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Carroll et al.(10) **Pub. No.: US 2012/0280009 A1**(43) **Pub. Date: Nov. 8, 2012**(54) **HANDS-FREE WEARABLE COMPUTER
TABLET HOLDER**(52) **U.S. Cl. 224/257**(75) **Inventors:** **Tracy V. Carroll**, New York, NY
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PA (US)(57) **ABSTRACT**(73) **Assignee:** **EAQ, LLC**, New York, NY (US)(21) **Appl. No.:** **13/222,283**(22) **Filed:** **Aug. 31, 2011****Related U.S. Application Data**(60) Provisional application No. 61/481,475, filed on May
2, 2011.**Publication Classification**(51) **Int. Cl.**
A45F 3/14 (2006.01)

A hands-free utilitarian workstation for use with at least one portable electronic device is disclosed which allows the user to utilize the at least one portable electronic device without holding the at least one portable electronic device in the user's hands. The workstation includes a harness and a support portion attached to the harness. The harness includes adjustable sections and is adapted to fit users of varying size and build. The support portion includes an inner member and an outer member and the outer member is adapted receive the at least one portable electronic device in a secure manner and to provide support for the portable electronic device. The outer member is transitionable between a first position and a second position. The support portion may also be removably attachable to the harness and multiple support portions may be attached to the harness at the same time.

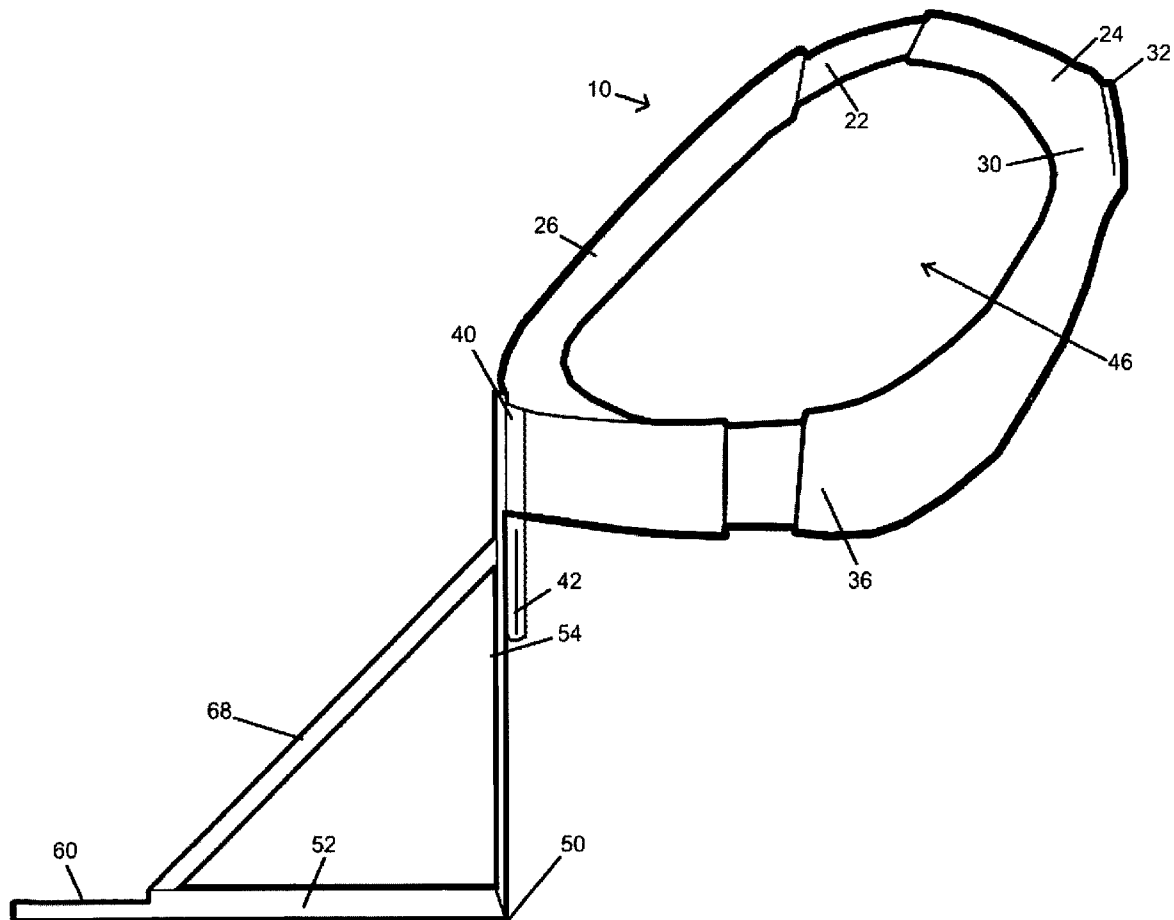


Fig. 1

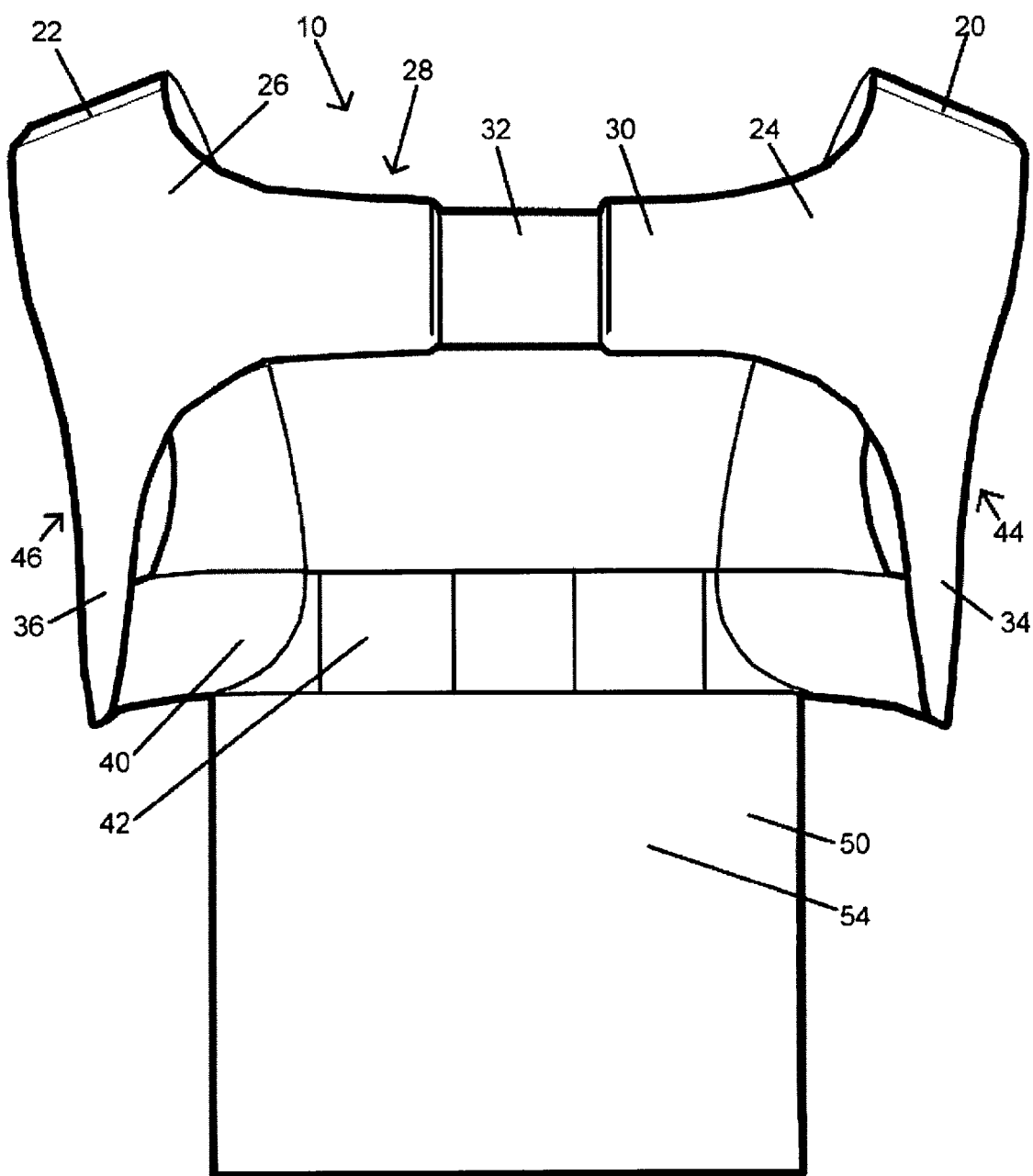


Fig. 2

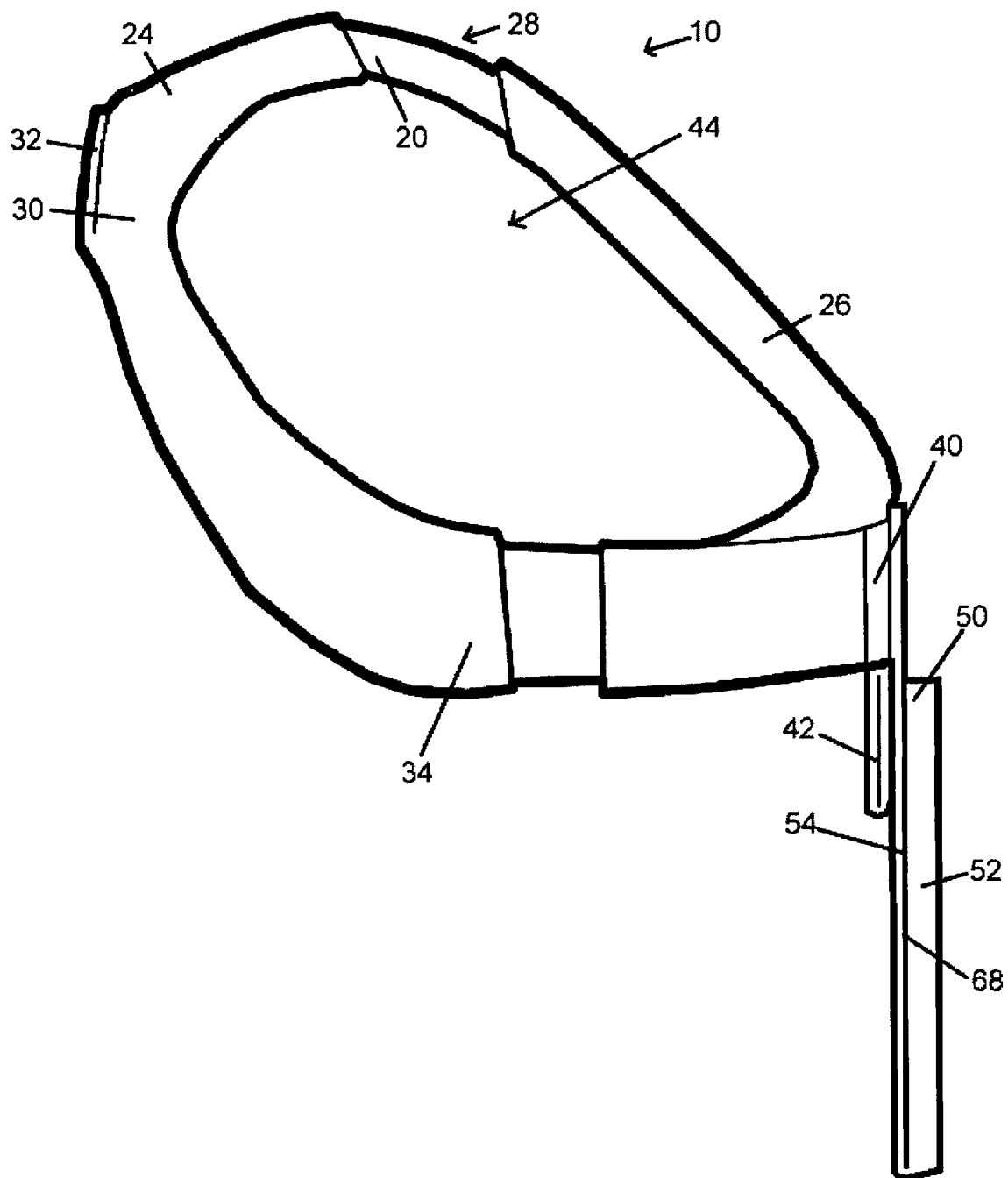
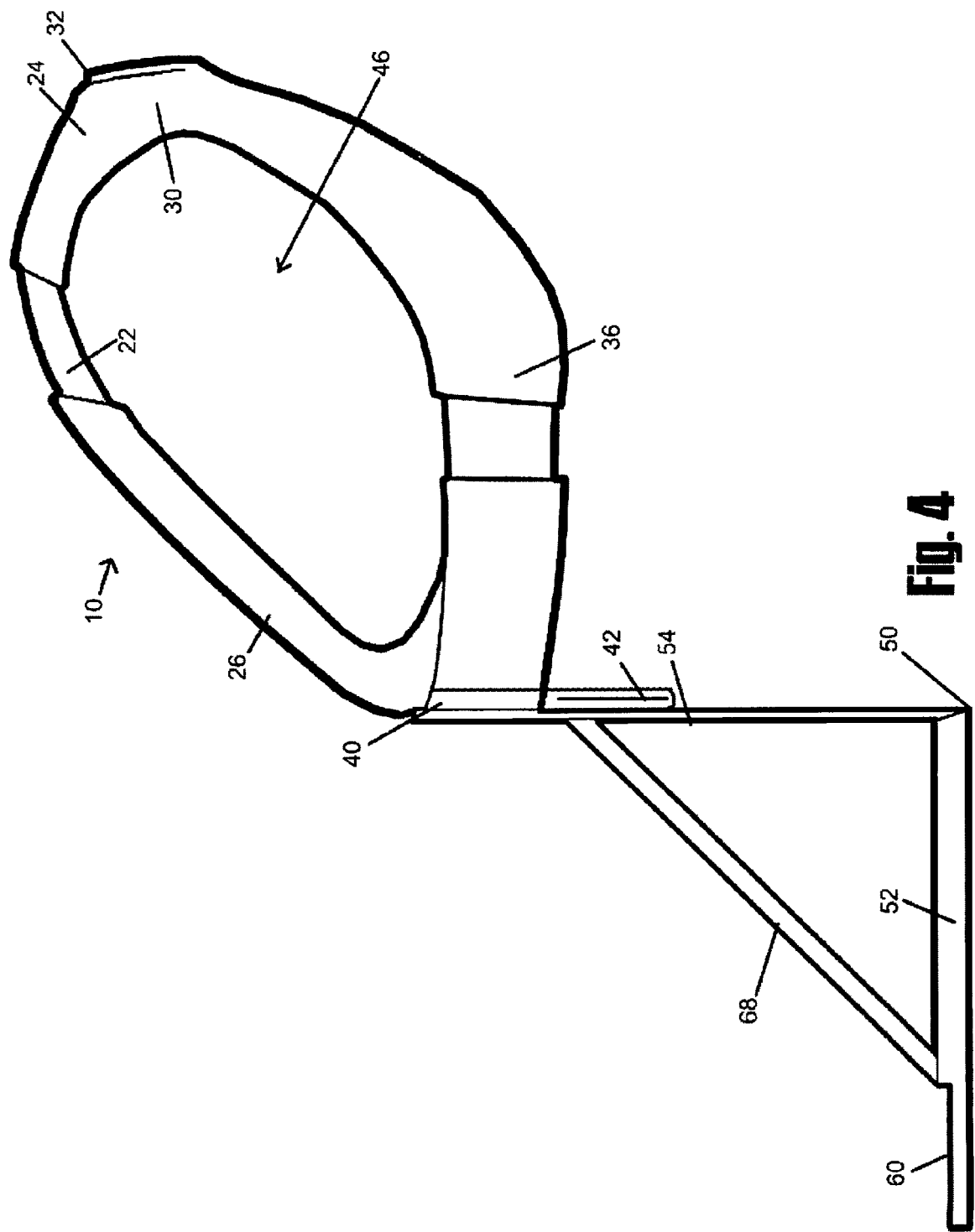


Fig. 3



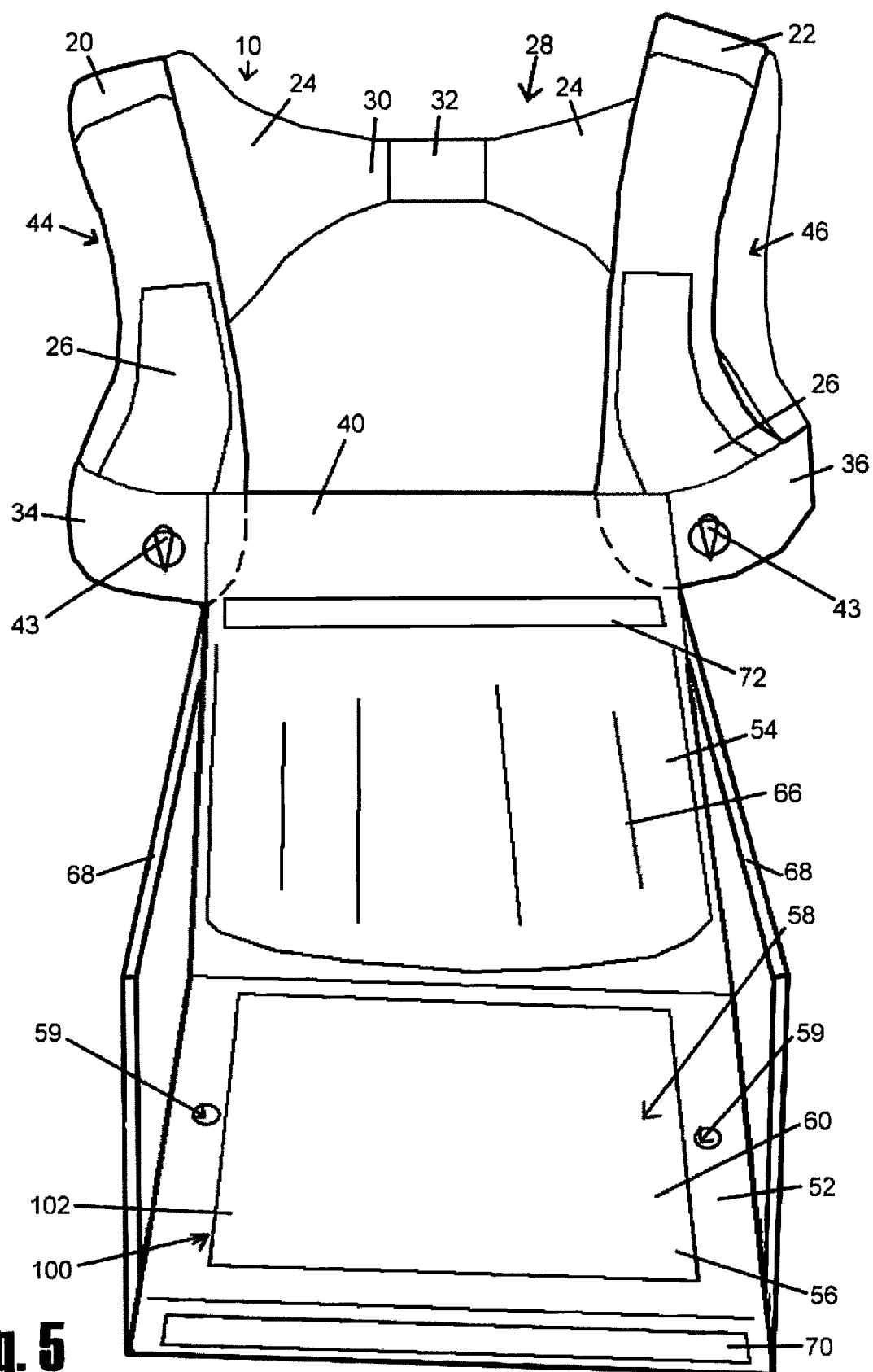


Fig. 5

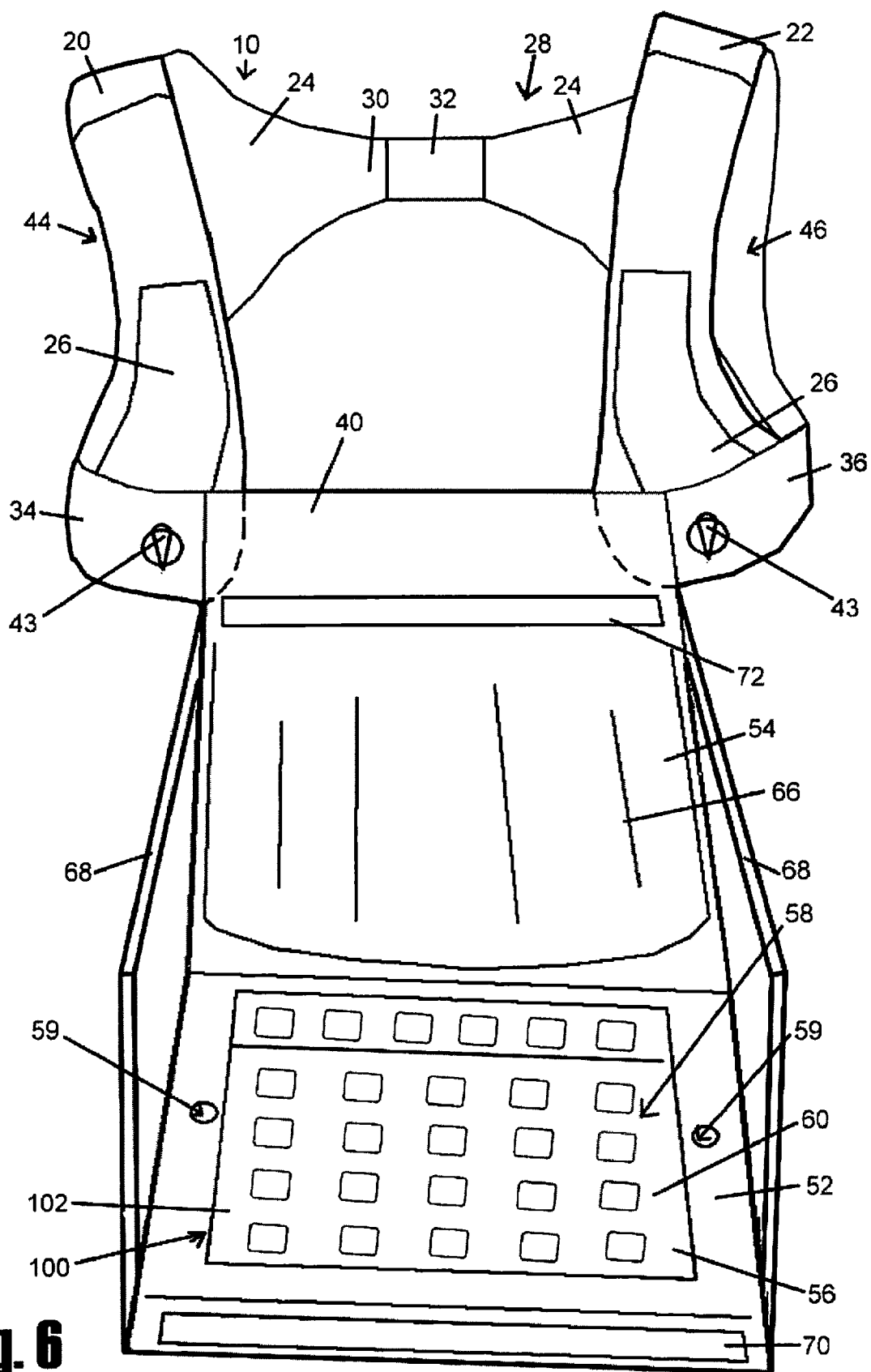


Fig. 6

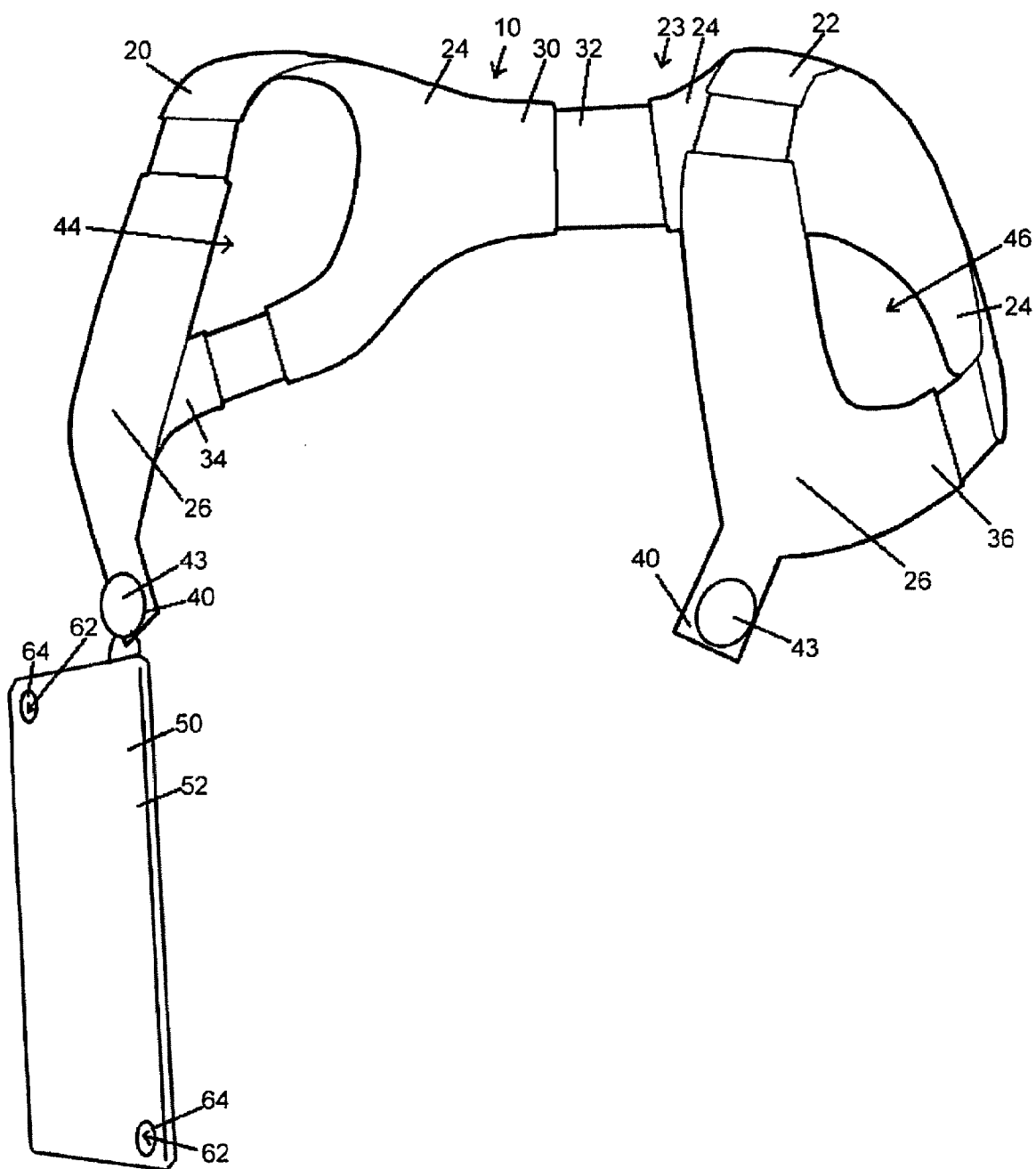


Fig. 7

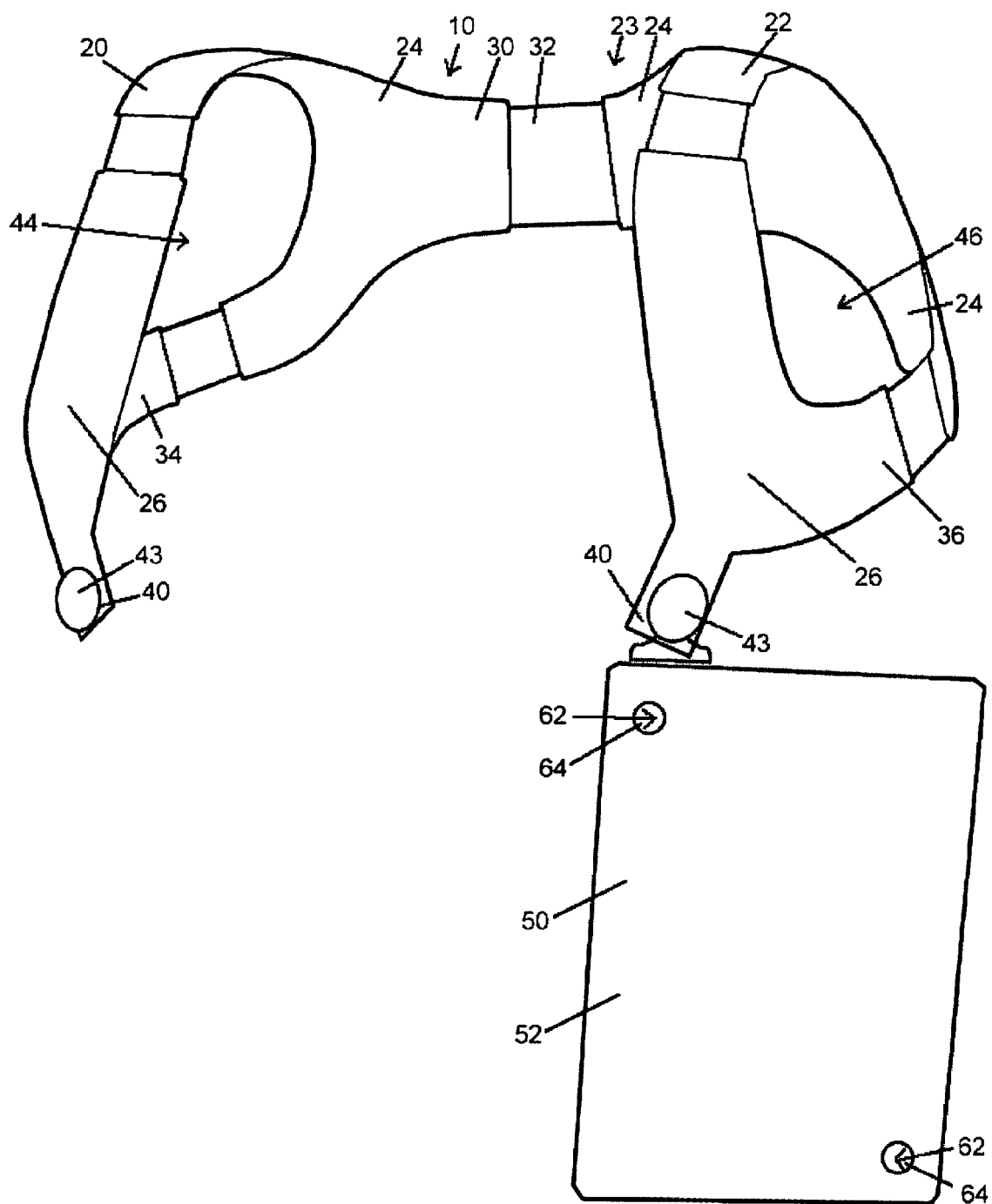


Fig. 8

HANDS-FREE WEARABLE COMPUTER TABLET HOLDER

PRIORITY

[0001] This application claims priority to a U.S. Provisional Patent Application filed on May 2, 2011 titled "Hands-Free Wearable Computer Tablet Holder" and assigned U.S. Provisional Patent Application Ser. No. 61/481,475; the entire contents of which are incorporated herein by reference.

BACKGROUND

[0002] 1. Technical Field

[0003] The present disclosure relates to a hands-free utilitarian workstation for use with portable electronic devices, more specifically the present disclosure relates to a harness for securing at least one portable electronic device to a user. The harness allows the user to utilize the portable electronic device without holding the portable electronic device in his or her hands.

[0004] 2. Background of the Related Art

[0005] There are many activities or jobs for which the use of a computer or other portable electronic devices may be beneficial. Some activities however constrain the user from continuously holding or otherwise supporting a computer with the user's hands because the user requires his or her hands for other tasks. An example of this can be found in the military where, for example, a soldier may be required to use his or her hands to fire a weapon, travel across rough terrain, or carry other equipment. The use of portable electronic devices however increases the soldier's awareness and communication capabilities and is thus an important addition to his or her equipment. Other examples of professions where a portable electronic devices may be useful include medical, education, real estate, construction, transportation, warehouse, firemen, aviation, police, government officials, retail and other recreational activities such as hiking in rough terrain, mountain climbing, or other professions or activities which may require the use of both hands at least part of the time and do not always provide a place to set the computer or portable electronic device on the ground.

SUMMARY

[0006] Accordingly, there is disclosed a hands-free utilitarian workstation for use with various portable electronic devices which allows the user to utilize a portable electronic device without holding the portable electronic device in the user's hands.

[0007] The hands-free utilitarian workstation includes a harness and a support portion attached to the harness. The harness includes adjustable sections and is adapted to fit users of varying size and build. The adjustable sections may also be self-adjusting.

[0008] The support portion includes an inner member and an outer member and the outer member is adapted to receive a portable electronic device in a secure manner and to provide support for the portable electronic device. The outer member is transitionable between a first position and a second position. The outer member and inner member may include one or more hardened reinforcements. The support portion may also be removably attachable to the harness and multiple support portions may be attached to the harness at the same time.

[0009] The outer member is at least partially formed from a plastic material and may include a pouch for receiving the

portable electronic device where the pouch defines an opening adapted to allow a user to access a screen of the portable electronic device. The opening may also include a transparent layer which may be formed of, for example, Lucite.

[0010] The portable electronic device may also include a first set of attachment members, and the outer member may include a corresponding second set of attachment members, where the portable electronic device is attachable to the outer member by attaching the first set of attachment members to the second set of attachment members. The attachment members may include, for example, Velcro™ tabs, buttons, buckle clips, clamp fasteners, keyhole button holes, zippers, snaps or other suitable attachment mechanisms.

[0011] The support portion may also include an expansion member extending between the inner member and the outer member where the expansion member is adapted to support the outer member when in the second position. The expansion member may also be expandable between a compressed state and an expanded state where the compressed state is adapted to allow the outer member to be substantially parallel with the inner member and the expanded state is adapted to support the outer member when the outer member is in the second position.

[0012] The outer member may include at least one hole extending therethrough for the use of a camera of the portable electronic device. Additional holes allow a person who is either right handed or left handed to use the camera of the portable electronic device with ease. The outer member may include a first strip and the inner member may include a corresponding second strip, the first strip adapted to removably engage the second strip when the outer member is in the first position to secure the outer member in the first position. The inner member may also include a plurality of strips where the first strip of the outer member is adapted to engage at least one of the pluralities of strips of the inner member when in the first position.

[0013] At least a portion of the workstation may be treated with an anti-microbial solution and the anti-microbial solution may be water-stabilized, non-toxic, non-leaching and environmentally benign. At least a portion of the workstation may also be formed of a material, which minimizes electromagnetic radiation. At least a portion of the support portion may also be formed of a material which minimizes electromagnetic radiation.

[0014] The support portion may be removably attachable to the harness by attachment members disposed on the inner member and the harness, at least one of the attachment members being adapted to allow the support portion to pivot about the attachment member when attached thereto.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] Various embodiments of the present disclosure are described hereinbelow with references to the drawings, wherein:

[0016] FIG. 1 is a front view of a hands-free utilitarian workstation in accordance an embodiment of the present disclosure;

[0017] FIG. 2 is a back view of the hands-free utilitarian workstation of FIG. 1;

[0018] FIG. 3 is a right side view of the hands-free utilitarian workstation of FIG. 1;

[0019] FIG. 4 is a left side view of the hands-free utilitarian workstation of FIG. 1, illustrating the outer member in the second position;

[0020] FIG. 5 is a front view of the hands-free utilitarian workstation of FIG. 4;

[0021] FIG. 6 is a front view of the hands-free utilitarian workstation of FIG. 5, illustrating a portable electronic device inserted into the outer member;

[0022] FIG. 7 is a front view of the hands-free utilitarian workstation of FIG. 1, illustrating the support portion partially detached from the holder on the right hand side; and

[0023] FIG. 8 is a front view of the hands-free utilitarian workstation of FIG. 1, illustrating the support portion partially detached from the holder on the left hand side.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0024] Disclosed is a hands-free utilitarian workstation for use with various portable electronic devices which is wearable by a user to allow the user to utilize a portable electronic device without having to hold the portable electronic device in the user's hands.

[0025] With reference to FIGS. 1-8, an embodiment of the hands-free utilitarian workstation is disclosed including a harness 10 for securing a portable electronic device 100 to a user. Suitable portable electronic devices include but are not limited to, for example, computer tablets (e.g. the iPad™ and other similar devices), industrial or ruggedized tablets, notebook computers, handheld devices, personal computers, e-readers, or any other similar portable electronic devices, which are light enough to be carried. Harness 10 allows a user to utilize one or more of portable electronic devices 100 without requiring the user to support or hold the portable electronic device with his or her hands. This allows the user to perform other tasks with his or her hands while still being able to utilize the portable electronic device 100. Harness 10 includes a pair of shoulder portions 20 and 22, a back portion 30, a chest portion 40 and a support portion 50. Each of shoulder portions 20 and 22, back portion 30, chest portion 40 and support portion 50 may be adjustable through the use of Velcro™ (hook and loop fasteners), snaps, buttons, buckle clips, clamp fasteners, keyhole button holes, zippers, adjustable straps, elastic portions, or other suitable mechanisms.

[0026] With reference to FIGS. 1-3, shoulder portions 20 and 22 are adapted to fit over the shoulders of the user and define a space 28 therebetween for receiving the user's head and neck. Shoulder portions 20 and 22 may be adjustable as discussed above such that users of varying sizes and builds may utilize harness 10.

[0027] With reference to FIG. 2, back portion 30 extends from the backsides 24 of shoulder portions 20 and 22 respectively and includes a fastener or strap 32 for securing shoulder portions 20 and 22 together. Back portion 30 also assists in distributing the load of the support portion 50 and portable electronic device 100 across the shoulders and upper back of the user. Back portion 30 may also be adjustable as discussed above and in addition, for example, fastener 32 may include a number of different attachment points or options for users of varying size and build. Fastener 32 may alternatively be an elastic material attached to backsides 24 of shoulder portions 20 and 22 respectively and may be monolithically formed with backsides 24. Fastener 32 may be self-adjusting for different body types or sizes or during movement or motion of the user by stretching or flexing.

[0028] Referring again to FIGS. 1-3, chest portion 40 extends from the front sides 26 of shoulder portions 20 and 22 respectively and from sides 34 and 36 of back portion 30 and

may include attachment sections 42 for attaching support portion 50 to chest portion 40. Shoulder portions 20 and 22, back portion 30 and chest portion 40 define armholes 44 and 46 therebetween for receiving a user's arms therethrough. Chest portion 40 may also be adjustable as discussed above to fit users of varying size and build.

[0029] Each of shoulder portions 20 and 22, back portion 30 and chest portion 40 may also be adjustable relative to each other. For example, shoulder portions 20 and 22, back portion 30, and chest portion 40 may each be connected through the use of Velcro™ (hook and loop fasteners), snaps, buttons, buckle clips, clamp fasteners, keyhole button holes, zippers, elastic, or other suitable adjustable straps such that a user may easily adjust the size and fit of harness 10 and may also remove or put on harness 10 in a variety of ways by manipulating the various connections.

[0030] Support portion 50 is attachable to chest portion 40 and is adapted for receiving and supporting the portable electronic device 100. Alternatively multiple support portions 50 of varying size may be utilized depending on the size of the portable electronic device 100 to be used. For example, different support portions 50 may be attached to or removed from chest portion 40 as needed without removing harness 10. More than one support portion 50 may also be attached to chest portion 40 at the same time.

[0031] Each portion 20, 22, 30, 40 and 50 of harness 10 may be formed of, for example, fabrics, elastics, Velcro™, Kevlar™, poly-rayon, gabardine, fusible buckram, fusible tricot, denim, leather, plastic, rubber or other materials suitable to being worn and adjusted by a user and which may be washable by the user. Harness 10 may also be self-adjusting where, for example, one or more of the portions 20, 22, 30, 40 or 50 expands or contracts as the user moves or performs activities to maintain a secure and comfortable fit.

[0032] In one embodiment, for example, at least a portion of harness 10 and/or at least a portion of support portion 50 may be formed of a fabric material such as those sold by Swiss Shield® of Switzerland which screens out electromagnetic radiation. Swiss Shield® fabrics include a thin silver coated thread which forms a closely woven shielding grid. A cotton fiber is provided with a gossamer-thin 0.02 mm silvered and PU coated spun-in copper thread (Swiss Shield® WEAR™ cotton 10% copper/silver). This grid acts like a mirror to deflect electromagnetic radiation, from many common sources, such as cell phones, computers, computer tablets, TV and radio transmitters, and electric fields from power lines and appliances. Swiss Shield provides the feel of a soft cotton fabric while providing durability due to its protective material, which is enclosed between two layers of soft polycotton.

[0033] In another embodiment, at least a portion of the fabric of harness 10 and/or support portion 50 may be treated or coated with a solution, which provides antibacterial properties and minimizes cross contamination. An example of such a coating is Goldshield™ created by AuProvis, S.A. of Panama. Goldshield™ is a water-stabilized, non-toxic, non-leaching, environmentally benign solution which kills germs on contact, prevents cross contamination, and makes fabric antibacterial for at least 50 washes. Goldshield™ provides protection against microbial contamination including, for example, bacteria, yeast, fungi, mold and mildew or other microbes. When combined with other surfactants Goldshield™ may also provide protection from hardy bacteria, fungi and even viruses. The treatment of harness 10 and/or

support member 50 with a solution such as Goldshield™ allows the hands free utilitarian workstation to be utilized in fields requiring microbe prevention such as healthcare or the military where cross-contamination is a concern.

[0034] In another embodiment, for example, at least a portion of the fabric of the harness 10 and/or support portion 50 may be treated with a textile technology called BioSmart™ made by Milliken fabrics USA. The BioSmart™ technology is applied to the fabric and is adapted to bind to chlorine on a molecular level to kill common bacteria such as *Salmonella*, *E. coli*, Staph, and Hepatitis A. When a fabric treated with BioSmart™ technology is laundered with an EPA-registered chlorine bleach, the chlorine from the bleach is bound to the surface of the BioSmart™ technology. In this way each wash with an EPA-registered chlorine bleach recharges the BioSmart™ technology treatment. BioSmart™ technology is durable through at least 75 washes. Chlorine kills 99.9% of many common bacteria's and viruses and BioSmart™ technology has been successfully tested against multiple strains of bacteria and viruses including, for example, *Salmonella*, *Escherichia Coli*, *Staphylococcus aureus*, hepatitis A, and *Klebsiella pneumoniae*.

[0035] Each portion 20, 22, 30, 40 and 50 of harness 10 may be formed of the same material or may include different materials, which are attached together and allow for the user to adjust the harness for a more comfortable fit. Harness 10 may also include grommets or other similar members for preventing wear to harness 10.

[0036] Harness 10 may also include an auxiliary power supply (not shown), for example, a battery, solar panel or a small generator, for providing power to the portable electronic devices 100. The at least one portable electronic device 100 may also include a power supply or battery which may be rechargeable through the use of the auxiliary power supply.

[0037] Referring now to FIGS. 4-8, support portion 50 includes an outer member 52 and an inner member 54. Inner member 54 is attachable to chest portion 40 at attachment sections 42 or may be formed as part of chest portion 40. For example, inner member 54 may attach to chest portion 40 at each attachment section 42 through the use of an attachment member 43 such as, for example, a button, buckle clip, clip, zipper, snap-fit, bayonet coupling, or other type of fastener that allows for removable attachment of inner member 54 to chest portion 40. For example, inner member 54 may include one or more buttons and chest portion 40 may include one or more buckle clips where the user may engage the one or more buttons with the one or more buckle clips to removably secure inner member 54 to chest portion 42. In this way, the user may attach support portion 50 at one or more of attachment sections 42 such that support portion 50 may hang from, swing, or pivot about the attachment section 42, as illustrated in FIGS. 7 and 8. This allows the user to reposition support portion 50 as desired.

[0038] Attachment members 43 allow the user to reposition and/or remove the support portion 50 or portable electronic device 100 as desired and provide the user with the capability of exchanging or carrying additional support portions 50 as needed. For example, additional attachment sections 42 and attachment members 43 may be provided on harness 10 to allow a user to carry additional or alternative support portions 50 with additional portable electronic devices 100. In this way, the user may utilize any of the portable electronic devices 100 that are hanging from attachment sections 42 as

necessary by attaching the attachment members 43 of the desired portable electronic device to the attachment sections 42 found on chest portion 40.

[0039] Outer member 52 is adapted to receive the portable electronic device 100 in a secure manner and is adapted to secure portable electronic device 100 to harness 10. For example, outer member 52 may include a pouch 56 (FIGS. 5 and 6) having an opening or clear portion 58 on an inner surface 60 to allow a user to access the screen 102 of the portable electronic device 100. Alternatively outer member 52 may include one or more elastic bands or other mechanism suitable for securing portable electronic device 50 within outer member 52. The clear portion 58 may, for example, be formed of a transparent thermoplastic such as, for example, Lucite or may be formed from other transparent materials suitable to allowing a user to access screen 102 of portable electronic device 100. The portable electronic device 100 may alternatively be attached to support portion 50 by Velcro™ fasteners or other attachment devices suitable to removably attach portable electronic device 100 to support portion 50. For example, Velcro™ tabs may be attached to a surface of the portable electronic device 100 through the use of, for example, an adhesive or other suitable methods, and corresponding Velcro™ tabs may be attached to outer member 52 through sewing, adhesive or other methods suitable to attaching Velcro tabs to outer member 52.

[0040] Outer member 52 may include at least one camera hole 62 (FIG. 1) extending therethrough to allow for the use of rear camera (not shown) of the portable electronic device 100. A grommet 64 or embroidery may also be provided to reinforce camera hole 62. More than one camera hole 62 may be provided to allow for the use of different kinds of portable electronic devices 100 having cameras (not shown) in different positions. Inner member 54 may include an adjustable pleated section 66 which allows the user to lift the outer member 52 to eye level during use of camera and may also include one or more camera holes 59 extending therethrough to allow for the use of a front camera (not shown) of the portable electronic device 100.

[0041] Outer member 52 may be formed of a textile or other garment material as discussed above or may alternatively be formed of a plastic material which provides a degree of protection to the portable electronic device 100 when inserted therein. Outer member 52 is attached to or otherwise secured to inner member 54 and may be transitionable between a first position and a second position where when in the first position the outer member 52 is substantially parallel to the inner member 54 and when in the second position the outer member 52 is at an angle relative to the inner member 54. For example, in the second position the outer member 52 may be at a ninety-degree angle relative to the inner member 54 (FIG. 4). Alternatively the outer member 52 may be at other angles relative to the inner member 54 including a forty-five degree angle, a thirty degree angle, a one hundred and twenty degree angle, or any other angle between zero and one hundred and eighty degrees inclusive, as desired by the user. Different support portions 50 may be utilized which provide for different angles when the outer member 52 is in the second position. Support portion 50 may also be adjustable to vary the angle of the outer member 52 relative to the inner member 54 as needed through the use of, for example, Velcro™ (hook and loop fasteners), snaps, buttons, buckle clips, clamp fasteners, keyhole button holes, zippers, elastic, adjustable

straps, or other adjustment mechanisms suitable to adjusting the angle of outer member 52 relative to inner member 54.

[0042] Outer member 52 extends from inner member 54 and may include one or more expansion members 68. Outer member 52 may alternatively be a separate or distinct member attached to inner member 54. Expansion members 68 are transitionable between a compressed state an expanded state where expansion members 68 expand from the compressed state to the expanded state as outer member 52 transitions to the second position. Expansion members 68 also prevent inner member 52 from transitioning past the second position when in the expanded state. Expansion members 68 may be formed of folded material such as, for example, triangle hinges, (as seen in FIGS. 4-6) which unfold as outer member 52 transitions to the second position. Once in the second position however expansion members 68 are fully unfolded and act to support outer member 52 in the second position. Other kinds of expansion members 68 may also be used such as, for example, wires, hinges, straps, or other suitable mechanisms for allowing the transition of outer member 52 between the first and second positions and supporting outer member 52 when in the second position.

[0043] Outer member 52 may be secured to inner member 54 when in the first position through the use of, for example, corresponding Velcro™ strips 70 and 72 disposed on the outer and inner members 52 and 54 respectively (FIGS. 5 and 6). More than one Velcro™ strip 70 and 72 may be provided on each of outer and inner members 52 and 54 respectively to provide a user with different locations at which to secure the outer member 52 to the inner member 54. Alternatively a Velcro™ strap, snaps, buttons, buckle clips, clamp fasteners, keyhole button holes, zippers, or other similar mechanism may be provided to prevent unintentional transitioning of outer member 52 between the first and second positions. Outer member 52 and inner member 54 may be of substantially the same size as the portable electronic device 100 to be utilized and, for example, different sized outer and inner members 52 and 54 may be attached to harness 10 depending on the type of portable electronic device 100 to be used. One or more portable electronic devices 100 may be attached to outer member 52 at the same time.

[0044] During use, a user positions harness 10 such that his or her head is inserted through the space 28 defined between shoulder portions 20 and 22, and his or her arms are inserted through the holes 44 and 46 defined between shoulder portions 20 and 22, back portion 30 and chest portion 40 with chest portion 40 positioned on his or her chest and back portion 30 positioned on his or her back. The user may then adjust the shoulder portions 20 and 22, back portion 30 and chest portion 40 to provide a comfortable and secure fit. Alternatively shoulder portions 20 and 22, back portion 30, and chest portion 40 may self-adjust to fit the user. Support portion 50 may already be attached to harness 10 or may be attached to harness 10 after harness 10 has been positioned by the user.

[0045] The user then transitions outer member 52 from the first position to the second position, inserts the portable electronic device 100 into pouch 56 of outer member 52, and secures the portable electronic device 100 in place. Alternatively the portable electronic device 100 is already inserted into outer member 52. Once the portable electronic device 100 has been installed properly, the user may utilize the portable electronic device 100 and may transition the outer member 52 between the first and second positions as needed

during a course of use. The user need not utilize his or her hands to hold or otherwise support outer member 52 and the portable electronic device 100 when in the second position due to expansion members 68 and therefore is able to utilize his or her hands to perform other tasks as necessary. For example, in a military situation the user may need to fire a weapon or use other devices at a moments notice. In this way the user gains the benefits of the portable electronic device 100 without being constrained from performing necessary actions with his or her hands since the user does not need to put down or place the portable electronic device 100 on another surface before utilizing his or her hands for the task at hand.

[0046] Although the illustrative embodiments of the present disclosure have been described herein with reference to the accompanying drawings, the above description, disclosure, and figures should not be construed as limiting, but merely as exemplifications of particular embodiments. It is to be understood, therefore, that the disclosure is not limited to those precise embodiments, and that various other changes and modifications may be effected therein by one skilled in the art without departing from the scope or spirit of the disclosure.

What is claimed is:

1. A hands-free utilitarian workstation comprising:
 - a harness;
 - a support portion attached to the harness, the support portion including an inner member and an outer member, the outer member adapted to receive a portable electronic device in a secure manner and to provide support for the portable electronic device, the outer member transitionable between a first position and a second position.
2. A workstation according to claim 1, wherein the harness includes adjustable sections and is adapted to fit users of varying size and build.
3. A workstation according to claim 2, wherein the adjustable sections are self-adjusting.
4. A workstation according to claim 1, wherein the support portion is removably attachable to the harness.
5. A workstation according to claim 1, wherein the multiple support portions may be attached to the harness at the same time.
6. A workstation according to claim 1, wherein the outer member is at least partially formed from a plastic.
7. A workstation according to claim 1, wherein the outer member further includes a pouch for receiving the portable electronic device.
8. A workstation according to claim 7, wherein the pouch defines an opening adapted to allow a user to access a screen of the portable electronic device.
9. A workstation according to claim 8, wherein the opening includes a transparent layer.
10. A workstation according to claim 9, wherein the transparent layer is formed of Lucite.
11. A workstation according to claim 1, wherein the portable electronic device includes a first set of hook and loop fasteners and the outer member includes corresponding second set of hook and loop fasteners, the portable electronic device being attachable to the outer member by attaching the first set of hook and loop fasteners to the second set of hook and loop fasteners.
12. A workstation according to claim 1, wherein the support portion includes an expansion member extending

between the inner member and the outer member, the expansion member adapted to support the outer member when in the second position.

13. A workstation according to claim **12**, wherein the expansion member is expandable between a compressed state and an expanded state, the compressed state adapted to allow the outer member to be substantially parallel with the inner member, the expanded state adapted to support the outer member when the outer member is in the second position.

14. A workstation according to claim **1**, wherein the outer member includes at least one hole extending therethrough for the use of a camera of the portable electronic device.

15. A workstation according to claim **1**, wherein the outer member includes a first strip and the inner member includes a corresponding second strip, the first strip adapted to removably engage the second strip when the outer member is in the first position to secure the outer member in the first position.

16. A workstation according to claim **15**, wherein the inner member includes a plurality of strips, the first strip of the outer

member adapted to engage at least one of the plurality of strips of the inner member when in the first position.

17. A workstation according to claim **1**, wherein at least a portion of the workstation is treated with an anti-microbial solution.

18. A workstation according to claim **16**, wherein the anti-microbial solution is water-stabilized, non-toxic, non-leaching and environmentally benign.

19. A workstation according to claim **1**, wherein at least a portion of the workstation is formed of a material which minimizes electromagnetic radiation.

20. A workstation according to claim **4**, wherein the support portion is removably attachable to the harness by attachment members disposed on the inner member and the harness, at least one of the attachment members being adapted to allow the support portion to pivot about the attachment member when attached thereto.

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