An apparatus for holding a book, cell phone, or audio player or other object providing a source of information or entertainment. A flexible tubing having sufficient flexibility for positional adjustment while maintaining the object in a stable position has a proximal end attached to the object holder and a distal portion adapted to be coiled to provide an integral stand for the object holder.
FIG. 24
FIG. 32
ADJUSTABLE READING AND VIEWING SUPPORT APPARATUS AND METHOD

[0001] This invention claims the benefit of U.S. Provisional Application No. 60/850,974 filed Oct. 11, 2006, the entire contents of which is expressly incorporated herein by reference.

FIELD OF THE INVENTION

[0002] This invention relates generally to a positionally adjustable support for books and other objects that provide a source of information or entertainment.

DESCRIPTION OF THE RELATED ART

[0003] When reading for prolonged periods of time, persons continually change positions, slightly or drastically, requiring that the position of the reading material be adjusted as well, such that a comfortable focal length and orientation of the reading material to the eyes is maintained. When holding a book with the hands, such positional adjustment occurs naturally and without thought. But there are situations in which a reading position can become uncomfortable, or even not possible. Such is the case when a person, lying on his/her back and holding a book above the head, quickly develops fatigue in the arms. Persons recuperating in hospital beds, invalids, and those with handicaps have special needs for supporting reading material. Persons using exercise equipment which include the arms or hands need an alternate means of holding reading material in a comfortable position with respect to the eye.

[0004] Similarly, portable viewable devices which are normally handheld such as audio and video electronic devices, e.g., the iPod, the iPod Nano and similar MP3 players, depend upon the user to hold the device at the appropriate position which for the non-handicapped typically means that both hands are not free for some other activity and for a handicapped person, the device is either not usable or very inconvenient to use.

SUMMARY OF THE INVENTION

[0005] Embodiments of the invention provide an apparatus for holding a book or device, in a fixed position at any angle relative to the eye, without obscuring the printed page or device and while providing a positional adjustment to accommodate normal bodily movements common when, for example, reading a book or viewing a video screen for any extended length of time. Flexible tubing provides for easy positional adjustment and is adapted for forming a coil at one end establishing a stable base and does not require any additional base or apparatus for clamping to a piece of furniture.

[0006] In one embodiment, an apparatus holds the pages of the book open without obscuring the present page.

[0007] In one embodiment, the apparatus hold the pages of the book open and allows for easy turning of the pages.

[0008] In another embodiment, a bracket provides for convenient attachment and removal of an electronic device.

[0009] In one embodiment, the apparatus provides a stand-alone tray.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 illustrates in perspective a frontal view of one embodiment of a book support apparatus utilizing a bendable flexible tube.

[0011] FIG. 2 illustrates a plan front view of the book support apparatus.

[0012] FIG. 3A illustrates in perspective a rear view showing one embodiment of a swivel bracket and adjusting knob.

[0013] FIG. 3B illustrates in perspective a rear view showing an alternative embodiment holding the swivel and locking feature of FIGS. 3A and 4.

[0014] FIG. 4 is an enlarged side plan view of the bracket and knob shown in FIG. 3A.

[0015] FIG. 5 is a perspective frontal view showing the flexible tubing forming a base for supporting a book holder in a straight position.

[0016] FIG. 6 is a perspective frontal view showing the flexible tubing supporting a book holder in a position bent diagonally to the right.

[0017] FIG. 7 is a perspective frontal view showing the flexible tubing supporting a book holder in a position bent diagonally to the left.

[0018] FIG. 8 is a perspective view showing the flexible tubing in a straight up position.

[0019] FIG. 9 is a perspective view showing the flexible tubing in a position bent backward (away) from the straight up position.

[0020] FIG. 10 is a perspective view showing the flexible tubing in a position bent forward with respect to the straight up position.

[0021] FIG. 11 is a perspective view showing the book holder being supported by the curled flexible tubing in a straight up position.

[0022] FIG. 12 is a perspective view showing the book holder being supported by the curled flexible tubing in a straight up position, but rotated to the left (clockwise viewed from above) with respect to the position shown in FIG. 11.

[0023] FIG. 13 is a perspective view showing the book holder being supported by the curled flexible tubing in a straight up position, but rotated to the right (counterclockwise viewed from above) with respect to the position shown in FIG. 11.

[0024] FIG. 14 is a perspective view showing the flexible tubing of the book support apparatus coiled underneath a cushion or mattress.

[0025] FIG. 15 is a perspective view showing the flexible tubing of the book support apparatus coiled underneath a cushion or mattress.

[0026] FIG. 16A is a perspective view of one embodiment book support apparatus wherein the flexible tubing is covered with an aesthetically pleasing synthetic for material.

[0027] FIG. 16B is an enlarged cross-sectional view of the covered flexible tube shown in FIG. 16A.

[0028] FIG. 17 is a perspective view of the book support apparatus being used with a couch with the flexible tubing coiled underneath the couch cushion for providing positional stability.
FIGS. 18A, 18B and 18C are perspective views of the book support apparatus being used on a bed with the flexible tubing coiled underneath the mattress for providing positional stability.

FIG. 19 is a perspective frontal view of a positionally adjustable book support with a book support shaped like a lion’s head, and material shaped like lion’s paws affixed to either end of a magnifying acrylic rod.

FIG. 20 is a perspective frontal view of a positionally adjustable support with a book support shaped like a butterfly.

FIGS. 21A and 21B are perspective frontal views of a positionally adjustable support with a book support shaped like a moth.

FIG. 22 is a perspective frontal view of a positionally adjustable support with a book support shaped like a cat’s face.

FIG. 23 is a perspective frontal view of a positionally adjustable support with a book support shaped like a dog’s face.

FIG. 24 is a perspective frontal view of a positionally adjustable support with a book support shaped like a dog’s face.

FIG. 25 is a perspective view of a fabric cover which slips over the flexible tube.

FIG. 26 is a perspective view of a positionally adjustable support with a book support shaped like a flower.

FIG. 27 is a perspective view of a positionally adjustable support for an electronic device.

FIG. 28 is a perspective view showing how the electronic device is inserted into, or removed from the holder by bending back the top half of the holder.

FIG. 29 is a side view of the holder of FIGS. 32 and 33 as attached to the flexible tube using a swivel bracket.

FIG. 30 is a perspective view of the sheet used to form the member holder of FIGS. 27, 28 and 29.

FIG. 31 is a perspective view of the sheet of FIG. 30 after it has been bent to form the holder.

FIG. 32 shows a solid flexible rod being inserted into the hollow flexible tubing to increase overall stiffness.

FIG. 33 is a perspective view from the rear of the support being supported by the curled flexible tubing in a straight up position.

FIG. 34 is an exploded view of the components of the swivel bracket, and the V-shaped post which is attached to the flexible tubing.

FIG. 35 shows a side plan view of the swivel bracket assembly.

FIG. 36 is a side plan view, with internals shown by dashed lines, of the swivel bracket assembly.

DRAWINGS
Reference Numerals

[0029] FIGS. 18A, 18B and 18C are perspective views of the book support apparatus being used on a bed with the flexible tubing coiled underneath the mattress for providing positional stability.
[0030] FIG. 19 is a perspective frontal view of a positionally adjustable book support with a book support shaped like a lion’s head, and material shaped like lion’s paws affixed to either end of a magnifying acrylic rod.
[0031] FIG. 20 is a perspective frontal view of a positionally adjustable support with a book support shaped like a butterfly.
[0032] FIGS. 21A and 21B are perspective frontal views of a positionally adjustable support with a book support shaped like a moth.
[0033] FIG. 22 is a perspective frontal view of a positionally adjustable support with a book support shaped like a cat’s face.
[0034] FIG. 23 is a perspective frontal view of a positionally adjustable support with a book support shaped like a dog’s face.
[0035] FIG. 24 is a perspective frontal view of a positionally adjustable support with a book support shaped like a dog’s face.
[0036] FIG. 25 is a perspective view of a fabric cover which slips over the flexible tube.
[0037] FIG. 26 is a perspective view of a positionally adjustable support with a book support shaped like a flower.
[0038] FIG. 27 is a perspective view of a positionally adjustable support for an electronic device.
[0039] FIG. 28 is a perspective view showing how the electronic device is inserted into, or removed from the holder by bending back the top half of the holder.
[0040] FIG. 29 is a side view of the holder of FIGS. 32 and 33 as attached to the flexible tube using a swivel bracket.
[0041] FIG. 30 is a perspective view of the sheet used to form the member holder of FIGS. 27, 28 and 29.
[0042] FIG. 31 is a perspective view of the sheet of FIG. 30 after it has been bent to form the holder.
[0043] FIG. 32 shows a solid flexible rod being inserted into the hollow flexible tubing to increase overall stiffness.
[0044] FIG. 33 is a perspective view from the rear of the support being supported by the curled flexible tubing in a straight up position.
[0045] FIG. 34 is an exploded view of the components of the swivel bracket, and the V-shaped post which is attached to the flexible tubing.
[0046] FIG. 35 shows a side plan view of the swivel bracket assembly.
[0047] FIG. 36 is a side plan view, with internals shown by dashed lines, of the swivel bracket assembly.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0048] The exposed end of threaded rod 41 is threaded into bracket 42. The book support 32, and bracket 42 to which the book support 32 is affixed, can thus rotate with respect to the flexible tubing 40, but the rotational position can be fixed by tightening adjustment knob 46. Knob 46 is attached to a second threaded rod 49 which is also threaded into bracket 42 through a threaded opening orthogonal to and terminating at the threaded opening accepting the first threaded rod 41. Accordingly, rotating knob 46 in one direction will cause the end of the second rod 49 to physically engage the first threaded rod 41 and set the position of...
the book support 32 relative to the tubing 40. Rotation of knob 46 will release the friction applied to rod 41 and allow rotation of the book support 32 to a different position with respect to the tubing 40.

[0087] The flexibility of tubing 40 provides for substantial positional adjustment of the support 32. An alternative embodiment is shown in FIG. 3B which utilizes this flexibility. In this embodiment, the proximal end of flexible tubing 40 is fixedly attached to the book support by a bracket 55 lacking the swivel and locking feature of bracket 42.

[0088] Book support 32 can be constructed in a plurality of sizes to fit the particular reading material, for example, a smaller width support for paper back books and a wider support for magazines. For those embodiments employing a rod as 36 as the book holder, the length of this rod used can be varied to fit the particular width of the support 32. Advantageously, as described above, the support 32 is easily detached from the distal end of tubing. For example, this can be accomplished by simply unscrewing threaded rod 41 from bracket 42 or bracket 55 and substituting a different sized support 32 by screwing the threaded rod into the bracket of the selected support. Alternatively, the bracket 42 or 55 remains attached to the tubing 40 and instead the support 42 is detached from the bracket 42 or 55 and a different sized support 42 attached to the bracket.

[0089] By way of specific example, suitable flexible tubing 40 is sold by the Spiral Metal Products Division of Uniprise International, Inc. located in Terryville, Conn. As shown, the tubing 40 can be substantially the same diameter along its entire length between the book support 42 and the distal end 51 of the tubing.

[0090] To increase the overall stiffness of the flexible tubing, a solid but flexible rod 98, such as aluminum or copper wire of suitable gauges, can be inserted into the hollow flexible tubing as shown in FIG. 32.

Operation

[0091] The positionally adjustable book support can be used in many different situations where hands free reading is desired, or required. The length of flexible tubing 40 can be bent into any number of positions to establish a stable position for the reading material, and once positioned, can be easily re-positioned to accommodate changes in body or head position. One feature of the embodiment shown in FIGS. 1, 6-13 is that the book support 32 does not require any additional support apparatus, e.g., a base, for maintaining the book 30 stable for the reader. Thus, as shown in FIGS. 1, and 6-13, the length of the tubing 40 at its distal end 51 can be easily bent into a coil to form and function as a stable base, with an almost infinite range of positions as shown in FIGS. 6-13. The coiled distal end 51 can, for example, be placed on the floor, ground, bench, table or counter.

[0092] In the embodiment of FIGS. 3A and 4, the book support is easily adjusted with respect to the flexible tubing by adjustment knob 46 which, when loosened, allows the book support to be clockwise or counterclockwise rotated, after which knob 46 is then tightened in the new position.

[0093] The book support can be advantageously used in conjunction with furniture such as chair, couch, or bed. FIGS. 14, 15, 17 and 18A, 18B and 18C show the distal end 51 of the flexible tubing coiled beneath a cushion 48, or mattress 51, upon which the reader is seated or lying. The weight of the cushion, as well the weight of the person reading, serves to anchor the flexible tubing 40 to provide a stable support for the reading material. In this configuration, the reading material may be held in a comfortable position with respect to the eyes. As shown in FIGS. 18A, and 18B, the book support allows for a reading position in which the book is suspended above the reader’s head, a position which is extremely difficult to maintain if using only one’s arms because fatigue occurs quickly. A need to hold reading material in such a position is often associated with recuperation in a hospital bed. FIG. 18C illustrates how the flexible tubing 40 allows support 21 to be held in a substantially vertical position to position the book in alignment with the person’s eyes when they are reading while lying on one side.

[0094] A feature of the invention is that it does not impinge on the individual’s freedom of movement in contrast, for example, with a rigid bed tray that hinders movement of the body and legs. Typically, such a rigid based tray must be physically removed from the bed in order for the person to change position or get out of bed. In contrast, the apparatus shown can be easily moved aside when not in use by simply pushing on the support 32 or tubing 40 to bend the flexible tubing so that the book support and the tubing are out of the way, eliminating the need for assembly and un-assembly before and after use.

[0095] When anchored under a cushion or mattress as described above, the support 32 can also be positioned horizontally and used as a positionally adjustable table or tray.

[0096] The bracket 42, which enables the book support to rotate with respect to the flexible tubing, as well as adjusting the rotational position, may be implemented using other apparatus and methods which allow for connection of the book support to the flexible tubing such that the book support can be rotated with respect to the flexible tubing, and fixed in rotational position. One such alternative method is described below.

[0097] The flexible tubing can be covered in various fabrics 64 to change the aesthetics, or the feel of the tubing, as shown in FIGS. 16A, and 16B.

[0098] Children can be encouraged to read by providing a book support shaped like an animal, or animal head, as shown in FIGS. 19-24. Animal paws may be affixed to either end of the magnifying rod 36 as shown in FIG. 19.

[0099] When the book support is shaped like an animal, the fabric covering 64, covering the flexible tubing 40, can be advantageously various synthetic fur fabrics, such that the flexible tube resembles an animal’s tail.

[0100] An alternative embodiment of the swivel bracket which allows the book support to rotate with respect to the flexible tubing is shown in FIGS. 33-36. The swivel bracket includes two halves, swivel bracket front half 80, and swivel bracket back half 82. The front half includes holes for mounting the bracket to the book support. The swivel bracket front half is molded such that it can accept the screw from knob assembly 46 which is inserted through the swivel bracket back half. Both the front and back halves of the swivel bracket are molded such that a semicircular V-shape exists, which will accept V-shaped post 84. The V-shaped post 84 is affixed to the flexible tubing using a threaded tube 86, threaded into both the V-shaped post and the threaded end of the flexible tubing. When knob 46 is tightened, the two halves of the swivel bracket are drawn together, creating a friction between the V-shaped bracket halves and the
v-shaped post, thus locking the book support in rotational position with respect to the axis of the flexible tube.

[0101] An alternative embodiment shown in FIGS. 27-31 provides a positionally adjustable support 92 for an audio or video player device 90. Typical examples of such devices are the popular iPod and iPod Nano. In one embodiment, a sheet of material such as acrylic plastic shown in FIG. 30, is bent, using heat, into the holder 92 shown in FIG. 31. The holder 92 is affixed to a swivel bracket assembly 80, 82, 46, using screws 44R and 44L and nuts 45R and 45L.

[0102] The holder 92 is advantageously shaped such that it will hold the audio or video device in a fixed position, but such as to not interfere with viewing of the display screen, using the front mounted controls, or interfere with electrical connections, such as for a headset. It is adjustable in the entire range of positions as have already been described when used with reading material. Because the holder is formed of light gauge plastic, to insert or remove the device 90, simply bend the top of the holder backwards as shown in FIG. 28. When the unobstructed position, the tabs on the top and bottom of the holder prevent the device 90 from moving up, or down, and the wrap-around sides prevent side-to-side motion, such that the device 90 is held in place.

[0103] Other embodiments of the book support 32 and holder 92 can be constructed by injection molding plastic or bending sheets of metal.

[0104] The above-described embodiments have one or more of the following features, advantages and aspects:

[0105] Stability is provided using the flexible tube itself, without the need for an additional base or clamping device. Positional adjustment is not limited to a range of a fixed set of angles.

[0106] There is no complicated positioning required in order to start or stop using the device.

[0107] The aesthetic appearance of the bed or furniture is not affected by the adjustable support.

[0108] The above presents a description of the best mode contemplated for the apparatus and methods of manufacturing and using the apparatus in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains to produce these apparatus and practice these methods. These components and methods are, however, susceptible to modifications that are fully equivalent to the embodiment discussed above. Consequently, these apparatus and methods are not limited to the particular embodiments disclosed. On the contrary, these apparatus and methods cover all modifications coming within the spirit and scope of the present invention.

What is claimed is:

1. A holder for an object providing a source of information or entertainment especially adapted for use by a handicapped individual, said holder (i) providing easy positional adjustment and (ii) not requiring any floor stand or additional apparatus for clamping to a piece of furniture said holder comprising:
   a. support adapted for holding said source of information or entertainment,
   b. a flexible tubing having a substantially uniform configuration throughout the length of said tubing, said tubing having sufficient flexibility for positional adjustment while maintaining sufficient rigidity for maintaining said object in a stable position,
   c. a swivel attaching the proximal end of said flexible tubing to said support for enabling rotation of said support relative to said flexible tubing to allow said support to be positioned to accommodate the position of the viewer’s eyes,
   d. a locking device attached to said swivel for locking said support to said proximal end at the desired position, and said distal portion of said flexible tubing being adapted to be coiled to provide an integral stand for said holder for maintaining said support in a stable position.

2. A holder for an object providing a source information or entertainment, said holder (i) providing easy positional adjustment and (ii) not requiring any floor stand or additional apparatus for clamping to a piece of furniture said holder comprising:
   a. support adapted for holding said source of information or entertainment,
   b. a flexible tubing having a substantially uniform configuration throughout the length of said tubing, said tubing having sufficient flexibility for positional adjustment while maintaining sufficient rigidity for maintaining said object in a stable position,
   c. a proximal end of said flexible tubing attached to said support,
   d. said distal portion of said flexible tubing being adapted to be coiled to provide a stand for said holder for maintaining said support in a stable position.

3. The holder of claim 2 having a fabric covering said flexible tubing.

4. The holder of claim 3 wherein said support is shaped like an animal head and said fabric covering resembles an animal’s tail so that the holder encourages children to read.

5. The holder of claim 2 wherein said support is shaped like a lion’s head.

6. The holder of claim 5 wherein said support includes the shape of a lion’s paws affixed to either end of a magnifying acrylic rod.

7. The holder of claim 2 wherein said support is shaped like a butterfly.

8. The holder of claim 2 wherein said support is shaped like a moth.

9. The holder of claim 2 wherein said support is shaped like a cat’s face.

10. The holder of claim 2 wherein said support is shaped like a dog’s face.

11. The holder of claim 2 wherein said support is shaped to removably support an electronic device having a visual display.

12. The holder of claim 2 having, a swivel attaching the proximal end of said flexible tubing to said support for enabling rotation of said support relative to said flexible tubing to allow said support to be positioned to accommodate the position of the viewer’s eyes.

13. The holder of claim 12 having a locking device attached to said swivel for locking said support to said proximal end of said tubing at the desire position.

14. The holder of claim 13 wherein said swivel comprises a bracket having a first threaded opening and a second threaded opening in communication with said first threaded opening,
   a. a first threaded rod attached to the proximal end of said flexible tubing and adapted to be threaded into said first threaded opening of said bracket,
   b. said locking device comprising a knob attached to a second threaded rod adapted to be threaded into said
second threaded opening of said bracket so that rotation of said knob in one direction frictionally engages said first and second rods and fixedly engages said book stand to said flexible tubing.

15. The holder of claim 2 wherein said swivel comprises a two piece bracket having a first piece mounted to said support and a second piece, said two pieces providing semicircular V-shaped openings, and a V-shaped post attached to the proximal end of said flexible tubing and adapted to be engaged within the semicircular V-shaped openings of said two piece bracket.

16. The holder of claim 2 wherein said object is a book.

17. The holder of claim 2 wherein said object is an audio player device.

18. The holder of claim 2 wherein said object is a video display device.

19. The holder of claim 2 wherein the distal portion of said flexible tubing is adopted to be coiled into a partial or substantial complete circle beneath a chair cushion or bed mattress.

20. The holder of claim 2 having a flexible rod running substantially through said flexible tubing for increasing the stiffness of said tubing.

21. A method for providing a stable support for a viewable object comprising
   attaching the proximal end of a length of flexible tubing to a holder for said object, and bending the distal end of said tubing into a partial or substantially circular coiled shape.

22. The method of claim 19 including the step of placing said coiled distal end of said flexible tubing beneath a bed mattress.

23. The method of claim 19 including the step of placing said coiled distal end beneath a chair cushion.

24. The method of making a stable adjustable holder for a viewable object comprising,
   attaching a length of flexible tubing to an apparatus adapted to support said viewable object by bending the distal end of said tubing into a coiled shape.

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