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(54) **FOLDABLE, SELF-OPENING BAG**

(57) A self-opening bag, having an outer pocket (1) and at least one first, pocket-like storage compartment (4) which is arranged in the outer pocket (1) and which is enclosed at least at the bottom and also laterally by a foldable and collapsible sheathing and which has an upper filling opening.

To provide a more useful, collapsible bag, the outer pocket (1) comprises at least two partial pocket parts which can be folded apart in an opening direction (R) and folded towards each other in a closing direction and which are firmly or detachably connected to each other, wherein erecting means (6) are provided, which are arranged and set up in such a way that when the two partial pocket parts of the outer pocket (1) are folded apart in the opening direction (R), the first storage compartment (4) is self-acting moved from a collapsed position into a ready-to-receive set-up position by raising the collapsible sheathing.

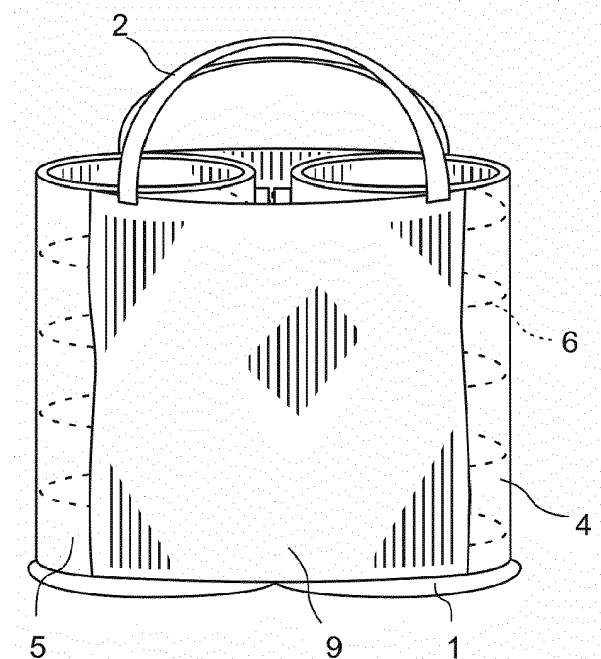


Fig. 2

Description

[0001] The present invention relates generally to a foldable, self-opening bag, having an outer pocket and at least one first, pocket-like storage compartment which is arranged in the outer pocket and which is enclosed at least at the bottom and also in a lateral direction by a foldable and collapsible sheathing and which has an upper filling opening.

[0002] Foldable self-opening bags as mentioned above are commonly known to the skilled persons. The well-known foldable shopping bags have a bag body which can be folded in crosswise and lengthwise direction by multiple folds. One such shopping bag is known from the KR 20 150 058 765 A. Although the shopping bag can be easily folded like a classical paper or plastic bag, it has the disadvantage that it is not visually attractive, and that the sheathing, which is intended to hold the goods, is not protected when folded.

[0003] CN 204 682 796 U describes a foldable storage box with several compartments that open automatically when the box is folded. This storage box is complex to install and is not ideal for spontaneous transport purposes, e.g. for stowing and carrying purchases in the supermarket.

[0004] From the JP 2020 048 717 A2, in turn, a foldable bag is known, which is automatically opened by spring force after releasing a retention lock. However, this bag has the disadvantage that the cover, which provides the storage compartment for the goods after folding the bag, is not protected in an inner pocket when folded.

[0005] It is an object of the present invention to provide a foldable, self-opening bag, which, when folded, protects the storage compartments for the goods as well as possible, is optically attractive and can be easily folded in opening and closing direction. A further object of the invention is to create a foldable bag which has additional functions; in particular, if the functional variety is as large as possible, it has additional compartments for receiving different goods.

[0006] According to the invention this object is achieved by a bag, wherein the outer pocket comprises at least two partial pocket parts which can be folded apart in an opening direction and folded towards each other in a closing direction and which are firmly or detachably connected to each other, wherein erecting means are provided, which are arranged and set up in such a way that when the two partial pocket parts of the outer pocket are folded apart in the opening direction, the first storage compartment is self-acting moved from a collapsed position into a ready-to-receive set-up position by raising the collapsible sheathing.

[0007] The invention now provides a visually attractive bag that is particularly easy to store when folded and can be easily transformed into a position in which it can be used to hold goods. To transfer the folded bag into the position for the transport of goods, the outer pocket is opened, whereby the opening of the outer pocket releases

the erecting means, which then automatically erect the first storage compartment, so that goods can be placed and transported in it. The outer pocket can be designed in such a way that, when folded, all internal parts of the bag are accommodated in the outer pocket and are thus protected against dirt, bacteria and moisture.

[0008] The material of the outer pocket may have further advantageous properties; in particular it may be water-repellent or waterproof. Padding may also be provided so that, if desired, the bag can also be used as a seat cushion when folded. If the bag is in the use position and especially fragile goods are transported in the bag, a padded outer pocket, which forms the bottom of the bag after unfolding, can prevent damage to the goods when the bag is placed on a hard surface by cushioning over the padding.

[0009] The bag is preferably designed in such a way that when folded, the outer pocket encapsulates all other areas of the bag. This can be achieved a outer pocket having two partial pocket parts and by folding over the two partial pocket parts, which are connected to each other by an elastic or hinged section. By folding the partial pockets all other functional components of the bag which are permanently or detachably connected to the inside of the partial pocket parts will be enclosed by the outer shell provided by the outer pocket. In this way all functional parts of the bag are effectively stowed and protected inside the shell.

[0010] In one preferred embodiment, the outer pocket consists of two partial pocket parts which have an identical shape and are joined flexible together in a hinge-like manner. The partial pocket parts can be made of foil, fabric or of a similar material. In this case they can also be made of a flat sheet of film or fabric without the need for an explicit side wall. The pocket parts folded on top of each other and can then be connected to each other by a zipper, especially a circumferential zipper, one or more Velcro fasteners or also by means of a holding strap with knobs or other fastening means located on the side opposite the hinged sections. If the pocket parts are made of flat material, it is possible to make both pocket parts from a common cut of the film or fabric, for example in a shape like the Number "8", so that the connection area from one partial pocket part to the other partial pocket part can then form the hinge-like connection of the two pocket parts.

[0011] Alternatively, the pocket parts can also be made of a harder, dimensionally stable material. In this case, a cup-like design of the pocket parts is appropriate, which can then be connected to each other via separate joints. Alternatively, the partial pocket parts can also be made of plastic and manufactured together as an injection-moulded part wherein the partial pocket parts are connected to each other by a film hinge. The advantage of this design may be that the pocket parts, which form the bottom after the pocket has been opened, can offer comparatively high protection against impacts from below.

The material used for these partial pocket parts may have the necessary elasticity to protect the goods from impact and, on the other hand, to prevent the partial pocket parts from breaking under impact.

[0012] To protect the contents of the bag against damage from shocks, even if the outer pocket is made of fabric or foil, the area of the partial pockets can be provided with an appropriate coating or reinforcement. In this case, elastic baffle plates that are glued or otherwise connected to the material of the outer pocket are a suitable solution.

[0013] The storage compartment is limited by a sheathing establishing an elastic wall, which is connected to the inside of the outer pocket in the lower area. The sheathing can be circular, oval or square. Once the outer pocket has been opened and the sheathing has been erected, this sheathing forms the first storage compartment into which goods can be inserted. The erecting means are arranged and designed in such a way that after opening of the outer pocket, when the pocket parts are unfolded, the wrapping of the first storage compartment is erected automatically.

[0014] The automatic erection of the wrapping can be realized for example by means of erecting means in the form of spring means. In this case, for example, one or more helical coil springs can be incorporated into the material of the sheathing or attached to its inner side or to its outside. However, it is also possible to use small tunnels in the material of the casing, which run in the erecting direction, in which the spring means are then placed. Depending on the design and size of the sheathing, the spring means can also be formed by an elastic wall sections, i.e. by the sheathing itself.

[0015] The bottom of the first storage compartment may be formed by the inner side of the outer pocket, in particular by the inner side of one of the two partial pockets. In this case the lower edge of the sheathing is firmly or detachably connected to the inner side. Alternatively, the first storage compartment may also have its own bottom, so that it forms a separate pocket in its own right. In this case, the bottom of the first storage compartment may be releasably or permanently bonded to the inside of the outer pocket.

[0016] A detachable connection of the bottom of the first storage compartment with the outer pocket has the advantage that the first storage compartment can be removed as an independent pocket. Such a detachable connection can be made, among many other possibilities, for example by means of a Velcro or a zipper. A firm connection can be realized by a seam. Of course, the first storage compartment can also be part of the outer pocket, i.e. be made in one piece with the outer pocket, for example by means of a weaving process.

[0017] A very useful embodiment of the invention can be achieved if, in addition to the first storage compartment with a second storage compartment, at least one further storage compartment is provided. This may, but is not necessarily, identical in form and function to the first stor-

age compartment. If the shape is identical, for example, the first storage compartment can be attached to one of the two partial pocket parts, while the second storage compartment is then arranged on the other partial pocket part.

[0018] If the outer pocket is now opened in this configuration, both storage compartments will automatically lift up, as both are provided with their own erecting means. Alternatively, of course, an active storage compartment and a passive storage compartment may also be provided, whereby the active storage compartment then is provided with an erecting means, while the passive storage compartment is connected with its upper edge to the upper edge of the active storage compartment via a mechanical connection. This will then cause the active storage compartment to pull up the passive storage compartment.

[0019] Of course, as an alternative to the embodiment described above, a configuration can be realized in which the erecting means is implemented as an independent component so that both the first storage compartment and the second storage compartment can be designed as passive storage compartment in the meaning as mentioned above. In this case they may be connected to the erecting means via the said connecting means.

[0020] Finally, the storage compartments, regardless of whether they are designed as passive or active storage compartments in the above-mentioned sense, can also be connected to one another centrally. This can be particularly advantageous if an additional side wall is attached to the sheathing of both storage compartments. This additional side wall can be fixed or detachably connected to the outer surface of the sheathings of the storage compartments. In the lower area, it can either have its own bottom segment, which in turn can be connected to the outer pocket, or it can be directly connected to the outer pocket via Velcro fastenings or zippers.

[0021] The embodiment with the side walls illustrated above allows a third storage compartment and a fourth storage compartment to be created with few resources. In particular in the case of cylindrical sheathing of the first storage compartment and the second storage compartment, an essentially straight side wall which is laterally adjacent to the first storage compartment can define additional storage compartments between the sheathings and the inner side of the side walls on both sides of the bag, whereby the underside of these additional storage compartments should then of course be closed by the bottom as described above or by a connection of the side walls with the outer pocket. The side walls can also be used as advertising space if the bag according to the invention is to be given to customers as a promotional item.

[0022] In order that the bag according to the invention can be easily and conveniently carried, carrying sleeves can be provided which are connected to the bag. These may, for example, be two straps running from the upper edge of the sheathing of the first storage compartment

to the upper edge of the sheathing of the second storage compartment, which can be gripped with a hand in the manner of a loop. In this case, the carrying loops are attached adjacent to the upper edge, so that the bag may be carried hanging down from the user's hand. Alternatively or additionally, straps can of course be attached to the top and bottom of the bag in the manner of a backpack. In all cases, the retaining straps can be detachably connected to the respective components.

[0023] Furthermore it can be advantageous if at least one of the above-mentioned straps also protrudes from the folded outer pocket in the form of a loop, so that the folded bag can be held with this loop.

[0024] Insofar as the term "approximately" is used in the instant invention, this term specifies a tolerance range, which the person of skill in the art in the instant field considers to be common. In particular, a tolerance range of up to plus or minus 20 percent, preferably of up to plus or minus 10 percent, is to be understood by the term "approximately".

[0025] Further areas of applicability will become apparent from the description provided herein. It should be understood that the description and specific examples are intended for purposes of illustration only and are not intended to limit the scope of the present invention. The drawings described herein are for illustration purposes only and are not intended to limit the scope of the present disclosure in any way.

[0026] Specific embodiments of the invention will now be described by way of example and with reference to the accompanying drawings, in which:

- Fig. 1 is a first embodiment of the invention in the folded position;
- Fig. 2 is a schematic view of the embodiment shown in Fig. 1 after unfolding;
- Fig. 3 is a schematic top view of the embodiment shown in Fig. 2;
- Fig. 4 is a single-part depiction of the first storage compartment of the embodiment as shown in Figure 2; and the
- Figures 5a to 5f show the embodiment depicted in Figures 1 to 3 in a side view during unfolding and the
- Figures 6a to 6f show the embodiment depicted in Figures 1 to 3 in a view from above in each case in a comparison with states as shown in Figures 5a to 5f.

[0027] Fig. 1 shows a bag in the folded, closed state according to the invention. The outer pocket 1 consists here of two partial pocket parts which are folded over each other and are connected to each other in the lower section via a fastener as fastening means 3. The pocket parts are here part of a common piece, which consists of an elastic fabric or a similar material. In the upper area, this fabric is folded over to form the two pocket parts lying on top of each other, so that an interior space is created

in the manner of a shell, in which the other functional components of the bag according to the invention are located.

[0028] Two carrying loops protrude laterally from the closed outer pocket, through which the bag according to the invention can also be held in the closed state or hung on a hook.

[0029] In order to prepare the bag for later use, the user first loosens the fastening means 3, which are shown here as a snap fastener. Of course, all other types of fasteners, especially zippers or Velcro fasteners can also be considered. After the user has released the fastening means 3, the bag, as defined in the invention, automatically straightens up, whereby the final state of this straightening or erection is shown in Figure 2 in a three-dimensional depiction.

[0030] In Figure 2 the opened outer pocket 1 is located at the lower area of the unfolded bag. The outer pocket 1 now serves as a bottom of the bag. The two partial parts of the outer pocket - still lying on top of each other in Figure 1 - are now next to each other, with a storage compartment 4, 5 extending upwards from each of the two partial pocket parts. On the inner side of the right partial pocket part a first storage compartment 4 is arranged, which here has a bottom part at its lower edge (not visible in Figure 2). In the same way, the left partial pocket part is provided with a second storage compartment 5.

[0031] The two storage compartments 4, 5 are shown here in the form of cylindrical containers, whereby of course a more bag-like compartment will actually be present due to the textile or flexible nature of the sheathing material. In the material of the sheathing of the storage compartments 4, 5, a helical spring is provided as an erecting means 6, winding around the inner volume of the storage compartments 4, 5. The function of this spring is that after loosening the closure means 3 and opening the outer pocket 1 (see Fig. 1) the sheathings of the storage compartments 4, 5 are automatically lifted. The exact function of this automatic setting up will be described in detail in connection with the Figures 5a to 5f and Figures 6a to 6f below.

[0032] The two sheathings of the storage compartments 4, 5 each have a wall section in the middle, extending towards each other and connected to each other by a fixed or detachable connection. Side walls 9 are attached to the cylindrical sheathings in the front and rear sections. The side walls 9 define a closed chamber between the sheathings, which is closed in the lower area either by the outer pocket or by a connection of the side walls with the sheathings or the outer pocket. The wall areas in the middle between the covers divide this chamber again into two additional storage compartments 7, 8. As can be best seen in Figure 3, an additional, third storage compartment 7 is thereby provided in the central front area, while a fourth storage compartment 8 is provided in the rear area of the bag of the invention.

[0033] The individual components, particularly those

shown in Figures 2 and 3, may be connected der to each other by means of fixed or detachable joints. In particular, the side walls 9 may be sewn to the envelopes of the storage compartments 4, 5, so that a firm structure of the bag according to the invention is obtained. If, on the other hand, greater flexibility is required, the connections can also be detachable. This makes it possible, for example, to completely take a storage compartment 4 or 5 away from the bag in order to use it as a separate means of transport or storage. Such a removed, independent container is shown schematically in Figure 4.

[0034] As shown in Figure 2, the side walls 9 can only cover the front and rear areas of the bag. Of course, these side walls can also be designed as a circumferential wall so that they wrap around the complete pick-up areas 4, 5. In the storage compartments 4, 5, in turn, further subdivision possibilities can be provided, which are either firmly sewn or can be created using detachable connections if necessary.

[0035] In Figures 5a to 5f and Figures 6a to 6f, the unfolding and erecting of the bag according to the invention is shown in detail and in individual steps. Figures 5a to 5f show the bag in a side view (schematized), while Figures 6a to 6f show the respective positions from Figures 5a to 5f in a top view. It can be seen that when folded, the outer pocket 1 forms a closed shell which is held together by the fastening means 3. In this closed shell the sheathings, which will later form the first storage compartment 4 and the second storage compartment 5, are stored together. The fastening means are solved in Figure 5b/6b. Then, driven by the spring force of the erecting means 6, the shell swings open in an opening direction R, whereby here only the second storage compartment 5 is shown in Figure 5c for better illustration of the function.

[0036] In the further course of the opening of the outer pocket 1, the opening means now push the covers further upwards in the erecting direction A, as shown in Figures 5d/6d and 5e/6e. Figures 5f/6f then show the final state in which the two sheathings were completely erected by the erecting means 6 in form of helical coil springs, so that the two storage compartments 4, 5 were built up. Not shown in the sequences of Figures 5 and 6 are the additional storage compartments formed by the third storage compartment 7 and the fourth storage compartment 8 and the carrying loop 2 for holding the bag of the invention.

Reference Numbers:

[0037]

- 1 Outer Pocket
- 2 Carrying loop
- 3 Fastening means
- 4 First storage compartment
- 5 Second storage compartment
- 6 Erecting means

- 7 Additional compartment
- 8 Second additional compartment
- 9 Side wall

- 5 R Opening direction
- A Erecting direction

Claims

- 10 1. A foldable self-opening bag, having an outer pocket (1) and at least one first, pocket-like storage compartment (4) which is arranged in the outer pocket (1) and which is enclosed at least at the bottom and also laterally by a foldable and collapsible sheathing and which has an upper filling opening, **characterized in, that** the outer pocket (1) comprises at least two partial pocket parts which can be folded apart in an opening direction (R) and folded towards each other in a closing direction and which are firmly or detachably connected to each other, wherein erecting means (6) are provided, which are arranged and set up in such a way that when the two partial pocket parts of the outer pocket (1) are folded apart in the opening direction (R), the first storage compartment (4) is self-acting moved from a collapsed position into a ready-to-receive set-up position by raising the collapsible sheathing.
- 15 2. A foldable self-opening bag according to claim 1, wherein the first storage compartment (4) is established by the collapsible sheathing in the form of a round, oval or polygonal side wall connected to an inner side of the outer pocket (1) in the lower edge region.
- 20 3. A foldable self-opening bag according to claim 1 or claim 2, wherein at least one second, pocket-like receiving region (5) is provided in the outer pocket (1), which storage compartment (5) is moved automatically from a folded position into a ready-to-receive set-up position by setting up a collapsible sheathing of the second storage compartment (5).
- 25 4. A foldable self-opening bag according to claim 3, wherein the second storage compartment (5) is formed by a collapsible sheathing in form of a round, oval or polygonal side wall connected to an inner side of the outer pocket (1) in the lower edge area.
- 30 5. A foldable self-opening bag according to one of the two preceding claims, wherein the collapsible sheathing of the first storage compartment (4) and/or of the second storage compartment (5) can be fixed in a folded position of the wrapping by fastening means on the inner wall of the outer pocket (1).
- 35 6. A foldable self-opening bag according to one of the
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claims 3, 4 or 5, wherein an additional side wall (9) is fastened on one side of the bag to the collapsible sheathing of the storage compartment (4) and to the collapsible sheathing of the storage compartment of the second storage compartment (5) to form an additional compartment, which side wall (9) is

- detachable or firmly attached to the inner wall of the outer pocket (1) or
- or provided with a bottom adjacent to its lower edge, and wherein

the side wall (9) is connected to the collapsible sheathing and/or to the outer pocket (1) in such a way that the side wall (9) forms with the collapsible sheathing and the bottom or the inner side of the outer pocket (1) the additional compartment.

7. A foldable self-opening bag according to claim 6, wherein on both sides of the storage compartments (4 and 5) side walls (9) are provided to form the additional compartment on a first side and a second additional compartment on the opposing side. 20
8. A foldable self-opening bag according to claim 6 or according to claim 7, wherein the side wall (9) is detachably connected to the envelope and/or the outer pocket (1), in particular by means of a zip fastener or a Velcro connection. 25
9. A foldable self-opening bag according to one of the claims 3-8, wherein the ends of at least one, preferably two, carrying loops (2) are arranged on the sides or the upper edges of the collapsible sheathing of the storage compartments (4 and/or 5). 30 35
10. A foldable self-opening bag according to one of the claims 3-9, wherein the collapsible sheathing of the storage compartments (4 and 5) have a bottom to form partial bags closed at the sides and at the bottom, wherein the storage compartments (4 and 5) are loosely inserted into storage compartments of the outer pocket (1) or are detachably connected to the inner side or the edge of the outer pocket (1). 40 45
11. A foldable self-opening bag according to one of the two preceding claims, wherein the erecting means (6) are established by spring means, in particular spring means which are incorporated in the material of the collapsible sheathing or connected to the collapsible sheathing at least at the upper edge and supported with a lower end on the outer pocket (1). 50
12. A foldable self-opening bag according to claim 11, wherein the spring means are formed by a coil spring wound around at least one of the storage compartments (4 or 5). 55

13. A foldable self-opening bag according to one of the preceding claims, wherein in the folded position of the outer pocket (1) in which the collapsed sheathing is located between on the opposing inner sides of the outer pocket (1), the folded outer pocket (1) is closable by means of a closure formed in particular by a snap fastener, a Velcro fastener, a closure tab which can be attached to the opposite part of the outer bag, or by a zip fastener.

14. A foldable self-opening bag according to claim 13, wherein a carrying loop (2) is arranged on both collapsible sheathings of the storage compartments (4 and 5), which are arranged and designed in such a way that, when the outer pocket (1) is unfolded, they can be placed one on top of the other to form a handle which can be gripped with at least one hand of a user.

15. A foldable self-opening bag according to one of the claims 1 to 14, wherein the outer pocket (1) and the collapsible sheathings are made of a water-repellent or waterproof material, in particular fabric or plastic and/or wherein the collapsible sheathings of the storage compartments (4 and 5) or the side walls (9) are made of a thermally insulating material.

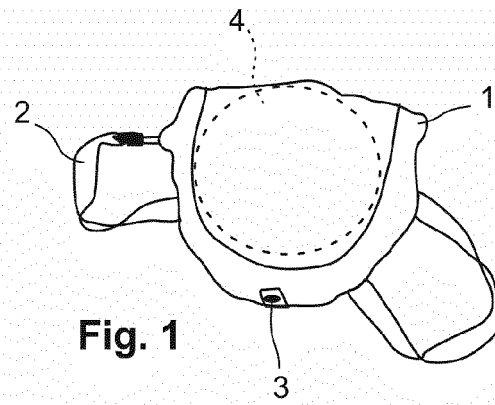


Fig. 1

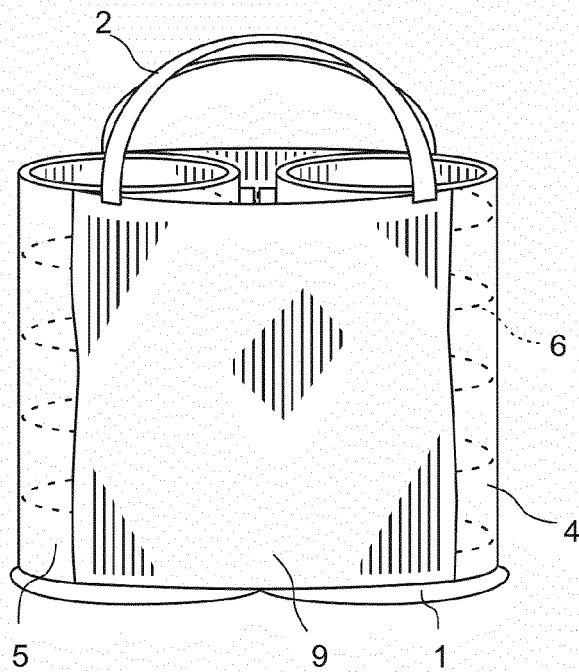


Fig. 2

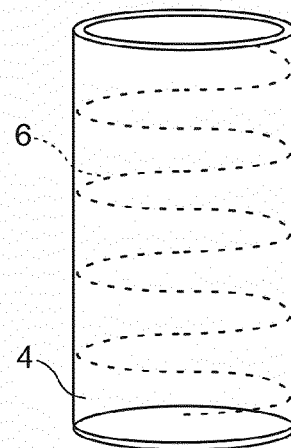


Fig. 4

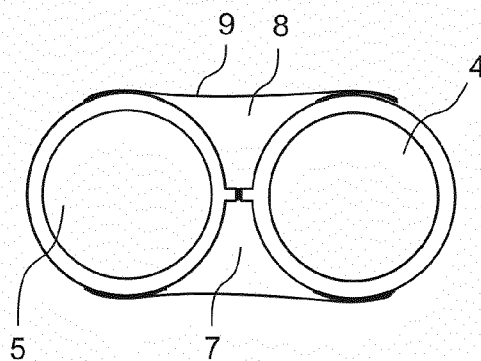


Fig. 3

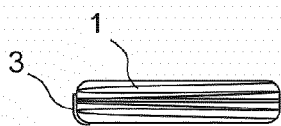


Fig. 5a

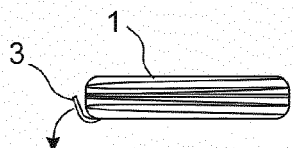


Fig. 5b

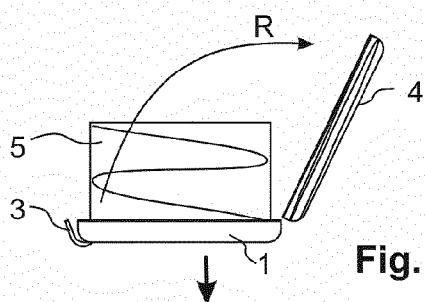


Fig. 5c

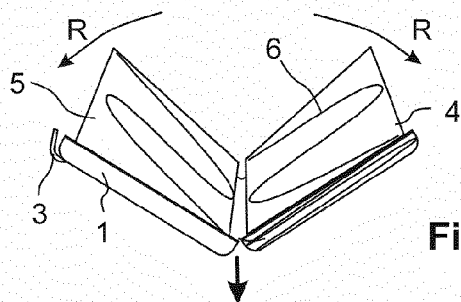


Fig. 5d

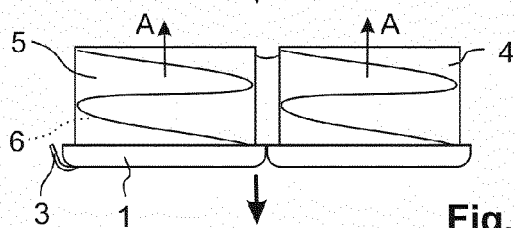


Fig. 5e

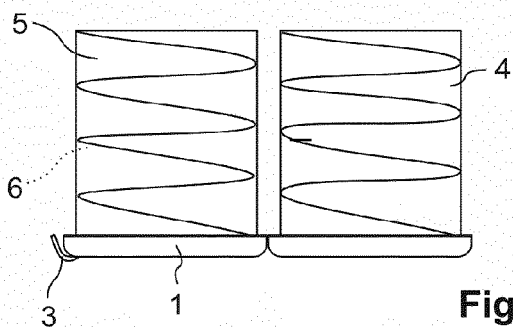


Fig. 5f

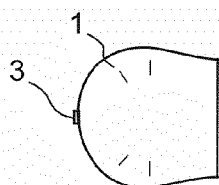


Fig. 6a

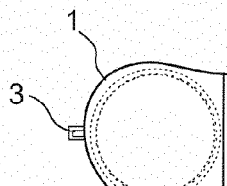


Fig. 6b

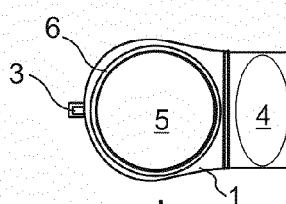


Fig. 6c

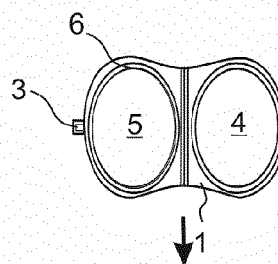


Fig. 6d

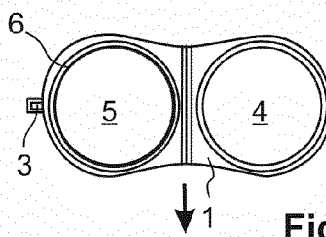


Fig. 6e

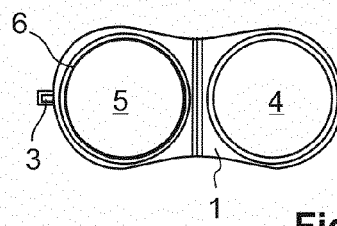


Fig. 6f



EUROPEAN SEARCH REPORT

Application Number
EP 20 17 2874

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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	EP 2 062 494 A2 (BOUDARA MARTINE [FR]) 27 May 2009 (2009-05-27) * paragraph [0001] - paragraph [0025]; figures 1-5 *	1-15	INV. A45C7/00 B65D21/08
X	FR 2 936 687 A1 (DECATHLON SA [FR]) 9 April 2010 (2010-04-09) * page 7, line 9 - page 14, line 16; figures 1-5b *	1-15	
			TECHNICAL FIELDS SEARCHED (IPC)
			A45C B65D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 23 July 2020	Examiner Ehrsam, Sabine
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EPO FORM 1503 03/02 (P04C01)

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

EP 20 17 2874

5

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The members are as contained in the European Patent Office EDP file on
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23-07-2020

10

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 2062494 A2	27-05-2009	EP 2062494 A2	27-05-2009
		FR 2923995 A1	29-05-2009

FR 2936687 A1	09-04-2010	NONE	

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35

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EPO FORM P0459

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- KR 20150058765 A [0002]
- CN 204682796 U [0003]
- JP 2020048717 A [0004]