

SUPPORTING MEANS

The provided supporting means invention relates to a method of supporting various articles near or against a person's head.

5 The supporting means comprises of a band of suitably resilient material that can be bent to approximate the shape of a person's head, fitted with components that interface with the person's scalp and articles to be supported.

The supporting means applies the use of a resilient band positioned across the person's head that does not use force of any kind. It does not require scroll-tightening, spring-clamping pressure, strapping or fastening to be retained upon the
10 person's head to perform its function.

At present, many things are held in position of use, near or against the human head. They may be for example, a surgeon's headlight, an assistance device for the disabled, a cyclist's rear-view mirror, a watchmaker's magnifying glass, opera binoculars, audio headphones, sound protective earmuffs, a wind shield or sound deflectors or
15 communication handsets such as telephones or walkie-talkie.

Devices to hold various objects close to or against a person's head are usually quite specialised. For example, an elasticised cloth or plastic band around the head in a horizontal plain to support a headlight or magnifying glass is not strong enough to position a telephone handset or compress-fit protective earmuffs and a spring-steel
20 telephony headset is not strong enough to support a walkie-talkie or small binoculars etc.

It is known that an elasticised band around the person's head may hold heavier or imbalanced objects however the size of contact area required by the band is indiscrete and the tightening elastic force becomes uncomfortable.

25 It is also known that the sizable area of a 'scroll-tightened' plastic or leather band has provided support for some articles though they negate ventilation to the areas they contact the skin and are also indiscrete. It is also known that spring loaded, telephony style headset head clamping bands exist to hold earpiece and microphone components up to a person's ear and mouth. The wearing of a spring-loaded, head-clamping headset
30 band, strong enough to hold heavier articles may also result in headache for the user, as they would require more force than they presently possess to support the imbalance of heavier articles. These articles may descend from a required position or fall off the head due to not enough spring clamping pressure.

It is also known that a cyclist's helmet with an article attached provides an interface between the article and a person's head, though is inconvenient by being highly indiscrete and may still require subsequent fastening such as under-chin straps to prevent slipping forward, backward or to either side.

- 5 It is an object of the provided supporting means invention therefore, to act as an interface between various articles to be supported and a person's head, without spring clamping, fasteners or tightening force to secure the invention to the head.

The resilient band of the supporting means remains static in shape while in use.

- 10 It can be made of any material strong enough to remain in, and not depart from, it's pre-determined though malleable shape, under the potential weight or imbalance of articles attached to it. Attached articles would usually be limited by the weight a person would be willing to hold up by and upon their head.

- By being bent to approximate the person's head shape prior to attachment of various articles, it remains comfortable by not becoming looser by unbending under
15 the weight of the attached article and not becoming smaller or tightening under spring clamping pressure.

- The resilient band substantially resembles a head shaped curved hook, that cannot unbend itself under the potential weight of articles that have predominantly been head-approximated for use. The more closely the resilient band is bent to the curve
20 of a person's head, the more comfort is attained for the duration of its use.

The dimensional thickness of the resilient band is sufficient enough to be rigid for the purpose of supporting attached articles and sufficiently thin enough to allow hand bending to adjust size, shape and attached article repositioning.

- The supporting means supplied resilient band possesses the appropriate combination of
25 rigidity, flexibility, malleability, lightness of weight and colourability to perform its intended function.

Components may be attached to the resilient band to allow addition of or further interface to specific articles of a person's choice.

- The resilient band is made with specific bends during manufacture to accommodate
30 a majority use application and can be worn facing any direction. Other uses may be accommodated by unbending and re-bending adjustment to suit a person's preferred application. Along the surface of the resilient band in the preferred embodiment of the invention, many location dimples are applied during manufacture that engage with components that interface with the person's head and articles to be supported.

The resilient band can be coated or treated in any colour.

An applicable material for the forming of the resilient band in its preferred embodiment is aluminium as is any malleable substitute possessing suitable rigidity.

The supporting means includes interfacing components that possess bumps
5 incorporated within them during manufacture that deflect for the purpose of assembly and recover to engage with and reside within the resilient band's location dimples.

An appropriate amount of interference fit would also suffice to retain the position of head and article interfacing components along the resilient band.

10 Assembly is achievable by inserting the resilient band into through-holes as is preferable in the provided embodiment of the invention or clipping the interfacing components on to the resilient band via side-attaching latch grooves formed into interfacing components during manufacture.

The temporary attachment of articles to an article interfacing component in the
15 most preferred embodiment form of the supporting means is conveniently permitted via hook-loop fastener material, while adhesion, plastic or metallic fasteners could provide permanent attachment if required.

The interfacing components can be made of any material that retains shape and resilience to perform their functions such as moulded rubber or plastic.

20 The components can be any size, shape or quantity, though for example hereinafter, the size and shape of the three components referred to in this text, pertaining to the preferred embodiment of the present invention, are for a majority-use application.

The three components primarily intended to be fitted to the resilient band are
25 formed in a way that, where they may possess thicker sections they are rigid and where they may possess thinner section they are flexible.

Where the components are connecting with the resilient band they are thick in section to retain position, orientation and curvature.

Where the components are thin in section is to allow flexibility to curve to the profile
30 of various articles to be attached or to allow some conformance to the user's head shape. The thin section flexibility also enables peeling or twisting motion to separate the opposing counterparts of hook-loop fastening material that may be applied to any articles and article interfacing components.

For repeated attachment-orientation accuracy, the article interfacing components provide advantage by being a shape other than circular. Being a particular shape indicates alignment similarities prior to for example, the pressing together of hook-loop fastener counterparts cut to the same shape.

- 5 Two of the three interfacing components where they interface and touch the person's head possess a pattern of bumps in close proximity that are incorporated during manufacture. The pattern of bumps represented in the preferred embodiment of the invention can be any shape, though they are domed at their highest point to be smooth to the touch and not scratch a person's scalp or hands
- 10 while handling or fitting.

The pattern of smooth bumps formed into the components that contact the person's head above or behind the person's ears in a non-injurious way perform two functions. Firstly if the user is semi bald or without hair, the smooth bumps make contact with the scalp allowing air to flow between the person's scalp and the surface of the component adjacent

15 the scalp. Secondly if the user has a full head of hair the pattern of bumps key into the hair to increase contact area between the hair and the head-interfacing component. This results in grip, to restrict the article-attached supporting means from slipping from the position upon the head at which it was placed.

- 20 The supporting means in its preferred embodiment is comprised of separate parts to facilitate adjustability when in the person's possession, cosmetic difference possibilities between all comprising parts and reduced volume of comprising parts when packaged flat for storage, transit or display presentation.

The resilient band of the supporting means can have its head and interfacing components

25 moulded directly onto it via the common over-moulding process.

The components fitted to the resilient band can be made with raised or lowered lettering or designs on their surfaces during manufacture or printed onto after manufacture.

- Shapes of interfacing components may differ to more purposely accommodate the support
- 30 of particular items. Each can be permanently or removably attached upon the resilient band of the supporting means. The provision of hook-loop fastener upon article interfacing components in the preferred embodiment of the invention is to enable quick attachment and removal of various articles to the interfacing components or the resilient band of the supporting means.

Any of the interfacing components can be manufactured with varying plasticity via dual polymer moulding to provide further cosmetic variation, flexibility for support, orientation or surface-conformance to attached articles and a person's head.

The hereinabove description should make evident that the present invention

- 5 provides an improved supporting means for elevating and positioning of various articles on or near a person's head and that it achieves its intended purpose by remaining static in shape as opposed to actively spring-tightening or clamping via mechanical tightening or fastening. In order for the invention to be readily understood, a particular embodiment thereof will now be described by way of example only with
10 reference to the accompanying drawings.

Fig. 1, Is a perspective view of a supporting means in accordance with the first embodiment of the invention.

Fig. 1A, Is a view of the supporting means resilient band

Fig. 1B, Is a view of the supporting means interfacing components.

- 15 Fig. 2, Shows the supporting means with indication of assembly.

Fig. 3, Shows the lamination of component B3, hook and loop fastening materials.

Fig. 4, Shows examples of the head and article interfacing components with varying thicknesses, shown as 4Z, 4Y and 4X.

- Fig. 5, Shows pattern of bumps applied to inward facing faces of head interfacing
20 components.

Fig. 6, Shows dimples applied to resilient band, engaging assembled component's 'bumps' to provide repositionable adjustability.

Fig. 7, Shows examples of the supporting means and various attached articles.

Fig. 8, Is a view of the supporting means resilient band and its adjustability bends.

- 25 Referring to the drawings, there is shown a supporting means in accordance with an embodiment of the invention.

The supporting means resilient band 'A', is substantially curved 25, is equipped with dimples A1, A2 & A3 that are formed during manufacture and has two additional bends 11 to position a minor length of the band further outward from the majority curve
30 circumference. One bend is outward and away from and the second bend returns back from first bend direction to position the minor length of the band substantially parallel to the projected circumference of the majority curve. The minor length of the resilient band can be bend-adjusted 26 to position articles it may support nearer or farther from a person's head.

At position 'A1' and 'A3' are two dimples to aid the retained location of insertion-assembled interfacing components B1 and B3.

Several dimples at position 'A2' provide adjustable location retainment for part B2.

The three interfacing components B1, B2 and B3, possess within each through-hole or bore, two bumps formed during manufacture shown as dotted lines that engage with the dimples incorporated along the resilient band at position A1, A2 and A3'.

The supporting means as shown is assembled by the resilient band 'A' being inserted through interfacing components B1, B2 and B3. The components then slip over and along the band to their intended though adjustable positions. eg, 17.

B1 and B2 are components shaped to follow the curve of and provide interface to, the user's head and 19.

Component B3, interfaces with attachable articles. Fig. 7.

Component B3, is equipped with the hook half of hook-loop fastener material applied during manufacture.

A portion of loop material is supplied with part B3. This loop material may be cut at the same moment as the hook material is applied to part B3 and would thus be the same shape.

The portion of same-shape loop material is adhered to articles to be supported, to provide shape-consistent orientation for periodically-attached articles eg, Fig.7.

Duty-pertinent, average and increased thickness 4Z, provides shape retention and structure that can deflect from and return to shape during assembly or use.

A stiffening rib 4Y may be incorporated during manufacture on any part to avoid weakness and to remain in shape after possibly being flexed during each use.

Flexible properties in the thin section of component B3 formed during manufacture, 4X can curve or flatten out to conform to the shape of various articles to be attached.

Head interfacing components B1 and B2 poses a pattern of bumps that provide air circulation between component and scalp or key into the user's hair to provide non-injurious grip.

The interlocking of the resilient band's dimples formed during manufacture with the interfacing component's internally incorporated bumps provides position retention of components upon assembly. Several dimples in a row afford repositionable size adjustability.

The Claims Defining The Invention Are As Follows.

1. A supporting means that supports various articles up to or against a person's head that comprises of a band of suitably resilient material that can be bent to approximate the shape of a person's head, fitted with components that interface with the person's head
5 and articles to be supported and by being static in bent shape, performs it's function without clamping or spring-tightening to be worn by and remain upon, a person's head.
2. A supporting means according to claim 1 wherein the band of suitably resilient material is curved to position the attached, curve-end-approximated, head-interfacing
10 components, at a distance sufficient enough for it to be placed over the human head.
3. A supporting means according to claim 1 and 2 wherein the band of suitably resilient material possesses subsequent bends to position article-interfacing components, near or against a person's head.
- 15 4. A supporting means according to claim 1 wherein the inner-facing surfaces of the attached head-interfacing components are substantially curved to follow the contour of a person's head.
5. A supporting means according to claim 1 wherein the inner-facing surfaces of the head-interfacing components posses raised bumps or ribs of any pattern to engage with a
20 person's scalp or hair.
6. A supporting means according to any one of claims 1, 2, 4 and 5 wherein the attachable head and article-interfacing components can be of any shape.
7. A supporting means according to any one of claims 1, 2, 4, 5 and 6 wherein the attached article and head interfacing components can be movable and removable for size
25 adjustability.
8. A supporting means according to claims 1 and 3 wherein the resilient band performs its function by being made of any material able to be bent to the shape of a person's head and is such as not to unbend under the weight of attached articles.
9. A supporting means according to any one of the proceeding claims wherein the head
30 and article-interfacing components can be permanently attached to the resilient band during manufacture.

10. A supporting means according to any one of the proceeding claims wherein the resilient band and head interfacing components can be formed in one piece.

11. A supporting means according to any one of the proceeding claims onto which various articles can be attached with either permanent or temporary fasteners.

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12. A supporting means substantially as hereinbefore described with reference to accompanying drawings.

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