



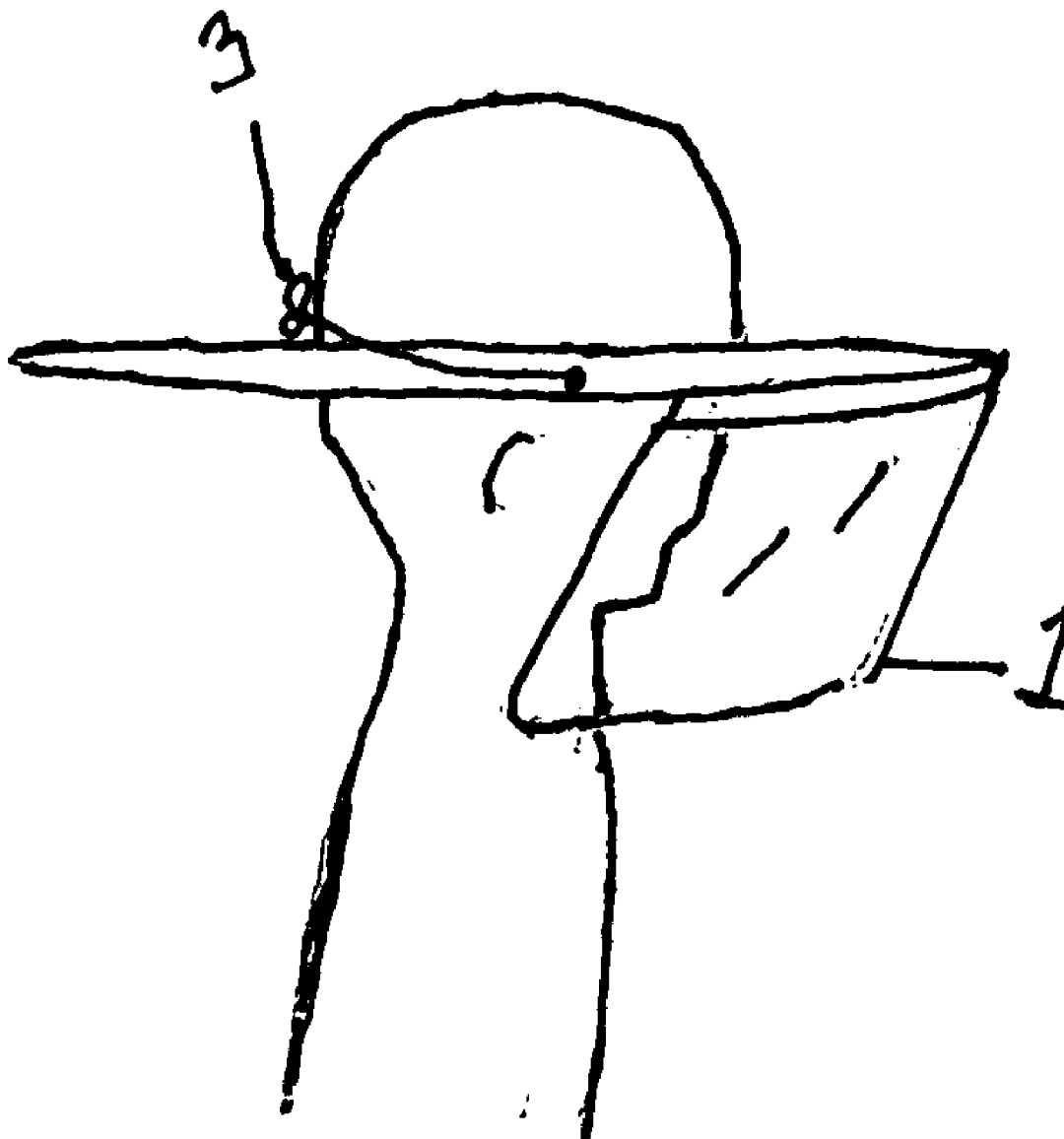
US 20100257659A1

(19) **United States**(12) **Patent Application Publication**
Hitch(10) **Pub. No.: US 2010/0257659 A1**(43) **Pub. Date: Oct. 14, 2010**(54) **HEAD APPAREL WITH FLEXIBLE,
ULTRAVIOLET WHOLE FACE SHIELD**(75) Inventor: **Robert Hitch**, Neptune Beach, FL
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Robert Hitch**416 Oceanwood Dr.****Neptune Beach, FL 32266 (US)**(73) Assignee: **Hush Hot Corporation**, Neptune
Beach, FL (US)(21) Appl. No.: **12/386,129**(22) Filed: **Apr. 14, 2009****Publication Classification**(51) **Int. Cl.****A42B 1/06** (2006.01)**A42B 1/18** (2006.01)(52) **U.S. Cl. 2/424; 2/206; 2/172; 2/175.6**(57) **ABSTRACT**

One embodiment of said head apparel protects the face, eyes, temples and chin of the wearer. An embodiment based upon a typical broad brimmed hat with a polymer shield projecting down from the front brim is described. Other embodiments are described with specific interest to persons who may now wish to cover their hair. A device for placing the polymer shield under tension to reduce visual distortion of the shield and increase its resistance to being ruffled by wind is usable with all embodiments of this invention.



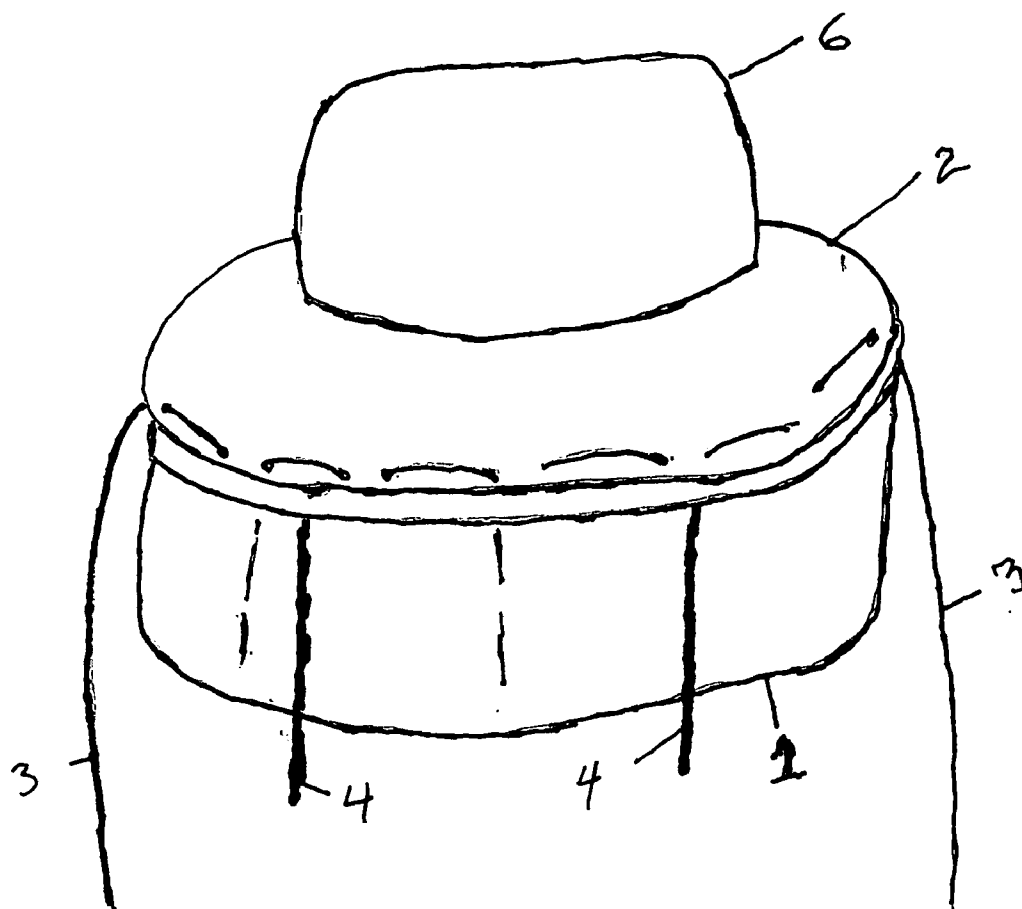


Fig 1

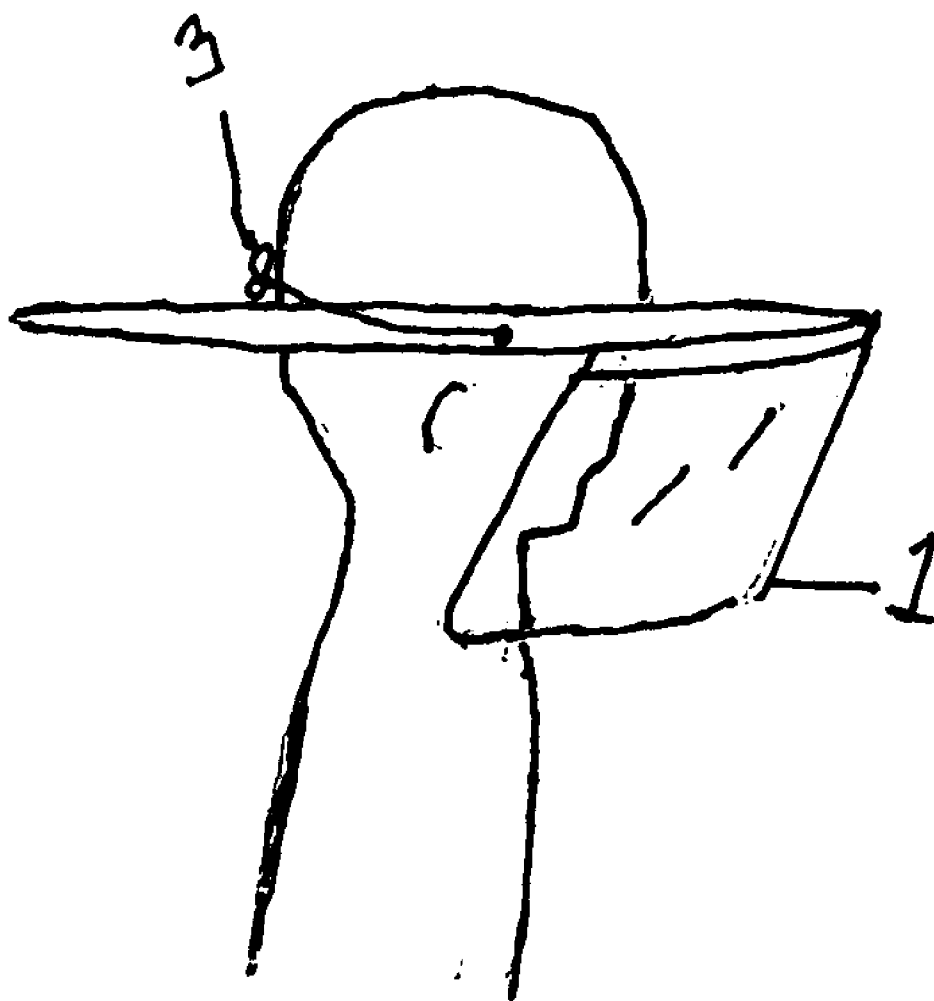


Fig. 2

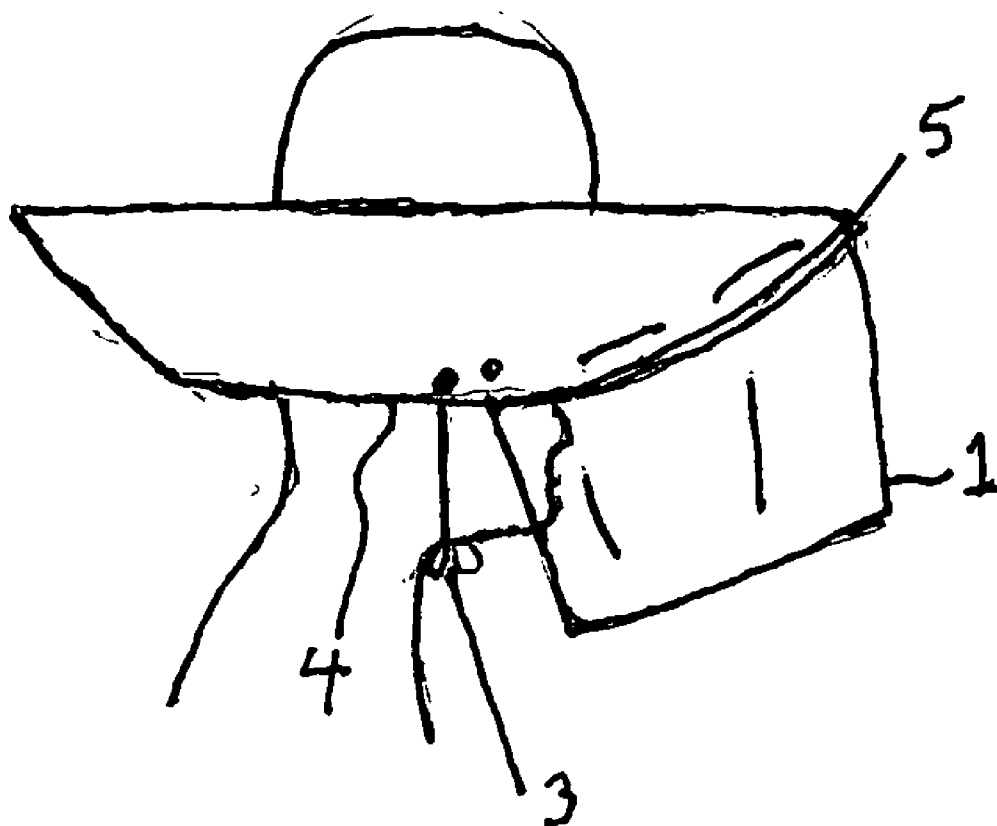


Fig. 3

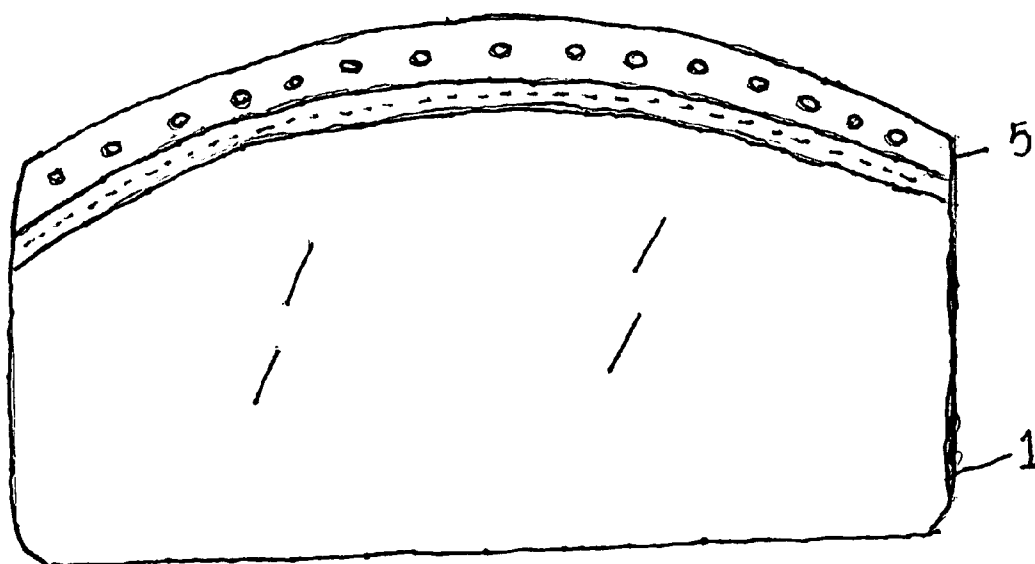
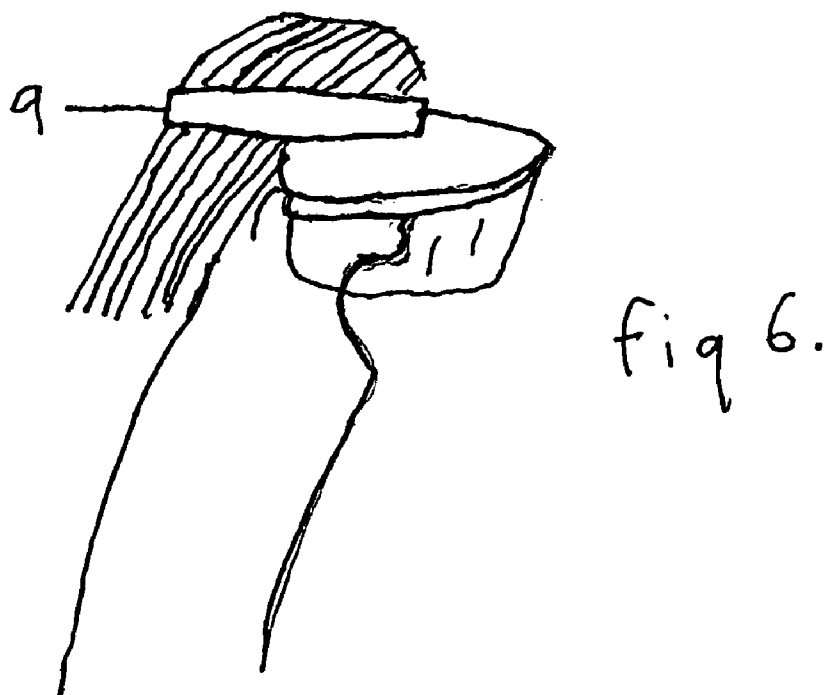
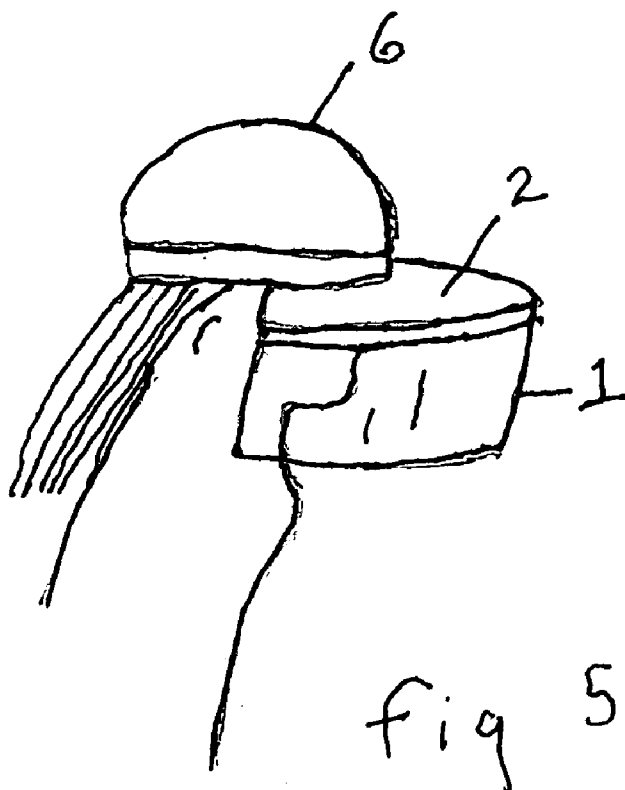


Fig. 4



Thin Film UV-Vis Spectroscopic Report

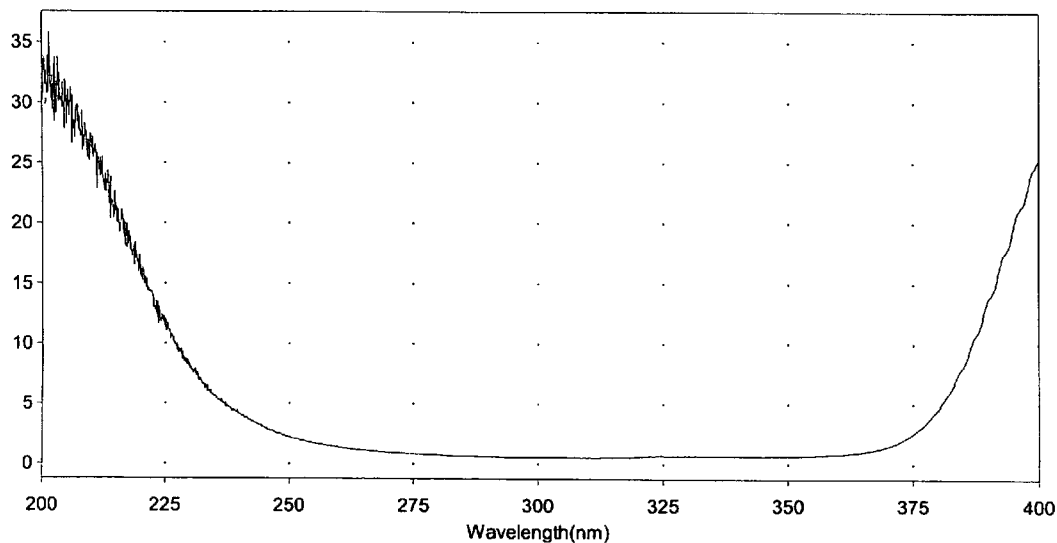
Scan Method - (Untitled)

Description	(None Entered)	Clear Graph	Between Samples
Data Mode	%T	Graph High	100.000 %T
Start Wavelength	200.00 nm	Graph Low	0.000 %T
Stop Wavelength	400.00 nm	Smoothing	None
Bandwidth	1.5 nm	Results Table	Peak Pick
Scan Speed	Intelliscan		
Data Interval	Very High Res	Auto Save	Off
Lamp Change	Tungsten	File Name	scan003.sre
Cycles	1	Security Status	Unlocked
Cycle Time	Auto		

Fig 7

Peak Pick Method

Find 27 Valleys Below 100.00 %T
 Start Wavelength 225.00 nm
 Stop Wavelength 386.50 nm
 Sort By Wavelength
 Sensitivity Very High



scan002:Thin-Film-Run#2:Cycle01
 Batch : scan002

1	Thin-Film		1	2	3	4	5	6	7	8	9	10	11
2	Cycle01	nm	302.20	305.70	306.10	306.40	306.60	306.90	307.20	307.50	307.90	308.10	308.70
3	Valleys	%T	0.5516	0.5518	0.5450	0.5506	0.5503	0.5518	0.5513	0.5472	0.5433	0.5506	0.5437

Batch : scan002

1	12	13	14	15	16	17	18	19	20	21	22	23	24
2	308.90	309.20	309.70	310.10	310.40	310.60	310.80	311.00	311.20	311.60	311.90	312.10	312.60
3	0.5474	0.5465	0.5404	0.5442	0.5438	0.5381	0.5412	0.5403	0.5438	0.5429	0.5384	0.5416	0.5465

Batch : scan002

1	25	26	27
2	314.80	315.20	315.80
3	0.5515	0.5513	0.5519

HEAD APPAREL WITH FLEXIBLE, ULTRAVIOLET WHOLE FACE SHIELD

RELATED APPLICATION

[0001] This application is a nonprovisional application and claims the benefit of priority of U.S. provisional application No. 61/123,953,041,408 filed Apr. 14, 2008 by current inventor.

BACKGROUND

[0002] 1. Field

[0003] This application relates to head apparel, specifically to such head apparel used to protect against ultraviolet radiation.

[0004] 2. Description of Prior Art

[0005] Currently there is a steady increase in the amount of ultraviolet energy reaching the Earth's surface as the ozone layer is depleted. The typical head apparel such as caps, broad brimmed hats and even closely woven specialty sun hats do not protect the wearer during the hours of the day when the Sun is near the horizon. Even a broad brimmed hat does not protect the wearer's face from ultraviolet reflected upward from sand, snow and water. Ultraviolet B (UVB) is responsible for deadly melanoma and other cancers. The head apparel described here consists of a flexible film which allows the transmission of visible light but reduces transmission of Ultraviolet UVB and UVA. Ultraviolet C is highly dangerous to animals but is blocked by the Earth's atmosphere. U.S. Pat. No. 5,815,832 Skolik (1998) is a device for protecting the wearer's eyes but not the entire face. U.S. Pat. No. 6,154,881 Lee (2000) provides for full face protection but cannot be used with a hat. The UV blocking mechanical components of these inventions are not readily stored on one's person whereas some embodiments of the current invention can be rolled up and stored in a small case on the belt or the like.

[0006] The UV shield head apparel described here consists of a flexible, non porous, film which transmits visible light with visual clarity but greatly reduces transmission of ultraviolet light to the eyes and face. The film is not so flexible that it can be sewn or otherwise directly attached to the head apparel but is first sewn to a flexible material capable of being bent at right angles or acute angles. The flexible material and the hat brim can then be punched and the shield can be laced to the top or the bottom of the brim of the hat. Alternatively this flexible material might be sewn directly to the head apparel brim or laced or other attachment means. If not sewn directly to the hat the shield and transition material are flexible enough to be rolled up and stored in a small pouch on the belt or the like.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1. A perspective view of the ultraviolet protection hat looking at the front or face side of the hat.

[0008] FIG. 2. Figure is a perspective view of the looking at the wearer from the right side.

[0009] FIG. 3 is another perspective view of the wearer looking from the right side

[0010] FIG. 4. is a plan view of the ultraviolet shield.

[0011] FIG. 5 is a possible embodiment of the invention with a brim only On the front of the hat.

[0012] FIG. 6 is a perspective view of a possible embodiment of the invention with a brim only on the front of the hat and no hat crown.

[0013] FIG. 7 is a graph of the transmittance of Ultraviolet light through the polymer shield.

[0014] A more complete understanding of the nature and objects of the present invention can be made by referring to the drawings, wherein:

[0015] FIG. 1. Is a perspective view of the head apparel with flexible, ultraviolet whole face shield comprised of a complete hat with brim 2 and crown 6 with at the front or face side of the apparel. The front brim of the head apparel must be able to support the weight of the shield which in this preferred embodiment is approximately 60 gram. This embodiment of the head apparel includes a typical hat crown 6, but one embodiment mentioned below may not be considered to be a hat as it does not have a crown. In FIG. 1. the shield 1 is shown with no tension placed on it. The hat brim 2 is shown to be wide which is important so that the wearer can easily wipe his or her eyes and the like without removing the head apparel. In all embodiments of this invention the brim must have substantial stiffness as the shield 1 and the attached transitioning material 5 weigh approximately 60 grams in this embodiment. The tensioning straps 3 are shown in the unfastened position and the chin strap 4 is shown as it is useful in windy conditions.

[0016] FIG. 2. Is a perspective view looking at a wearer in the head apparel with the tensioning strap 3 tied in back of the hat crown. The ultraviolet shield 1 is canted at an angle back toward the wearer's face which is deemed by some persons to be more attractive and is less likely to catch wind coming from the side of the wearer.

[0017] FIG. 3. is a perspective view looking at a person in the head apparel with the tensioning strap pulled and tied or fastened otherwise beneath the chin. Unlike a conventional chin strap which would typically be attached near the crown, the tensioning straps are attached near the free edge of the brim. Pulling down the tensioning strap pulls down the sides of the hat brim and cants the bottom edge of the shield forward. This reduces visual distortions in the shield and causes the shield to be more rigid in a wind coming from the wearer's front.

[0018] FIG. 4. Is a plan view of the ultraviolet shield sewn to the transitioning material 5. The transitioning material 5 is shown sewn to the transparent shield material 1 and, in this embodiment has punched holes for lacing the transitioning material to the brim of the hat. The shield in this embodiment is polymer film 6 mils or 0.15 millimeters in thickness.

[0019] FIG. 5. Is a perspective view of a shield mounted on head gear with a front brim and a crown.

[0020] FIG. 6. Is a perspective view of a shield mounted on head gear with a front brim and head band 9 only.

[0021] FIG. 7 is a UV-Vis Spectrometer analysis of the current embodiment of the polymer shield. There is extremely low transmittance in the cancer causing UVB range and about 75 percent blockage of transmittance in UVA range some of which is thought to be necessary for vitamin-D synthesis in any case.

[0022] The tensioning straps are very useful but they are not essential to the main function of this invention which is protection of the face and eyes from UV.

[0023] FIG. 5. Is a spectrometer graph conducted by the University of North Florida on the inventors current polymer showing very low transmittance of the most dangerous UVB radiation and nearly 75 percent blockage of UVA some of which is needed for vitamin D synthesis.

[0024] Additional embodiments are shown in FIGS. 5 and 6. In FIG. 5, the head apparel is comprised of a broad brim attached to the front of the hat there is no brim at the back of the hat and there is no hat crown. This may be particularly appealing to persons who have hair they consider to be attractive or is thought to provide adequate UV protection. FIG. 6 shows a head apparel with no brim at the rear as in FIG. 5 but also there is no crown for this head apparel which again may be desirable to persons wishing to show their hair.

[0025] Additionally the polymer film of the shield can be colored, mirrored, made scratch resistant, polarized and treated to reduced glare and the like.

SUMMARY

[0026] An invention is described which can be adapted to a variety of broad brimmed hats and head apparel so that the wearer's entire face including, temples, eyes, cheeks and chin are protected from ultraviolet. The invention has advantages over all prior art in that it is protective of the whole face, is inexpensive to make, is comfortable and is compact. The ultraviolet shield is adjustable and, in some embodiments, detachable for easy storage on one's person so that the original hat, or broad brimmed head band can be worn with out the stigma of using a cancer and other disease-protecting device.

What is claimed is:

1. Head apparel with broad brim from which extends downward in front of the wearer's face a flexible shield allow-

ing transmission of visible light but inhibiting ultraviolet light so that the brim and shield together protect the wearer's face including cheeks and chin.

2. Head apparel of claim 1 wherein said flexible shield is a polymer film of length and width to encircle the face, cheeks and chin of the wearer This polymer is attached to a pliable material, the transitioning material, which bends at right angles or even acute angles without deformation so that the more rigid polymer can be attached to the brim of the head at sharp angles to the brim for style and for avoiding wind entrapment. The transitioning material is permanently attached to the brim or a temporary attachment is made such as by lacing through holes punched in the brim or hook and loop fasteners or the like.

3. The head apparel of claim 1 wherein said wide brim has straps on the outer edge out from the ear area which, when pulled down and tied acts to move the shield away from the wearer's face for better air circulation and put tension on the transparent shield so as to take out wrinkles and improve the wearer's vision through the shield.

4. The head apparel of claim 1 but with no brim on the rear of the apparel or no crown.

5. The head apparel of claim 3 but with no brim on the rear of the apparel or no crown.

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