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(19) **United States**(12) **Patent Application Publication****Vogt**(10) **Pub. No.: US 2010/0258151 A1**(43) **Pub. Date: Oct. 14, 2010**(54) **WIND-RESISTANT UMBRELLA****Publication Classification**(76) Inventor: **Jeffrey A. Vogt, McHenry, IL (US)**(51) **Int. Cl.**
A45B 25/20 (2006.01)(52) **U.S. Cl.** **135/33.7**(57) **ABSTRACT**

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BUFFALO GROVE, IL 60089 (US)**(21) Appl. No.: **12/822,010**(22) Filed: **Jun. 23, 2010****Related U.S. Application Data**

(63) Continuation-in-part of application No. 11/952,529, filed on Dec. 7, 2007, which is a continuation-in-part of application No. 11/849,040, filed on Aug. 31, 2007, now abandoned.

A wind-resistant umbrella is disclosed. The wind-resistant umbrella includes a canopy having one or more cutout sections. Each cutout section is covered by a flap. The flap is attached to the canopy at an upper edge. The flap is held in place by a limiting element such as an elastic strip. Ideally, the flaps cover and overlap the cutouts. Thus, when wind blows, air flow can take place through the cutout sections from the underside of the canopy. The flaps will be displaced by the air flow. Once the air flow dips below a threshold level, the flaps return to their closed position. Thus, the umbrella functions to provide shade or rain protection, but will not be damaged or blown about with a gust of wind as the cutout sections allow air to flow through the canopy.

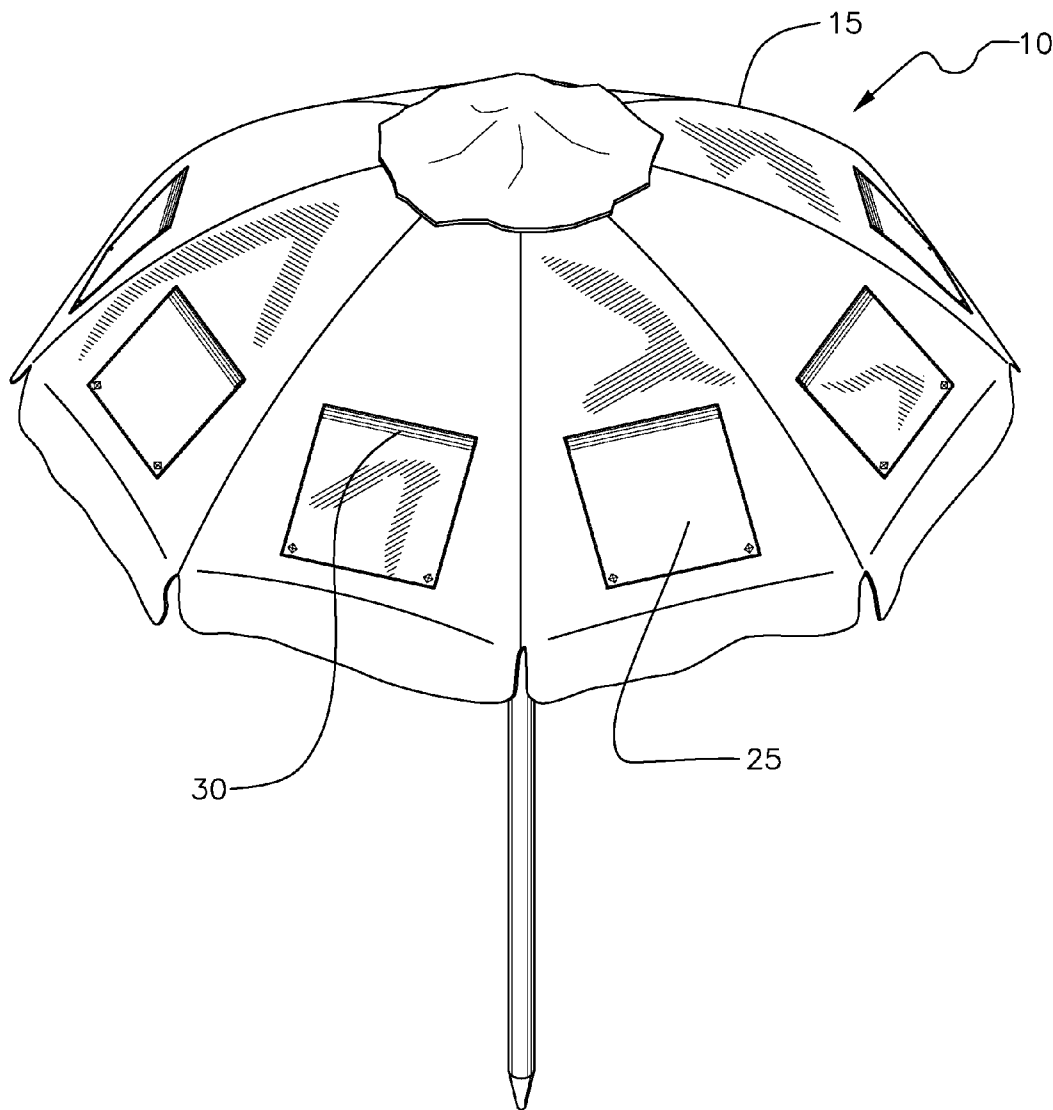


Fig. 1

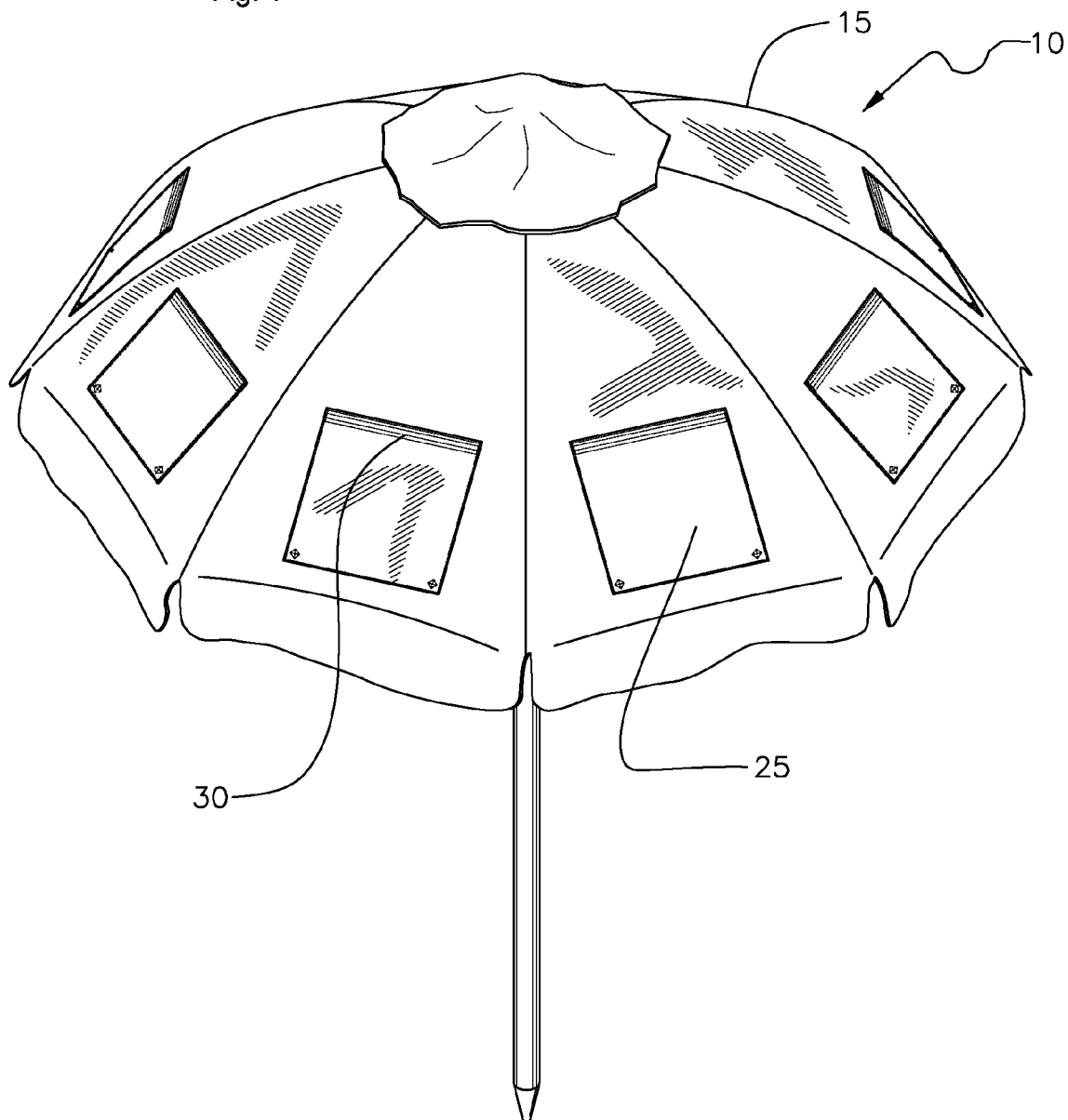


Fig. 2

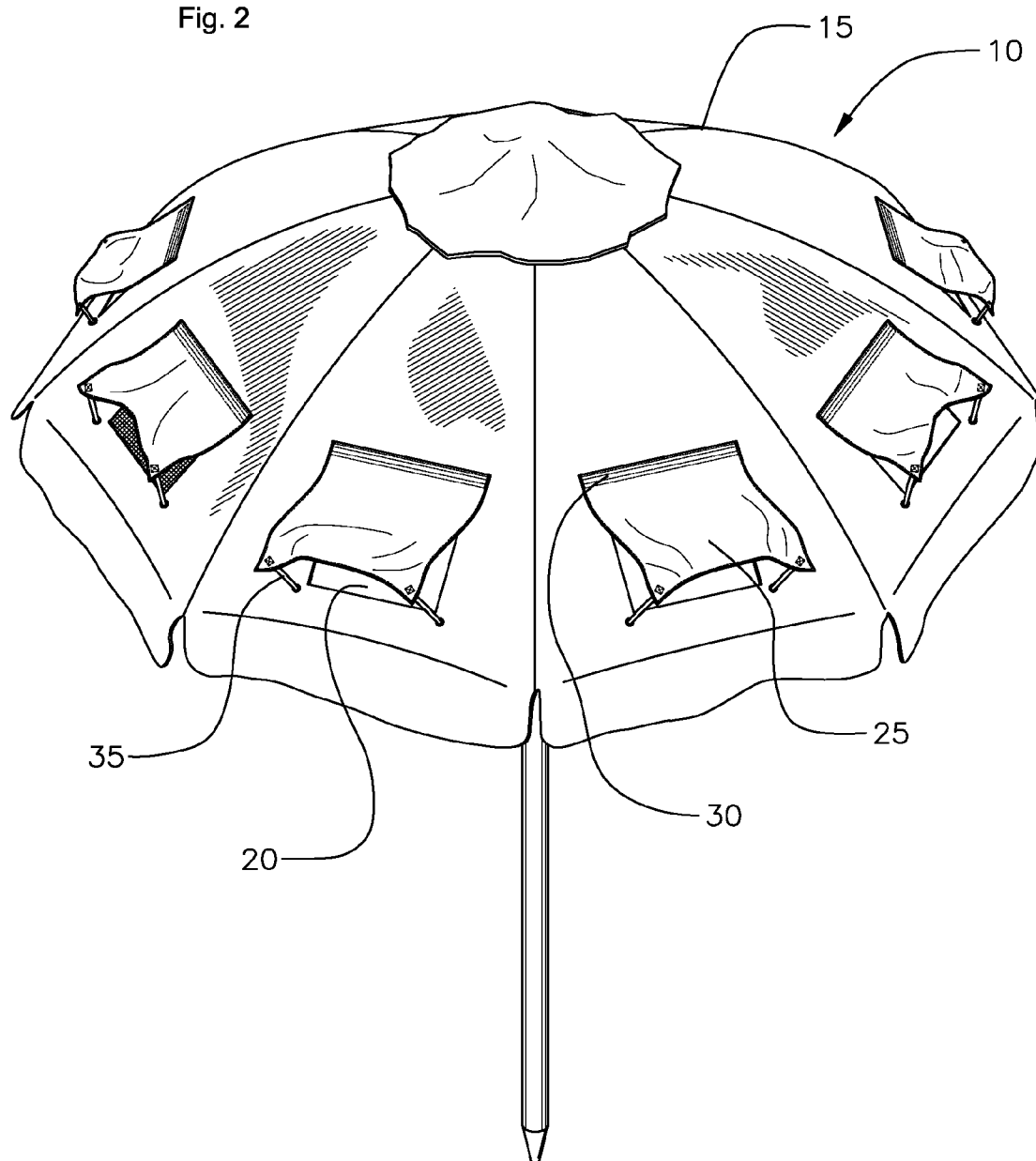


Fig. 3

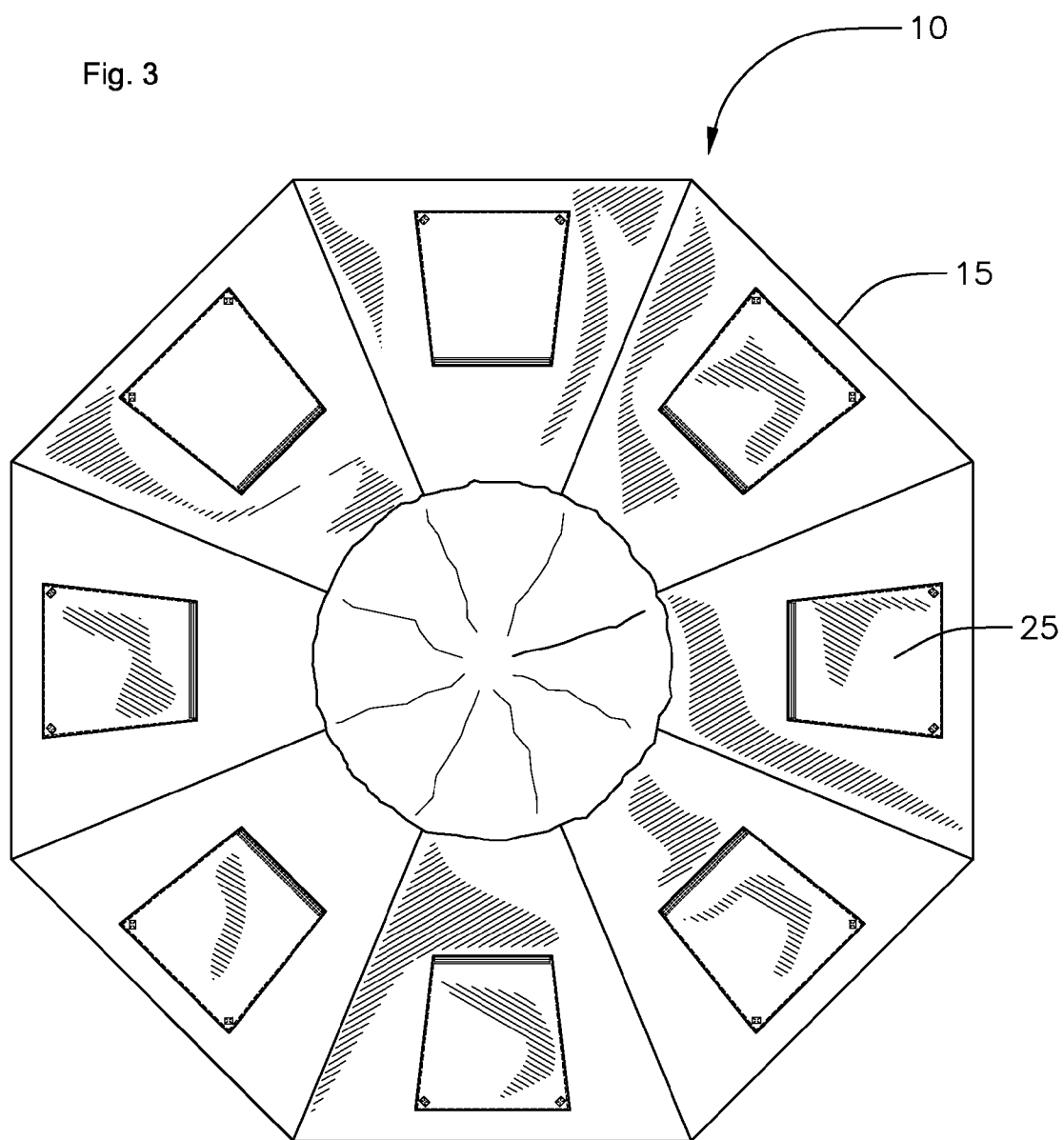


Fig. 4

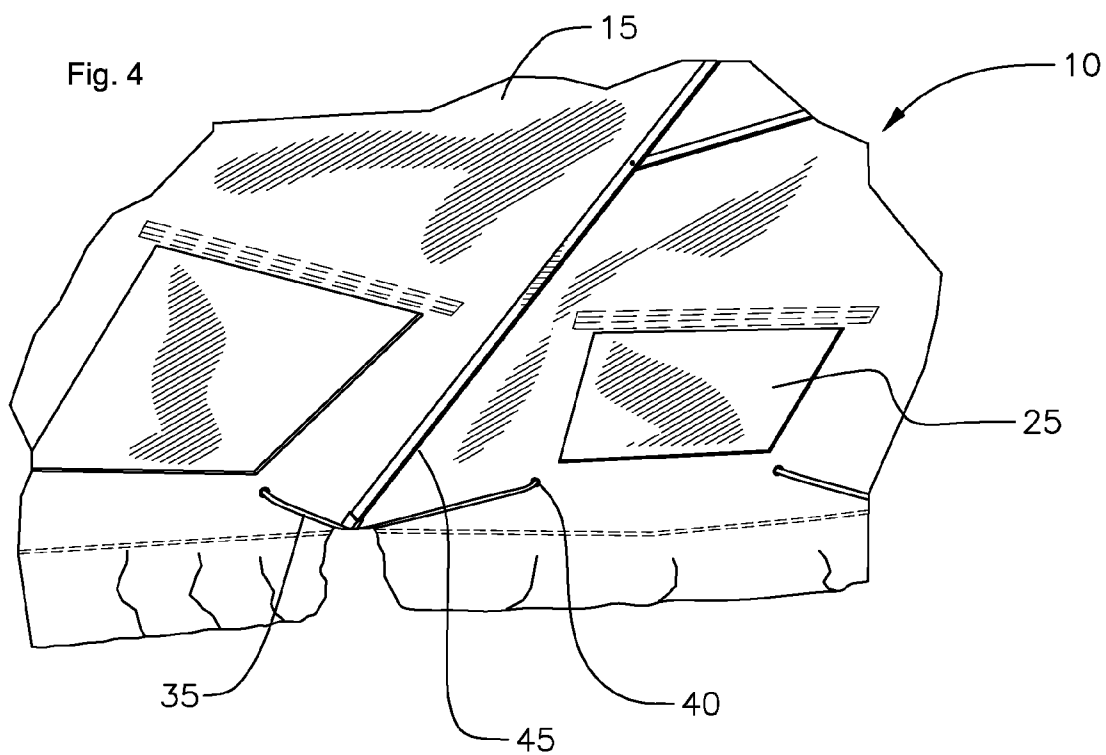
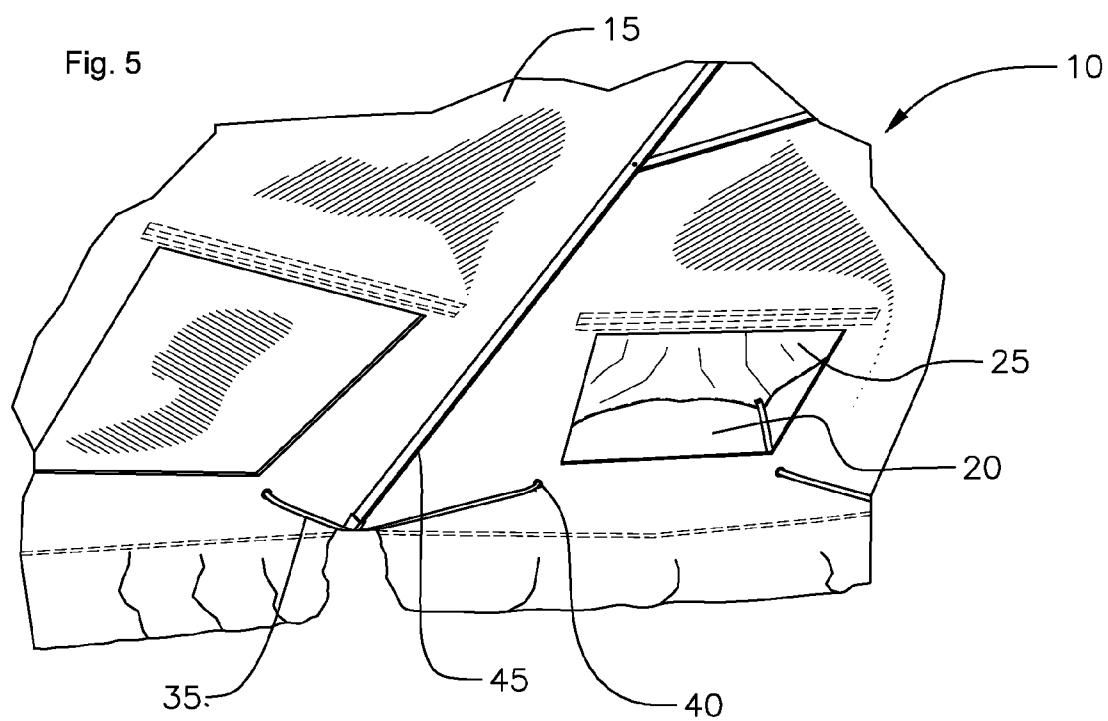


Fig. 5



WIND-RESISTANT UMBRELLA

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This is a continuation-in-part of application Ser. No. 11/952,529, filed Dec. 7, 2007, which is hereby incorporated by reference in its entirety, which is a continuation-in-part of application Ser. No. 11/849,040, filed Aug. 31, 2007, which is hereby incorporated by reference in its entirety.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to umbrellas, and more specifically to an improved umbrella which is wind resistant.

[0004] 2. Background

[0005] Umbrellas have been in use for many years. They are used for shade and shelter against the elements. Conventional umbrellas are generally made of a single layer of material and single piece of material.

[0006] Unfortunately, there are problems with umbrellas when the wind level rises beyond a safe point. These solid umbrellas, after reaching the limits of their ability to withstand wind, can rip or be blown off of their supports. Repairing such umbrellas can be difficult or aesthetically unpleasing. Replacing umbrellas, particularly large ones, can be rather expensive.

[0007] Some umbrellas have had vents near the centers of the canopy, however, such vents are insufficient past a certain minimal threshold of wind. Related to umbrellas, awnings for various purposes have been disclosed, for example, in U.S. Pat. Nos. 3,847,171, 3,779,302, 3,720,438, 6,123,136, 5,806,906, and 4,754,774. However, none of these references address wind resistance in a suitable manner. The problem of wind gusts damaging umbrellas heretofore has persisted without any suitable solution.

SUMMARY

[0008] In view of the deficiencies described above, it is an object of the present invention to provide an umbrella which is resistant to damage from wind.

[0009] It is a further object of the present invention to provide an umbrella which functions to protect against the elements under normal conditions, yet is operable to allow wind penetrations once wind levels exceed a certain degree.

[0010] In view of these objects and others, the present invention is a wind-resistant umbrella. The umbrella is resistant against damage from high winds. As with conventional umbrellas, the umbrella of the present invention includes a canopy having a center, and extending outward to provide shade and shelter. This umbrella may be a hand-held rain umbrella. However, it may be most suitable as a patio-type umbrella.

[0011] The umbrella includes cutout sections in the canopy. Ideally, the cutout sections are substantially rectangular or trapezoidal in shape. Flaps cover the cutout sections under normal conditions. In the event the wind is blowing and pressure is built up underneath the canopy, the flaps can open to allow airflow through the canopy.

[0012] The flaps optionally are attached to the canopy at their open ends via limiting elements. The limiting elements may be elastic straps. The straps hold the front corners of the

flaps in place under normal conditions. When sufficient air flow is present, the flaps are allowed to open by stretching the elastic straps.

[0013] In certain embodiments, the elastic straps may be attached to the front corners of the flaps, and pass through a hole in the canopy. In various embodiments, the elastic is then passed through underneath the canopy and up through another hole in an adjacent section of the canopy and attached to the next flap.

[0014] In various embodiments, the cutout sections and flaps are disposed between support arms of the umbrella. Thus, an umbrella may have a certain number of support arms and canopy sections, such as six or eight, and each section between the supports will have a cutout section with a flap. However, any suitable configuration is contemplated and considered within the scope of the present invention. For example, cutouts and flaps may be disposed only on every other canopy section, or in any desired numbers and patterns.

[0015] In certain embodiments, the cutout sections are disposed on the outer portion of the canopy. For example, they may be in the portion of the canopy which is more than half way out from the center of the canopy to the edge of the canopy.

[0016] In various embodiments, the cutout sections may include another layer such as a mesh layer permanently covering the cutout section so that air can pass through the mesh layer and lift up the flaps.

[0017] Other features and advantages of the invention will be apparent from the following detailed description taken in conjunction with the following figures, wherein like reference numerals represent like features.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] FIG. 1 shows a perspective view of one embodiment of the present invention showing the umbrella from above the canopy with the flaps in a closed position.

[0019] FIG. 2 shows a perspective view of another embodiment of the present invention showing the umbrella from above the canopy with the flaps in an open or displaced position.

[0020] FIG. 3 shows a top view of another embodiment of the present invention showing the canopy having flaps in a closed position.

[0021] FIG. 4 shows a perspective view of another embodiment of the present invention showing a portion of the canopy from underneath the canopy with the flaps in a closed position.

[0022] FIG. 5 shows a perspective view of another embodiment of the present invention showing a portion of the canopy from underneath the canopy with one of the flaps in an open or displaced position.

DETAILED DESCRIPTION OF THE INVENTION

[0023] While this invention is susceptible of embodiments in many different forms, there are shown in the drawings and will herein be described in detail, preferred embodiments of the invention with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the broad aspect of the invention to the embodiments illustrated.

[0024] The present invention is an umbrella 10 which is wind-resistant, meaning it is equipped to handle gusts of wind without tearing or being blown over. The umbrella 10

includes a canopy 15. The canopy 15 has a center region and can have any desired number of sections supported by arms or supports.

[0025] Within the canopy 15 is at least one cutout section 20. Preferably, there are multiple cutout sections 20. For example, cutout sections 20 can be positioned on each section of the canopy 15, or every other section, or in any desired number or pattern.

[0026] In various embodiments, the cutout sections 20 are covered by a flap 25. The flap 25 is attached to the canopy in at least one place, and open in others. For example, the flap 25 may be attached at one edge, such as its top or upper edge 30 closest to the center of the canopy 15.

[0027] Ideally, the flap 25 is attached at edge 30 a small distance above the uppermost part of the cutout section 20. In various embodiments, the flap 25 is sized slightly larger than the respective cutout section 20 so that it overlaps over the edges of it to provide better protection from the elements. Thus, the flap 25 covers the cutout section 20 in a closed mode during which gusts of wind or air flow are not significant.

[0028] In the event there is a gust of wind, the flaps 25 are adapted to be displaced from the canopy 15 at their free ends to allow air to flow through the cutout sections 20. In various embodiments, the cutout sections 20 and flaps 25 are substantially rectangular in shape. The flaps 25 would be free at three edges, and connected to the canopy 15 only at its top edge 30. This connection may be a sewn connection, or it may be any other suitable connection. Alternatively, flaps 25 may be substantially trapezoidal or triangular in shape, tapering toward the center of canopy 15. However, it is understood that any shape or configuration is contemplated to be within the scope of the present invention.

[0029] In various embodiments, the flap 25 is attached to at least one limiting element adapted to limit how far a free portion of the flap 25 can be displaced by air flow through the cutout section 20. For example, the limiting element may be an elastic cord 35. Ideally, two elastic cords 35 are attached to front corner regions of the flap 25. The elastic cords 35 hold the flap 25 in place in the closed mode, however, they allow the flap 25 to be displaced in response to air flow through the cutout section 20.

[0030] In certain embodiments, multiple cutout sections 20 may be disposed on adjacent canopy sections. In certain such embodiments, the elastic cords 35 may pass through holes 40 which may be aligned with the attachment point of the elastic cord 35 to the flap 25. The elastic cord 35 may be attached at one end to the front corner region of one flap 25, passed through the hole 40 underneath it, and may extend to an adjacent canopy section where it passes through another hole 40 and is attached to another flap corner. Thus, an efficient manner of attaching the elastic cords 35 is produced.

[0031] In various embodiments, the canopy sections are supported by arm supports 45 on the underside of the canopy 15. Each section of the canopy 15 between the arm supports 45 may include a cutout section 20.

[0032] In certain embodiments, the cutout sections 20, and associated flaps 25, are disposed on the outer portion of the canopy 15, such as more than halfway out on the canopy 15 from the center of the canopy 15. This produces enhanced resistance to gusts of wind. However, it is understood that any shape, arrangement, number, or pattern of cutout sections 20 and flaps 25 may be used and are contemplated as within the scope of the present invention.

[0033] In other embodiments, the cutout sections 20 may include a mesh layer covering the cutout section 20. Airflow can pass through the mesh layer when a gust of wind is blowing. In most embodiments, a weather-resistant, and particularly, water-resistant material is ideally used for the canopy 15 as well as flaps 25. For example, polyester, cotton, nylon, canvas, other woven materials, or any other suitable material can be used.

[0034] While specific embodiments have been illustrated and described, numerous modifications come to mind without significantly departing from the spirit of the invention and the scope of protection is limited by the scope of the accompanying claims.

What is claimed is:

1. A wind-resistant umbrella comprising:
 - an umbrella canopy,
 - at least one cutout section within said canopy,
 - a flap attached to said canopy at at least a first edge of said flap, and open at at least a second edge of said flap, wherein said flap substantially covers said cutout section in a closed mode, and wherein said flap is adapted to be displaced in response to airflow from an underside of said canopy through said cutout section to allow air current to pass through said cutout section.
2. The wind-resistant umbrella according to claim 1, wherein said flap overlaps a region surrounding said cutout section in the closed mode.
3. The wind-resistant umbrella according to claim 2, wherein said first edge is a top edge of said flap closest to a center of said canopy.
4. The wind-resistant umbrella according to claim 3, wherein said flap is directly connected to said canopy solely at said first edge.
5. The wind-resistant umbrella according to claim 4, wherein said flap is attached to said canopy at said first edge via a sewn connection.
6. The wind-resistant umbrella according to claim 3, further comprising at least one limiting element adapted to limit how far a free portion of said flap can be displaced by air flow through said cutout section.
7. The wind-resistant umbrella according to claim 6, wherein said limiting element is an elastic cord.
8. The wind-resistant umbrella according to claim 4, wherein said flap is substantially rectangular or trapezoidal in shape, and wherein one rectangle or trapezoid side of said flap comprises said first edge.
9. The wind-resistant umbrella according to claim 8, further comprising a first limiting element attached to a first front corner region of said flap adapted to limited how far a free portion of said flap can be displaced by air flow through said cutout section, and a second limiting element attached to a second front corner region of said flap adapted to limited how far a free portion of said flap can be displaced by air flow through said cutout section.
10. The wind-resistant umbrella according to claim 9, wherein said first and second limiting elements comprise elastic strips adapted to hold said flap in said closed mode until a sufficient amount of air flow displaces it.
11. A wind-resistant umbrella comprising:
 - an umbrella canopy,
 - a plurality of cutout sections within said canopy,
 - a plurality of flaps each attached to said canopy at at least a first edge of each of said flaps, and open at at least a second edge of each of said flaps, wherein said flaps

substantially cover corresponding ones of said cutout sections in a closed mode, and wherein each of said flaps is adapted to be displaced in response to airflow from an underside of said canopy through a corresponding one of said cutout sections to allow air current to pass through said cutout sections.

12. The wind-resistant umbrella according to claim **11**, wherein said flaps overlap corresponding regions surrounding corresponding ones of said cutout sections in said closed mode.

13. The wind-resistant umbrella according to claim **12**, wherein said first edge is a top edge of each of said flaps closest to a center of said canopy.

14. The wind-resistant umbrella according to claim **13**, wherein each said flaps are directly connected to said canopy solely at each said first edge.

15. The wind-resistant umbrella according to claim **14**, wherein said flaps are substantially rectangular or trapezoidal in shape, and wherein one rectangle or trapezoid side of each of said flaps comprises said first edge.

16. The wind-resistant umbrella according to claim **15**, further comprising a first limiting element attached to a first front corner region of a first one of said flaps adapted to limit how far a free portion of said first one of said flaps can be displaced by air flow through the corresponding cutout section, and a second limiting element attached to a second front

corner region of said first one of said flaps adapted to limit how far a free portion of said flap can be displaced by air flow through said corresponding cutout section, wherein said first and second limiting elements comprise elastic strips adapted to hold said first one of said flaps in said closed mode until a sufficient amount of air flow displaces it.

17. The wind-resistant umbrella according to claim **16**, wherein said first limiting element passes through a hole in said canopy underneath said first corner region to the underside of said canopy, and wherein said limiting element passes through a second hole in said canopy and is attached at another point to a front corner region of a second one of said flaps.

18. The wind-resistant umbrella according to claim **17**, wherein said plurality of cutout sections are each respectively disposed between umbrella support arms spaced and extending radially from a center of said canopy.

19. The wind-resistant umbrella according to claim **18**, wherein said cutout sections are substantially disposed on a portion of said canopy lying at least halfway out to an outer edge of said canopy from the center of said canopy.

20. The wind-resistant umbrella according to claim **19**, wherein said cutout sections further comprise a mesh layer extending over the area of said cutout sections.

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