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(54) **PROCUMBENT SUPPORT APPARATUS**

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(57) **ABSTRACT**

A procumbent support apparatus is provided. A procumbent support apparatus includes a support structure and at least one aperture. The support structure includes a body, the body enclosed by a first surface, a second surface, a third surface, a fourth surface a fifth surface, and a sixth surface. The at least one aperture located within the first surface and into the body. The support structure supports a user and the at least one aperture supports a face of the user, allowing proper alignment of the spine. The apparatus includes at least one channel located within the body and connects to the at least one aperture and to at least one surface of the support structure.

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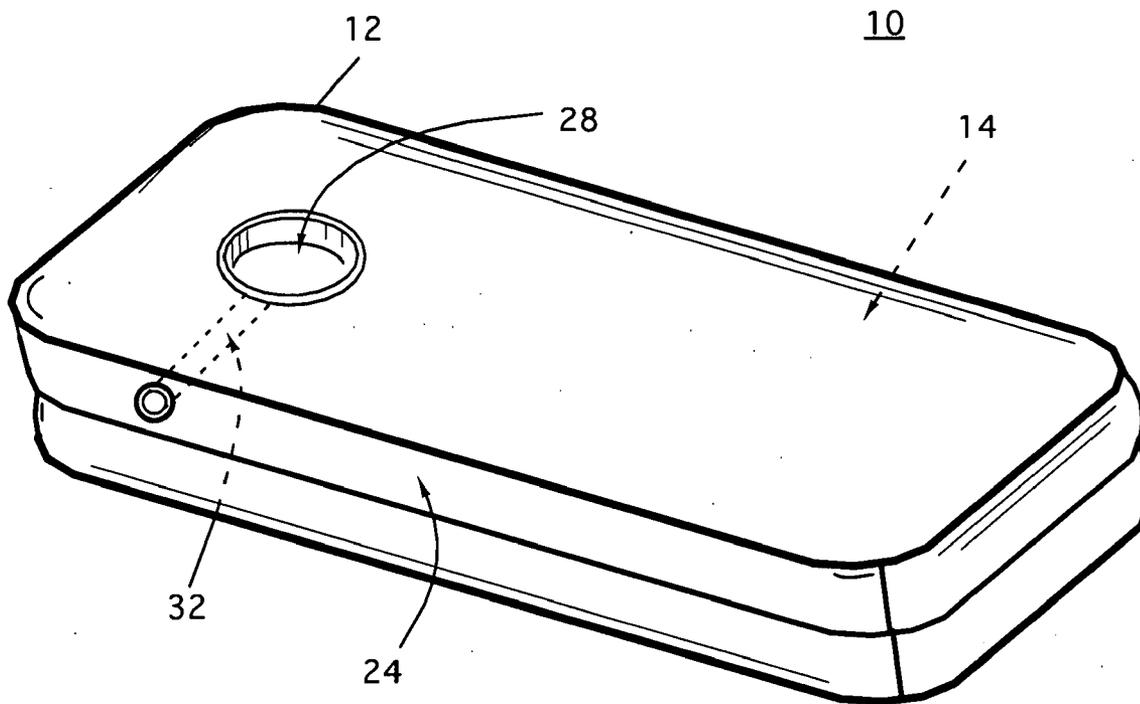


FIG. 1

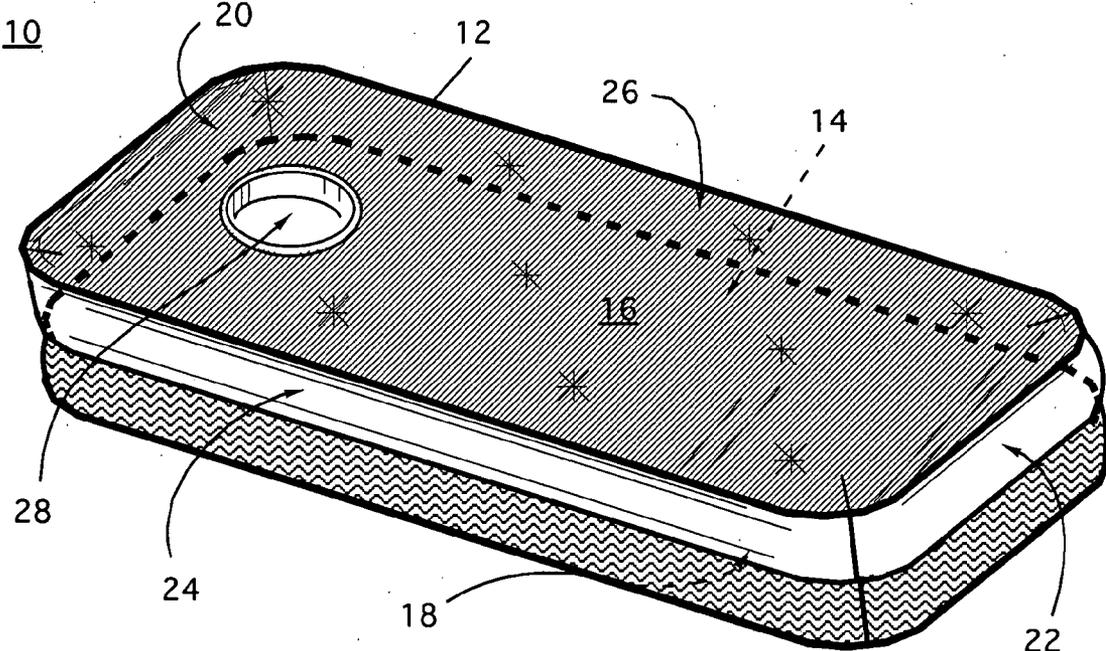


FIG. 2

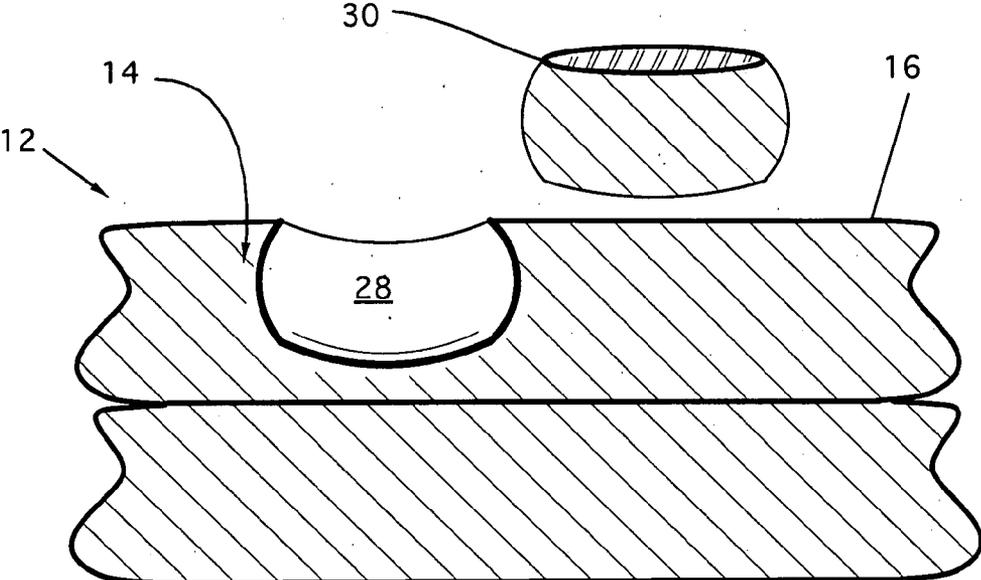


FIG. 3

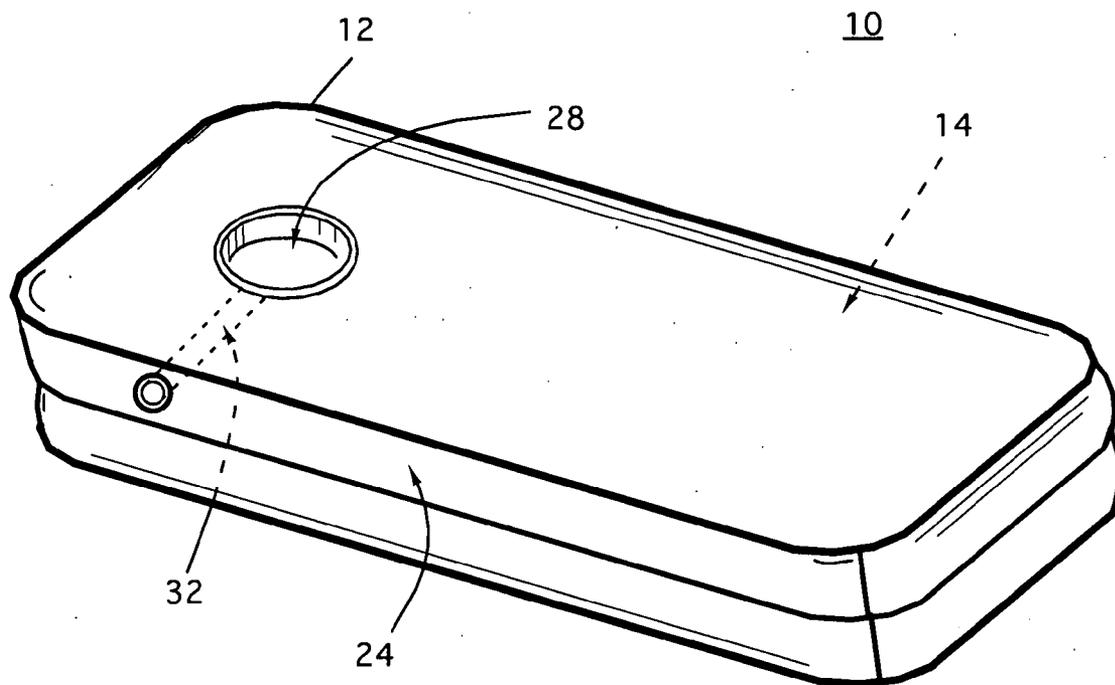


FIG. 4

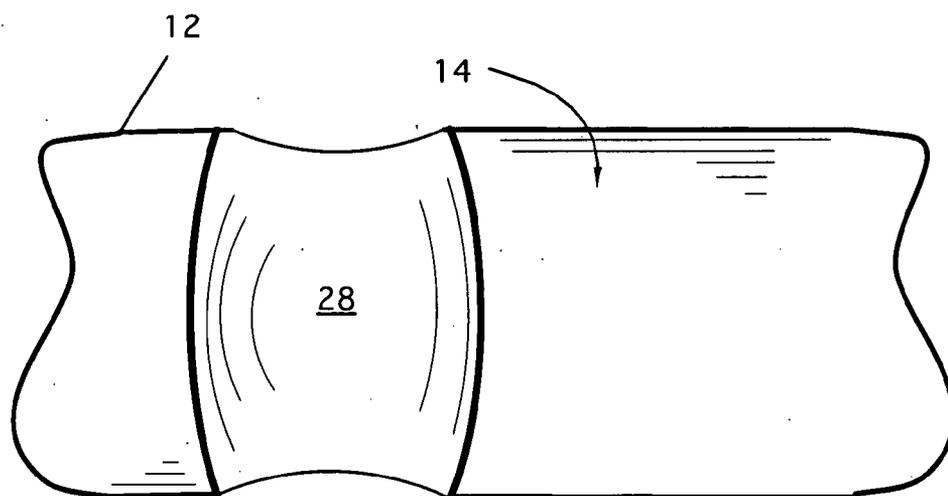


FIG. 5

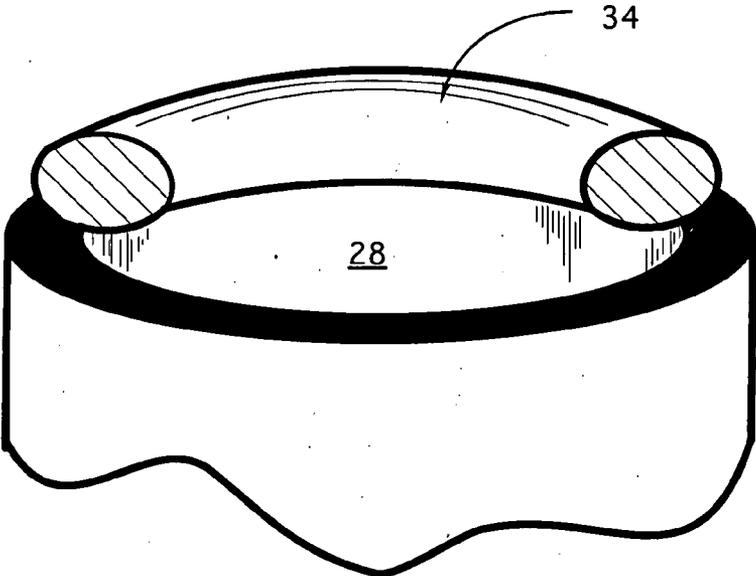


FIG. 6

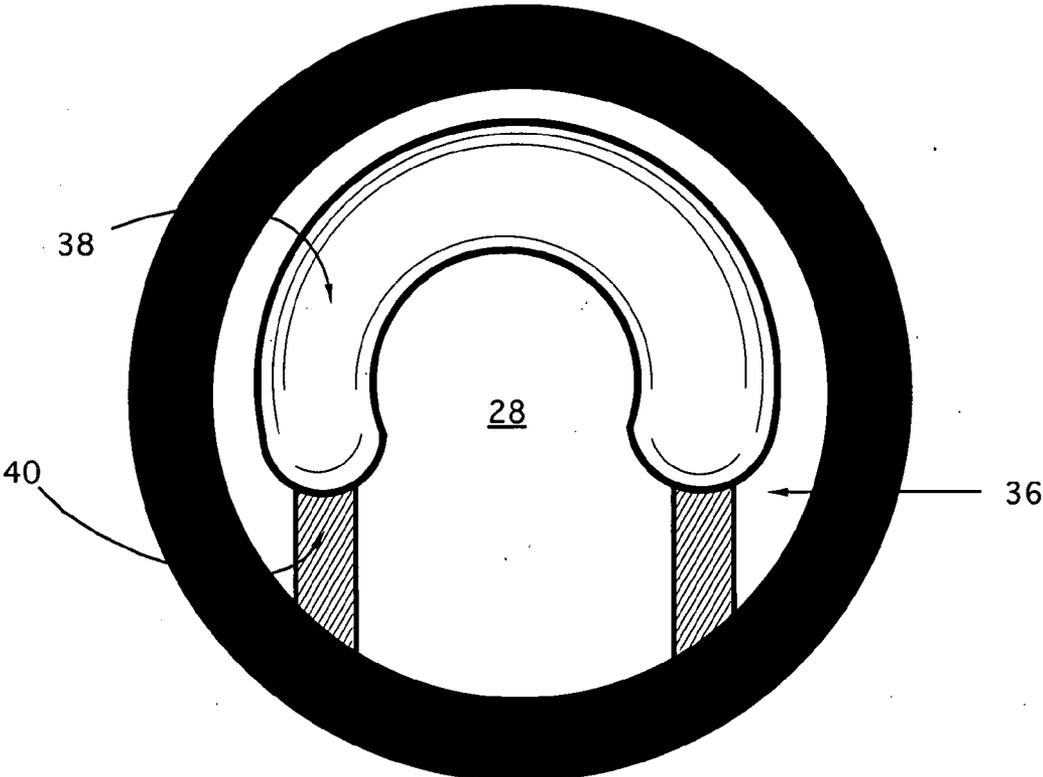


FIG. 7

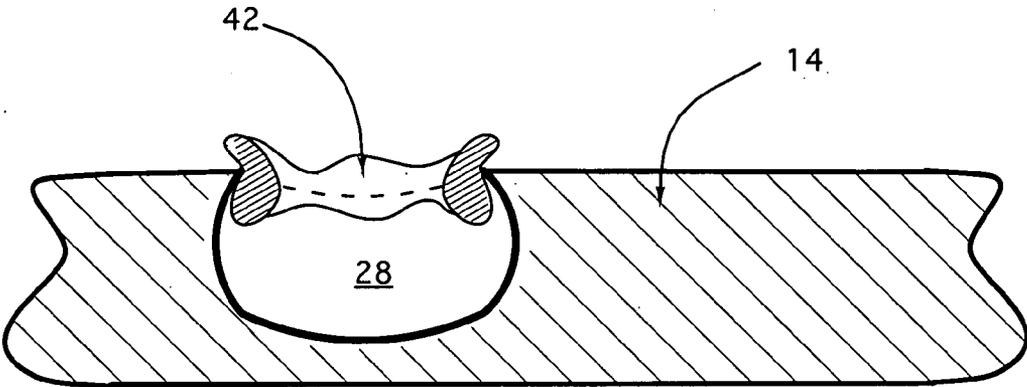
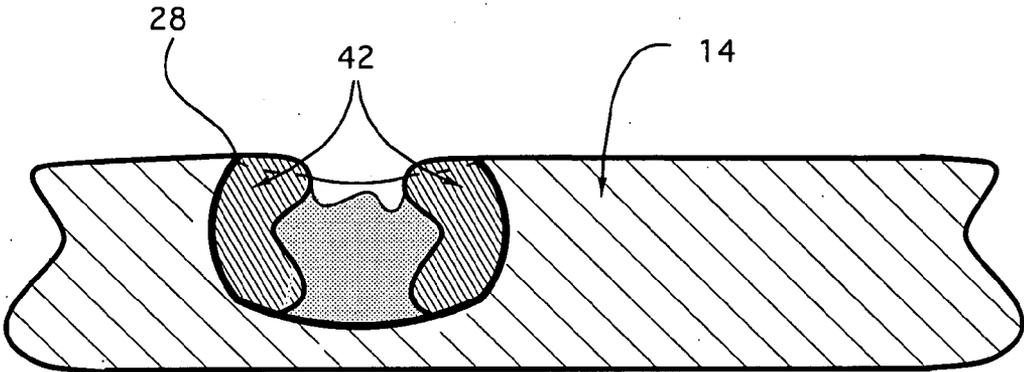


FIG. 8



## PROCUMBENT SUPPORT APPARATUS

### BACKGROUND

[0001] 1) Field of the Invention

[0002] The invention relates generally to the rehabilitation and treatment of back pain. More specifically, the invention relates to the support of a user in a procumbent position.

[0003] 2) Discussion of the Related Art

[0004] Americans spend at least \$50 billion each year on back pain, the most common cause of job-related disability and a leading contributor to missed work. Lower back pain is the most common musculoskeletal ailment, effecting millions of people, only second to the headache. Statistics show that 80% of the people in the United States will experience lower back pain at least once in their lifetime. And when back pain occurs, it will be debilitating enough to cause absence from work.

[0005] Those with chronic or refractory back pain, the associated problems will be magnified. Approximately half of those suffering from persistent back pain are afflicted with chronic disabling pain, compromising their quality of life. Some forms of back pain are not chronic and may be simply treated by rest and posture adjustments. These forms of lower back pain are very common and may be caused by unusual exertion or strenuous exercise

[0006] The common theme in all debilitating back injuries is the lengthy period of recovery. Recovery time varies from a couple months to even years. During this period the recommended course of action is to recover with bed rest in a position that relieves pressure on the spine. The disadvantage of previous inventions is the inability to provide positioning alternatives to an injured individual. This concern becomes an issue where the recovery period equates to prolonged periods of time spent laying down, causing the body to become susceptible to sores and other injuries, essentially aggravating the circumstances. Included in this, is the inability to accommodate those injured and unable to rest on their back because of the pain.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The invention is described by way of example with reference to the accompanying drawings where:

[0008] FIG. 1 illustrates a top perspective of a procumbent support apparatus including a support structure and at least one aperture.

[0009] FIG. 2 illustrates a cross sectional side view of the support structure and the at least one aperture, including at least one support structure insert.

[0010] FIG. 3 illustrates a top perspective view of the procumbent support apparatus including at least one channel.

[0011] FIG. 4 illustrates a cross sectional side view of the procumbent support apparatus including the at least one aperture extending through the support structure.

[0012] FIG. 5 is a front perspective of the at least one aperture including at least one adjustably lined pad.

[0013] FIG. 6 is a top perspective of the at least one aperture including a facial support structure.

[0014] FIG. 7 is a cross sectional side view of the procumbent support apparatus including an inflatable bladder.

[0015] FIG. 8 is a cross sectional side view of the procumbent support apparatus including the inflatable bladder located within the at least one aperture.

### DETAILED DESCRIPTION OF THE INVENTION

[0016] FIG. 1 illustrates a procumbent support apparatus 10. The procumbent support apparatus 10 includes a support structure 12 and at least one aperture 28. The support structure 12 includes a body 14, a first surface 16, a second surface 18, a third surface 20, a fourth surface 22, a fifth surface 24, and a sixth surface 26.

[0017] FIG. 2 illustrates the support structure 12 and the at least one aperture 28 located within the first surface 16 and into the body 14. FIG. 2 also illustrates at least one support structure insert 30. The at least one support structure insert 30 provides an expanded use of the procumbent support apparatus 10 by fitting within the at least one aperture 28.

[0018] FIG. 3 illustrates the procumbent support apparatus 10 including at least one channel 32. The at least one channel 32 is located within the body 14 and connects to the at least one aperture 28 and to at least one surface of the support structure 12. The at least one channel 32 provides ventilation to the at least one aperture 28. FIG. 4 illustrates the at least one aperture 28 extending through the support structure 12. The extension of the at least one aperture 28 throughout the structure 12 provides ventilation to the at least one aperture 28 as well.

[0019] FIG. 5 illustrates at least one adjustably lined pad 34 contacting the at least one aperture 28. The at least one adjustably lined pad 34 provides comfort to a user of the procumbent support apparatus 10. The at least one adjustably lined pad 34 is connected to the at least one aperture 28 by a variety of permanent or temporary attaching mechanisms including Velco®, clipping, buttoning, fastening means or any other attachment removable equivalent. The means for attaching allows for maneuverability and adjustment to individual facial characteristics of users.

[0020] FIG. 6 illustrates a facial support structure 36 including at least one adjustably mounted shaped pad 38 and at least one rigid support member 40. The facial support structure 36 is located within the at least one aperture 28. The structure provides an adjustability feature to the procumbent support apparatus 10 allowing the aperture 28 to accommodate a variety of facial shapes. The facial support structure 36 includes the ability to be adjusted in x and y directions within the at least one aperture 28.

[0021] FIG. 7 illustrates an inflatable bladder 42 including a port and a chamber. The inflatable bladder 42 is connected to the at least one aperture 28. A tank filled with gas, water, or other equivalent attaches to the port and fills up the chamber. This mechanism can be done manually or automatically. The inflatable bladder 42, upon inflation, provides a modified fit to the face of users, providing proper support and comfort. FIG. 8 illustrates the inflatable bladder 42 within the aperture 28.

[0022] In use, the user lies prone on the first surface 16 of the support structure 12. In an embodiment, the first surface is temperature controlled. The at least one aperture 28, located within the first surface 16 and into the body 14, then receives a face of the user. The at least one aperture 28 is lined of rubber or material similar to that of the support structure 12. In another embodiment, the support structure 12 is a mattress, where the body 14 is comprised of memory foam allowing for

a more comfortable positioning. In another embodiment, the support structure 12 is inflatable allowing for proper storing and transportation.

[0023] In an embodiment, the support structure 12 contains two apertures 28 allowing for multiple users on the procumbent support apparatus 10. In another embodiment, an aperture 28 is placed at the face level and another aperture is placed midlevel of the user. This embodiment would be necessary in a hospital, skilled nursing, or other home care environment.

[0024] The procumbent support apparatus 10 provides the user the at least one adjustably lined pad 34, the facial support structure 36, or the inflatable bladder 42. The features provide facial comfort by adjusting to the contours of the face and head in the prone position. The at least one adjustably lined pad 34 is able to extend around the circumference of the aperture 28. In an embodiment, the at least one adjustably lined pad 34 lines the interior of the aperture 28. In another embodiment, the adjustably lined pad 34 is a plurality.

[0025] The facial support structure 36 is located within the at least one aperture 28. The facial support structure 36 provides an adjustability feature to the procumbent support apparatus 10 by allowing the aperture 28 to accommodate a variety of facial shapes. The at least one adjustably mounted shaped pad 38 can be adjusted along the rigid support member 40 in the x and y directions, including a pivoting structure angling the mounted shaped pad 38 at varied degrees. The at least one rigid support member 40 within the at least one aperture 28 is also adjustable within those same directions.

[0026] The inflatable bladder 42, which includes the port and the chamber, is connected to the at least one aperture 28. The inflatable bladder 42 provides a modified fit to the face of the user. In one embodiment, the inflatable bladder 42 is located within the at least one aperture 28 lining the interior sides. In another embodiment, the inflatable bladder 42 is inflated by a tank of gas, water, or other equivalent. The tank, or tank line, attaches to the port and fills the chamber either manually or automatically. The attachment of the inflatable bladder 42 to the at least one aperture 28 is accomplished by similar means described herein. This embodiment allows for more facial support and provides a controlled temperature distribution on the face. In another embodiment, the inflatable bladder 42 is located around the top circumference of the at least one aperture 28.

[0027] Upon receiving the face of the user by the at least one aperture 28, the user is provided with proper ventilation within the at least one aperture 28 from the at least one channel 32. The at least one channel 32 is located within the body 14 and connects to the at least one aperture 28 and to at least one surface of the support structure 12. In one embodiment, the aperture 28 extends throughout the support structure 12 and the at least one channel 32 extends to any surface but the second surface 18.

[0028] Once the user is rehabilitated or treated the procumbent support apparatus 10 provides for an alternative use. The procumbent apparatus 10 includes the at least one support structure insert 30. The at least one support structure insert 30 is able to fit within the at least one aperture 28 allowing for use as a regular mattress. In one embodiment, the at least one support structure insert 30 frictionally contacts the support structure 12. The at least one support structure insert 30, in another embodiment, is of substantially similar shape to that of the at least one aperture 28.

[0029] Back pain is an extremely common injury. Whether the injury is permanent or temporary, those injured must be able to rest in a comfortable position and not sacrifice the sleep found on a regular mattress. Moreover, because back injuries can be debilitating for extended periods of time, long-term concerns must be addressed. An advantage of invention is that it will support a prone body at rest in an alignment permitting and encouraging all of the vertebrae of the spinal cord to be maintained in the appropriate orientation, thus allowing the user to keep from twisting or turning the head during sleep.

[0030] Another advantage of the invention is the application of the air ventilation channels 32 or the extension of the at least one aperture 28 throughout the support structure 12. The mentioned features provide breathing stability and ease to the user. Another advantage of the invention includes the facial contouring tools, including the inflatable bladder 42, the facial support structure 36, or the at least one adjustably lined pad 34. The contouring tools adjust to the face providing comfort and stability. The inflatable bladder 42 provides an added advantage in that it is capable of filing up with cold or heated water for facial application.

[0031] Another advantage of the invention is the at least one support structure insert 30. As stated above, back injuries are generally long term in nature. However, after use of the apparatus in treatment or rehabilitation, the at least one support structure insert 30 allows the user to continue usage of the apparatus for regular sleeping scenarios. This feature provides the user with an all in one apparatus and eliminates the requirement of purchasing entirely new equipment to remedy the injury, thus becoming a cost efficient solution.

[0032] While certain exemplary embodiments have been described and shown in the accompanying drawings, it is to be understood that such embodiments are merely illustrative and not restrictive of the current invention, and that this invention is not restricted to the specific constructions and arrangements shown and described since modification may occur to those ordinarily skilled in the art.

What is claimed:

1. A procumbent support apparatus, comprising:
  - a support structure, including a body, a first surface, a second surface, a third surface, a fourth surface, a fifth surface, a sixth surface; and
  - at least one aperture located within the first surface and into the body, wherein the support structure the at least one aperture supports a user.
2. The apparatus of claim 1, wherein the support structure is inflatable.
3. The apparatus of claim 1, wherein the support structure is a mattress.
4. The apparatus of claim 3, wherein the first surface is temperature controlled.
5. The apparatus of claim 1, wherein the at least one aperture is circular.
6. The apparatus of claim 1, wherein the at least one aperture extends through the first surface, the body, and the second surface.
7. The apparatus of claim 1, further comprising at least one support structure insert within the at least one aperture.
8. The apparatus of claim 7, wherein the at least one support structure insert shape is substantially similar to the at least one aperture.

9. The apparatus of claim 1, including at least one channel, wherein the at least one channel is located within the body and connects to the at least one aperture and to at least one surface of the support structure.

10. The apparatus of claim 1, further comprising at least one adjustably lined pad and means for attaching the at least one adjustably lined pad to the at least one aperture.

11. The apparatus of claim 1, further comprising an inflatable bladder including a port and a chamber, and means for attaching the inflatable bladder to the at least one aperture.

12. The apparatus of claim 11, wherein the inflatable bladder is located within the at least one aperture.

13. The apparatus of claim 1, further comprising a facial support structure within the at least one aperture including at least one adjustably mounted shaped pad and at least one rigid support member.

14. A procumbent support apparatus, comprising:

a support structure, including a body, a first surface, a second surface, a third surface, a fourth surface, a fifth surface, a sixth surface;

at least one aperture, substantially circular, located within the first surface and into the body;

at least one support structure insert; the at least one support structure insert shape substantially similar to the at least one aperture; and

at least one channel located within the body connecting to the at least one aperture and to at least one surface of the support structure.

15. The apparatus of claim 14, wherein the support structure is a mattress.

16. The apparatus of claim 14, wherein the at least one aperture extends through the first surface, the body, and the second surface.

17. The apparatus of claim 14, further comprising at least one adjustably lined pad and means for attaching the at least one adjustably lined pad to the at least one aperture.

18. The apparatus of claim 14, further comprising an inflatable bladder including a port and a chamber, and means for attaching the inflatable bladder to the at least one aperture.

19. The apparatus of claim 18, wherein the inflatable bladder is located within the at least one aperture.

20. The apparatus of claim 14, further comprising a facial support structure within the at least one aperture including at least one adjustably mounted shaped pad and at least one rigid support member.

21. The apparatus of claim 1, further comprising a facial support structure connected to the at least one aperture.

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