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(54) **EXPANDABLE AND ROTATABLE LUGGAGE**

ERWEITERBARES UND DREHBARES GEPÄCKSTÜCK

BAGAGE ROTATIF ET EXTENSIBLE

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Description

FIELD

[0001] The present disclosures relates generally to luggage, and more particularly, to luggage which has expandable features for allowing a user to selectively increase or decrease the capacity of the luggage and rotatable features for allowing the user to rotate the luggage with respect to one or more predetermined axes of the luggage to freely move the luggage.

BACKGROUND

[0002] Expandable luggage is designed to accommodate user's need for adjusting the capacity of the luggage. Typically, the expandable luggage has sections that can be expanded by unzipping the sections. With the expandable sections unzipped, the user will have additional storage space within the luggage. However, the zipping and unzipping operation can be cumbersome and the zippers of the sections are prone to breakage due to repetitive zipping and unzipping operations. In addition, wheeled luggage has been developed rapidly over the recent decades. Particularly, luggage having rollable or rotational wheels becomes popular. However, luggage, which can be expandable and rotatable while standing, has not been envisioned.

[0003] Prior art in this technical field is disclosed in WO 2013/028974 A2.

BRIEF SUMMARY

[0004] As described herein, the exemplary embodiments of the current invention overcome one or more of the above and other disadvantages known in the art. An exemplary aspect of the present invention relates to a piece of luggage. The piece of luggage comprising: a main body comprising a main body frame comprising a plurality of substantially parallel and opposed fiberglass (i) rods or (ii) pipes connected to a top panel at the top end of the main body frame and connected to a bottom panel at the bottom end of the main body frame; a covering material substantially surrounding the main body frame, the top panel and the bottom panel to provide a receptacle in the shape of a half shell; an expandable body comprising a collapsible portion, the expandable body being connected to the main body through the collapsible portion, the expandable portion further comprising a wall defining a circumference of an expandable portion frame; an expansion and locking device comprising a ratcheting assembly configured to allow free movement of the expandable body in a compression direction towards the main body and configured to enable locking of the expandable body in an expanding direction away from the main body; a cover pivotably connected to the expandable body; a zipper having a first half connected to the expandable body and a second half connected to

the cover, wherein the first half and the second half are engageable to each other to close the cover with respect to the expandable body, such that a substantially enclosed space is defined by the main body, the expandable body and the cover; a first pair of rotational wheels mounted to the main body and a second pair of rotational wheels mounted to the expandable body; wherein the main body comprises: a pair of bottom brackets, to which the first pair of rotational wheels are mounted, respectively; and the expandable body comprises a pair of bottom corner receivers, to which the second pair of rotational wheels are mounted, respectively; wherein the luggage stands on the first pair of rotational wheels and the second pair of rotational wheels, the first pair of rotational wheels and the second pair of rotational wheels are rotatable along a rotational axis (RA) that is substantially parallel to a rolling surface and along a spin axis (SA) that is substantially perpendicular to the rolling surface; and an extendable handle provided externally of the main body.

[0005] These and other aspects and advantages of the present invention will become apparent from the following detailed description considered in conjunction with the accompanying drawings. It is to be understood, however, that the drawings are designed solely for purposes of illustration and not as a definition of the limits of the invention, for which reference should be made to the appended claims. Moreover, the drawings are not necessarily drawn to scale and, unless otherwise indicated, the drawings are merely intended to conceptually illustrate the structures and procedures described herein.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0006]

Fig. 1 is a perspective view of a piece of luggage according to an exemplary embodiment of the present disclosure;

Fig. 2 is an exploded perspective view of the exemplary luggage;

Fig. 3 is front view of the exemplary luggage;

Fig. 4 is rear view of the exemplary luggage;

Fig. 5 is side view of the exemplary luggage;

Fig. 6 is top view of the exemplary luggage;

Fig. 7 is bottom view of the exemplary luggage;

Fig. 8 is an alternative perspective view of the exemplary luggage; and

Fig. 9 is an exploded perspective view of a piece of luggage according to another exemplary embodiment of the present disclosure.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

[0007] Figs. 1-8 illustrate a piece of luggage 1000 according to exemplary embodiment of the present disclosure. The luggage 1000 includes a main body 1100, an

expandable body 1200 and a collapsible or foldable portion 1300 coupling the main body 1100 to the expandable body 1200. The luggage 1000 further includes an openable cover 1400 pivotably attached to the expandable body 1200 through, for example, a solid piece of flexible plastic, fabric or one or more hinges.

[0008] The cover 1400 can be closed in a substantially sealed manner by engagement of two halves of a zipper 1420 provided on the edge of the expandable body 1200 and the cover 1400, respectively. Once the cover 1400 is closed, the main body 1100, expandable body 1200, collapsible portion 1300 and cover 1400 collectively define a substantially enclosed space or cavity for receiving various articles.

[0009] As shown in Fig. 2, the main body 1100 includes a frame 1120 made of a plurality of fiberglass rods or pipes that can be substantially parallel to one another. The main body 1100 also includes a pair of opposite top brackets 1130, which are connected to the top end of the frame 1120, respectively. A top panel 1140 is provided, extending between and connected to the opposite top brackets 1130. In a similar manner, the main body 1100 includes a pair of opposite bottom brackets 1150 and a bottom panel 1160. The top brackets 1130 and the bottom brackets 1150 provide corners of the luggage 1000, to which a wheel can be mounted. The top brackets 1130 and/or the bottom brackets 1150 can be provided with receiving mechanism (such as elevations with receiving holes) corresponding to the fiberglass rods; the receiving mechanism can be molded integrally with the brackets. In addition, the top brackets 1130 and bottom brackets 1150 can have different shape, profile or material.

[0010] A covering material 1170, such as a fabric, is applied to substantially surround the frame, top and bottom brackets and top and bottom panels, to thus provide a receptacle in the shape of a half shell. One or more corner or edge guards can be provided to the main body 1100 for protecting the piping, fabric, zippers and the like of the luggage. For example, a rear corner guard 1180 can be attached to an outer surface of the covering material 1170, at a rear corner of the main body 1100 for preventing the rear corner from cracking or abrading. The corner guard 1180 can be in the shape of a curved L, or of any suitable shape or profile. In addition, multiple corner or edge guards can be utilized to protect different parts of the luggage, including the corners of the luggage, the edge of the luggage, the sides of the luggage, the top portion of the luggage and/or the bottom portion of the luggage.

[0011] The luggage 1000 further includes an extendable or retractable handle 1500. The handle 1500 can be extended or retracted to allow a user to pull or push the luggage 1000. The extendable handle 1500 can be provided externally of the main body 1100. The external handle offers certain benefits. For example, the handle can be readily accessed externally to achieve easy maintenance or replacement of the handle; the internal surface of the main body, on which the articles (such as,

clothes) are packed, are generally flat to avoid wrinkles on the articles; the external handle does not affect the integrity of the receiving space within the main body, which permits the space to be used more efficiently. Alternatively, the handle 1500 can be an internal handle.

[0012] In addition, a top handle 1520 and a side handle 1530 can also be provided to facilitate lifting the luggage 1000. Additional handles, hooks, straps and the like can be provided at various positions of the luggage as deemed necessary for lifting, carrying or otherwise manipulating the luggage.

[0013] The expandable body 1200 can have a wall 1220 that defines the circumference of the frame of the expandable body 1200. The dimensions of the wall 1220 can vary. For example, the wall 1220 can have a height H of 2 inches and a thickness T of 6mm, as shown in Fig. 2. The expandable body 1200 also includes one or more corner or edge guards 1230, which can be the same as or similar to the corner or edge guard(s) of the main body 1100 as described above. The expandable body 1200 further includes a pair of bottom corner receivers 1240, which are disposed at opposite bottom corners of the expandable body 1200.

[0014] The luggage 1000 further includes a plurality of rotational wheels 1600 mounted to the main body 1100 and/or the expandable body 1200, respectively. The rotational wheels 1600 include a first pair of wheels 1620 mounted to the main body 1100 and a second pair of wheels 1640 mounted to the expandable body 1200. For example, the first pair of wheels 1620 can be larger in size than the second pair of wheels 1640 or the wheels can be of the same size. Exemplary dimension of the rotational wheels 1600 includes but is not limited to 5" x 4" x 7" (12.7 x 10.2 x 17.8 cm) or 10" x 10" x 10" (25.4 x 25.4 x 25.4 cm); other suitable dimensions are within the scope of the disclosure. Optionally, at least one of the rotational wheels 1600 can have a brake mechanism, such that this rotational wheel can be fixed in one direction while the others can spin freely in any direction. Optionally, the rotational wheels 1600 comprise a single, swiveling wheel per corner of the main body which swiveling wheel can freely rotate 360 degrees or two, three or four wheels per corner of the main body and/or expandable body.

[0015] Referring back to Fig. 1, a three-dimensional coordinate system is defined in this figure. In this coordinate system, the X-axis and the Y-axis collectively defines a rolling surface, on which the rotational wheel 1600 can be rolled to move the luggage. The Z-axis is perpendicular to the rolling surface.

[0016] The rotational wheels 1600 are adapted to rotate individually or collectively along a rotational axis RA that is substantially parallel to the rolling surface. By means of the rotation of the wheels 1600 on the rolling surface with respect to the rotational axis RA, the luggage 1000 can be rolled or moved along opposite directions A and B within or parallel to the rolling surface. In addition, the rotational wheels 1600 are adapted to rotate individ-

ually or collectively along a spin axis SA that is substantially perpendicular to the rolling surfaces and parallel to the Z axis. The rotation of the rotational wheels 1600 with respect to the spin axis SA changes the orientation of the luggage 1000 and also the orientation of the rotational axis RA. Thus, the luggage 1000 can be move in any direction along the rolling surface.

[0017] As shown in Fig. 2, the first pair of wheels 1620 each includes a first mount 1622, through which the wheels 1620 can be fixedly mounted to the bottom brackets 1150, respectively. For example, the first mount 1622 includes a plate 1624, which can be shaped to conform to the lower external profile of the bottom bracket 1150, such that the first mount 1622 can be snugly fitted and connected to the bottom bracket 1150.

[0018] Similarly, the second pair of wheels 1640 each includes a second mount 1642, through which the wheels 1640 can be fixedly mounted to the bottom corner receivers 1240 of the expandable body 1200, respectively. For example, the second mount 1642 can include an L-shaped plate 1644, which can be snugly fitted and connected to the bottom corner receiver 1240. Although not described in detail, the wheels 1620 and 1640 can include other structures necessary for implementing a rotational wheel.

[0019] As shown in Fig. 8, the luggage 1000 further includes an expansion and locking device 1700, which is a ratcheting assembly as that described in US2013140119. The expansion and locking device is configured to allow free movement of the expandable body in a compression direction towards the main body, and configured to allow free movement of the expansion body in a compression direction towards the luggage main body and configured to allow locking movement of the expansion body in an expanding direction away from the luggage main body.

[0020] The expansion and locking device is a ratcheting assembly having a set of parallel teeth affixed to one of the luggage main body or the expansion body; a pawl configured to engage and disengage from the set of parallel teeth by actuation of a lever, the pawl being affixed to the other of the luggage main body or the expansion body; and a biasing member configured to maintain the pawl in an engaged state with the parallel teeth in the absence of an actuating force applied to the lever. Additionally, the ratcheting assembly includes a holding assembly having a housing on which the lever is provided, the housing having an elongated opening formed on a surface orthogonal to the lever; and a double column of parallel teeth disposed on a sliding member dimensioned for slideable insertion into the elongated opening, the parallel teeth engaging the pawl inside the housing of the holding assembly.

[0021] Thus, upon completion of packing by the user, the user can compress the expandable body of the luggage to take up any unused space within the luggage, which results in a tightly packed luggage. Subsequently, the tightly packed articles in the luggage may apply a

pressure against the expandable body; in this case, the expansion and locking device is configured to enable locking of the expandable body with respect to the main body, which prevents movement of the expandable body away from the main body in an expanding direction away. Therefore, the expandable body is locked in place.

[0022] The locking of the expandable body can be disabled by operating a release mechanism (such as, by pressing a biased lever) to selectively allow incremental movements of the expandable body away from the main body in the expanding direction. Thus, the user has the option of selectively enlarging the capacity of the luggage to pack more articles in the luggage. Once the articles have been packed in the luggage, the compression and locking operation of the expandable body, as described above, can be repeated to compact the luggage.

[0023] The provision of the rotational wheels 1600 allows the luggage 1000 to be moved freely on a surface by means of the rolling and spinning operation of the wheels. The expansion and locking device 1700 allows the luggage 1000 to be selectively expanded.

[0024] Fig. 9 is an exploded perspective view showing luggage 2000 according to another exemplary embodiment of the present disclosure. The luggage 2000 has substantially the same or similar structures and configurations as the luggage 1000, except an expandable body 2200. Description of the same or similar structures of the luggage 2000 is not provided for the purpose of conciseness. The expandable body 2200 has a wall 2220 that defines the circumference of the frame of the expandable body 2200. The expandable body 2200 also includes one or more corner or edge guards 2230, which can be the same as or similar to the guard(s) 1230. In this embodiment, the wall 2220 is continuous along the circumference of the frame to enhance the integrity of the expandable body 2200. The luggage 2000 further includes one or more rotational wheels 2640 mounted to the expandable body 2200. The size and dimension of the rotational wheels 2640 can be the same as or similar to the rotational wheels 1640 of the luggage 1000. The rotational wheels 2640 can each include a second mount 2642, through which the rotational wheels 2640 can be fixedly mounted to the bottom corners of the expandable body 2200, respectively. For example, the second mount 2642 can include an L-shaped plate 2644, which can be snugly fitted and connected to the bottom corners of the expandable body 2200.

[0025] As described above in connection with the exemplary luggage 1000 and 2000, the rotational wheels can be mounted to the main body and/or the expandable body of the luggage by using the recessed bottom brackets 1150 in combination with the shaped mount 1622, using the bottom corner receivers 1240 in combination with the L-shaped mount 1642, or using the rounded bottom corners of the continuous wall 2220 in combination with the L-shaped mount 2642. The above combinations can be used selectively depending on circumferences. For example, the main body of the luggage can have

bottom corner receivers for mounting rotational wheels having an L-shaped mount; and the expandable body of the luggage can have a continuous wall with rounded bottom corners for mounting rotational wheels having an L-shaped mount.

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Claims

1. A piece of luggage (1000) comprising:

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a main body (1100) comprising a main body frame (1120) comprising a plurality of substantially parallel and opposed fiberglass (i) rods or (ii) pipes connected to a top panel (1140) at the top end of the main body frame (1120) and connected to a bottom panel (1160) at the bottom end of the main body frame;

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a covering material (1170) substantially surrounding the main body frame (1120), the top panel (1140) and the bottom panel (1160) to provide a receptacle in the shape of a half shell;

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an expandable body (1200) comprising a collapsible portion (1300), the expandable body (1200) being connected to the main body (1100) through the collapsible portion (1300), the expandable body (1200) further comprising a wall (1220) defining a circumference of an expandable body frame;

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an expansion and locking device (1700) comprising a ratcheting assembly configured to allow free movement of the expandable body (1200) in a compression direction towards the main body (1100) and configured to enable locking of the expandable body (1200) in an expanding direction away from the main body (1100);

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a cover (1400) pivotably connected to the expandable body (1200);

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a zipper (1420) having a first half connected to the expandable body (1200) and a second half connected to the cover (1400), wherein the first half and the second half are engageable to each other to close the cover (1400) with respect to the expandable body (1200), such that a substantially enclosed space is defined by the main body (1100), the expandable body (1200) and the cover (1400);

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a first pair of rotational wheels (1620) mounted to the main body (1100) and a second pair of rotational wheels (1640) mounted to the expandable body (1200);

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wherein the main body (1100) comprises: a pair of bottom brackets (1150), to which the first pair of rotational wheels (1620) are mounted, respectively; and the expandable body (1200) comprises a pair of bottom corner receivers (1240), to which the second pair of rotational wheels (1640) are mounted, respectively;

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wherein the luggage (1000) stands on the first pair of rotational wheels (1620) and the second pair of rotational wheels (1640), the first pair of rotational wheels (1620) and the second pair of rotational wheels (1640) are rotatable along a rotational axis (RA) that is substantially parallel to a rolling surface and along a spin axis (SA) that is substantially perpendicular to the rolling surface; and
an extendable handle (1500) provided externally of the main body (1200).

2. The luggage according to Claim 1, wherein the first pair of rotational wheels (1620) each includes a plate (1624) adapted to conform to the shape of an external bottom surface of a respective bottom bracket (1150), such that the first pair of rotational wheels (1620) can be snugly connected to the bottom brackets (1150), respectively.

3. The luggage according to Claim 1, wherein the second pair of rotational wheels (1640) each includes an L-shaped plate (1644) adapted to conform to the shape of an external bottom surface of a respective bottom corner receiver (1240), such that the second pair of rotational wheels (1640) can be snugly connected to the bottom corner receiver (1240), respectively.

4. The luggage according to Claim 1, further comprising at least one of a side handle (1530) and a top handle (1520).

5. The luggage according to Claim 1, further comprising at least one corner or edge guard (1180) mounted to the main body (1100) or the expandable body (1200).

6. The luggage according to Claim 1 wherein the covering material (1170) comprises fabric.

7. The luggage according to Claim 1, wherein the wall (1220) is continuous.

8. The luggage according to Claim 1, wherein the parallel and opposed rods or pipes are connected to the top panel (1140) through a pair of opposed top brackets (1130) and connected to the bottom panel (1160) through the bottom brackets (1150).

9. The luggage according to claim 1 wherein the ratcheting assembly comprises:

a set of parallel teeth disposed on a sliding member affixed to one of the luggage main body or the expansion body;

a pawl configured to engage and disengage from the set of parallel teeth by actuation of a

lever, the pawl being affixed to the other of the luggage main body or the expansion body; and a biasing member configured to maintain the pawl in an engaged state with the parallel teeth in the absence of an actuating force applied to the lever.

a holding assembly having a housing on which the lever is provided, the housing having an elongated opening formed on a surface orthogonal to the lever; the elongated opening dimensioned for the slideable insertion of the sliding member, the parallel teeth engaging the pawl inside the housing of the holding assembly.

Patentansprüche

1. Gepäckstück (1000), umfassend:

einen Hauptkörper (1100), der einen Hauptkörper-
perrahmen (1120) umfasst, der eine Vielzahl
von im Wesentlichen parallelen und einander
gegenüberliegenden Glasfaser-(i)stäben oder
(ii)-rohren umfasst, die mit einer Deckplatte
(1140) am oberen Ende des Hauptkörper-
rahmens (1120) verbunden sind und mit einer Bo-
denplatte (1160) an dem unteren Ende des
Hauptkörperrahmens verbunden sind;

ein Überzugsmaterial (1170), das im Wesentli-
chen den Hauptkörperrahmen (1120), die Deck-
platte (1140) und die Bodenplatte (1160) um-
gibt, um einen Behälter in Form einer Halbscha-
le bereitzustellen;

einen erweiterbaren Körper (1200), der einen
zusammenlegbaren Abschnitt (1300) umfasst,
wobei der erweiterbare Körper (1200) mit dem
Hauptkörper (1100) durch den zusammenleg-
baren Abschnitt (1300) verbunden ist, wobei der
erweiterbare Körper (1200) ferner eine Wand
(1220) umfasst, der einen Umfang eines Rah-
mens des erweiterbaren Körpers definiert;
eine Erweiterungs- und Verriegelungsvorrich-
tung (1700), die eine Ratschenanordnung um-
fasst, die so konfiguriert ist, dass sie eine freie
Bewegung des erweiterbaren Körpers (1200) in
einer Stauchungsrichtung zum Hauptkörper
(1100) ermöglicht, und so konfiguriert ist, dass
sie eine Verriegelung des erweiterbaren Kör-
pers (1200) in einer Erweiterungsrichtung vom
Hauptkörper (1100) weg ermöglicht;

eine Abdeckung (1400), die schwenkbar mit
dem erweiterbaren Körper (1200) verbunden ist;
einen Reißverschluss (1420), der eine erste
Hälfte, die mit dem erweiterbaren Körper (1200)
verbunden ist, und eine zweite Hälfte, die mit
der Abdeckung (1400) verbunden ist, aufweist,
wobei die erste Hälfte und die zweite Hälfte mit-
einander in Eingriff gelangen können, um die

Abdeckung (1400) in Bezug auf den erweiter-
baren Körper (1200) so zu verschließen, dass
ein im Wesentlichen geschlossener Raum
durch den Hauptkörper (1100), den erweiterba-
ren Körper (1200) und die Abdeckung (1400)
definiert wird;

ein erstes Paar Drehräder (1620), die an dem
Hauptkörper (1100) montiert sind, und ein zwei-
tes Paar Drehräder (1640), die an dem erwei-
terbaren Körper (1200) montiert sind;

wobei der Hauptkörper (1100) Folgendes um-
fasst: ein Paar untere Halterungen (1150), an
denen das erste Paar Drehräder (1620) jeweils
montiert sind; und wobei der erweiterbare Kör-
per (1200) ein Paar untere Eckenaufnahmen
(1240) umfasst, an denen das zweite Paar Dreh-
räder (1640) jeweils montiert sind;

wobei das Gepäck (1000) auf dem ersten Paar
Drehräder (1620) und auf dem zweiten Paar
Drehräder (1640) steht, wobei das erste Paar
Drehräder (1620) und das zweite Paar Drehrä-
der (1640) entlang einer Drehachse (RA), die
im Wesentlichen parallel zu einer Lauffläche ist,
und entlang einer Kreiselachse (SA), die im We-
sentlichen senkrecht zur Lauffläche ist, drehbar
sind; und

einen ausziehbaren Griff (1500), der außerhalb
des Hauptkörpers (1200) bereitgestellt ist.

2. Gepäck nach Anspruch 1, wobei das erste Paar
Drehräder (1620) jeweils eine Platte (1624) beinhal-
tet, die so ausgelegt ist, dass sie zu der Form einer
äußeren unteren Fläche einer jeweiligen unteren
Halterung (1150) passt, so dass das erste Paar
Drehräder (1620) jeweils fest mit den unteren Hal-
terungen (1150) verbunden werden kann.

3. Gepäck nach Anspruch 1, wobei das zweite Paar
Drehräder (1640) jeweils eine L-förmige Platte
(1644) beinhaltet, die so ausgelegt ist, dass sie zu
der Form einer äußeren unteren Fläche einer jewei-
ligen unteren Eckenaufnahme (1240) passt, so dass
das zweite Paar Drehräder (1640) jeweils fest mit
der unteren Eckenaufnahme (1240) verbunden wer-
den kann.

4. Gepäck nach Anspruch 1, ferner mindestens eines
aus einem seitlichen Griff (1530) und einem oberen
Griff (1520) umfassend.

5. Gepäck nach Anspruch 1, ferner mindestens einen
Ecken- oder Kantenschutz (1180) umfassend, der
an dem Hauptkörper (1100) oder dem erweiterbaren
Körper (1200) montiert ist.

6. Gepäck nach Anspruch 1, wobei das Überzugsmat-
erial (1170) Stoff umfasst.

7. Gepäck nach Anspruch 1, wobei die Wand (1220) durchgehend ist.

8. Gepäck nach Anspruch 1, wobei die parallelen und einander gegenüberliegenden Stäbe oder Rohre mit der Deckplatte (1140) über ein Paar gegenüberliegende obere Halterungen (1130) verbunden sind und mit der Bodenplatte (1160) über die unteren Halterungen (1150) verbunden sind.

9. Gepäck nach Anspruch 1, wobei die Ratschenanordnung Folgendes umfasst:

einen Satz paralleler Zähne, die an einem verschiebbaren Element angeordnet sind, das an einem aus dem Gepäckhauptkörper oder dem Erweiterungskörper befestigt ist;
eine Sperrklinke, die so konfiguriert ist, dass sie durch Betätigung eines Hebels in den Satz paralleler Zähne eingreift oder sich von diesem löst, wobei die Sperrklinke an dem anderen aus dem Gepäckhauptkörper oder dem Erweiterungskörper befestigt ist; und
ein Vorspannelement, das so konfiguriert ist, dass es die Sperrklinke in einem eingerückten Zustand mit den parallelen Zähnen in Abwesenheit einer Betätigungskraft, die auf den Hebel ausgeübt wird, hält.
eine Halteanordnung, die ein Gehäuse aufweist, an dem der Hebel bereitgestellt ist, wobei das Gehäuse eine längliche Öffnung aufweist, die an einer Fläche ausgebildet ist, die orthogonal zum Hebel ist; wobei die längliche Öffnung zum Einschieben des verschiebbaren Elements bemessen ist, wobei die parallelen Zähne die Sperrklinke innerhalb des Gehäuses der Halteanordnung in Eingriff nehmen.

Revendications

1. Bagage (1000) comprenant :

un corps principal (1100) comprenant un cadre de corps principal (1120) comprenant une pluralité de (i) tiges ou de (ii) tubes en fibres de verre sensiblement parallèles et opposés reliés à un panneau supérieur (1140) à l'extrémité supérieure du cadre de corps principal (1120) et reliés à un panneau inférieur (1160) à l'extrémité inférieure du cadre de corps principal ;
un matériau de revêtement (1170) entourant sensiblement le cadre de corps principal (1120), le panneau supérieur (1140) et le panneau inférieur (1160) pour fournir un réceptacle sous la forme d'une demi-coque ;
un corps extensible (1200) comprenant une partie pliable (1300), le corps extensible (1200)

étant relié au corps principal (1100) à travers la partie pliable (1300), le corps extensible (1200) comprenant en outre une paroi (1220) définissant une circonférence d'un cadre de corps extensible ;
un dispositif d'extension et de verrouillage (1700) comprenant un ensemble à cliquet configuré pour permettre un mouvement libre du corps extensible (1200) dans une direction de compression vers le corps principal (1100) et configuré pour permettre le verrouillage du corps extensible (1200) dans une direction d'extension s'écartant du corps principal (1100) ;
un couvercle (1400) relié de manière pivotante au corps extensible (1200) ;
une fermeture à glissière (1420) ayant une première moitié reliée au corps extensible (1200) et une seconde moitié reliée au couvercle (1400), dans lequel la première moitié et la seconde moitié peuvent s'engager l'une dans l'autre pour fermer le couvercle (1400) par rapport au corps extensible (1200), de sorte qu'un espace sensiblement fermé soit défini par le corps principal (1100), le corps extensible (1200) et le couvercle (1400) ;
une première paire de roues rotatives (1620) montées sur le corps principal (1100) et une seconde paire de roues rotatives (1640) montées sur le corps extensible (1200) ;
dans lequel le corps principal (1100) comprend : une paire de supports inférieurs (1150), sur lesquels la première paire de roues rotatives (1620) sont montées, respectivement ; et le corps extensible (1200) comprend une paire de récepteurs d'angle inférieur (1240), sur lesquels la seconde paire de roues rotatives (1640) sont montées, respectivement ;
dans lequel le bagage (1000) repose sur la première paire de roues rotatives (1620) et la seconde paire de roues rotatives (1640), la première paire de roues rotatives (1620) et la seconde paire de roues rotatives (1640) peuvent tourner le long d'un axe de rotation (RA) qui est sensiblement parallèle à une surface de roulement et le long d'un axe de spin (SA) qui est sensiblement perpendiculaire à la surface de roulement ; et
une poignée extensible (1500) prévue à l'extérieur du corps principal (1200).

2. Bagage selon la revendication 1, dans lequel la première paire de roues rotatives (1620) comportent chacune une plaque (1624) adaptée pour épouser la forme d'une surface inférieure externe d'un support inférieur respectif (1150), de sorte que la première paire de roues rotatives (1620) puissent être reliées de manière serrée aux supports inférieurs (1150), respectivement.

3. Bagage selon la revendication 1, dans lequel la seconde paire de roues rotatives (1640) comportent chacune une plaque en forme de L (1644) adaptée pour épouser la forme d'une surface inférieure externe d'un récepteur d'angle inférieur respectif (1240), de sorte que la seconde paire de roues rotatives (1640) puissent être reliées de manière serrée au récepteur d'angle inférieur (1240), respectivement. 5
10
4. Bagage selon la revendication 1, comprenant en outre au moins l'une d'une poignée latérale (1530) et d'une poignée supérieure (1520).
5. Bagage selon la revendication 1, comprenant en outre au moins une protection d'angle ou de bord (1180) montée sur le corps principal (1100) ou le corps extensible (1200). 15
6. Bagage selon la revendication 1, dans lequel le matériau de revêtement (1170) comprend du tissu. 20
7. Bagage selon la revendication 1, dans lequel la paroi (1220) est continue. 25
8. Bagage selon la revendication 1, dans lequel les tiges ou tubes parallèles et opposés sont reliés au panneau supérieur (1140) par une paire de supports supérieurs opposés (1130) et reliés au panneau inférieur (1160) par les supports inférieurs (1150). 30
9. Bagage selon la revendication 1, dans lequel l'ensemble d'encliquetage comprend :
 - un ensemble de dents parallèles disposées sur un élément coulissant fixé à l'un du corps principal de bagage ou du corps d'extension ; 35
 - un cliquet configuré pour s'engager et se désengager de l'ensemble de dents parallèles par actionnement d'un levier, le cliquet étant fixé à l'autre du corps principal de bagage ou du corps d'extension ; et 40
 - un élément de sollicitation configuré pour maintenir le cliquet dans un état engagé avec les dents parallèles en l'absence d'une force d'actionnement appliquée au levier, 45
 - un ensemble de maintien ayant un boîtier sur lequel est prévu le levier, 50
 - le boîtier ayant une ouverture allongée formée sur une surface orthogonale au levier ; l'ouverture allongée étant dimensionnée pour l'insertion coulissante de l'élément coulissant, les dents parallèles engageant le cliquet à l'intérieur du boîtier de l'ensemble de maintien. 55

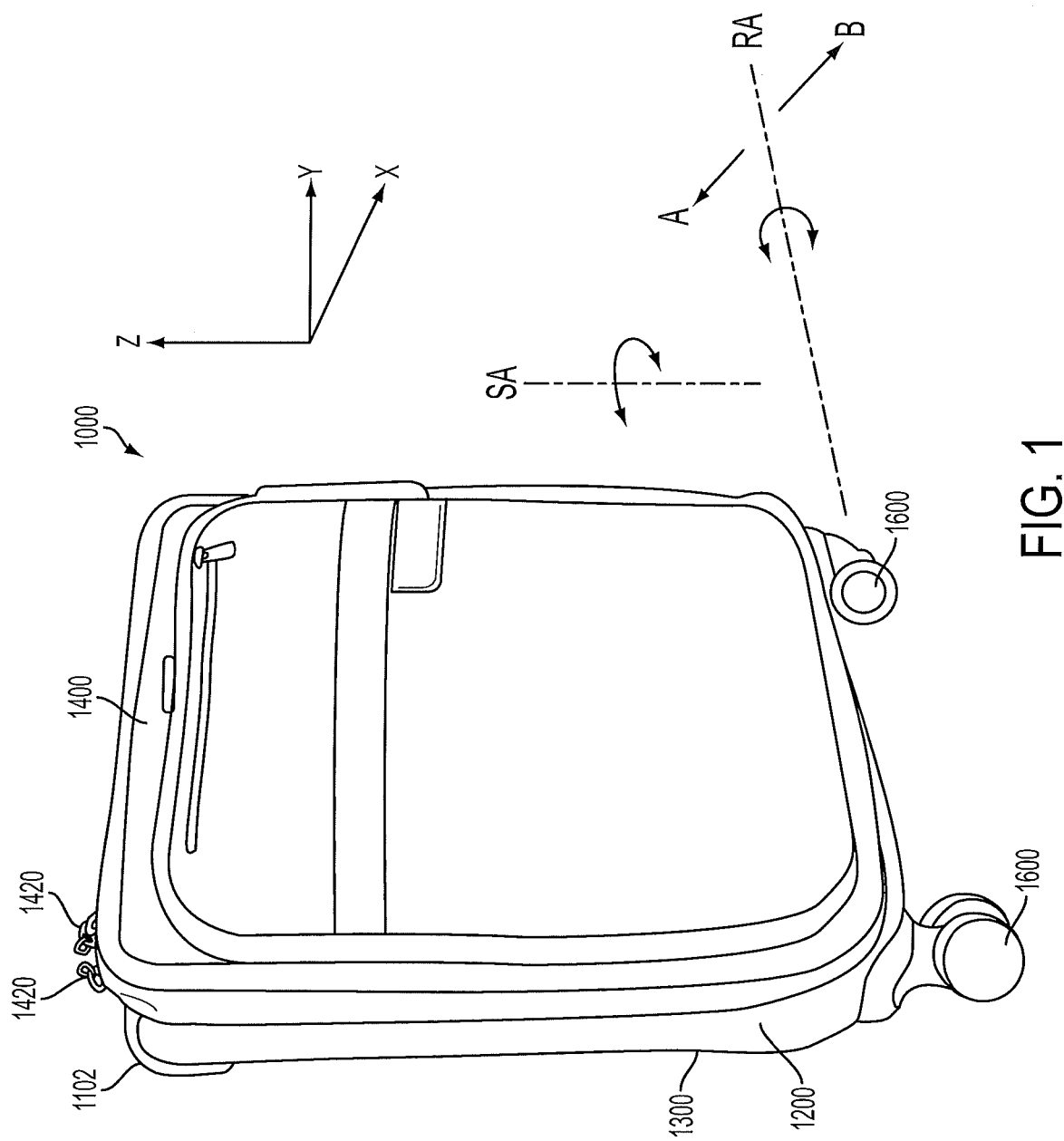


FIG. 1

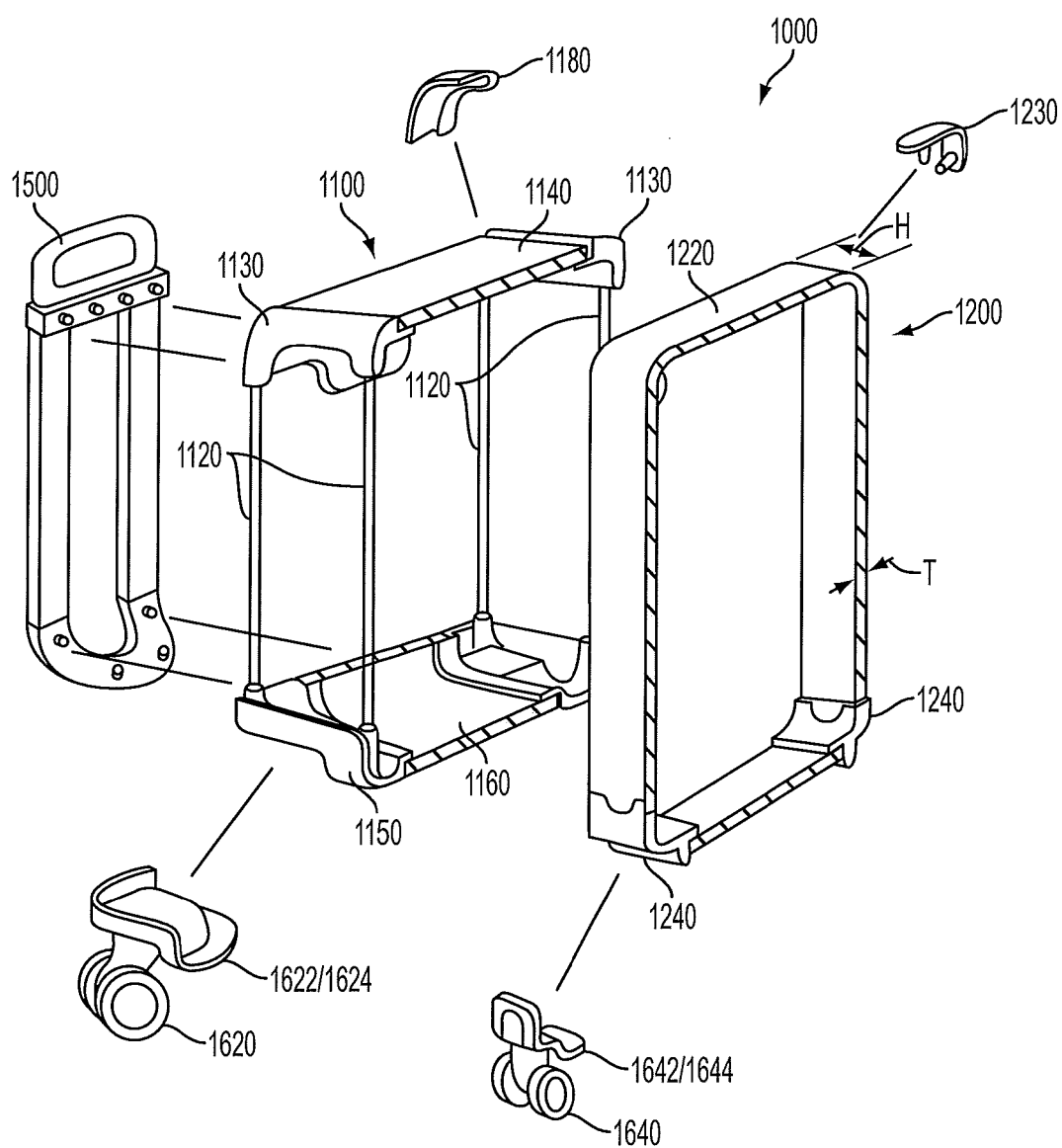


FIG. 2

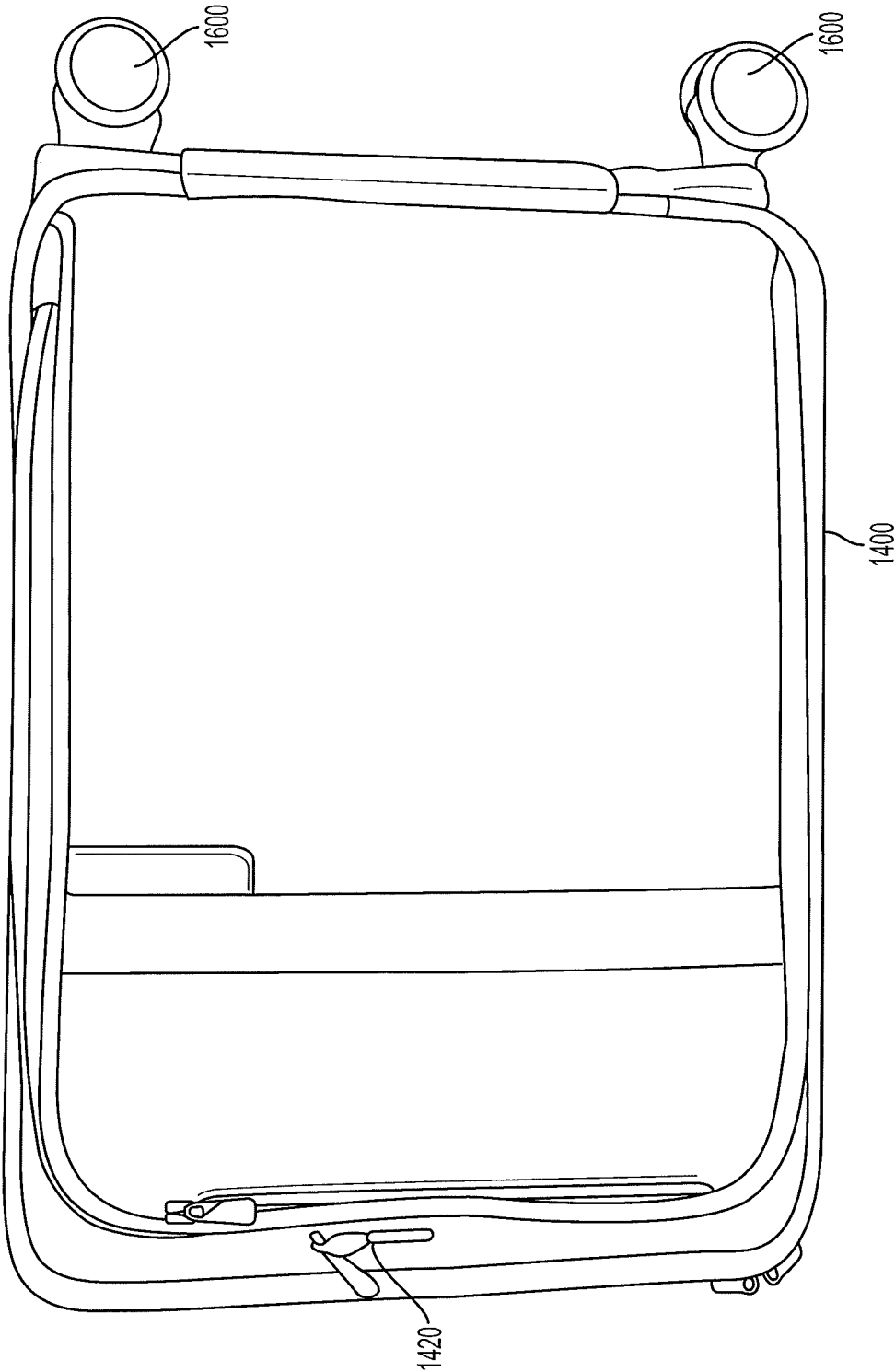


FIG. 3

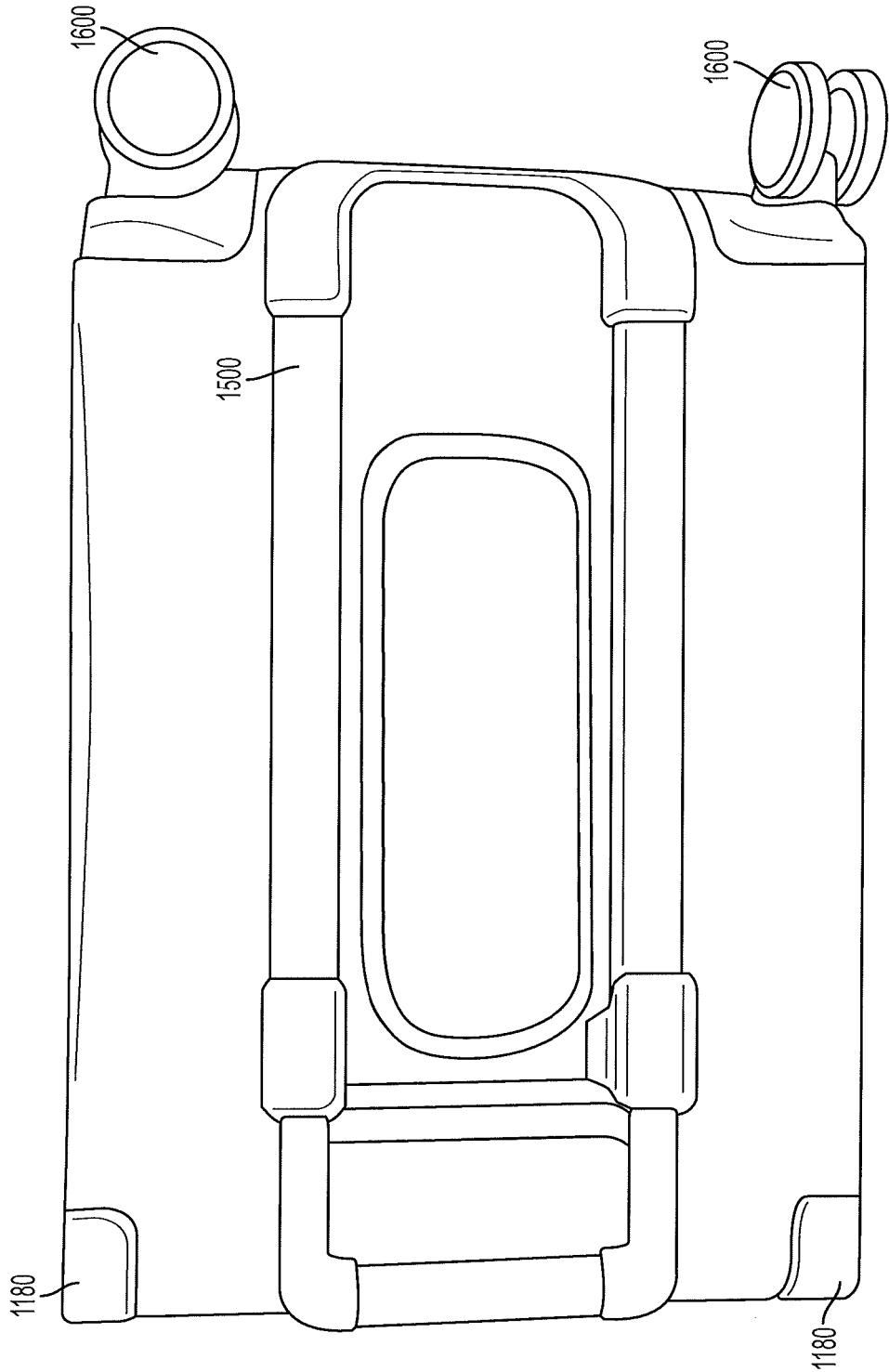


FIG. 4

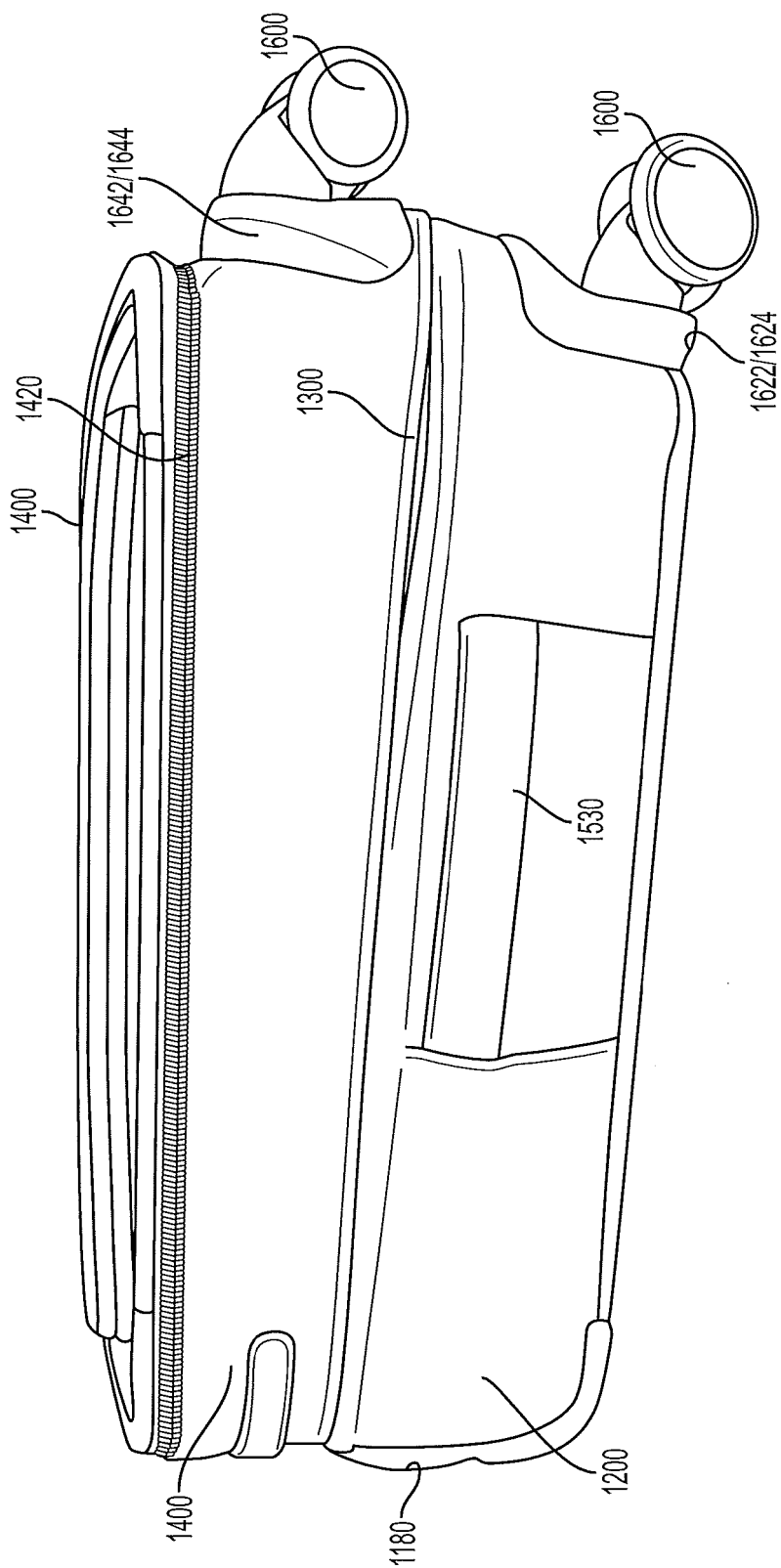


FIG. 5

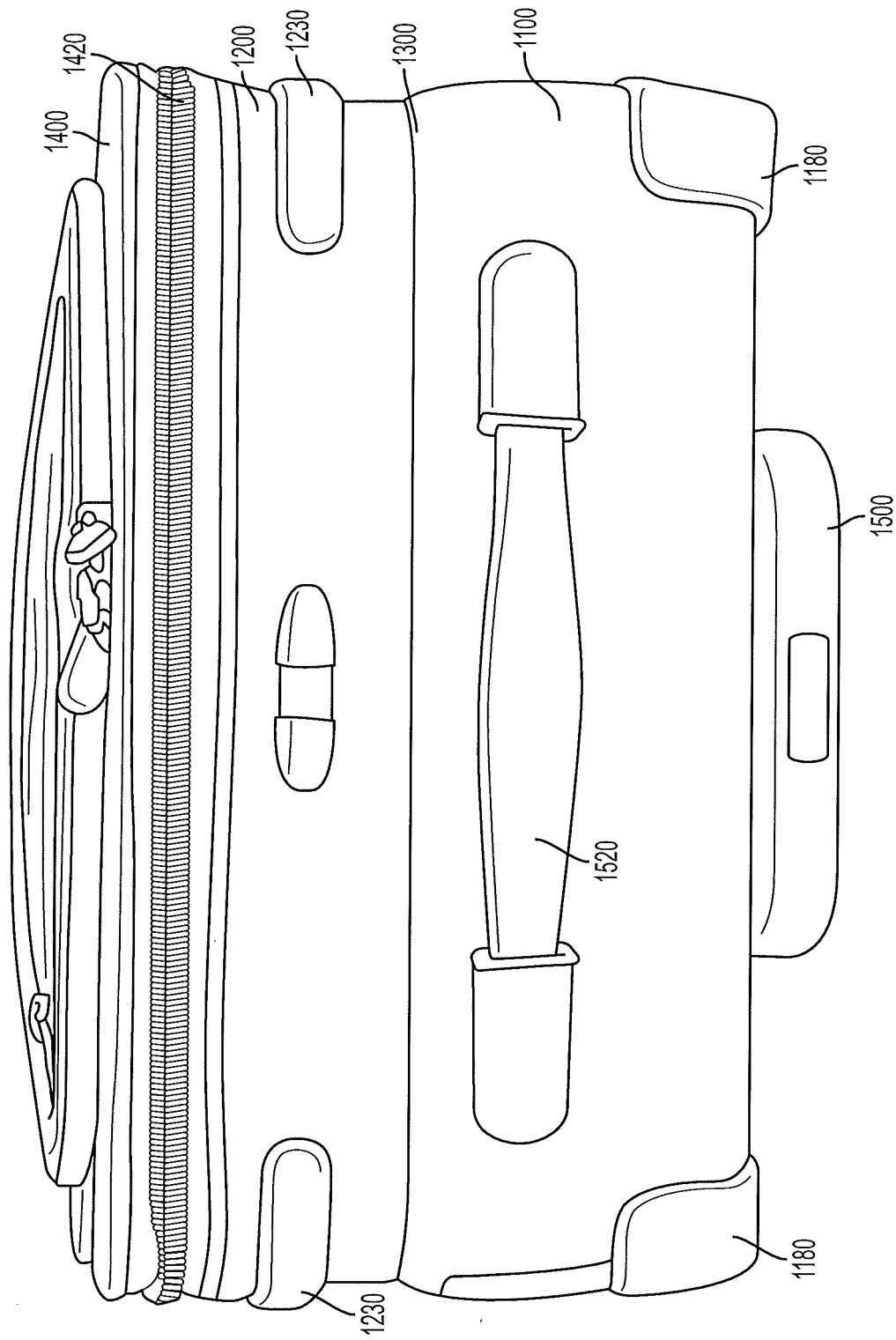


FIG. 6

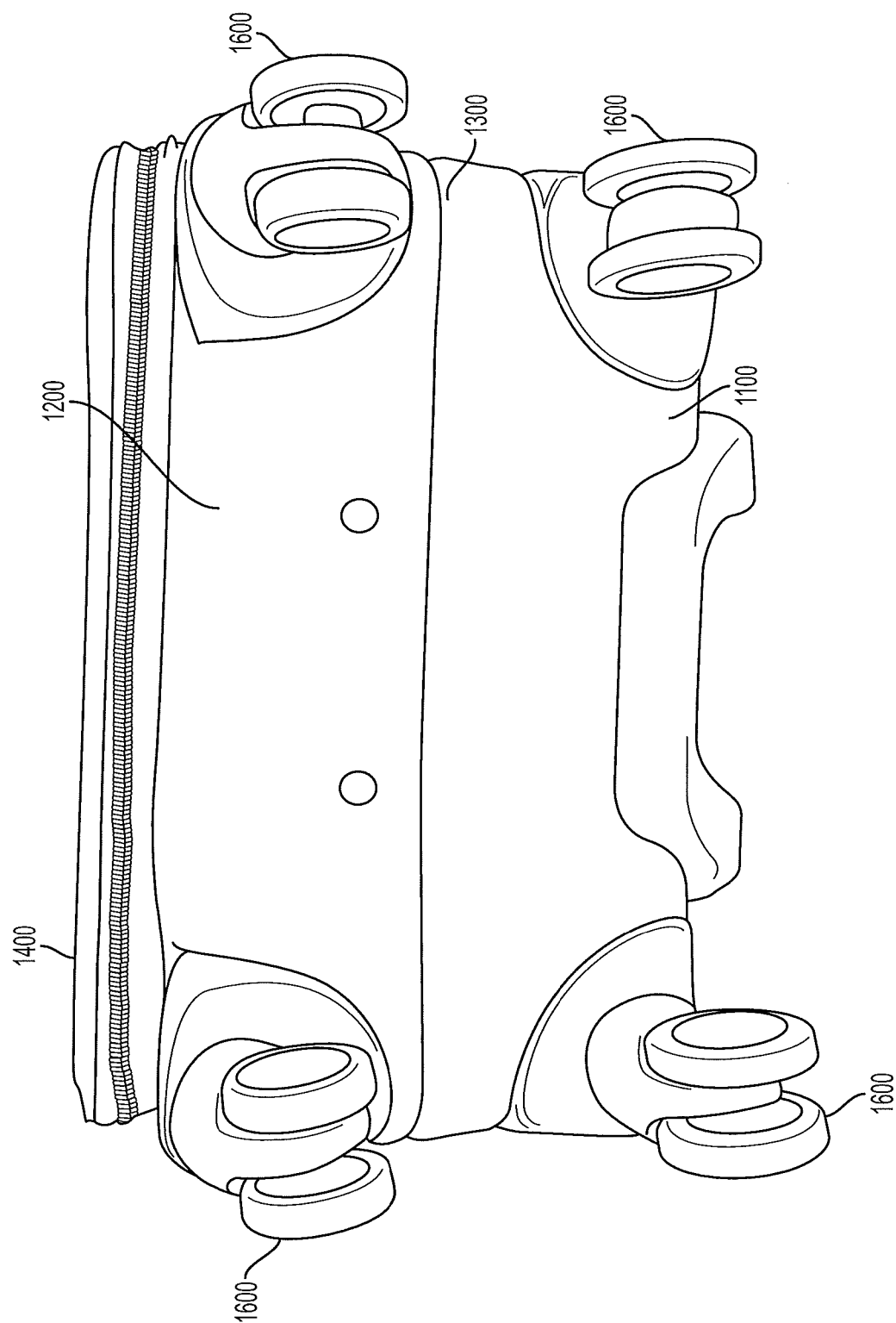


FIG. 7

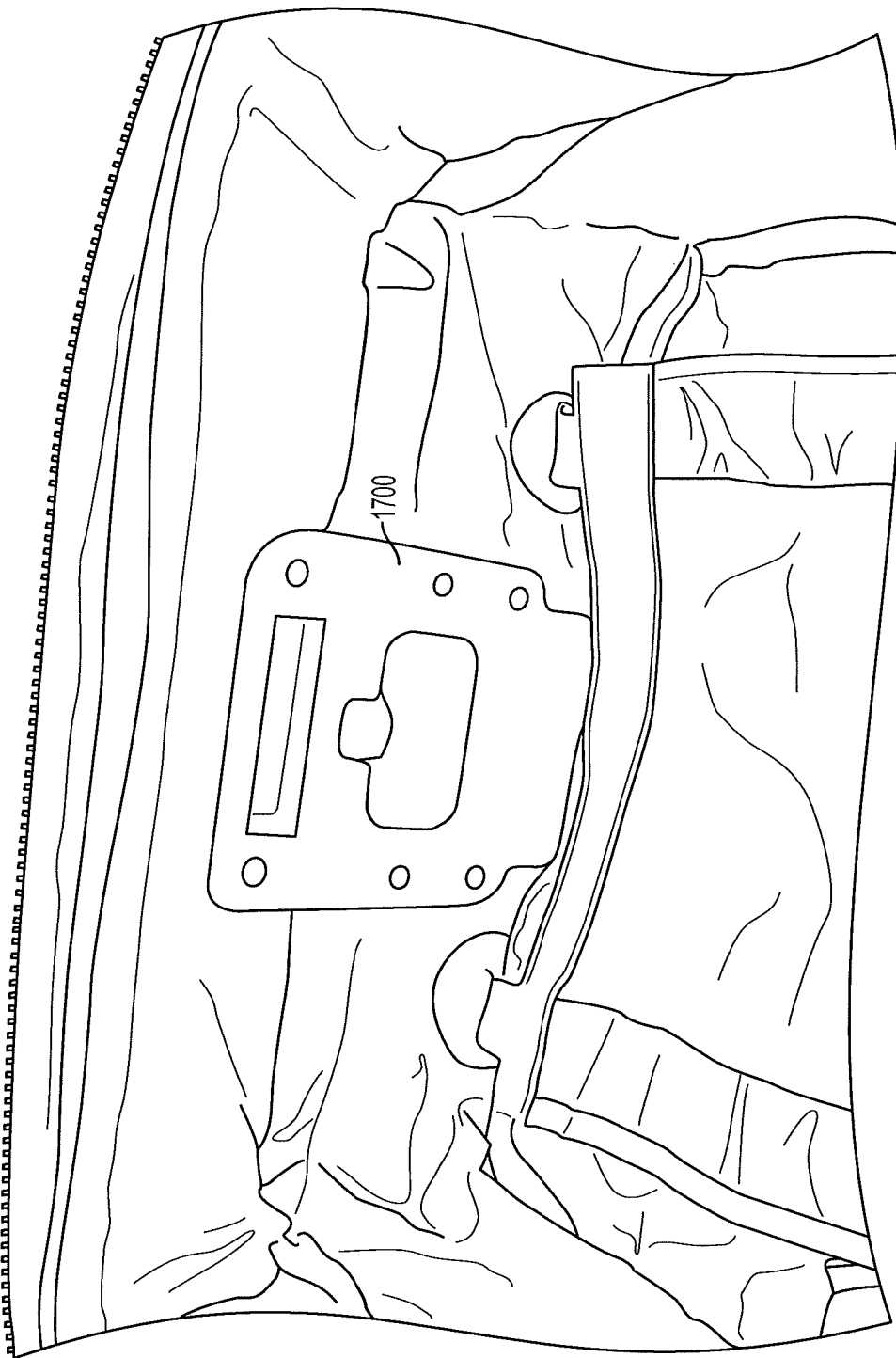


FIG. 8

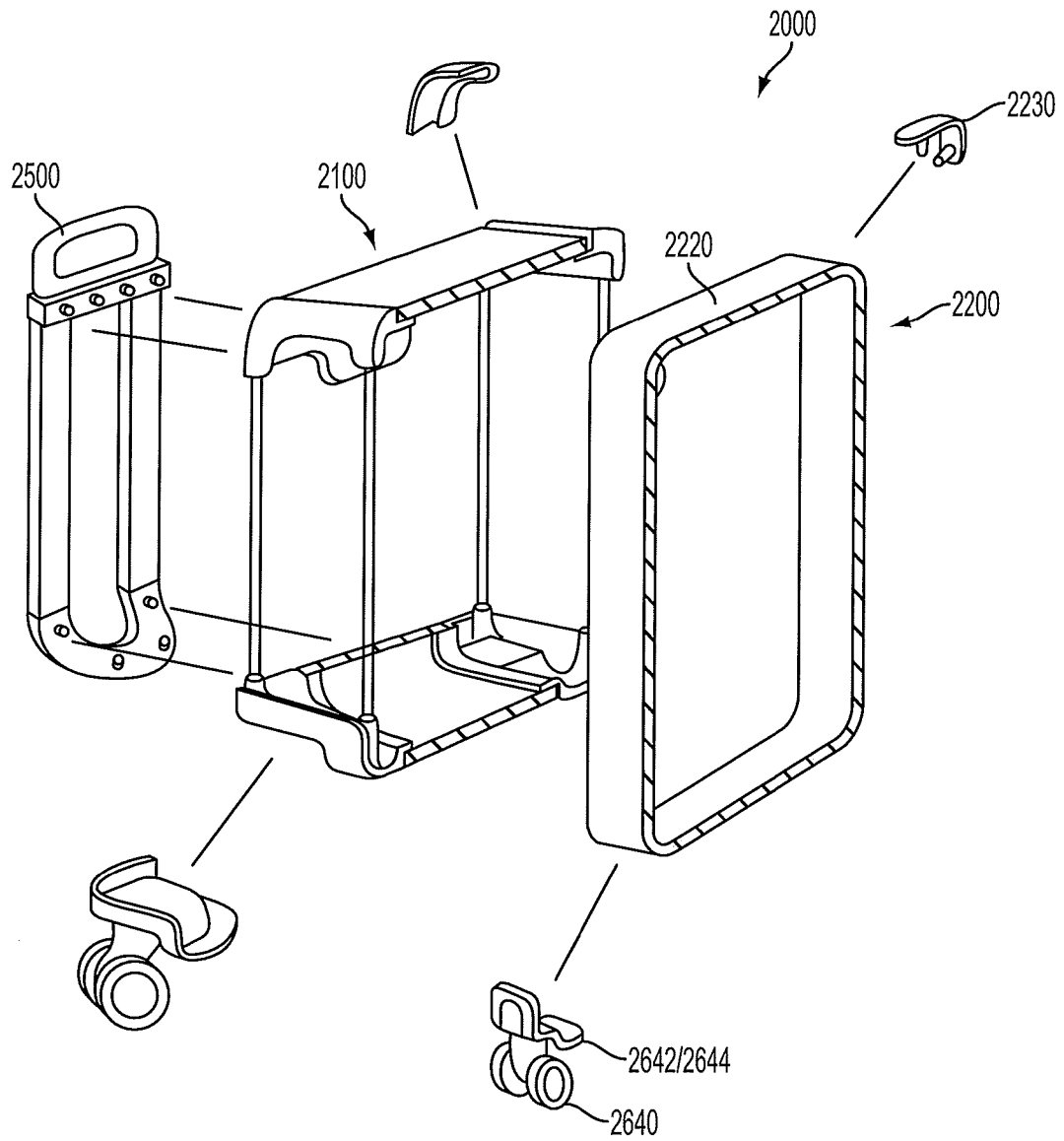


FIG. 9

REFERENCES CITED IN THE DESCRIPTION

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