APPENDAGE-MOUNTED Display Apparatus

BACKGROUND

The invention relates to the field of wearable electronic technology and relates to an appendage-mounted display apparatus that provides a uniform tension fit.

Portable or wearable electronic mounting platforms allow a user to easily attach a variety of electronic devices to his or her body for easy access and hands-free use. Users engaged in physical activity may benefit from many of the image and information processing features that are available in portable electronic devices, particularly commercially available smartphones and global positioning system (GPS) devices. For example, mobile infantry units may gain enhanced capabilities from electronically displayed maps, real-time satellite or unmanned aerial vehicle imagery, photographs of high value targets, statistical or environmental data and ballistic calculations. These devices may also benefit...

A perspective view of one embodiment of the cuff assembly affixed to a user's forearm. (Courtesy illustration)
mountain bikers, snowboarders, extreme and active sports enthusiasts, hunters and users of social media applications. These users may benefit from trail maps, GPS-guided navigation, video or still photography, recordation of acceleration and velocity, real-time photographs and video, and countless other activity-specific applications. Both military and civilian users may also take advantage of static technology such as printed reference materials and maps.

Conventional wrist and arm-mounted displays frequently use adjustable attachments to affix the display platform to the user's body with one or more watch band, shoelace, or hook-and-eye type closure straps. Other display platforms are preformed into a rigid “C” or “U” shape designed to fit the diameter of an average-sized human wrist or arm. These conventional display platforms and mounts share a number of problems. Two of the most common issues are the lack of a customized fit and slippage where the mounted electronic device is large or asymmetric. While watch band, shoelace, and hook-and-eye type closures allow a user to adjust the circumference, the attachment is generally unable to provide a uniformed tight fit across all areas of the user’s forearm. Both types of conventional display platforms, adjustable and preformed, are also unable to fully accommodate large or small arms or thick or thin clothing. Unequal levels of tightness may cause the user discomfort, restrict movement, and may interfere with blood circulation in the arm and hand. For example, when the user turns or moves their arm, the display platform may rotate out of place and cause the user to continuously pull the display platform back into place for easy viewing. Many of the adjustable attachments currently available require two hands to fully tighten the straps and often require the user to cease activity to adjust the display platform.

INVENTION SUMMARY

The invention provides a system for appendage-wearable mounting of personal electronic devices or printed reference materials. The system allows user-configurable exchange of components suitable for mounting various models of electronic devices, and securing backlit and non-illuminated printed reference materials. The invention provides superior user accessibility, comfort, ruggedness, lightweight construction, varied adjustability, and positive retention when secured.

The invention includes an appendage-mounted display apparatus for mounting on a user’s appendage. The appendage-mounted display apparatus is comprised of an upper panel consisting of an upper cage, a base plate, upper structural mesh-coated foam, and an upper grip. The lower panel is comprised of a lower cage, lower structural mesh-coated foam, a lower grip, and a closed-loop tensioning system coupled to a lower panel exterior surface configured to fit within the upper panel with a portion of the upper panel overlapping an outside surface of the lower panel. The closed-loop tensioning system is configured to pull the upper and lower panel radially inward toward the user’s appendage so a uniform level of compressive force about the user’s appendage is achieved. A device mount is coupled to an upper panel exterior and the base plate.

In one embodiment, the upper cage and upper structural mesh-coated foam is comprised of a plurality of guide clamps and the closed-loop tensioning system is comprised of a plurality of laces and a tensioning knob. The laces are coupled to the tensioning knob, the lower and upper panel, and routed through the guide clamps so the upper and lower panel tighten or loosen around a user’s appendage when the tensioning knob is turned.

In another embodiment of the appendage-mounted display apparatus, the device mount is comprised of a smartphone mount.

For a better understanding of the invention, please review the entire patent for accompanying drawings, claims and detailed description.