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(71) Applicant(s)
Refined Sands Pty Ltd

(72) Inventor(s)
Bell, Brett Vincent

(74) Agent / Attorney
Sandercock & Cowie, 1/410 Burwood Highway, Wantirna South, VIC, 3152, AU

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ABSTRACT

A vehicle in the form of a caravan, 5th wheeler, motor home, portable building or houseboat, having a body and a floor, sides and an end, wherein a floor extension adjacent the end or adjacent the sides moves to a horizontal extended working position forming an elevated floor extension outside the body forming a veranda where occupants can sit or children can play, the elevated floor extension having a barrier hinged thereto and there being a gap above the top of the barrier, wherein the floor extension is a panel which, in a stowed position, lies within 70 degrees of upright and adjacent the body and which, when deployed in the working position, folds about a horizontal axis to form the floor extension.

Figure 23

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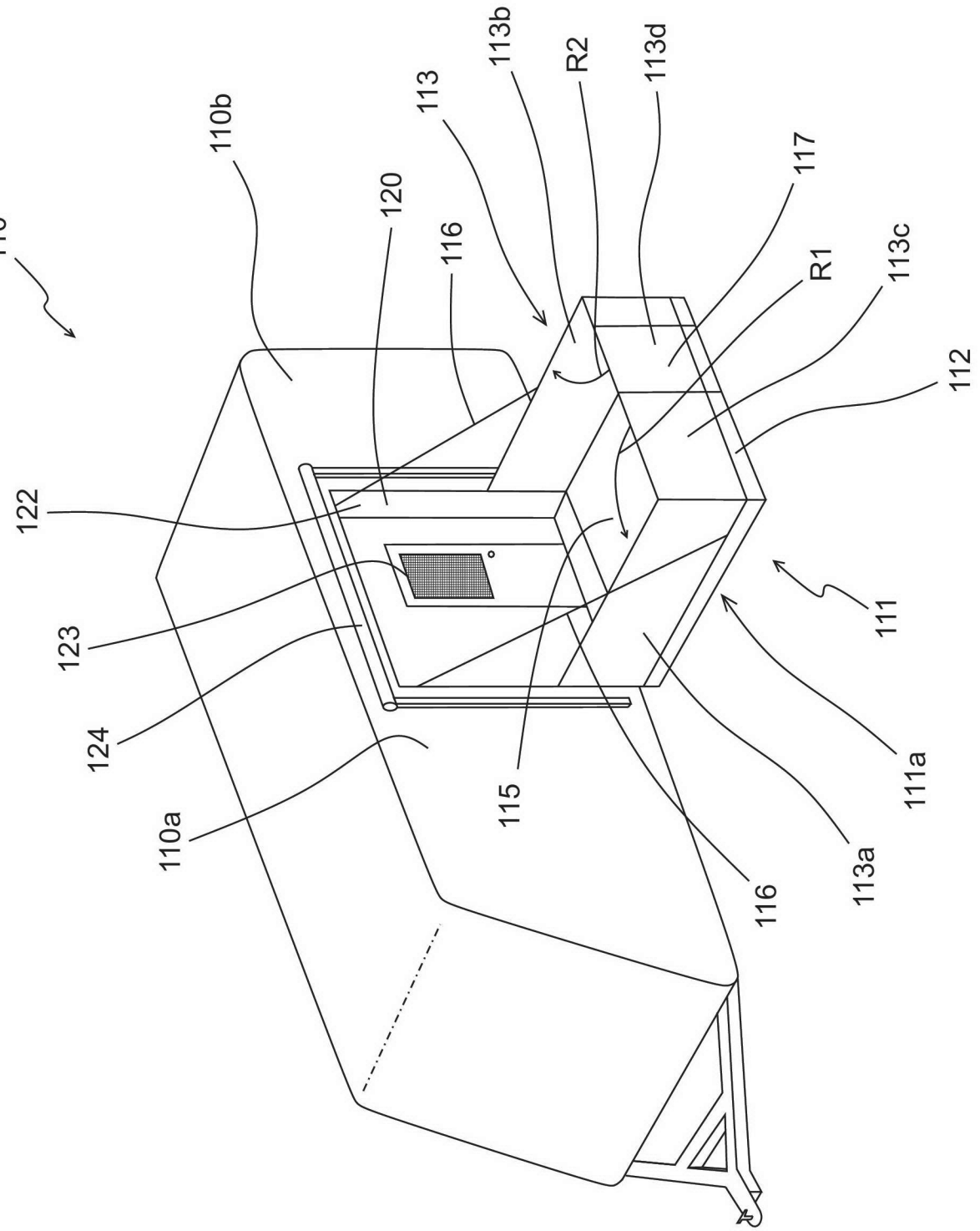

FIGURE 23

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TITLE OF INVENTION

Stowable Veranda for Recreational Vehicle

This is a divisional of Application No. 2019236600, the entire contents of which are hereby incorporated.

TECHNICAL FIELD

This invention concerns motor homes, trailers including caravans and houseboats, and particularly verandas for the same.

BACKGROUND

Occupiers of such vehicles always welcome extra accommodation area such as awnings or kitchen facilities which fold away. Some caravans have a rear wall which has a section capable of tilting to an inclined position in order to allow a body shell to slide horizontally thereby temporarily extending the caravan length which affords extra sleeping area.

SUMMARY OF INVENTION

The first apparatus aspect of this invention provides:

a vehicle including a body, a floor, sides and an end,

wherein:

at least part of the end acts as a cover which moves between a closed position adjacent the sides to a raised position and a floor extension also adjacent the end folds between a stowed position as part of the body and a horizontal position outside the body forming a veranda.

The floor extension may be a floor panel to which is hinged a barrier, whereby the barrier is moveable between a stored position beside the floor panel and an upright position at the leading edge of the panel.

The barrier may be a panel, lattice, rail assembly or fence for the purpose of confining children, acting as a visual barrier, a wind deflector or floor boundary.

The floor panel may have support legs for reaching the ground or may merely rest on an underlying part of the vehicle or ties connected between the panel and the end.

The vehicle body may have a pair of gates connected to the sides which fold between a stored position beside the floor extension and a working position in which they

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overlie the extension when in the horizontal or veranda position, thereby forming sides to the veranda.

For convenience, the gates may engage the barrier when the floor extension is deployed. The gates and barrier may be of equal height.

The entire end of the body may tilt to act as a veranda roof over the floor panel. Accordingly, frame members may support the sides of the body and the end may tilt on the frame members. When the front end of a trailer is modified in this way, the floor panel may overlie the A-frame and the floor load is supported by the A-frame. Additional or fail-safe support is easily provided by a tie wire from the frame.

Access to the veranda is from the caravan interior and the veranda gates.

A cabinet or table may be optionally mounted to the veranda to fold up with the floor.

A removable fly screen or clear acrylic flexible sheet may extend across the veranda and roll up to be secured to the veranda roof using hook and pile tape for fastening.

Operation of the moving parts could be mechanised mechanically or electronically.

The second apparatus aspect of this invention provides a vehicle having a body with a floor, sides and an end, wherein a floor extension adjacent the end folds between a stowed position at or near the end and a horizontal position outside the body and the body has means to support the extension in the horizontal position.

The means may be the rear bumper when the extension is built at the rear of the body.

Alternatively, the means may be a pair of gates which fold between a stowed position next to the floor extension and a deployed position in which they support the floor extension.

Accordingly, this version does not require a cover and may be sited at the rear of a caravan affording a seating area without a roof. Entrance to the elevated floor extension will be through the door. This modification is well suited to the rear of a caravan where the stowed parts can easily be immobilised in the stowed position until they are made ready to be deployed, moreover they are not in an airstream or a splash zone which would coat them with dirt when travelling.

The invention may be made available as vehicles already modified by the inclusion of a veranda, as kits for retrofit and as assemblies suited for incorporation to various manufacturers vehicles during manufacture.

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The floor extension may be a panel which, in a stowed position, lies upright adjacent the body and which folds out to the horizontal or working position.

The floor extension and/or body may include a seal adapted to create a seal between the floor extension and the body in the stowed position. The body may include a recess. The recess may be substantially the same shape as the floor extension in the stowed position. A profile of the recess may have substantially the same shape as peripheral edges of the floor extension. In the stowed position, the peripheral edges of the floor extension may lie directly adjacent internal peripheral surfaces of the recess. In the stowed position, at least a portion of the floor extension may be in the recess. In the stowed position, substantially the whole of the floor extension may be in the recess. In the stowed position, the floor extension may lie in the recess and outer surfaces of the floor extension may be substantially flush with outer surfaces of the body. In the stowed position, the whole of the floor extension may be located in the recess and outer surfaces of the floor extension may be flush with outer surfaces of the body. In the stowed position, the whole of the floor extension may be located in the recess and outer surfaces of the floor extension may be recessed relative to the immediately adjacent outer surfaces of the body.

Advantageously, the seal of the floor extension and/or body may prevent or limit intrusion or penetration of water, debris, detritus and/or other liquids or particles into spaces between the floor extension and the body in the stowed position. The seal may include one or more resiliently deformable or flexible strips. In the stowed position, the strip is preferably adapted to seal a gap between the peripheral edges of the floor extension and the immediately adjacent outer surfaces of the body. The seal may be longitudinally ribbed and transversely compressible to achieve a water- and dust-resistant seal. The seal may be made of natural or synthetic rubber, silicon or another suitable polymeric material or blend or composite of materials.

In the stowed position, the floor extension may be located in the recess and outer surfaces of the floor extension may lie recessed inwards from the outer surfaces of the body. In the stowed position, the floor extension may be entirely contained within the recess. Therefore, the outer surfaces of the body may overhang the floor extension in the stowed position. Advantageously, water such as rain may run down the outer surfaces of the body and onto the outer surfaces of the floor extension preventing or limiting penetration of water into internal surfaces of the floor extension in the stowed position.

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The outer surfaces of the floor extension in the stowed position may be underside surfaces (bottom surfaces) of the floor extension in the working position. Furthermore, internal surfaces of the floor extension in the stowed position may be upper surfaces of the floor extension in the working position. In the stowed position, the outer surfaces of the floor extension may form outermost surfaces of the floor extension that may be external surfaces of the vehicle. The outer surfaces of the body may be external surfaces of the vehicle.

In the stowed position, the floor extension may cover the door. In the stowed position, the floor extension may provide a lockable wall in front of the door and therefore provide security against access to the door, for example, during transportation of the vehicle. The floor extension may provide a security barrier preventing or deterring unauthorised access of people to the vehicle through the door which may be behind the floor extension.

The floor extension may be locked in the stowed position with a mechanical and/or electronic lock and/or latch. Alternatively, or in addition, at least one cable may directly or indirectly span between the floor extension and the body and may be locked or held in position to lock the floor extension in the stowed position. The cable may include a payout length of the cable that may be adapted to be retractably rolled into and out of the body. The cable may be adapted to be retractably rolled, pulled or otherwise moved into and out of the body.

The extension or retraction of the cable may be controlled or effected by a spring inside the body or vehicle. The cables and/or springs may be adapted to actively move the floor extension between the stowed position and the working position. Alternatively, the cables and/or springs may act as a counter weight to the weight of the floor extension hinged to the body and allow for predetermined minimal force that is required to move the floor extension between the stowed position and the working position, and return the floor extension to the stowed position. Minimal force may be defined as the force required overcome an inertial force to move the floor extension and is less than the force required to overcome the gravitational or weight force to which the floor extension is subjected. Minimal force may only include overcoming inertial force to move the floor extension and may not include the force required to overcome the gravitational or weight force of the floor extension.

The cable may be coiled, guided or wrapped around or mounted to a guide bracket or lever mounted on a pulley. The guide bracket or lever may be attached to a spring.

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The cable may be attached to a first end of the lever and the spring attached to a second end of the lever. The lever may include a pivot join to the body between its first and second ends. The spring may be adapted to act as the counter weight or alternatively be a bias for or against movement of the floor extension between the stowed and working positions. The cable may be coiled, wrapped around or mounted to a pulley device adapted to act as the counter weight or to move the floor extension between the stowed and working positions. The pulley device may include multiple pulleys. The cable may be one of two or more like cables acting in a parallel or counter manner to the cable. The vehicle may include a single cable or multiples of the cable. The vehicle may include like-acting multiples of the hinge, the pulley device and/or the spring.

Advantageously, the floor extension may be hingedly mounted to the side of the vehicle allowing for a wider floor extension (wider being lengthways along the vehicle from the front end to the rear of the vehicle). Alternatively, the floor extension may be mounted to the front end or to the rear of the vehicle. The vehicle may include multiple floor extensions mounted to the side, rear and/or front end of the vehicle. The outer surface or wall of the body corresponding to the front end, side and/or rear of the vehicle may be vertical or may be inclined to the vertical. Where the floor extension is mounted to the body the outer surface of the body immediately adjacent the floor extension in the stowed position may be vertical or inclined to the vertical.

The barrier may include multiple barriers. The barriers may include a first and second barrier. The first barrier may be hingedly mounted to the floor extension at a first side or end. The second barrier may be hingedly mounted to a second opposite side of the floor extension relative to the first side. The first and second barriers may extend substantially perpendicular in an upright orientation in the working position. The first and second barriers may extend substantially perpendicular to the side or end of the vehicle adjacent to where the floor extension is mounted in the working position such that they extend outwardly from the body in an upright orientation in the working position.

The barriers may include a third and a fourth barrier. The third and fourth barrier may be hingedly mounted to an end of the floor extension opposite the end of the floor extension which is hingedly mounted to the vehicle/body. The first, second, third and/or fourth barrier may be aligned along one or more of free ends or sides of the floor extension. Therefore, in the working position, the one or more of the barriers may act as a safety railing around one or more of the peripheral edges or sides of the

floor extension, excluding the edge that is adjacent the vehicle body. The third and fourth barrier may each extend substantially parallel to the side or end of the vehicle adjacent where the floor extension is mounted. The third and fourth barriers may each extend in a direction that is parallel to the side or end of the vehicle to which the floor extension is mounted. The first, second, third and/or fourth barrier may include a gate (for example one of the pair of gates). The vehicle may include a set of stairs or a ramp adjacent the gate. The ramp may be hingedly mounted to the floor extension. Preferably, the set of stairs or the ramp is detachable from the floor extension to be removed when the floor extension is to be moved to the stowed position. The set of stairs or the ramp may be adapted to be stowed in the vehicle, including, for example, in a storage box external to an internal living zone in the body. The stairs and/or the ramp may be adapted to fold into a more compact size for stowing. The stairs and/or the ramp may interlock with, hook onto, bolt onto or otherwise be attached to the floor extension in the working position.

In the stowed position and/or the working position, the barriers may be entirely contained within a zone in the form of an extrusion. In this context, "extrusion" means the infinite volume of a footprint extending normally and upwardly from the upper surface of the floor extension in the working position, and extending laterally and internally from the upper surface of the floor extension when in the stowed position. The zone may be defined by peripheries of the floor extension and a profile may extend from the upper surface upwardly (in the working position) or inwardly toward the internal spaces of the body (in the stowed position).

The profile may be in a plane parallel to the upper surface, being a largest face of the floor extension, and the extrusion may extend perpendicular to the profile. With the barriers in the stowed position, the barriers may be laid over the floor extension, i.e. within the confines of the extrusion or the zone. In the stowed position, a stowed barrier plane may be in a collapsed position in which the barriers are aligned to lie substantially parallel to a floor plane in which the upper surface of the floor extension lies.

With the floor extension in the working substantially horizontal position, any and all portions of the barrier(s) is preferably directly above a portion of the floor extension. The barrier(s) may be contained within the footprint of the floor extension. The barrier(s) and/or the floor extension may include latches and/or locks to lock the barrier(s) in upright and/or collapsed positions. The barrier(s) may include rods, latches or other projections or components which are adapted to extend into recesses

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in the floor extension to provide additional support to the barrier(s) in the upright and/or collapsed positions.

The third barrier may be hingedly mounted to the first barrier and the fourth barrier may be hingedly mounted to the second barrier. Moving the barriers from the upright position to the collapsed position, and the floor extension from the working position to the stowed position, may include the following steps:

1. Folding the third barrier onto the first barrier such that the third barrier is substantially parallel or parallel with the first barrier;

2. Folding the fourth barrier onto the second barrier such that the fourth barrier is substantially parallel or parallel with the second barrier;

3. Folding the parallel third and first barriers onto the upper surface of the floor extension such that the third and first barrier are substantially parallel with the floor plane;

4. Folding the fourth and second barriers, that in the upright position are parallel to each other, onto the floor extension such that the fourth and second barriers are parallel with the floor plane.; and

5. Folding the floor extension with the barriers in the collapsed position into or onto the body or recess in the body, whereby the floor extension and the barriers are in the stowed position.

In the case where the floor extension is mounted on the front end of the vehicle, a drawbar of the vehicle may support the floor extension.

The vehicle may include no awning or roof adapted to fold or extend over the floor extension. The vehicle may further include an awning or roof which is removable or retractable from the body. The awning or roof may not fold down on top of the floor extension in the stowed position but may rather retract into a more compact form on or in the body of the vehicle.

The roof or awning may be in a position where it is extended over the floor extension, e.g. substantially superimposed in plan over the floor extension footprint. The roof or awning may be retractable from the extended position into a more compact form, preferably adjacent or over the body or a portion thereof. The roof or awning and the floor extension may be separate or separable from each other. The roof or awning and the floor extension may be unattached to each other, whether the floor extension is in the substantially horizontal working or the stowed position. The roof or awning and

the barrier(s) may be separate or separable from each other and may be unattached to each other, whether the barrier(s) is/are in the upright or the collapsed position.

A gap between the roof or awning and the barrier(s) may be more than the height of the barrier. The gap between the roof or awning and the barrier(s) may be more than half the height of the barrier(s), whereby the roof or awning clearance is well over headhigh (e.g. 2200mm) of tall adults.

Advantageous Effects of Invention

1. The veranda self-supports during and after deployment and is applicable to a caravan, motorhome, 5th wheeler, houseboat or portable building.

2. When stowed it subtracts little from the interior caravan space.

3. Same towing capacity vehicle suffices.

BRIEF DESCRIPTION OF DRAWINGS

Referring now to the drawings which are diagrammatic:

Figure 1 is a side view of the front end of a caravan;

Figure 2 is the same view as Figure 1 with the front end cover raised to the veranda position and the working parts shown in section;

Figure 3 is the same view as Figure 2 with the floor extension and barrier deployed;

Figure 4 is the same view as Figure 3 with one of the gates deployed;

Figure 5 is a perspective of a variant with the gates located in front of the floor extension and barrier and one deployed indicating how it supports the floor extension. The nearside part of the vehicle body is not shown for clarity;

Figure 6 is a perspective of the variant shown in Figure 5 after the floor extension and one of the gates have been deployed;

Figure 7 is a side view of the veranda when deployed with a cover;

Figure 8 is a diagram of a bifold floor extension (gates not shown);`

Figure 9 is a diagram of a floor extension with bifold gates;

Figure 10 is a diagrammatic plan of fold out floor extension supports on the A-frame;

Figure 11 is a close up perspective of the floor extension support of Figure 10;

Figures 12, 13 and 14 show the sequence of deploying a variant veranda for regions where rain and insects are a problem;

Figures 15, 16 and 17 show the sequence of deploying a floor extension with a fold up barrier and gates;

Figures 18, 19 and 20 show the sequence of deploying a variant where the roof and barrier together form a cover to the end of the caravan;

Figure 21 shows a version in which the folding part of the floor is shortened to reduce lift weight. Rails and gates have been removed for clarity;

Figure 22 was a perspective view of a variant that is outside the scope of the present invention;

Figure 23 is an upper left-hand side isometric view of a vehicle according to the present invention with a floor extension in the working position;

Figure 24 is an upper left-hand side isometric view similar to the vehicle shown in Fig. 23, but without a ramp of set of steps;

Figure 25 is an upper left-hand side isometric view similar to the vehicle shown in Fig. 24, but without a barrier along the floor extension's outermost edge;

Figure 26 is an upper left-hand side isometric view similar to the vehicle shown in Fig. 25, but with side barriers shown in a collapsed position;

Figure 27 is an upper left-hand side isometric view similar to the vehicle shown in Fig. 26, but with the floor extension shown in a stowed position;

Figure 28 is an upper right-hand side isometric view of a vehicle showing a floor extension made according to the invention that is installed at a front of the vehicle and shown in a stowed position;

Figure 29 is an upper right-hand side isometric view of the vehicle shown in Fig. 28 with the floor extension shown in an extended and partially unfolded configuration;

Figure 30 is an upper right-hand side isometric view of the vehicle shown in Fig. 29 with the floor extension shown in an extended configuration in a working position;

Figure 31 is an upper right-hand side isometric view of the vehicle shown in Fig. 30 with the floor extension shown in an extended configuration in a working position and having a barrier at the outer end of the floor extension; and

Figure 32 is an upper right-hand side isometric view of the vehicle shown in Fig. 31 with the floor extension shown in the working position and having an openable gate.

DESCRIPTION OF EMBODIMENTS

In Figure 1, the front end 2 of the caravan 4 is enclosed by a sheet metal cover 6 attached by pivots 8 to the sides 10 of the caravan body. Behind cover 6 is an end wall 12 containing a door 14. Wings 16 project in front of end wall 12 as does the caravan floor 18. Floor 18 is supported on the chassis 20 by joints 22, one of which is located in front 2 by end wall 12. Chassis 20 converges into A-frame 24 and hitch 26 is fixed to the leading end. Between the hitch 26 and the joint 22 is a transverse failsafe bar 28.

An upstanding floor extension 30 is secured to the edge of floor 18 by hinge 32. Barrier 34 is fixed to the free end of floor extension 30 by hinge 36. Behind the floor extension 30 and barrier 34 lie a pair of gates 38, 40, each mounted on a wing 16 in order to swing forwards and backwards. In use the gates 38, 40 overlap in the stowed position shown in Fig. 1.

In Figure 2, gas struts 42 on the wings 16 allow the cover 6 to be raised to provide a roof over the A-frame. The raised cover 6 gives access to the floor extension 30 and the barrier 34 which are folded through 90° so that the extension 30 rests on the failsafe bar 28, whereupon the barrier 34 is erected. The gates 38, 40 are then swung forwards to lie parallel to the wings 16 as shown in Figure 4. A bolt 44 at each end of the barrier 34 is, to secure the barrier 34, adapted to shoot into a keeper 46 in the corner of the adjacent gate 38, 40 thereby creating a space 35 outside the caravan 4 where occupants can sit or children play beneath a roof in the form of the cover 6 and within the defined space 35 having a footprint generally corresponding to the floor and floor extension 18, 30. This veranda is suitable for both the front end 2 and a rear end of a caravan 4.Accordingly the load on the floor extension 18 is supported by the failsafe bar 28. A variant shown in Figure 6 dispenses with the bar 28 and is suited to the rear end 3 of a caravan, such as caravan 4.

Gates 38, 40 are fixed to the wings 16 in front of the extension and barrier and have an angle bearer 48 fixed to the lower edge. The extension 18 is dimensioned to swing between the extended gates coming to rest on the bearers when deployed. In this variant the gates are in tension and cannot be used to access the veranda from outside the caravan.

Referring now to Figure 7, the cover 6 has an aluminium tube frame 52 and a window 54. Gates 38, 40 (one shown) are also constructed from tubular aluminium which hold plastic panels 56. There is a 50mm gap between the bottom of the gates and

floor extension 30. The gates are mounted on stiles 58 which in turn are hinged to wings 16. Tubular ties 60 extend from the stiles to the mid-point of the gates. The floor extension 30 is supported like a drawbridge by cable ties 62 fixed to wings 16. Each cable rests on a static pulley 64 supported on wing 16. Tension spring 66 is attached at one end to the caravan floor 68 next to floor extension 30 and at the opposite end to a flying pulley 70 acting on the cable between the static pulley and the wing. The springs pull both cables into descending loops which assist in raising and lowering the floor extension which may weight 40-50kg. Instead of springs 66 being in tension, they are replaced by wind-up springs of the rotating type used in garage door installations and are provided as an alternative.

In a variant, the cables are attached to a rise and fall flat carriage beside the door on low friction rails. The carriage is connected to the caravan floor by multiple side by side tension springs which allow tension to be adjusted. A frame 24 extends beneath the veranda and when parked is supported by screw jack 72.

Referring now to Figure 8, the extension may be made longer by dividing into two panels 74, 76 and hinging the barrier 34 to the panel 76.

Referring now to Figure 9, the alternative is to incorporate the barrier 34 and the gates into a bifold assembly 78 in which the gates fold in the manner shown. Ties 62 and springs as shown in Figure 7 assist in deployment of the floor extension 30.

In Figures 10 and 11, the floor extension when lengthened may last longer if supported by radius arms 80. These have a hinge at one end, a screw jack 82 at the opposite end and a connector 84 which takes a locking pin 86.

Referring now to Figures 12, 13 and 14, the floor extension 30 has no barrier and instead acts as a base for tubular metal tent arch 88. This overlies the extension 30 until rotated into the upright position shown in Figure 13. Strut 90 swings to engage the body of the caravan. A fabric covering 92 is arranged like a tent over the arching strut and has plastic windows 94 to admit light.

Referring now to Figures 15-17, the floor extension 30, barrier 34 and gates 38, 40 are made as an assembly of panels which fold flat and stand upright, parallel to the end wall of the caravan body. Ties 62 allow the assembly to lie horizontally in drawbridge manner. The barrier 34 is made of a central trapezoidal panel 96 with two triangular panels 98, 100 one each side. The hinges allow the barrier and gate panels to be erected as shown in Figure 17.

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Referring now to Figures 18-20, the floor extension 30 and cover 6 are both foreshortened so as to meet at the centre of the end of the caravan body. When both open outwardly to remain horizontal, the operator has access to the gates 38, 40 which also swing outwards and connect with the floor extension 30. The barrier 34 unfolds from the floor to complete the veranda as shown in Figure 20. The barrier has a narrow folding shelf 102 which acts as a table.

Likewise wings 16 have storage cabinets or folding shelves for convenience to keep articles for veranda use. The gap between the cover 6 and the top of the gates and barrier 32 is closed by fly screens 104.

In the version of Figure 21, the caravan floor projects beyond end wall 12 in order to make floor extensions 30 shorter and lighter. Wings 16 are longer and the pitch of roof cover 6 is increased. By this means the lift weight of the extension 30 and barrier (not shown) is reduced from 74kg to approximately 40kg and tip weight to less than 20kg.

In Figure 22 the gates 38 are the same height as the sides of the caravan and support the floor and end wall 34 as in the other embodiments.

Unless otherwise stated, the following passages refer to a variant of the caravan 110 shown in Figures 23-27 (Variant "A") and a variant of the caravan 130 shown in Figures 28 – 32 (Variant "B"). The following reference numbers in the form of "11x" or "12x" (x being any number which may or may not be followed by a letter) refer to features in variant A. The following reference numbers in the form of "13x" or "14x" (x being any number which may or may not be followed by a letter) refer to features in variant B. Variants A and B each include a caravan 110,130 with a floor extension 111,131 hinged to a caravan body 110b,130b. The recess 120,140 being a cut out or recess in a side of the caravan 110,130. Peripheral faces 122,142 of the recess 120,140 follow peripheral faces 112,132 of the floor extension 111,131 when the floor extension 111,131 is in a stowed position.

The floor extension 111,131 is in the stowed position in Figures 27 and 28. In variants A and B, a barrier 113,133 is hinged to the floor extension 111,131. The floor extension 111,131 and the barrier 113,133 can be contained within the recess 120,140. In the stowed position, bottom faces 114,134 of the floor extension 111,131 are substantially flush or are flush with outer surfaces 110a,130a of the caravan body 110b,130b. A hinge attaching the floor extension 111,131 to the caravan body 110b,130b may extend out past the outer surfaces 110a,130a of the caravan body

110b,130b and therefore not be flush with the outer surfaces 110a,130a of the caravan body 110b,130b.

In variants A and B, the recess 120,140 includes a door 123,143. An inside of the caravan 110,130 can be accessed by the door 123,143.

In variants A and B, the barrier 113,133 includes multiple barriers. The barriers include a first, second, third and fourth barrier 113a-d,133a-d. The first and second barriers 113a-b,133a-b are hinged to peripheries 111a,131a of the floor extension 111,131. The third barrier 113c,133c is hinged to the first barrier 113a,133a and the fourth barrier 113d,133d is hinged to the second barrier 113a,133a. The barriers 113a-d,133a-d are moveable between a stowed position (shown in Figure 26 and 29) and a working position (shown in Figures 23, 24, 31 and 32).

In the stowed position, the barriers 113a-d,133a-d are parallel to a largest top face 115,135 of the floor extension 111,131. In the working position, the barriers 113a-d,133a-d are perpendicular to the largest top face 115,135 of the floor extension 111,131. The barriers 113a-d,133a-d must be in the stowed position to move the floor extension 111,131 into the stowed position so that the barriers 113a-d,133a-d fit inside the recess 120,140. The barriers 113a-d,133a-d may be moved between the stowed position and the working position when the floor extension 111,131 is in the horizontal and working position. The floor extension 111,131 is in the horizontal and working position in Figures 23 – 26 and Figures 29 – 32.

Variants A and B of the caravan 110, 130 each includes cables 116,136 which extend between the caravan body 110b,130b and the floor extension 111,131. The cables 116,136 support the floor extension 111, 131 and provide a counter weight against the weight of the floor extension 111,131 and the barriers 113a-d,133a-d resulting in less force required to move the floor extension 111, 131 to and from the stowed position and the horizontal position. The counter weight functionality of the cables 116,136 results in less manual force required to support the floor extension 111, 131 when moving the floor extension 111,131 from the stowed position to the horizontal position and less force to move the floor extension 111,131 from the horizontal position to the stowed position. The cables 116, 136 are each attached to a spring and wrap around a static pulley and a flying pulley inside the caravan body 110b,130b, the same as shown in Figure 7 and described above.

Referring now to variant A, the following passage describes a method of moving the floor extension 111 from the horizontal position to the stowed position and the barrier

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113 from the upright and working position to the stowed position. Figure 23 shows the floor extension 111 in the horizontal position and the barrier 113 in the upright position. Furthermore, Figure 23 shows a set of stairs 125 attached to the floor extension 111. The set of stairs 125 are detachable from the floor extension and stowable inside the caravan 110. The method includes detaching the set of stairs 125 from the floor extension 111. The method further includes pivoting the third barrier 113c about its hinged connection to the first barrier 113a in direction R1 (shown in Figure 24) until the third barrier 113c is parallel with the first barrier 113a. Also pivoting the fourth barrier 113d about its hinged connection to the second barrier 113b in direction R2 (shown in Figure 24) until the fourth barrier 113d is parallel with the second barrier 113b.

The method then includes pivoting the first and third barrier 113a,c about the first barriers 113a hinged connection to the floor extension 111 in direction R3 (shown in Figure 25) onto the floor extension 111 until the first and third barriers 113a,c are parallel with the floor extension 111.

The method also includes pivoting the second and fourth barrier 113b,d about second barriers 113b hinged connection with the floor extension 111 in direction R4 (shown in Figure 25) onto the floor extension 111 until the second and fourth barriers 113b,d are parallel with the floor extension 111. The barrier 113 is then in the stowed position as shown in Figure 26. The floor extension 111 is then pivoted about its hinged connection to the caravan body 110b in direction R5 (shown in Figure 26) until bottom faces 114 of the floor extension 111 are flush with outer surfaces 110a of the caravan body 110b as shown in Figure 27. A latch or lock may then automatically or manually be engaged to lock the floor extension 111 in the stowed position. The floor extension 111 is then in the stowed position as shown in Figure 27. A method of moving the floor extension 111 from the stowed position to the horizontal position and the barrier 113 from the stowed position to the upright position includes the reverse of the above method.

Referring now to variant B, the following passage describes a method of moving the floor extension 131 from the stowed position to the horizontal position and the barrier 133 from the stowed position to the upright and working position. The floor extension 131 shown in Figure 28 is in the stowed position. First the floor extension 131 is pivoted about its hinged connection with the caravan body 130b in direction R6 (shown in Figure 28) until the floor extension 131 is orientated horizontal as shown in

Figure 29. The floor extension 131 is in the horizontal and working position in Figure 29. The barrier 133 is in the stowed position in Figure 29.

Then the first and third barriers 133a,c are pivoted about the hinged connection between the first barrier 133a and the floor extension 131 in direction R7 (shown in Figure 29) until the first and third barriers 133a,c are orientated upright as shown in Figure 30. Also, the second and fourth barriers 133b,d are pivoted about the hinged connection between the second barrier 133b and the floor extension 131 in direction R8 (shown in Figure 29) until the second and fourth barriers 133b,d are orientated upright as shown in Figure 30. The third barrier 133c is then pivoted about the hinged connection between the third barrier 133c and the first barrier 133a in direction R9 (shown in Figure 30) until the third barrier 133c is perpendicular with the first barrier 133a as shown in Figure 31. Also, the fourth barrier 133d is pivoted about the hinged connection between the fourth barrier 133d and the second barrier 133b in direction R10 (shown in Figure 30) until the fourth barrier 133d is perpendicular with the second barrier 133b as shown in Figure 31. The barrier 133 is then in the upright position. A method of moving the floor extension 131 from the horizontal position to the stowed position and the barrier 133 from the upright position to the stowed position includes the reverse of the above method.

Variants A and B each include a retractable roof 124, 144. The retractable roof 124 of variant A is independent of the floor extension 111 and the barriers 113a-d. The retractable roof 124 of variant A may be extended over the floor extension 111 and retracted back towards the caravan body 110b independently of the position of the floor extension 111 and barriers 113a-d. The retractable roof 124 in variant A is a typical caravan awning. The retractable roofs 124,144 of variants A and B may each be completely retracted and extended over the floor extension 111, 131 when each respective floor extension 111,131 is in the horizontal and working position.

Variants A and B each include a gate 117,137 hingedly connected to the barrier 113 and openable for access onto the floor extension 111,131 when the floor extension 111,131 is in the horizontal position. The gate 137 of variant B opens in direction R11 as shown in Figure 32. The gate 117 of variant A is openable for access to and from the set of stairs 125 to and from the floor extension 111, 131. The fourth barrier 113d of variant A includes the gate 117 and the second barrier 137 of variant B includes the gate 137. The gate 117, 137 may be located on the sides or free end of the floor extension 111, 131.

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The barriers 113a-d may include additional supports around the gate 117,137 since a support cannot span across the top of the gate between sections off barriers 113a-d. For example, the second barrier 133b of variant B may include a beam under the gate 137 spanning between the rest of the second barrier 133b and the fourth barrier 133d. The beam may be laterally tapered and/or include warning labels to reduce the likely hood of the beam being a tripping hazard. Alternatively, the beam may be located in a recess in the floor extension 111,131 in the stowed and/or in the upright and working position.

In the present specification, terms such as "apparatus", "means", "device" and "member" may refer to singular or plural items and are terms intended to refer to a set of properties, functions or characteristics performed by one or more items or components having one or more parts. It is envisaged that where an "apparatus", "means", "device" or "member" or similar term is described as being a unitary object, then a functionally equivalent object having multiple components is considered to fall within the scope of the term, and similarly, where an "apparatus", "assembly", "means", "device" or "member" is described as having multiple components, a functionally equivalent but unitary object is also considered to fall within the scope of the term, unless the contrary is expressly stated or the context requires otherwise.

In the present specification, the phrase "and/or" refers to severally or any combination of the features. For example, the phrase "feature 1, feature 2 and/or feature 3" includes within its scope any one of the following combinations: Feature 1 or feature 2 or feature 3; feature 1 and feature 2 or feature 3; feature 1 and feature 3 or feature 2; feature 1 or feature 2 and feature 3; feature 1 and feature 2 and feature 3.

Orientational terms used in the specification and claims such as vertical, horizontal, top, bottom, upper and lower are to be interpreted as relational and are based on the premise that the component, item, article, apparatus, device or instrument will usually be considered in a particular orientation, which will usually be apparent from the context.

It will be appreciated by those skilled in the art that many modifications and variations may be made to the methods of the invention described herein without departing from the spirit and scope of the invention.

It is to be understood that the word "comprising" as used throughout the specification is to be interpreted in its inclusive form, ie. use of the word "comprising" does not exclude the addition of other elements.

It is to be understood that various modifications of and/or additions to the invention can be made without departing from the basic nature of the invention. these modifications and/or additions are therefore considered to fall within the scope of the invention. For example, bar 28 may be fixed to the underside of the floor extension 30 instead of to the top of the draw bar. Cover 6 may have one or more windows. The variants shown in Figures 12, 13 and 14 may in addition have a cover like that shown in Figure 7. Instead of fly screens, the veranda may have transparent plastic panels which create a sealed space.

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CLAIMS

1. A vehicle in the form of a caravan, 5th wheeler, motor home, portable building or houseboat, having a body and a floor, a sides and an end, wherein the vehicle further comprises a floor extension that is adapted to move to a horizontal extended working position to form an elevated floor extension as part of a veranda outside the body, the floor extension being a panel which, in a stowed position, lies within 70 degrees of upright and within a recess formed within the body and which, when deployed in the working position, folds about a horizontal axis to form the floor extension, the floor extension being hingedly mounted to the side of the vehicle, the recess formed in the side of the vehicle.

2. The vehicle as claimed in Claim 1, wherein peripheral faces of the recess follow peripheral faces of the floor extension when the floor extension is in a stowed position.

3. The vehicle as claimed in Claim 2, wherein the floor extension further includes first and second barriers that are hinged to peripheries of the floor extension.

4. The vehicle as claimed in Claim 3, wherein the floor extension further includes a third and fourth barriers, the third barrier being hinged to the first barrier and the fourth barrier being hinged to the second barrier.

5. The vehicle as claimed in Claim 4, wherein the barriers are moveable between the stowed position and the working position.

6. The vehicle as claimed in Claim 5, wherein in the stowed position, the barriers are parallel to a largest top face of the floor extension.

7. The vehicle as claimed in Claim 5 or 6, wherein in the working position, the barriers are perpendicular to the largest top face of the floor extension.

8. The vehicle as claimed in Claim 6 or 7, wherein in the barriers must be in the stowed position to move the floor extension into the stowed position so that the barriers fit inside the recess.

9. The vehicle as claimed in any one of Claims 5 - 8, wherein the barriers are moved between the stowed position and the working position when the floor extension is in the horizontal and working position.

10. The vehicle as claimed in any one of Claims 1 - 9, wherein in the working position access to the veranda is from an interior of the vehicle through a door and/or through a gate on the veranda.

11. The vehicle as claimed in Claim 10, wherein in the stowed position, the floor extension covers the door.

12. The vehicle as claimed in Claim 10 or 11, wherein in the stowed position, the floor extension provides a lockable wall in front of the door during transportation of the vehicle.

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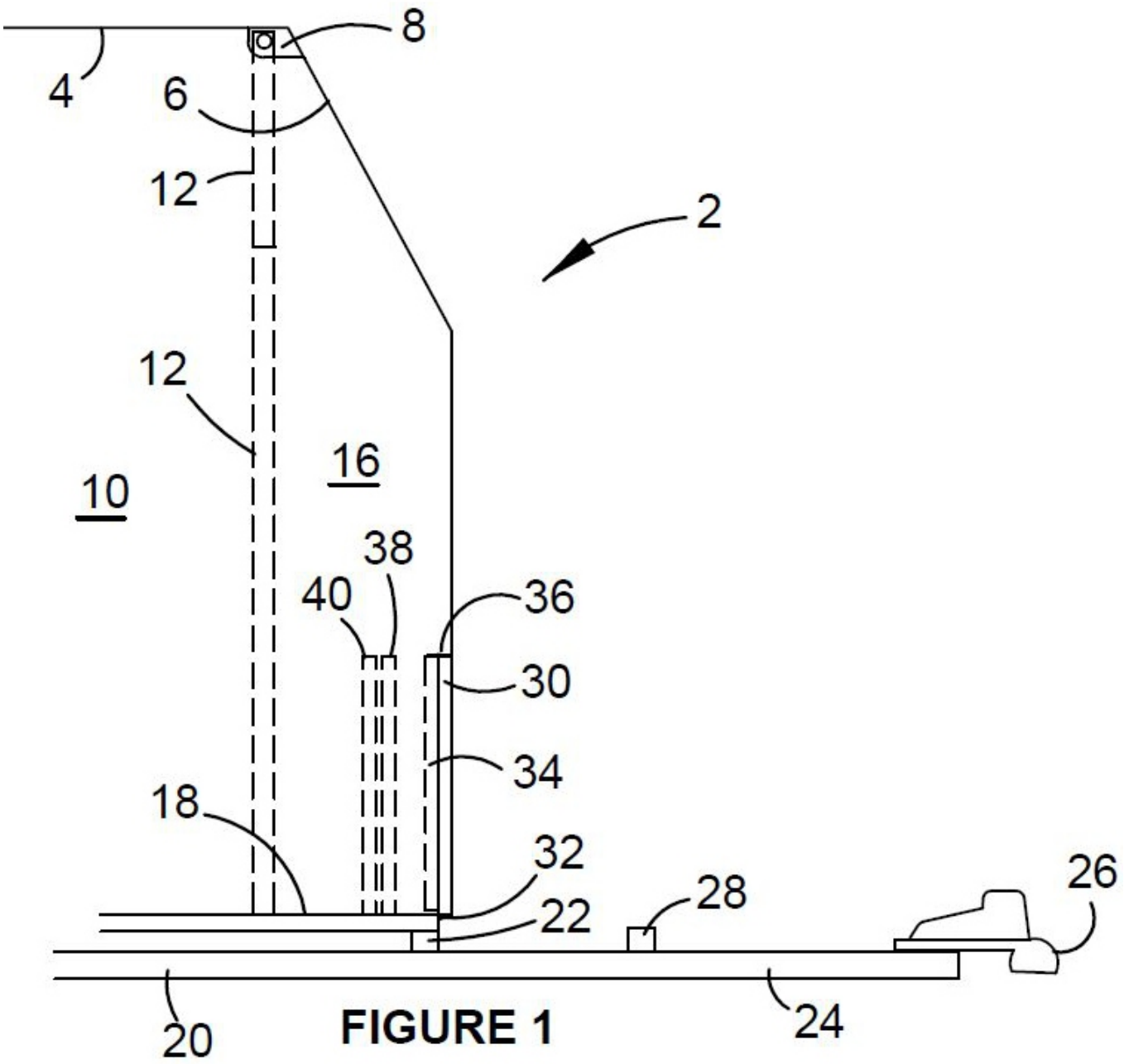

FIGURE 1

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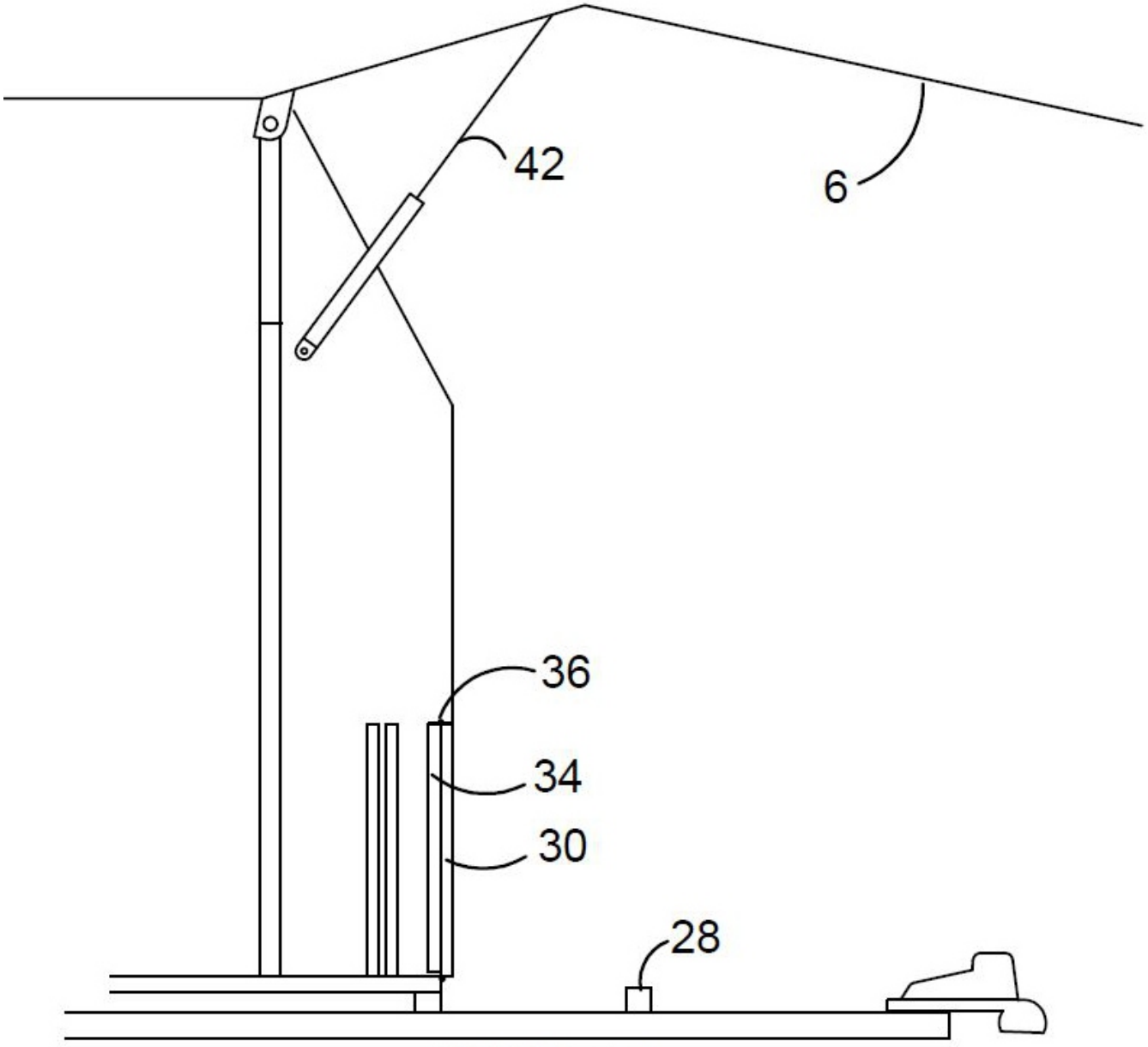

FIGURE 2

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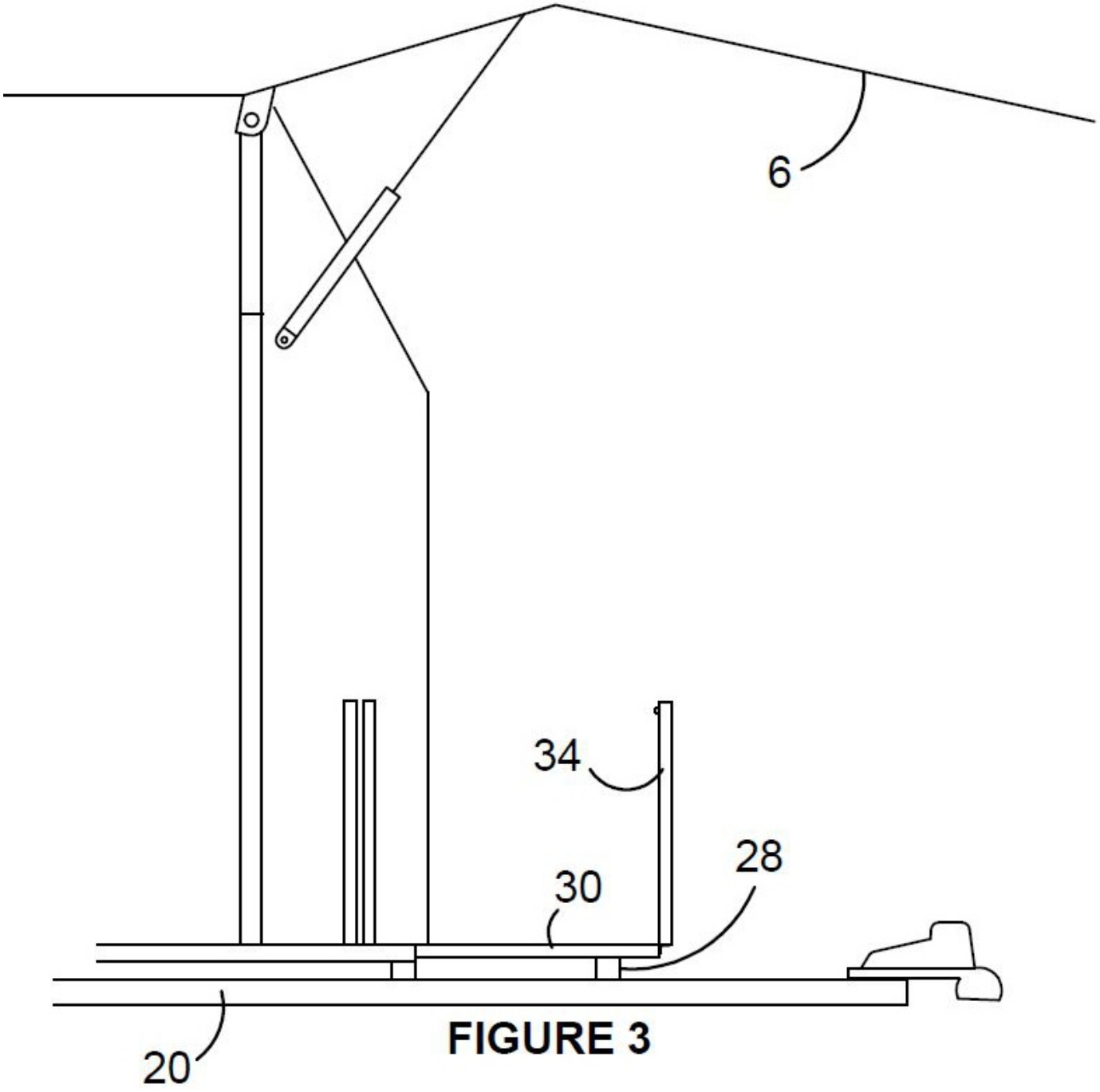

FIGURE 3

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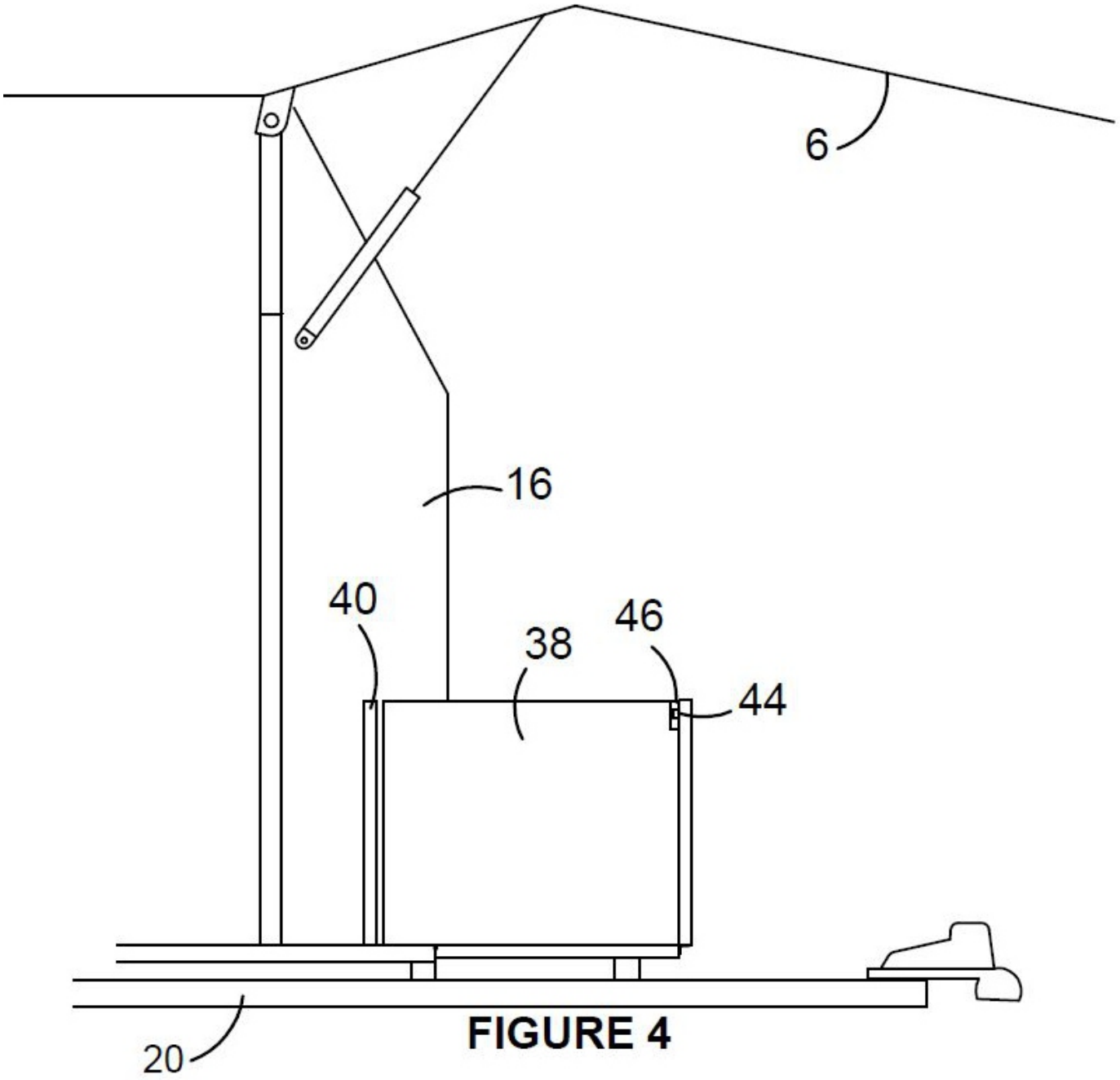

FIGURE 4

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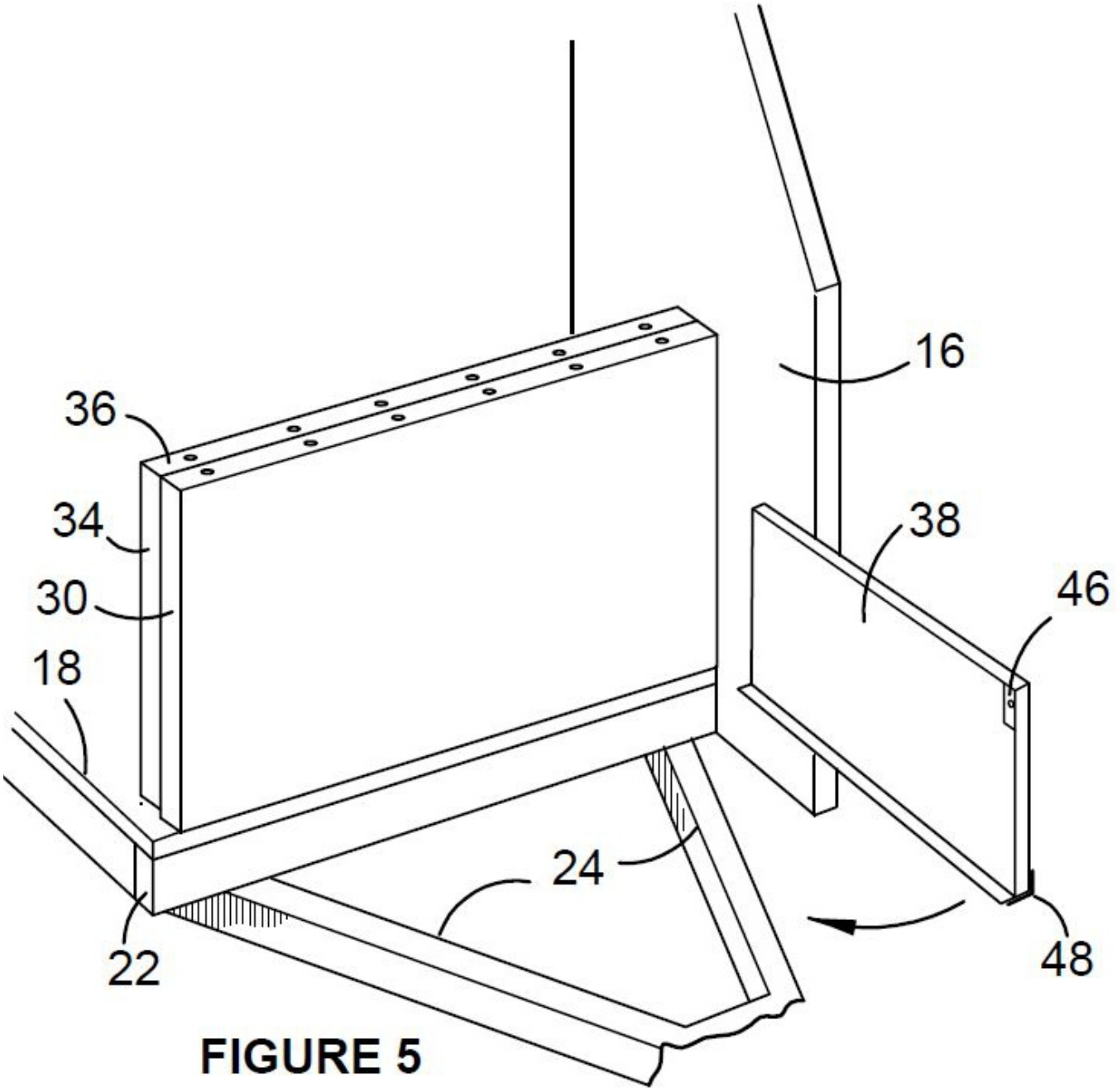

FIGURE 5

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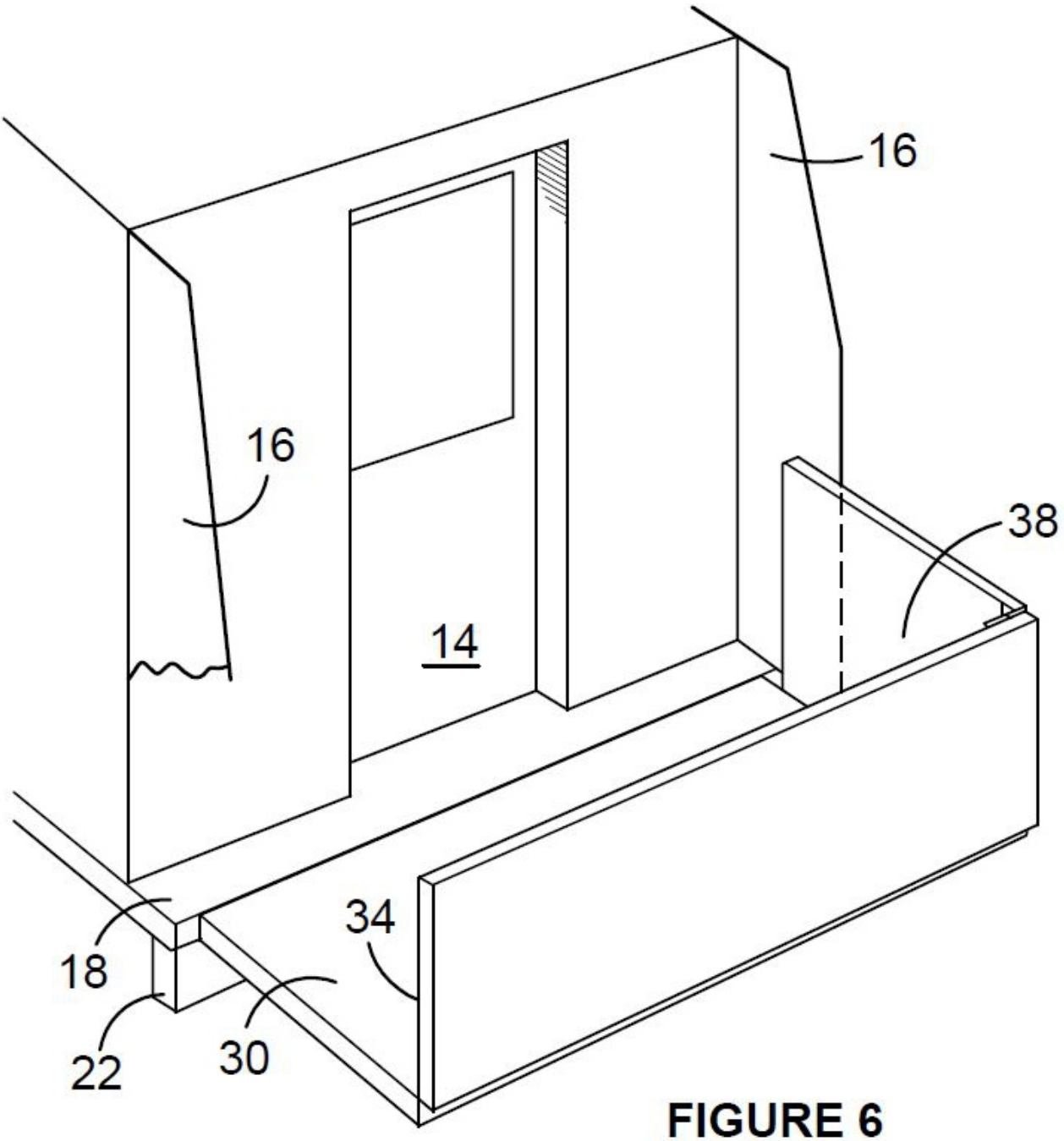

FIGURE 6

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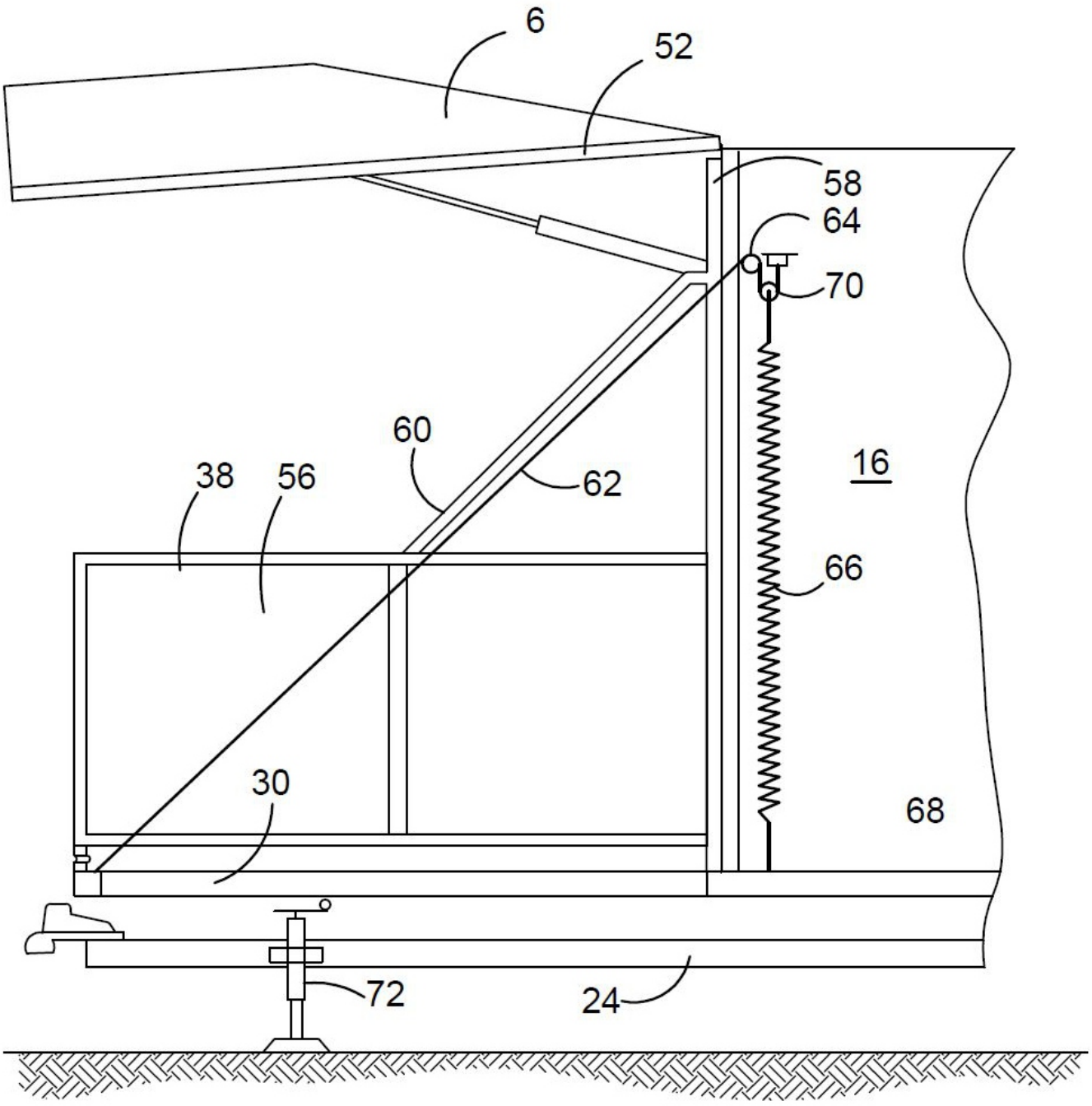

FIGURE 7

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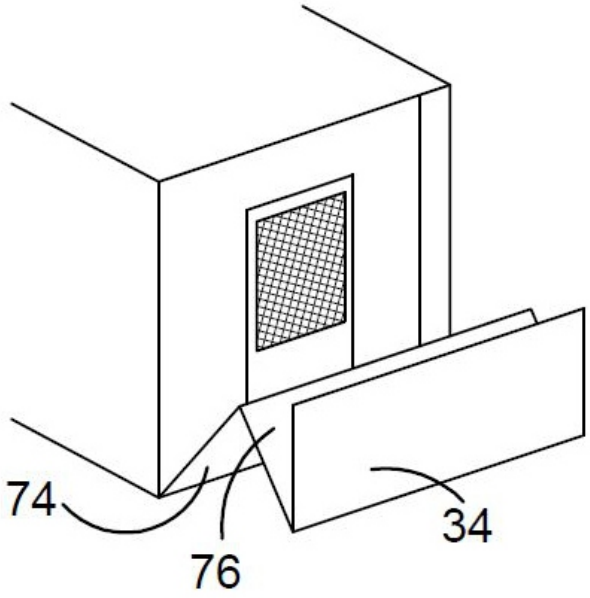

FIGURE 8

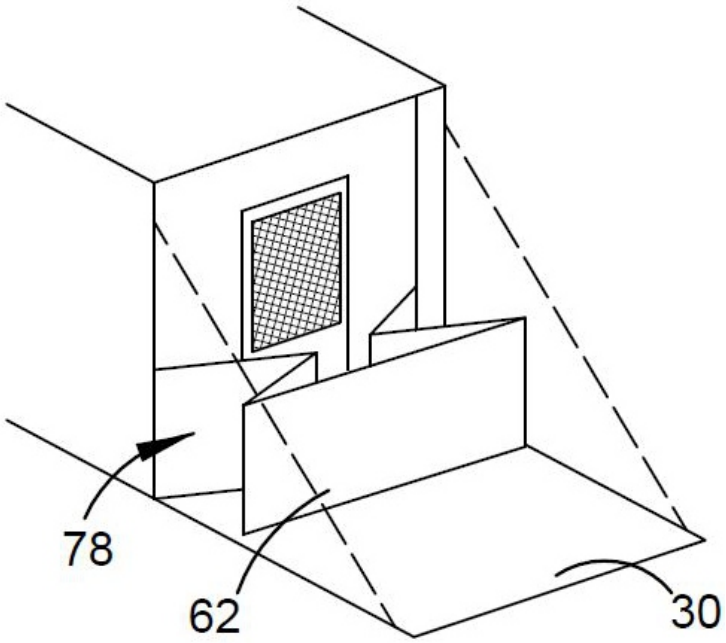

FIGURE 9

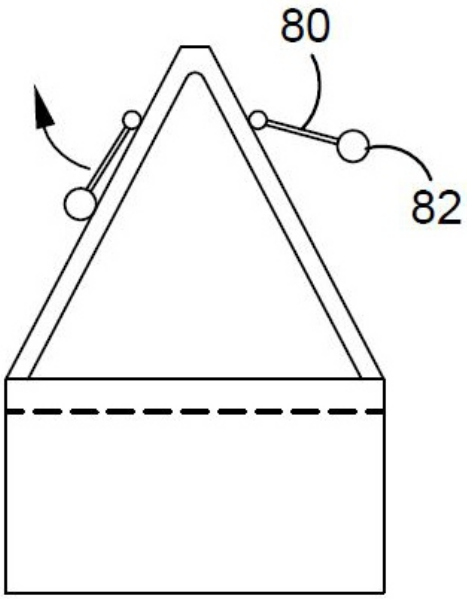

FIGURE 10

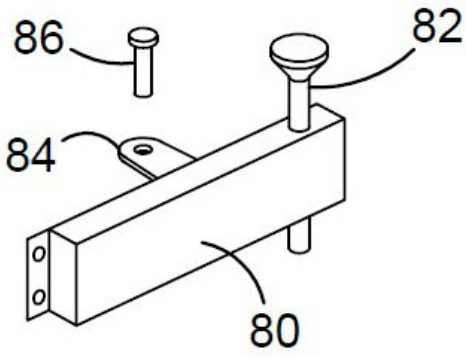

FIGURE 11

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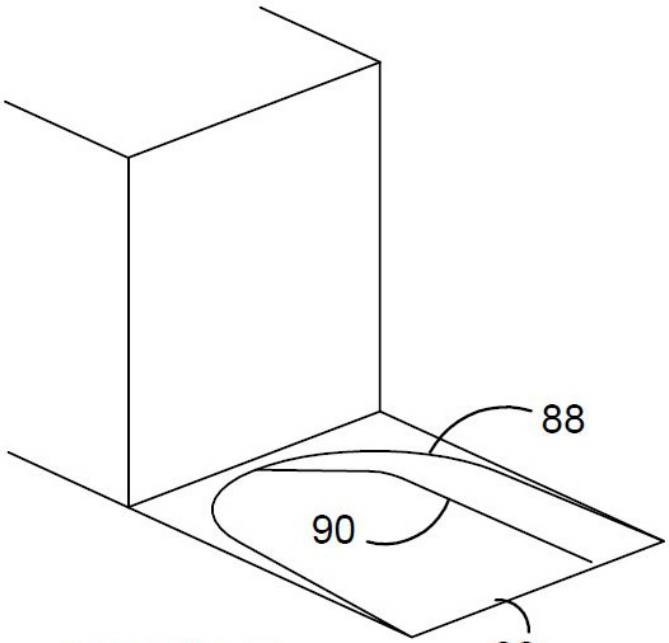

FIGURE 12

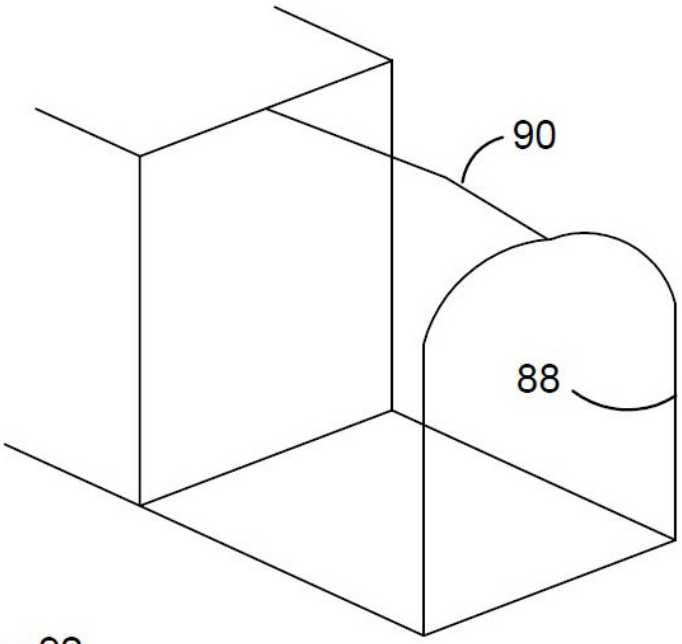

FIGURE 13

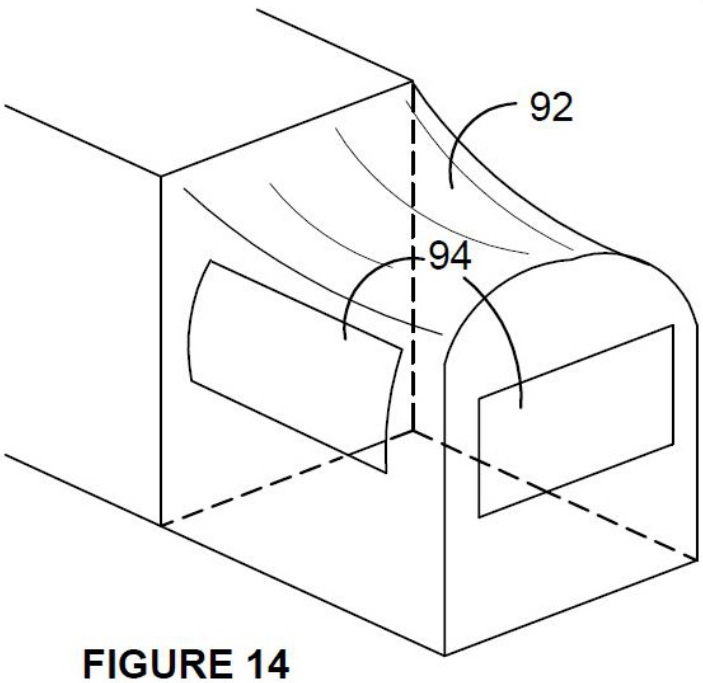

FIGURE 14

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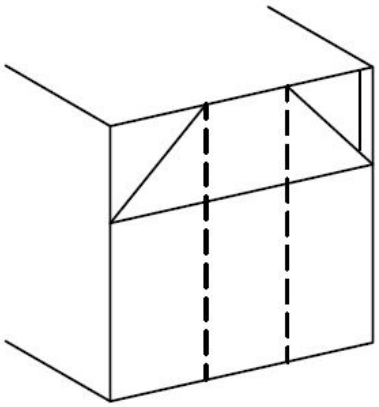

FIGURE 15

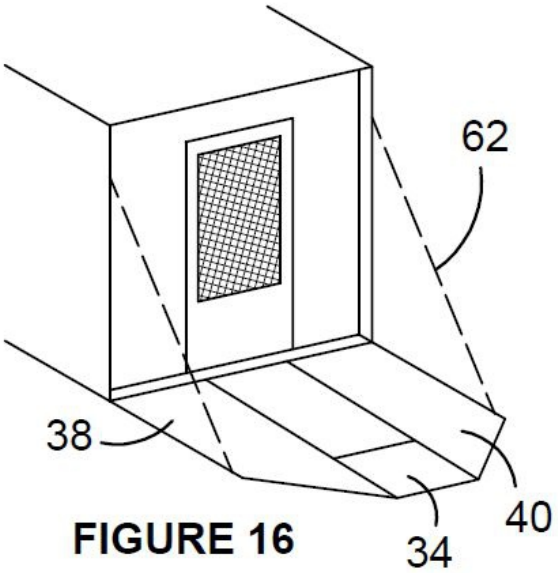

FIGURE 16

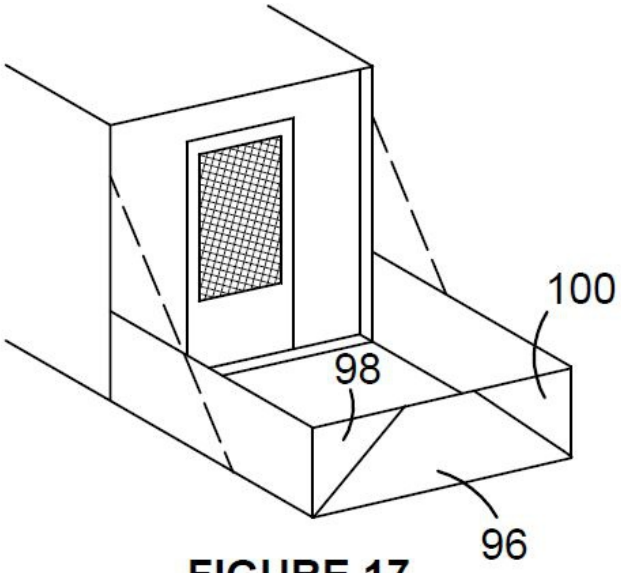

FIGURE 17

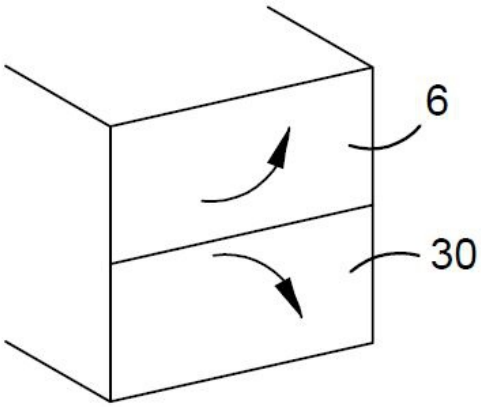

FIGURE 18

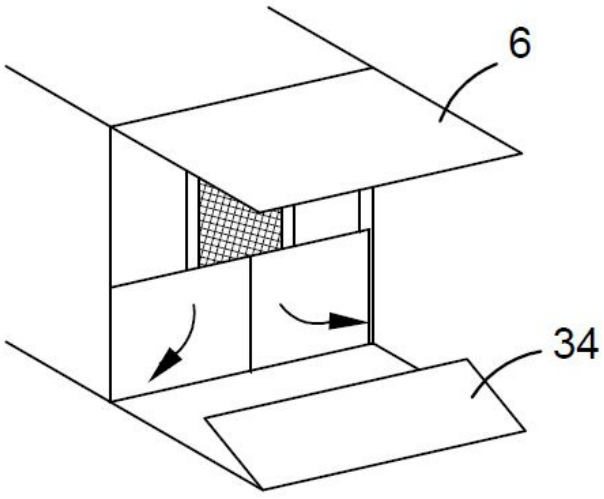

FIGURE 19

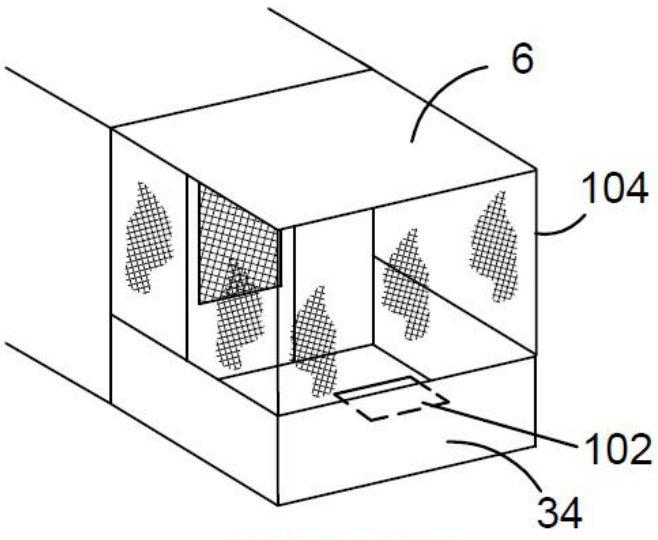

FIGURE 20

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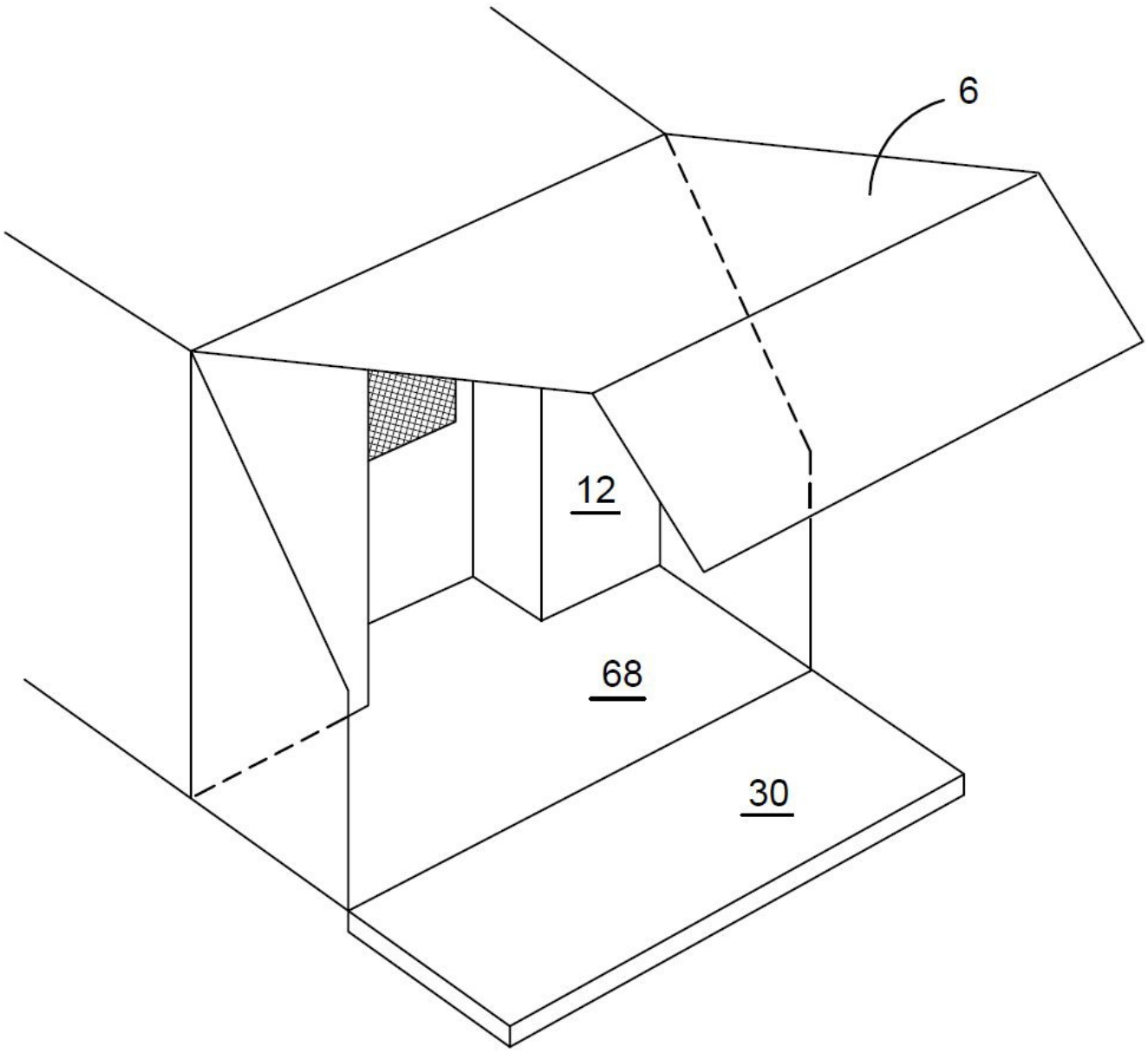

FIGURE 21

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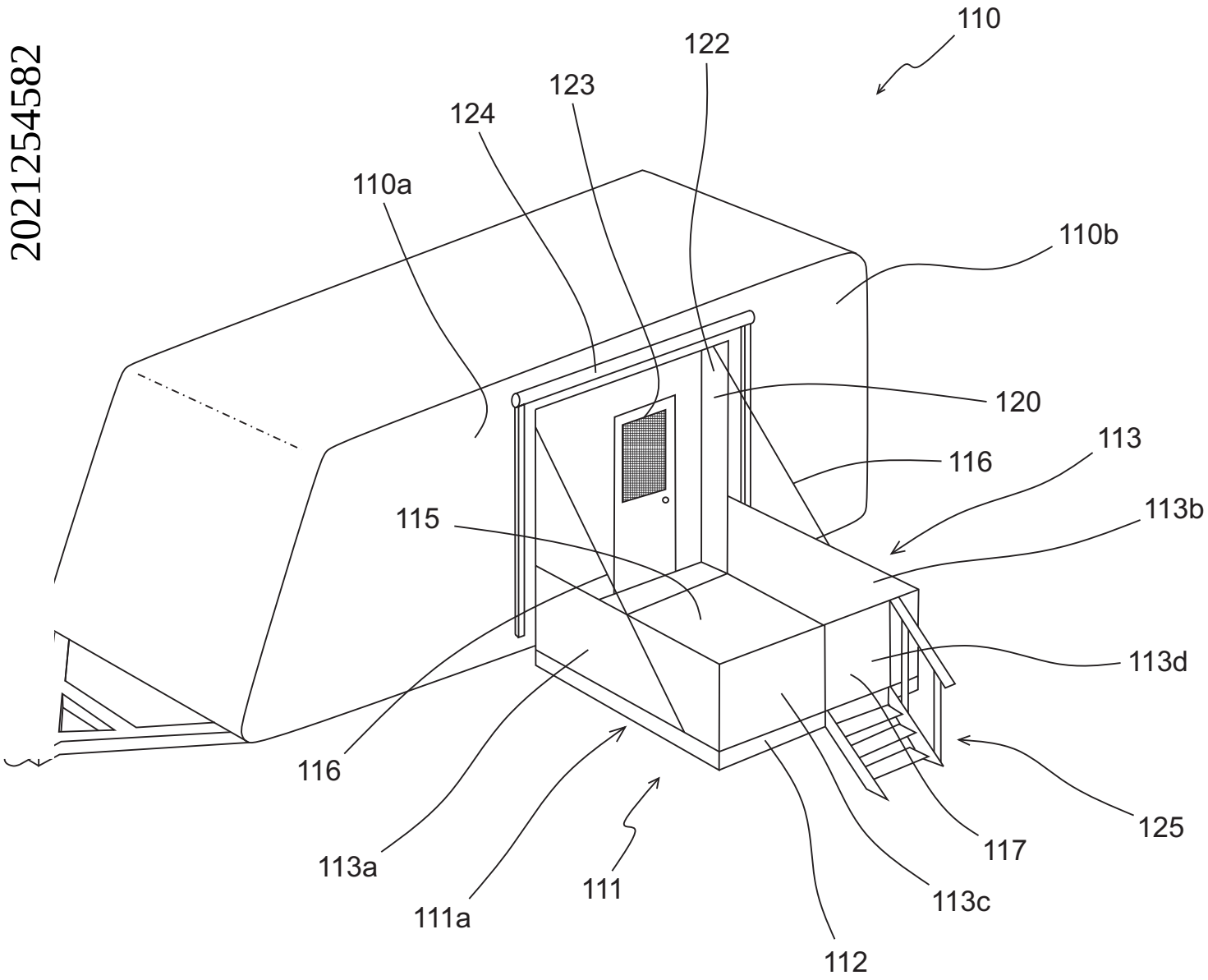

FIGURE 22

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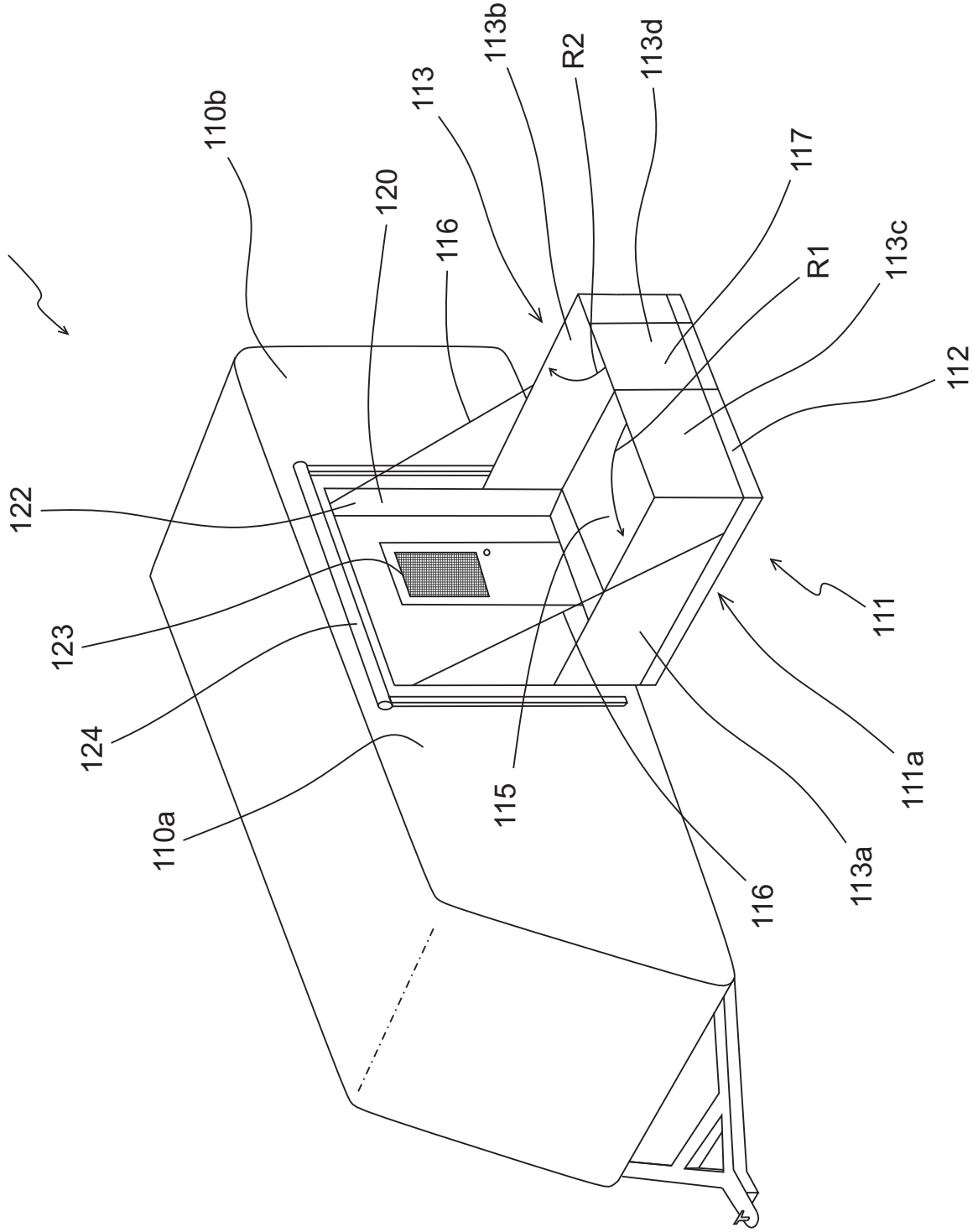

FIGURE 23

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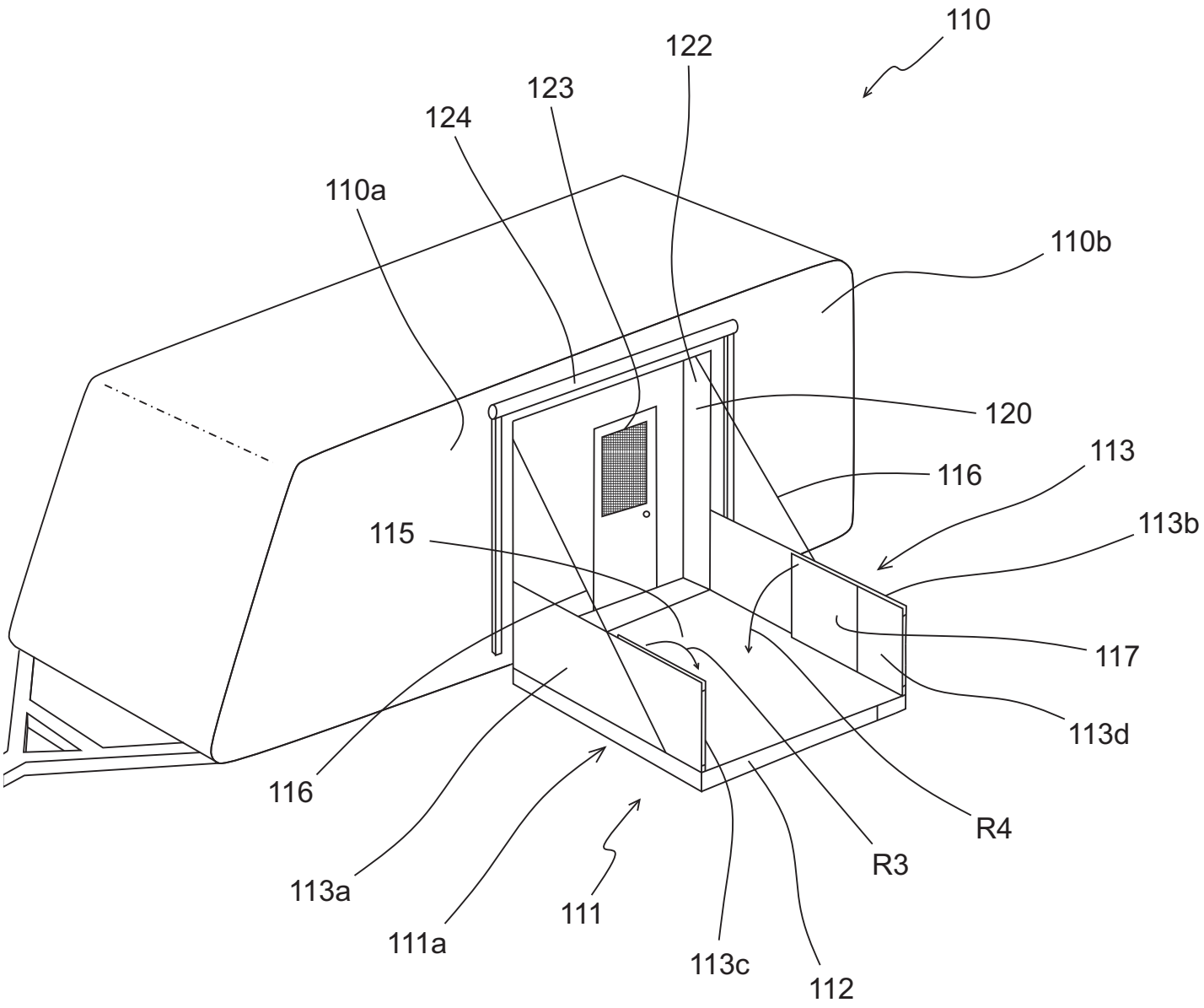

FIGURE 24

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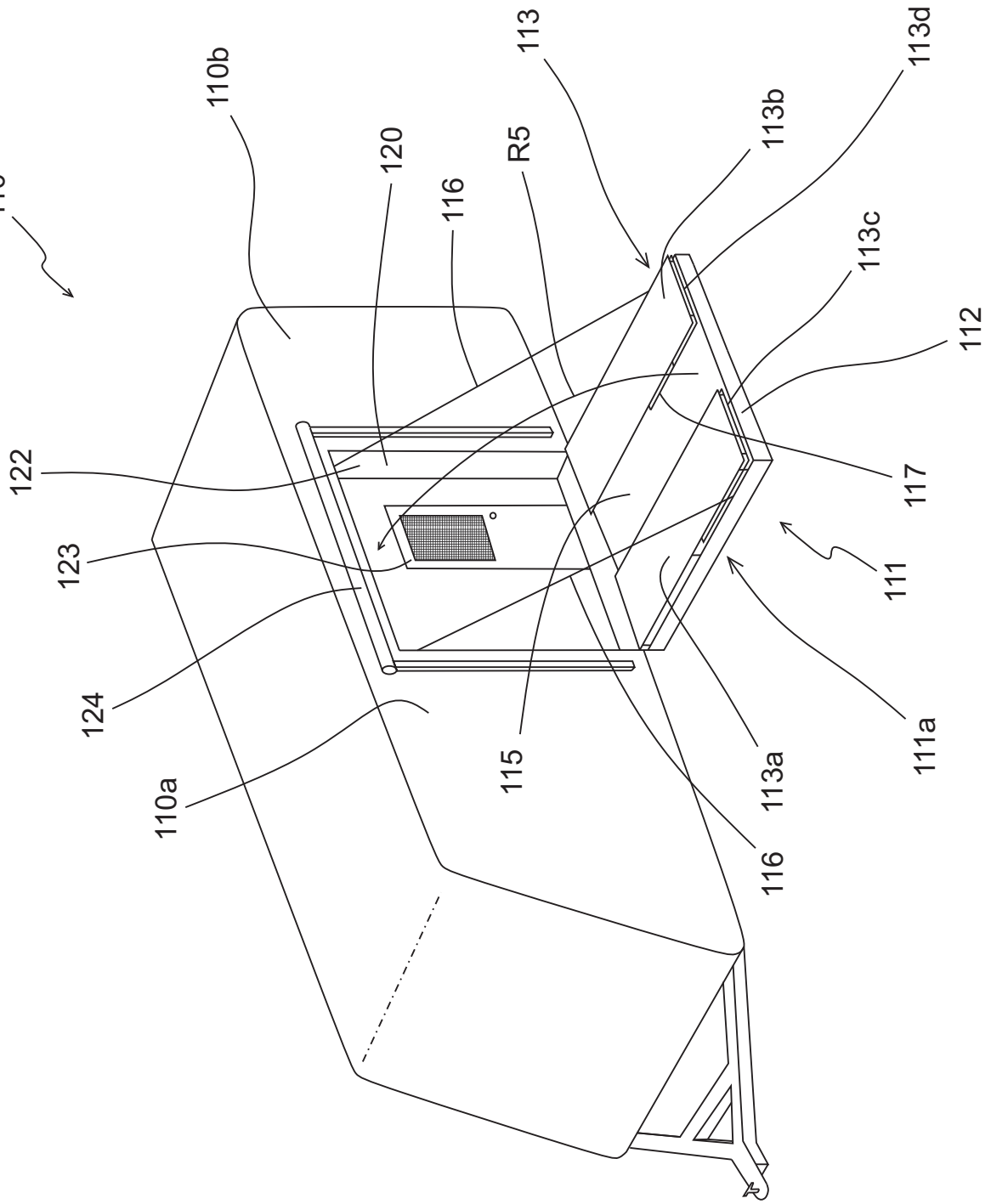

FIGURE 25

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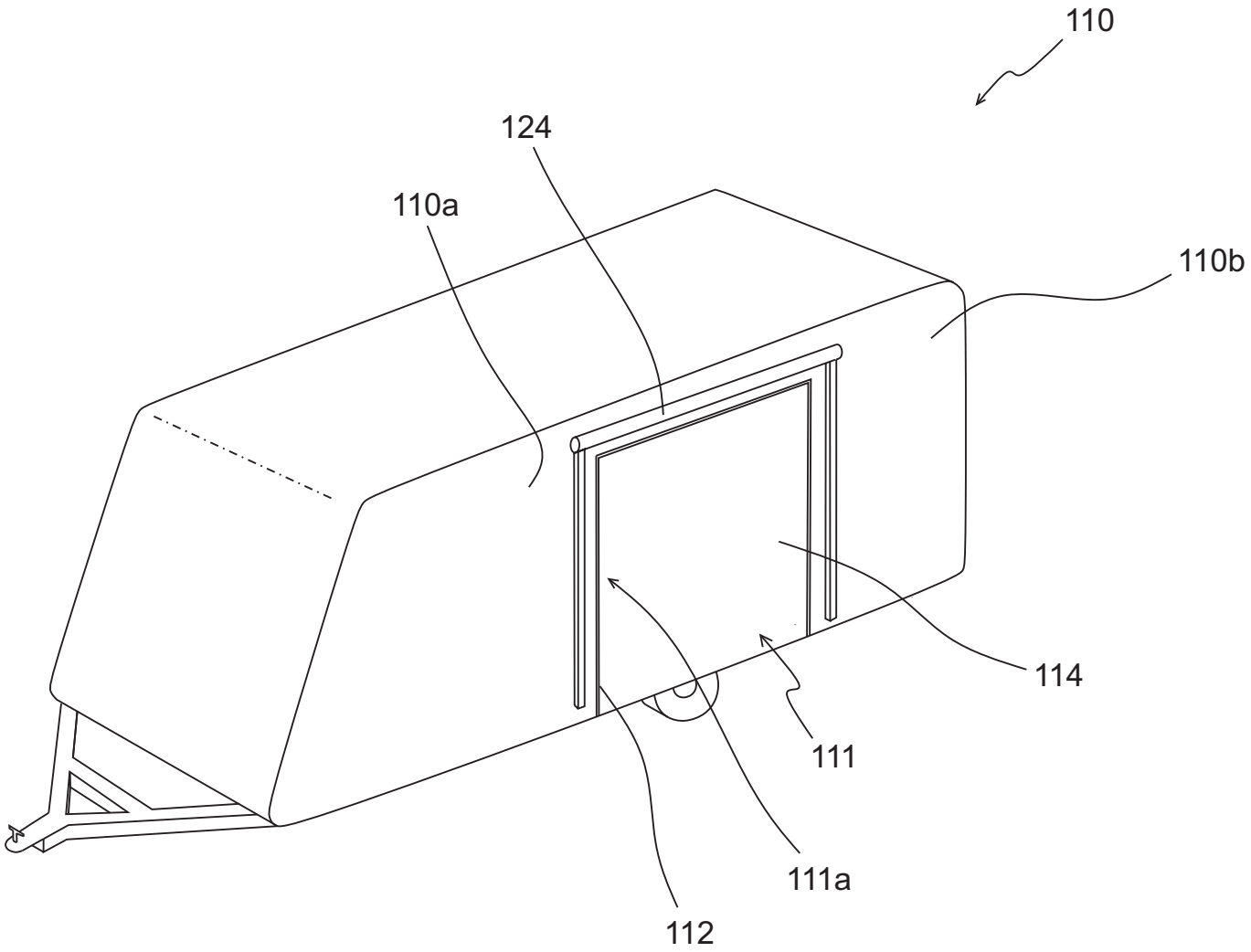

FIGURE 26

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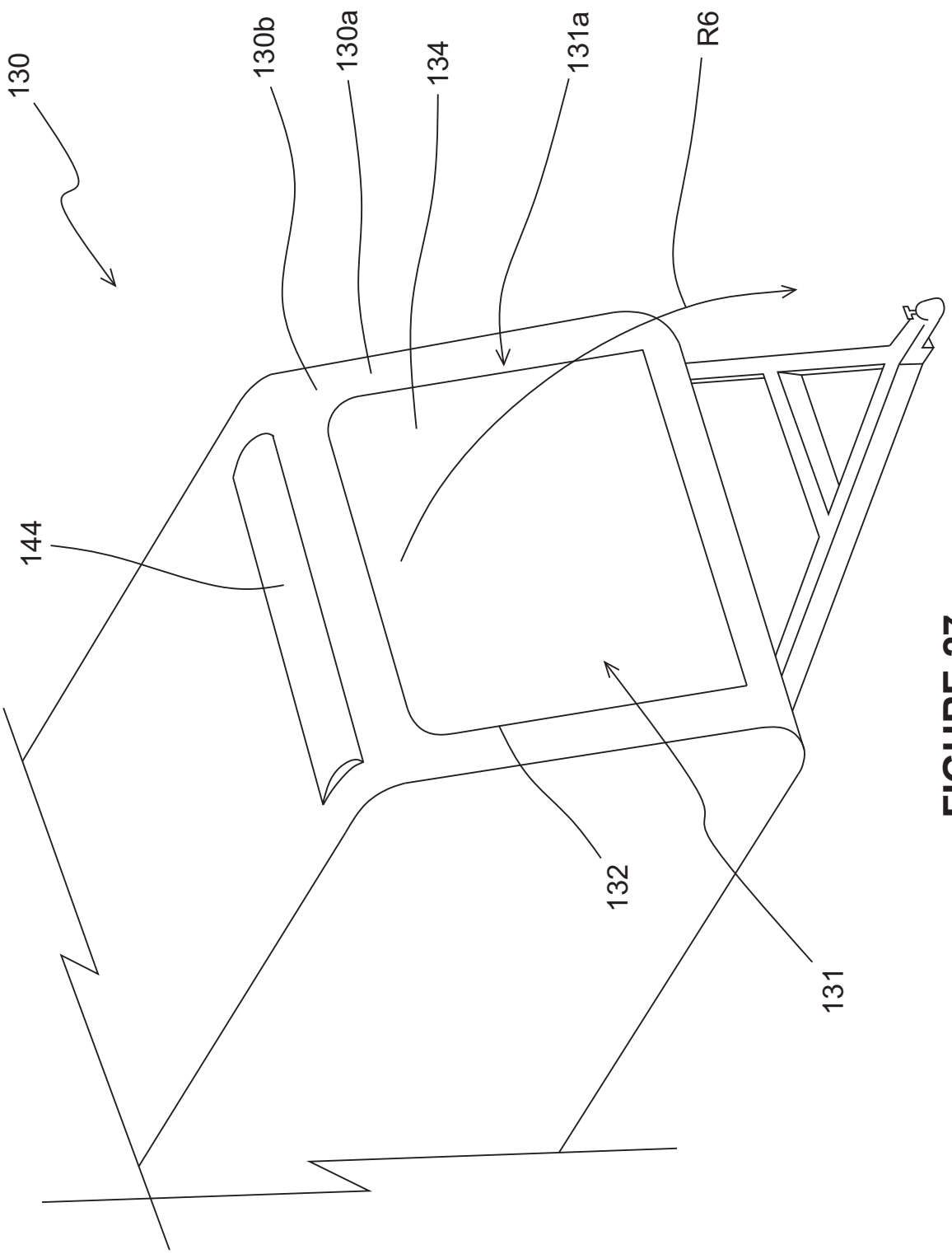

FIGURE 27

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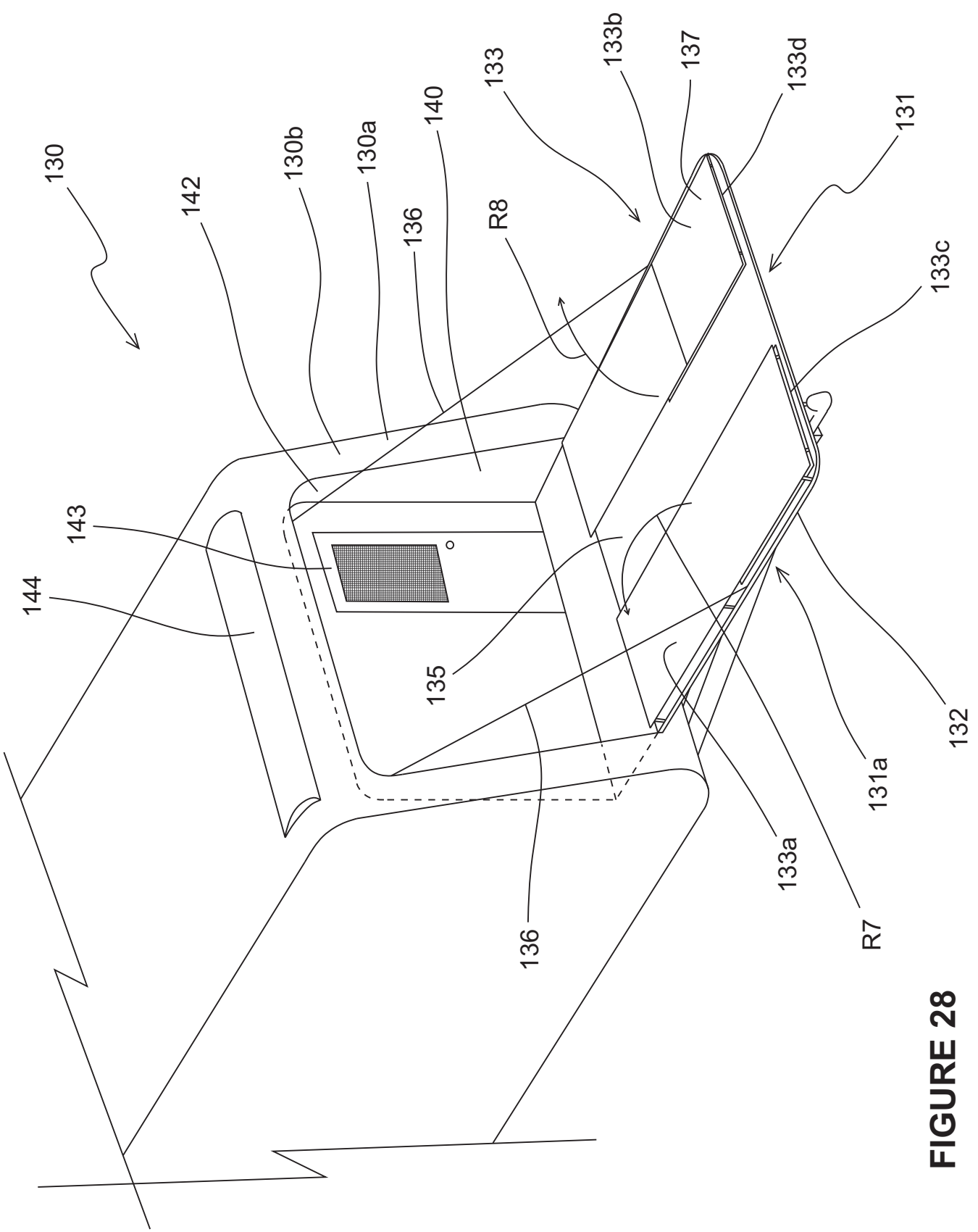

FIGURE 28

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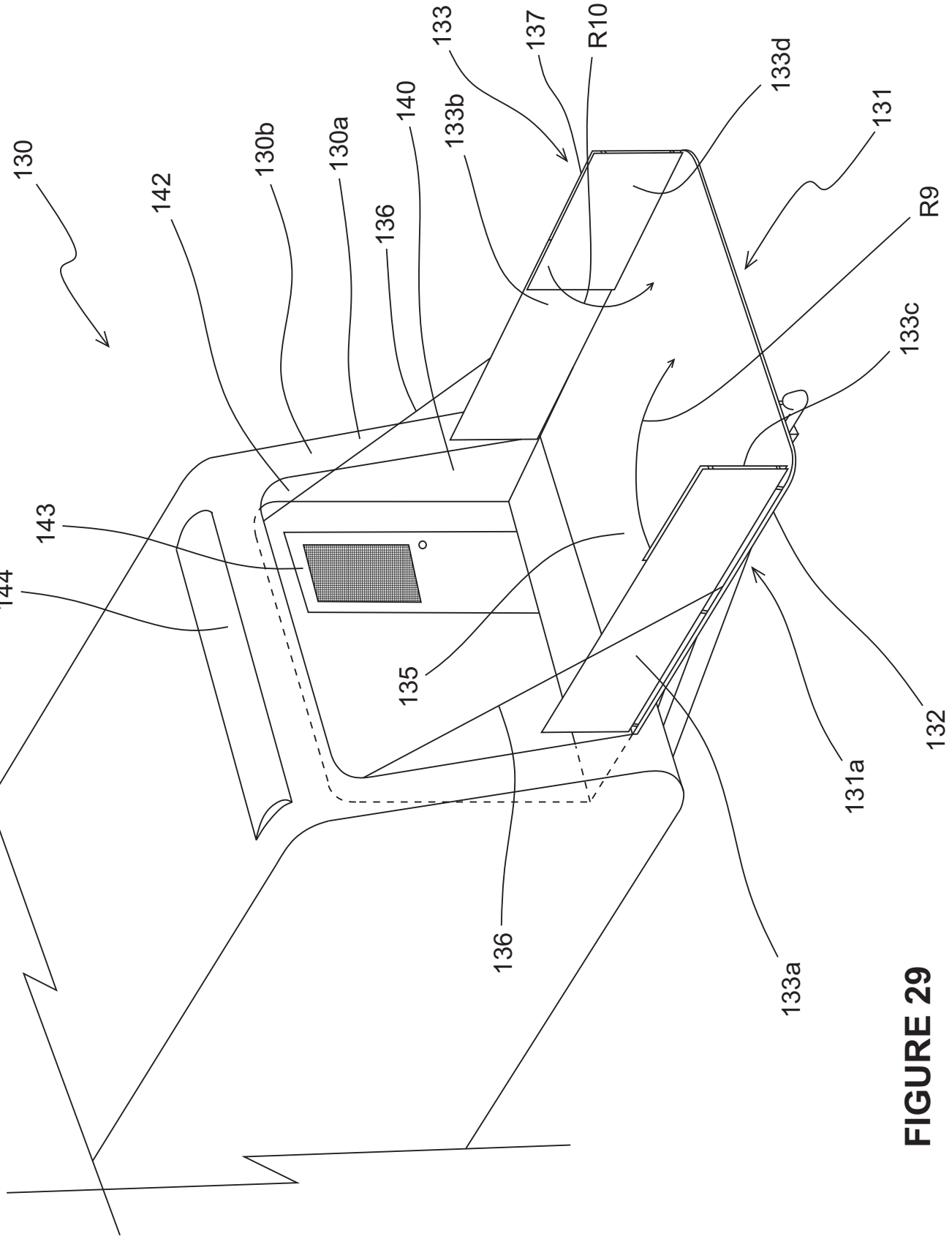

FIGURE 29

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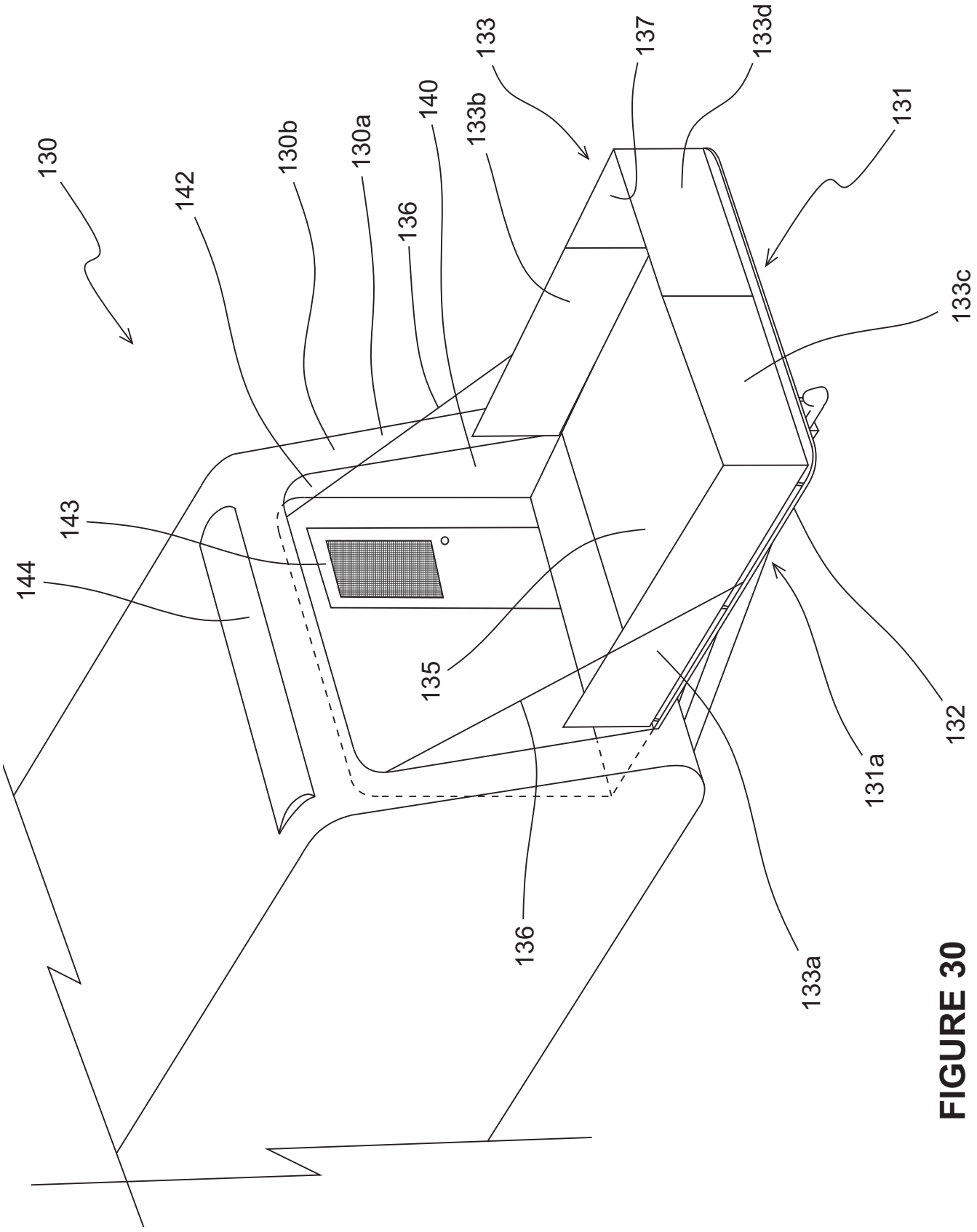

FIGURE 30

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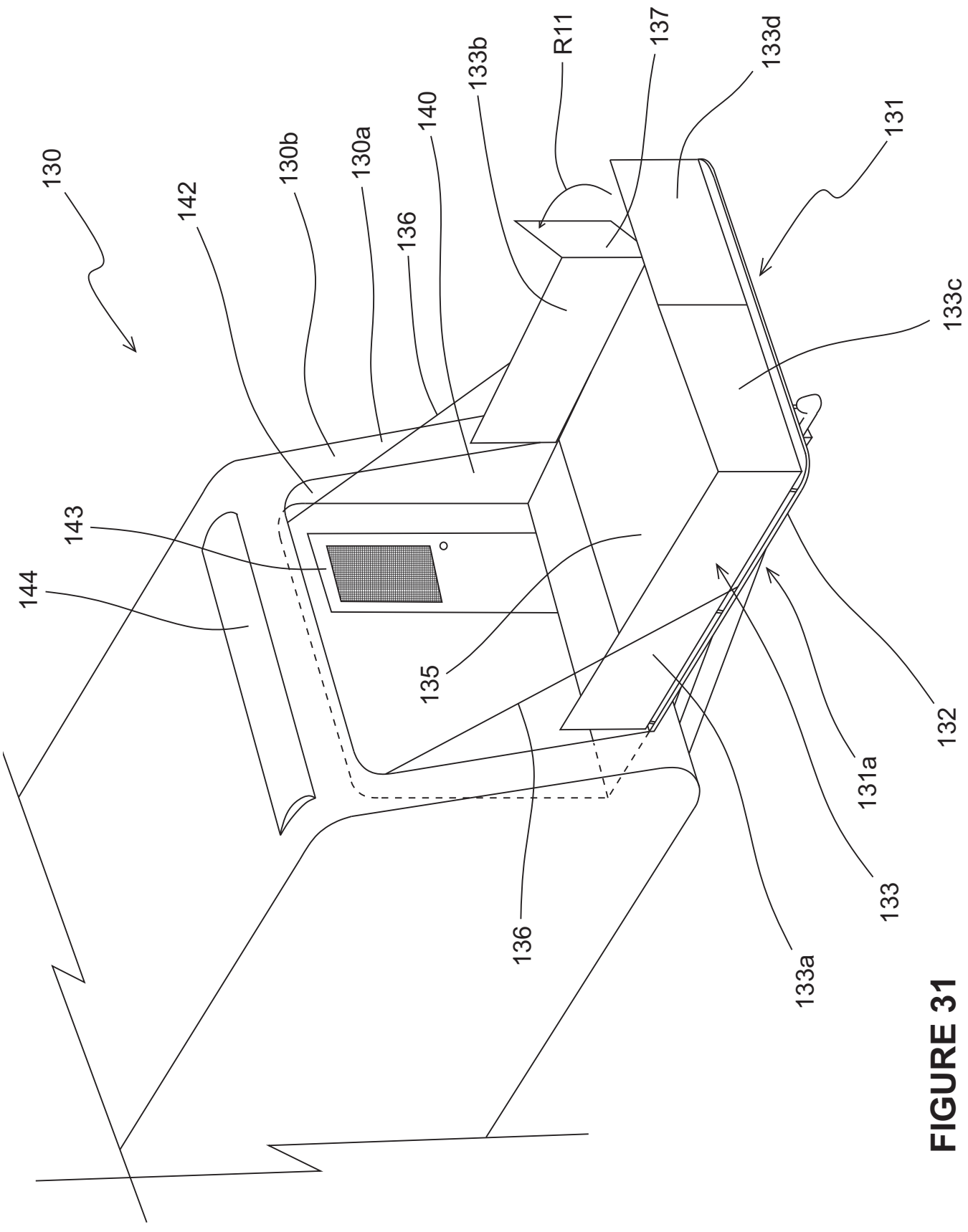

FIGURE 31