



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11) Publication number:

**0 632 976 A1**

(12)

## EUROPEAN PATENT APPLICATION

(21) Application number: **94302208.7**

(51) Int. Cl.<sup>6</sup>: **A45B 25/18**

(22) Date of filing: **28.03.94**

(30) Priority: **09.07.93 DE 9310241 U**

(43) Date of publication of application:  
**11.01.95 Bulletin 95/02**

(84) Designated Contracting States:  
**BE FR GB IT NL**

(71) Applicant: **SALES ACE LIMITED t/a WAH FUNG  
MANUFACTURING COMPANY**  
**Unit 104,**  
**1/F, Hung Tat Industrial Building,**  
**43 Hung To Road**  
**Kwung Tong,**  
**Kowloon (HK)**

(72) Inventor: **Ben-Avi, Elias**

**4/F**

**76 Wellington Street**

**Central**

**Hong Kong (HK)**

Inventor: **Charter, Neelam**

**4/F**

**76 Wellington Street**

**Central**

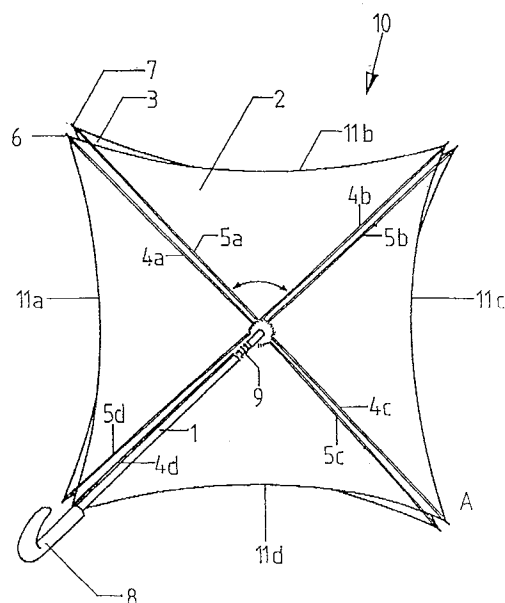
**Hong Kong (HK)**

(74) Representative: **Findlay, Alice Rosemary et al**  
**Lloyd Wise, Tregear & Co.**  
**Norman House**  
**105-109 Strand**  
**London WC2R 0AE (GB)**

(54) **A variable umbrella.**

(57) An umbrella comprising a central shank, and a canopy arranged at the upper end of the shank, which canopy is arranged in such a way that it can be opened by means of ribs and that when the canopy is opened, ends of the ribs define points in the canopy, wherein the canopy consists of two layers (2,3) each of these layers (2,3) having the same number of ribs (4,5) and wherein the two layers of the canopy (2,3) can be rotated from a first position (A), in which the layers and ribs are substantially in alignment to a second position (B) in which the ribs (4 or 5) of one of the layers lie between the ribs (5 or 4) of the other layer.

FIG 1



EP 0 632 976 A1

## Background To The Invention

This invention relates to an umbrella.

Umbrellas for protection against the rain or the sun are available in a wide variety of forms, none of which offers the possibility of changing the shape of the umbrella in a simple way.

The present invention relates therefore to an umbrella which can be altered in shape.

## Summary of Invention

The umbrella covered by this invention consists of the usual central shank, along which the umbrella can be opened. There is a normal handle or another device for holding the umbrella at the lower end of this shank. The canopy covered by this invention is similar to the canopy normally used in umbrellas, but consists of two layers, it being possible to adjust the elements of each layer to be approximately in alignment. It is an advantage that a normal opening mechanism is used to open the umbrella. It is also an advantage that the layers of the canopy are of approximately the same size to enable a symmetrical form consisting of  $n$  points to be transformed into one consisting of  $2n$  points, whereby  $n$  is a natural number  $\geq 3$ , normally not greater than 5 and preferably 4.

It is an advantage that the umbrella is constructed in such a way that all the ribs underneath the lower layer are so arranged that they can be actuated by a reliably functioning mechanism, and also that this mechanism ensures that the pressure exerted by the ribs when the umbrella is fully opened produces close contact between the two layers of the canopy, so that there is no significant space between the layers after they have been rotated. It is also an advantage that the lower layer is rotatable against the upper layer, as this makes it possible to attach the upper layer in the normal way to the upper end of the shank to produce a weatherproof seal.

It is especially advantageous that all the ribs of the umbrella are directly actuated by one opening mechanism, as this guarantees that both layers will be taut when opened. The opening mechanism should preferably be a normal automatic mechanism. It is also an advantage for the ribs of the rotatable layer (preferably the lower layer) to be hinged on to the opening mechanism, as this type of hinged attachment is more simple to construct than one which rotates around the shank, e.g. by using the hinged joint on the shank which is a fundamental structural element.

## Brief Description Of The Drawings

- Figure 1 Shows the umbrella of the invention viewed from below;  
 Figure 2 Shows the umbrella of Figure 1 viewed from above; and  
 Figure 3 Shows the umbrella of Figure 1 viewed from above when in the "rotated" position.

## Description Of Invention

The umbrella (10) illustrated in Figure 1 consists of a central shank (1) with a handle (8) and a double-layered canopy (2,3) consisting of a lower layer (2) and an upper layer (3). The lower layer (2) is opened by ribs 4 a - d and the upper layer (3) by ribs 5 a - d, all the ribs (4,5) being situated underneath the lower layer (2), the ribs (5a - d) extending from the shank to the corners of the upper layer (2). A normal opening mechanism (9) is used to open the umbrella. This uses spreaders (not illustrated) to actuate the ribs (4,5).

Ribs 5 are hinged to the shank (1) and linked to the opening mechanism (9) in the normal way, whilst ribs 4 have an additional hinge indicated by the arrow, which makes it possible to rotate the lower layer (2) from the position A illustrated in figures 1 and 2, where the elements of each layer are approximately in alignment, to the position B illustrated in Figure 3. The arrangement of the hinges means that the maximum angle of rotation of layer (2) is limited to just under  $90^\circ$  whereby position B is reached by a rotation of just under  $45^\circ$  from position A.

As the ribs (4,5) open the two layers (2,3) of the canopy to form points (6,7) in the canopy at the ends of the ribs, the arrangement of the ribs in the manner described produces the effect that ribs 5, when rotated out of position A, press the taut edges (11 a - d) of layer (2) against the upper layer (3) with the result that the umbrella looks extremely similar to a normal 8 - ribbed umbrella when in position B. The rib arrangement also makes it possible to use a normal opening mechanism, e.g. an automatic mechanism, with only minor modifications.

Layers (2) and (3) should preferably have different colours and/or patterns to make a number of variations possible when the layers of the canopy are rotated.

The above describes a preferred embodiment of the invention, variations and modifications in which may be made without departing from the scope of the invention as defined in the accompanying claims.

For example, more than two layers could be utilised and any one or more, of the layers making

up the canopy may be rotatable.

## Claims

1. An umbrella comprising a central shank, and a canopy arranged at the upper end of the shank, which canopy is arranged in such a way that it can be opened by means of ribs and that when the canopy is opened, ends of the ribs define points in the canopy, wherein the canopy consists of two layers (2,3) each of these layers (2,3) having the same number of ribs (4,5) and wherein the two layers of the canopy (2,3) can be rotated from a first position (A), in which the layers and ribs are substantially in alignment to a second position (B) in which the ribs (4 or 5) of one of the layers lie between the ribs (5 or 4) of the other layer.
 

5  
10  
15
2. An umbrella as claimed in claim 1, wherein the umbrella further comprises an opening mechanism (9) which actuates all the ribs (4,5).
 

20
3. An umbrella as claimed in claim 1 or claim 2, wherein all the ribs (4,5) are situated underneath the lower layer of the canopy (2).
 

25
4. An umbrella as claimed in any one of the preceding claims, wherein the lower layer (2) of the canopy can be rotated against the upper layer (3).
 

30
5. An umbrella as claimed in any one of the preceding claims, wherein either one or both of the two layers are rotatable and the ribs (4 or 5) of the rotatable layer or layers (2 or 3) are hinged on to the opening mechanism (9).
 

35

40

45

50

55

FIG 1

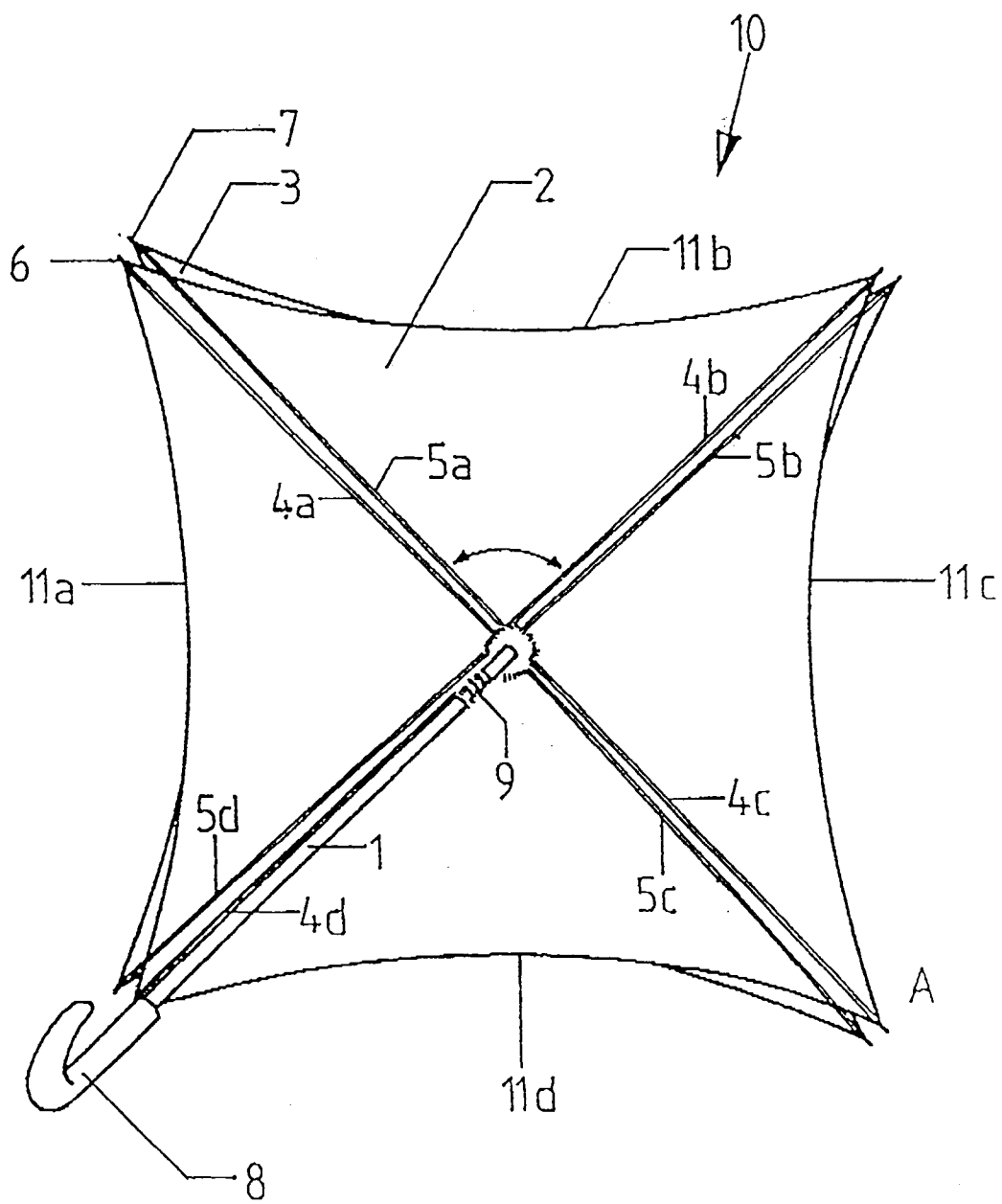


FIG 2

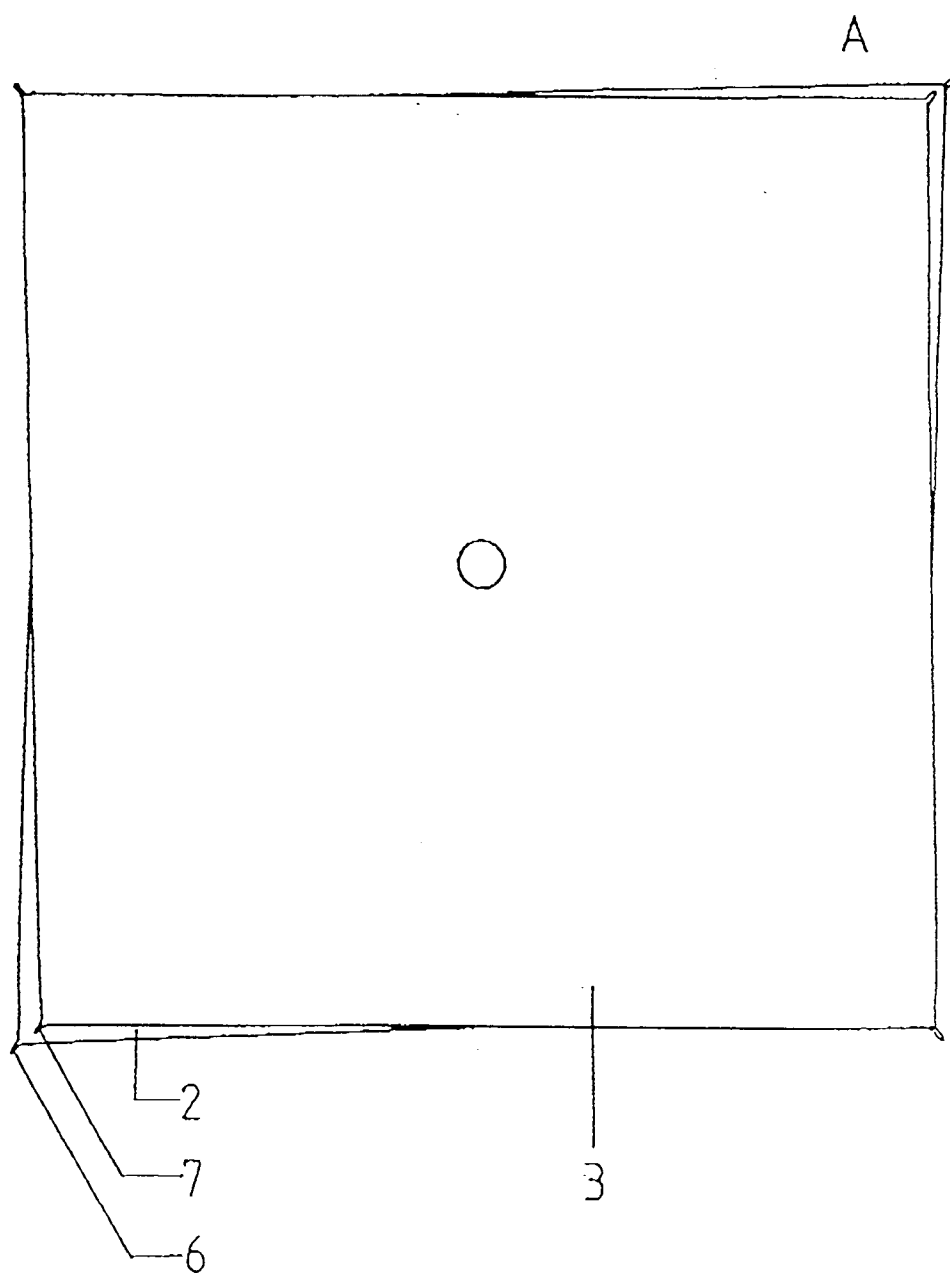
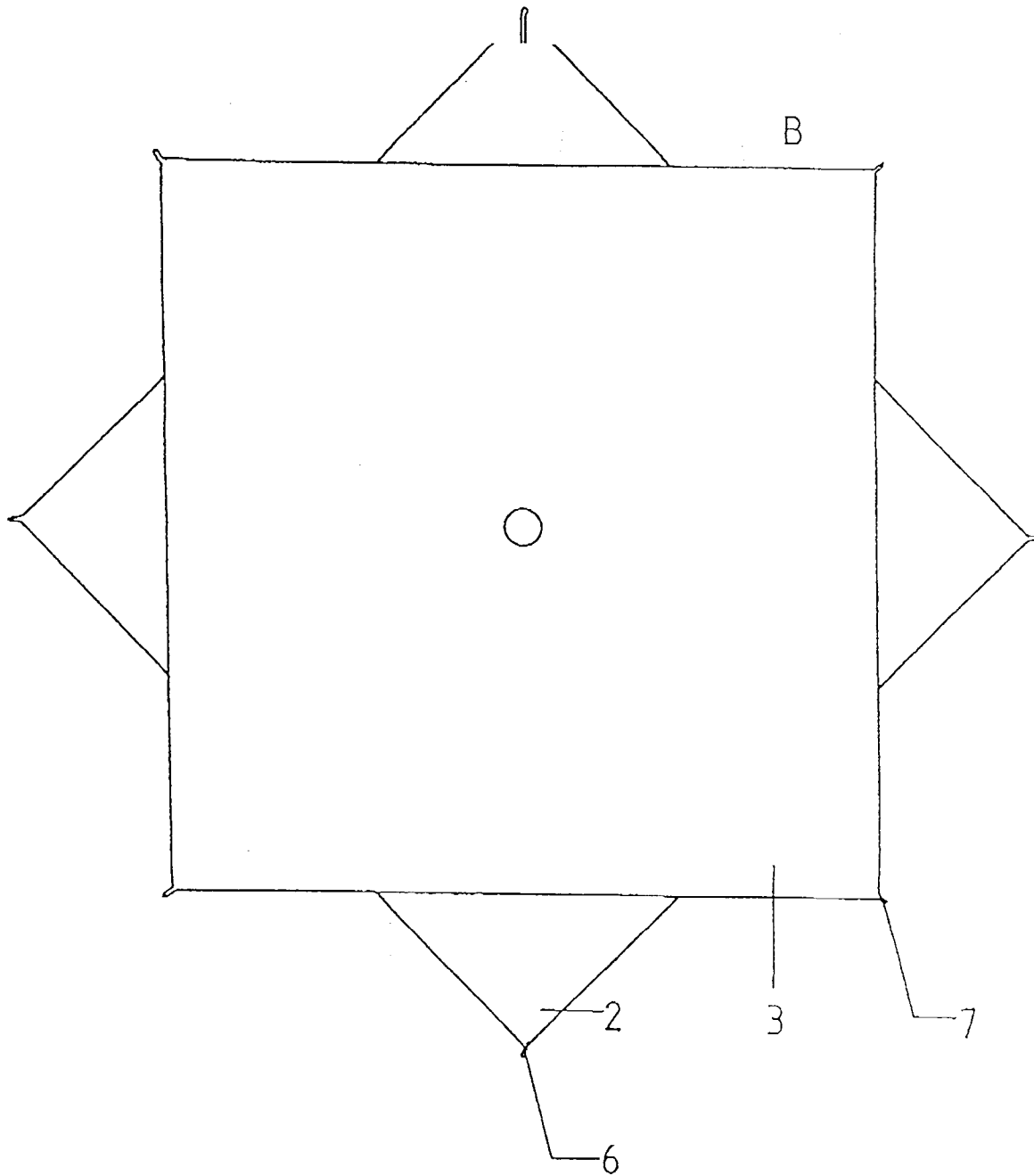


FIG 3





European Patent  
Office

## EUROPEAN SEARCH REPORT

Application Number  
EP 94 30 2208

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US-A-3 557 809 (VAZQUEZ) * the whole document *	1-5	A45B25/18
A	EP-A-0 382 122 (STENMISK)		
A	DE-U-89 06 931 (ERNST)		
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			A45B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 10 October 1994	Examiner Sigwalt, C
<b>CATEGORY OF CITED DOCUMENTS</b> 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			