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Acknowledgement of receipt

We hereby acknowledge receipt of the following subsequently filed document(s):

Submission number	15424896
Application number	EP25179063.0
Date of receipt	10 June 2026
Filing Office	European Patent Office, The Hague
Procedural phase	All procedures
Your reference	P6167EP01
Documents submitted	package-data.xml epf1038.pdf (2 p.) CLMS-1.pdf\P6167EP01_amended claims_clean.pdf (3 p.) DESC-1.pdf\P6167EP01_amended descritpion pages 1 and 2_clean.pdf (3 p.) ep-sfd-request.xml EPLETT-1.pdf\P6167EP01_response to R69 & EESR.pdf (3 p.) CLMS-HWA-1.pdf \P6167EP01_amended claims_marked.pdf (3 p.) DESC-HWA-1.pdf \P6167EP01_amended descritpion pages 1 and 2_marked.pdf (3 p.)
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Method of submission	Online
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/European Patent Office/

CLAIMS:

1. A sun shade assembly (5) comprising:

a mast (30) configured to extend upwardly from a supporting surface, and having a top end (31) and a bottom end (32);

at least one rib (10) located proximate the top end of said mast, and configured to rotate relative to the supporting surface;

a sail (20) having a proximal edge (61) secured to said rib and an unrestrained free edge (62) adapted to unfurl in response to blowing of the wind, and wherein an entire surface area of said sail is unrestrained from the proximal edge to the free edge; and

when unfurled, said sail and rib are adapted to rotate together to a direction of the blowing wind.

2. The assembly of claim 1, wherein said at least one rib (10) is attached to a cap (40) located at the top end of said mast.

3. The assembly of claim 2, further comprising a tension adjuster (25) adapted for adjusting pivot tension of said cap, thereby controlling rotation of said sail and rib in response to blowing of the wind.

4. The assembly of claim 1, and comprising an anchor (35) located at the bottom end of said mast.

5. The assembly of claim 1, and comprising at least one handle (83) for gripping said mast.

6. The sun shade assembly (5) of claim 1,

the at least one rib comprising a pair of pivoted ribs (10) carried by said mast and configured to rotate relative to the supporting surface, and said pivoted ribs adapted to lift outwardly from said mast at respective pivot points into an unfolded condition and to lower at respective pivot points from the unfolded condition to a folded condition alongside said mast;

comprising a cap (40) located at a top end (31) of said mast, and wherein first ends (11) of said pivoted ribs are attached to said cap;

the sail (20) having the proximal edge (61) secured to each of said pivoted ribs, and the unrestrained free edge (62) opposite the proximal edge;

whereby said sail is unfolded by lifting said pivot ribs outwardly from said mast from the folded condition into the unfolded condition such that the unrestrained free edge of said sail unfurls in response to blowing of the wind, and wherein said sail and ribs rotate together to a direction of the blowing wind; and

comprising a tension adjuster (25) adapted for adjusting pivot tension of said cap, thereby controlling rotation of said sail and ribs in response to blowing of the wind.

7. The assembly of claim 6, and comprising an anchor (35) located at a bottom end of said mast.

8. The assembly of claim 6, and comprising at least one handle (83) for gripping said mast.

9. The sun shade assembly of claim 1:

the at least one rib comprising a pair of pivoted ribs (10) pivotably attached proximate the top end of said mast, and configured to rotate relative to the supporting surface;

the sail having the proximal edge defining a channel (65) sized and shaped to receive each of said pivoted ribs, and the unrestrained free edge adapted to unfurl in response to blowing of the wind;

comprising a slider (45) configured to move up and down said mast, and operatively actuating said pivoted ribs such:

(i) that raising said slider on said mast causes said pivoted ribs to open outwardly from a folded condition into an unfolded condition thereby unfolding said sail, such that when unfolded said sail unfurls in response to blowing of the wind and rotates together with said pivoted ribs to a direction of the blowing wind; and

(ii) lowering said slider on said mast causes said pivoted ribs to fold downwardly into the folded condition adjacent said mast, such that said sail is folded for storage.

10. A method of using a sunshade assembly (5), the method comprising:

extending a mast (30) of the sunshade assembly upwardly from a supporting surface, the sunshade assembly further comprising a rib (10) carried by the mast and configured to rotate relative to the supporting surface, and a sail (20) having a proximal edge (62) secured to the rib and an unrestrained free edge (61) opposite the proximate edge, and wherein an

entire surface area of the sail is unrestrained from the proximal edge to the free edge;

unfurling the unrestrained free edge of the sail in response to blowing of the wind; and when the sail is unfurled, enabling the sail and rib to rotate together to a direction of the blowing wind.

11. The method according to claim 10, and comprising adjustably controlling rotation of the sail and rib in response to blowing of the wind.

12. The method according to claim 10, and comprising lowering the rib to a folded condition alongside the mast, thereby folding the sail for storage.

13. The method of claim 10:

the sunshade assembly comprising a pair of pivoted ribs (10) include said rib carried by the mast and configured to rotate relative to the supporting surface, and the sail having the proximal edge secured to each of the pivoted ribs and the unrestrained free edge opposite the proximate edge;

lifting the pivoted ribs outwardly from the mast at respective pivot points from a folded condition alongside the mast into an unfolded condition, such that in the unfolded condition the unrestrained free edge of the sail unfurls in response to blowing of the wind; and

when the sail is unfurled, enabling the sail and pivoted ribs to rotate together relative to the mast to a direction of the blowing wind.

14. The method according to claim 13, and comprising adjustably controlling rotation of the sail and pivoted ribs in response to blowing of the wind.

15. The method according to claim 13, and comprising lowering the pivoted ribs from the unfolded condition to the folded condition alongside the mast, thereby folding the sail for storage.

CLAIMS:

~~1.~~ 6. The~~A~~ sun shade assembly (5) of claim 1, ~~comprising:~~

~~a mast configured to extend upwardly from a supporting surface;~~

the at least one rib comprising a~~a~~ pair of pivoted ribs (10) carried by said mast and configured to rotate relative to the supporting surface, and said pivoted ribs adapted to lift outwardly from said mast at respective pivot points into an unfolded condition and to lower at respective pivot points from the unfolded condition to a folded condition alongside said mast;

comprising a cap (40) located at a top end (31) of said mast, and wherein ~~the~~ first ends (11) of said pivoted ribs are attached to said cap;

~~a~~ the sail (20) having the~~a~~ proximal edge (61) secured to each of said pivoted ribs, and the~~an~~ unrestrained free edge (62) opposite the ~~proximate~~ proximal edge;

whereby said sail is unfolded by lifting said pivot ribs outwardly from said mast from the folded condition into the unfolded condition such that the unrestrained free edge of said sail unfurls in response to blowing of the wind, and wherein said sail and ribs rotate together to a direction of the blowing wind; and

comprising a tension adjuster (25) adapted for adjusting pivot tension of said cap, thereby controlling rotation of said sail and ribs in response to blowing of the wind.

~~2.~~ 7. The assembly of claim 6~~1~~, and comprising an anchor (35) located at a bottom end of said mast.

~~3.~~ 8. The assembly of claim ~~1~~6, and comprising at least one handle (83) for gripping said mast.

~~4.~~ 1. A sun shade assembly (5) comprising:

a mast (30) configured to extend upwardly from a supporting surface, and having a top end (31) and a bottom end (32);

at least one rib (10) located proximate the top end of said mast, and configured to rotate relative to the supporting surface;

a sail (20) having a proximal edge (61) secured to said rib and an unrestrained free edge (62) adapted to unfurl in response to blowing of the wind, and wherein an entire surface area of said sail is unrestrained from the proximal edge to the free edge; and

when unfurled, said sail and rib are adapted to rotate together to a direction of the

blowing wind.

~~5.~~ 2. The assembly of claim ~~4~~1, wherein said at least one rib (10) is attached to a cap (40) located at the top end of said mast.

~~6.~~ 3. The assembly of claim ~~5~~2, further comprising a tension adjuster (25) adapted for adjusting pivot tension of said cap, thereby controlling rotation of said sail and rib in response to blowing of the wind.

~~7.~~ 4. The assembly of claim 41, and comprising an anchor (35) located at the bottom end of said mast.

~~8.~~ 5. The assembly of claim ~~4~~1, and comprising at least one handle (83) for gripping said mast.

~~9.~~ 9. The~~A~~ sun shade assembly of claim 1~~comprising~~:

~~a mast configured to extend upwardly from a supporting surface, and having a top end and a bottom end;~~

the at least one rib comprising a pair of pivoted ribs (10) pivotably attached proximate the top end of said mast, and configured to rotate relative to the supporting surface;

the~~a~~ sail having the~~a~~ proximal edge defining a channel (65) sized and shaped to receive each of said pivoted ribs, and the~~an~~ unrestrained free edge adapted to unfurl in response to blowing of the wind;

comprising a slider (45) configured to move up and down said mast, and operatively actuating said pivoted ribs such:

(i) that raising said slider on said mast causes said pivoted ribs to open outwardly from a folded condition into an unfolded condition thereby unfolding said sail, such that when unfolded said sail unfurls in response to blowing of the wind and rotates together with said pivoted ribs to a direction of the blowing wind; and

(ii) lowering said slider on said mast causes said pivoted ribs to fold downwardly into the folded condition adjacent said mast, such that said sail is folded for storage.

~~10.~~ 10. A method of using a sunshade assembly (5), the method comprising:

extending a mast (30) of the sunshade assembly upwardly from a supporting surface, the sunshade assembly further comprising a rib (10) carried by the mast and configured to rotate relative to the supporting surface, and a sail (20) having a proximal edge (62) secured to the rib and an unrestrained free edge (61) opposite the proximate edge, and wherein an entire surface area of the sail is unrestrained from the proximal edge to the free edge;

unfurling the unrestrained free edge of the sail in response to blowing of the wind; and when the sail is unfurled, enabling the sail and rib to rotate together to a direction of the blowing wind.

~~11.~~ 11. The method according to claim 10, and comprising adjustably controlling rotation of the sail and rib in response to blowing of the wind.

~~12.~~ 12. The method according to claim 10, and comprising lowering the rib to a folded condition alongside the mast, thereby folding the sail for storage.

~~13.~~ 13. ~~A~~The method of claim 10~~using a sunshade assembly, the method comprising~~:

~~extending a mast of the sunshade assembly upwardly from a supporting surface,~~ the sunshade assembly ~~further~~ comprising a pair of pivoted ribs (10) include said rib carried by the mast and configured to rotate relative to the supporting surface, and the~~a~~ sail having the~~a~~ proximal edge secured to each of the pivoted ribs and the~~an~~ unrestrained free edge opposite the proximate edge;

lifting the pivoted ribs outwardly from the mast at respective pivot points from a folded condition alongside the mast into an unfolded condition, such that in the unfolded condition the unrestrained free edge of the sail unfurls in response to blowing of the wind; and

when the sail is unfurled, enabling the sail and pivoted ribs to rotate together relative to the mast to a direction of the blowing wind.

~~14.~~ 14. The method according to claim 13, and comprising adjustably controlling rotation of the sail and pivoted ribs in response to blowing of the wind.

~~15.~~ 15. The method according to claim 13, and comprising lowering the pivoted ribs from the unfolded condition to the folded condition alongside the mast, thereby folding the sail for storage.

SUN SHADE ASSEMBLY

CROSS REFERENCE TO RELATED APPLICATIONS

The present application claims the benefit of U.S. Provisional Patent Application No. 62/892,700, filed Aug. 28, 2019, the entire content of which is incorporated by reference herein.

TECHNICAL FIELD

The presently disclosed subject matter is directed to a sun shade assembly and to methods of making and the using the same.

BACKGROUND

Beach umbrellas are used to create an area shaded from the sunlight beneath the umbrella canopy. They are particularly useful at the beach where there is generally a lack of trees or roofed structures to provide shade. Because the skin of the beachgoer is largely exposed at the beach, there is a greater need to provide protection from harmful ultraviolet rays, which may cause sunburn or melanomas. Many beachgoers also require some form of shade to minimize heat discomfort. The shade and shelter provided by a beach umbrella is also useful in protecting the user's valuables and shielding perishable items from direct sunlight. Conventional beach umbrellas include a single central support pole with a pointed lower end that is inserted directly into the sand. Conventional umbrellas further include an overhead fabric covering attached to the support pole. However, the main problem with the canopy design of traditional umbrellas is that the position of the umbrella constantly shifts in response to wind gusts. As a result, the user must frequently readjust the umbrella to compensate for the shifts in movement. In addition, conventional umbrellas can easily tip over or be blown down the beach where they can cause hassle to the owner as well as injury to other beachgoers. Conventional umbrellas are also prone to wind breakage. It would therefore be beneficial to provide an umbrella with improved stability in response to the wind blowing. It would further be beneficial if the umbrella self-adjusted to the wind to prevent or reduce the likelihood of tipping over.

US 2013/0019794 A1 discloses a universal holder that can hold anything that has a pole-like or rod-like insert base. An upper pipe section made typically from PVC pipe has an upper end open and a lower end closed. The lower end can be fitted with a threaded nut. A stainless steel pipe or rod, which is highly corrosion resistant can have an upper end threaded to mate into the threaded nut. The pipe or rod can receive a point or a pointed spike at its bottom end for insertion into soil or sand. This point or spike can be aluminum. Alternatively, a solid stainless steel rod can tapered on the lower end into a point. The universal holder can be used to hold fishing poles, flag poles, flower pots, lanterns and numerous other items. It can also be paired with a second similar holder to hold a clothesline or the like. Various different accessories can be used with the universal holder to hold numerous diverse items. A particular accessory is a special type of flag pole that holds a flag at an angle and allows it to

turn in the wind.

SUMMARY

In some embodiments, the presently disclosed subject matter is directed to a sun shade assembly (e.g., an assembly that provides shade from the sun). The assembly comprises a pair of ribs defined by a first end and a second end, wherein the first end of each rib is attached to a pivot cap. The assembly further includes a sail with a front edge comprising a channel sized and shaped to house each rib such that the ribs extend across the edge. The assembly includes a mast comprising a first end and a second end, wherein the first end is operably connected to the pivot cap, wherein the pivot cap can freely rotate about the mast. The assembly comprises at least one support arm with a first end and a second end, wherein the first end of the support arm is attached

to a rib and the second end of the support arm is attached to a slider configured to move up and down the mast. The assembly comprises a tension adjuster that adjusts rotation of the pivot cap about the mast. The assembly comprises an anchor operably connected to the second end of the mast. The pivot cap, ribs, slider, and support arms are configured to rotate about the mast in response to blowing of the wind.

In some embodiments, the pivot cap rotates about the mast at an angle of about 0-360 degrees. In some embodiments, the pivot cap rotates about a top end of the mast (e.g., is configured to rotate about the top end of the mast).

In some embodiments, the ribs are configured at an angle of greater than 180 degrees relative to each other.

In some embodiments, one face of the pivot cap comprises a lock defined by a bridge comprising an opening and a slidable arm that moves to cover and expose the opening. A portion of sail material can be locked in between the bridge and slidable arm to lock it into position.

In some embodiments, the slider is configured as a collar that fits around the exterior circumference of the mast.

In some embodiments, the mast length is adjustable.

In some embodiments, the anchor is releasably attached to the second end of the mast.

In some embodiments, the anchor comprises an auger. The term "auger" refers to a member in which a spiral vane or multiple parallel vanes are provided about the perimeter of a shaft.

In some embodiments, the tension adjuster is configured to permit the pivot cap, slider, ribs, and support arms to freely rotate about the mast, not rotate about the mast, or any level of rotation therebetween. The pivot cap, slider, ribs, and support arms rotate as a single, attached unit.

In some embodiments, the sail channel comprises one or more apertures to facilitate insertion of the ribs into the channel.

In some embodiments, the sail channel comprises one or more apertures to allow direct contact between each rib and a corresponding support arm.

In some embodiments, the sail has a top face and a bottom face, and wherein the bottom face includes at least one conduit configured as a channel with an open mouth positioned adjacent to the channel, a closed back end, and a length parallel with the length of the sail.

In some embodiments, the sail has a top face and a bottom face and wherein at least one of the top or bottom faces comprises a coating.

In some embodiments, the sail has an opposed rear edge comprising an adjacent hem constructed from a durable material.

In some embodiments, the mast comprises at least one handle.

In some embodiments, the presently disclosed subject matter is directed to a method of

~~SELF-ADJUSTING~~ SUN SHADE ASSEMBLY

CROSS REFERENCE TO RELATED APPLICATIONS

The present application claims the benefit of U.S. Provisional Patent Application No. 62/892,700, filed Aug. 28, 2019, the entire content of which is incorporated by reference herein.

TECHNICAL FIELD

The presently disclosed subject matter is directed to a ~~self-adjusting~~ sun shade assembly and to methods of making and the using the same.

BACKGROUND

Beach umbrellas are used to create an area shaded from the sunlight beneath the umbrella canopy. They are particularly useful at the beach where there is generally a lack of trees or roofed structures to provide shade. Because the skin of the beachgoer is largely exposed at the beach, there is a greater need to provide protection from harmful ultraviolet rays, which may cause sunburn or melanomas. Many beachgoers also require some form of shade to minimize heat discomfort. The shade and shelter provided by a beach umbrella is also useful in protecting the user's valuables and shielding perishable items from direct sunlight. Conventional beach umbrellas include a single central support pole with a pointed lower end that is inserted directly into the sand. Conventional umbrellas further include an overhead fabric covering attached to the support pole. However, the main problem with the canopy design of traditional umbrellas is that the position of the umbrella constantly shifts in response to wind gusts. As a result, the user must frequently readjust the umbrella to compensate for the shifts in movement. In addition, conventional umbrellas can easily tip over or be blown down the beach where they can cause hassle to the owner as well as injury to other beachgoers. Conventional umbrellas are also prone to wind breakage. It would therefore be beneficial to provide an umbrella with improved stability in response to the wind blowing. It would further be beneficial if the umbrella self-adjusted to the wind to prevent or reduce the likelihood of tipping over.

US 2013/0019794 A1 discloses a universal holder that can hold anything that has a pole-like or rod-like insert base. An upper pipe section made typically from PVC pipe has an upper end open and a lower end closed. The lower end can be fitted with a threaded nut. A stainless steel pipe or rod, which is highly corrosion resistant can have an upper end threaded to mate into the threaded nut. The pipe or rod can receive a point or a pointed spike at its bottom end for insertion into soil or sand. This point or spike can be aluminum. Alternatively, a solid stainless steel rod can tapered on the lower end into a point. The universal holder can be used to hold fishing poles, flag poles, flower pots, lanterns and numerous other items. It can also be paired with a second similar holder to hold a clothesline or the like. Various different accessories can be used with the universal holder to hold numerous diverse items. A particular accessory is a special type of flag pole that holds a flag at an angle and allows it to

turn in the wind.

SUMMARY

In some embodiments, the presently disclosed subject matter is directed to a sun shade assembly (e.g., an assembly that provides shade from the sun). The assembly comprises a pair of ribs defined by a first end and a second end, wherein the first end of each rib is attached to a pivot cap. The assembly further includes a sail with a front edge comprising a channel sized and shaped to house each rib such that the ribs extend across the edge. The assembly includes a mast comprising a first end and a second end, wherein the first end is operably connected to the pivot cap, wherein the pivot cap can freely rotate about the mast. The assembly comprises at least one support arm with a first end and a second end, wherein the first end of the support arm is attached

to a rib and the second end of the support arm is attached to a slider configured to move up and down the mast. The assembly comprises a tension adjuster that adjusts rotation of the pivot cap about the mast. The assembly comprises an anchor operably connected to the second end of the mast. The pivot cap, ribs, slider, and support arms are configured to rotate about the mast in response to blowing of the wind.

In some embodiments, the pivot cap rotates about the mast at an angle of about 0-360 degrees. In some embodiments, the pivot cap rotates about a top end of the mast (e.g., is configured to rotate about the top end of the mast).

In some embodiments, the ribs are configured at an angle of greater than 180 degrees relative to each other.

In some embodiments, one face of the pivot cap comprises a lock defined by a bridge comprising an opening and a slidable arm that moves to cover and expose the opening. A portion of sail material can be locked in between the bridge and slidable arm to lock it into position.

In some embodiments, the slider is configured as a collar that fits around the exterior circumference of the mast.

In some embodiments, the mast length is adjustable.

In some embodiments, the anchor is releasably attached to the second end of the mast.

In some embodiments, the anchor comprises an auger. The term "auger" refers to a member in which a spiral vane or multiple parallel vanes are provided about the perimeter of a shaft.

In some embodiments, the tension adjuster is configured to permit the pivot cap, slider, ribs, and support arms to freely rotate about the mast, not rotate about the mast, or any level of rotation therebetween. The pivot cap, slider, ribs, and support arms rotate as a single, attached unit.

In some embodiments, the sail channel comprises one or more apertures to facilitate insertion of the ribs into the channel.

In some embodiments, the sail channel comprises one or more apertures to allow direct contact between each rib and a corresponding support arm.

In some embodiments, the sail has a top face and a bottom face, and wherein the bottom face includes at least one conduit configured as a channel with an open mouth positioned adjacent to the channel, a closed back end, and a length parallel with the length of the sail.

In some embodiments, the sail has a top face and a bottom face and wherein at least one of the top or bottom faces comprises a coating.

In some embodiments, the sail has an opposed rear edge comprising an adjacent hem constructed from a durable material.

In some embodiments, the mast comprises at least one handle.

In some embodiments, the presently disclosed subject matter is directed to a method of

European Patent Office
80298 Munich
Germany

VIP Ref: P6167EP01

Date: 10 June 2026

European Patent Application No. 25179063.0
In the name of Solbello, Inc.

Dear Members of the Examining Division,

We refer to the Communication pursuant to Rules 69 EPC dated 15 December 2025.

The Applicant wishes to request examination along with the payment of examination and designation fees. In the following, a response to the European search opinion is provided.

We hereby request that examination should proceed on the basis of the response filed herewith.

The Applicant files herewith amended description pages 1 and 2 and amended claims 1 to 15. Marked up copies of the amended description pages 1 and 2 and amended claims are also provided for the Examiner's ease of reference.

The amendments to the claims address the objections raised at paragraph 2.1 of the European search opinion. In particular, the claims have been amended and renumbered so that claim 1 corresponds to searched independent claim 4. Claims 5 to 8 have been renumbered as claims 2 to 5. Original claim 1 has been renumbered as claim 6 and made dependent on claim 1. Original claims 2 and 3 have been renumbered as claims 7 and 8. Original claim 9 has been made dependent on claim 1. Claims 10 to 15 correspond to original claims 10 to 15, except that original claim 13 has been made dependent on claim 10. Accordingly, the amended claims include one independent apparatus claim and one corresponding independent method claim, and the claims are directed to the searched subject-matter.

The objection raised at paragraph 2.2 is addressed by amendment of the description. In particular, the technical field section has been amended for consistency with the claims. Basis for this amendment may be found, for example, in the first sentence of the summary section of the application as filed.

With regard to paragraph 3.2, the Applicant submits that the amended claims are supported by the application as filed and by the earlier application as filed when those applications are considered as a whole.

With regard to paragraphs 4.1 to 4.5 and 5.1 to 5.3, the Applicant submits that the cited documents do not anticipate or render obvious the subject-matter now claimed. In particular, the cited documents do not disclose or suggest the combination of features of present claims 1 and 10.

With regard to paragraphs 6.1 and 6.2, the Applicant respectfully submits that the present claim format is clear and appropriate. The cited background art has been acknowledged in the amended description.

The Applicant therefore respectfully requests that the application proceed to substantive examination on the basis of the enclosed amended description pages 1 and 2 and amended claims 1 to 15.

If the Examining Division is minded to refuse the application, oral proceedings pursuant to Article 116 EPC are hereby requested.

Summary

We submit that the above response fully addresses the objections raised in the search opinion. Should any minor matter remain outstanding the undersigned Representative would be pleased to discuss this with the Examiner by telephone.

Purely, as a precaution, we request oral proceedings in the event that the Examining Division forms an intention to refuse the present application. As a further precaution, it is hereby stated that any amendment to the present application, including any deletion, does not amount to an abandonment of any of the subject-matter in the application as filed, and that the right to restore

deleted subject-matter, and/or file one or more divisional applications in respect of any of the subject-matter in the application as filed is maintained.

Yours faithfully,



Greg Sach
Valet Patent Services
Association No. 1068

Enclosures:
Amended claims (clean & marked),
Amended description pages 1 & 2 (clean & marked).

Europäisches Patentamt
European Patent Office
Office européen des brevets

Letter accompanying subsequently filed items

Representative:
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The document(s) listed below is (are) subsequently filed documents pertaining to the following application:

Application number:	EP25179063.0
Applicant's or representative's reference	P6167EP01

	Description of document	Original file name	Assigned file name
1	Letter relating to the search or examination procedure	P6167EP01_response to R69 & EESR.pdf	EPLETT-1.pdf
2	Amended claims (clean copy)	P6167EP01_amended claims_clean.pdf	CLMS-1.pdf
3	Amended claims with annotations	P6167EP01_amended claims_marked.pdf	CLMS-HWA-1.pdf
4	Amended description (clean copy)	P6167EP01_amended descrit pion pages 1 and 2_clean.pdf	DESC-1.pdf
5	Amended description with annotations	P6167EP01_amended descritp ion pages 1 and 2_marked.pdf	DESC-HWA-1.pdf

	Fees	Factor applied	Fee schedule	Amount to be paid
15-1	005e Designation fee - For all contracting States designated for applications filed on/after 01.04.2009	1	720.00	720.00
15-2	006 Examination fee for other applications	1	2 010.00	2 010.00
	Total:		**EUR**	**2 730.00**

	Payment	
1	Mode of payment	Credit Card
2	Refund/Reimburserment	
	Reimbursement (if any) to be made to EPO deposit account:	28051083
	Account holder:	Valet Patent Services Ltd.

Signatures

Place:	London
Date:	10 June 2026
Signed by:	/SACH, Greg/
Association:	Valet Patent Services Limited
Representative name:	Greg Sach
Capacity:	Representative
Function of person signing:	Representative

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ALLEMAGNE

Date
15.12.2025

Reference	Application No./Patent No.
P6167EP01	25179063.0 - 1005 / 4585774
Applicant/Proprietor	
Solbello, Inc.	

Communication pursuant to Rule 69 EPC - reminder concerning payment of the designation fee (Art. 79(2) EPC) and of the examination fee (Art. 94(1) EPC) - and invitation pursuant to Rule 70a(1) EPC

The date on which the European Patent Bulletin mentions the publication of the European search report for the above-mentioned European patent application is: 10.12.25 .

Your attention is drawn to Article 79(2) and Rule 39(1) EPC as well as Article 94(1), Rule 70(1) and Rule 70a(1) EPC, according to which within **six months** of the above-mentioned publication date of the search report

- the designation fee must be paid,
- the request for examination must be filed and the examination fee must be paid,
- comments on the objections raised in the opinion accompanying the European search report and/or any amendments to the description, claims and drawings correcting any deficiencies noted in the opinion must be filed (R. 70a(1), 137(2) EPC; Guidelines for Examination in the EPO, B-XI, 8).

1. Payment of the designation fee and of the examination fee

The current amount of the flat-rate designation fee is: EUR 685,00

The current amount of the examination fee is: EUR 1915,00

If the designation fee and the examination fee are not paid within the period laid down in Rule 39(1) and Rule 70(1) EPC, the application **will be deemed to be withdrawn** (R. 39(2) and Art. 94(2) EPC).

Any extension or validation fees are also payable within the above-mentioned period.

2. Comments on the opinion accompanying the European search report and filing of amendments

Should the reply to the invitation pursuant to Rule 70a(1) EPC be filed in an admissible non-EPO language, a translation is to be submitted within one month of its filing (R. 6(2) EPC).

If filing amendments, you must identify them and indicate the basis for them in the application as filed. Failure to meet either requirement may lead to a communication from the Examining Division requesting that you correct this deficiency (R. 137(4) EPC).

Registered Letter

Should you not comply with this invitation within the time limit, the application **will be deemed to be withdrawn** in accordance with Rule 70a(3) EPC.

Making payments
For payments made via deposit account, please note that as from 1 December 2017 debit orders will only be carried out if filed in an electronically processable format (xml), using an accepted means of filing as laid down in the Arrangements for deposit accounts (ADA), published in the Supplementary publication in the Official Journal.

All relevant information related to the modes of payment of fees to the EPO can be retrieved from the EPO website at " **Making Payments**".

Information concerning fee amounts
Procedural fees are usually adjusted every two years, on even years, with effect from 1 April. Therefore, before making a payment, parties should verify the amounts actually due on the date of payment using the applicable version of the Schedule of fees and expenses, published as a Supplement to the Official Journal of the EPO, available on the EPO website (**www.epo.org**) at **www.epo.org/schedule-of-fees**. The "Schedule of fees" table allows the viewing, downloading and searching of individual fee amounts, both current and previous.

Receiving Section



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c/o Caya 83713X
Am Börstig 5
96052 Bamberg
ALLEMAGNE

Date
10.11.2025

Reference	Application No./Patent No.
P6167EP01	25179063.0 - 1005 / 4585774
Applicant/Proprietor Solbello, Inc.	

Communication

The extended European search report is enclosed.

The extended European search report includes, pursuant to Rule 62 EPC, the European search report (R. 61 EPC) or the partial European search report/ declaration of no search (R. 63 EPC) and the European search opinion.

The EPO no longer sends paper copies of the patent literature cited in search reports. You can access them via (https://worldwide.espacenet.com).

☒ 0 additional set(s) of copies of such documents is (are) enclosed as well.

The following have been approved:

☒ Abstract ☒ Title

☐ The Abstract was modified and the definitive text is attached to this communication.

The following figure(s) will be published together with the abstract: 1

Refund of search fee
If applicable under Article 9 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.

Should you wish to further prosecute this application in the examination phase, your attention is drawn to the provisions of Rule 70a EPC. An invitation to respond to the extended European search report will be issued once the date of publication of the European search report has been mentioned in the European Patent Bulletin (R. 69(1), R. 70(2) EPC).

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1 The examination is being carried out on the **following application documents**

Description, Pages

1-19 as originally filed

Claims, Numbers

1-15 as originally filed

Drawings, Sheets

1/17-17/17 as originally filed

2 Lack of clarity, Article 84 EPC

2.1 Claims 1, 4 and 9 (products) as well as 10 and 13 (methods) have been drafted as separate independent claims.

Under Article 84 in combination with Rule 43(2) EPC, an application may contain more than one independent claim in a particular category only if the subject matter claimed falls within one or more of the exceptional situations set out in paragraph (a), (b) or (c) of Rule 43(2) EPC. This is not the case in the present application.

The search has been restricted to the subject matter indicated by the applicant in his letter of 29.08.2025 filed in reply to the invitation pursuant to Rule 62a(1) EPC, namely claims 4-8 and 10-12.

The applicant's attention is drawn to the fact that the application will be further prosecuted on the basis of subject matter for which a search has been carried out and that the claims should be limited to that subject matter at a later stage of the proceedings (Rule 62a(2) EPC).

2.2 The claims only refer to a sun shade assembly, but in the description on page 1, second paragraph the technical field describes a **self-adjusting** sun shade assembly. Therefore the claims are not supported by the description as required by Article 84 EPC, as its scope is broader than justified by the description and drawings.

3 Amendments, Article 76(1) EPC

3.1 It is a divisional application in the sense of Article 76 EPC of the earlier European patent application No. 20 856 803.0.

3.2 The content of the present Application extends beyond the content of the parent application as filed, contrary to Article 76(1) EPC:

In the description of the parent application on page 2 the sun-shade assembly is described with more features as in the present application, that have also not presented as optional. Claims 4 and 10 of the present application only disclose "at least one rib" and not as in the parent application "a pair of ribs". Furthermore the claims 4 and 10 do neither disclose that the sail comprises a channel to house each rib nor a pivot cap or at least one support arm or a slider or a tension adjuster.

3.3 Reference is made to the following documents; the numbering will be adhered to in the rest of the procedure.

D1 US 2013/019794 A1 (NEAL TERRELL [US]) 24 January 2013 (2013-01-24)

D2 DE 20 2014 103145 U1 (ALFA GMBH FAHNEN UND LICHTMASTEN [DE]) 12 October 2015 (2015-10-12)

D3 DE 203 03 861 U1 (SENSENWERK SONNLEITHNER GES M [AT]) 8 May 2003 (2003-05-08)

4 Lack of novelty, Article 54(1) and (2) EPC

4.1 The present application does not meet the requirements of Article 52(1) EPC, because the subject matter of claims 4 and 10 is not new in the sense of Article 54(1) and (2) EPC.

4.2 Independent claim 4:

Document D1 (the expressions in brackets refer to this document) discloses

a sun shade assembly (see fig 5, it has to be noted that the flag also provides shade) comprising:
a mast ("rod" 1) configured to extend upwardly from a supporting surface, and having a top end and a bottom end (see fig 5);

at least one rib (the rod to which the flag is attached) located proximate the top end of said mast, and configured to rotate relative to the supporting surface;
a sail (the flag in fig 5) having a proximal edge secured to said rib and an unrestrained free edge adapted to unfurl in response to blowing of the wind, and wherein an entire surface area of said sail is unrestrained from the proximal edge to the free edge; and
when unfurled, said sail and rib are adapted to rotate together to a direction of the blowing wind (see [0028]).

The subject matter of claim 4 is therefore already known from document D1.

4.3 The same reasoning applies mutatis mutandis to the corresponding method claim 10, which defines a method of using the sunshade assembly comprising all features of claim 4.

4.4 Furthermore the features of the claims 4 and 10 are also disclosed in document D2 (see fig 2 and [0045]).

4.5 The additional features of dependent claims 5, 7 and 8 are also disclosed in document D1 or D2:

D1: 7 (see fig 1), 8 ("tube" 2)

D2: 5 ("Trägerhülse" 24)

Therefore the subject matter of these claims is also not new.

5 Lack of inventive step, Article 56 EPC

5.1 The feature of dependent claims 6 and 11 has already been employed for the same purpose in a similar sunshade (see D3, fig 1 and 2, "Rückstellfeder" 12). It would therefore be obvious to the person skilled in the art to apply this feature with corresponding effect to a sunshade assembly according to D2, thus arriving at a sunshade according to claims 6 and 11.

5.2 In claim 11 it has not been clarified how the rotation is adjustably controlled. Therefore it is also possible that a user holds the flag as described in D1 so that it can not or only slowly rotate. Therefore the solution proposed in claim 11 comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can be readily contemplated in advance. Consequently, the subject matter of this claim appears to lack an inventive step (Articles 52(1) and 56 EPC).

5.3 In claim 12, a slight constructional change in the method of claim 10 is suggested which comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can be readily contemplated in advance. Consequently, the subject matter of claim 12 also appears to lack an inventive step.

6 Upon the continuation of the procedure, the Applicant is invited to take account of the following points:

6.1 Should the Applicant think of a combination of features not disclosed in any of the documents cited in the search report, a new independent claim may be drafted to include these features, bearing in mind that the features known in combination in D1 should be placed in the preamble of such a claim in accordance with Rule 43(1) EPC. In addition, **the problem and the advantages resulting from the combination of features should be mentioned by the applicant**.

6.2 To meet the requirements of Rule 43 (1) EPC, the independent claims should be properly cast in the two part form, with those features which in combination are part of the prior art being placed in the preamble (see document D1).

6.3 In the event of new claims being filed, the description must be brought into conformity with such new claims; care should be taken during revision, especially of the introductory portion including any statements of problem or advantage, not to add subject matter which extends beyond the content of the application as originally filed (Article 123 (2) EPC).

6.4 To meet the requirements of Rule 42(1)(b) EPC, document D1 should be identified in the description and the relevant background art disclosed therein should be briefly discussed.

6.5 In order to expedite the procedure and to facilitate the examination of the conformity of the amended application with the requirements of Article 123(2) EPC, the applicant is requested to clearly identify all amendments carried out, irrespective of whether they concern amendments by addition, replacement or deletion, and to indicate on which passages of the original application each of these amendments are based (EPO-Guidelines H-III, 2.2, second sentence).

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PARTIAL EUROPEAN SEARCH REPORT

under Rule 62a and/or 63 of the European Patent Convention. This report shall be considered, for the purposes of subsequent proceedings, as the European search report

Application Number
EP 25 17 9063

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2013/019794 A1 (NEAL TERRELL [US]) 24 January 2013 (2013-01-24) * figure 5 * * paragraph [0028] *	4,7,8, 10-12	INV. E04H15/28 E04H12/22 A45B23/00 E04H15/58 E04H15/00
X	DE 20 2014 103145 U1 (ALFA GMBH FAHNEN UND LICHTMASTEN [DE]) 12 October 2015 (2015-10-12)	4,5,10, 12	
Y	* figure 2 * * paragraph [0045] *	6,11	
Y	DE 203 03 861 U1 (SENSENWERK SONNLEITHNER GES M [AT]) 8 May 2003 (2003-05-08) * figures 1, 2 *	6,11	

TECHNICAL FIELDS SEARCHED (IPC)

A45F
A45B
E04H
G01P
G09F

INCOMPLETE SEARCH

The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.

Claims searched completely :

Claims searched incompletely :

Claims not searched :

Reason for the limitation of the search:

see sheet C

Place of search	Date of completion of the search	Examiner
Munich	21 October 2025	Brucksch, Carola

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04E07)

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INCOMPLETE SEARCH
SHEET C

Application Number
EP 25 17 9063

Claim(s) completely searchable:
4-8, 10-12

Claim(s) not searched:
1-3, 9, 13-15

Reason for the limitation of the search:

Claims 1, 4 and 9 (products) as well as 10 and 13 (methods) have been drafted as separate independent claims.
Under Article 84 in combination with Rule 43(2) EPC, an application may contain more than one independent claim in a particular category only if the subject matter claimed falls within one or more of the exceptional situations set out in paragraph (a), (b) or (c) of Rule 43(2) EPC. This is not the case in the present application.
The search has been restricted to the subject matter indicated by the applicant in his letter of 29.08.2025 filed in reply to the invitation pursuant to Rule 62a(1) EPC, namely claims 4-8 and 10-12.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 25 17 9063

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

21-10-2025

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2013019794 A1	24-01-2013	NONE	
DE 202014103145 U1	12-10-2015	NONE	
DE 20303861 U1	08-05-2003	AT 6044 U1	25-03-2003
		DE 20303861 U1	08-05-2003

Information on Search Strategy

The type of information contained in this sheet may change during the pilot for improving the usefulness of this new service.

Application Number

TITLE: SELF-ADJUSTING SUN SHADE ASSEMBLY

APPLICANT: Solbello, Inc.

IPC CLASSIFICATION: E04H15/28, E04H12/22, A45B23/00, E04H15/58, E04H15/00

EXAMINER: Brucksch, Carola

CONSULTED DATABASES:

CLASSIFICATION SYMBOLS DEFINING EXTENT OF THE SEARCH:

IPC:

CPC: A45B23/00, E04H15/58, E04H15/28, A45B2013/0093, A45B2025/105, E04H15/+, A45B+, E04H15/003, G01P13/02, G09F17/LOW, E04H12/32

FI/F-TERMS:

KEYWORDS OR OTHER ELEMENTS FEATURING THE INVENTION:
sunshade
freely rotating
wind
unfurled
sail

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Acknowledgement of receipt

We hereby acknowledge receipt of the following subsequently filed document(s):

Submission number	14600892	
Application number	EP25179063.0	
Date of receipt	29 August 2025	
Filing Office	European Patent Office, The Hague	
Procedural phase	All procedures	
Your reference	P6167EP01	
Documents submitted	package-data.xml epf1038.pdf (1 p.)	ep-sfd-request.xml EPLETT-1.pdf\P6167EP01_response R62a(1).pdf (1 p.)
Submitted by	CN=secure.epoline.org	
Method of submission	Online	
Date and time receipt generated	29 August 2025, 14:16 (CEST)	
Message Digest	22:E8:62:E1:D3:5D:64:CA:B3:2C:ED:DA:26:A1:CE:BD:42:2F:38:08	

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Letter accompanying subsequently filed items

Representative:
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10958 Berlin
Germany
Tel. +49(0)30 25901-0

The document(s) listed below is (are) subsequently filed documents pertaining to the following application:

Application number:	EP25179063.0
Applicant's or representative's reference	P6167EP01

	Description of document	Original file name	Assigned file name
1	Letter relating to the search or examination procedure	P6167EP01_response R62a(1).pdf	EPLETT-1.pdf

Signatures

Place:	London
Date:	29 August 2025
Signed by:	/SACH, Greg/
Association:	Valet Patent Services Limited
Representative name:	Greg Sach
Capacity:	Representative
Function of person signing:	Representative

European Patent Office
80298 Munich
Germany

VIP Ref: P6167EP01

Date: 29 August 2025

European Divisional Patent Application No. 25179063.0
In the name of Solbello, Inc.

Dear Members of the Receiving Section,

We refer to the communication issued under Rule 62a(1) EPC, dated 30 July 2025, in which the Examining Division has invited the applicant to indicate the claims to be searched due to the identified plurality of independent claims in the same category.

In response to this communication, the applicant elects **Claim 4** for category product **and Claim 10** for category method for the purpose of the search.

We respectfully request that the search is carried out on the basis of Claim 4 and Claim 10.

Should you require any further clarification or documentation, please do not hesitate to contact us.

Yours sincerely,



Greg Sach
Valet Patent Services Limited
Association No. 1068

1 Lack of clarity, Article 84 EPC

1.1 Claims 1, 4 and 9 (products) as well as 10 and 13 (methods) have been drafted as separate independent claims.

Under Article 84 in combination with Rule 43(2) EPC, an application may contain more than one independent claim in a particular category only if the subject matter claimed falls within one or more of the exceptional situations set out in paragraph (a), (b) or (c) of Rule 43(2) EPC. This is not the case in the present application.

1.2 When indicating the claims on which the search is to be based, special care should be taken so that any independent claims to be filed meet the requirement of **unity of invention** set out in Art. 82 EPC in that they must be linked by a single general inventive concept. This is fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression "special technical features" shall mean those features which define a contribution which each of the claimed inventions considered as a whole makes over the prior art (Rule 44 (1) EPC).

2 The Application is a divisional application in the sense of Article 76 EPC of the earlier European patent application No. 20 856 803.0.

As the current set of claims are not directly derivable from the parent Application, the Applicant is invited to indicate the basis of the claims in the parent Application that comply Article 76(1) EPC.

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Application No.	Ref.	Date
25 179 063.0 - 1005	P6167EP01	30.07.2025
Applicant: Solbello, Inc.		

Invitation pursuant to Rule 62a(1) EPC

In the above-mentioned European patent application as filed, the search division has identified multiple independent claims in the same category. In accordance with Rule 62a(1) EPC, the applicant is invited to indicate the claims complying with Rule 43(2) EPC on the basis of which the search is to be carried out.

The following groups of independent claims in the same category have been identified:

Category	product	Independent claims	1, 4, 9
Category	method	Independent claims	10, 13

See the Annex (EPO Form 2906) for the reasons.

You are invited to file the required indication within a period of

two months

from the notification of this communication.

If the indication is filed in due time, the subsequent search report will be issued with respect to the relevant claim / claims in the category concerned.

Failure to comply with this invitation in due time will result in the search report being drawn up on the basis of the first independent claim in each category (R. 62a(1) EPC). Should the applicant contest the objection under Rule 62a EPC, a final decision on the matter may be taken in the course of substantive examination proceedings before the Examining Division.

Re-establishment of rights (Art. 122 EPC)

An applicant who, in spite of all due care required by the circumstances having been taken, was unable to observe a time limit, shall have his rights re-established upon request, provided that the time limits and other requirements of Rule 136(1) and (2) EPC are met.

Registered Letter

Brucksch, Carola
Search Examiner

Enclosure(s): reasons (Form 2906)

Europäisches Patentamt
European Patent Office
Office européen des brevets

Application No.: 25179063.0

The search has started on 24.07.25 (see Notice from the European Patent Office dated 03/2013, OJ EPO 2013, 153).

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Date
18.06.2025

Reference	Application No./Patent No.
P6167EP01	25179063.0 - 1005 / 4585774
Applicant/Proprietor Solbello, Inc.	

Notification of European publication number and information on the application of Article 67(3) EPC

You are hereby informed that the technical preparations for the publication of the above-mentioned European patent application have been completed.

The application will be published on 16.07.25 without the European search report.
The publication number is: 4585774.
The publication will be mentioned in European Patent Bulletin number 2025/29.
(http://bulletin.european-patent-office.org).

Provisional protection under Article 67(1) and (2) EPC in the individual contracting states becomes effective when the conditions referred to in Article 67(3) EPC have been fulfilled. Provisional protection in the individual extension and validation states is governed by the national laws of the countries concerned. For more details, see Chapter III of the EPO brochure "National Law relating to the EPC" **(www.epo.org/law-practice/legal-texts/national-law.html)**, which also contains information about the extension and validation system. Further information can also be found in the Official Journal of the European Patent Office.

The title of the invention in the three official languages of the European Patent Office is worded as follows:

SELBSTEINSTELLENDE SONNENSCHUTZANORDNUNG
SELF-ADJUSTING SUN SHADE ASSEMBLY
ENSEMBLE PARE-SOLEIL AUTO-AJUSTABLE

In all future communications to the EPO, please quote the application number as indicated above.

Remark
The publication can be downloaded, free of charge, from the EPO publication server **https://data.epo.org/publication-server/** or can be ordered from the Vienna sub-office upon payment of a fee (see Decision of the President of the EPO dated 12 July 2007 concerning the form of publication of European patent applications, European search reports and European patent specifications, Special edition No. 3, OJ EPO 2007, 97).

Note concerning renewal fees
Under Article 86 EPC renewal fees shall be paid to the EPO for the European patent application. These fees shall be due in respect of the third and each subsequent year, calculated from the date of filing. Due account should be taken that the EPO will not send invoices or reminders to pay any fees in due time.

Accelerated prosecution of European patent applications
Applicants wishing to accelerate proceedings before the EPO may file a request according to the programme for accelerated prosecution of European patent applications - "PACE" (OJ EPO 2015, A93). EPO Form 1005 is available on the EPO website (www.epo.org) for this purpose.

Receiving Section

ABSTRACT

The presently disclosed subject matter is directed to a sun shade assembly. Particularly, the assembly includes a sail that releasably attaches to a pair of ribs, providing shade to the user. At least one support arm can be used to reinforce the ribs. A mast provides height to the assembly and includes an anchor that allows the assembly to be secured into a support surface (e.g. sand). The ribs and support arms rotate about the mast, thereby self-adjusting the direction of sail in response to the wind blowing. The assembly further includes a tension adjuster that can be tightened or loosed to control the rotation of the ribs and support arms in response to wind conditions.

Fig. 1

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Acknowledgement of receipt

We hereby acknowledge receipt of your request for grant of a European patent as follows:

Submission number	14328169
Application number	EP25179063.0
File No. to be used for priority declarations	EP25179063
Date of receipt	27 May 2025
Your reference	P6167EP01
Applicant	Solbello, Inc.
Country	US
Title	SELF-ADJUSTING SUN SHADE ASS EMBLY
Documents submitted	package-data.xml application-body.xml SPECEPO-1.pdf \P6167EP01_divisional specification.pdf (23 p.) f1002-1.pdf (1 p.)
	ep-request.xml ep-request.pdf (5 p.) SPECEPO-2.pdf \P6167EP01_divisional drawings.pdf (17 p.)
Submitted by	CN=secure.epoline.org
Method of submission	Online
Date and time receipt generated	27 May 2025, 13:30 (CEST)
Message Digest	E9:F8:69:6E:9C:8A:3D:44:6C:38:52:3C:B3:0B:B4:4A:D9:8C:D8:23

/European Patent Office/

CLAIMS:

1. A sun shade assembly comprising:

a mast configured to extend upwardly from a supporting surface;

a pair of pivoted ribs carried by said mast and configured to rotate relative to the supporting surface, and said pivoted ribs adapted to lift outwardly from said mast at respective pivot points into an unfolded condition and to lower at respective pivot points from the unfolded condition to a folded condition alongside said mast;

a cap located at a top end of said mast, and wherein the first ends of said pivoted ribs are attached to said cap;

a sail having a proximal edge secured to each of said pivoted ribs, and an unrestrained free edge opposite the proximate edge;

whereby said sail is unfolded by lifting said pivot ribs outwardly from said mast from the folded condition into the unfolded condition such that the unrestrained free edge of said sail unfurls in response to blowing of the wind, and wherein said sail and ribs rotate together to a direction of the blowing wind; and

a tension adjuster adapted for adjusting pivot tension of said cap, thereby controlling rotation of said sail and ribs in response to blowing of the wind.

2. The assembly of claim 1, and comprising an anchor located at a bottom end of said mast.

3. The assembly of claim 1, and comprising at least one handle for gripping said mast.

4. A sun shade assembly comprising:

a mast configured to extend upwardly from a supporting surface, and having a top end and a bottom end;

at least one rib located proximate the top end of said mast, and configured to rotate relative to the supporting surface;

a sail having a proximal edge secured to said rib and an unrestrained free edge adapted to unfurl in response to blowing of the wind, and wherein an entire surface area of said sail is unrestrained from the proximal edge to the free edge; and

when unfurled, said sail and rib are adapted to rotate together to a direction of the blowing wind.

5. The assembly of claim 4, wherein said at least one rib is attached to a cap located at the top end of said mast.

6. The assembly of claim 5, further comprising a tension adjuster adapted for adjusting pivot tension of said cap, thereby controlling rotation of said sail and rib in response to blowing of the wind.

7. The assembly of claim 4, and comprising an anchor located at the bottom end of said mast.

8. The assembly of claim 4, and comprising at least one handle for gripping said mast.

9. A sun shade assembly comprising:

a mast configured to extend upwardly from a supporting surface, and having a top end and a bottom end;

a pair of pivoted ribs pivotably attached proximate the top end of said mast, and configured to rotate relative to the supporting surface;

a sail having a proximal edge defining a channel sized and shaped to receive each of said pivoted ribs, and an unrestrained free edge adapted to unfurl in response to blowing of the wind;

a slider configured to move up and down said mast, and operatively actuating said pivoted ribs such:

(i) that raising said slider on said mast causes said pivoted ribs to open outwardly from a folded condition into an unfolded condition thereby unfolding said sail, such that when unfolded said sail unfurls in response to blowing of the wind and rotates together with said pivoted ribs to a direction of the blowing wind; and

(ii) lowering said slider on said mast causes said pivoted ribs to fold downwardly into the folded condition adjacent said mast, such that said sail is folded for storage.

10. A method of using a sunshade assembly, the method comprising:

extending a mast of the sunshade assembly upwardly from a supporting surface, the sunshade assembly further comprising a rib carried by the mast and configured to rotate relative to the supporting surface, and a sail having a proximal edge secured to the rib and an unrestrained free edge opposite the proximate edge, and wherein an entire surface area of the sail is unrestrained from the proximal edge to the free edge;

unfurling the unrestrained free edge of the sail in response to blowing of the wind; and

when the sail is unfurled, enabling the sail and rib to rotate together to a direction of the blowing wind.

11. The method according to claim 10, and comprising adjustably controlling rotation of the sail and rib in response to blowing of the wind.

12. The method according to claim 10, and comprising lowering the rib to a folded condition alongside the mast, thereby folding the sail for storage.

13. A method of using a sunshade assembly, the method comprising:

extending a mast of the sunshade assembly upwardly from a supporting surface, the sunshade assembly further comprising a pair of pivoted ribs carried by the mast and configured to rotate relative to the supporting surface, and a sail having a proximal edge secured to each of the pivoted ribs and an unrestrained free edge opposite the proximate edge;

lifting the pivoted ribs outwardly from the mast at respective pivot points from a folded condition alongside the mast into an unfolded condition, such that in the unfolded condition the unrestrained free edge of the sail unfurls in response to blowing of the wind; and

when the sail is unfurled, enabling the sail and pivoted ribs to rotate together relative to the mast to a direction of the blowing wind.

14. The method according to claim 13, and comprising adjustably controlling rotation of the sail and pivoted ribs in response to blowing of the wind.

15. The method according to claim 13, and comprising lowering the pivoted ribs from the unfolded condition to the folded condition alongside the mast, thereby folding the sail for storage.

SELF-ADJUSTING SUN SHADE ASSEMBLY

CROSS REFERENCE TO RELATED APPLICATIONS

The present application claims the benefit of U.S. Provisional Patent Application No. 62/892,700, filed Aug. 28, 2019, the entire content of which is incorporated by reference herein.

TECHNICAL FIELD

The presently disclosed subject matter is directed to a self-adjusting sun shade assembly and to methods of making and the using the same.

BACKGROUND

Beach umbrellas are used to create an area shaded from the sunlight beneath the umbrella canopy. They are particularly useful at the beach where there is generally a lack of trees or roofed structures to provide shade. Because the skin of the beachgoer is largely exposed at the beach, there is a greater need to provide protection from harmful ultraviolet rays, which may cause sunburn or melanomas. Many beachgoers also require some form of shade to minimize heat discomfort. The shade and shelter provided by a beach umbrella is also useful in protecting the user's valuables and shielding perishable items from direct sunlight. Conventional beach umbrellas include a single central support pole with a pointed lower end that is inserted directly into the sand. Conventional umbrellas further include an overhead fabric covering attached to the support pole. However, the main problem with the canopy design of traditional umbrellas is that the position of the umbrella constantly shifts in response to wind gusts. As a result, the user must frequently readjust the umbrella to compensate for the shifts in movement. In addition, conventional umbrellas can easily tip over or be blown down the beach where they can cause hassle to the owner as well as injury to other beachgoers. Conventional umbrellas are also prone to wind breakage. It would therefore be beneficial to provide an umbrella with improved stability in response to the wind blowing. It would further be beneficial if the umbrella self-adjusted to the wind to prevent or reduce the likelihood of tipping over.

SUMMARY

In some embodiments, the presently disclosed subject matter is directed to a sun shade assembly (e.g., an assembly that provides shade from the sun). The assembly comprises a pair of ribs defined by a first end and a second end, wherein the first end of each rib is attached to a pivot cap. The assembly further includes a sail with a front edge comprising a channel sized and shaped to house each rib such that the ribs extend across the edge. The assembly includes a mast comprising a first end and a second end, wherein the first end is operably connected to the pivot cap, wherein the pivot cap can freely rotate about the mast. The assembly comprises at least one support arm with a first end and a second end, wherein the first end of the support arm is attached

to a rib and the second end of the support arm is attached to a slider configured to move up and down the mast. The assembly comprises a tension adjuster that adjusts rotation of the pivot cap about the mast. The assembly comprises an anchor operably connected to the second end of the mast. The pivot cap, ribs, slider, and support arms are configured to rotate about the mast in response to blowing of the wind.

In some embodiments, the pivot cap rotates about the mast at an angle of about 0-360 degrees. In some embodiments, the pivot cap rotates about a top end of the mast (e.g., is configured to rotate about the top end of the mast).

In some embodiments, the ribs are configured at an angle of greater than 180 degrees relative to each other.

In some embodiments, one face of the pivot cap comprises a lock defined by a bridge comprising an opening and a slidable arm that moves to cover and expose the opening. A portion of sail material can be locked in between the bridge and slidable arm to lock it into position.

In some embodiments, the slider is configured as a collar that fits around the exterior circumference of the mast.

In some embodiments, the mast length is adjustable.

In some embodiments, the anchor is releasably attached to the second end of the mast.

In some embodiments, the anchor comprises an auger. The term "auger" refers to a member in which a spiral vane or multiple parallel vanes are provided about the perimeter of a shaft.

In some embodiments, the tension adjuster is configured to permit the pivot cap, slider, ribs, and support arms to freely rotate about the mast, not rotate about the mast, or any level of rotation therebetween. The pivot cap, slider, ribs, and support arms rotate as a single, attached unit.

In some embodiments, the sail channel comprises one or more apertures to facilitate insertion of the ribs into the channel.

In some embodiments, the sail channel comprises one or more apertures to allow direct contact between each rib and a corresponding support arm.

In some embodiments, the sail has a top face and a bottom face, and wherein the bottom face includes at least one conduit configured as a channel with an open mouth positioned adjacent to the channel, a closed back end, and a length parallel with the length of the sail.

In some embodiments, the sail has a top face and a bottom face and wherein at least one of the top or bottom faces comprises a coating.

In some embodiments, the sail has an opposed rear edge comprising an adjacent hem constructed from a durable material.

In some embodiments, the mast comprises at least one handle.

In some embodiments, the presently disclosed subject matter is directed to a method of

using a sunshade. Particularly, the method comprises positioning the anchor of a sun shade assembly in a support surface. The sun shade assembly comprises: a pair of ribs defined by a first end and a second end, wherein the first end of each rib is attached to a pivot cap; a sail with a front edge comprising a channel sized and shaped to house each rib such that the ribs extend across the edge; a mast comprising a first end and a second end, wherein the first end is operably connected to the pivot cap, wherein the pivot cap can freely rotate about the mast; at least one support arm with a first end and a second end, wherein the first end of the support arm is attached to a rib and the second end of the support arm is attached to a slider configured to move up and down the mast; a tension adjuster that adjusts rotation of the pivot cap about the mast; and an anchor operably connected to the second end of the mast. The method further includes adjusting the tension adjuster to achieve a desired amount of rotation of the pivot cap, ribs, support arms, slider, and sail relative to the non-movable mast. The sun shade assembly self-adjusts in response to the blowing of the wind.

In some embodiments, the tension adjuster can be adjusted to allow the pivot cap, slider, ribs, and support arms to freely rotate about the mast, not rotate about the mast, or any level of rotation therebetween.

In some embodiments, the sail has a top face and a bottom face, and wherein the bottom face includes at least one conduit configured as a channel with an open mouth positioned adjacent to the channel, a closed back end, and a length parallel with the length of the sail.

In some embodiments, one face of the pivot cap comprises a lock defined by a bridge comprising and opening and a slidable arm that moves to cover and expose the opening.

In some embodiments, the sail has an opposed rear edge comprising an adjacent hem constructed from a durable material.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front plan view of an sun shade assembly in accordance with some embodiments of the presently disclosed subject matter.

FIG. 2 a is a front plan view of an assembly rib in accordance with some embodiments of the presently disclosed subject matter.

FIGS. 2 b and 2 c are front plan views illustrating the folding of a rib in accordance with some embodiments of the presently disclosed subject matter.

FIG. 2 d is a front plan view illustrating the angle of separation of two ribs in accordance with some embodiments of the presently disclosed subject matter.

FIG. 2 e is a front plan view of folded ribs separated by a pivot cap in accordance with some embodiments of the presently disclosed subject matter.

FIG. 2 f is a front plan view illustrating ribs comprising extension in accordance with some embodiments of the presently disclosed subject matter.

FIG. 3 a is a front plan view of a pivot cap in accordance with some embodiments of the presently disclosed subject matter.

FIG. 3 b is a top plan view of a pivot cap in use in accordance with some embodiments of the presently disclosed subject matter.

FIG. 3 c is a top plan view of a pivot cap comprising a bridge and sliding arm in accordance with some embodiments of the presently disclosed subject matter.

FIGS. 3 d-3 g are side plan view of a pivot cap bridge and arm in use in accordance with some embodiments of the presently disclosed subject matter.

FIG. 4 a is a top plan view of a slider configurated around a mast in accordance with some embodiments of the presently disclosed subject matter.

FIG. 4 b is a front plan view of a mast comprising a slider in accordance with some embodiments of the presently disclosed subject matter.

FIGS. 4 c-4 d are front plan views illustrating use of a slider to adjust the position of one or more support arms in accordance with some embodiments of the presently disclosed subject matter.

FIG. 5 a is a front plan view of a mast in accordance with some embodiments of the presently disclosed subject matter.

FIG. 5 b is a front plan view of a pivot cap FIG. 6 a is a front plan view of a mast in accordance with some embodiments of the presently disclosed subject matter.

FIGS. 5 c and 5 d are side plan views illustrating a telescoping mast in accordance with some embodiments of the presently disclosed subject matter.

FIG. 6 is a perspective view of an anchor in accordance with some embodiments of the presently disclosed subject matter.

FIGS. 7 a and 7 b are cross-sectional views of a tension adjuster in use in accordance with some embodiments of the presently disclosed subject matter.

FIG. 8 a is a top plan view of a sail in accordance with some embodiments of the presently disclosed subject matter.

FIG. 8 b is a front plan view of a sail in accordance with some embodiments of the presently disclosed subject matter.

FIG. 8 c is a fragmentary top plan view of a sail channel in accordance with some embodiments of the presently disclosed subject matter.

FIG. 8 d is a fragmentary top plan view of a sail channel comprising a plurality of apertures in accordance with some embodiments of the presently disclosed subject matter.

FIG. 8 e is a perspective view illustrating a sail conduit in accordance with some embodiments of the presently disclosed subject matter.

FIG. 8 f is a side plan view of a sail conduit in accordance with some embodiments of the presently disclosed subject matter.

FIGS. 8 g-8 i are side plan views of sail conduits in accordance with some embodiments of the presently disclosed subject matter.

FIGS. 9 a-9 c are cross-sectional views of sail coating arrangements in accordance with some embodiments of the presently disclosed subject matter.

FIG. 9 d is a top plan view of a sail with a rear hem in accordance with some embodiments of the presently disclosed subject matter.

FIGS. 10 a and 10 b illustrate one method of inserting an anchor into a support surface in accordance with some embodiments of the presently disclosed subject matter.

FIG. 10 c is a front plan view of mast handles in accordance with some embodiments of the presently disclosed subject matter.

FIG. 10 d is a fragmentary top plan view of a sail channel comprising ribs in accordance with some embodiments of the presently disclosed subject matter.

FIG. 10 e is a front plan view of a sail positioned on ribs and a mast in accordance with some embodiments of the presently disclosed subject matter.

FIG. 10 f is a front plan view of an assembly with side arms attached to the mast and ribs in accordance with some embodiments of the presently disclosed subject matter.

FIG. 10 g is a front plan view of an assembly with a sail extended in the direction of the wind in accordance with some embodiments of the presently disclosed subject matter.

FIG. 10 h is a side plan view of a sail extended in the direction of the wind in accordance with some embodiments of the presently disclosed subject matter.

DETAILED DESCRIPTION

The presently disclosed subject matter is introduced with sufficient details to provide an understanding of one or more particular embodiments of broader inventive subject matters. The descriptions expound upon and exemplify features of those embodiments without limiting the inventive subject matters to the explicitly described embodiments and features. Considerations in view of these descriptions will likely give rise to additional and similar embodiments and features without departing from the scope of the presently disclosed subject matter.

Unless defined otherwise, all technical and scientific terms used herein have the same meaning as commonly understood to one of ordinary skill in the art to which the presently disclosed subject matter pertains. Although any methods, devices, and materials similar or

equivalent to those described herein can be used in the practice or testing of the presently disclosed subject matter, representative methods, devices, and materials are now described.

Following long-standing patent law convention, the terms "a", "an", and "the" refer to "one or more" when used in the subject specification, including the claims. Thus, for example, reference to "a device" can include a plurality of such devices, and so forth. It will be further understood that the terms "comprises," "comprising," "includes," and/or "including" when used herein specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations, elements, components, and/or groups thereof.

Unless otherwise indicated, all numbers expressing quantities of components, conditions, and so forth used in the specification and claims are to be understood as being modified in all instances by the term "about". Accordingly, unless indicated to the contrary, the numerical parameters set forth in the instant specification and attached claims are approximations that can vary depending upon the desired properties sought to be obtained by the presently disclosed subject matter.

As used herein, the term "about", when referring to a value or to an amount of mass, weight, time, volume, concentration, and/or percentage can encompass variations of, in some embodiments+/−20%, in some embodiments+/−10%, in some embodiments+/−5%, in some embodiments+/−1%, in some embodiments+/−0.5%, and in some embodiments+/−0.1%, from the specified amount, as such variations are appropriate in the disclosed packages and methods.

As used herein, the term "and/or" includes any and all combinations of one or more of the associated listed items.

Relative terms such as "below" or "above" or "upper" or "lower" or "horizontal" or "vertical" may be used herein to describe a relationship of one element, layer, or region to another element, layer, or region as illustrated in the drawing figures. It will be understood that these terms and those discussed above are intended to encompass different orientations of the device in addition to the orientation depicted in the drawing figures.

The embodiments set forth below represent the necessary information to enable those skilled in the art to practice the embodiments and illustrate the best mode of practicing the embodiments. Upon reading the following description in light of the accompanying drawing figures, those skilled in the art will understand the concepts of the disclosure and will recognize applications of these concepts not particularly addressed herein. It should be understood that these concepts and applications fall within the scope of the disclosure and the accompanying claims.

FIG. 1 illustrates one embodiment of sun shade assembly 5. Particularly, the assembly includes sail 20 that releasably attaches to a pair of ribs 10, providing shade to the user. At least

one support arm 15 can be used to reinforce ribs 10. Mast 30 provides height to the assembly and includes anchor 35 that allows the assembly to be secured into a support surface (e.g., sand). The ribs and support arms rotate about the mast, thereby self-adjusting the direction of sail 20 in response to the wind blowing, as described in more detail below. The assembly further includes tension adjuster 25 that can be tightened or loosed to control the rotation of the ribs and support arms in response to wind conditions.

FIG. 2 a illustrates one embodiment of rib 10. As shown, the rib includes first end 11 and second end 12. In some embodiments, the ribs can each include one or more joints 13 that can be folded, allowing the ribs to be easily stored when not in use, as illustrated in FIGS. 2 b and 2 c . Any mechanism can be used to fold the ribs, such as (but not limited to) hinges, joints, and the like. For example, a living hinge, a barrel hinge, spring hinge, butterfly hinge, flag hinge, H hinge, or any other pivotable member can be used.

The term "living hinge" refers to a hinge integrally formed with two opposite portions of the same material. The term "barrel hinge" refers to a sectional barrel secured by a pivot. The term "spring hinge" refers to a spring-loaded hinge that applies force to secure the hinge in an open or closed configuration. "Butterfly hinge" refers to dovetail or parliament hinges. The term "flag hinge" refers to hinges that can be taken apart with a fixed pin on one leaf, manufactured in a right-hand or left-hand configuration. An "H hinge" refers to a hinge shaped like an "H."

However, in some embodiments, the ribs are non-foldable and remain in the fully extended state, even during storage.

The ribs can be slightly offset relative to each other (e.g., are not 180 degrees apart). The offset nature allows the ribs to compensate for stretching of the sail. For example, in some embodiments, the angle 16 between ribs 10 can be about 180-300 degrees, as shown in FIG. 2 d . Thus, the angle between ribs 10 can be at least/no more than about 180, 185, 190, 195, 200, 205, 210, 215, 220, 225, 230, 235, 240, 245, 250, 255, 260, 265, 270, 275, 280, 285, or 290 degrees. It should be appreciated that angle 16 is not limited and can be larger or smaller than the range set forth herein. The ribs can be fully folded, such as in a storage position, as shown in FIG. 2 e.

In some embodiments, rib 10 can include extension 14 as shown in FIG. 2 f . The extensions provide a decorative look the assembly when the sail is attached. Each extension can be attached to rib second end 12 using any desired method (e.g., adhesive, welding, clips, clamps, hinges, screws, bolts, magnets, etc.). It should be appreciated that extension 14 is optional.

Ribs 10 can have any desired length. For example, suitable lengths can include (but are not limited to) about 3-10 feet. Thus, the ribs can have a length of at least about (or no more than about) 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9, 9.5, or 10 feet. However, the presently disclosed

subject matter is not limited the length of each rib can be larger or smaller than the range given herein.

The ribs are joined using pivot cap 40, as illustrated in FIG. 3 a . The pivot cap joins ribs 10 and enables rotation of the ribs about mast 30. Thus, the pivot cap can freely rotate about the mast in response to wind conditions, as discussed in more detail below and as shown in FIG. 3 b . The ribs can rotate in a clockwise or counterclockwise direction, depending on the wind direction. It should be appreciated that the ribs can join to pivot cap 40 using any mechanism (e.g., screws, bolts, clips, hinges, welding, adhesive, magnets, and the like).

In some embodiments, one face of pivot cap 40 includes bridge 94 comprising opening 93 and slidable arm 95 that can be used to releasably lock the sail into proper position, as shown in FIGS. 3 c-3 e . Particularly, a portion of the sail can be inserted into opening 94. Arm 95 can then be slid to trap the portion of the sail over the bridge, as shown in FIGS. 3 f and 3 g . Thus, a portion of the sail is trapped between the bridge and the arm. To release the sail, the arm can be slid to expose opening 93, thereby allowing the sail to be removed. The term "bridge" refers to any device that has a raised portion with an opening configured therein. In some embodiments, the arm can fully surround at least a segment of the raised bridge portion.

As shown in FIG. 4 a , the assembly can include one or more support arms 15 that provide stability to the ribs, allowing the assembly to support the sail even in high wind conditions. Each support arm includes first end 16 attached to rib 10 and second end 17 attached to slider 45. The support arms can be attached to the rib and slider using any known mechanism, such as the use of adhesives, welding, magnets, mechanical elements (screws, bolts, clips), and the like. In some embodiments, the support arms are hingedly attached to the ribs and/or slider to allow for easy transitioning between positions.

Slider 45 can move along mast 30 to fold or unfold the ribs and support arms. In some embodiments, the slider can be configured as a collar that fits about the outer circumference of mast 30, as shown in FIG. 4 b . The inner circumference of slider 45 is therefore at least slightly larger than the outer circumference of mast 30. In this way, the slider and support arms can rotate freely about the mast. Particularly, the mast remains in a stationary position, while the slider (and attached support arms and ribs) rotate in response to the wind blowing. The slider can rotate in any direction (e.g., clockwise and counterclockwise).

The slider can include retention element 2 to keep it from sliding down the length of the mast. The retention element can include any device that retains the slider in a desired position on the mast, such as (but not limited to) a removable ledge with an outer circumference larger than the inner circumference of the slider, clips, pins, clasps, and the like. The retention element therefore locks the slider at a desired location along the mast. In this way, the ribs and support

arms can be maintained in the open configuration without the slider slipping to a lower position. Likewise, the slider can also be locked in a lower "storage" configuration along the mast (or any location therebetween).

The slider can also be used to fold the ribs and support arms, such as when the assembly is transitioned to a storage configuration (e.g., not in use). When the slider is in an upper position on the mast, the support arms and ribs are unfolded outward and thus sail 20 is unfolded, as shown in FIG. 4 a . When the slider moves to a lower position on the mast, the support arms and ribs are folded to the storage position, as shown in FIGS. 4 c and 4 d . Therefore, the slider can travel on the mast in an upward direction to extend the ribs and support arms to a fully open configuration. The slider can also move downward along the mast to transition the ribs and support arms into a folded position.

Ribs 10 and support arms 15 can have any desired cross-sectional shape. For example, the ribs and support arms can be configured with a circular, oval, square, rectangular, triangular, pentagonal, hexagonal, octagonal, heart, diamond, or abstract cross-sectional shape.

As set forth above, assembly 5 comprises mast 30 that reinforces ribs 10 and support arms 15, as well as provides height to the assembly, as shown in FIG. 5 a . The mast further provides a base about which the ribs can rotate via pivot cap 40. The mast includes first end 31 operatively attached to pivot cap 40 and second end 32 attached to anchor 35. The mast can be permanently or releasably attached to the pivot cap and/or anchor.

The pivot cap is attached to mast first end 31 using any known method. For example, a screw, bolt, or other element 33 can be threaded through the pivot cap, extending into the mast as shown in FIG. 5 b . In this way, the pivot cap attaches to the mast and still can rotate freely in a clockwise or counterclockwise direction. The pivot cap can have any desired shape and is not limited to the embodiment shown in FIG. 5 b . Attachment of the pivot cap to the mast is further not limited.

Mast 30 includes length 51 that in some embodiments can be adjusted as desired by the user. For example, the mast can include telescoping inner and outer tubes 41, 42. The term "telescoping" refers to a mechanical action of at least two longitudinal bodies of congruent cross-sections sliding relative to each other along a common longitudinal axis. As shown in FIGS. 5 c-5 d , inner tube 41 can be at least partially slidably disposed into the interior of outer tube 42. Specifically, the diameter of the outer tube is larger than the diameter of the inner tube such that the inner tube can be housed within the interior of the outer tube. The mast can include any number of telescoping tubes. A locking pin can pass through one or more holes 43 configured in the outer tube to hold the mast at the desired length. Alternatively, the inner and outer tubes can cooperate with a locking screw to secure the mast height. It should be appreciated that the length of the mast

can be locked using any known element, such as friction fit, screw fit, snap-fit, screws, bolts, and the like.

It should further be appreciated that the length of the mast can be adjusted using any known mechanism and is not limited to a telescoping arrangement. For example, the mast can include a plurality of segments that can be added or removed as desired to achieve a suitable height. In other embodiments, the length of mast 30 is not adjustable.

Mast 30 can have any desired cross-sectional shape. For example, the mast can be configured with a circular, oval, square, rectangular, triangular, pentagonal, hexagonal, octagonal, heart, diamond, or abstract cross-sectional shape.

Second end 32 of the mast is operatively connected to anchor 35. The term "anchor" broadly refers to any element that provides weight and/or a mechanism by which to secure assembly 5 into a support surface (e.g., sand). The anchor can be permanently attached to mast 30 using adhesives, welding, and the like. Alternatively, the anchor can be releasably attached to the mast using any of a wide variety of mechanical elements (e.g., screw knob 37). A releasably attached anchor allows for the replacement of the anchor depending on use conditions (e.g., beach sand versus grass or rock).

FIG. 6 illustrates one embodiment of anchor 35 comprising auger 36 that can be configured as any type of spike, helical corkscrew, or shaft optionally having a threaded portion capable of being turned and embedding itself into a support surface (e.g., sand at a beach). Lower end 38 of the auger can be configured as a spike or pointed end to initiate insertion of the anchor into the support surface. Because auger 36 is inserted into a support surface, it does not rotate and remains in the inserted position until the user desires to remove it. Likewise, the mast does not rotate in response to wind conditions due to its attachment to the anchor.

The disclosed assembly further includes tension adjuster 25 that allows a user to adjust the tension on the pivot cap relative to the mast easily and safely. In this way, a user can alter the amount of rotation ribs 10, support arms 15 and slider 45 have about mast 30 in response to wind conditions. The tension adjuster can be generally located adjacent to the pivot cap. The tension adjuster is also attached to mast 30 using any known mechanism (e.g., screws, bolts, clips, etc.).

As described above, the pivot cap (and attached ribs, slider, and support arms) can freely rotate about the mast in response to the wind blowing. The tension adjuster can be tightened as desired by the user (e.g., when the wind is shifting back and forth) to stop or limit rotation of the pivot cap (and ribs, support arm, and slider) about the mast to maintain a more balanced assembly. For example, in some embodiments, the tension adjuster can be loosened to allow the pivot cap, ribs, support arms, and slider to freely rotate (e.g., 360 degrees) about the mast. In other embodiments, the pivot cap, ribs, slider, and support arms have a more limited freedom to rotate

(e.g., it takes a stronger gust of wind to rotate). In some embodiments, the tension adjuster can be fully tightened such that the ribs, slider, and support arms cannot rotate relative to the mast.

Tension adjuster 25 can have any desired configuration that allows a user to control the level of movement of the tension cap relative to the mast. For example, in some embodiments, the tension adjuster can include passageway 60 with actuator 65 (e.g., lever or screw) capable of contacting pivot cap 40, as shown in FIGS. 7 a and 7 b . Adjusting the actuator through the passageway will increase or decrease the tension on the pivot cap. Specifically, if the actuator is tightened to fully contact the pivot cap, the pivot cap will be incapable of moving relative to the mast. Alternatively, if the actuator is loosened such that it does not fully contact or press against the mast, the pivot cap is free to rotate. Any degree of actuator tightening can therefore adjust the level of pivot cap rotation.

The tension adjuster can have any known configuration and is not limited to the embodiment described above. For example, the tension adjuster can apply a force parallel, at an angle, or perpendicular to the tension it creates. The force can be generated by any known method, such as fixed displacement, stretching/compression of a spring, changing the volume of a gas, hydraulic pressure, or gravity. Tension adjuster 25 can therefore include any device that applies a force to create or maintain tension.

Further, actuator 65 can have any known configuration, such as (but not limited to) a lever, wrench, key, screw, handle, knob, bolt, and the like.

The ribs, mast, support arms, pivot cap, tension adjuster, and anchor can be constructed from any desired material, such as (but not limited to) metal (e.g., aluminum, steel, brass, stainless steel, copper), plastic, wood, stone, or combinations thereof. In some embodiments, each element is constructed from the same material. In other embodiments, one element can be constructed from a material that differs from at least one other element.

Assembly 5 further includes sail 20 that cooperates with ribs 10. As shown in FIGS. 8 a and 8 b , the sail can include front edge 61, rear edge 62, and a pair of side edges 63. The sail further includes top face 70 and bottom face 71.

Front edge 61 comprises channel 65 sized and shaped to house each rib 10, as shown in FIG. 8 c . The front edge can be a straight edge, a curved edge, or have any known configuration. The ribs can be removed from channels 65 if desired by the user (e.g., to repair the sail or replace with a new sail). Channels 65 can be formed in the sail using any known method. For example, in some embodiments, the channel can be formed through sewing, welding, and the like. Such methods are well known in the art.

In some embodiments, each channel includes one or more apertures. For example, each channel can include apertures 91 sized and shaped to allow each rib to be inserted into channel 65.

The channel can further include one or more apertures 92 sized and shaped to allow each support arm to connect with the appropriate rib, as shown in FIG. 8 d . Apertures 91, 92 can have any desired size and/or shape so long as they allow for insertion of a rib and/or connection of a support arm with a rib (e.g., through one or more screws, clips, and/or the like). Further, apertures 91, 92 can be positioned at any suitable position in the channel.

Optionally, bottom face 71 of the sail can include at least one closed conduit 72 that provides a passageway for the flow of the wind during use. FIG. 8 e illustrates one embodiment of conduit 72 comprising open mouth 73 positioned adjacent to the sail front edge, length 74 and closed end 75. FIG. 8 f illustrates the flow of wind (represented by the arrows) as it enters open mouth 73, hits closed end 75 and then exits the open mouth. Conduit 72 provides added support for the sail, preventing or reducing excess flapping in the wind.

In some embodiments, the length of the conduit is the same as the length of the sail (i.e., the conduit extends the full length of the sail). In other embodiments, the conduit is configured to be shorter than the length of the sail, as shown in FIGS. 8 g and 8 h . In some embodiments, the thickness of the conduit can taper as it reaches closed end 75, as shown in FIG. 8 i.

The conduit can have any cross-sectional shape, such as (but not limited to) square, rectangular, circular, oval, triangular, and the like.

In some embodiments, the sail can be formed as a single portion of material. In other embodiments, the sail can be constructed from two or more pieces of material joined together, such as by welding or sewing.

The sail can be configured in any desired shape, such as square, rectangular, rounded, oval, triangular, pentagonal, abstract, and the like. In some embodiments, the sail can include at least one straight edge to accommodate the channel.

The sail can further have any desired dimensions, such as length 77 and/or width 76 of about 3-20 feet (e.g., at least/no more than about 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, or 20 feet). In some embodiments, the sail can have an area of about 10-100 ft2 (e.g., at least/no more than about 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, or 100 ft2). However, the sail can be configured with dimensions outside the range given above. The term “length” refers to the distance in the longitudinal direction. The term “width” refers to the dimension perpendicular to the length.

Sail 20 can have any desired thickness, such as about 1 inch or less. Thus, the sail can have a thickness of about 1, 0.9, 0.8, 0.7, 0.6, 0.5, 0.4, 0.3, 0.2, 0.1, 0.01, 0.001 inches or less. However, the presently disclosed subject matter is not limited and the sail can have thickness of greater or less than the range given above.

Sail 20 can be constructed from any desired lightweight material. The term "lightweight material" refers to any material that is able to be lifted and carried by the wind (e.g., a wind speed of at least about 2-3 mph). Suitable materials can therefore include (but are not limited to) nylon, polyester, vinyl, rayon, canvas, acrylic fabric, cotton, or combinations thereof.

In some embodiments, the material(s) used to construct the sail can have a UPF (ultraviolet protection coefficient) rating of about 30 or more in accordance with ASTM D6544, incorporated by reference herein.

As shown in the cross-sectional views of FIGS. 9 a-9 c , sail 20 can include coating 21 to reduce the noise level when the sail is moving in the wind. The coating can be positioned on the sail top and/or bottom surfaces. The coating can span the entire top and/or bottom surface or only a portion thereof.

In addition to coating 21, the sail can optionally be calendared and/or treated with the application of heat/pressure to aid in the reduction of noise. The term "calendaring" refers to a method of passing the sail between calendar rolls at high temperature and/or pressure.

Coating 21 can comprise any material that would serve to reduce the amount of noise and/or movement of sail 20. Suitable materials can therefore include (but are not limited to) urethane polyurethane, plastic (e.g., polyethylene), or combinations thereof. Coating 21 can have any thickness, such as about 0.0001 inches to about 0.1 inches. In some embodiments, the coating can impart a waterproof or water-resistant quality to sail 20. The term "waterproof" refers to a material that is impervious to water. The term "water-resistant" refers to the ability of a material to resist the entry of water to some degree but not entirely.

In some embodiments, sail 20 can include hem 82 sewn or otherwise applied at or adjacent to rear edge 62, as shown in FIG. 9 d . Hem 82 can be sewn with a durable material (e.g., monofilament nylon thread) to reduce the pliability of the sail, which aids in noise reduction and in the reduction of excess flapping in the wind. In some embodiments, hem 82 is in addition to any rear edge hem used to construct the sail (e.g., the rear edge can include an additional hem). It should be appreciated that hem 82 can be configured at any desired location.

In use, the disclosed umbrella assembly can be used to provide shade to one or more users. Anchor 35 is positioned in a support surface, such as sand at the beach. The anchor can be inserted into the ground using a twisting motion, which allows the auger to be easily buried, as shown in FIGS. 10 a and 10 b . In some embodiments, the mast can be manually rotated to insert the auger into the ground. In other embodiments, mast 30 can include one or more handles 83 that fold out to aid in screwing the auger into the ground, as illustrated in FIG. 10 c . In some embodiments, handles 83 can rotate up and down, flush with the mast as shown by the arrows. Thus, the handles fold into the mast when not in use and can be easily folded out when desired to insert the auger

into a support surface. It should be appreciated that the handles can have any desired configuration.

Mast 30 can then be extended to a desired length to accommodate one or more users and their belongings. For example, inner and outer tubes 41 and 42 can be adjusted as needed to a desired length. In other embodiments, the mast is of a single length and need only be positioned and attached to the anchor.

Ribs 10 can then be inserted into channel 65 of the sail. In some embodiments, each rib is inserted into channel aperture 91 for proper placement in the channel. It should be appreciated that aperture 91 can be positioned at any location in channel 65. For example, in some embodiments, each aperture 91 is positioned adjacent to the center of the channel (e.g., about 1-10 inches from the center point of the channel). Once the ribs are inserted into channel 65, apertures 92 are properly positioned to allow support arms 15 to be attached to the ribs, as shown in FIG. 10 d . Particularly, the apertures provide an opening in the sail to allow the support arms to directly attach to the ribs. In this way, the support arms can be easily attached to the ribs.

The sail can then be secured into position via bridge 94 and arm 95 on the pivot cap, as shown in FIG. 10 e . For example, in some embodiments, the portion of the sail positioned between apertures 91 can be inserted into the bridge opening, and the arm then slid over to trap the sail material in position. In this way, the sail does not significantly shift out of proper position during use.

The support arms can then be attached to the ribs through channel apertures 92, as shown in FIG. 10 f . Any known mechanism to secure the support arms to the ribs can be used. It should be appreciated that the opposing side of the support arms are secured to mast 30.

It should be appreciated that the steps included above can be performed in any order.

If desired by the user, the tension adjuster can be set to lock the position of the ribs (e.g., no movement relative to the mast) or to limit movement. As the wind blows, the sail will move in response, blowing and extending outward providing shade to the user, as shown in FIGS. 10 g and 10 h . In some embodiments, the sail requires a wind speed of at least 2-3 miles per hour to flap or extend into the wind.

Because the support can rotate and adjust in response to the wind, the assembly has a reduced likelihood of falling over as a result heavy winds and/or when the wind shifts directions. Specifically, when the wind shifts direction, the sail will self-adjust (e.g. the pivot cap, ribs, sail, support arm, and slider rotate about the non-movable mast in response to the wind blowing and changing direction). In addition, because the sail rotates relative to the mast it prevents loosening the auger position and thereby causing failure of the assembly.

The disclosed assembly therefore offers many advantages over prior art systems. For example, because the sail consistently blows in response to the wind, the user's views are not

blocked as is common with prior art umbrellas. As a result, users can keep an eye on children and the water at all times.

Further, the disclosed assembly allows the wind to self-adjust the direction of ribs 10 and sail 20, saving the user the time and hassle of manually adjusting the assembly.

In addition, the assembly frame is designed to not fall over if the wind stops or changes direction by more than 90 degrees.

The frame of the assembly (e.g. mast) does not catch the wind. If the mast falls over, it typically falls straight to the ground and does not tumble down the beach.

The disclosed assembly is capable of being quickly assembled. Users can easily set up the umbrella assembly in about 40 seconds or less. Likewise, the assembly can be quickly and easily disassembled in about 40 seconds or less.

Current assemblies commonly make use of sandbags, requiring users to fill the bags with sand to weigh down the umbrella, which is messy, time consuming, and can be hazardous if no shovel is available. Further, if wet sand is used, it is even more difficult to fill the bags.

Assembly 5 comprises a single mast, so it is universally permitted on beaches where tents are not. The mast is typically not in the middle of the umbrella sitting area, thereby providing adding convenience to the user. The disclosed assembly is quiet compared to other umbrellas and sun shades. Specifically, sail 20 does not loudly flap in the wind. Rather the sail stays extended by consistently floating in the direction of the wind.

Further, the disclosed system acts as an effective seagull deterrent. Because the sail is constantly changing directions in response to the wind, birds are deterred and tend to keep their distance.

As described above, although several embodiments of the present invention have been described for illustrative purposes, those skilled in the art will appreciate that various modifications, additions, and substitutions are possible without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

Clauses:

1. A sun shade assembly comprising:

a pair of ribs defined by a first end and a second end, wherein the first end of each rib is attached to a pivot cap;

a sail with a front edge comprising a channel sized and shaped to house each rib such that the ribs extend across the edge;

a mast comprising a first end and a second end, wherein the first end is operably connected to the pivot cap, wherein the pivot cap can freely rotate about the mast;

at least one support arm with a first end and a second end, wherein the first end of the support arm is attached to a rib and the second end of the support arm is attached to a slider configured to move up and down the mast;

a tension adjuster that adjusts rotation of the pivot cap about the mast; and

an anchor operably connected to the second end of the mast;

wherein the pivot cap, ribs, slider, and support arms are configured to rotate about the mast in response to blowing of the wind.

2. The assembly of claim 1, wherein the pivot cap rotates about the mast at an angle of about 0-360 degrees.

3. The assembly of claim 1, wherein the ribs are configured at an angle of greater than 180 degrees relative to each other.

4. The assembly of claim 1, wherein one face of the pivot cap comprises a lock defined by a bridge comprising and opening and a slidable arm that moves to cover and expose the opening.

5. The assembly of claim 1, wherein the slider is configured as a collar that fits around the exterior circumference of the mast.

6. The assembly of clause 1, wherein the mast length is adjustable.

7. The assembly of clause 1, wherein the anchor is releasably attached to the second end of the mast.

8. The assembly of clause 1, wherein the anchor comprises an auger.

9. The assembly of clause 1, wherein the tension adjuster is configured to permit the pivot cap, slider, ribs, and support arms to freely rotate about the mast, not rotate about the mast, or any level of rotation therebetween.

10. The assembly of clause 1, wherein the sail channel comprises one or more apertures to facilitate insertion of the ribs into the channel.

11. The assembly of clause 1, wherein the sail channel comprises one or more apertures to allow direct contact between each rib and a corresponding support arm.

12. The assembly of clause 1, wherein the sail has a top face and a bottom face, and wherein the bottom face includes at least one conduit configured as a channel with an open mouth positioned adjacent to the channel, a closed back end, and a length parallel with the length of the sail.

13. The assembly of clause 1, wherein the sail has a top face and a bottom face and wherein at least one of the top or bottom faces comprises a coating.

14. The assembly of clause1, wherein the sail has an opposed rear edge comprising an adjacent hem constructed from a durable material.

15. The assembly of clause1, wherein the mast comprises at least one handle for gripping the mast.

16. A method of using a sunshade, the method comprising:

positioning the anchor of a sun shade assembly in a support surface, wherein the sun shade assembly comprises:

a pair of ribs defined by a first end and a second end, wherein the first end of each rib is attached to a pivot cap;

a sail with a front edge comprising a channel sized and shaped to house each rib such that the ribs extend across the edge;

a mast comprising a first end and a second end, wherein the first end is operably connected to the pivot cap, wherein the pivot cap can freely rotate about the mast;

at least one support arm with a first end and a second end, wherein the first end of the support arm is attached to a rib and the second end of the support arm is attached to a slider configured to move up and down the mast;

a tension adjuster that adjusts rotation of the pivot cap about the mast; and

an anchor operably connected to the second end of the mast;

adjusting the tension adjuster to achieve a desired amount of rotation of the pivot cap, ribs, support arms, slider, and sail relative to the non-movable mast;

wherein the sun shade assembly self-adjusts in response to the blowing of the wind.

17. The method of clause 16, wherein the tension adjuster can be adjusted to allow the pivot cap, slider, ribs, and support arms to freely rotate about the mast, not rotate about the mast, or any level of rotation therebetween.

18. The method of clause 16, wherein the sail has a top face and a bottom face, and wherein the bottom face includes at least one conduit configured as a channel with an open mouth positioned adjacent to the channel, a closed back end, and a length parallel with the length of the sail.

19. The method of clause 16, wherein one face of the pivot cap comprises a lock defined by a bridge comprising and opening and a slidable arm that moves to cover and expose the opening.

20. The method of clause 16, wherein the sail has an opposed rear edge comprising an adjacent hem constructed from a durable material.

Form 1002 - 1: Public inventor(s)

Designation of inventor

User reference: P6167EP01
Application No:

Public

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	Address:	28480 Wrightsville Beach United States of America
	The applicant has acquired the right to the European patent:	Under agreement:

Signature(s)

Place:	London
Date:	27 May 2025
Signed by:	/SACH, Greg/
Association:	Valet Patent Services Limited
Representative name:	Greg Sach
Capacity:	Representative
Function of person signing:	Representative

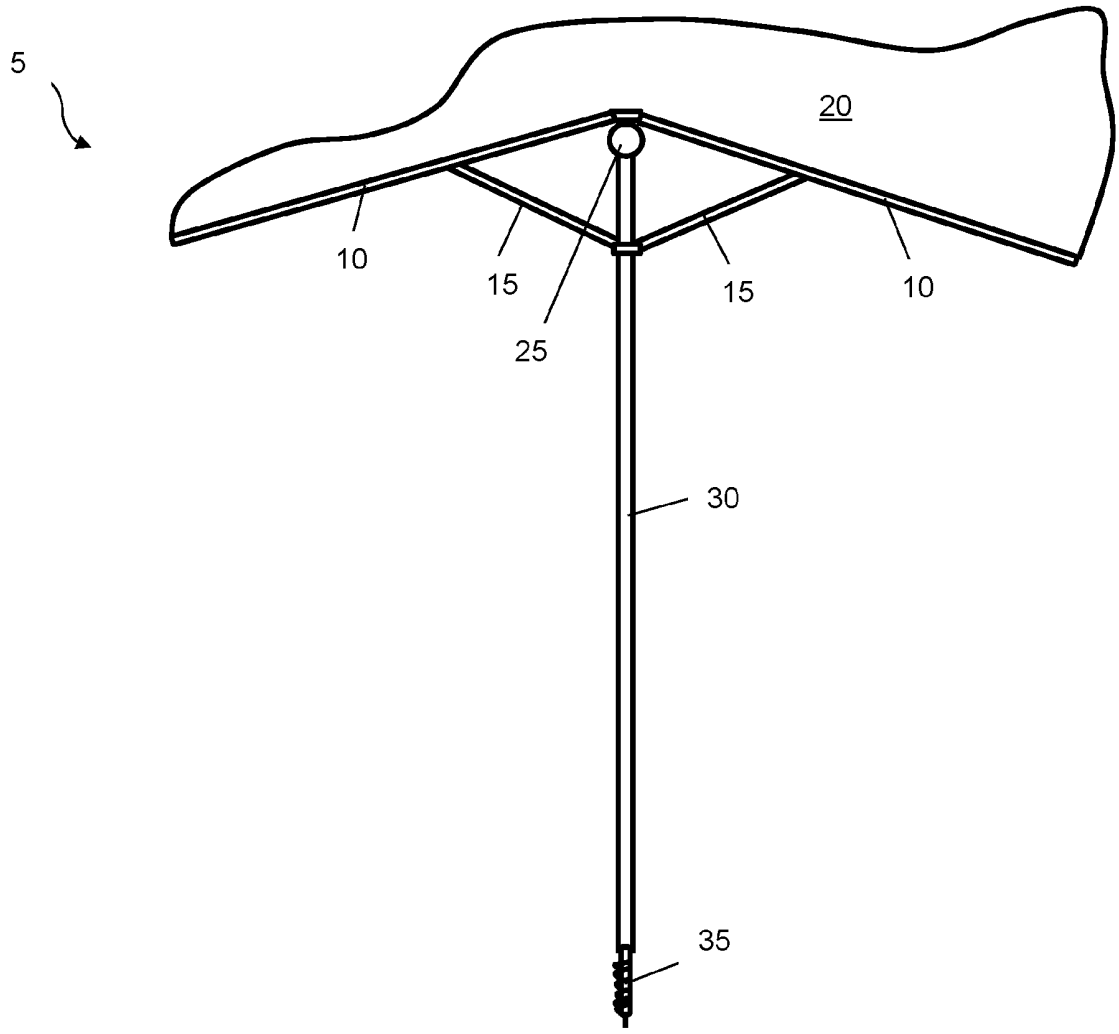


Fig. 1

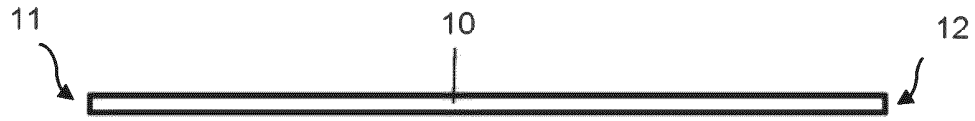


Fig. 2a

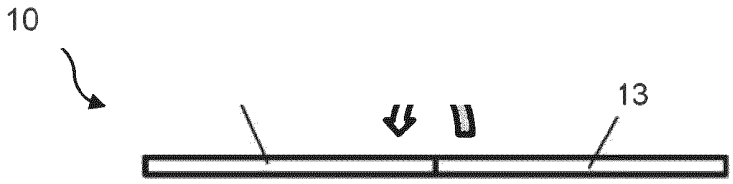


Fig. 2b



Fig. 2c

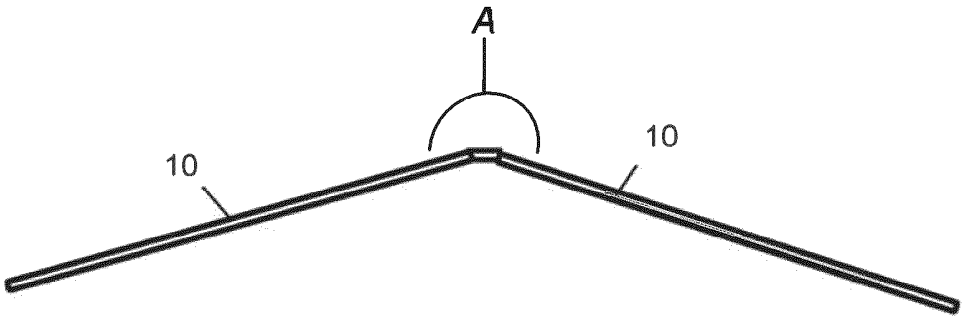


Fig. 2d

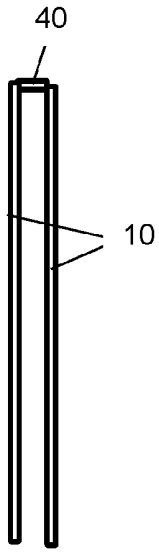


Fig. 2e

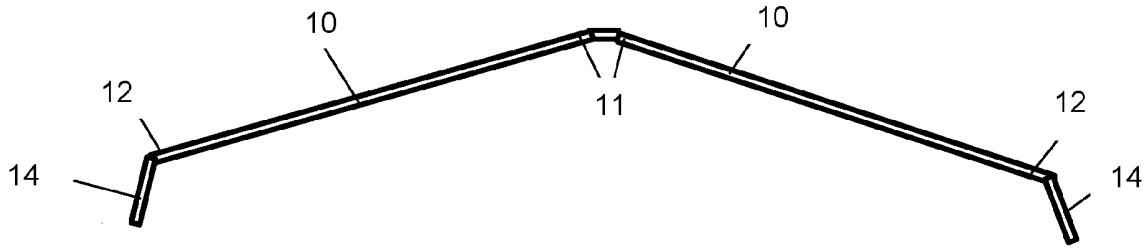


Fig. 2f

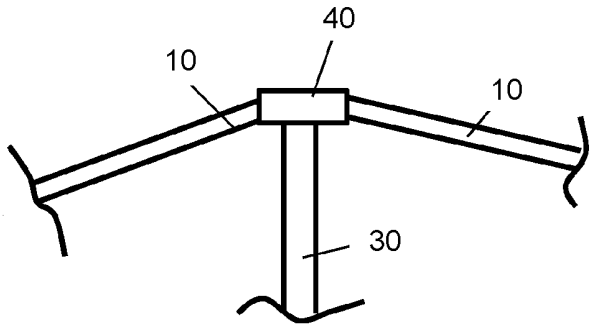


Fig. 3a

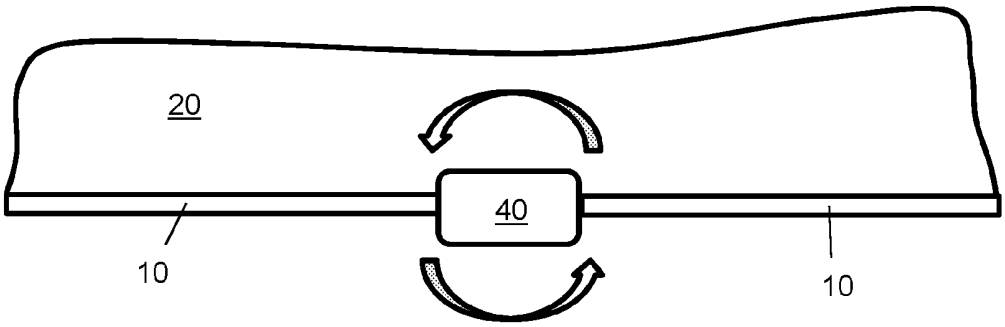


Fig. 3b

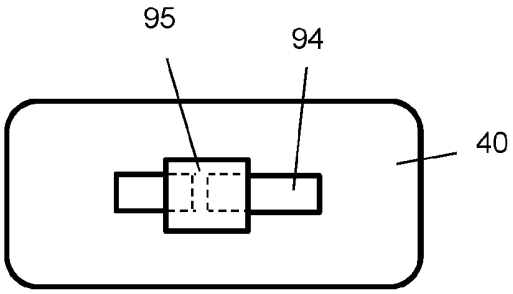


Fig. 3c

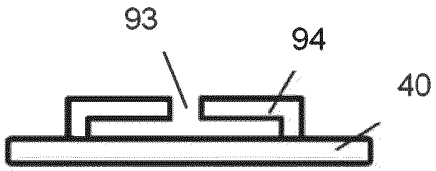


Fig. 3d

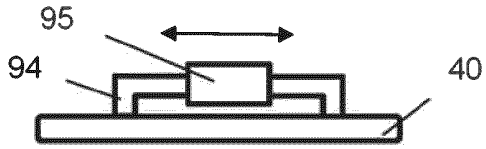


Fig. 3e

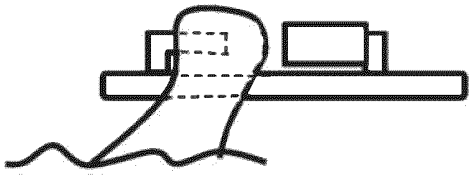


Fig. 3f

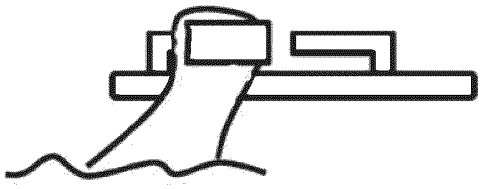


Fig. 3g

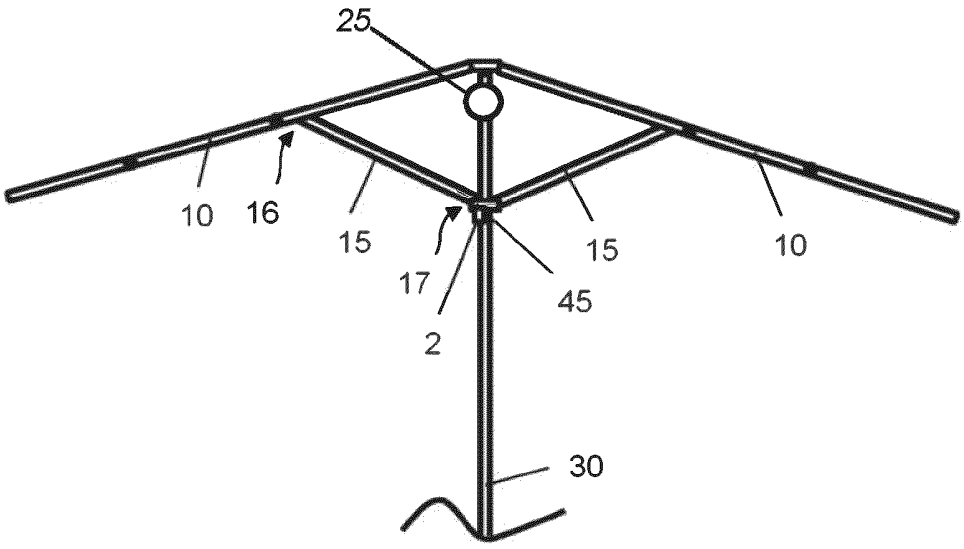


Fig. 4a

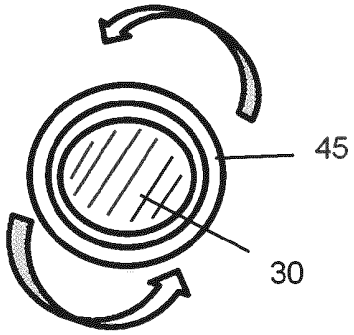


Fig. 4b

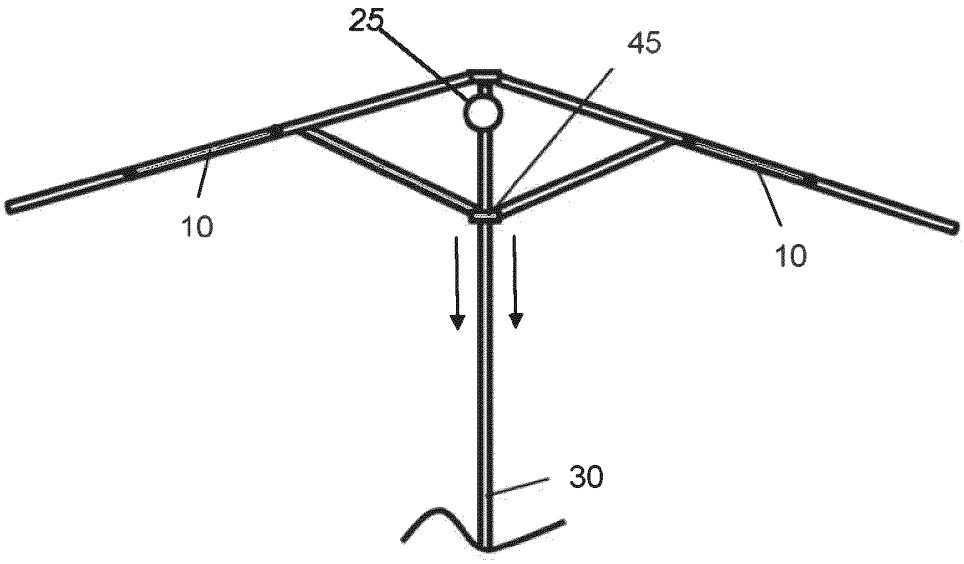


Fig. 4c

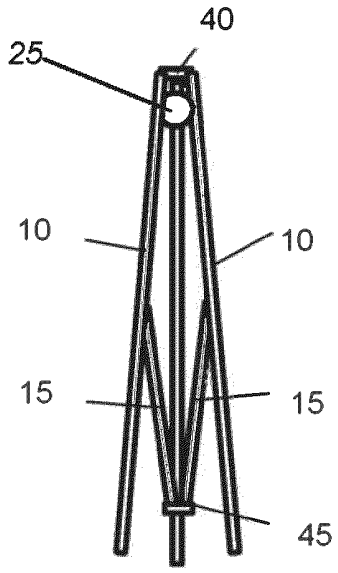


Fig. 4d

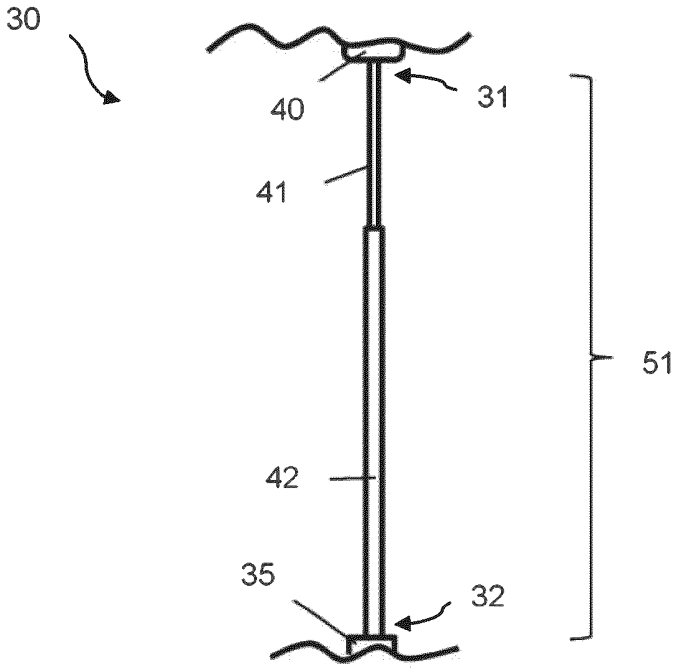


Fig. 5a

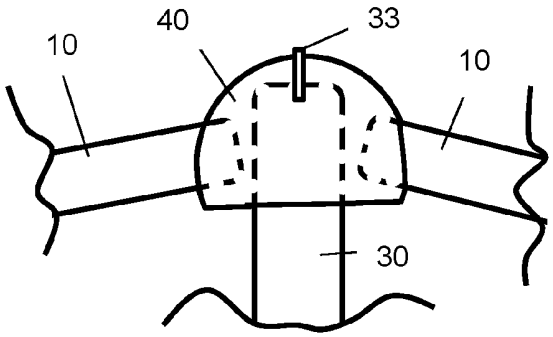


Fig. 5b



Fig. 5c

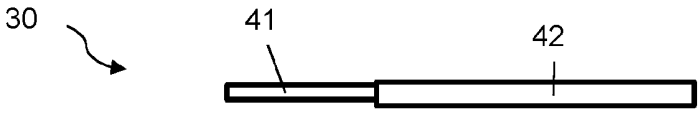


Fig. 5d

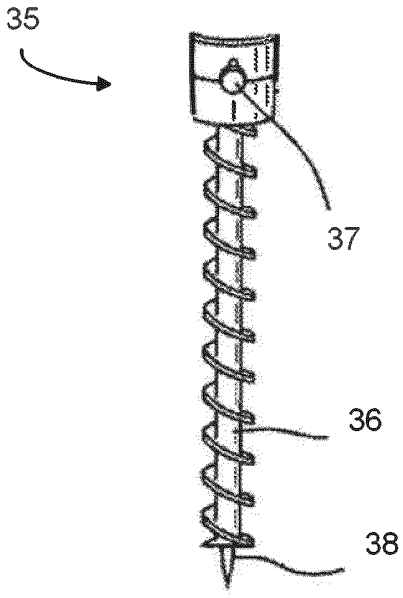


Fig. 6

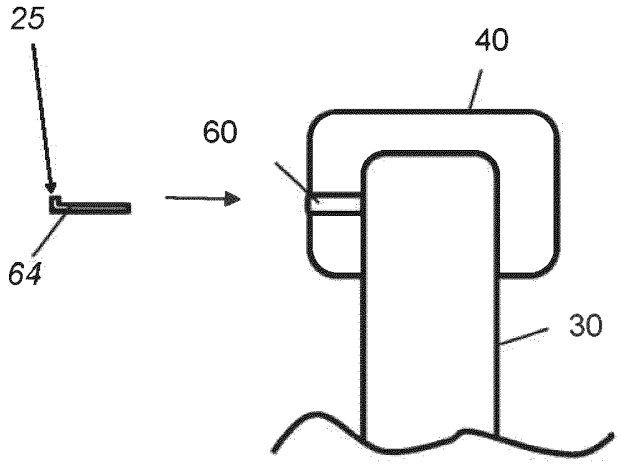


Fig. 7a

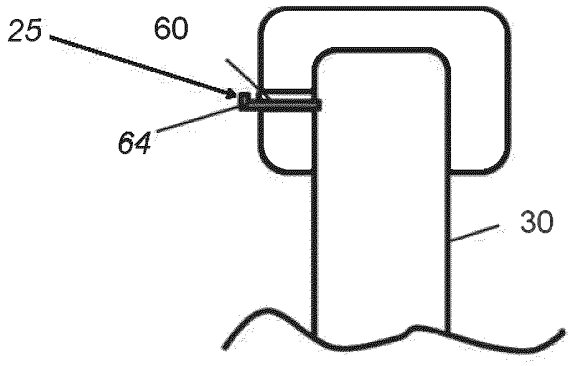


Fig. 7b

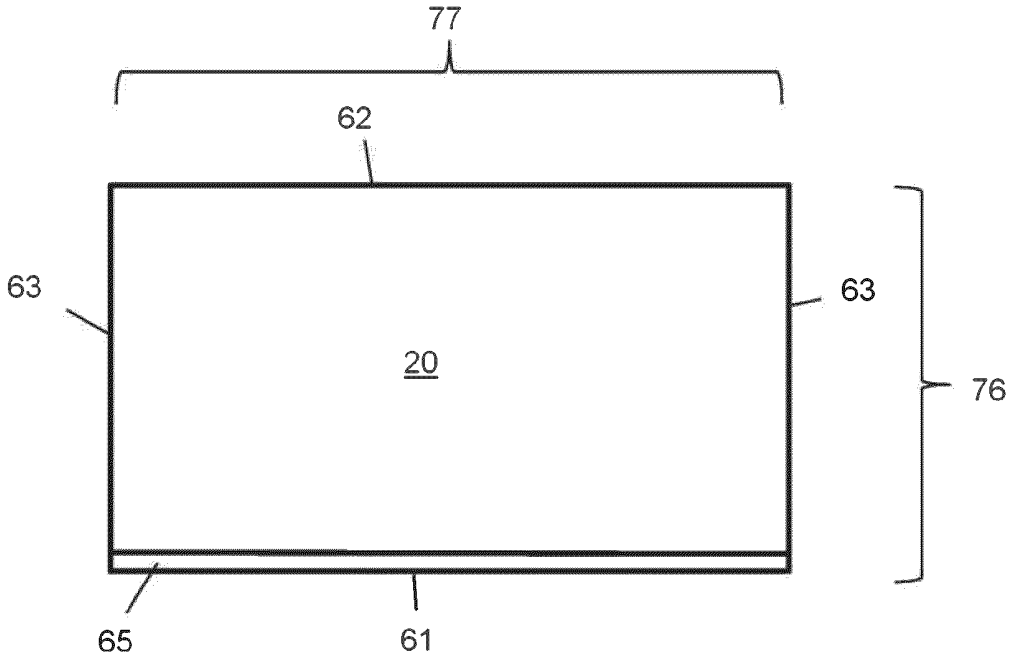


Fig. 8a

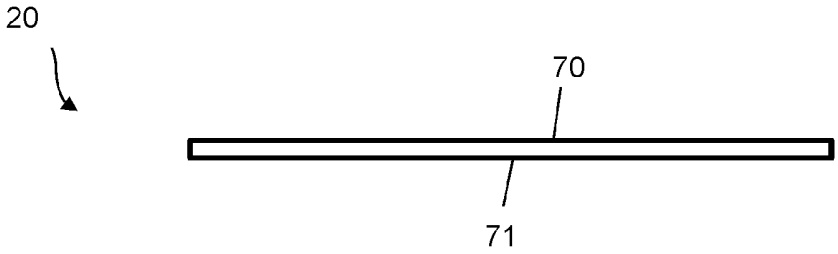


Fig. 8b

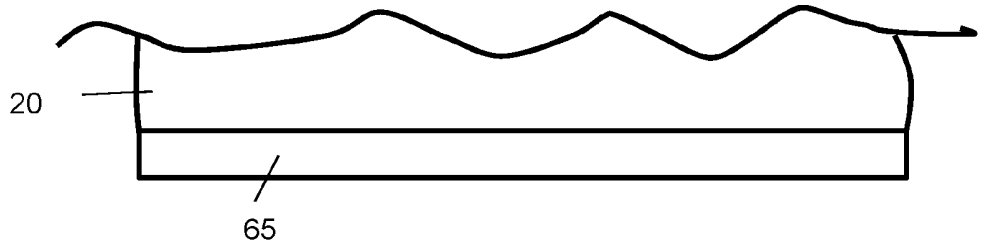


Fig. 8c

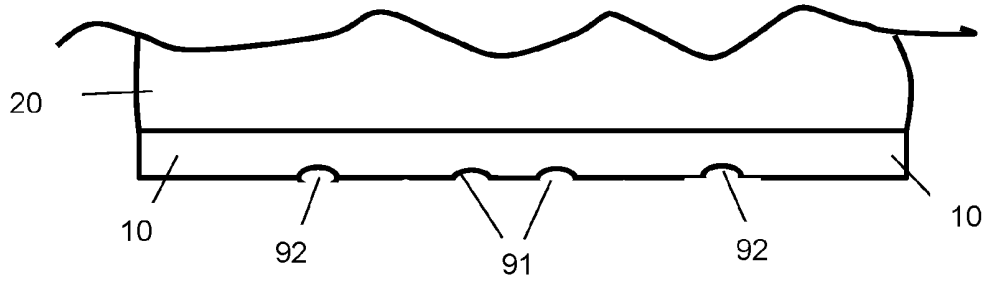


Fig. 8d

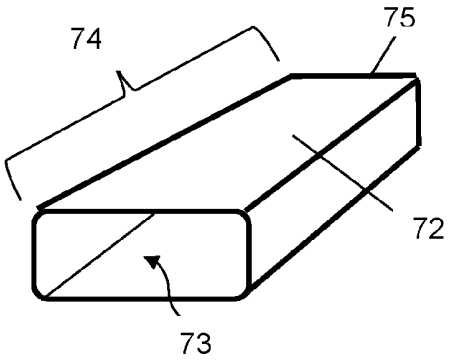


Fig. 8e

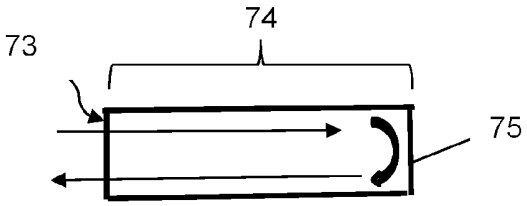


Fig. 8f

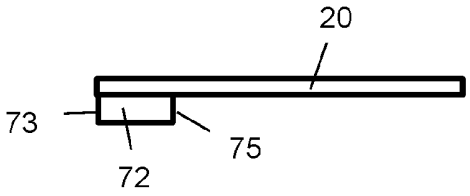


Fig. 8g

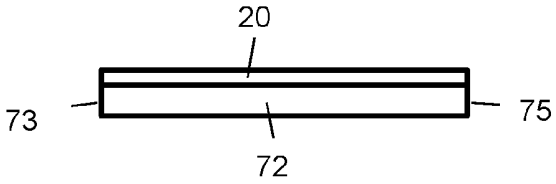


Fig. 8h

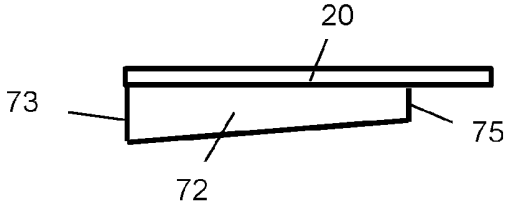


Fig. 8i

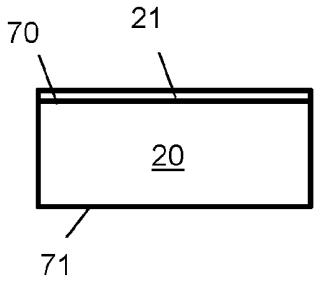


Fig. 9a

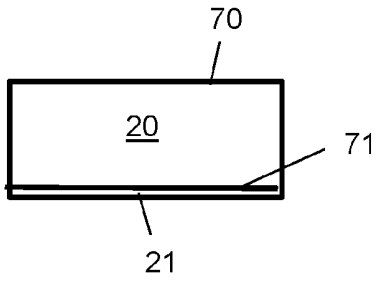


Fig. 9b

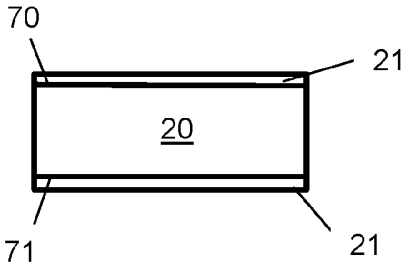


Fig. 9c

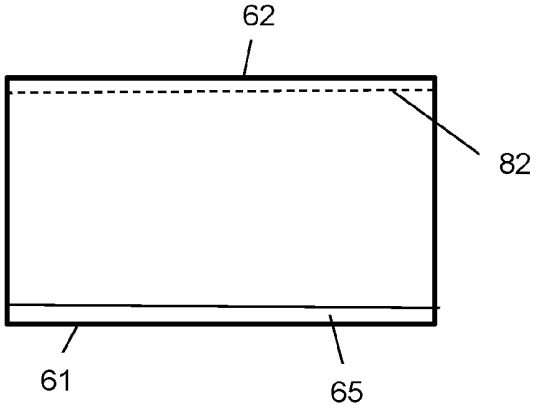


Fig. 9d

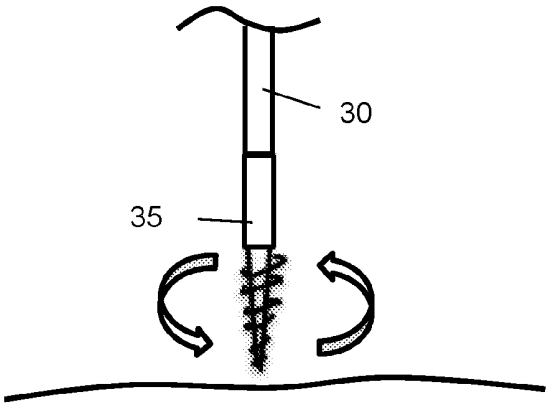


Fig. 10a

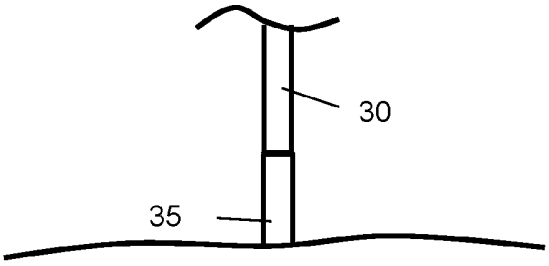


Fig. 10b

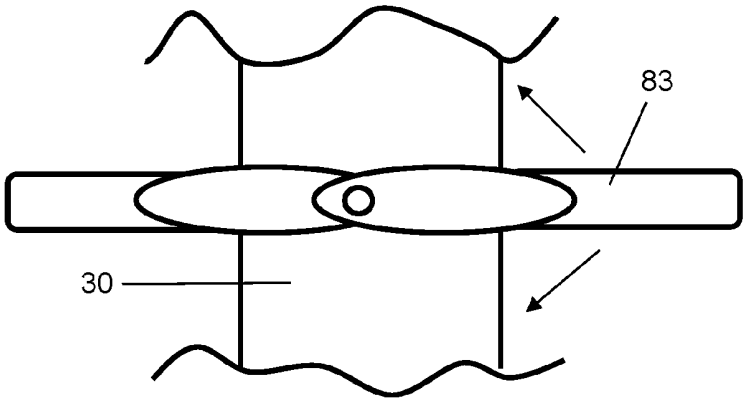


Fig. 10c

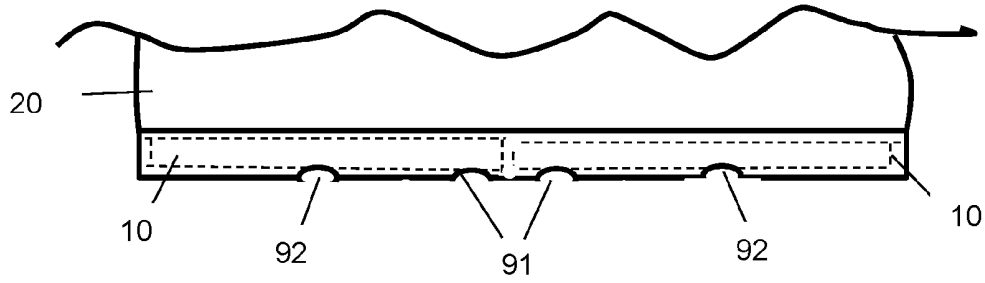


Fig. 10d

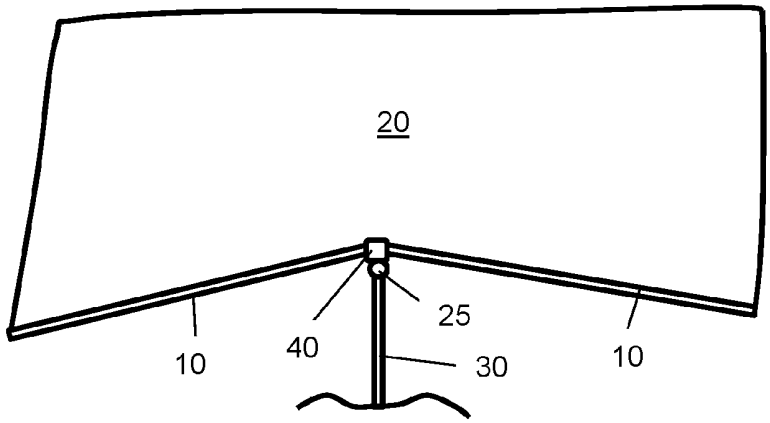


Fig. 10e

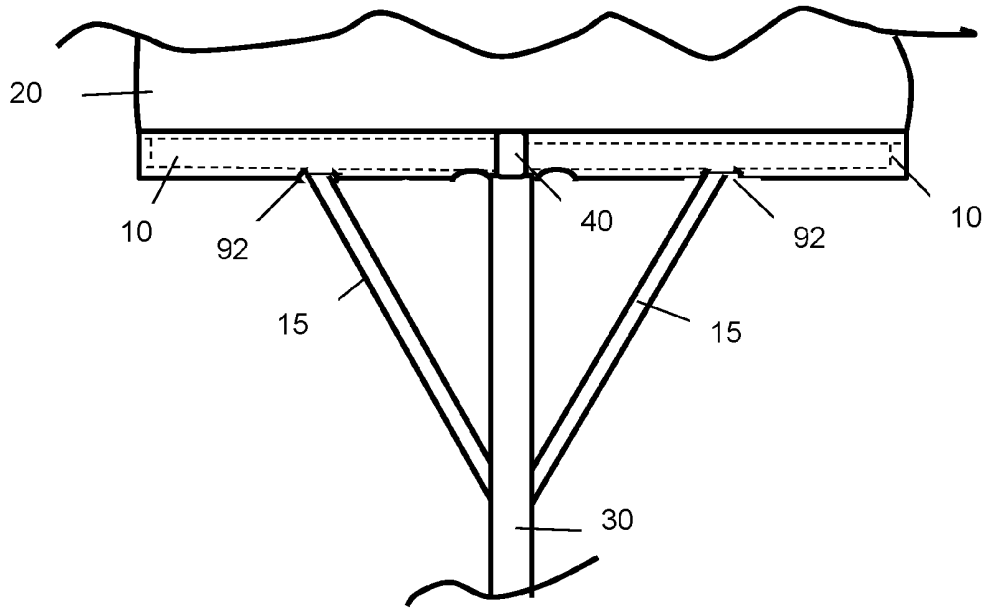


Fig. 10f

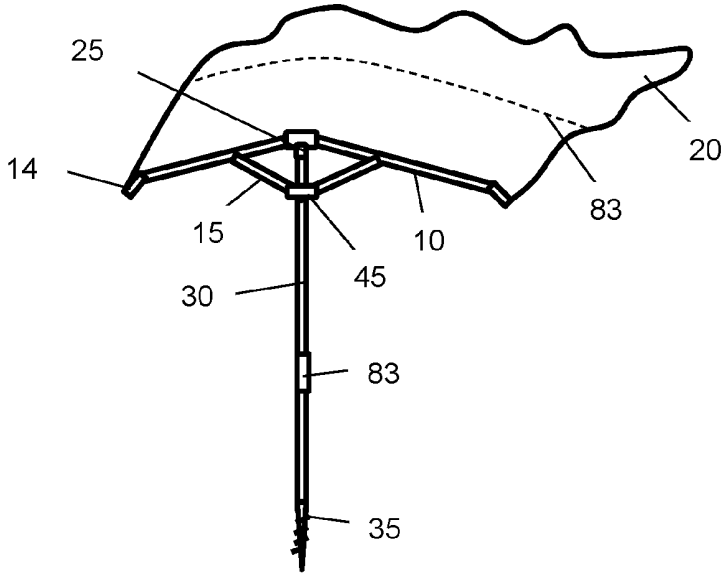


Fig. 10g

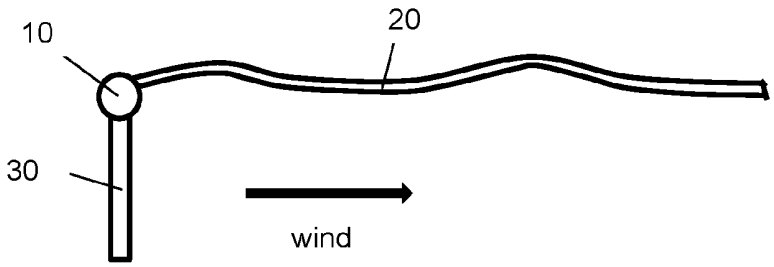


Fig. 10h

Europäisches Patentamt
European Patent Office
Office européen des brevets

Request for grant of a European patent

For official use only		
1 Application number:	MKEY	**MKEY - EP25179063.0**
2 Date of receipt (Rule 35(2) EPC):	DREC	**DREC - 27 May 2025**
3 Date of receipt at EPO (Rule 35(4) EPC):	RENA	
4 Date of filing:		

5 Grant of European patent, and examination of the application under Article 94, are hereby requested. ☒

5.1 The applicant waives his right to be asked whether he wishes to proceed further with the application (Rule 70(2)) ☐

Procedural language: en

Description and/or claims filed in: en

6 Applicant's or representative's reference: P6167EP01

Filing Office: EP

Applicant 1

7-1 Name: Solbello, Inc.

8-1 Address:
206 Causeway Dr. 279
Wrightsville Beach North Carolina 28480
United States of America

10-1 State of residence or of principal place of business: United States of America

14.1 The/Each applicant requests a reduction of fees under Rule 7a(1) EPC and is a natural person or entity under Rule 7a(2) EPC. ☐

14.2 The/Each applicant requests a reduction of fees under Rule 7a(3) EPC and is a micro-entity under Rule 7a(3) EPC.. ☐

Representative 1

15-1 Name: Valet Patent Services Limited

Association No.: 1068

16-1 Address of place of business:
c/o Caya 83713X / Am Börstig 5
96052 Bamberg
Germany

17-1 Telephone: +49 8138 6686803

17-1 E-mail: mail@valetpatentservices.com

Inventor(s)

23 Designation of inventor attached ☒

24 Title of invention

Title of invention: SELF-ADJUSTING SUN SHADE ASSEMBLY

25 Declaration of priority (Rule 52)

A declaration of priority is hereby made for the following applications

	State	Filing date	Kind	Application number:	Search results under Rule 141(1) are attached
Priority 01	US	28.08.2019	pr	62/892,700	☐

25.2 The EPO is requested to retrieve a certified copy of the following previous application(s) (priority document(s)) via the WIPO Digital Access Service (DAS) using the indicated access code(s):

Request	Application number:	Access code

25.3 This application is a complete translation of the previous application ☐

25.4 It is not intended to file a (further) declaration of priority ☐

26 Reference to a previously filed application

27 Divisional application ☒

Application number of earlier application: EP20856803.0

Date of Filing (Art. 80/Rule 40 EPC): 22 June 2020

27.1 This divisional application is of the following generation:

☒ 1 ☐ 2 ☐ 3

☐ 4 ☐ 5 or subsequent

28 Article 61(1)(b) application ☐

29 Claims

Number of claims: 15

29.1 ☒ as attached

29.2 ☐ as in the previously filed application (see Section 26.2)

29.3 ☐ The claims will be filed later

30 Figures

It is proposed that the abstract be published together with figure No. 1

31 Designation of contracting states

All the contracting states party to the EPC and valid for the parent application at the time of filing of this divisional application are deemed to be designated (see Article 76(2)).

32 Different applicants for different contracting states

33 Extension/Validation

This application is deemed to be a request to extend the effects of the European patent application and the European patent granted in respect of it to all non-contracting states to the EPC with which extension or validation agreements are in force on the date on which the application is filed. However, the request is deemed withdrawn if the extension fee or the validation fee, whichever is applicable, is not paid within the prescribed time limit.

33.1 It is intended to pay the extension fee(s) for the following state(s):

33.2 It is intended to pay the validation fee(s) for the following state(s):

34 Biological material

38 Nucleotide and amino acid sequences

The European patent application contains a sequence listing as part of the description ☐

38.2 The sequence listing is filed in XML format, in compliance with WIPO Standard ST.26. ☐

Further indications

39 Additional copies of the documents cited in the European search report are requested

Number of additional sets of copies:

40 Refund of the search fee under to Article 9 of the Rules relating to Fees is requested ☐

Application or publication number of earlier search report:

42 Payment

Method of payment: Credit Card

The fees indicated under Fee selection will be paid by credit card within a month after filing.

43 Refunds

Any refunds should be made to EPO deposit account: 28051083

Account holder: Valet Patent Services Ltd.

Fees

	Factor applied	Fee schedule	Amount to be paid
001 Filing fee - EP direct - online	1	135.00	135.00
002 Fee for a European search - Applications filed on/after 01.07.2005	1	1 520.00	1 520.00
033 Renewal fee for the 3rd year	1	690.00	690.00
034 Renewal fee for the 4th year	1	845.00	845.00
035 Renewal fee for the 5th year	1	1 000.00	1 000.00
036 Renewal fee for the 6th year	1	1 155.00	1 155.00
501 Additional filing fee for the 36th and each subsequent page	5	17.00	85.00
Total:		EUR	5 430.00

44-A Forms

		Details:	System file name:
A-1	Request		as ep-request.pdf
A-2	1. Designation of inventor	1. Inventor	as f1002-1.pdf

44-B Technical documents

		Original file name:	System file name:
B-1	Specification	P6167EP01_divisional specification.pdf Description; 15 claims; abstract	SPECEPO-1.pdf
B-2	Specification	P6167EP01_divisional drawings.pdf 10 figure(s)	SPECEPO-2.pdf

44-C Other documents

	Original file name:	System file name:

45 General authorisation:

46 Signature(s)

Place: London

Date: 27 May 2025

Signed by: /SACH, Greg/

Association: Valet Patent Services Limited

Representative name: Greg Sach

Capacity: Representative

Function of person signing: Representative

WIPO
WORLD
INTELLECTUAL PROPERTY
ORGANIZATION

DOCUMENT MADE AVAILABLE UNDER THE PATENT COOPERATION TREATY (PCT)

International application number:		**PCT/US2020/038920**
International filing date:		**22 June 2020 (22.06.2020)**
Document type:		**Certified copy of priority document**
Document details:	Country/Office:	**US**
	Number:	**62/892,700**
	Filing date:	**28 August 2019 (28.08.2019)**
Date of receipt at the International Bureau:		**02 July 2020 (02.07.2020)**

Remark: Priority document submitted or transmitted to the International Bureau in compliance with Rule 17.1(a),(b) or (b-*bis*)

34, chemin des Colombettes
1211 Geneva 20, Switzerland
www.wipo.int

1079868

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

July 01, 2020

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE.

APPLICATION NUMBER: *62/892,700*
FILING DATE: *August 28, 2019*
RELATED PCT APPLICATION NUMBER: *PCT/US20/38920*

THE COUNTRY CODE AND NUMBER OF YOUR PRIORITY APPLICATION, TO BE USED FOR FILING ABROAD UNDER THE PARIS CONVENTION, IS *US62/892,700*

Certified by

Under Secretary of Commerce
for Intellectual Property
and Director of the United States
Patent and Trademark Office

DocCode – SCORE

SCORE Placeholder Sheet for IFW Content

Application Number: 62892700 Document Date: 08/28/2019

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

- Drawing

At the time of document entry (noted above):

- USPTO employees may access SCORE content via DAV or via the SCORE web page.
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Form Revision Date: March 1, 2019

Doc Code: **TR.PROV**
Document Description: Provisional Cover Sheet (SB16)

PTO/SB/16 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

Provisional Application for Patent Cover Sheet

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c)

Inventor(s)

Inventor 1 — Remove

Given Name	Middle Name	Family Name	City	State	Country
Paul	Thomas	James	Wilmington	NC	US

All Inventors Must Be Listed – Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. — Add

Title of Invention	Unbrello, the self-adjusting shade-umbrella alternative.
Attorney Docket Number (if applicable)	533435924

Correspondence Address

Direct all correspondence to (select one):

◯ The address corresponding to Customer Number	◉ Firm or Individual Name
Firm or Individual Name 1	Paul James
Firm or Individual Name 2	

Mailing Address of Applicant:

Address 1	6401 GUY CT		
Address 2			
City	Wilmington	State/Province	NC
Postal Code	28403	Country	US
Phone	8587052295		

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

- No.

Yes, the invention was made by an agency of the United States Government. The U.S. Government agency name is:

Yes, the invention was under a contract with an agency of the United States Government. The name of the U.S. Government agency and Government contract number are:

Doc Code: **TR.PROV**
Document Description: Provisional Cover Sheet (SB16)

PTO/SB/16 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

Entity Status
Applicant asserts small entity status under 37 CFR 1.27 or applicant certifies micro entity status under 37 CFR 1.29

○	Applicant asserts small entity status under 37 CFR 1.27
◉	Applicant certifies micro entity status under 37 CFR 1.29. Applicant must attach form PTO/SB/15A or B or equivalent.
○	No

Warning

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

Signature

Please see 37 CFR 1.4(d) for the form of the signature.

Signature	/Paul James/			Date (YYYY-MM-DD)	2019-08-27
First Name	Paul	Last Name	James	Registration Number (If appropriate)	

This collection of information is required by 37 CFR 1.51. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **This form can only be used when in conjunction with EFS-Web. If this form is mailed to the USPTO, it may cause delays in handling the provisional application.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or paten. Accordingly, pursuant to the requirements of the Act, please be advised that : (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, t o a n other federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

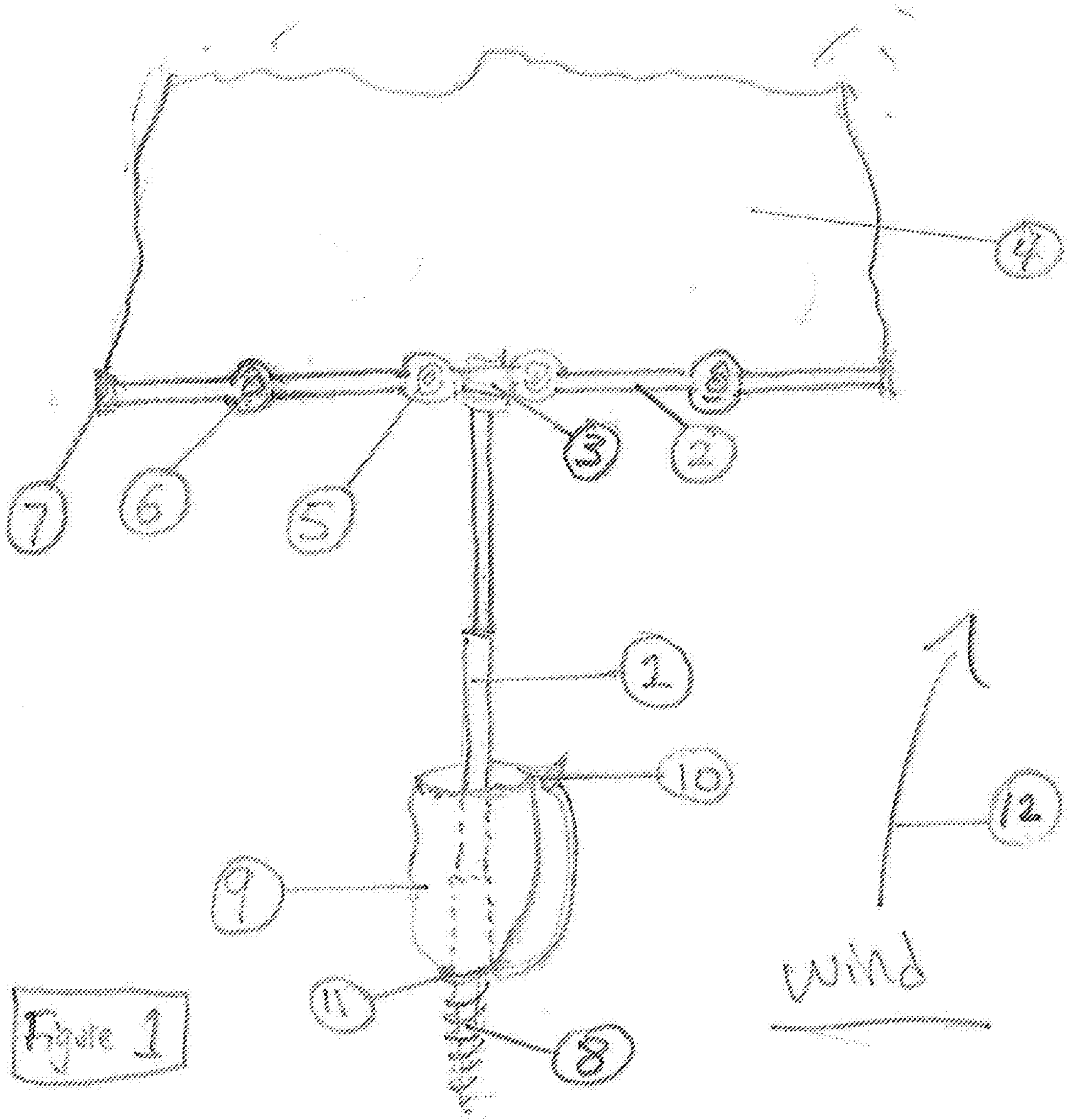


Figure 1

Fig 2

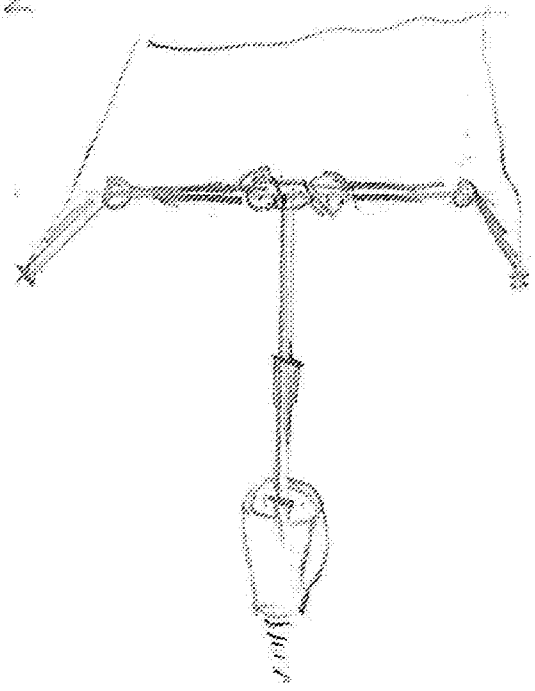
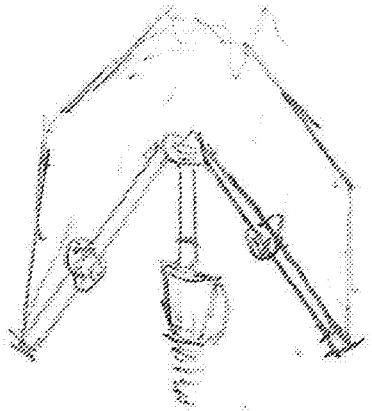


Fig 3



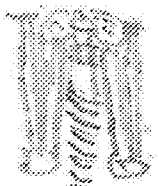
Front

Fig 4



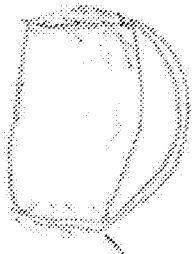
Speed tilt.
* best w/ low wind
* works best w/ symmetrical sides

Fig 5



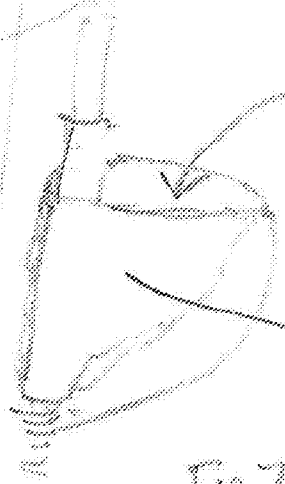
Folded

Fig 6



in bag

Fig 7



Shirts/Towels/glasses/etc

Unbello beach
Storage & travel case.

PROVISIONAL APPLICATION FOR PATENT

INVENTION TITLE

Unbrello, the self-adjusting shade-umbrella alternative.

BACKGROUND OF THE INVENTION

Problem Solved: Shade umbrellas are dangerous in the wind. Shade umbrellas easily break in the wind. Shade umbrellas almost always have the mast in the middle of the sitting area. Sunglasses, shirts, and other accessories need a place to stay dry and out of the sand.

Other devices require excessive setup time and constant adjusting as the wind changes direction.

Many beaches only permit single-pole beach umbrellas. Standard Beach umbrellas don't do well in the wind and they are dangerous. They are generally U-shaped with a frame that catch the wind. This results in a broken umbrella, injured people (or even death), and many times trash left on the beach (the broken umbrella).

Our device: has a single pole so it's permitted on beaches where tents are not. Our device allows the wind to self-adjust its direction so the user doesn't have to. Our umbrella-device framing is one that will not catch wind, if our falls over, it will fall strait down and not tumble dangerously down the beach. Our device's mast is almost always not going to be in the middle of the sitting area. Our carrying case is dual-purpose to work as a storage place for beach accessories when main product is in use.

DETAILED DESCRIPTION OF THE INVENTION

As stated above, shade umbrellas are dangerous in the wind. Shade umbrellas easily break in the wind.

Other devices require excessive setup time and constant adjusting as the wind changes direction. The invention claimed here solves this problem.

This umbrella device doesn't allow wind taking it out of the ground and hurl it down the beach. This device uses wind to its advantage instead of breaking. This device is quick to setup and uses the wind to automatically adjust its direction.

The claimed invention differs from what currently exists. Shade tents are anchored at more than one point so, as the wind switches direction throughout the day, they must be adjusted. These adjustments are time-consuming and inconvenient.

This invention is an improvement on what currently exists. Shade tents are anchored at more than one point so, as the wind switches direction throughout the day, they must be adjusted. These adjustments are time-consuming and inconvenient.

They are inconvenient, dangerous, high-failure, hurtful to our planet.

Our device: has a single pole so it's permitted on beaches where tents are not. Our device allows the wind to self-adjust its direction so the user doesn't have to. Our umbrella-device framing is one that will not catch wind, if our falls over, it will fall strait down and not tumble dangerously down the beach.

When in use, the wind usually will keep the shaded area to the side of the mast instead of right above it.

The Version of The Invention Discussed Here Includes:

1. Telescoping mast
2. Ribs
3. Tension adjustable and pivoting point at T-connection
4. Lightweight fabric
5. Main rib hinges
6. Secondary rib hinges
7. End caps
8. Auger bottom
9. Carry case/beach accessory storage.
10. Chord with loaded chord lock.
11. Hole in the bottom of the case.
12. Moving air (wind).

Relationship Between The Components:

#1 anchors/stakes in the ground to hold up the frame, #8 is used for sand application. #2 & # 12 support #4. #3 allows #2 to rotate freely and can be tightened to compensate for wind conditions. #5 & #6 allows frame to take different shapes to compensate for sun direction and to compact for transport. #7 helps hold #4 in place and aids for safety. #9 is used to contain all when not in use. #10 is used to close #9 when it has contents. #11 allows #8 & #1 to pass through so #9 can be used to hold beach accessories off the sand and water.

How The Invention Works:

Securely plant mast in ground, extend to desired height and unfold arms to desired shape to allow the wind to lift the shade, adjust the setting knob on top for the wind condition, and adjust the ribs for sun condition. Slide carrying case up mast and stow your belongings inside out of the sand and water. Sit/stand/lay in the sun-shaded area. The wind will turn the shade in the direction it's blowing so no further work required.

How To Make The Invention:

Assemble parts. The pivot point secured to the mast by thread or glue or other means. The hinges secured to ribs by thread, glue or other means. The fabric has a channel sewn or welded to insert the ribs and end-caps to secure in place. The end caps may be removable to change the fabric. The Bag is cone shaped.

All parts aide to the overall function and ease of use. The auger bottom could be changed out for different ground conditions.

How To Use The Invention:

Use the invention anytime there is wind on a sunny day where you want shade.

Use this invention in windy areas only permitting single-pole umbrellas.

ABSTRACT

Self-adjusting shade umbrella is disclosed. Our device: has a single pole so it's permitted on beaches where tents are not. Our device allows the wind to self-adjust its direction so the user doesn't have to. Our umbrella-device framing is one that will not catch wind, if our falls over, it will fall strait down and not tumble dangerously down the beach.

Electronic Acknowledgement Receipt

EFS ID:	37002914
Application Number:	62892700
International Application Number:	
Confirmation Number:	8794
Title of Invention:	Unbrello, the self-adjusting shade-umbrella alternative.
First Named Inventor/Applicant Name:	Paul Thomas James
Correspondence Address:	Paul James - 6401 GUY CT. - Wilmington NC 28403 US (858) 705-2295 paul@unbrello.com
Filer:	Reginald Monte Bruner
Filer Authorized By:	
Attorney Docket Number:	533435924
Receipt Date:	28-AUG-2019
Filing Date:	
Time Stamp:	13:15:29
Application Type:	Provisional

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$70

RAM confirmation Number	E20198RD15508780
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Certification of Micro Entity (Gross Income Basis)	533435924_CMESGIB1.pdf	139192 b02b5b52e2a7b47399dd85eab213fc5dc33f7932	no	2
Warnings:					
Information:					
2	Provisional Cover Sheet (SB16)	533435924_ProvisionalSB.pdf	2007137 d22ae2283ec1f2dab4305d9dcdecb2b57a479f38	no	3
Warnings:					
Information:					
3	Drawings-other than black and white line drawings	533435924ABX-draw.pdf	497997 58c025347bbc23ea30aa9b5792cf0aefd7c3f2b8	no	2
Warnings:					
Information:					
4		533435924ABX-desc.pdf	1329306 1d336bb5dcc8570520bc275a295715050c8a6080	yes	4

Multipart Description/PDF files in .zip description

Document Description	Start	End
Specification	1	3
Abstract	4	4

Warnings:

Information:

5	Fee Worksheet (SB06)	fee-info.pdf	29983 8edc62fc340f1cef300366f9c1068e4b420595c6	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	4003615	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.