June 14, 1966 A. KOWALSKI 3,255,467

COMBINED BEACH UMBRELLA AND HAMMOCK

Filed Dec. 17, 1962 2 Sheets-Sheet 1

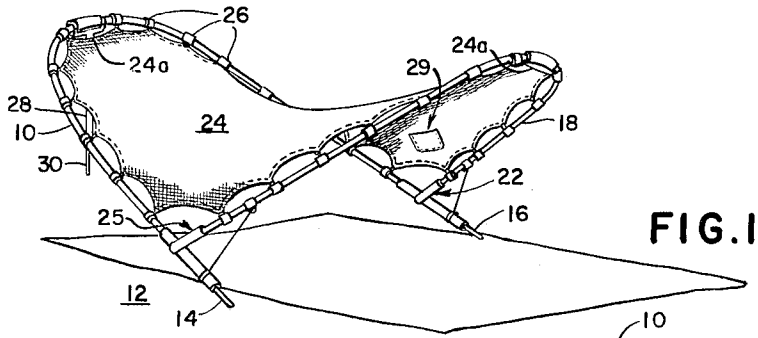


FIG. 1.

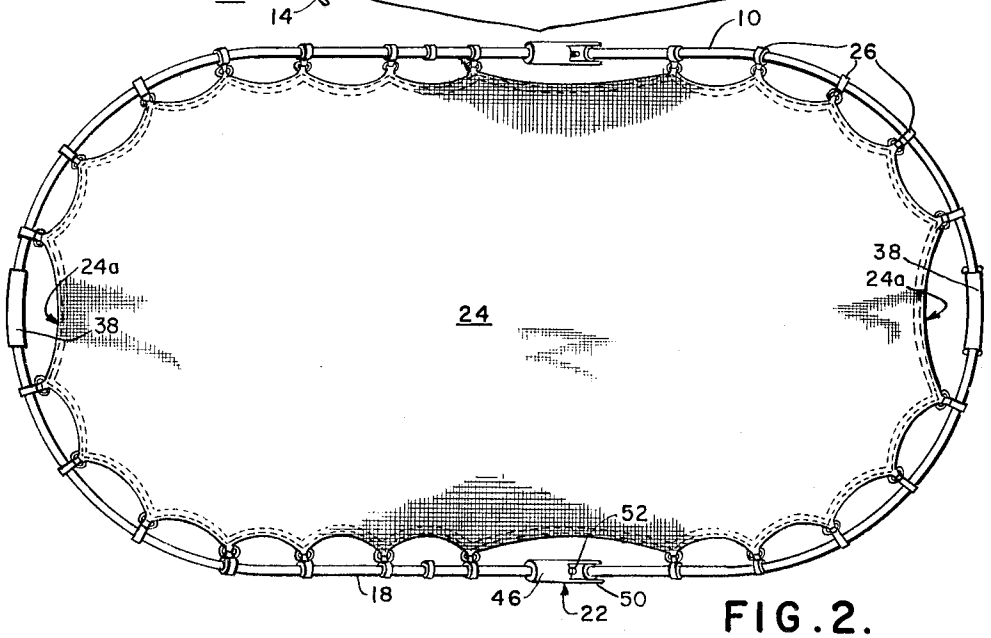


FIG. 2.

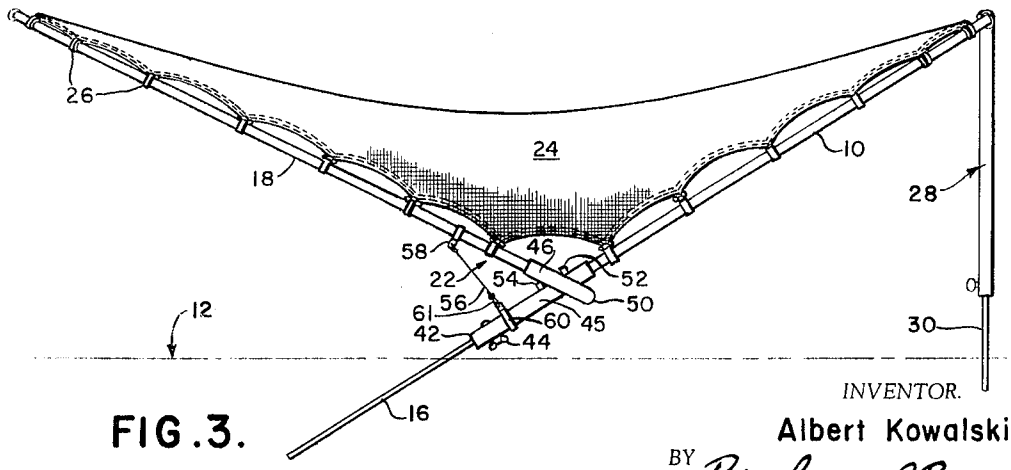


FIG. 3.

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Filed Dec. 17, 1962 2 Sheets-Sheet 2

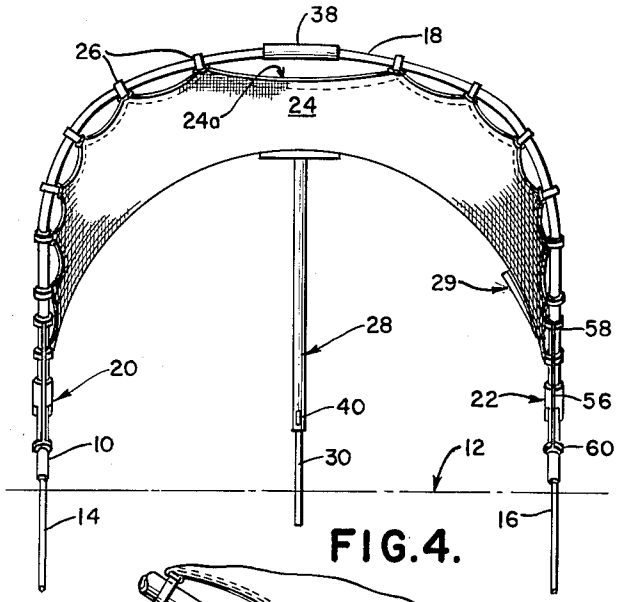


FIG. 4.

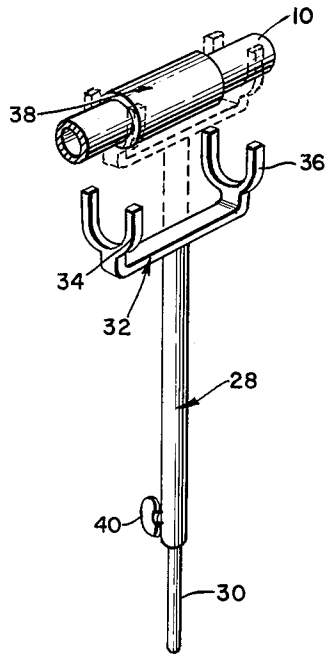


FIG. 5.

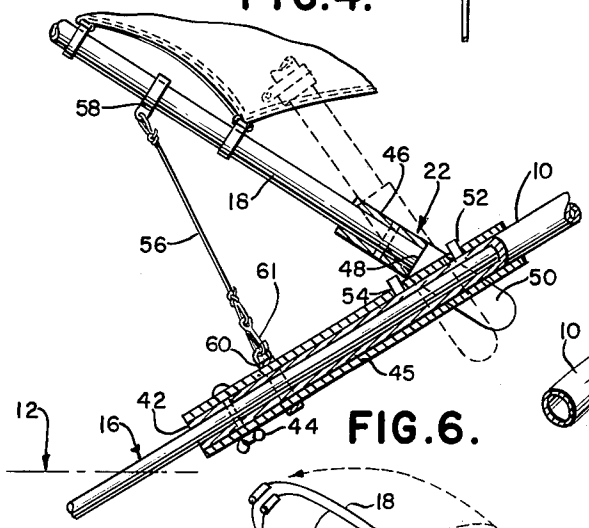


FIG. 6.

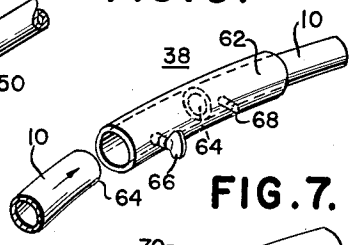


FIG. 7.

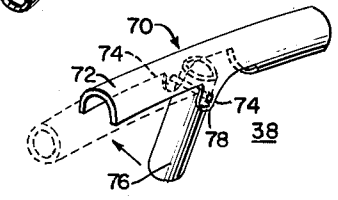


FIG. 8.

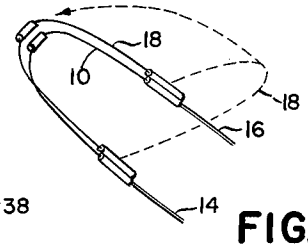


FIG. 10.

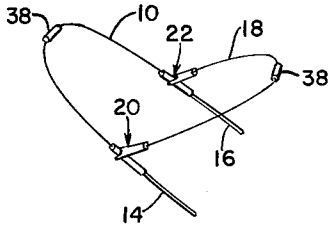


FIG. 9.

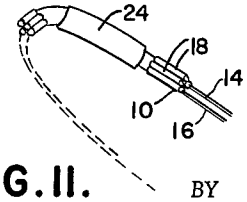


FIG. 11.

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3,255,467

COMBINED BEACH UMBRELLA AND HAMMOCK

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Filed Dec. 17, 1962, Ser. No. 245,003
18 Claims. (Cl. 5—121)

This invention relates to portable beach umbrellas and the like and more particularly, to a portable combined beach umbrella and hammock structure.

It is an object of this invention to provide a novel beach umbrella structure, wherein the strength of the structure is maximized without the need for special materials.

It is another object of this invention to provide a novel beach umbrella structure which is adapted to be used as a hammock or lounging means simultaneously with its function as an umbrella or sunshade.

Another object of this invention is to provide a novel beach umbrella and hammock structure which is readily collapsible for complete portability.

These and other objects of this invention will become more fully apparent with reference to the following specification and drawings which relate to several preferred embodiments of the invention.

In the drawings:

FIGURE 1 is a perspective of the invention;

FIGURE 2 is a top plan view of the invention;

FIGURE 3 is a side elevation of the invention;

FIGURE 4 is an end view of the invention;

FIGURE 5 is an enlarged detail view of a portion of the supporting structure of the invention;

FIGURE 6 is an enlarged detail of a hinge structure of the invention;

FIGURE 7 is an enlarged detail of one embodiment of a knock-down connector of the invention;

FIGURE 8 is an enlarged detail of another embodiment of a connector of the invention;

FIGURE 9 is a schematic of the frame structure of the invention fully assembled;

FIGURE 10 is a schematic of the frame structure of the invention in partially knocked-down condition; and

FIGURE 11 is a schematic of the invention in its fully knocked-down portable condition.

Referring in detail to the drawings, and more particularly to FIGURES 1, 2, 3 and 4, the present invention is shown as comprising a fixed first frame portion **10** embedded in the ground **12** by first and second anchoring means **14** and **16**, respectively; a pivoted second frame portion **18** pivotally mounted on said first frame portion **10** by first and second pivot means **20** and **22**, respectively, located adjacent the said first and second anchoring means **14** and **16**, respectively; a unitary fabric web **24** peripherally suspended by a plurality of clews or sliding coupling means **26** coextensive with substantially the entire internal area defined by said frame portions; and an auxiliary support means **28** extending from the uppermost point on said fixed first frame portion **10** to a third anchor means **30** in the ground **12**. A utility pocket **29**, integral with the undersurface of the web **24**, is provided for the purpose of holding personal articles or the like.

Both the fixed first frame portion **10** and the pivoted second frame portion **18** are constructed of aluminum tubing or the like which has been formed into a substantially parabolic planar shape. Thus, a saddle-shaped surface is generated by the web **24** when the first and second frame portions **10** and **18** are in the assembled position shown in FIGURES 1, 2, 3 and 4. This surface is classically known as a hyperbolic paraboloid, it being defined as a surface in which vertical transverse planes cut the surface in parabolas and in which horizontal planes cut the surface in hyperbolas.

Referring now to FIGURE 5, the auxiliary support means **28** is shown as comprising a hollow tube having a bifurcated cradle **32** at the upper end thereof. The cradle **32** includes a pair of semi-circular forks **34** and **36** which are adapted to supportably receive the first frame portion **10** on opposite sides of the knock-down coupling **38** thereon which is located at the center or apex thereof. A thumb nut **40** is provided at the lower end of the auxiliary support means **28** and extends through one wall thereof to provide a set screw adjustment for the position of the said support means **28** on the internally and telescopically received land anchor **30**. The land anchor **30** is a wooden dowel or the like.

Referring back to FIGURES 2 and 4, the fabric **24** is shown as having two peripheral portions **24***a* which are devoid of clews **26**. These peripheral portions **24***a* are those portions which span the knockdown couplings **38**. This construction materially enhances the strength of the structure of the invention and provides a maximum of comfort to a person reclining upon the upper surface of the fabric **24**.

Referring now to FIGURE 6, the second pivot means **22** and the second land anchor **16** will now be described in detail. These are identical with the first pivot means **20** and the first land anchor **14**.

The second land anchor **16** comprises a wooden dowel or the like which is telescopically inserted within the open end **42** of the first frame portion **10**, where it is secured by means of a wing-nut and through-bolt **44**. As shown, a substantial length of the end of the frame portion **10** is enclosed in a reinforcing sleeve **45** which permits the use of the lightest possible materials in the tubes comprising the first frame portion **10**.

The second pivot means **22** is shown to comprise an aluminum sleeve **46** externally telescopic at its inner end with respect to the end **48** of the second frame portion. The outer end of the sleeve **46** comprises a bifurcated section **50** which is adapted to straddle the first frame portion **10** and the sleeve **45** intermediate a pair of fixed upstanding studs or bosses **52** and **54**, integral with the first frame portion **10**, and extending through the sleeve **45**, whereby the second pivot means **22** is prevented from moving along the first frame portion **10**.

An adjustable guy-wire or cord **56** is provided between a fixed tie means **58** on the second frame portion **18** and a fixed ring **60** on the reinforcing sleeve **45** on the first frame portion **10** adjacent the open end **42** thereof. The guy-wire **56** is removably attached to the ring **60** by a snaphook **61** and will maintain the first and second frame members in the open or opposed position illustrated in FIGURES 1, 2, 3, 4 and 6 and 9.

Referring now to FIGURE 7, one embodiment of knock-down coupling **38** is shown as comprising a common sleeve member **62**, open at both ends for internally and telescopically receiving the ends **64** of the tubing making up the first frame portion **10**, the couplings on the second frame portion **18** being identical.

A set screw **66** is provided, if desired, for securing the sleeve on one tube end **64** while a holding screw **68** is provided to substantially permanently maintain the sleeve **62** on the other of the tube ends **64**.

In FIGURE 8, another embodiment of the knock-down coupling **38** is shown as comprising a one-way self-bracing hinge means **70** in which a first tube end **72** is laid open and provided with a pair of dependent ears **74** intermediate the ends of the laid-open section to form a semi-cylindrical brace which internally receives the end **76** of the other tube of the frame section. A hinge pin **78** is provided to join the tube ends **72** and **76** by penetrating both of the dependent ears **74** and extending diametrically through the tube end **76**.

When fully assembled, as actually shown in FIGURE 1 and schematically shown in FIGURE 9, the force of gravity is sufficient to maintain the umbrella of the invention in an open condition since the pivoted second frame portion **18** always tends to fall towards the ground **12**.

When it is desired to transport the umbrella to another place the pivoted second frame section **18** is first folded over into substantially co-planar engagement with the fixed first frame section **10**, moving from the dotted line position to the solid line position of FIGURE 10.

The knock-down couplings **38**, as previously illustrated and described with reference to FIGURES 7 and 8, are then either uncoupled or folded, respectively, and the tube sections comprising the first and second frame portions **10** and **18**, respectively, are coextensively stacked as indicated by the solid line portion of FIGURE 11.

As also indicated in FIGURE 11, the fabric **24**, still being on the frame portions **10** and **18**, is wrapped around the stacked tube sections whereby the entire unit is made readily portable.

When the auxiliary support means **28** is in place, the upper surface of the fabric **24** may be utilized as a hammock, the user lying transversely of the pivotal axis of the first and second pivot means **20** and **22**. The hyperbolic paraboloid generated by the fabric **24** when the first and second frame portions **10** and **18** are in the open position of FIGURES 1, 2, 3 and 4 provides an optimum strength for the entire structure, whereby even extremely heavy persons may safely lounge upon the upper surface thereof, the clews **26** acting to evenly distribute the load about those peripheral portions of the first and second frame members **10** and **18** which are coexistensive with the fabric **24**. Thus, the use of lightweight tubing for fabricating the frame portions is permitted, providing greater portability of the invention.

Additionally, the use of the invention as an umbrella is very efficient since the shaded area beneath the umbrella is optimized by its shape.

If desired, the fixed first frame portion **10** may be maintained parallel with the ground and the pivoted second frame portion **18** will then make a larger acute angle with the ground **12**, thus providing a cabana style shelter.

As can be seen from the foregoing specification and drawings, this invention provides a new and novel combined beach umbrella and hammock which is characterized by optimum strength with the lightest of materials, whereby the device is readily portable.

It is to be understood that the embodiments of the invention shown and described herein are for the purpose of example only and are not intended to limit the scope of the appended claims.

What is claimed is:

1. A foldable combined umbrella and couch comprising a first frame means, a second frame means pivotally mounted with respect to said first frame means, said first and second frame means each having a periphery defining a curvilinear span and adapted to be relatively movable from a flush coextensive position to an open substantially opposed position, and a unitary fabric web substantially coextensive with and peripherally secured to said first and second frame means, said fabric web subtending and being free of the periphery of said first and second frame means at the vertex of each of said curvilinear spans defined thereby.

2. The invention defined in claim **1**, wherein said first and second frame means each comprise a single curvilinear span including first and second end portions on either side of the vertex of the said curvilinear span and coupling means at said vertex for integrating said first and second end portions into the said single curvilinear span.

3. The invention defined in claim **1**, wherein said first frame means includes land anchor means at both ends of the span defined thereby.

4. A combined umbrella and flexible couch means with an upper saddle-shaped surface comprising a first frame means, a second frame means pivotally mounted with respect to said first frame means, said first and second frame means each having a periphery defining a curvilinear span and adapted to be relatively movable from a flush coextensive position to an open substantially opposed position, a flexible unitary fabric web mutually coextensive with and peripherally secured to said first and second frame means, means for fixing said first frame means on a mounting surface, and adjustable support means extending from said mounting surface into engagement with the uppermost portion of said first frame means at the vertex thereof.

5. The invention defined in claim **4**, wherein said fabric web subtends and is free of the periphery of said first and second frame means at the vertex of each of said curvilinear spans defined thereby.

6. The invention defined in claim **4**, wherein said support means comprises a bifurcated cradle engaging said first frame means substantially at the vertex thereof, an integral stem dependent from said cradle and land anchor means dependent from said stem and adapted to engage said mounting surface.

7. The invention defined in claim **4**, wherein said first and second frame means each comprise a single curvilinear span.

8. The invention defined in claim **4**, wherein said first and second frame members each comprise a single curvilinear span including first and second end portions on either side of the vortex of the said curvilinear span and coupling means at said vertex for integrating said first and second end portions into the said single curvilinear span.

9. The invention defined in claim **4**, wherein said means for fixing said first frame means comprises land anchor means at both ends of the span defined by said first frame means.

10. The invention defined in claim **4**, wherein said second frame means includes pivot means at both ends of the span defined thereby, said pivot means being adapted to releasably engage the periphery of said first frame means.

11. The invention defined in claim **4**, wherein said means for fixing said first frame means comprises land anchor means at both ends of the span defined by said first frame means, and further, wherein said second frame means includes pivot means at both ends of the span defined thereby, said pivot means being adapted to releasably engage said first frame means adjacent said land anchor means.

12. The invention defined in claim **11**, wherein said first frame means comprises a unitary tubular means, said land anchor means being telescopically and internally engageable with the ends of said tubular means, and a reinforcing sleeve on each end of said tubular means; and wherein said second frame means includes pivot means at both ends thereof, said pivot means each comprising bifurcated extensions of said frame means and each being adapted to straddle one of said reinforcing sleeves on said first frame means.

13. The invention defined in claim **11**, wherein said first frame means comprises a unitary tubular means, said land anchor means being telescopically and internally engageable with the ends of said tubular means, and a reinforcing sleeve on each end of said tubular means; and wherein said second frame means includes pivot means at both ends thereof, said pivot means each comprising bifurcated extensions of said frame means and each being adapted to straddle one of said reinforcing sleeves on said first frame means, said reinforcing sleeves each including retaining means, said retaining means being engageable

with said pivot means to maintain said pivot means in position on said first frame means.

14. A foldable combined umbrella and couch comprising a first frame means, a second frame means pivotally mounted with respect to said first frame means, said first and second frame means each having a periphery defining a curvilinear span and adapted to be relatively movable from a flush coextensive position to an open substantially opposed position, and a unitary fabric web mutually coextensive with and peripherally secured to said first and second frame means; said second frame means including pivot means at both ends of the span defined thereby, said pivot means being adapted to releasably engage the periphery of said first frame means.

15. A foldable combined umbrella and couch comprising a first frame means, a second frame means pivotally mounted with respect to said first frame means, said first and second frame means each having a periphery defining a curvilinear span and adapted to be relatively movable from a flush coextensive position to an open substantially opposed position, and a unitary fabric web mutually coextensive with and peripherally secured to said first and second frame means; said first frame means including land anchor means at both ends of the span defined thereby and said second frame means including pivot means at both ends of the span defined thereby said pivot means being adapted to releasably engage said first frame means adjacent said land anchor means.

16. A foldable combined umbrella and couch comprising a first frame means, a second frame means pivotally mounted with respect to said first frame means, said first and second frame means each having a periphery defining a curvilinear span and adapted to be relatively movable from a flush coextensive position to an open substantially opposed position, and a unitary fabric web mutually coextensive with and peripherally secured to said first and second frame means; said first frame means comprising a unitary tubular means including land anchor means, said land anchor means being telescopically and internally engageable with the said ends of said tubular means, and a reinforcing sleeve on each end of said tubular means; and said second frame means including pivot means at both ends thereof, said pivot means each comprising bifurcated extensions of said frame means and each being adapted to straddle one of said reinforcing sleeves on said first frame means.

17. A foldable combined umbrella and couch comprising a first frame means, a second frame means pivotally mounted with respect to said first frame means, said first and second frame means each having a periphery defining a curvilinear span and adapted to be relatively movable from a flush coextensive position to an open substantially opposed position, and a unitary fabric web mutually coextensive with and peripherally secured to said first and second frame means; said first frame means comprising a unitary tubular means including land anchor means, said land anchor means being telescopically and internally engageable with the said ends of said tubular means, and a reinforcing sleeve on each end of said tubular means; and said second frame means including pivot means at both ends thereof, said pivot means each comprising bifurcated coextensions of said frame means and each being adapted to straddle one of said reinforcing sleeves on said first frame means, said reinforcing sleeves each including retaining means, said retaining means being engageable with said pivot means to maintain said pivot means in position on said first frame means.

18. A foldable combined umbrella and couch comprising a first frame means, a second frame means pivotally mounted with respect to said first frame means, said first and second frame means each having a periphery defining a curvilinear span and adapted to be relatively movable from a flush coextenstive position to an open substantially opposed position, and a unitary fabric web mutually coextensive with and peripherally secured to said first and second frame means; said first frame means including land anchor means at both ends of the span defined thereby; and said second frame means including pivot means at both ends of the span defined thereby said pivot means being adapted to releasably engage said first frame means adjacent said land anchor means; and guy wire means releasably secured to said first frame means adjacent each of said land anchor means and secured to said second frame means adjacent each of said pivot means, whereby said first and second frame means are retained in said open position.

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