

CHAIR OR BED MEMBER HAVING DATA STORAGEFIELD OF THE INVENTION

5 The present invention relates to a chair or bed member having moving parts and controls for those moving parts.

10 BACKGROUND OF THE INVENTION

 A comfortable sitting or lying position for one person may not be comfortable for another person. Furthermore, people come in all different shapes and
15 sizes. Accordingly, essentially all up to date office chairs have numerous different moveable parts to accommodate for different people. Each of these parts typically has its own control.

20 The same is true of adjustable lounge chairs and even for some of the newly designed adjustable beds.

 When a person purchases any one of the above items, the item will come with some type of manual
25 describing proper use of the item. At this point, there is generally no concern that the person using the chair or bed member will not know how to set the proper positions for the different moveable parts.

30 There are however times when set up operation is not as apparent. For example, when a second person wishes to use the chair or bed or even when the person who set it up has not used the chair or bed for an extended period of time the operation of the controls can become
35 confusing.

There are also times where one wishes to re-order a product such as for example, an office chair or the like without being able to immediately lay his/her hands on the required information for re-ordering purposes.

5

SUMMARY OF THE PRESENT INVENTION

The present invention relates to a chair or bed member which overcomes the drawbacks noted above. More particularly, the chair or bed member of the present invention is one which has data storage means containing information regarding the chair or bed member and further has a physical movement sensing means which produces an output of the information from the data storage means.

15

According to an aspect of the invention the data storage means comprises a computer chip and the physical movement sensing means comprises a pressure sensor to produce the output from the computer chip. This output can be either audible or visual.

20

According to another aspect of the invention the chair or bed member has different moveable parts with controls for those parts. The data storage means contains information as to how to use the controls.

25

According to another aspect of the invention the data storage means contains information as to the history of the chair or bed member which can be used for example, for re-ordering purposes.

30

BRIEF DESCRIPTION OF THE DRAWINGS

The above as well as other advantages and features of the present invention will be described in greater detail according to the preferred embodiments of the

35

- 3 -

present invention in which;

Figure 1 is a perspective view of an office chair made in accordance with a preferred embodiment of the present invention.

Figure 2 is perspective view looking down on a sensor and information containing system from the chair of Figure 1.

Figure 3 is a perspective view showing the mounting of the sensor in the chair of Figure 1.

Figures 4 through 6 show a different sensing and data storage set-ups according to different preferred embodiments of the present invention.

Figure 7 shows an office chair incorporating further features according to still another embodiment of the invention.

DETAILED DESCRIPTION ACCORDING TO THE PREFERRED EMBODIMENTS OF THE PRESENT INVENTION IN WHICH:

Figure 1 shows an office type chair generally indicated at 1. This chair has a chair seat 3 and a chair back 17. Both the seat and the back of the chair are moveable to different positions of use of the chair. These different portions allow the person using the chair to assume different ergonomically desirable body positions when seated in the chair.

More particularly, seat 3 is adjusted by means of lever controls 5, 9 and 13. Each of these lever controls includes a control paddle 7, 11 and 15 respectively.

- 4 -

The chair back is adjustable by means of a lever 19 having a control paddle 21.

Each of the above lever controls, with associated
5 paddle, controls a different adjustment such as for
example, height or angle adjustment for the chair seat
and angle adjustment for the chair back. The actual
manner of making the adjustment through the appropriate
control is typically something that is learned by the
10 initial user of the chair during set-up but not
necessarily known to a second user of the chair or
possibly forgotten over time by the initial user of the
chair.

15 In accordance with the present invention the chair
itself includes operating instructions for the control.

More particularly, the chair includes its own data
storage means and a physical movement sensor to produce
20 an output from the data storage means. In the preferred
embodiment shown the data storage means comprises pre-
programmed computer chips with pressure sensors for
producing an output from the computer chips.

25 In chair 1 a plurality of chip boards 25, 31 and
37 are mounted to the underside of the chair seat.
Pressure sensors 23, 30 and 36 wired to the respective
chip boards are located within the paddles 7, 11 and 15
as shown in Figure 1.

30

The chip boards 25, 31 and 37 further include
small speakers 27, 33 and 39.

A further chip board 45 carrying a pre-programmed
35 computer chip 47 and a speaker 49 is mounted to the rear
of the chair back. A pressure sensor 43 located in

- 5 -

paddle 21 is wired to chip board 45.

With the user sitting in the chair he or she can press on any one of the pressure sensors and the associated computer chip will then provide an audible output as to operation of the lever in which the pressure sensor is mounted. This eliminates any guess work in how to set the chair up properly. This is a particularly desirable feature when demonstrating the chair at trade shows and the like.

It is to be understood that if the chair user does not need directions the controls can be manipulated without having to push on any of the pressure sensors.

15

It is also to be appreciated that other types of physical movement sensors such as heat or light sensors could be used in the controls. When the person moves his or her hands close to or over these types of sensors they will also produce an output from the programmed chips.

20

Figure 2 shows in more detail pressure sensor 23 wired to chip board 25 carrying programmed chip 29 and speaker 27. Figure 3 shows how the wiring between the pressure sensor and the chip board fits through the hollow interior of the lever 5 from the lever paddle 7 to the base of the chair seat. Accordingly, the levers provide a protective covering for what would otherwise be open, unsightly wiring on the chair.

30

In lieu of using a plurality of separate chips and chip boards, Figure 4 demonstrates that a plurality of sensors 51, 53, 55 and 57 can all be hooked into one board 59 containing a single chip 61 programmed with information regarding all of the controls. The pressure sensors themselves would once again be located at the

35

- 6 -

individual control paddles. A single speaker 63 would provide the audible output of the chair operation information.

5 Figure 5 demonstrates a concept similar to Figure 4 with the exception that a plurality of sensors generate airborne rather than hard wire signals to a chip board 79 carrying a computer chip 81 and a speaker 83 for outputting from chip 81.

10

 All of the description above relates to an audible output from the computer chip data storage in the chair. However, it is to be easily understood from Figure 5 that any one of the sensors 71 through 77 could generate
15 signals for a video output by means of a display screen which could be either on board or remote of the chair. A particularly good system is one in which the output is visually displayed on a computer monitor which is operated from the chair.

20

 Over time the small battery carried by the chip board for its operation will eventually fail. Figure 6 of the drawings shows a replaceable chip board 91 having a male contact end 93 which plugs into a socket 95 wired
25 back to a plurality of sensors shown in Figure 6. This chip board, once its life has expired, can easily be replaced by a new chip board.

 Note that in Figure 6, chip board 91 seats within
30 a pocket 99 located high on the back of the chair. Pocket 99 which acts to effectively hide the chip board, is in a location almost level with the head of the chair user so that the user can easily hear the instructions from the small speaker on the chip board.

35

 In the description above, reference is made to

- 7 -

each of the controls including directions as to how to use the controls. According to a further aspect of the invention the information carried in any one or all of the chips can be history information regarding the chair.

5 For example, any one of the chips can identify serial number, the manufacturer or even the construction of the chair. This allows for easy re-ordering of the chair.

Figure 7 shows another embodiment of the invention
10 in which the chair includes an additional sensor 101. This sensor is buried slightly below the surface of the seat of the chair, in an area such that it would be directly below the back of the thigh of a person sitting in the chair. It can equally as well be buried in the
15 armrest of the chair where a person would place his or her forearm. These are two areas of the body i.e., the underside of the thigh and the forearm from which a person's biorhythms indicating things such as heart rate, blood pressure, etc. can be felt. The sensor picks up
20 these biorhythms and they are then output from the sensor.

In the set shown in Figure 7, the chair is used to seat a person in front of a computer 105. This computer
25 is programmed to accept and display the output from sensor 101. In this way the person using the chair can easily obtain their own health information by simply sitting in the chair.

30 If the person does not want such information every time he or she sits in the chair the bio feedback system can simply be turned off at the computer.

It is to be further understood that although the
35 description is specific to an office chair the concept of the invention equally applies to any type of a chair,

25 MAY 2005

WO 02/41735

PCT/CA01/01484

- 8 -

lounge or bed with or without moving parts. Accordingly,
although various preferred embodiments of the present
invention have been described, it is to be appreciated
that variations may be made without departing from the
5 spirit of the invention or the scope of the appended
claims.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A chair or bed member having data storage means
5 containing information regarding the member and further having physical movement sensing means which produces an output of the information from the data storage means.
2. A chair or bed member as claimed in Claim 1
10 wherein said member has moving parts and controls for said moving parts, said data storage means containing information regarding operation of said controls.
3. A chair or bed member as claimed in Claim 2
15 wherein said data storage means comprises a plurality of programmed computer chips, one for each control.
4. A chair or bed member as claimed in Claim 3
20 wherein said physical movement sensing means comprises a plurality of pressure sensors, said pressure sensors being located at said controls.
5. A chair or bed member as claimed in Claim 4
25 wherein said controls comprise levers with paddles on said levers, said pressure sensors being provided within said paddles.
6. A chair or bed member as claimed in Claim 1
30 further including speakers for audibly providing the output of the information from the data storage means.
7. A chair or bed member as claimed in Claim 2
wherein said data storage means outputs to a visual display.
35
8. A chair or bed member as claimed in Claim 7

- 10 -

wherein said visual display is remote from said member.

9. A chair or bed member as claimed in Claim 7 wherein said visual display is on board the member.

5

10. A chair or bed member as claimed in Claim 1 wherein the data storage means contains information regarding origin of the member.

10 11. A chair or bed member as claimed in Claim 1 wherein the data storage means contains information regarding construction of the member.

12. A chair or bed member as claimed in Claim 2
15 wherein said data storage means comprises a computer chip and wherein said sensing means comprises a plurality of pressure sensors, one for each of said controls, the output produced by said computer chip being dependent upon selection of one of said pressure sensors.

20

13. A chair or bed member as claimed in Claim 12 wherein said member includes a speaker to audibly produce the output from said computer chip, the speaker being mounted on a board with said computer chip, the board
25 being replaceably secured in a hidden location on said member.

14. A chair or bed member as claimed in Claim 13 wherein said member has a seat part and a back part, said
30 board being hidden within a pocket high on said back part of said member.

15. A chair or bed member as claimed in Claim 1 wherein said data storage means comprises a programmed
35 computer chip and said sensing means comprises a pressure sensor located remotely of and transmitting an air borne

- 11 -

signal to said computer chip for producing the output of the information from the computer chip.

16. A chair or a bed member having a biorhythm pick up sensor which outputs health information regarding a person occupying said chair or bed member.

17. A chair or a bed member as claimed in Claim 16 having a seat part in which said sensor is located.

18. A chair or bed member as claimed in Claim 16 having an armrest in which said sensor is located.

19. A chair or a bed member as claimed in Claim 16 wherein said sensor outputs to a computer programmed to receive the health information from said sensor and having a monitor for displaying the health information.

20. A chair or bed member wherein said member has moving parts and controls for said moving parts; data storage means containing information regarding operation of said controls; a pressure sensor associated with each control for producing an output of the information from said data storage means regarding the operation of the control associated with said pressure sensor.

21. A chair or bed member as claimed in claim 1 wherein said data storage means comprises a plurality of programmed computer chips, one for each control.

22. A chair or bed member as claimed in claim 2 wherein said controls comprise levers with paddles on said levers, said pressure sensors being provided within said paddles.

23. A chair or bed member as claimed in claim 1 further including speakers for audibly providing the output of the information from the data storage means.

24. A chair or bed member as claimed in claim 1 wherein said data storage means outputs to a visual display.

25. A chair or bed member as claimed in claim 5 wherein said visual display is remote from said member.

26. A chair or bed member as claimed in claim 5 wherein said visual display is on board the member.

27. A chair or bed member having data storage means containing information regarding the origin of the member and further having physical movement sensing means which produces an output of the information from the data storage means.

28. A chair or bed member having data storage means containing information regarding the construction of the member and further having physical movement sensing means which produces an output of the information from the data storage means.

29. A chair or bed member having moving parts and controls for said moving parts, a computer chip containing information regarding operation of said controls, a plurality of pressure sensors, one for each of said controls, an output produced by said computer chip being dependent upon pressing one of said pressure sensors.

30. A chair or bed member as claimed in claim 10 wherein said member includes a speaker to audibly produce the output from said computer chip, the speaker being mounted on a board with said computer chip, the board being replaceably secured in a hidden location on said member.

31. A chair or bed member as claimed in claim 11 wherein said member has a seat part and back part, said board being hidden within a pocket high on said back part of said member.

32. A chair or bed member as claimed in claim 1 wherein said data storage means comprises a programmed computer chip and wherein said pressure sensors transmit an air borne signal to said computer chip for producing the output of the information from the computer chip.

33. A chair or bed member including moveable parts and controls which are mounted on said member and which provide movement of said moveable parts, said member further including data storage means containing instructional information regarding operating functions of said controls and physical movement sensing switch means which, when activated, produces an output of the instructional information without producing operation of said controls for said moveable parts of said member.

34. A chair or bed member as claimed in claim 14 wherein said switch means comprises a plurality of said switches, each of said controls being provided with one of said switches, the switches being located directly at the controls.

35. A chair or bed member as claimed in claim 15 wherein said controls comprise levers with paddles on the levers, the switches comprising pressure sensors provided on the paddles of the controls.

36. A chair or bed member as claimed in claim 15 wherein the output of the information comprises a visual output viewable at a visual display.

37. A chair or bed member as claimed in claim 17 wherein said visual display is provided on said member.

38. A chair or bed member as claimed in claim 17 wherein said visual display is located remotely of said member.

39. A chair or bed member as claimed in claim 19 wherein said member has a wireless feed to said visual display.

40. A chair or bed member as claimed in claim 14 wherein the output of the information comprises an audio output.

41. A chair or bed member as claimed in claim 21 wherein said switch means comprises a switch at each of said controls, said audio output being provided through a plurality of speakers provided on said member, each speaker being electronically linked with an individual one of said controls.

42. A chair or bed member as claimed in claim 21 wherein said audio output is provided through a single speaker.
43. A chair or bed member as claimed in claim 23 wherein said speaker is mounted on board of said member.
44. A chair or bed member as claimed in claim 23 wherein said speaker is located remotely of said member.
45. A chair or bed member as claimed in claim 25 wherein said member has a wireless feed of said audio output from said member to said speaker.
46. A chair or bed member including data storage means containing information regarding history of the member and further including a physical movement sensing switch, which when operated, produces an output of the information from the data storage means of said member.
47. A chair or bed member as claimed in claim 27 wherein said output comprises an audio output through a speaker mounted on board of said member.
48. A chair or bed member as claimed in claim 27 wherein said output comprises an audio output through a speaker located remotely of said member.
49. A chair or bed member as claimed in claim 29 wherein said data storage means has a wireless feed to said speaker.
50. A chair or bed member as claimed in claim 27 wherein said output comprises a visual output through a visual display.
51. A chair or bed member as claimed in claim 31 wherein said visual display is located remotely of said member.
52. A chair or bed member as claimed in claim 31 wherein said visual display is provided on board of said member.
53. A chair or bed member as claimed in claim 32 wherein said data storage means has a wireless feed to said visual display.

54. A chair comprising:

- (a) data storage means containing information about the chair;
- (b) a speaker associated with said data storage means for producing an audio output of said information;
- (c) means for activating said data storage means so as hear said audio output from said speaker regarding said information about said chair.

55. A chair as claimed in claim 35 wherein said data storage means contains information selected from the group of:

- (d) serial number;
- (e) manufacturer;
- (f) construction

of said chair.

56. A chair as claimed in claim 36 wherein said activating means comprises a switch.

57. A chair as claimed in claim 37 wherein:

- (g) said chair includes at least one moving part and at least one control for permitting movement of said at least one moving part;
- (h) said data storage means includes control operating instructions on the use of said at least one control;
- (i) said at least one control includes an operable switch for activating said control operating instructions so as to hear said audio output from said speaker regarding information about the use of said at least one control.

58. A chair as claimed in claim 38 wherein said at least one moving part comprises a chair back and said control comprises a back control lever for angling said chair back.

59. A chair as claimed in claim 39 wherein said back control lever includes a pressure sensor switch for activating said data storage means so as to hear said audio information regarding the use of said back control lever.

60. A chair as claimed in claim 38 wherein said at least one moving part comprises a chair seat and said control comprises a seat control lever for angling said chair seat.

61. A chair as claimed in claim 41 wherein said seat control lever includes a pressure switch for activating said data storage means so as to hear audio information about the use of said seat control lever.

62. A chair as claimed in claim 38 wherein said at least one moving part comprises a chair height adjustment and said control comprises a height control lever for adjusting the height of said chair.

63. A chair as claimed in claim 43 wherein said height control lever includes a pressure switch for activating said data storage means so as to hear audio information about the use of said height adjustment control lever.

64. A chair having a plurality of adjustment members, and a plurality of lever controls for permitting adjustment of said adjustment members respectively, comprising:

- (j) data storage means containing instructional information on the use of each said plurality of lever controls;
- (k) at least one speaker associated with said data storage means for providing audio output on the use of each said lever control;
- (l) a plurality of switches carried by said plurality of lever controls respectively

whereby each said switch is operable to activate said data storage means so as to hear said instructional information from said at least one speaker on the use of said lever control carrying said switch for the adjustment of said member.

65. A chair as claimed in claim 45 wherein each said switch is operable prior to manipulating said lever control permitting adjustment of said member respectively.

66. A chair as claimed in claim 46 wherein said plurality of adjustment members comprises an adjustable seat, adjustable back, and adjustable chair height and said plurality of lever controls comprise a back lever control, seat lever control and chair height lever control and wherein said plurality of switches comprises:

- (m) a back instructional switch for activating said data storage means to hear said instructional information from said at least one speaker on the use of said back lever control for adjusting the back of said chair;
- (n) a seat instructional switch for activating said data storage means to hear said instructional information from said at least one speaker on the use of said seat lever control for adjusting said seat of said chair;
- (o) a height instructional switch for activating said data storage means to hear said instructional information from said at least one speaker on the use of said height lever control for adjusting said height of said chair.

67. A chair as claimed in claim 47 wherein said data storage means comprises a programmed computer chip disposed in said seat.

68. A chair as claimed in claim 48 wherein programmed computer chip comprises a speaker.

69. A chair as claimed in claim 47 wherein said speaker is disposed in said back.

70. A chair as claimed in claim 49 wherein said switches and said speaker are electronically connected to said data storage means.

71. A chair as claimed in claim 49 wherein said data storage means is a wireless feed to said speaker.

73. A chair as claimed in claim 49 wherein said speaker is located remotely of said chair.

74. A chair as claimed in claim 47 wherein said lever controls are selectively operable without activating said switches.

75. A method of monitoring biorhythm information of a user of a chair or bed member having a means to communicate said biorhythm information to said user comprising:

- (p) disposing a sensor within said chair or bed member for receiving and transmitting a biorhythm signal;
- (q) programming said means to accept and communicate said biorhythm information to said user.

76. A method as claimed in claim 55 wherein said means to communicate said biorhythm information comprises a computer, and said computer is programmed to accept and display said biorhythm information to said user of said chair or bed member.

77. A method as claimed in claim 56 wherein said biorhythm information is displayed each time said user sits in said chair or bed member.

78. A method as claimed in claim 57 wherein said biorhythm information can be turned off at said computer.

79. A method as claimed in claim 58 wherein said computer is placed in front of said chair.

80. A method as claimed in claim 59 wherein said biorhythm signal is transmitted air borne.

81. A method of communicating biorhythm information of a person sitting in a chair in front of a computer comprising:

- (r) disposing a sensor in said chair for receiving and transmitting a biorhythm signal of said person sitting in said chair;
- (s) programming said computer to accept and display biorhythm information of said person sitting in said chair.

82. A method as claimed in claim 61 wherein said chair includes moving parts and controls for providing movement of said moving parts for permitting said user sitting in said chair to move said parts to a desire position.

83. A method as claimed in claim 62 wherein said controls are operable to produce an output of instructional information regarding operating functions of said controls.

84. A method as claimed in claim 63 wherein said controls are operable to produce an output of said instructional information regarding operating functions of said controls without providing operation of said controls for said moveable parts of said members.

85. A method as claimed in claim 64 wherein said biorhythm information comprises heart rate or blood pressure.

86. A method as claimed in claim 65 of gathering said biorhythm information by sitting in said chair.

87. A combination of a chair and device to display the biorhythm information of a person in said chair comprising:

- (t) a sensor disposed in said chair for receiving and transmitting a biorhythm signal of said person sitting in said chair;

- (u) selectively:

- (i) activating said device to display biorhythm information corresponding to said biorhythm signal, and

- (ii) deactivating said device.

88. A combination as claimed in claim 67 wherein said device comprises a computer remotely disposed in front of said chair.

89. A combination as claimed in claim 68 wherein said sensor comprises a pressure sensor disposed in said chair.

2 5 MAY 2005

- 20 -

90. A combination as claimed in claim 69 wherein said chair further includes moveable parts and controls which provide movement of said moveable parts.

91. A combination as claimed in claim 70 further including data storage means containing instructional information regarding operating functions of said controls and physical movement sensing switch means which when activated produce an output of the instructional information without producing operation of said controls for said moving parts.

92. A combination as claimed in claim 71 wherein said controls can be activated to move said parts to assume different ergonomically desirable body positions when seated in said chair.

93. A combination as claimed in claim 72 wherein both said instructional information and biorhythm information is displayed on said computer.

94. A combination as claimed in claim 73 wherein said computer is programmed to accept and display both said information.