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STABILIZED PORTABLE CANOPY

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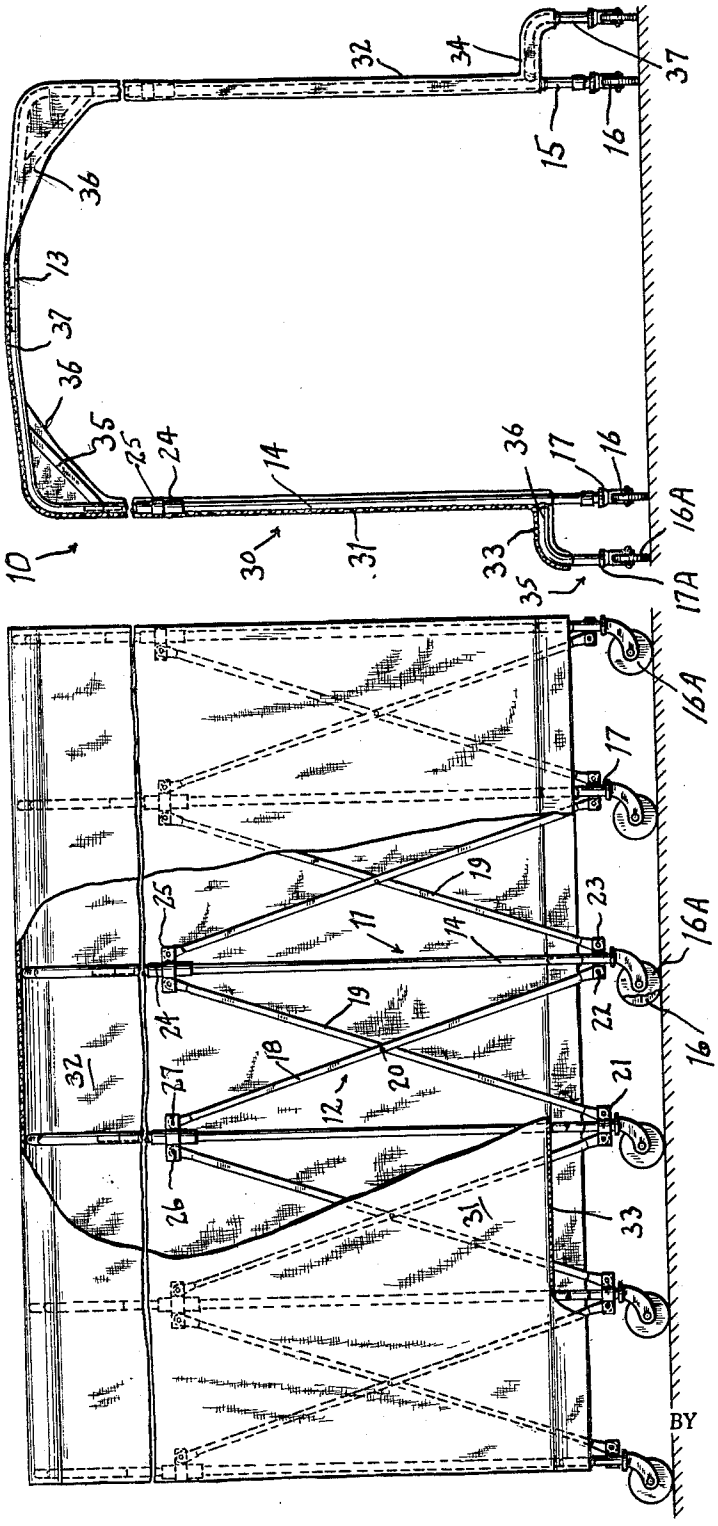


FIG. 2

FIG. 1

INVENTOR.
FRANK J. MARINO

Shirley B. Hilbert

ATTORNEY.

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STABILIZED PORTABLE CANOPY

Frank J. Marino, Brooklyn, N.Y., assignor to L. Marino, Inc., Brooklyn, N.Y., a corporation of New York

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This invention relates to portable canopies, and more particularly concerns extensible, free standing canopies which are stabilized against the effects of air currents thereon.

An object of this invention is to provide an improved portable canopy of the expansible-contractible type, which in its extended form presents continuous vertically disposed panels of substantial length and height, whereby incident air currents bearing on said panels tend to cause displacement of the canopy; said canopy including means for stabilizing the canopy against such displacement.

A further object of this invention is to provide in a free standing portable canopy having extensive vertically disposed continuous panel areas, accessory panel portions which tend to stabilize the canopy against undue movement when air currents impinge on said panel areas.

Still another object of this invention is to provide an improved free standing portable canopy which includes skirt portions for stabilizing the same, said skirt portions being of minimum dimension and bulk.

Yet another object of this invention is to provide an improved free standing canopy of the extensible-contractile type, which includes auxiliary panel portions for stabilizing the same, yet does not interfere with the contraction of the canopy for storage when not in use; and which increases the basic manufacturing cost of the canopy by a relatively small amount.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

In the drawing,

FIG. 1 is a side elevational view of a stabilized portable acnopy embodying the invention, with portions cut away; and

FIG. 2 is an end elevational view thereof with portions cut away.

Essentially, the stabilized portable canopy of the instant invention comprises a plurality of inverted U-shaped frames interconnected by linkage means which permits the frames to be displaced from each other or to be brought into close proximity to each other; a flexible covering extending over the top and side portions of the frames, said covering being extended to a taut condition or pleated between the frames, as said frames are extended or contracted. Said canopy further includes skirt portions at the lower ends of the sides of the covering which act as stabilizing means for the canopy when air currents impinge on the canopy sides, tending to substantially eliminate displacement of the canopy.

Thus, as shown in FIGS. 1, 2, the portable canopy embodying the invention is generally indicated at **10**. The same comprises a plurality of inverted U-shaped frames **11** which are disposed in parallel relation and interconnected by linkages **12**, which permit frames **11** to be displaced from each other to the extended position shown in FIG. 1, or to be contracted, when the canopy is not in use.

Each frame **11** comprises a top portion **13** and depending side portions **14, 15** which may be splined to top portion **13** to facilitate assembly thereof. Rollers **16** are mounted in brackets **17**, which in turn are affixed to the lower ends of frame portions **14, 15**.

Each linkage **12** comprises a pair of similar bars **18, 19** interpivoted at their midportions as at **20**. Brackets **21** are fixedly mounted on the lower portions of frame side portions **14, 15** and the lower ends of bars **18, 19** are

pivotally connected to lateral end portions of brackets **21**, as at **22, 23**. Tubular collars **24** are slidably mounted on the upper portions of frame side portions **14, 15**, with brackets **25** secured to said collars. The upper ends of bars **18, 19** are pivotally mounted on brackets **25**, as at **26, 27**.

A flexible, waterproof covering **30** of canvas or plastic coated fabric formed of cotton, nylon or other synthetic materials, is disposed over the exterior of frames **11**, and is suitably lashed to frame portions **13, 14** and **15**, in a manner known in the art. The covering **30** is of such dimensions as to be stretched to a taut condition when the frames **11** are extended to their extreme positions, as shown in FIG. 1. It will be apparent that the portions of covering **30** intermediate the frames **11** will pleat and fold when the frames **11** are contracted toward each other.

With bars **18, 19** of linkages **12** of substantial length, approaching the overall height of frame side portions **14, 15** it has been found that the canopy **10** may be manipulated to extend or contract the same, with relative ease, despite the substantial dimensions of the same and the weight of the frames **11** and associated covering **30**.

As canopy **10** may be used in a free standing condition, without securing the same to stationary structures, to provide storage means for goods, or the like; it has been found that the extensive surface areas of the side panel portions **31, 32** of covering **30** give rise to inadvertent movements of the canopy when air currents impinge on said side panel portions **31, 32**.

Accordingly, means is provided for stabilizing canopy **10** against undue movement due to air currents. To this end, the lower ends of panel portions **31, 32** are extended to provide elongated, narrow skirt panel portions **33, 34** which extend horizontally and outwardly of panel portions **31, 32**. Panel portions **33, 34** are supported in a horizontal position by angle brackets **35** whose horizontal portions **36** are welded at their inner ends to lower portions of side frame portions **14, 15**.

The vertical portions **37** of brackets **35** have secured to the lower ends thereof, wheel brackets **17A** and wheels **16A** are rotatably mounted on said brackets **17A**. Panel portions **33, 34** are suitably lashed to brackets **35** and provide an elongated, horizontal taut surface when the covering **30** and frames **11** are in an extended condition.

In the event that the canopy **10** is subjected to air currents, such currents on impinging on panel portions **31, 32**, will be diverted in vertical directions along said panel portions. The air currents moving downwardly along panel portions **31, 32** will impinge on stabilizing panels **33, 34** and tend to anchor the canopy **10** against undue movement. Rollers or wheels **16A** in outrigger relation to the inner rollers **16**, also act as stabilizing elements against possible rocking movements of the canopy.

It is understood that with canopy **10** having panel portions **31, 32** of substantial height and length, incident air currents are diverted and utilized to neutralize their otherwise tendency to impart movement to the free standing canopy **10**.

The frames **11** may be braced by diagonal bars **35** and the opposite ends of covering **30** is provided with triangular end flaps **36** at the corners of panel portions **31, 37** and **32, 37**; for enclosing the corner portions of the end frames **11**. The frames **11** and linkages **12** may be formed of aluminum or other light weight metals or alloys, to minimize the weight of the same. Also, the frames and linkages may be of any suitable cross section to attain maximum strength.

The stabilizing panels **33, 34** may be varied as to width. However, panels of 18" width were found highly effective when associated with side panel portions measuring about 14' by 20'.

As various changes might be made in the embodiment of the disclosed invention without departing from the spirit thereof, it is understood that all matter herein shown or described shall be deemed illustrative and not limiting except as set forth in the appended claims.

What is claimed is:

1. A portable, free standing, freely movable light canopy comprising frame means, and a flexible covering for said frame, said covering comprising vertically disposed side panel portions and a top panel portion, and means for stabilizing said canopy against movement over a supporting surface due to impingement of air currents on said side panel portions, said frame means comprising a plurality of frame elements and linkage means interconnecting said frame elements for extended and contracted movement, said covering being extended and contracted with the respective movements of said frame elements, said stabilizing means comprising skirt panel portions extending from the lower edges of said side panel portions along the length thereof, and means on the lower portions of said frame means for supporting said skirt panel portions in a horizontal position, said skirt panel portions being similarly extended and contracted with the respective movements of said frame elements, said skirt panel portions being adapted to receive downwardly deflected portions of said air currents to thereby resist movement of said free standing canopy over said supporting surface.

2. A portable, free standing, freely movable light canopy comprising frame means having side and top portions, a flexible covering enclosing said frame means and comprising side and top portions respectively secured to the side and top portions of said frame means, said side portions of the covering including skirt panel portions at the lower edges thereof for stabilizing said free standing canopy against movement over a supporting surface when air currents impinge on the side portions of said covering, said skirt panel portions extending horizontally and outwardly of said covering side portions for receiving downwardly deflected portions of said air currents, and bracket means extending from said frame means for supporting said skirt panel portions, said frame means comprising a plurality of frame elements and linkage means interconnecting said frame elements for extended and contracted movement, said flexible covering being extended and contracted with the respective movements of said frame elements, and said skirt panel portions being similarly extended and contracted with the respective movements of said frame elements.

3. A portable, free standing, freely movable light canopy comprising a plurality of inverted U-shaped frame elements, linkage means interconnecting said frame elements for relative extension and contraction, a flexible covering over said frame elements, said covering comprising top and side panel portions, said covering being extended and contracted with the respective movements of said frame elements, said side panel portions comprising elongated skirt panel portions at the lower edges thereof for stabilizing said free standing canopy against movement over a supporting surface when air currents impinge on the side panel portions thereof, and bracket means on the lower ends of said frame elements for supporting said skirt panel portions in a horizontal position extending outwardly of said side panel portions to receive downwardly deflected portions of said air currents.

4. A canopy as in claim 3 wherein said frame elements comprise downwardly extending side portions, roller means mounted on the lower ends of said frame side portions, said bracket means comprising an angle member having a horizontal portion secured to the lower portion of said frame side portions, and a downwardly extending vertical portion, and stabilizer roller means mounted on the lower ends of the vertical portions of said angle members, said skirt panel portions being secured to the horizontal portions of said angle members.

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