparatus with a dual faced design, since it looks like a regular bag from the outside, and is a shield inside when unfolded in case of need. The layout is such that these two functionalities do not interfere with each other: containers are arranged as external pockets only - i.e the set of external pockets 220, consisting here of the first, second and third external pocket 220A, 220B & 220C - while the shielding is provided on the inside, i.e towards the internal side 21 of the body 2.

[0023] According to a preferred embodiment, seven interlayers of very light, thin and soft ballistic material such as for example the "Turais" from the F.lli Citterio Spa, are used, so that the overall weight of the convertible bullet-proof device 1 does not exceed 2 kilos and thus remain very easy to use, while the aesthetical appearance of the bag is also preserved (see the profile views of Figs. 1C/2C, showing a respectively a very slim bag 10 even slimmer shield 11). It will be understood, however, that similar other ballistic material having comparable advantageous light weight properties would also be applicable here.

[0024] As a preferred textile fabric T employed as an external coating for the bullet-proof convertible device 1, e.g. the "Antares" product from Russia could be used; yet again other products available on the market providing a similar advantageous protective effect could also be used.

[0025] Fig.3 shows an enlarged sectional view of the body 2 and an external pocket of the set of external pockets 220 according to a preferred embodiment for the present invention as depicted in Fig. 1C/2C, highlighting the various layers of material used for the body 2 and their advantageous properties. Fig.3 is actually a magnified view of the enlarged section E surrounded by a circle on Fig. 2C. As it can be seen on Fig. 3, the body 2 is preferably made of a core layer, or possibly a plurality of aggregated layers of bullet-proof material B, which are surrounded by a first lining L1 made of water-proof material, preferably heat-sealed onto it. On the internal side 21 of the body 2, the first lining L1 is covered by another second lining L2, this time fireproof, preferably sewed onto it. On the external side 22 of the body where the pocket is arranged, another sequence of layers can be observed, involving additionally the fashionable, preferably bullet-proof textile fabric T sealed onto the first lining L1 and then covered by the textile fabric T. As far as the material of the pocket itself is concerned, it consists of an aggregation of this second lining L2 of fireproof material on the inside of the pocket while the textile fabric T is arranged towards the outside. This proposed laminated structure offers a very high degree of reliability in terms of shielding and overall protection properties, because the bullet-proof effectiveness of the inner material used is best preserved against damages caused by fire or liquid spraying thanks to the additional outer linings. Moreover, this can be achieved without being prejudicial to the aesthetics of the convertible bullet-proof device 1 when used as a bag 10.

[0026] According to the preferred embodiment illustrated, a single internal pocket 210 is yet also provided, whose size

is adjusted to the one of a smartphone, i.e. typically around 15*20cm. This internal pocket 210 arranged on the internal side of the foldable body 2 is further made of a transparent and conductive material M in order to be able to view and control the tactile screen of a smartphone inserted therein. In practice, a transparent plastic layer could be employed for this internal pocket 21, yet with a reduced thickness (not exceeding 2mm) in order to still allow for control of the touch screen in order to be able to communicate towards the outside in case of attack while remaining under cover and keeping these communication dealings undisclosed to the attackers.

[0027] Still according to the preferred embodiment illustrated on Fig. 2A, is not only a set of external handles 3 provided for carrying the bag 10, here made of a first external handle 3A and a second external handle 3B, but also a second set of handles 4, distinct from the first set of external handles 3, is also provided to wield the shield 11. Although this second set of handles 4 could comprise only a single handle, preferably it is made of a pair of a first internal handle 4A stretching along a first longitudinal edge 20A on the internal side 21 of the body 2 and a second internal handle 4B stretching along a second longitudinal edge 20B on the internal side 21 of the body, so that the first and second internal handles 4A,4B are symmetrically arranged around the first symmetry axis A-A of the foldable body 2 and that the shield 11 can be manipulated and held either way. Unlike the set of external handles 3, that are designed to protrude significantly outside the surface of the body 2 in order for example for carry the bag 10 over a shoulder, the set of internal handles 4 is designed to remain concealed under the shield 11 when the convertible device is used as such. As a result, the first and second internal handles 4A,4B will be designed not to be as loose as the first and second external handles 3A,3B and also the attachment point of each of their extremity will be somewhat shifted towards the inside of the body 2 from the corresponding longitudinal edge in order to likely to be seized by a hand without any part thereof being visible from the outside.

[0028] As illustrated in more detail on Fig. 4, the set of external handles 3 and internal handles 4, whose only the first external handle 3A and first internal handle 4A are depicted here, are sewed together with a special T-shaped overlapping connection pattern in order to increase the tearing resistance thereof. To this end, the first seam S1 of the first internal handle 4A extends on a straight line accounting of approximately two thirds (2/3) of the length L of the first longitudinal edge 20A, i.e. one third on each side of the second symmetry axis B-B of the convertible bullet-proof device 1, but is yet arranged to leave an inner space of at least 20cm, and preferably at least 25cm for gripping the internal handle 4A. The first outer handle 4A is then seamed along a second seam S2 so as to overlap the inner edge of the first seam S1 over an joint zone J, and extend along another straight line a perpendicular direction towards the outside, while leaving though the same inner space available along the first longitudinal edge 20A, i.e. at least 20cm and preferably at least 25cm. Such a design for the mutual seaming of both internal and external handles not only allows for better tearing resistance, but also ensures great ergonomics and simplifies the manufacturing process through the provided joint overlapping seaming pattern for attaching all handles to the body 2 of the convertible bullet-proof device 1. Moreover, it improves the aesthetics of the provided bag 10 by concealing all the seams, i.e. here the first seam S1 and the second seam S2.

[0029] The provided complete separate arrangement of dedicated features for each intended use allow to optimize both the layout of the bag and the implementation of the shield, with each features dedicated for the bag affect the other features dedicated for the shield. However, according to a variant embodiment it would also be possible to design the pockets in a textile fabric T that would also be bullet-proof, as long as the aesthetical appearance of the bag 1 is not affected, and also provide some containing pockets on the internal side 21 of the body 2; in this case, however, it would need to be ensured that the pocket material is highly resilient to splinters in case an item contained therein would be touched by a bullet.

[0030] Moreover, as far as the set of external handles 3 is concerned, it can be appreciated especially in view of the figures 1C & 2C according to a profile view that the first external handle 3A and the second external handle 3B preferably stretch over a height that is of the same order of length as the height H of the bag 10, i.e. the length of the first and second lateral edges 20A and 20B when the body 2 is folded into the first closed position P1 where the convertible bullet proof device 1 is used as a bag 1. These first and external handles respectively 3A and 3B are terminated by a semi-circular shape, visible on all figures 1A-1B and 2A-2B, and the spacing between their respective attaching points with the body 2 is set to be at least 25cm to 30cm. The underlying reason for such a configuration of the external set of handles 3 is that they are intended not only for the bag 10 in the first closed position P1 for carrying over a shoulder, but also for the shield 11 in the second open position P2, the size and shape of at least one of the first external handle 3A and the second external handle 3B of the set of external handles 3 being adjusted so as to leave enough space available inside to fit a human head of regular size, that can be estimated not to exceed 30cm of diameter. In such a case, the shield can then be worn like an apron for protecting the front part of the torso, or as a cape held around the neck for protecting the back. An advantage of wearing the shield 11 like this through one of the external handles of the set of external handles 3 is to have both hands free to manipulate do other tasks, such as grab a door handle to try and open it, holding the hand of a close relative, especially children, and also giving a phone call for help, while grasping an internal handle of the set of internal handles 4 not leaves one free hand to perform other tasks. Alternatively, the shield 11 could be worn by introducing the hands and then the arms inside the set of external handles 3 too, which would allow to best protect the flanges of the torso in addition to just one side of it, i.e. front or back.

[0031] According to the preferred embodiment depicted on figure 2A, it can be appreciated that the fastening means for removable coupling 6 allowing to switch between the first closed position P1 disclosed e.g. on Fig. 1A and the second open position P2 disclosed e.g. precisely on Fig. 2A are arranged as simple snap buttons, here located at each of the corners 23 of the foldable body 2. This ensures reliable and swift switching between each of the positions, i.e. the first closed position P1 in which the body 2 is folded and the second open position P2 in which the body is unfolded, hence guaranteeing the best possible reaction time, which can prove to be critical in extremely urgent situations. The man with ordinary skill in the art will understand that the proposed embodiment is optimized in terms of efficiency and costs, the number of snap buttons being the smallest possible. However, other variant embodiments involving a different number of snap buttons could also be considered, as well as other types as fastening means 6 like Velcro or zippers disposed either along the longitudinal edges (i.e. the first and second longitudinal edges 20A, 20B) or the lateral edges (i.e. the first and second lateral edges 20C, 20D). Velcros could for example be arranged directly on the seaming lines of any of the first seam S1, second seam S2 or even only on the joint zone J thereof, in order to ensure a good grip of the fastening means 6 with each other in order to reliably keep the device in the folded position; on the other hand, the level of magnitude of releasing force required to release such fastening means 6 should be set to a threshold that still ensures and easy and quick transformation into a shield whenever necessary. Push- and slide buttons releasing a hooking part engaged in a slot for releasing the locking system could also be foreseen instead of zippers, an inconvenience of zippers being that they are however more prone to being stuck by incidentally by gripping a piece of cloth and should therefore preferably be avoided for this purpose of performing the transformation between the two functions fulfilled by the convertible device 1. However, zippers could totally be employed in order to close any of the sets of external pockets 220 described before, even though such fastening means for the pockets are not illustrated on the drawings of Figs 1A-1C and 2B-2C, whereby any of the other fastening means evoked previously would also be suitable, in combination with an overlapping closing tongue covering the space left open on the top of the pocket for introducing the items. An advantage of arranging removably closing pockets would be not to spill most of the objects contained in the bag 10 when transforming it into a shield 11.

[0032] Despite the fact that neither of the first longitudinal edge 20A, second longitudinal edge 20B, and first lateral edge 20C, second lateral edge 20D do not need to be straight, but only preferably show a symmetrical shape around the first axis of symmetry A-A around which the body 2 is folded and along which the bottom edge 20E of the bag 10 stretches, one major difference between a regular bag and the bag 10 provided in the frame of the present invention is that none of the lateral and/or longitudinal edges can be resiliently seamed together, because otherwise no reversible switching between folded and unfolded position of the body 2 could be possible any more.

[0033] Having a closer look at Figure 2A, it can be appreciated that the preferred illustrated embodiment for the present invention involves a body 2 that is fitted with an embedded chip 5, visible on the upper-right corner. This chip 5 is supposed to have at least short-range communication capabilities and can for example detect in which position (i.e. P1 or P2) the convertible device 1 is currently used, and notify over a predetermined frequency range to other members of a same community, e.g. all the users of the same convertible device 1. As a result, alarms can be broadcast to all members of the community in order to warn of an imminent danger of attack. This chip 5 could hence serve as an interface for an application to be developed on smartphones, and also possibly to communicate with legal authorities as whistleblower for warning of ongoing attacks. Beside communication and interconnection, the chip 5 may also have geolocalization capabilities. In order to avoid false alarms to be triggered by mistake and prevent also any misuse, a special safety mechanism could also be foreseen, forcing for example the tearing of a special sealing arranged inside the bag itself, just like usual breaking a safety glass in public transports to actuate an alarm device or seize a survival tool.

[0034] Figs. 5A, 5B, 5C and 5D show a set of sketches illustrating the convertible bullet-proof device 1 according to the present invention in use; these sketches can serve as a summary to show how it can be used in various situations. Indeed, on Fig. 5A convertible bullet-proof device 1 is carried by a user 100 as an inconspicuous protection apparatus, perceived as a regular fashionable shoulder bag only. In contrast, the Figs. 5B, 5C and 5D show various use cases of the convertible bullet-proof device 1 as a protection apparatus, and more specifically as a back-pack shield 11 in Fig. 5B, when worn around the neck of the user 100 through any of the first external handle 3A, although it can be appreciated of course that the second external handle 3B would also perfectly do; as a shield 11 in a standing position in Fig. 5C, one hand of the user 100 being used to hold an internal handle (i.e. the first or second internal handle 4A or 4B, here the first internal handle 4A), while the other is used to type text on the tactile screen of a smart phone 7 inserted on the internal pocket 210 on the internal side 21 of the body 2 while hiding behind the shield 11; finally. Fig 5D shows the convertible bullet-proof device 100 used as a shielding cover when the user 100 is kneeled down on the floor, holding the shield 11 - i.e. in this case the shielding cover - by one of the internal handles, here e.g. the first internal handle 4A. On figure 5B & D, the shield 11 made up by the unfolded body 2 is seen from the external side 22 thereof, whereas on figure 5C, the shield 11 is seen from the internal side 21 of the body 2.

[0035] It can be appreciated from the above that a disruptive convertible device with dual use as a shield and bag has been described, whose functionalities have been improved for both of each use. Indeed, the bag shows a greater capacity for transporting items and a much better aesthetical appearance as compared to known convertible bullet-proof bags,

while the shielding efficiency against bullets, shrapnels or fire is also simultaneously enhanced through the larger surface of protection provided, which is now deprived of any line of weakness. The new convertible device according to the present invention also grants a faster reaction time when switching from the bag mode to the shield mode, and is also more convenient to use, among others thanks to the multiple handle sets providing optimal flexibility.

[0036] It will be further understood from the detailed but yet non exhaustive description above that still other variant embodiments pertaining to other structural and functional features would be applicable to other convertible devices fulfilling the dual function of a piece of luggage meant for containing and transporting items, or a bullet-proof shield according to the circumstances would be possible without departing from the scope of the present invention. The man with ordinary skill in the art will also understand from the preceding specification and the drawings that the advantageous features of the preferred embodiments described previously can be taken alone or in combination.

References list

1	Convertible bullet proof device
10	Bag
100	User of the device
11	Shield
2	Foldable body (soft material)
20A	First longitudinal edge
20B	Second longitudinal edge
20C	First lateral edge
20D	Second lateral edge
20E	Bottom edge
21	Internal side
210	Internal pocket
22	External side
220	Set of external pockets
220A	First external pocket
220B	Second external pocket
220C	Third external pocket
23	Corner
3	Set of external handles
3A	First external handle
3B	Second external handle
4	Set of internal handles
4A	First internal handle
4B	Second internal handle
5	Embedded chip
6	Fastening means for removable coupling
7	Smartphone
P1	First position: folded & fastened
P2	Second position: unfolded & unfastened

(continued)

B	Bullet proof material
E	Enlarged section
L1	First lining (waterproof)
L2	Second lining (fireproof)
J	Joint section
M	Transparent and conductive material (plastic)
L	Length
H	Height
S1	First seam for the internal handles
S2	Second seam for the external handles
T	Textile (bullet proof material if possible)
A-A	Folding / 1 st symmetry axis
B-B	Second symmetry axis

Claims

1. Convertible bullet-proof device (1) comprising a body (2) made of bullet-proof material (B) and further comprising fastening means (6), **characterized in that** said body (2) is made of a foldable material and **in that** said fastening means (6) are suitable for removable coupling, wherein said convertible bullet-proof device (1) is arranged to be reversibly switched between a first closed position (P1) when said fastening means (6) are mutually engaged, securing said body (2) in a folded position around a first symmetry axis (A-A) for use as a bag (10), and a second open position (P2) for use as a shield (11) when said fastening means (6) are released, letting said body (2) unfold.
2. Convertible bullet-proof device (1) according to claim 1, wherein said body (2) also has a symmetrical geometrical shape around a second symmetry axis (B-B).
3. Convertible bullet-proof device (1) according to any of the previous claims, wherein said fastening means (6) are arranged for removably coupling a first longitudinal edge (20A) of said body (2) to a second longitudinal edge (20B) of said body (2).
4. Convertible bullet-proof device (1) according to claim 3, wherein said fastening means (6) are snap-buttons arranged on corners (23) of said body (2).
5. Convertible bullet-proof device (1) according to any of the previous claims, wherein at least one layer of said bullet-proof material (B) is arranged on the internal side (21) of said body (2), while textile (T) fabric is provided on the external side (22) of said body (2).
6. Convertible bullet-proof device (1) according to claim 5, wherein a first set of pockets (220) is provided on said external side (22) of said body (2).
7. Convertible bullet-proof device (1) according to any of the previous claims, wherein an internal pocket (210) is provided on said internal side (21) of said body (2), wherein said internal pocket (210) is transparent and conductive.
8. Convertible bullet-proof device (1) according to any of the previous claims, wherein a first set of external handles (3) are provided, not only for said bag (10) in said first closed position (P1), but also for said shield (11) in said second open position (P2), wherein the size and shape of at least one of a first external handle (3A) and a second external handle (3B) of said set of external handles (3) is configured so as to leave enough space available inside to fit a human head of regular size.

9. Convertible bullet-proof device (1) according to any of the previous claims, wherein a second set of internal handles (4) are provided to wield the shield (11) in said second open position (P2).

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10. Convertible bullet-proof device (1) according to any of the previous claims, **characterized in that** it further comprises an embedded chip (5).

11. Convertible bullet-proof device (1) according to any of the previous claims, **characterized in that** it has a length (L) of at least 60cm and a height (H) of at least 45cm in said first closed position (P1) for use as a bag (10).

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12. Convertible bullet-proof device (1) according to any of the previous claims comprising a first set of external handles (3) and a second set of internal handles (4), wherein said second set of internal handles (4) are seamed to said body (2) through a first seam (S1) and said second set of external handles (3) are seamed to said body (2) through a second seam (S2), **characterized in that** both said first seam (S1) and second seam (S2) are arranged on the inner side (21) of said body (2), that they stretch along straight perpendicular lines, and that they further overlap over a joint zone (J).

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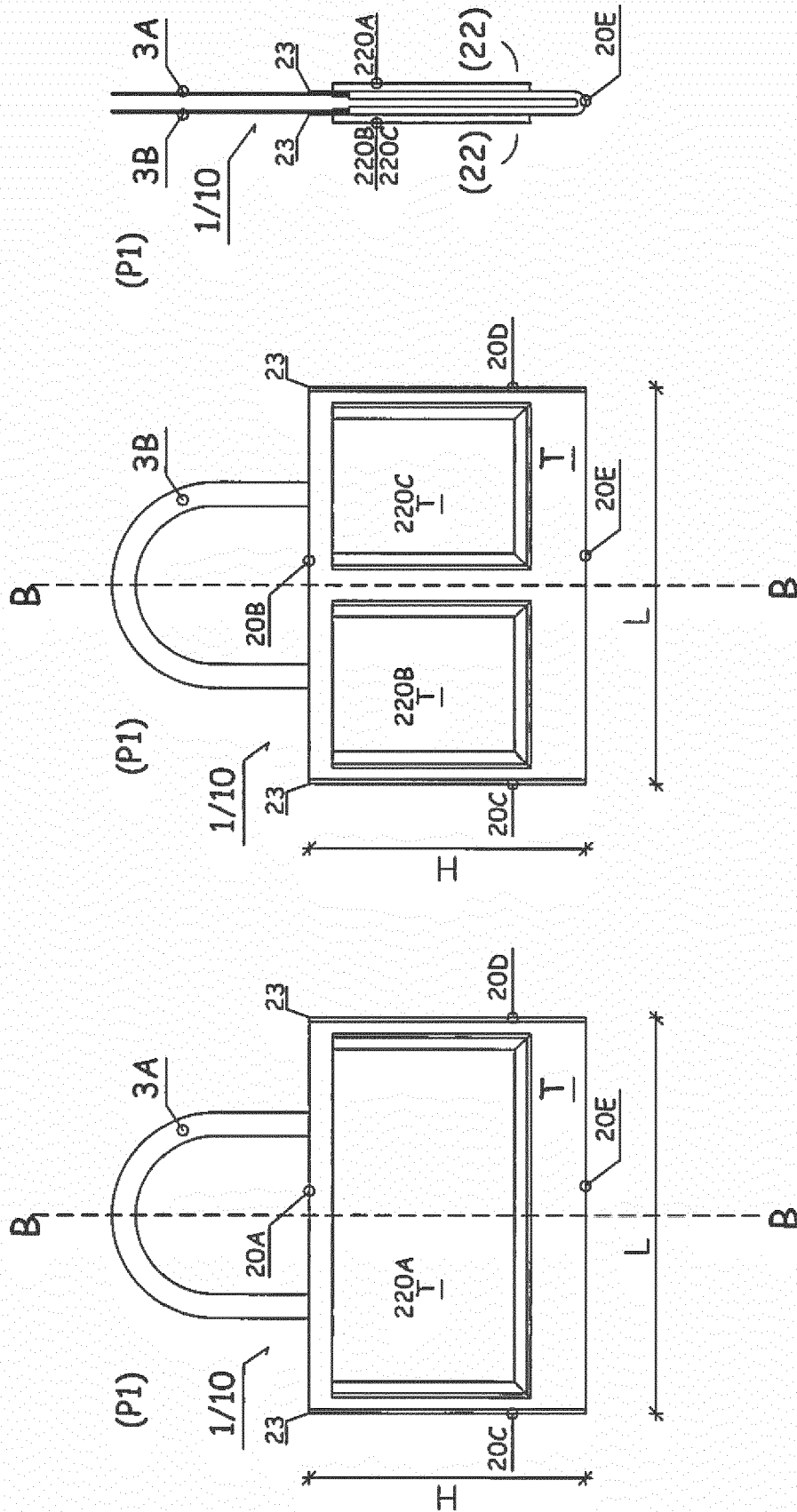


Fig.1C

Fig.1B

Fig.1A

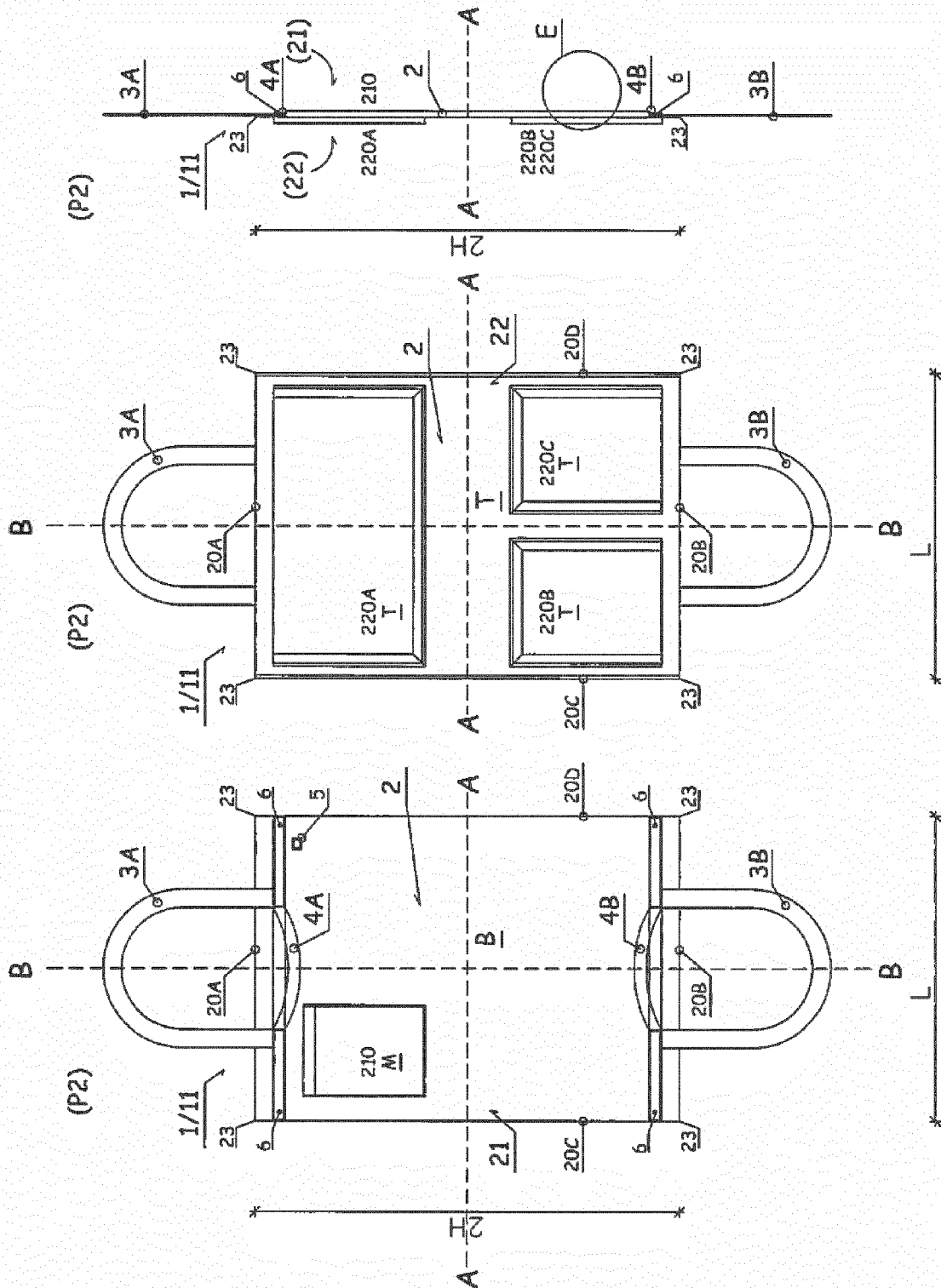
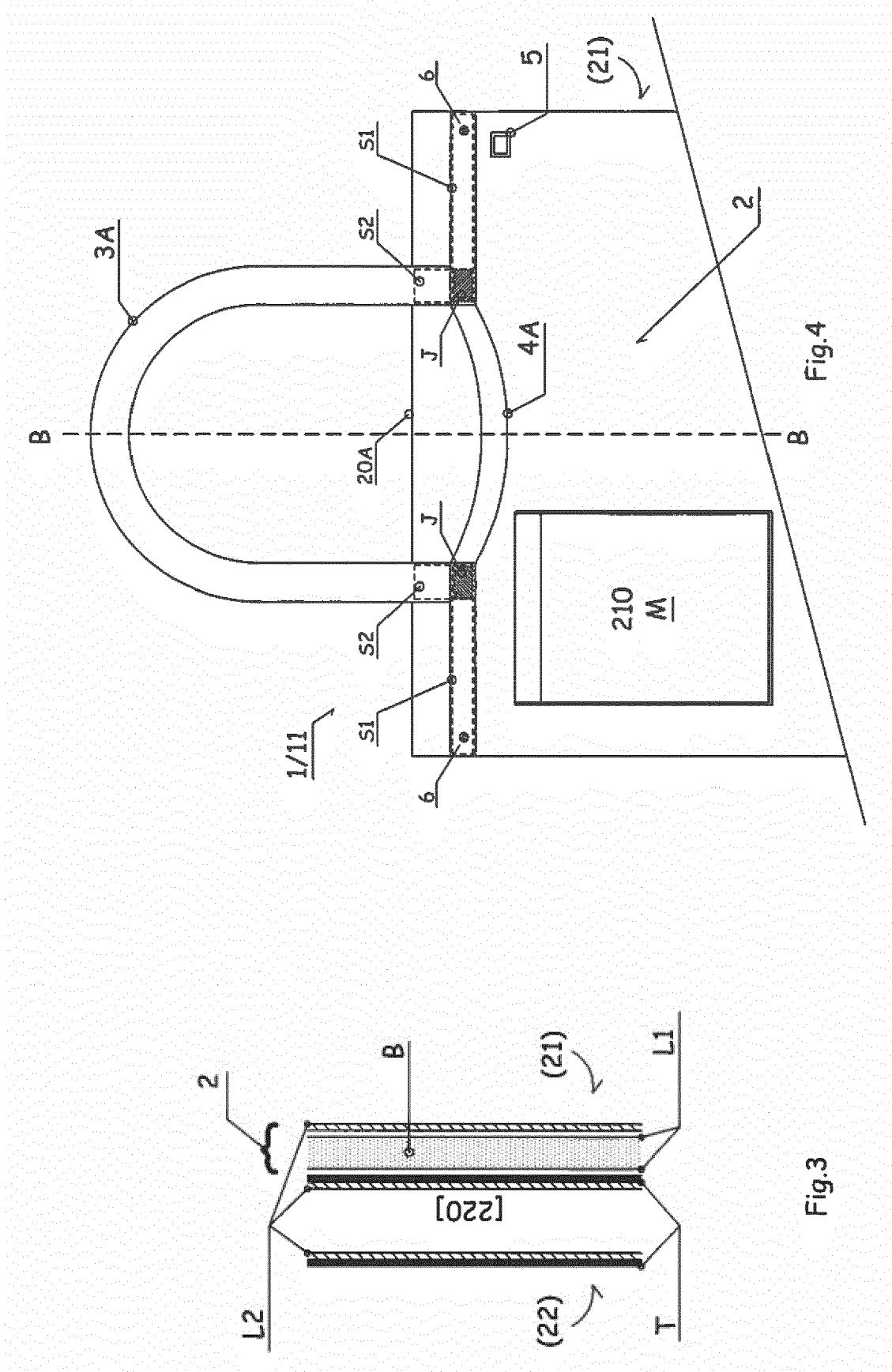


Fig.2C

Fig.2B

Fig.2A



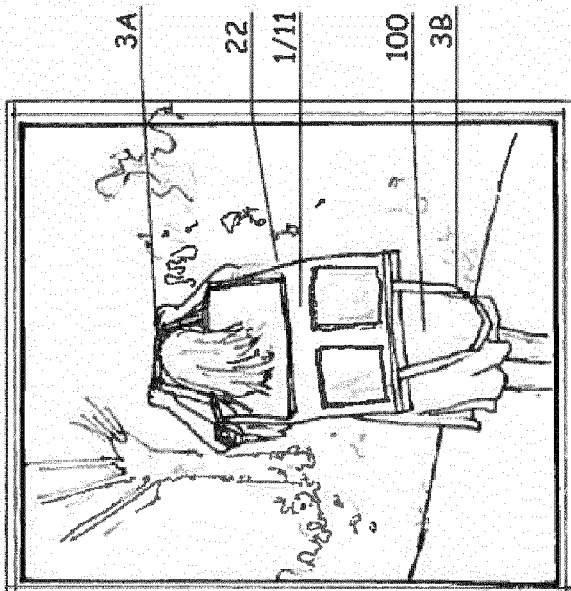


Fig. 5A

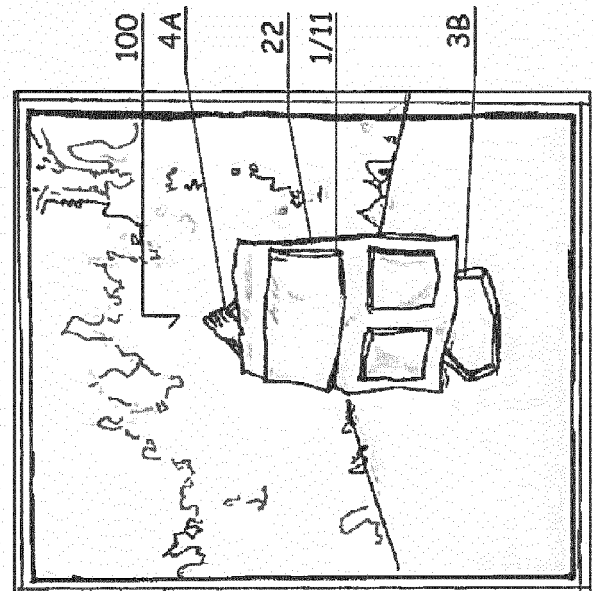


Fig. 5B

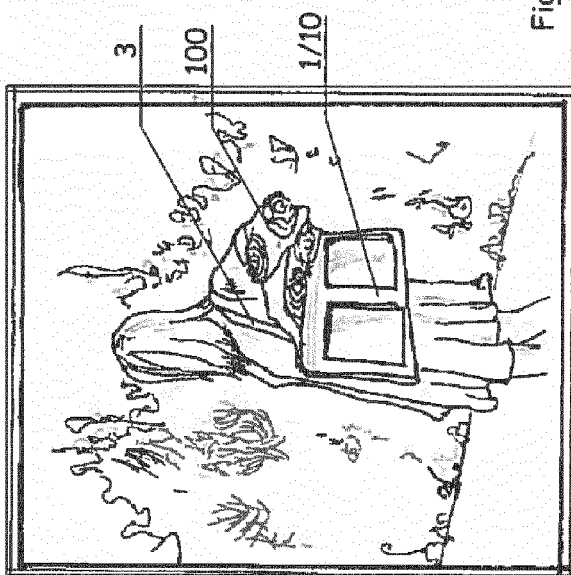


Fig. 5C

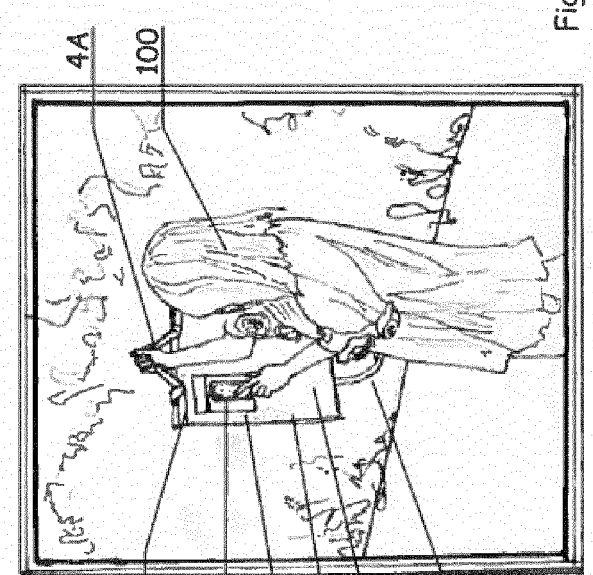


Fig. 5D



EUROPEAN SEARCH REPORT

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