

(12) STANDARD PATENT APPLICATION (11) Application No. AU 2026202082 A1
(19) AUSTRALIAN PATENT OFFICE

(54) Title
 Rooftop Tent

(51) International Patent Classification(s)
 E04H 15/06 (2006.01) **E04H 15/00** (2006.01)
 B60P 3/34 (2006.01) **E04H 15/48** (2006.01)

(21) Application No: **2026202082** (22) Date of Filing: **2026.03.18**

(43) Publication Date: **2026.04.09**

(43) Publication Journal Date: **2026.04.09**

(62) Divisional of:
 2025200559

(71) Applicant(s)
 Bushwakka Pty Ltd

(72) Inventor(s)
 LOOTS, Johannes Hendrik;LOOTS, Annelize

(74) Agent / Attorney
 JMSD IP Pty Ltd, PO Box 3066, Newstead, QLD, 4006, AU

ABSTRACT

A rooftop tent comprising:

a base and a top with flexible sidewalls extending between the base and the top;

at least one moveable joint connected to the base and to the top;

the at least one moveable joint allowing the top to move with respect to the base between a sleeping position and a transportation position;

wherein the at least one moveable joint includes a primary arm and a secondary arm;

the primary arm and secondary arm being pivotally connected to each other;

the primary arm having a first primary arm end pivotally connected to either the base or the top and a second primary arm end both slidably and pivotally connected to the other of the base or the top; and

the secondary arm having a first secondary arm end pivotally connected to either the base or the top and a second secondary arm end both slidably and pivotally connected to the other of the base or the top.

TITLE

"ROOFTOP TENT"

FIELD OF THE INVENTION

[0001] The present invention relates to a rooftop tent. In particular, the invention relates to a rooftop tent that can be mounted on top of a four-wheel drive vehicle and, therefore, will be described in this context. However, it should be appreciated that the rooftop tent may be mounted to other types of vehicles or other structural bodies.

BACKGROUND OF THE INVENTION

[0002] The advent of rooftop tents has significantly transformed the landscape of outdoor camping and travel, providing adventurers with a practical and elevated sleeping arrangement that enhances the overall camping experience. Designed to be mounted on vehicles, these tents allow users to escape the inconveniences often associated with traditional ground tents, such as uneven terrain, insects, and exposure to the elements. One of the key advantages of rooftop tents is their remarkable convenience in erecting and packing away, enabling users to establish their sleeping quarters in minutes, even in remote or challenging environments. This efficiency is particularly appealing to users looking to maximize their time in nature without the hassle of extensive setup procedures.

[0003] Rooftop tents can be broadly categorized into two types: hard-shell and soft-shell. Soft-shell rooftop tents, while generally lighter and more compact when packed, may lack the same level of protection and structural integrity. They often require additional setup time and may be more susceptible to wear and tear over prolonged use. As a result, many camping enthusiasts are gravitating towards hard-shell designs, seeking the balance of convenience and reliability that these tents offer.

[0004] Hard-shell rooftop tents have emerged as the preferred choice for many outdoor enthusiasts due to their inherent durability, aerodynamic design when packed away, and superior protection against weather conditions. The rigid structure of hard-

shell tents not only offers enhanced insulation but also provides a more robust and secure shelter against wind, rain, and other environmental factors. Additionally, the streamlined design of lower hard-shell tents contributes to improved fuel efficiency while driving, as they create less drag compared to traditional soft-shell tents.

[0005] Despite the advantages presented by hard-shell rooftop tents, they are not without their challenges, particularly regarding the mechanisms utilized for deployment and retraction. The operation of these tents typically relies on complex mechanisms that assists with lifting and positioning the top in relation to the base. These mechanisms are critical for ensuring a smooth transition from the closed to open state and vice versa. However, the intricacy of these designs can pose significant manufacturing and assembly challenges.

[0006] As the complexity of the mechanisms increases to enhance user experience and functionality, so too does the risk of failure. Many hard-shell rooftop tents currently on the market incorporate multi-part systems that may be prone to mechanical breakdowns or misalignment, which can lead to frustrating experiences for users. This potential for malfunction not only diminishes the overall enjoyment of camping but also raises concerns regarding user safety and the long-term reliability of the product. Furthermore, the need for maintenance and repairs on these complex systems can lead to increased costs and inconvenience for consumers, detracting from the primary allure of rooftop camping: simplicity and ease of use.

OBJECT OF THE INVENTION

[0007] It is an object of the invention to overcome and/or alleviate the abovementioned problems and/or provide the consumer with a useful or commercial choice.

SUMMARY OF THE INVENTION

[0008] In one form, although not necessarily the only or broadest form, the invention resides in a rooftop tent able to be mounted to the top of a vehicle, the rooftop tent

comprising:

- a base and a top with flexible sidewalls extending between the base and the top;

- at least one moveable joint connected to the base and to the top;

- the at least one moveable joint allowing the top to move with respect to the base between a sleeping position and a transportation position;

- wherein the at least one moveable joint includes a primary arm and a secondary arm;

- the primary arm and secondary arm being pivotally connected to each other;

- the primary arm having a first primary arm end pivotally connected to either the base or the top and a second primary arm end both slidably and pivotally connected to the other of the base or the top; and

- the secondary arm having a first secondary arm end pivotally connected to either the base or the top and a second secondary arm end both slidably and pivotally connected to the other of the base or the top.

[0009] The base may be constructed from a rigid material. The base may be made from any structurally suitable material. Typically base is made from metal or plastics or fibre-reinforced plastic. Preferably, the base is made from a lightweight metal such as aluminium.

[0010] The top may be constructed from a rigid material. The top may may be made from any structurally suitable material. Typically base is made from metal or plastics or fibre-reinforced plastic. Preferably, the base is made from a lightweight metal such as aluminium.

[0011] The base may be of a similar size to the top.

[0012] The base may be located adjacent the top when in the transport position. Locks may extend between the base and the top to lock base to the top when in the transport position. The fabric The flexible sidewalls may be encompassed between the base and the top when in the transport position.

[0013] The top may be spaced apart from the base when in the sleeping position. The base may be angled with respect to the base when in the sleeping position.

[0014] The flexible sheet may have apertures located through the flexible sheet. The flexible sheet may be made of fabric. The fabric may be a typical tent fabric such as canvas, nylon, polyester, ripstop nylon or the like fabrics.

[0015] The movable joint is typically made of metal. Normally the metal is steel but other metals may be suitable.

[0016] The primary arm and secondary arm may be located next to each other. Preferably, the primary arm extends through the secondary arm or visa-versa. The primary arm and the secondary arm may be pivotally connected adjacent to their respective middles. The primary arm and secondary arm may form a scissor joint.

[0017] A first primary arm end may be pivotally connected to the top. A second primary arm end may be both slidably and pivotally connected the base.

[0018] A fixed top hinge segment may be used to pivotally connect the first primary arm end to the top. A primary fixed pin may be located through the first primary arm end and the fixed top hinge segment to pivotally connect the primary arm end to the top.

[0019] A base track may be used to slidably and pivotally connect the second primary arm end to the base. A base carriage may slide along the track. The base carriage may be pivotally connected to the second primary end to the base. The base carriage may be in the form of primary movable pin the enables the second primary arm end of both slide and pivot with respect to the base.

[0020] A first secondary arm end may be pivotally connected to the base. A second secondary arm end may be both slidably and pivotally connected the top.

[0021] A fixed base hinge segment may be used to pivotally connect the first secondary arm end to the base. A secondary fixed pin may be located through the

first secondary arm end and the fixed base hinge segment to pivotally connect the second arm end to the base.

[0022] A top track may be used to slidably and pivotally connect the second secondary arm end to the top. A top carriage may slide along the track. The top carriage may be pivotally connected to the second secondary end to the top. The top carriage may be in the form of secondary movable pin the enables the second secondary arm end of both slide and pivot with respect to the top.

[0023] A biasing mechanism may extend between the base and the top. The biasing mechanism may move between an extended position when the base and top are in a sleeping position and a retracted position when the base and top are in a sleeping position. The biasing mechanism may bias the top away from the base. The biasing mechanism may be spring, hydraulic ram, pneumatic ram or the like mechanism.

[0024] Further features of the invention will become apparent from the detailed description below.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] An embodiment of the invention will be described, by way of example only, with reference to the accompanying figures in which:

[0026] FIG. 1A shows a perspective view of a rooftop tent in a sleeping position according to an embodiment of the invention;

[0027] FIG. 1B shows a perspective view of a rooftop tent as shown in FIG. 1A in a transport position;

[0028] FIG. 2A shows a schematic side view of a moveable joint of the rooftop tent shown in FIG. 1A in the sleeping position;

[0029] FIG. 2B shows a schematic side view of a moveable joint of the rooftop tent shown in FIG. 1A moving from the sleeping position to a transport position; and

[0030] FIG. 2C shows a schematic side view of a moveable joint of the rooftop tent shown in FIG. 1B in the transport position.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0031] FIGS. 1A and 1B shows a perspective view of a rooftop tent 10 able to be mounted on top of a vehicle. The rooftop tent 10 can be moved between a sleeping position, as shown in FIG. 1A, in which a user is provided with a sleeping area, and a transport position, as shown in FIG. 1B, where a vehicle can be driven, with lower wind resistance.

[0032] The rooftop tent 10 includes a base 20 and a top 30 that are interconnected by two movable joints 40. The two movable joints 40 are located on opposite sides of the base 20 and the top 30. The moveable joints 40 enable the base 20 and the top to be moved between the sleeping position and the transport position, the movement of which is shown in FIGS. 2A, 2B and 2C.

[0033] The base 20 and the top 30 are rigid and made from aluminium. The base 20 is attached to the roof racks of a vehicle using known techniques. The base 20 and top 30 are of relatively the same shape and size allowing them to form a clamshell-type arrangement when they are located together in the transport position as shown in FIG 1B. Locks 11 extend between the base 20 and top 30 and lock the base 20 and top 30 together when in the transport position.

[0034] A nylon ripstop fabric 12 extends between all sides of the base 20 and all sides of the top 30. Apertures 13 extend through the nylon ripstop fabric 12 to allow air and access a sleeping area 14 between the base 20 and top 30. A mattress 15 can be located on the base 20.

[0035] A fixed base hinge segment 21 is located on two sides of the base 20. Each fixed base hinge segment 21 is also located adjacent to the end of base 20. A base track 22 is also located on two sides of the base 20. Each base track 22 is spaced apart from a respective fixed base hinge segment 21.

[0036] A fixed top hinge segment 31 is located on two sides of the top 30. Each fixed base hinge segment 31 is also located adjacent to the end of top 30. A top track 32 is located on two side of the base 30. Each top track 32 is spaced apart from a respective fixed top hinge segment 31.

[0037] Each moveable joint 40 is formed from a primary arm 50 and a secondary arm 60. The primary arm 50 and secondary arm 60 are both made of steel and are substantially U-shaped in transverse cross-section. A hole (not shown) is located through the secondary arm 60 so that the primary arm 50 extends through the secondary arm 60. The primary arm 50 and the secondary arm 60 pivotally connected to each other via a central pin 41, which extends through a point adjacent to a middle portion of each of the primary arm 50 and secondary arm 60.

[0038] A first primary arm end 51 of a primary arm 50 is pivotally connected to a fixed top hinge segment 31. A primary fixed pin 55 is located through a first primary arm end 51 and a top hinge segment 31 to pivotally connect the primary arm end 51 to the top 30.

[0039] A second primary arm end 52 is both slidably and pivotally connected to a base track 22. A base carriage, in the form of primary movable pin 56, enables the second primary arm end 52 to both slide along a base track 22 and pivot with respect to a base track 22 and the base 20.

[0040] A first secondary arm end 61 of a secondary arm 60 is pivotally connected to a fixed base hinge segment 21. A secondary fixed pin 65 is located through a first secondary arm end 61 and a base hinge segment 21 to pivotally connect a secondary arm end 51 to the top 30.

[0041] A second secondary arm end 62 is both slidably and pivotally connected to a top track 22. A top carriage, in the form of secondary movable pin 66, enables a second secondary arm end 62 to both slide along the top track 32 and pivot with respect to a top track 32 and the top 30.

[0042] Two biasing mechanism, each in the form of a pneumatic ram 70 extends between a respective side of base 20 and the top 30. Each ram 70 is pivotally connected to both the base 20 and the top 30. Each ram 70 moves between an extended position when the base 20 and top 30 are in the sleeping position and a retracted position when the base 20 and top 30 are in a sleeping position. Each ram 70 biases the top 30 away from the base 20.

[0043] It should be noted that the position of each central pin 41 is closer to a first primary arm end 51 than a second primary arm end 51 and is also closer to a first secondary arm end 61 than a second secondary arm end 51. This causes the top 30 to be inclined with respect to the base 20 when the rooftop tent 10 is in the sleeping position.

[0044] In use, the top 30 is moved with respect to the base 20 from the sleeping position shown in FIG. 2A to the transport position shown in FIG. 2C and visa-versa. This movement is achieved by applying a downward force on the top 30. This force causes compression of the movable joints 40. Specifically, when the force is applied, each primary arm 40 and each second arm 50 pivots about respective primary fixed pins 55. Simultaneously, each second primary arm ends 52 slide forward within the top tracks 32 via its respective primary moveable pin 56 and each second secondary arm end 62 slides forward within its respective base tracks 22 via its respective secondary movable pin 66. Further, each first primary arm end 51 pivots about its respective primary fixed pin 55, each first secondary arm end 61 pivots about its respective secondary fixed pin 65, each second primary arm end 52 pivots about its respective primary moveable pin 56 and each second secondary arm end 62 pivots about its respective secondary movable pin 66. FIG. 2B shows an intermediate position between the sleeping position and the transport position, showing how the moveable joint operates in use.

[0045] The movable joint 40 of the rooftop tent 10 is a less complex mechanism, easier to produce and more resistant to failure.

[0046] In this specification, terms such as upward, downward, horizontal and vertical, and their grammatical derivatives, are used to describe the invention in its normal

orientation and are not to be construed to limit the invention to any particular orientation.

[0047] The reference to any prior art in this specification is not, and should not be taken as, an acknowledgement or any form of suggestion that the prior art forms part of the common general knowledge.

[0048] It should be appreciated that various other changes and modifications may be made to the embodiments described without departing from the spirit or scope of the invention.

CLAIMS:

1. A rooftop tent comprising:
a base and a top with flexible sidewalls extending between the base and the top;
at least one moveable joint connected to the base and to the top;
the at least one moveable joint allowing the top to move with respect to the base between a sleeping position and a transportation position;
wherein the at least one moveable joint includes a primary arm and a secondary arm;
the primary arm and secondary arm being pivotally connected to each other;
the primary arm having a first primary arm end pivotally connected to either the base or the top and a second primary arm end both slidably and pivotally connected to the other of the base or the top; and
the secondary arm having a first secondary arm end pivotally connected to either the base or the top and a second secondary arm end both slidably and pivotally connected to the other of the base or the top.
2. The rooftop tent of claim 1 wherein the base and top are constructed from a rigid material.
3. The rooftop tent of any one of the preceding claims wherein the base is located adjacent the top when in the transport position and the base is spaced apart from the base when in the sleeping position.
4. The rooftop tent of any one of the preceding claims wherein the primary arm and secondary arm are located next to each other.
5. The rooftop tent of any one of the preceding claims wherein a first primary arm end is pivotally connected to the top.
6. The rooftop tent of any one of the preceding claims wherein a second primary arm end is both slidably and pivotally connected the base.

7. The rooftop tent of any one of the preceding claims wherein a fixed top hinge segment is used to pivotally connect the first primary arm end to the top.
8. The rooftop tent of any one of the preceding claims wherein a base track is used to slidably and pivotally connect the second primary arm end to the base.
9. The rooftop tent of any one of the preceding claims wherein a base carriage slides along the track and the base carriage is pivotally connected to the second primary end to the base.
10. The rooftop tent of any one of the preceding claims wherein a first secondary arm end is pivotally connected to the base.
11. The rooftop tent of any one of the preceding claims wherein the second secondary arm end is both slidably and pivotally connected the top.
12. The rooftop tent of any one of the preceding claims wherein a fixed base hinge segment is used to pivotally connect the first secondary arm end to the base.
13. The rooftop tent of any one of the preceding claims wherein a top track is used to slidably and pivotally connect the second primary arm end to the top.
14. The rooftop tent of any one of the preceding claims wherein a top carriage slides along the track.
15. The rooftop tent of any one of the preceding claims wherein a top carriage is pivotally connected to the second secondary end to the top.
16. The rooftop tent of any one of the preceding claims wherein biasing mechanism extends between the base and the top.
17. The rooftop tent of any one of the preceding claims the biasing mechanism biases the top away from the base.

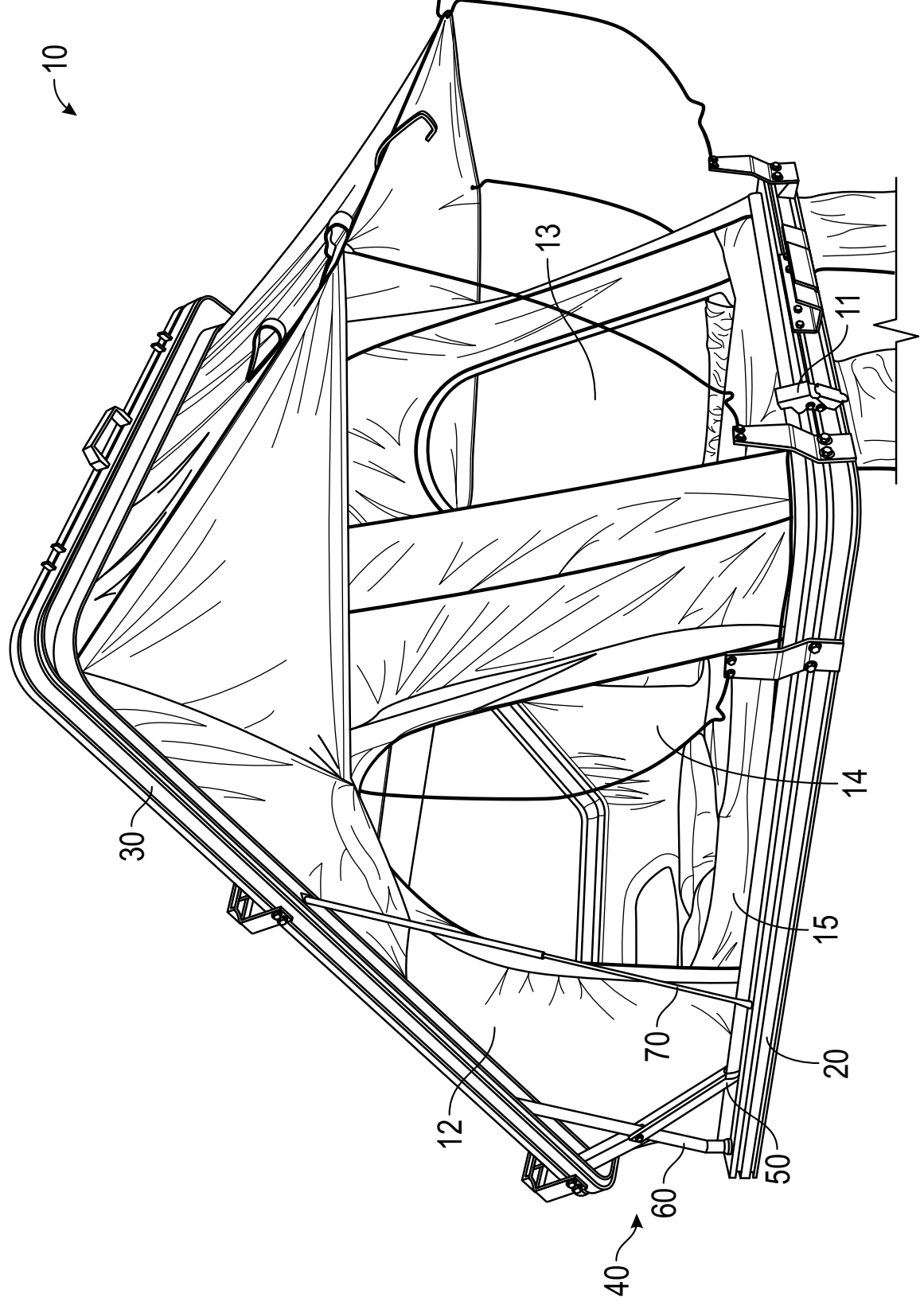


FIG. 1A

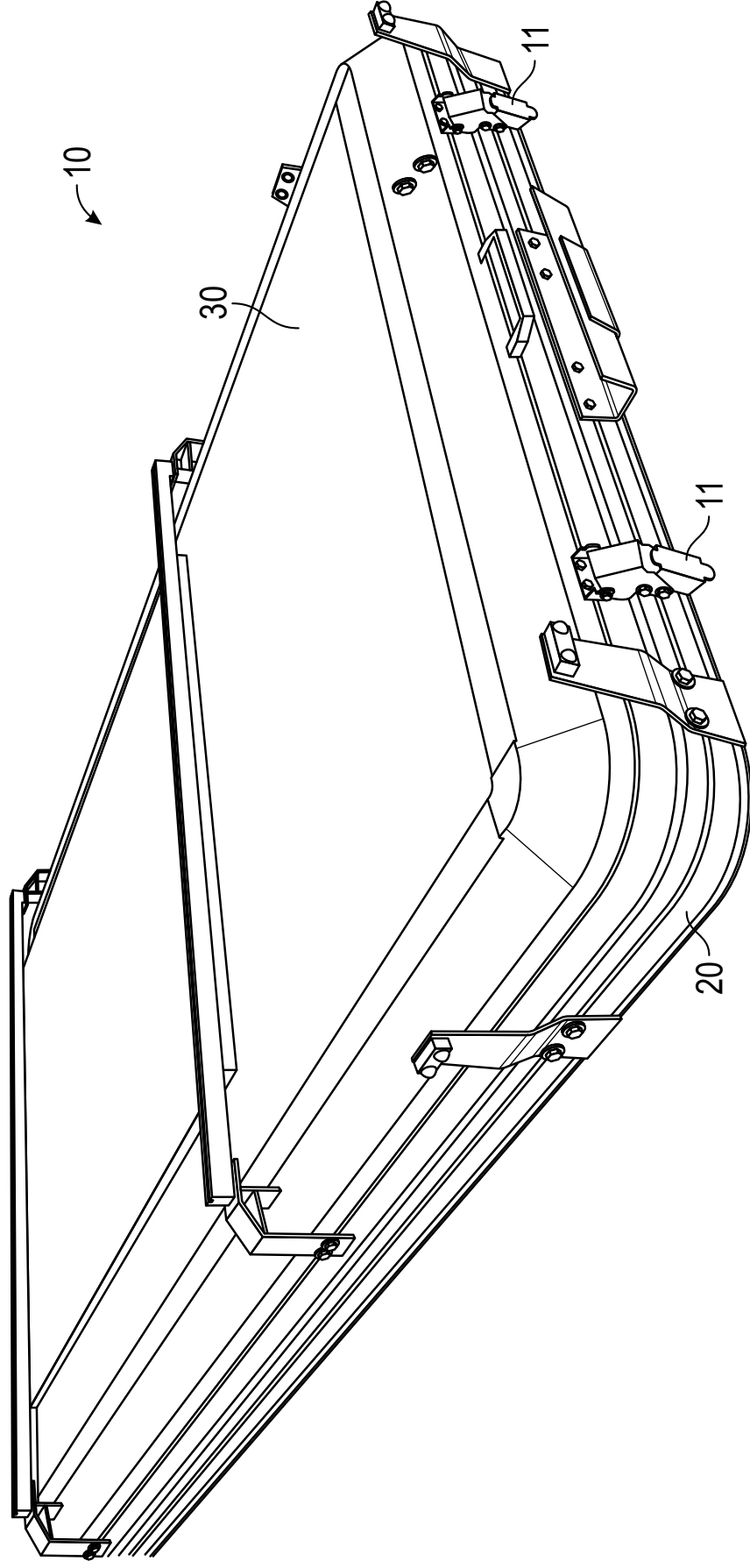


FIG. 1B

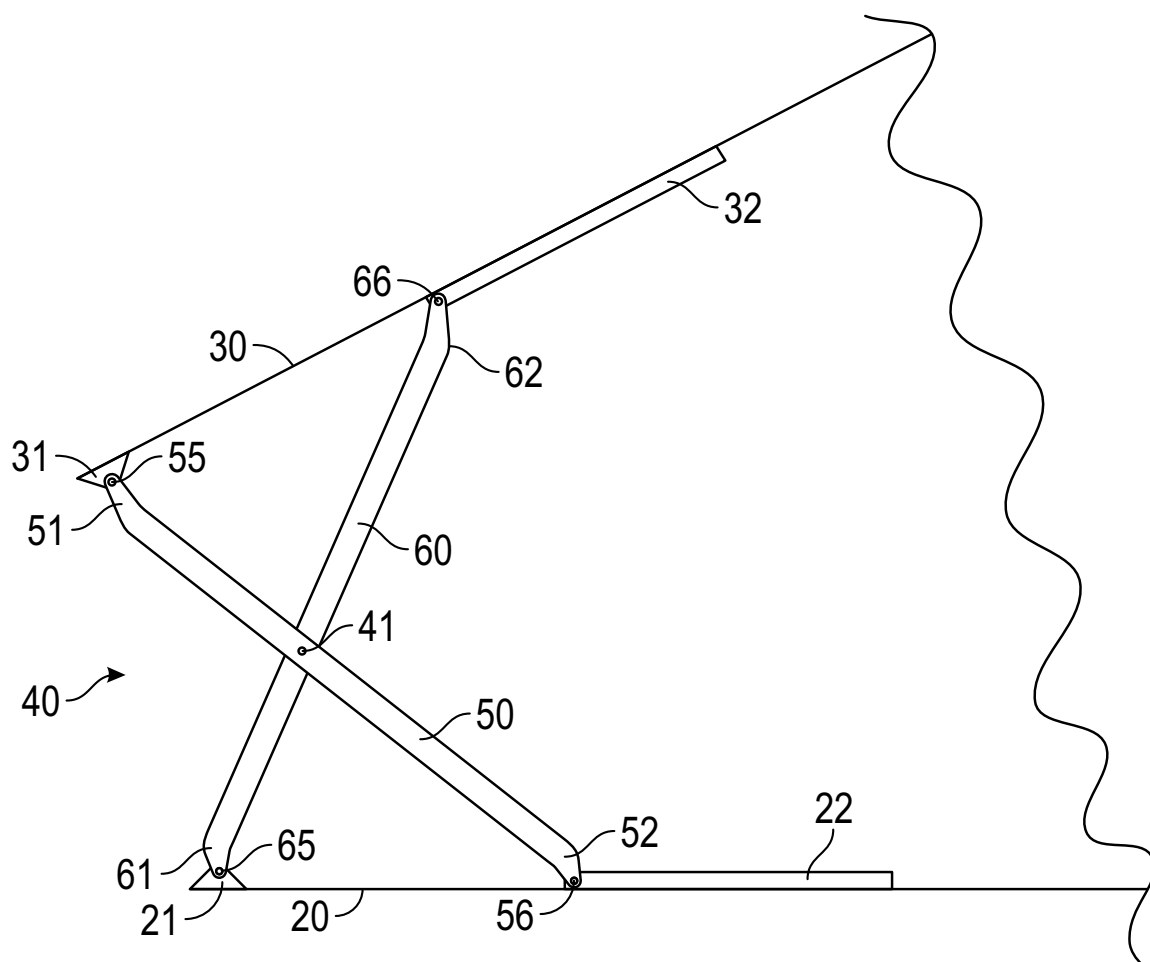


FIG. 2A

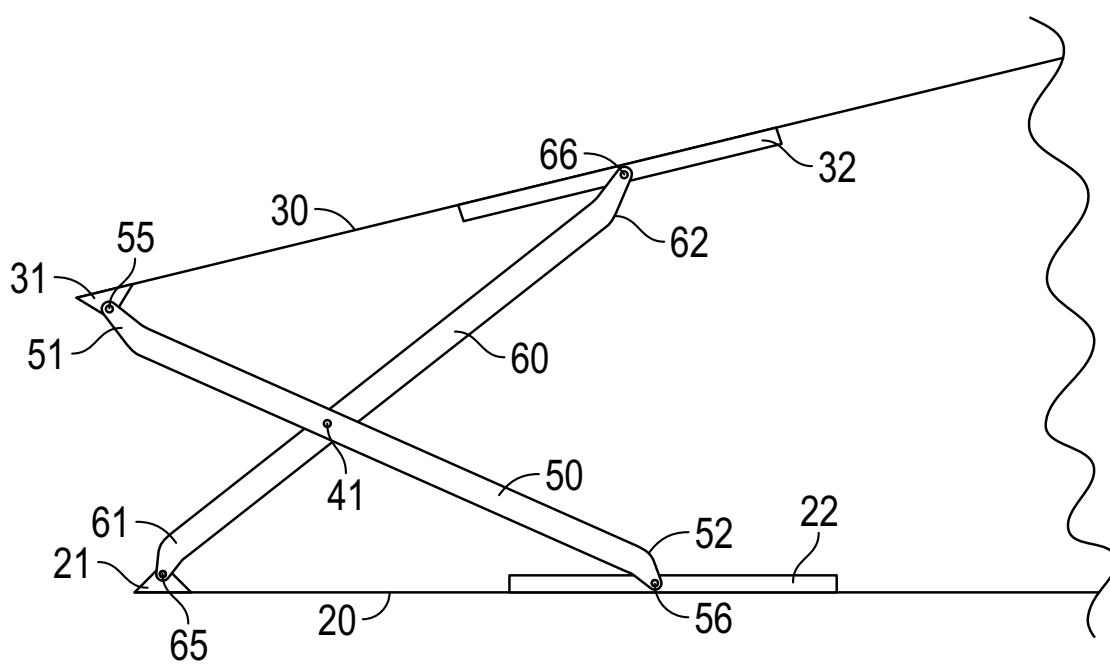


FIG. 2B

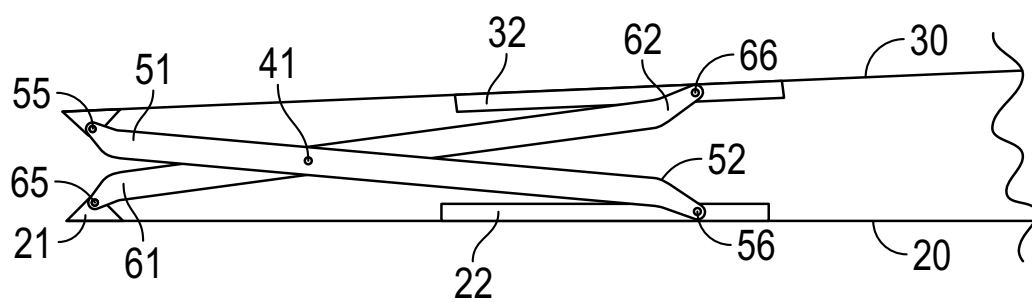


FIG. 2C