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(54) **Multi-functional storage apparatus**

(57) A multi-functional storage apparatus for selectively supporting a capturing device includes a main casing (1) having a receiving cavity and a supporting arrangement (4). The supporting arrangement (4) is provided on the main casing to operate the main casing between a normal storing mode and an capturing mode, wherein in the normal storing mode, the supporting arrangement is arranged to rest on the main casing (1) so

as to allow the main casing to function as a portable carrying device through storing objects within the receiving cavity, wherein in the capturing mode, the supporting arrangement is selectively extended from the main casing to detachably attach to the image capturing device, in such a manner that the image capturing device is securely and suspendedly supported by the main casing as a supporting base for stably capturing image in a predetermined direction.

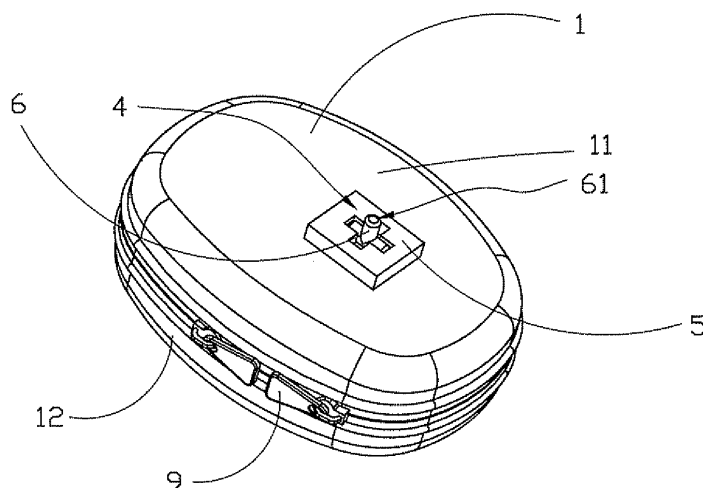


FIG. 1

Description

[0001] The present invention relates to a capturing device such as a camera, and more particularly to a multi-functional storage apparatus for selectively supporting that capturing device in outdoor environment.

[0002] When people go out, they generally take with them a handbag for storing various personal accessories, such as keys, mobile phones, cameras, napkins etc. A conventional handbag usually comprises a main body having a storing cavity formed therein for storing the personal accessories, some of which have become extremely popular in recent years. For example, with the advance of information technology, video or image capturing devices, such as digital cameras and digital video recording devices, have widely been utilized in many occasions for allowing the users to rapidly and conveniently capture short videos and images in their daily life.

[0003] A major disadvantage in using such digital accessories in outdoor environment is that in order to capture a short video clip or images with their digital accessories, such as the digital cameras or video capturing devices, the users require a secure and stable support. For example, when a user needs to capture a particular scene during nighttime, he or she may need to set his or her digital camera to have an extended exposure time for capturing a high-quality or even an acceptable night time scene. In such a situation, the user may need to hold the digital camera very stably so as not to make the captured image blurry. If the user is unable to do so, he or she may need to put his or her camera in a stable and secure place where it can act as a supporting platform for the digital camera. This is both inconvenient and time-consuming. In many occasions, the user simply cannot find such a place.

[0004] Conventionally, a tripod may be used for supporting the digital camera in an elevated and stable position so that the digital camera can capture a particular image very stably and produce a high quality picture or photograph. Needless to say, however, that a conventional tripod is usually very bulky and heavy, so that it is inconvenient to carry and transport.

[0005] A main object of the present invention is to provide a multi-functional storage apparatus for selectively supporting a camera in outdoor environment.

[0006] Another object of the present invention is to provide a multi-functional storage apparatus which comprises a main casing and a supporting arrangement for operating the main casing between a normal storing mode that the main casing is adapted to act as a conventional portable carrying device, and a capturing mode that the supporting arrangement is adapted to extend from the main casing for securely and stably supporting a capturing device in a suspended manner for capturing an image or a video.

[0007] Another object of the present invention is to provide a multi-functional storage apparatus which is adapted to be conveniently and easily transported when the

main casing is in the normal storing mode so as not to interfere with the daily activities of the users of the present invention.

[0008] Another object of the present invention is to provide a multi-functional storage apparatus which does not employ complicated mechanical structure. Thus, the manufacturing cost of the present invention can be effectively minimized.

[0009] Thus, the present invention provides a multi-functional storage apparatus for selectively supporting a capturing device, comprising:

a main casing having a receiving cavity formed therein; and

a supporting arrangement provided on the main casing to operate the main casing between a normal storing mode and a capturing mode, wherein in the normal storing mode, the supporting arrangement is arranged to rest on the main casing so as to allow the main casing to function as a portable carrying device through storing objects within the receiving cavity, wherein in the capturing mode, the supporting arrangement is selectively extended from the main casing to detachably attach to the capturing device, in such a manner that the capturing device is securely and suspendedly supported by the main casing as a supporting base for stably capturing image in a predetermined direction.

[0010] The above mentioned objectives, features, and advantages of the present invention will be more clearly described and shown in the following detailed description, drawings, and the appended claims.

Fig. 1 is a perspective view of a multi-functional storage apparatus according to a first preferred embodiment of the present invention.

Fig. 2 is a schematic side view of the multi-functional storage apparatus according to the first preferred embodiment of the present invention.

Fig. 3 is a first alternative mode of the multi-functional storage apparatus according to the first preferred embodiment of the present invention.

Fig. 4 is a second alternative mode of the multi-functional storage apparatus according to the first preferred embodiment of the present invention.

Fig. 5 is a first schematic diagram of the second alternative mode of the multi-functional storage apparatus according to the first preferred embodiment of the present invention.

Fig. 6 is a second schematic diagram of the second alternative mode of the multi-functional storage ap-

paratus according to the first preferred embodiment of the present invention.

Fig. 7 is a third schematic diagram of the second alternative mode of the multi-functional storage apparatus according to the first preferred embodiment of the present invention.

Fig. 8 is a third schematic diagram of the second alternative mode of the multi-functional storage apparatus according to the first preferred embodiment of the present invention.

Fig. 9 is a third alternative mode of the multi-functional storage apparatus according to the first preferred embodiment of the present invention.

Fig. 10 is a schematic diagram of the third alternative mode of the multi-functional storage apparatus according to the first preferred embodiment of the present invention.

Fig. 11 is a schematic diagram of the multi-functional storage apparatus according to the first preferred embodiment of the present invention, illustrating that the elongated connecting member can be selectively received into the main casing.

Fig. 12 is a schematic diagram of the multi-functional storage apparatus according to the first alternative mode of the first preferred embodiment of the present invention, illustrating that the elongated connecting member can be selectively received into the main casing.

Fig. 13 is a schematic diagram of the multi-functional storage apparatus according to the third alternative mode of the first preferred embodiment of the present invention, illustrating that the elongated connecting member can be selectively received into the main casing.

Fig. 14 is a perspective view of a multi-functional storage apparatus according to a second preferred embodiment of the present invention.

Fig. 15 is an exploded perspective view of the multi-functional storage apparatus according to the second preferred embodiment of the present invention.

Fig. 16 is a sectional side view of the multi-functional storage apparatus according to the second preferred embodiment of the present invention.

Fig. 17A and Fig. 17B are schematic views of the multi-functional storage apparatus according to the second preferred embodiment of the present invention, illustrating the

Fig. 18 is an alternative mode of the multi-functional storage apparatus according to the second preferred embodiment of the present invention.

Fig. 19 is a schematic diagram of the alternative mode of the multi-functional storage apparatus according to the second preferred embodiment of the present invention.

10 **[0011]** Referring Fig. 1, Fig. 2 and Fig. 11 of the drawings, a multi-functional storage apparatus for selectively supporting a capturing device is illustrated, in which the multi-storage apparatus comprises a main casing 1 having a receiving cavity and a supporting arrangement. The multi-functional storage apparatus is for a capturing device, such as an image capturing device (e.g. a digital camera) or a video capturing device (e.g. a digital video recorder).

15 **[0012]** The supporting arrangement is provided on the main casing 1 to operate the main casing 1 between a normal storing mode and an capturing mode, wherein in the normal storing mode, the supporting arrangement is arranged to rest on the main casing 1 so as to allow the main casing 1 to function as a portable carrying device through storing objects within the receiving cavity, wherein in the capturing mode, the supporting arrangement is selectively extended from the main casing 1 to detachably attach to the image capturing device, in such a manner that the image capturing device is securely and suspendedly supported by the main casing 1 as a supporting base for stably capturing image in a predetermined direction.

20 **[0013]** According to the first preferred embodiment of the present invention, the main casing 1 is shaped and sized to normally store a plurality of personal accessories, such as coins, napkins, keys etc in a conveniently portable manner. Alternatively, the main casing 1 may also be utilized to store the capturing device so as to normally protect it from ambient environment. Referring to Fig. 1 of the drawings, the main casing 1 comprises a first and a second case members 11, 12 movably coupled with each other to define the receiving cavity between the first and the second case members 11, 12 within the main casing 1. Furthermore, the main casing 1 further comprises a zipping member 9 connecting a peripheral edge portion of each of the first and the second case members 11, 12 so as to selectively enclose the receiving cavity by the first and the second case members 11, 12.

25 **[0014]** As shown in Fig. 11 of the drawings, the supporting arrangement comprises a supporting frame 4 which may be movably extended from an outer surface of the main casing 1, wherein when the main casing 1 is in the normal storing mode, the supporting frame 4 can be moved to align with the outer surface of the main casing 1 for resting thereon, and when the main casing 1 is in the capturing mode, the supporting frame 4 can be driven to extend from the outer surface of the main casing 1 to detachably attach to the capturing device for sus-

pendedly and securely supporting the capturing device on the main casing. As such, a user of the present invention is able to utilize the capturing device for securely capturing an image or video in a stable manner.

[0015] The supporting frame 4 comprises a reinforcing base 5 mounted on the corresponding surface of the main casing 1, and an elongated connecting member 6 rotatably extended from the reinforcing base 5 to detachably couple with the capturing device. In order to enhance an aesthetic appearance of the present invention and to ensure maximum convenience of using the multi-functional storage apparatus, the reinforcing base 5 has a receiving slot 51 indently formed thereon to normally receive the elongated connecting member 6 within the receiving slot 51 when the main casing 1 is in the normal storing mode. However, when the main casing 1 is in the capturing mode, the elongated connecting member 6 is adapted to be pivotally moved to extend from the reinforcing base 5 for securely and stably supporting the capturing device on the main casing 1.

[0016] According to the first preferred embodiment of the present invention, the elongated connecting member 6 has a threaded outer portion 61 defining a plurality of screwing teeth thereon. Accordingly, the elongated connecting member 6 is adapted for detachably coupling with a threaded connecting hole of the capturing device so as to detachably attach onto the capturing device. In other words, when the main casing 1 is in the capturing mode, a user is able to detachably connect the capturing device with the supporting frame 4 by screwing or unscrewing the threaded outer portion 61 into or from the threaded hole formed on the capturing device respectively.

[0017] The operation of the present invention is as follows: when the main casing 1 is in the normal storing mode, the elongated connecting member 6 is hidden into the receiving slot 51, and the main casing 1 functions as a conventional portable carrying device, such as a handbag. The user of the present invention is allowed to store personal accessories into the receiving cavity of the main casing 1. When the user wishes to take picture in a particular direction, he or she may rotatably extend the elongated connecting member 6 and screwing the outer threaded portion 61 thereof to a threaded hole of the capturing device. The user is then able to detachably attach the capturing device to the supporting frame 4 which, along with the main casing 1, acts as a supporting base for securely and stably holding the capturing device in position. After that, the user is able to capture an image by the capturing device in a stable and secure manner so as to perform a high-quality image capturing. It is worth mentioning that since the main casing 1 is normally storing personal accessories, the weight of those personal accessories provides a secure supporting weight for the capturing device. Moreover, the main casing 1 can also be designed and crafted to store the capturing device within the receiving cavity, so that the user can normally carry the capturing device by the main casing 1, and when he or she needs to capture an image, he or she may

simply take out the capturing device from the receiving cavity and detachably connect it with the supporting arrangement. In such a situation, the main casing 1 should be shaped and sized to correspond with a size of a predetermined capturing device, so as to allow convenient and easy carrying of the capturing device.

[0018] Referring to Fig. 3 of the drawings, a first alternative mode of the multi-functional storage apparatus according to the first preferred embodiment of the present invention is illustrated. The first alternative mode is similar to the above-mentioned first preferred embodiment, except the supporting frame 4' of the supporting arrangement. According to the first alternative mode, the supporting frame 4' comprises a pivotal support 3' provided on the outer surface (preferably by connecting means 2') of the main casing 1, and a connecting frame 40' pivotally extended from the pivotal support 3' to detachably connect with the capturing device when the main casing 1 is in the capturing mode. More specifically, the pivotal support 3' comprises a plurality of supporting sleeves 31' each having a through holding hole formed thereon for pivotally connecting with the connecting frame 40'.

[0019] On the other hand, the connecting frame 40' comprises a main elongated member 401', an outer transverse member 43' integrally and transversely extended from an outer end portion of the main elongated member 401', and an inner transverse latch member 41' integrally and transversely extended from an inner end portion of the main elongated member 401' to pivotally couple with the supporting sleeves 31' of the pivotal support 3' at the holding holes. When the main casing 1 is in the normal storing mode, the connecting frame 40' is pivotally moved to align with the outer surface of the main casing 1 for allowing the main casing 1 to function as a regular portable carrying device. When the main casing 1 is in the capturing mode, the connecting frame 40' is pivotally moved to extend from the pivotal support 3' for detachably connecting with the capturing device.

[0020] Accordingly, the connecting frame 40' further has a plurality of screwing teeth 402' formed on an outer end portion of the outer transverse member 43', and an outer end portion of the main elongated member 401' to selectively and detachably engage with a threaded hole of the capturing device. The user is then able to detachably couple the capturing device to either the main elongated member 401' or the outer transverse member 43' to securely and stably capture an image or video at a desired orientation.

[0021] Referring to Fig. 4 to Fig. 8 of the drawings, a second alternative mode of the multi-functional storage apparatus according to the first preferred embodiment of the present invention is illustrated. The second alternative mode is similar to the above-mentioned first preferred embodiment, except that the multi-functional storage apparatus further comprises an elastic clipping member 7" mounted on the main casing 1 for detachably attaching the main casing 1 with the user's body, such as the user's pants. Moreover, the connecting frame 4 is extended

from the main casing 1 to detachably attach onto the capturing device. The clipping member 7" has a through hole 70" formed thereon wherein the elongated connecting member 6 is adapted to extend outwardly from the main casing 1 through the through hole 70".

[0022] The clipping member 7" comprises a main body 73" having an attaching end portion attached on the outer surface of the main casing 1, wherein the through hole 70" is formed on the main body 73" of the clipping member 7" for allowing the supporting frame 4" passing there-through. The clipping member 7" further comprises a supporting member 71" provided on an inner surface of the main body 73" for securely connecting with the inner end portion of the elongated connecting member 6 of the supporting frame 4 through the hole 70". According to the third alternative mode of the present invention, the supporting member 71" is rectangular in shape having an elongated slot formed thereon to align with the through hole 70" of the main body 73" of the clipping member 7", wherein the inner end portion of the elongated connecting member 6 is arranged to securely connect with the supporting member 71" via the through hole 70" and the elongated slot of the supporting member 71".

[0023] Referring to Fig. 12 of the drawings, in order to enhance an aesthetic appearance of the present invention, a length of the through hole 70" is preferably larger than a diameter of the elongated connecting member 6 which is pivotally connected with the through hole 70" so that when the main casing 1 is in the normal storing mode, the elongated connecting member 6 is adapted to be pivotally moved to be received within the through hole 70". When the main casing 1 is in the capturing mode, the elongated connecting member 6 is adapted to be pivotally moved to extend out from the main casing 1 to detachably attach to the capturing device.

[0024] Referring to Fig. 9 to Fig. 10 of the drawings, a third alternative mode of the multi-functional storage apparatus according to the first preferred embodiment of the present invention is illustrated. The third alternative mode is similar to the above-mentioned first preferred embodiment except that the supporting arrangement further comprises a detaching device provided on the main casing 1. According to the third alternative mode, the detaching device comprises a securing member 5A securely mounted on the outer surface of the main casing 1, and a supporting housing 3A, which is connected with the supporting frame 4, detachably coupled with the securing member 5A so as to detachably couple the supporting frame 4 with the main casing 1. More specifically, the securing member 5A has a plurality of engaging slots 30A longitudinally formed on two sides thereof wherein the supporting housing 3A has a plurality of corresponding engaging sleeves 321A formed on two sides thereof for detachably inserting into the engaging slots 30A so as to detachably coupling the securing member 5A with the supporting housing 3A.

[0025] As shown in Fig. 13 of the drawings, the supporting housing 3A has a coupling slot 31 A indently

formed on a front surface thereof wherein the inner end portion of the elongated connecting member 6 is pivotally connected with the coupling slot 31A of the supporting housing 3A that the elongated connecting member 6 is adapted to outwardly extend from the main casing 1 when the supporting housing 3A is detachably coupled with the securing member 5A.

[0026] In order to ensure maximum convenience of using the multi-functional storage apparatus, the coupling slot 31A is indently formed on the supporting housing 3A to normally receive the elongated connecting member 6 within the coupling slot 31A when the main casing 1 is in the normal storing mode. However, when the main casing 1 is in the capturing mode, the elongated connecting member 6 is adapted to be pivotally moved to extend from the supporting housing 3A for securely and stably supporting the capturing device on the main casing 1. As a slight alternative, the elongated connecting member 6 can also be securely (not pivotally) connected to the supporting housing 3A for extending to detachably attach with the capturing device.

[0027] Referring to Fig. 14 to Fig. 16 of the drawings, a multi-functional storage apparatus according to a second preferred embodiment of the present invention is illustrated, in which the multi-functional storage apparatus comprises a main casing 1B having a receiving cavity 13B, and a supporting arrangement. The multi-functional storage apparatus is for selectively supporting a capturing device, such as a digital camera.

[0028] The supporting arrangement comprises a device connector 21 B and a supporting frame 4B. The device connector 21B detachably connects with the capturing device.

[0029] The supporting frame 4B is detachably connected with the device connector 21B in a quick-release manner and is operatively provided on the main casing 10B to operate the main casing 10B between a normal storing mode and an capturing mode, wherein in the normal storing mode, the supporting arrangement is arranged to rest on the main casing 1B so as to allow the main casing 1B to function as a portable carrying device through storing objects within the receiving cavity 13B, wherein in the capturing mode, the supporting arrangement is extended from the main casing 10B to detachably attach to the device connector 21B which detachably connects to the capturing device, such that the capturing device is securely and suspendedly supported by the main casing 1B as a supporting base through the device connector 21B and the supporting frame 4B for stably capturing image in a predetermined direction.

[0030] According to the preferred embodiment of the present invention, the main casing 1B is shaped and sized to normally store a plurality of personal accessories, such as coins, napkins, keys etc in a conveniently portable manner. Alternatively, the main casing 1B may also be utilized to store the capturing device so as to normally protect it from ambient environment. Referring to Fig. 14 of the drawings, the main casing 1B comprises

a first and a second case members 11B, 12B movably coupled with each other to define the receiving cavity 13B between the first and the second case members 11B, 12B within the main casing 1B. Furthermore, the main casing 1B further comprises a zipping member 9B connecting a peripheral edge portion of each of the first and the second case members 11B, 12B so as to selectively enclose the receiving cavity 13B by the first and the second case members 11B, 12B.

[0031] The supporting frame 4B comprises a pivotal supporting base 41B which comprises a main body 411B pivotally connected with the main casing 1B, and a connector socket 412B extended from the main body 411B, wherein the device connector 21B is adapted to detachably insert into the connector socket 412B so as to detachably connect the main casing 1B with the capturing device.

[0032] The supporting frame 4B further comprises a reinforcing base 5B mounted on the corresponding surface of the main casing 1B, and an elongated connecting member 6B extended from the device connector 21B to detachably couple with the capturing device. In order to enhance an aesthetic appearance of the present invention and to ensure maximum convenience of using the multi-functional storage apparatus, the reinforcing base 5B has a receiving slot 51B indently formed thereon to normally receive the pivotal supporting base 41B within the receiving slot 51B when the main casing 1B is in the normal storing mode. However, when the main casing 1B is in the capturing mode, the pivotal supporting base 41B is adapted to be pivotally moved to extend from the reinforcing base 5B to detachably couple with the device connector 21B for securely and stably supporting the capturing device on the main casing 1.

[0033] According to the second preferred embodiment of the present invention, the elongated connecting member 6B has a threaded outer portion 61B defining a plurality of screwing teeth thereon. Accordingly, the elongated connecting member 6B is adapted for detachably coupling with a threaded connecting hole of the capturing device so as to detachably attach onto the capturing device. In other words, when the main casing 1B is in the capturing mode, a user is able to detachably connect the capturing device with the device connector 21B by screwing or unscrewing the threaded outer portion 61B into or from the threaded hole formed on the capturing device respectively.

[0034] The device connector 21B comprises a main body 211B pivotally coupled with an inner root portion of the elongated connecting member 6B. The elongated connecting member 6B is normally threaded to the threaded connecting hole of the capturing device so that the device connector 21B is capable of pivotally moving between an idle position and a connecting position, wherein in the idle position the device connector 21B is pivotally moved to rest on a corresponding outer surface of the capturing device while the elongated connecting member 6B is threaded into the threaded connecting hole

of the capturing device, wherein in the connecting position, the device connector 21B is pivotally moved to transversely extend from the capturing device so as to detachably connect with the connector socket 412B of the pivotal supporting base 41B.

[0035] Referring to Fig. 17A and Fig. 17B of the drawings, the multi-media supporting apparatus further comprises a strip attaching arrangement 50B comprising an elongated attachment strip 51B adapted for winding on an external object, and a secure attachment device 52B connecting between an outer attachment surface of the main casing 1B and the attachment strip 51B for allowing the main casing 1B to be attached onto the external object through the secure attachment device 52B. As such, the main casing 1B, which is detachably attached to the capturing device, is adapted to be mounted onto an external object, such as a circular column or a tree trunk, so that the user is able to stably and securely operate the capturing device while the main casing 1B is securely attached onto that external object. This feature allows the multi-media supporting apparatus of the present invention to be mounted onto a wide variety of external objects so as to maximize the circumstances in which the present invention can be utilized.

[0036] The secure attachment device 52B comprises a supporting panel 521B, having a receiving hole 5211B formed thereon, securely attached onto the attachment strip 51B, an attachment frame 522B connected with the outer attachment surface 11B of the main casing 1B, and a rotating connector 523B connecting the attachment frame 522B with the supporting panel 521B in an adjustably rotatable manner for adjustably and rotatably connecting the main casing 1B with the attachment strip 51B. It is worth mentioning that the receiving hole 5211B has a curved cross section having a plurality of indentions 5212B spacedly and radially formed thereon.

[0037] According to the second preferred embodiment of the present invention, the attachment frame 522B has a U-shaped cross section defining a first and a second attachment panels 5221B, 5222B attaching the attachment surface of the main casing 1B and the supporting panel respectively. The attachment frame 522B further has a connection shaft 5223B outwardly protruded from the second attachment panel 5222B of the attachment frame 522B to couple with the rotating connector 532B within the receiving hole 5211B of the supporting panel 521B. On the other hand, the rotating connector 532B has a curved cross section and a plurality of protrusions 5321B spacedly and outwardly protruded from an outer surface of the rotating connector 532B to engage with the indentions 5212B of the receiving hole 5211B respectively in such a manner that the rotating connector 532B is adapted to be rotated and discretely locked up by the engagement between the protrusions 5321B and the indentions 5212B respectively. Furthermore, the rotating connector 532B has a connecting seat 5322B inwardly extended from an inner surface thereof to align with the connection shaft 5223B of the attachment frame 522B,

wherein the connection shaft 5223B is arranged to securely engage with the connecting seat 5322B so that when the attachment frame 522B is driven to rotate, the rotating connector 532B is also driven to rotate until it is locked up by the engagement between the protrusions 5321B and the indentions 5212B respectively. As such, the attachment frame 522B, which is connected with the main casing 1B, is allowed to rotate and discretely locked with respect to the attachment strip 51B. In other words, the main casing 1B is rotatable and discretely lockable with respect to the attaching strip 51B so that a user is able to utilize the attachment strip 51B and the secure attachment device 52B for attaching the main casing 1B and the capturing device to a wide variety of external objects in a wide range of circumstances for optimally capturing image at a predetermined direction.

[0038] Referring to Fig. 18 and Fig. 19 of the drawings, an alternative mode of the multi-functional storage apparatus according to the above second preferred embodiment of the present invention is illustrated. The second alternative mode is similar to the second preferred embodiment, except the device connector 21C and the supporting frame 4C. According to the alternative mode, the device connector 21C comprises a main connector body 211C having a lower end portion 2111C detachably connected with the supporting frame 4C, and an upper end portion 2112C integrally extended with the elongated connecting member 6C which is threaded to the threaded connecting hole of the capturing device. The main connector body 211C has a tubular cross section and defines an attaching slot 2113C formed therein for detachably coupling with the supporting frame 4C.

[0039] On the other hand, supporting frame 4C comprises a pivotal supporting base 41C which comprises a main body 411C pivotally connected with the main casing 1C, and a connector pin 412C extended from the main body 411C, wherein the lower end portion 2111C of the main connector body 211C is adapted to detachably couple with the connector pin 412C so as to detachably connect the main casing 1C with the capturing device. It is worth mentioning that the connector pin 412C and the corresponding attaching slot 2113C may be embodied as having a wide variety of shapes, such as circular cross section, hexagonal cross section, and the likes.

[0040] The supporting frame 4C further comprises a reinforcing base 5C mounted on the corresponding surface of the main casing 1C, and the elongated connecting member 6C extended from the device connector 21C to detachably couple with the capturing device. In order to enhance an aesthetic appearance of the present invention and to ensure maximum convenience of using the multi-functional storage apparatus, the reinforcing base 5C has a receiving slot 51C indently formed thereon to normally receive the pivotal supporting base 41C within the receiving slot 51C when the main casing 1C is in the normal storing mode. However, when the main casing 1C is in the capturing mode, the pivotal supporting base 41C is adapted to be pivotally moved to extend from the

reinforcing base 5C to detachably couple with the device connector 21C for securely and stably supporting the capturing device on the main casing 1C.

[0041] One having ordinary skill in the art will understand that the embodiment of the present invention as shown in the drawings and described above is exemplary only and not intended to be limiting. It can be appreciated that the objects of the present invention have been effectively accomplished. The above embodiments have been shown and described for the purposes of illustrating the functional and structural principles of the present invention. Therefore, this invention includes all modifications embraced within the spirit and scope of the following claims.

Claims

1. A multi-functional storage apparatus for selectively supporting a capturing device, comprising:

a main casing having a receiving cavity formed therein; and

a supporting arrangement provided on said main casing to operate said main casing between a normal storing mode and an capturing mode, wherein in said normal storing mode, said supporting arrangement is arranged to rest on said main casing so as to allow said main casing to function as a portable carrying device through storing objects within said receiving cavity, wherein in said capturing mode, said supporting arrangement is extended from said main casing to detachably attach to said image capturing device, in such a manner that said image capturing device is securely and suspendedly supported by said main casing as a supporting base for stably capturing image in a predetermined direction.

2. The multi-functional storage apparatus, as recited in claim 1, wherein said supporting arrangement comprises a supporting frame operatively extended from said main casing, wherein when said main casing is in said normal storing mode, said supporting frame is idle on said main casing, and when said main casing is in said capturing mode, said supporting frame is driven to extend from said main casing to detachably attach to said capturing device for suspendedly and securely supporting said capturing device on said main casing.
3. The multi-functional storage apparatus, as recited in claim 2, wherein said supporting frame comprises a reinforcing base mounted on said corresponding surface of said main casing, and an elongated connecting member extended from said reinforcing base to detachably couple with said capturing device.

4. The multi-functional storage apparatus, as recited in claim 3, wherein said reinforcing base has a receiving slot indently formed thereon to pivotally connect with said elongated connecting member, and to normally receive said elongated connecting member within said receiving slot when said main casing is in said normal storing mode, wherein when said main casing is in said capturing mode, said elongated connecting member is adapted to be pivotally moved to extend from said reinforcing base for securely and stably supporting said capturing device on said main casing.
5. The multi-functional storage apparatus, as recited in claim 4, wherein said elongated connecting member has a threaded outer portion defining a plurality of screwing teeth thereon for detachably coupling with a threaded connecting hole of said capturing device so as to detachably attach onto said capturing device.
6. The multi-functional storage apparatus, as recited in claim 2, wherein said supporting frame comprises a pivotal support provided on said outer surface of said main casing, and a connecting frame pivotally extended from said pivotal support to detachably connect with said capturing device when said main casing is in said capturing mode.
7. The multi-functional storage apparatus, as recited in claim 6, wherein said pivotal support comprises a plurality of supporting sleeves each having a through holding hole formed thereon for pivotally connecting with said connecting frame, whereas said connecting frame comprises a main elongated member, an outer transverse member integrally and transversely extended from an outer end of said main elongated member, and an inner transverse latch member integrally and transversely extended from an inner end of said main elongated member to pivotally couple with said supporting sleeves of said pivotal support at said holding holes, in such a manner that when said main casing is in said normal storing mode, said connecting frame is pivotally moved to align with said outer surface of said main casing for allowing said main casing to function as a regular portable carrying device, and when said main casing is in said capturing mode, said connecting frame is pivotally moved to extend from said pivotal support for detachably connecting with said capturing device.
8. The multi-functional storage apparatus, as recited in claim 1, further comprising an elastic clipping member, having a through hole formed thereon, mounted on said main casing for detachably attaching said main casing with a user, wherein said connecting frame is extended from said main casing to detachably attach onto said capturing device via said through hole of said clipping member.
9. The multi-functional storage apparatus, as recited in claim 2, wherein said supporting arrangement further comprises a detaching device provided on said main casing, wherein said detaching device comprises a securing member securely mounted on said outer surface of said main casing, and a supporting housing, which is connected with said supporting frame, detachably coupled with said securing member so as to detachably couple said supporting frame with said main casing for operating said main casing between said normal storing mode and said capturing mode.
10. The multi-functional storage apparatus, as recited in claim 9, wherein said supporting frame comprises an elongated connecting member extended from said supporting housing for detachably attaching on said capturing device when said main casing is in said capturing mode.
11. The multi-functional storage apparatus, as recited in claim 10, wherein said securing member has a plurality of engaging slots longitudinally formed on two sides thereof whereas said supporting housing has a plurality of corresponding engaging sleeves formed on two sides thereof for detachably inserting into said engaging slots so as to detachably coupling said securing member with said supporting housing.
12. The multi-functional storage apparatus, as recited in claim 11, wherein said supporting housing has a coupling slot indently formed on a front surface thereof wherein an inner end portion of said elongated connecting member is pivotally connected with said coupling slot of said supporting housing that said elongated connecting member is adapted to outwardly and pivotally extend from said main casing when said supporting housing is detachably coupled with said securing member.
13. A multi-functional storage apparatus for selectively supporting a capturing device, comprising:
 - a main casing having a receiving cavity formed therein; and
 - a supporting arrangement, which comprises:
 - a device connector detachably with said capturing device; and
 - a supporting frame operatively provided on said main casing to detachably connect with said device connector in a quick-release manner and to operate said main casing between a normal storing mode and an capturing mode, wherein in said normal storing mode, said supporting arrangement is ar-

- ranged to rest on said main casing so as to allow said main casing to function as a portable carrying device through storing objects within said receiving cavity, wherein in said capturing mode, said supporting arrangement is extended from said main casing to detachably attach to said device connector which detachably connects to said capturing device, such that said capturing device is securely and suspendedly supported by said main casing as a supporting base through said device connector and said supporting frame for stably capturing image in a predetermined direction.
14. The multi-functional storage apparatus, as recited in claim 13, wherein said supporting frame comprises a pivotal supporting base which comprises a main body pivotally connected with said main casing, and a connector socket extended from said main body, wherein said device connector is adapted to detachably insert into said connector socket so as to detachably connect said main casing with said capturing device.
15. The multi-functional storage apparatus, as recited in claim 14, wherein said supporting frame further comprises a reinforcing base mounted on said main casing, and an elongated connecting member extended from said device connector to detachably couple with said capturing device, wherein said reinforcing base has a receiving slot indently formed thereon to normally receive said pivotal supporting base within said receiving slot when said main casing is in said normal storing mode so as to enhance an aesthetic appearance of said main casing.
16. The multi-functional storage apparatus, as recited in claim 15, wherein said elongated connecting member has a threaded outer portion defining a plurality of screwing teeth thereon for detachably coupling with a threaded connecting hole of said capturing device.
17. The multi-functional storage apparatus, as recited in claim 15, wherein said device connector comprises a main body pivotally coupled with a root portion of said elongated connecting member in such a manner that said device connector is capable of pivotally moving between an idle position and a connecting position, wherein in said idle position, said device connector is pivotally moved to rest on a corresponding outer surface of said capturing device while said elongated connecting member is coupled with said capturing device, wherein in said connecting position, said device connector is pivotally moved to transversely extend from said capturing device so as to detachably connect with said connector socket
- of said pivotal supporting base.
18. The multi-functional storage apparatus, as recited in claim 17, further comprising a strip attaching arrangement which comprises an elongated attachment strip adapted for winding on an external object, and a secure attachment device connecting between said main casing and said attachment strip for allowing said main casing to be securely attached onto said external object through said secure attachment device.
19. The multi-functional storage apparatus, as recited in claim 18, wherein said secure attachment device comprises a supporting panel, having a receiving hole formed thereon, securely attached onto said attachment strip, an attachment frame connected with said main casing, and a rotating connector connecting said attachment frame with said supporting panel in an adjustably rotatable manner for adjustably and rotatably connecting said main casing with said attachment strip.
20. The multi-functional storage apparatus, as recited in claim 13, wherein said supporting frame comprises a pivotal supporting base which comprises a main body pivotally connected with said main casing, and a connector pin extended from said main body, wherein said lower end portion of said main connector body is adapted to detachably couple with said connector pin so as to detachably connect said main casing with said capturing device.
21. The multi-functional storage apparatus, as recited in claim 20, wherein said device connector comprises a main connector body having a lower end portion detachably connected with said supporting frame, and an upper end portion integrally extended from said elongated connecting member which is connected to said capturing device, wherein said main connector body has a tubular cross section and defines an attaching slot formed therein for detachably coupling with said supporting frame.
22. The multi-functional storage apparatus, as recited in claim 21, wherein said supporting frame further comprises a reinforcing base mounted on said corresponding surface of said main casing, wherein said reinforcing base has a receiving slot indently formed thereon to normally receive said pivotal supporting base within the receiving slot when said main casing is in said normal storing mode so as to enhance an aesthetic appearance of said main casing.
23. The multi-functional storage apparatus, as recited in claim 22, further comprising a strip attaching arrangement which comprises an elongated attachment strip adapted for winding on an external object,

and a secure attachment device connecting between said main casing and said attachment strip for allowing said main casing to be securely attached onto said external object through said secure attachment device.

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- 24.** The multi-functional storage apparatus, as recited in claim 23, wherein said secure attachment device comprises a supporting panel, having a receiving hole formed thereon, securely attached onto said attachment strip, an attachment frame connected with said main casing, and a rotating connector connecting said attachment frame with said supporting panel in an adjustably rotatable manner for adjustably and rotatably connecting said main casing with said attachment strip

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- 25.** The multi-functional storage apparatus, as recited in claim 24, wherein said elongated connecting member has a threaded outer portion defining a plurality of screwing teeth thereon for detachably coupling with a threaded connecting hole of said capturing device.

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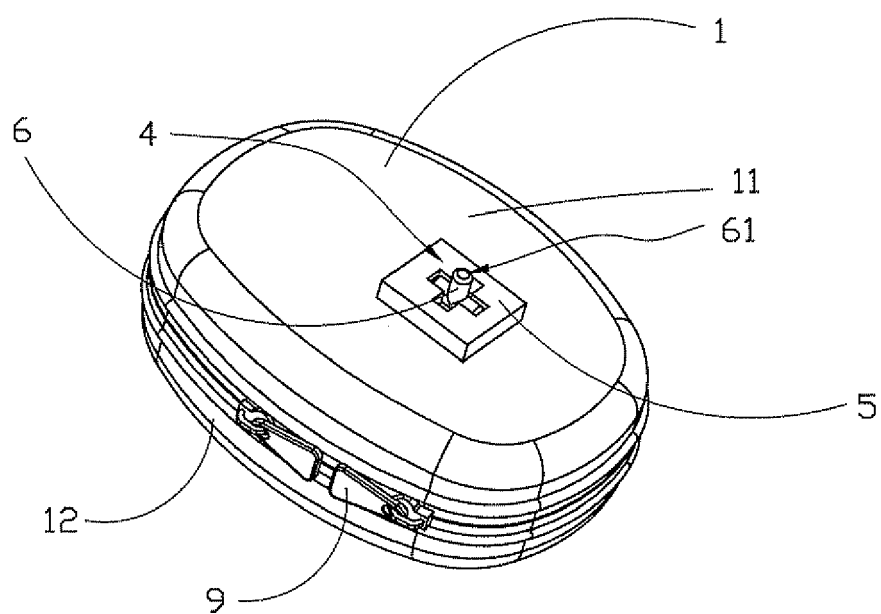


FIG. 1

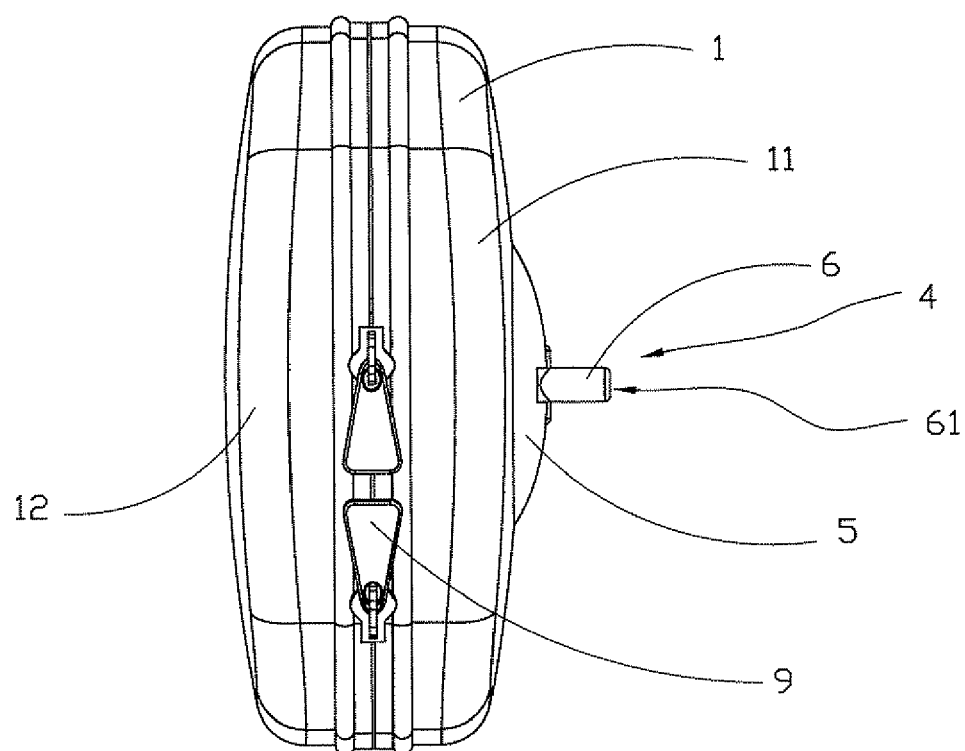


FIG. 2

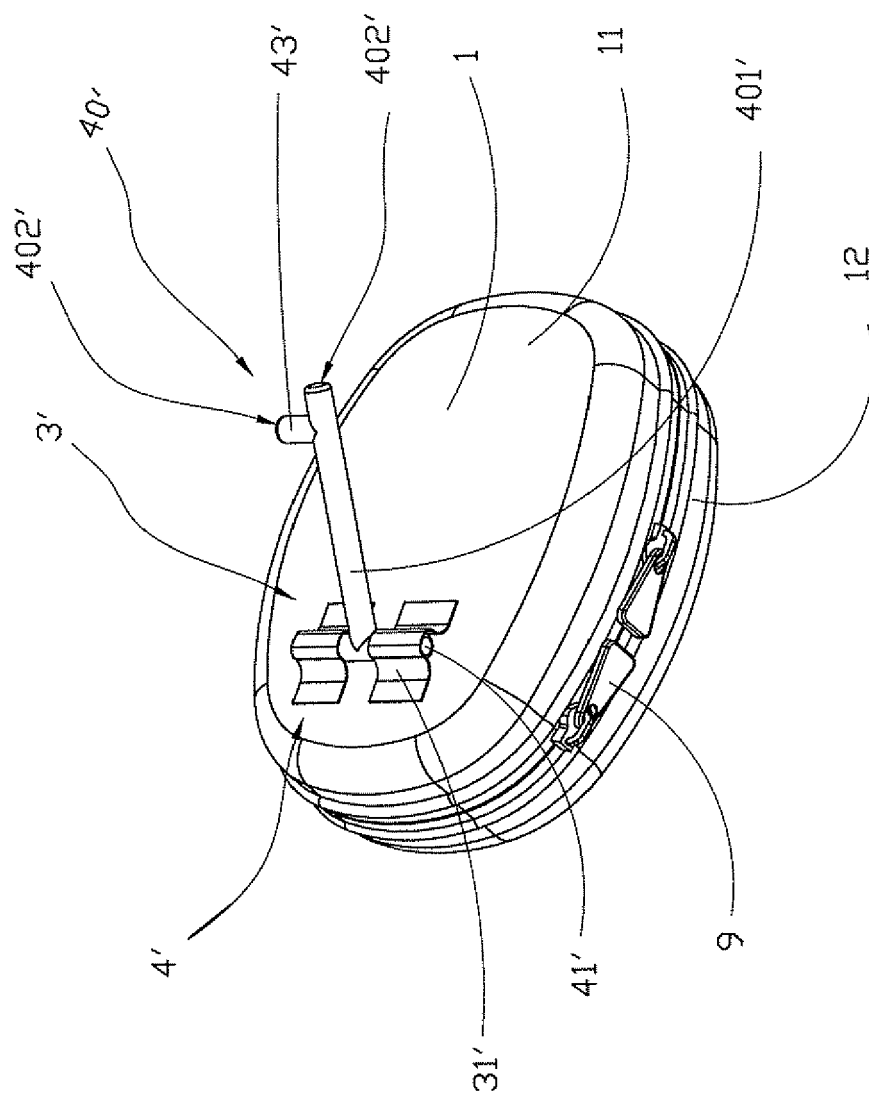


FIG. 3

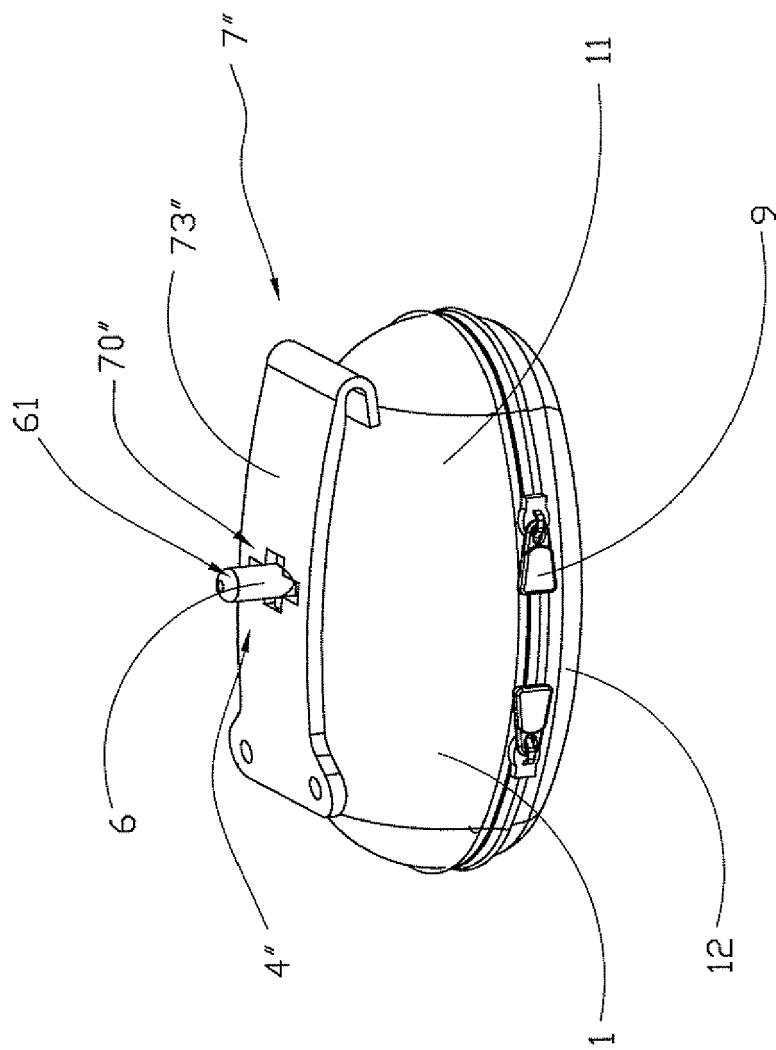


FIG. 4

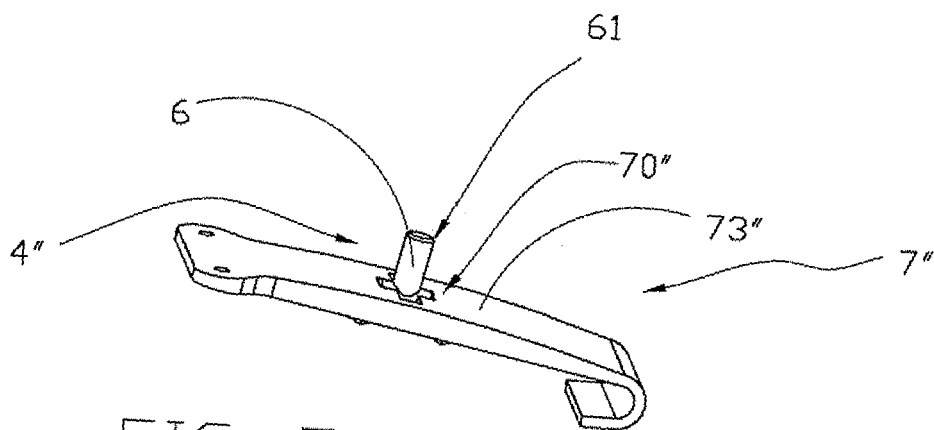


FIG. 5

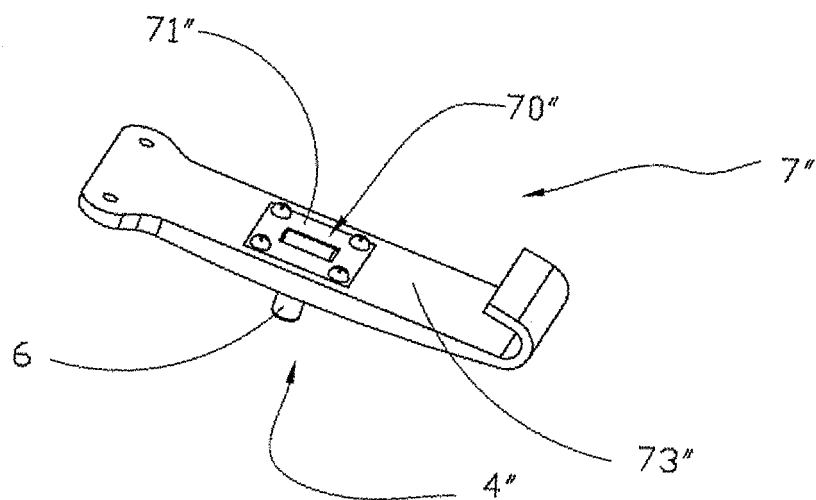
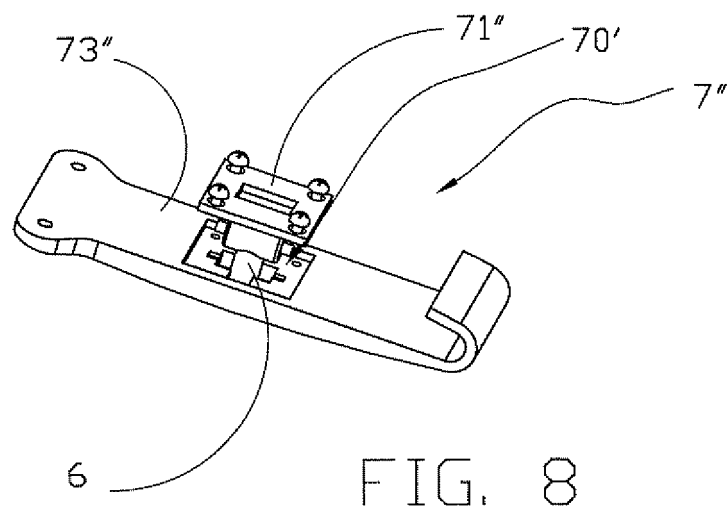
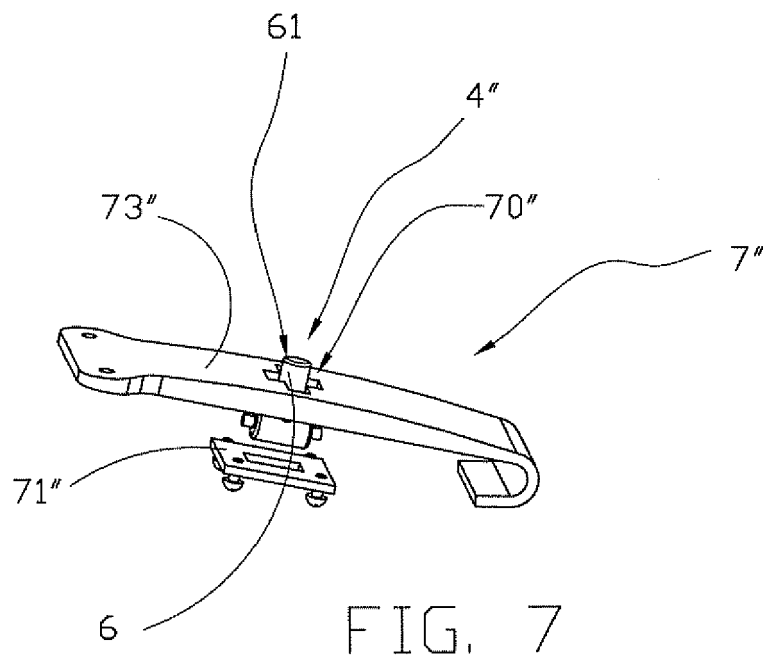


FIG. 6



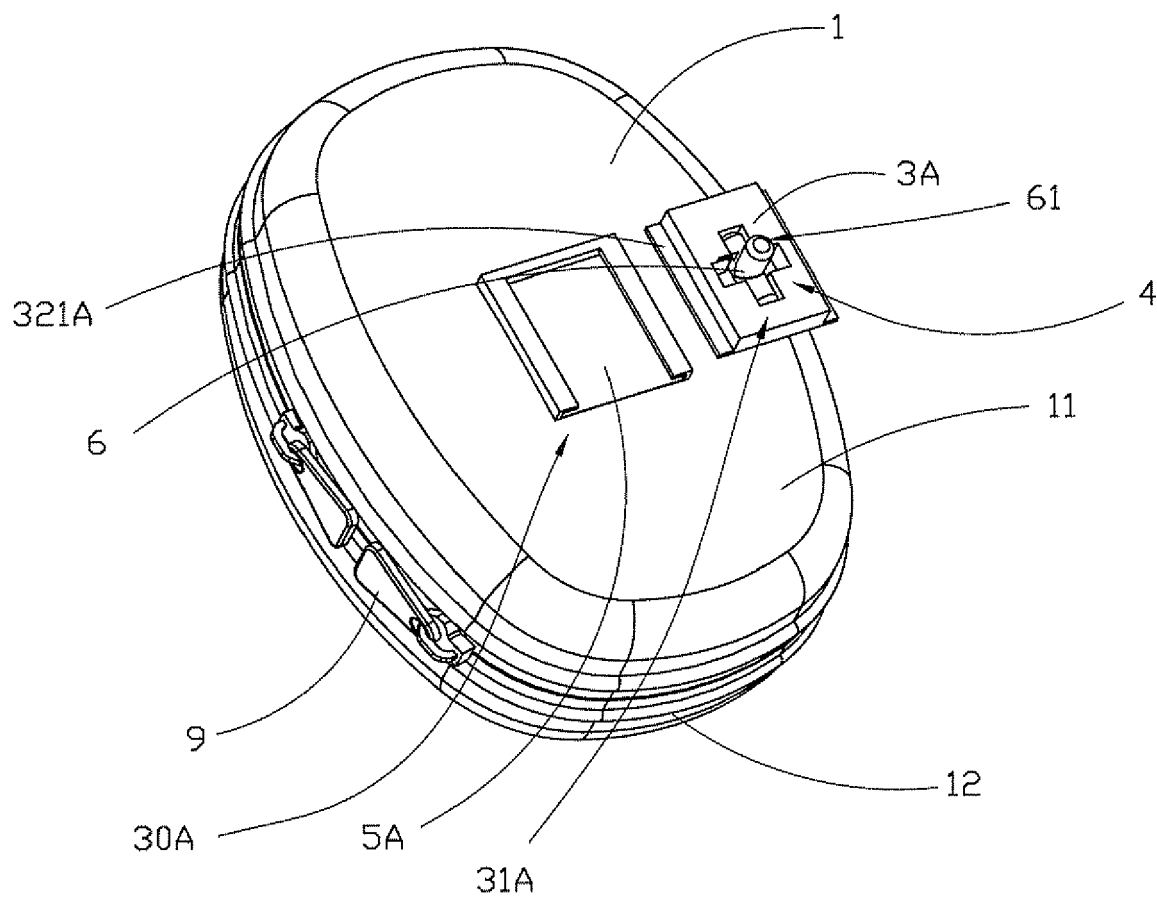


FIG. 9

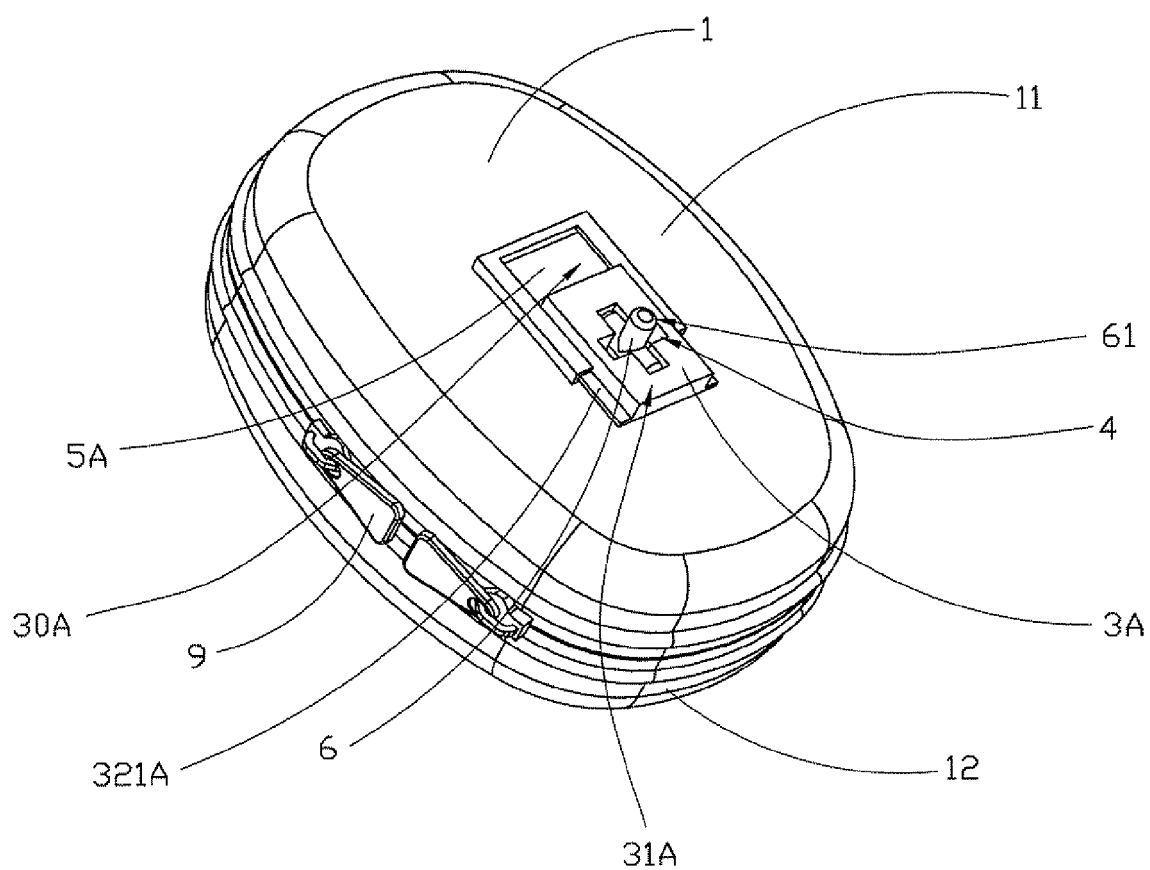


FIG. 10

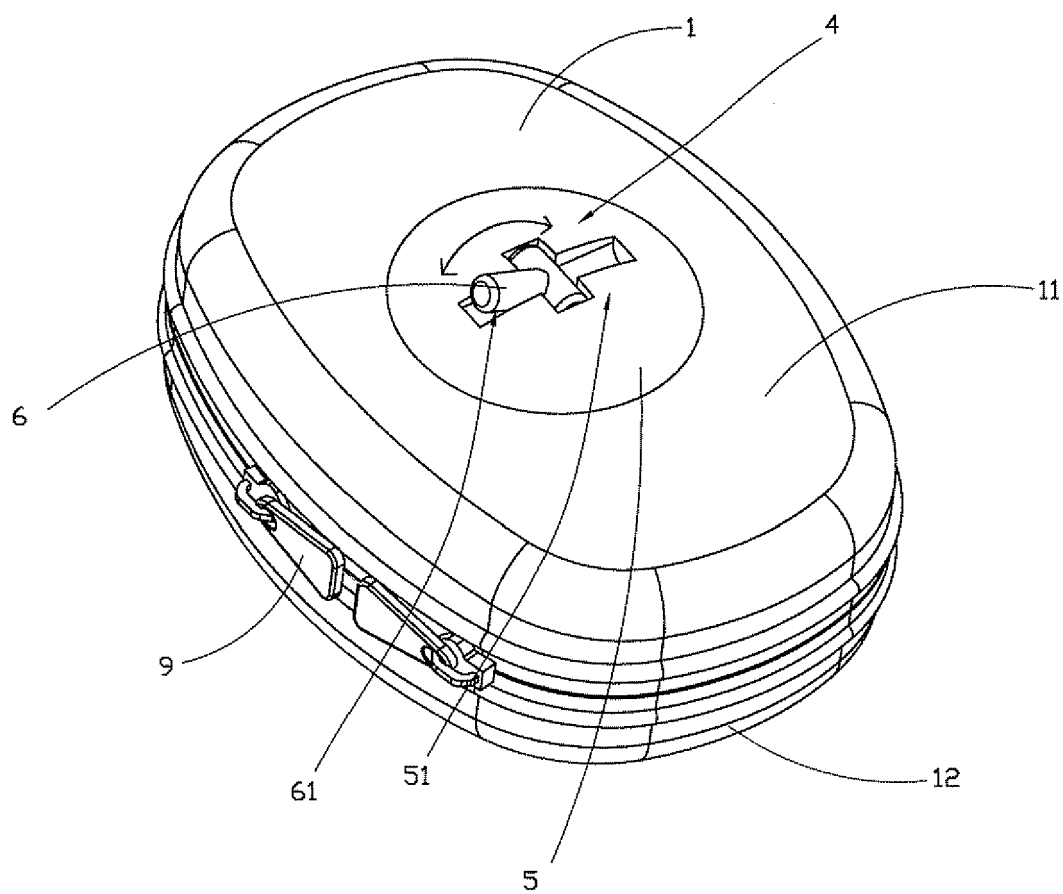


FIG. 11

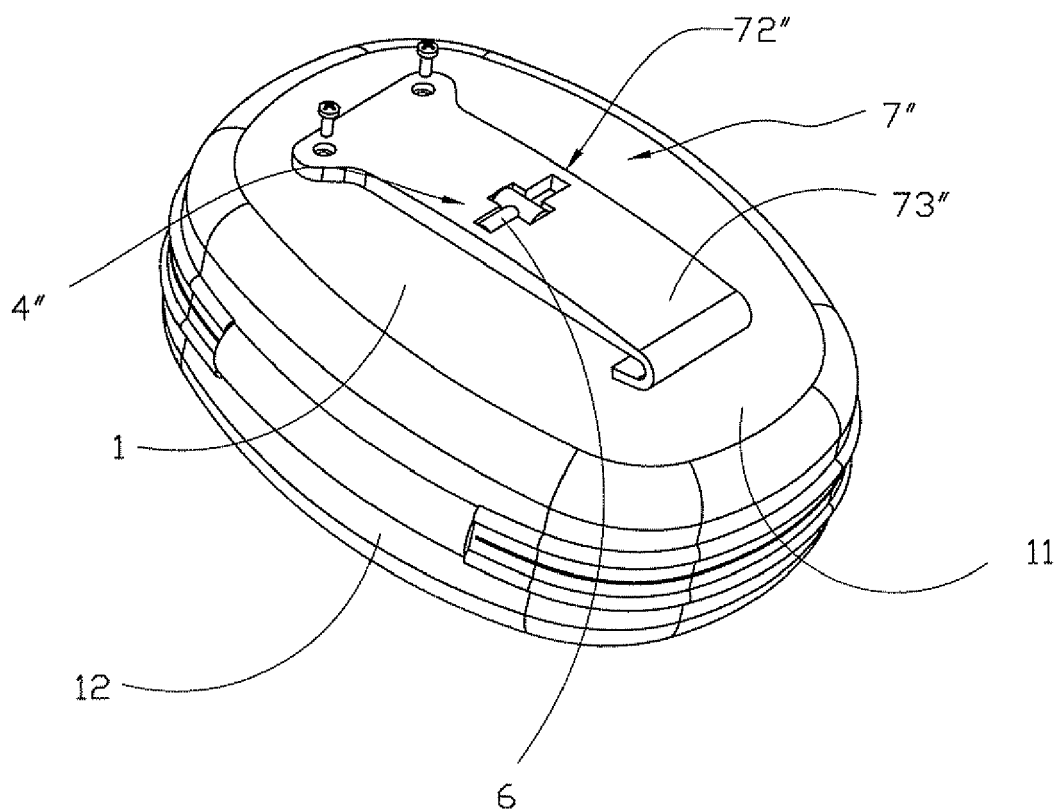


FIG. 12

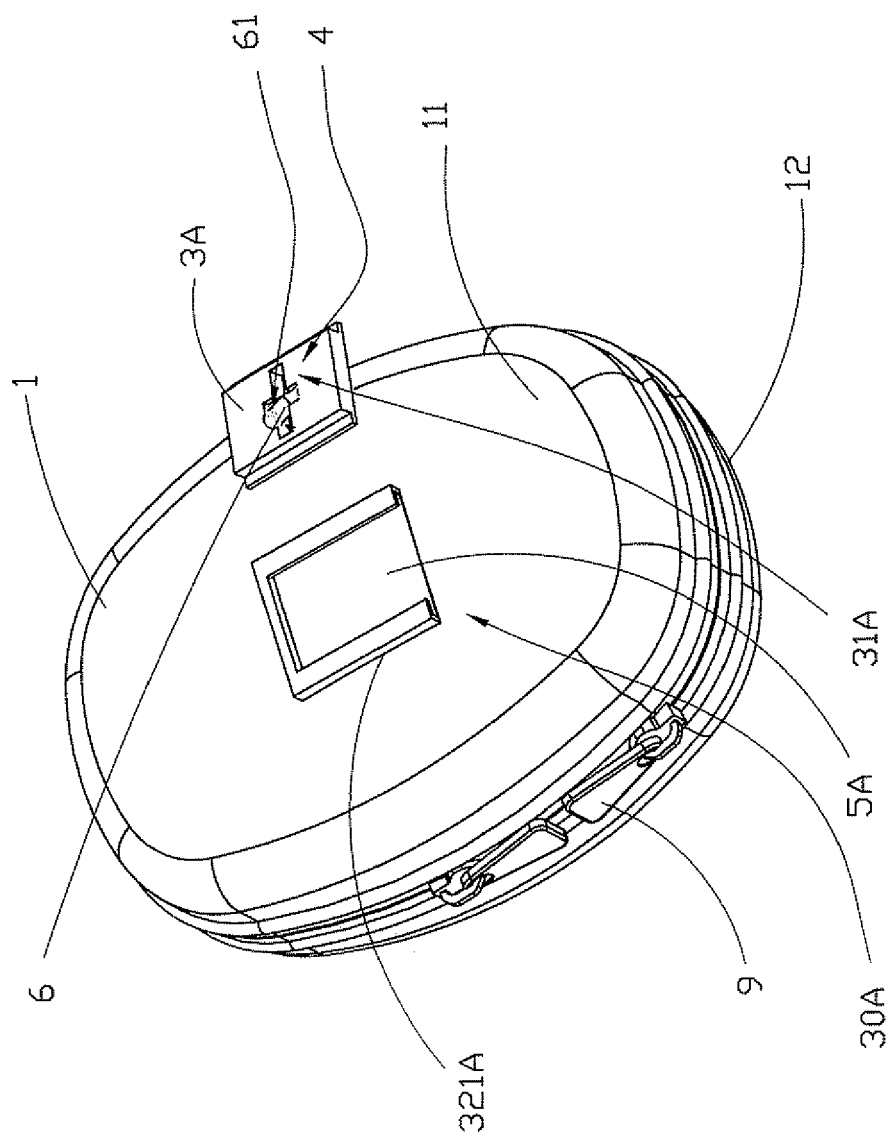


FIG. 13

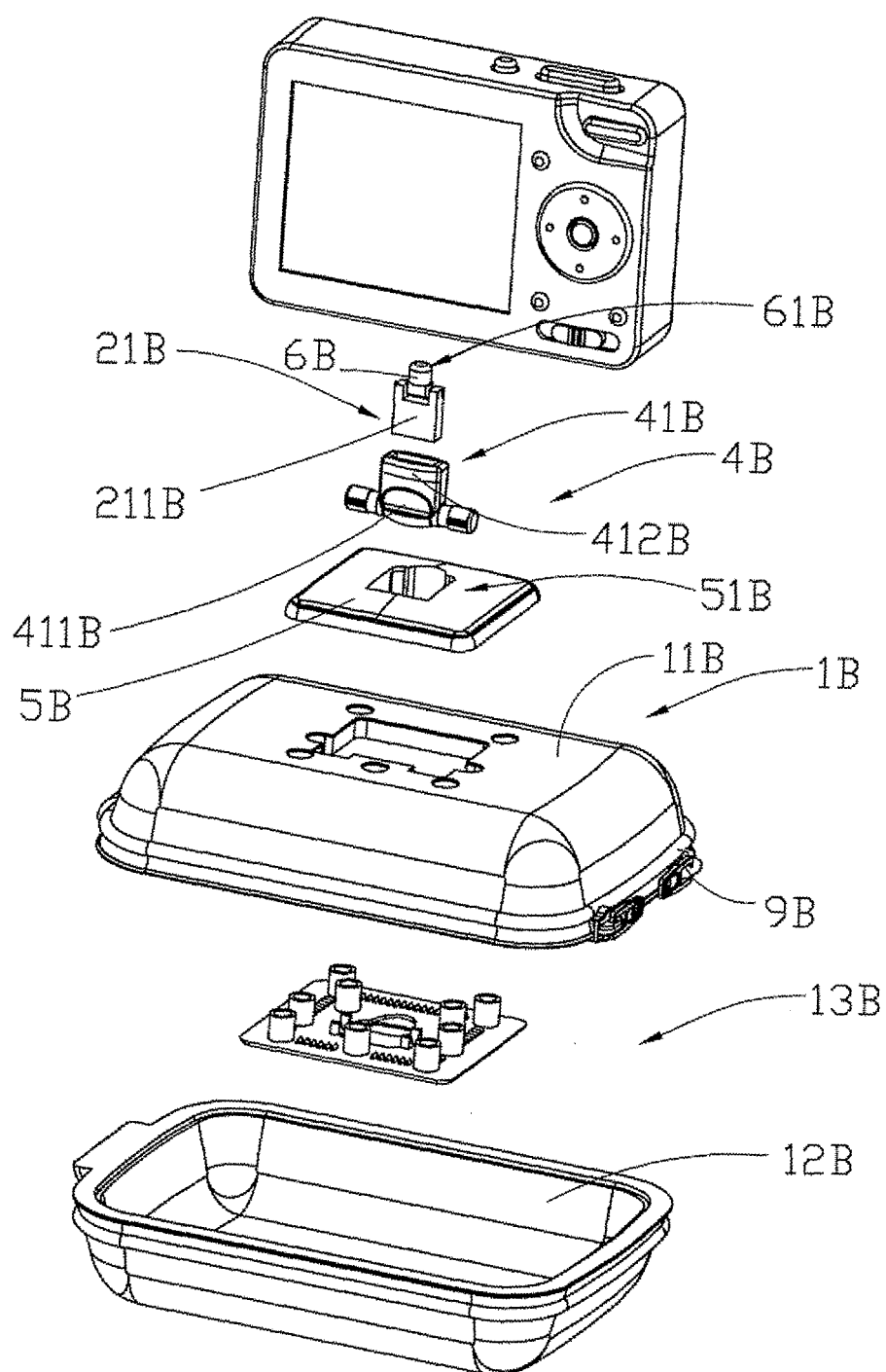


FIG. 14

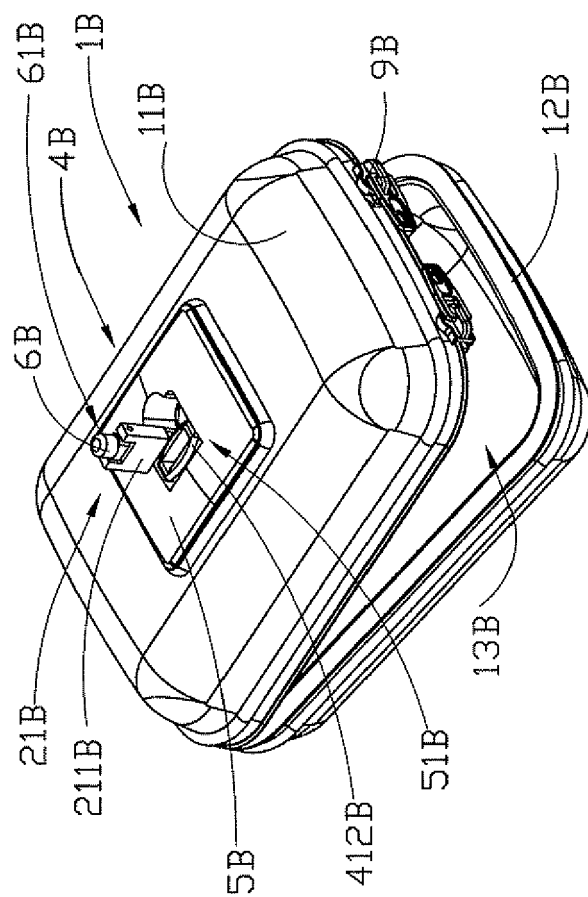


FIG. 15

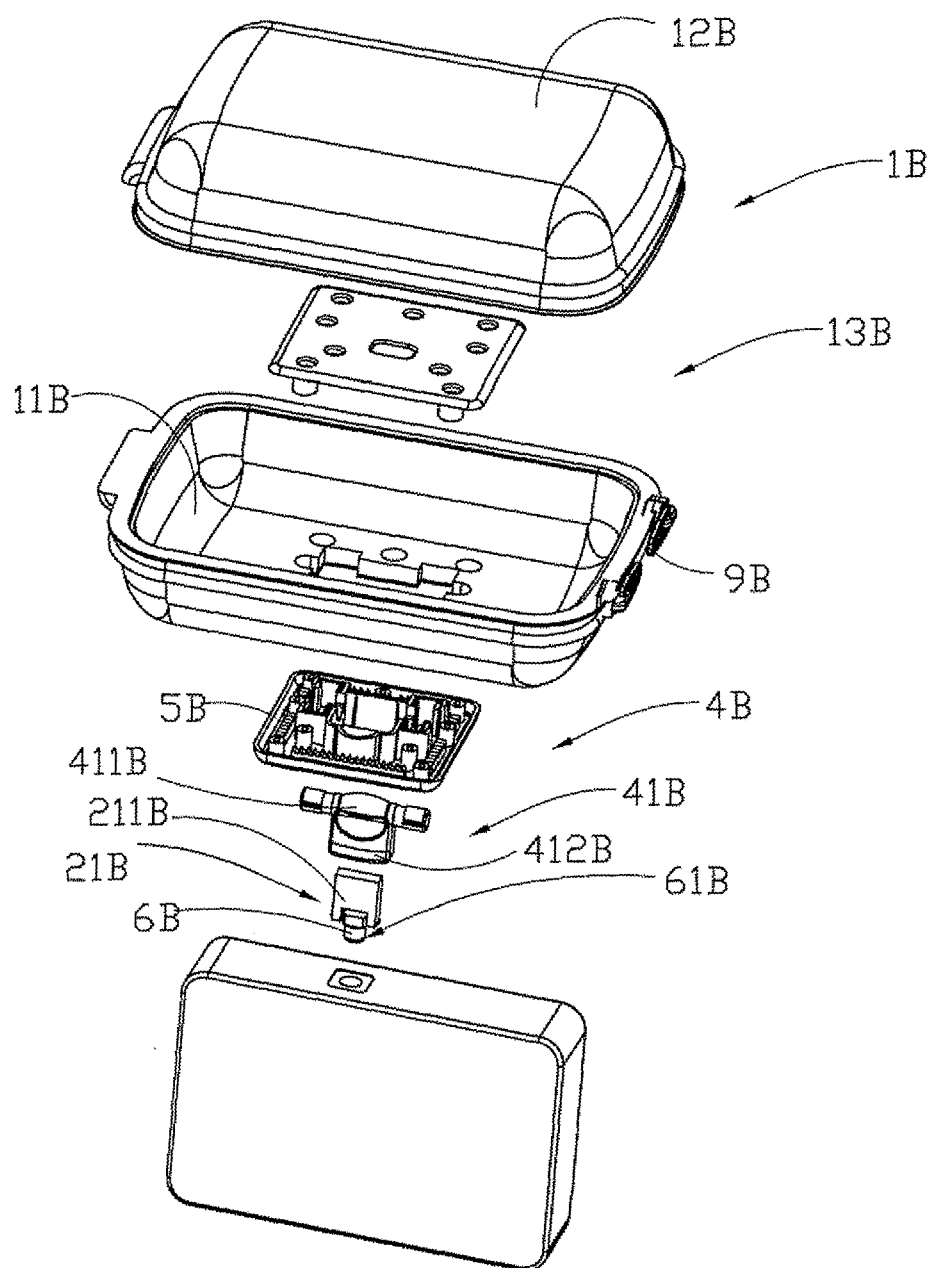


FIG. 16

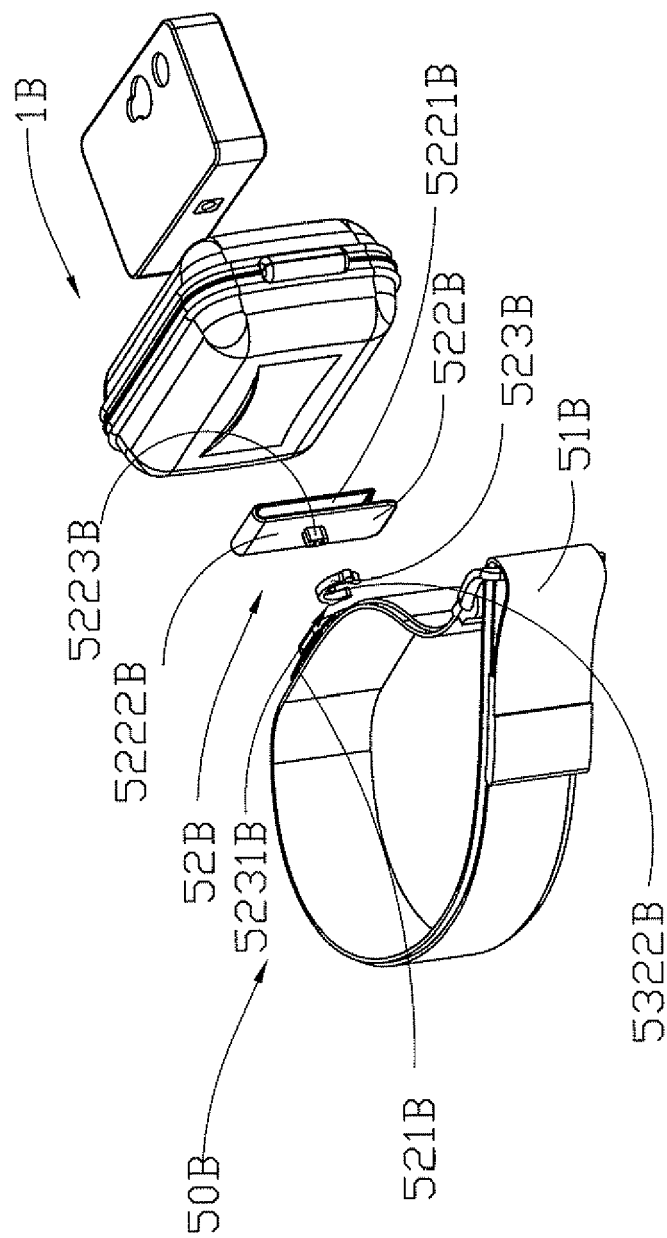


FIG. 17A

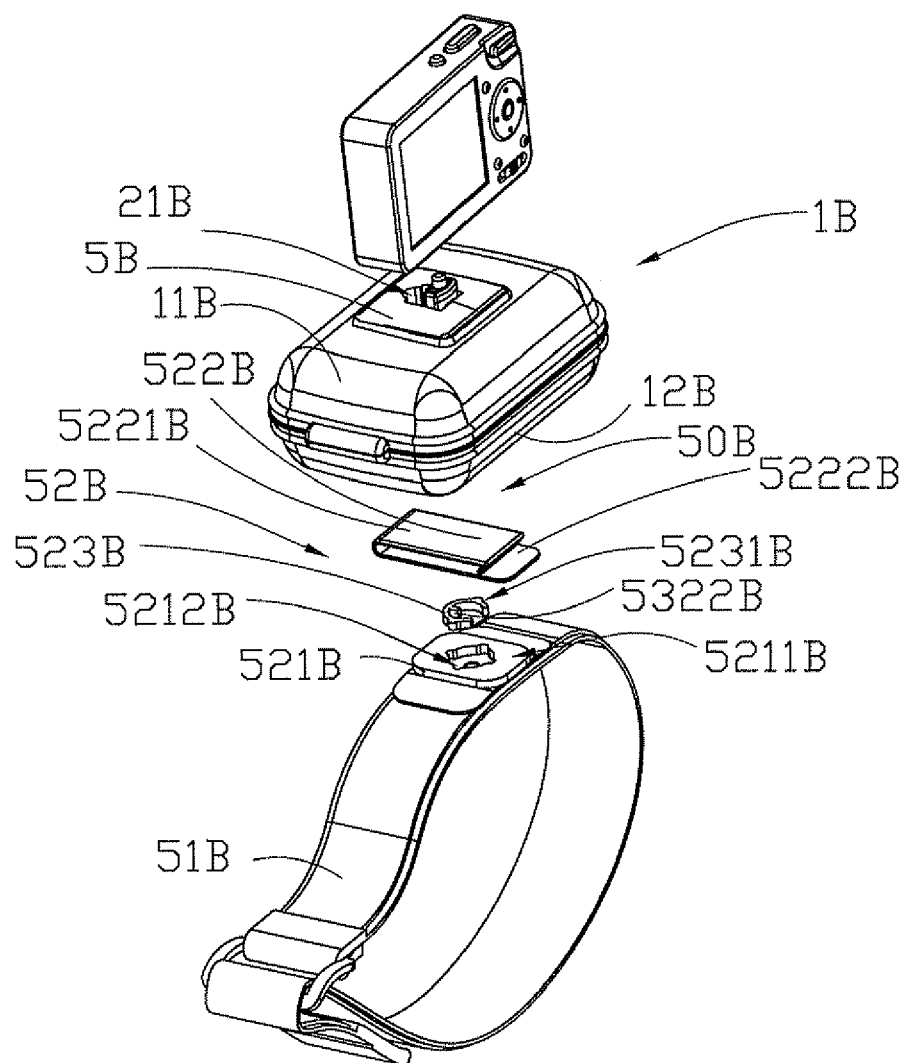


FIG. 17B

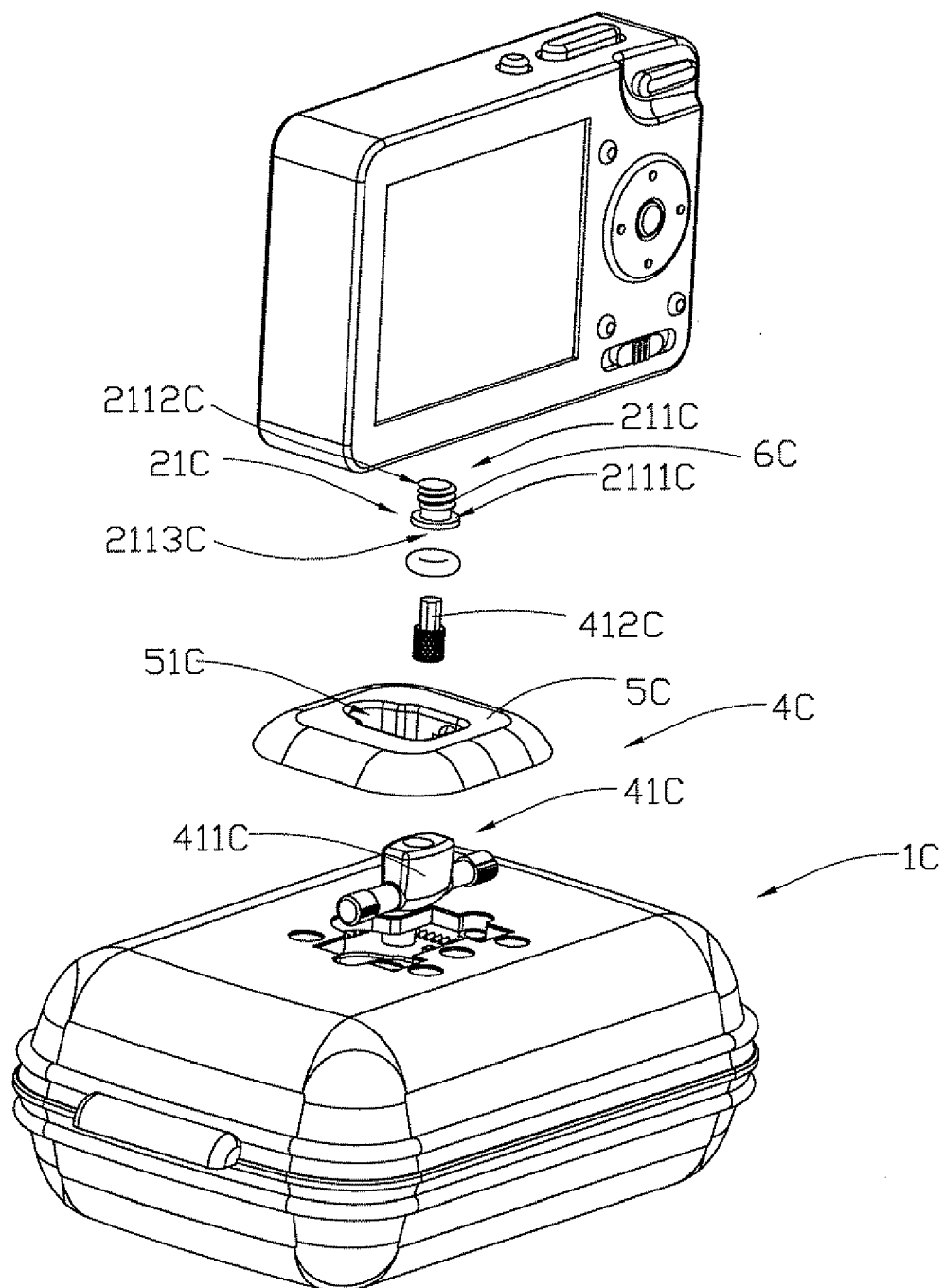


FIG. 18

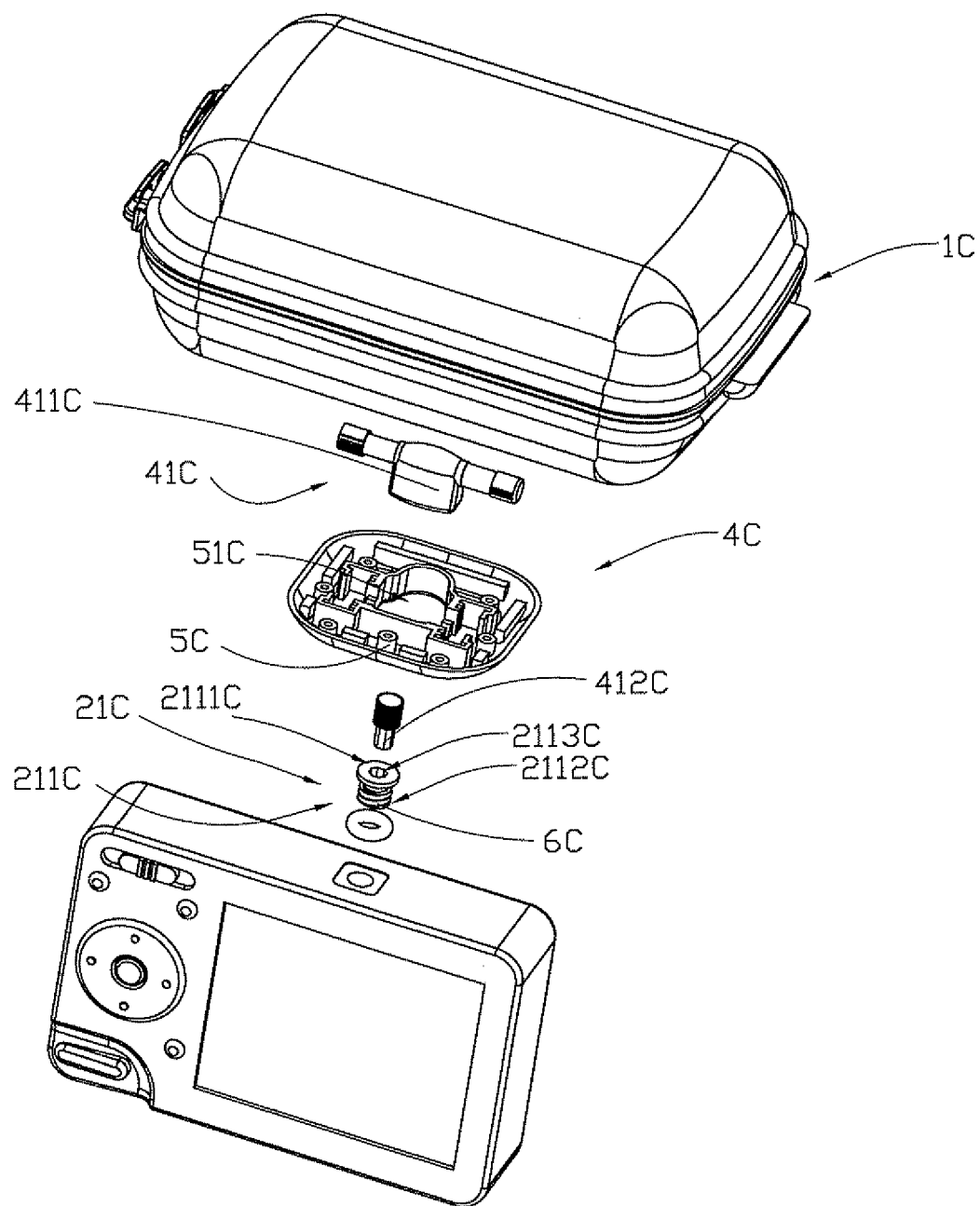


FIG. 19



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 12 3823

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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X	GB 815 241 A (REINHOLD HEIDECHE; FRANKE HORST) 24 June 1959 (1959-06-24) * page 2, line 8 - line 126; claims; figures *	1-6, 8-10, 13-25	
A	US 2004/200868 A1 (WOODMAN NICHOLAS D [US]) 14 October 2004 (2004-10-14) * the whole document *	1-25	
			TECHNICAL FIELDS SEARCHED (IPC)
			A45C A45F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 7 April 2008	Examiner Acerbis, Giorgio
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			

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EP 07 12 3823

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The members are as contained in the European Patent Office EDP file on
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07-04-2008

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