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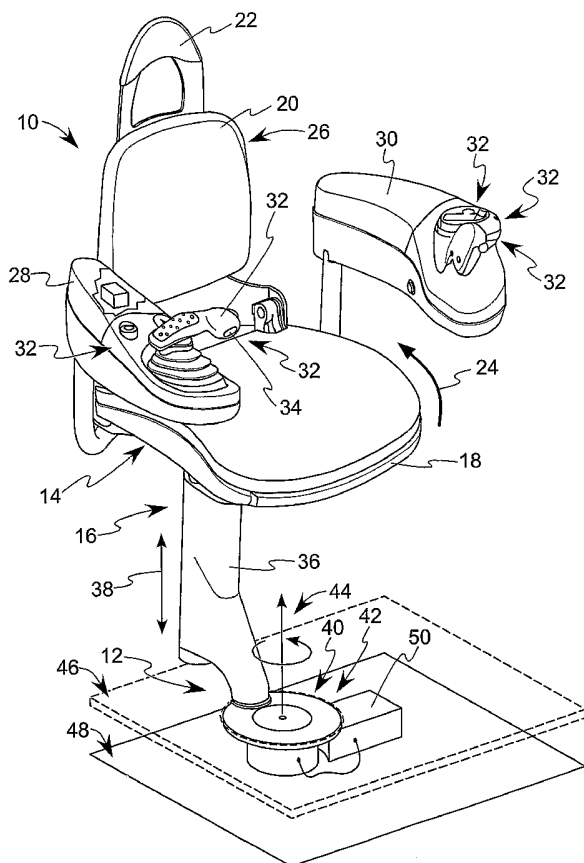
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(54) Title: SYSTEMS AND METHODS FOR SEAT REPOSITIONING



(57) Abstract: A vehicle seat arrangement is provided for a working vehicle comprising an operator's seat (10, 60) having an adjustable feature. A first control element (32) is arranged such that a first work operative position is defined. A seat adjusting element (34) is further provided for enabling the operator to set the adjustable feature of the operator's seat. The seat adjusting element is positioned relative to the first control element such that the operator may selectively control the adjustable feature of the seat without significantly interrupting the first work operative position or without significantly interrupting a transition from a first task to a second task and/or from a first work operative position to a second work operative position.



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SYSTEMS AND METHODS FOR SEAT REPOSITIONING

TECHNICAL FIELD

5 The present invention relates in general to working vehicles, and more particularly to seat repositioning systems for such vehicles.

BACKGROUND ART

Working vehicles such as materials handling vehicles, construction vehicles and agricultural vehicles may include operator's seats that are repositionable. However, an
10 operator in a seated position must typically reach down beneath a seat bottom to operate a handle or lever in order to reposition the operator's seat. The positioning of the release handle under the operator's seat is common for adjusting seats that may be rotated to one or more positions and for releasing/controlling seats capable of forward and backward positioning adjustments. In many applications, it can be very difficult if not impossible to
15 operate other control elements while attempting to also operate a lever or handle underneath the seat to attain a given seat position.

DISCLOSURE OF INVENTION

The present invention provides a vehicle seat arrangement for a working vehicle
20 comprising an operator's seat having at least one adjustable feature, such as the ability to rotate the seat, adjust the height or seat back tilt, adjust the positioning of the seat fore and aft, and/or adjust the positioning of the seat in a lateral (side to side) direction. The working vehicle further includes one or more control elements positioned within the vehicle where at least one of the control elements defines a seat adjusting element which corresponds to the at
25 least one adjustable feature of the operator's seat. The positioning of the seat adjusting element allows the operator to establish a work operative position where the operator may operate at least one of the control elements and the seat adjusting element without requiring large limb movements or excessive awkward adjustments of position.

30 In a first illustrative implementation of the present invention, a first control element is arranged such that a first work operative position is defined with respect to an operator, the first control element and the operator's seat. For example, where the first control element is positioned in a control area, the first work operative position may be defined by an operator seated in the operator's seat with a hand suitably positioned within or about the control area.

Similarly, where the first control element is provided on a control handle, the first work operative position may be defined by an operator seated in the operator's seat with a hand suitably positioned on the control handle. A seat adjusting element is further provided which corresponds to the at least one adjustable feature of the operator's seat. The seat adjusting element is positioned relative to the first control element such that the operator may selectively control the adjustable operator's seat without interrupting the first work operative position. Continuing with the above examples, the seat adjusting element may be positioned within the control area or on the control handle such that the seat adjusting element may be operated without significantly disturbing the operable engagement of the operator's hand with the first control element.

As another example, the seat adjusting element may be positioned away from the first control element, e.g., outside the control area or not on the control handle. In such an exemplary application of the present invention, the first work operative position comprises a position in which a first hand of the operator is in a working position with respect to the first control element and a second hand of the operator is in a working position with respect to the seat adjusting element.

BRIEF DESCRIPTION OF DRAWINGS

The following description of the preferred embodiments of the present invention can be best understood when read in conjunction with the following drawings, where like structure is indicated with like reference numerals, and in which:

Fig. 1 is a perspective view of an operator's seat for an exemplary working vehicle according to the present invention;

Fig. 2 is a side view of an alternative operator's seat for an exemplary working vehicle according to the present invention;

Fig. 3 is a top view of the operator's seat of Fig. 2;

Fig. 4 is a perspective view of a control element on a seat handle of the operator's seat shown in Figs. 1 and 2; and

Fig. 5 is a side view of the operator's seat of Fig. 2, wherein the control elements are moved from an armrest to a location proximate the operator's seat, but still within a work operative position.

MODES FOR CARRYING OUT THE INVENTION

In the following description of the preferred embodiments, reference is made to the accompanying drawings that form a part hereof, and in which is shown by way of illustration, and not by way of limitation, specific preferred embodiments in which the invention may be practiced. It is to be understood that other embodiments may be utilized and that changes
5 may be made without departing from the spirit and scope of the present invention.

Referring now to the drawings, and particularly to Fig. 1, an operator's seat 10 for a working vehicle includes generally, a base structure 12 coupled to an operator support 14 by
10 an intermediate member 16. The operator support 14 comprises a seat bottom 18, a seat back 20, and a headrest 22. The seat bottom 18 may be hingedly supported so as to be repositionable from a substantially horizontal position or seat down position (as shown) to a substantially vertical position or seat up position (not shown) by pivoting the seat bottom 18 in the direction of arrow 24. The operator support 14 may also optionally include an
15 adjustable feature such as a seat back tilt arrangement that allows the seat back 20 to tilt in the direction of arrow 26.

The operator's seat 10 further includes right and left armrests 28, 30 upon which control elements 32 may optionally be attached. For purposes of illustration, a plurality of
20 control elements 32 are provided on each armrest 28, 30 as shown in Fig. 1. The control elements 32 collectively provide the functionality necessary to operate the vehicle and its features, including controlling navigation of the vehicle, operation of the working implements of the vehicle, and/or operation of other features related to the vehicle or to the performance of specific tasks associated with the vehicle. In particular, at least one of the control elements
25 32 comprises a seat adjusting element 34 that is associated with one or more of the adjustable features of the operator's seat 10 as will be explained in greater detail below.

The control elements 32 may include elements such as buttons, levers, switches, steering and other control wheels, joysticks, jog wheels, throttles, twist grips, finger operated
30 levers and controls, potentiometers, encoders and other controls positioned individually, or combined in one or more control areas. Moreover, the control elements 32 may be positioned on or about one or both of the armrests 28, 30, or the control elements 32 may be otherwise positioned so as to be accessible to an operator, e.g., on or about a console or other structure of the vehicle.

For example, where the operator's seat 10 is utilized in a materials handling vehicle, a select one of the control elements 32 may comprise a traction control arm for controlling direction of movement as well as acceleration and deceleration of the corresponding vehicle, and a steering tiller, e.g., a finger operated tiller disk having a pop-out handle, for steering the vehicle. The traction control arm and the steering tiller may thus be operated in combination with brake pedals (not shown) to drive the vehicle. Further select ones of the control elements 32 may be used for controlling traverse and rotation of forks on the vehicle, and/or for raising and lowering primary and/or auxiliary masts. Moreover, control elements 32 may be provided to operate other working implements, command features or control features, such as to sound a horn or other audible or visual signal, to operate a fan, communications link, light, scanner technology, or provide any other desired function necessary to perform a given task.

The intermediate member 16 includes generally, a first frame member 36 that extends substantially vertically between the base structure 12 and the operator support 14. The intermediate member 16 provides another adjustable feature that allows the height of the operator support 14 and armrests 28, 30 to be altered as indicated by directional arrow 38, e.g., using a gas cylinder (not shown). The ability to adjust the height of the operator support 14, including the seat bottom 18 and armrests 28, 30, allow the operator's seat 10 to accommodate the varying physical characteristics of anticipated vehicle operators. Moreover, the height of the seat bottom 18 may be adjusted to a first position when the seat bottom 18 is in the seat down position to provide a suitable support surface upon which the vehicle operator may sit, and the height of the operator support 14 may be raised when the seat bottom 18 is in the seat up position to provide a suitable support surface upon which the vehicle operator may lean when the vehicle operator is operating the vehicle in a standing position. The adjustability of the intermediate member 16 further allows the operator to reposition the control elements 32 on the right and left armrests 28, 30, to an appropriate working position when operating the vehicle in standing or sitting positions.

The base structure 12 comprises a mounting member 40 that couples between the first frame member 36 and a seat release system 42 for implementing yet another adjustable feature of the operator's seat 10, wherein the operator's seat 10 may be selectively rotated (at least partially) about a substantially vertical axis 44. The seat release system 42 may be located underneath a platform floor 46 of the vehicle and may be bolted or otherwise secured

to a platform base 48 or other suitable structure such that the mounting member 40 is generally coplanar relative to the platform floor 46. A locking arrangement 50 such as a brake, solenoid or other suitable structure locks the operator's seat 10 into a position designated by the operator.

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The seat release system 42 is operated using the seat adjusting element 34 to selectively release the locking arrangement 50 from a locking relationship with the operator's seat 10 for rotational adjustment of the operator's seat 10 about the axis 44. In this regard, the operator's seat 10 may include one or more designated locking positions such that when the operator's seat 10 is transitioned to a select one of the designated locking positions and the locking arrangement 50 is returned to its locking state, the operator's seat 10 is locked into that designated position. If the locking arrangement 50 is returned to its locking state before the operator's seat 10 is oriented with respect to one of the designated locking positions, the operator's seat 10 may lock into the next encountered locking position. As an alternative to designated locking positions, the operator's seat 10 may be lockable in any continuously variable position within the range of rotation of the operator's seat 10, which may include 360 degrees of rotation, or some amount less than 360 degrees of rotation.

Exemplary implementations of a suitable seat release systems 42 and other features of the operator's seat 10 are set out in U.S. Patent Application Serial No. 10/948,495, entitled "Seat Repositioning Device with Release on Control Handle", and U.S. Patent Application Serial No. 10/948,500, entitled "Rotating and Swiveling Seat", both of which are incorporated by reference herein.

Referring to Fig. 2, another exemplary operator's seat 60 provides a mechanism by which the operator's seat 60 may be locked into an operator set position, or may be unlocked for rotational as well as horizontal (fore/aft and lateral) movement. The operator's seat 60 includes generally, a base structure 62 coupled to an operator support 64 by an intermediate member 66. The operator support 64 comprises a seat bottom 68 and a seat back 70. The operator support 64 may also optionally include an adjustable feature such as a seat back tilt arrangement that allows the seat back 70 to tilt in the direction of arrow 72. The operator's seat 60 in the illustrated embodiment further includes a single armrest 74. Control elements 32, including a seat adjusting element 34, are mounted to the armrest 74 as described in greater detail with reference to Fig. 1.

The intermediate member 66 includes generally, a seat support member 76 that is positioned below, and spaced from the seat bottom 68 by one or more shock absorbing devices 78. Moreover, a seat release system 82 is provided to lock the intermediate member 5 66 and the operator support 64 to the base structure 62. The seat release system 82 comprises a locking arrangement that includes a brake support 84 that extends generally downward from the seat support member 76 and passes through an aperture 86 in a top support plate 88 of the base structure 62. A brake plate 90 is attached generally about the terminal end of the brake support 84. When the locking arrangement is in an unlocked position as shown in Fig. 2 on 10 an exaggerated scale, the brake plate 90 is relieved from frictional relationship with an inside surface 92 of the top support plate 88. When the locking arrangement is in a locked position (not shown), the brake plate 90 is urged against an inside surface 92 of the top support plate 88. To this end, the brake plate 90, the inside surface 92 of the top support plate 88 or both may contain friction bearing materials so as to secure the operator's seat 60 into the operator 15 set position when locked. The seat support member 76 thus rests on top support plate 88. The interface 94 between the seat support member 76 and the top support plate 88 comprises a reduced friction interface, e.g., by using Teflon, bearings, lubricants or other friction reducing materials and/or structures, that allows the operator's seat to be freely repositioned within a predetermined area defined generally by the aperture 86 when the locking 20 arrangement is in the unlocked state.

A release device 96 is provided to transition the locking arrangement to the unlocked state under the control of the seat adjusting element 34. When the seat adjusting element 34 is actuated, the release device 96 draws the brake plate 90 away from the top support plate 88. 25 In this regard, the release device 96 may be any suitable device such as an electromagnet, solenoid or other electromechanical, mechanical, electrical or other device, capable of causing at least a partial release in the frictional relationship between the brake plate 90 and the inside surface 92 of the top support plate 88. When the seat adjusting element 34 is released, the release device 96 is deactivated, e.g., by de-energizing the electromagnet or other device, and 30 one or more biasing devices 98, such as springs, urge the brake plate 90 into locking relationship with the inside surface 92 of the top support plate 88. The seat release system 82 is not limited to that illustrated, however. Another exemplary implementation of a seat release system that allows adjustments of a seat in a limited area is set out in U.S. Patent

4,671,572, entitled "Adjustable Chair Having Roller Cam Adjustment Mechanism", which is incorporated by reference herein.

Referring to Fig. 3, when the seat release system 82 is in an unlocked state, such as by
5 maintained actuation of the seat adjusting element 34, the operator's seat 60 may be
repositioned anywhere in a bounded area defined generally by the dimensions of the aperture
86 in the base structure 62. The operator may set the operator's seat 60 into an infinitely
variable number of positions, including adjustments of fore and aft, lateral (side to side) and
rotational positions. When the seat release system 82 is placed in a locking state, such as by
10 releasing the seat adjusting element 34, the operator support 64 is locked into its new,
operator set position.

With reference now to Fig. 4, one or more of the control elements 32 and the seat
adjusting element 34 of Figs. 1-3 may be combined into a control area that includes a
15 multifunction control handle 100 as shown. The exemplary control handle 100 includes a
control element 32 implemented as a joystick 102, a control element 32 implemented as a
thumb-operated control 104 and the seat adjusting element 34 implemented as a button or
finger operated control element 106. However, any combination of control elements may be
combined as set out in the discussion with reference to Fig. 1.

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As generally considered herein, a work operative position designates a position where
the operator may operate at least one of the control elements 32 and the seat adjusting
element 34 without requiring large limb movements or excessive awkward adjustments of
position. As an example, the work operative position may comprise a position in which an
25 operator is set to operate the control handle 100 shown in detail in Fig. 4. In such an
exemplary work operative position, the palm of the operator's hand will typically be resting
upon a textured portion 108 of the joystick 102 so as to be sensed by integrated hand sensors
110. The integrated hand sensors 110, such as optical sensing elements, are optional, but may
be used for example, to inform the corresponding vehicle electronics, that the operator is
30 positioned in the work operative position. Moreover, hand sensors may be implemented into
other arrangements of control elements 32 which are positioned individually, or in other
arrangements of control areas.

With the operator's palm resting on the textured portion 108, the joystick 102 may be readily operated. Moreover, in this position, the operator's right thumb is oriented so as to selectively operate the thumb-operated control 104. The operator can also reach (and actuate) the seat adjusting element 34 using only a slight finger movement, by lifting and repositioning the index finger to the seat adjusting element 34. The seat adjusting feature of the operator's seat 10, 60 is thus operated without removing the operator's palm from the textured portion 108 of the joystick 102 and/or removing the thumb from the area of the thumb-operated control 104. Generally, a designated work operative position does not require that the operator be actively operating a control element 32. Moreover, the designated work operative position does not require the operation of a select one of the control elements 32 and the seat adjusting element 34 at the same time. Rather, the work operative position designates a position where the operator may operate at least one of the control elements 32 and the seat adjusting element 34 without requiring large limb movements or excessive awkward adjustments of position.

Again, the seat adjusting element 34 can adjust any one or more of the adjustable features of the operator's seat 10, 60. The particular adjustable feature of the operator's seat that is assigned to the seat adjusting element 34 will likely depend upon the working vehicle and other factors set out more fully herein. Thus, every operation that can be performed with the handle 100, including adjustment of the operator's seat 10, 60, can be accomplished without removing the hand from the first work operative position. As such, seat dynamics can be blended with task control not related to adjustment of the operator's seat 10, 60.

With reference to Figs. 1-4, because the seat adjusting element 34 and at least one other control 32 may be operated without requiring the operator to leave the designated work operative position, a vehicle operator may adjust or reposition the operator's seat 10, 60 without interrupting the performance of a given task or tasks, or without interrupting the transition from a first task to a second task. This allows seat adjustments to be performed concomitantly with the performance of tasks not related to seat repositioning when desired. Moreover, as best seen in Figs. 1 and 2, the seat adjusting element 34 is optionally positioned above a horizontal plane of the control area, e.g., the associated armrest 28, 74, which may assist the vehicle operator in locating and/or activating the seat adjusting element 34 without significantly altering the line of sight of the vehicle operator or without significantly modifying the posture of the vehicle operator so as to require leaving the designated work

operative position. Further, where the seat adjusting element 34 is positioned in a location other than an armrest of the operator's seat 10, 60, e.g., in a control area of a console or other location within the vehicle, the seat adjusting element 34 may be positioned above a horizontal plane designating that control area.

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Sometimes, the seat adjusting element 34 may not be positioned proximate to the control element 32 assigned to perform a certain task. For example, in Fig. 1, control elements 32 are positioned on both the right and left armrests 28, 30, and it may be impractical or undesirable to incorporate a seat adjusting element 34 on both armrests 28, 30. As an example, assume that the seat adjustment element 34 comprises a button on a control handle 100 that is provided on the right armrest 28 of the operator's seat 10 as shown in Fig. 1. Further, assume that a vehicle operator desires to operate a control element 32, such as a lever for controlling traversing and rotation of the forks of a materials handling vehicle, which is positioned on the left armrest 30.

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Using the exemplary materials handling vehicle described above, an illustrative first work operative position may include the operator's right hand positioned to operate the seat adjusting element 34, such as described above with reference to Fig. 4, and may include the operator's left hand in a working position with respect to the fork operating lever on the left armrest 30. The first work operative position thus allows the operator to operate the lever for controlling traversing and rotation of the forks of the materials handling vehicle with the operator's left hand, then transition the left hand to another control element 32 within the vehicle, e.g., to a second work operative position. However, in this example, the seat adjusting element 34 remains in a working position with respect to the operator's right hand, even during transition from the first work operative position to the second work operative position.

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By incorporating the seat adjusting element 34 with other control elements 32, such as in a control area, on a joystick, multifunction control handle 100 or other control handle where the operator is positioned for performing a task, i.e., in a working position, or by placing a free hand, arm, leg, foot, etc. in a working position with respect to the seat adjusting element 34, the location of the seat adjusting element 34 and its control can become second nature. Accordingly, an operator can maintain visual focus on a first task while simultaneously adjusting the operator's seat 10, 60 and/or the vehicle operator may be able to

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transition from a first task to a second task without interruption of the required work operative position(s) to modify the positioning of the operator's seat 10, 60.

5 The seat adjusting element 34 can be made to allow adjustment of any one or more of the repositionable feature(s) of the corresponding operator's seat 10, 60. That is, the exemplary operator's seats 10, 60 illustrate adjustments including seat rotation, seat back tilt, seat height raise and lower, and seat adjustments within a range of positions including fore, aft and lateral directions. However, other seat adjustments may also be implemented and controlled by the seat adjusting element 34. To this end, the seat adjustment capabilities will
10 likely depend upon the requirements of the corresponding working vehicle.

In one illustrative embodiment of the present invention, the multifunction control handle 100 shown in Fig. 4 is implemented on the right armrest 28 of an operator's seat 10 as shown in Fig. 1. Actuation of the seat adjusting element 34, such as by depressing the button
15 106 on the control handle 100, triggers the release of the operator's seat 10 for adjustment by communicating through a vehicle network, such as a Controller Area Network (CAN) or any other practical bus system or communications link. Where the seat adjustment commands are integrated into a network, vehicle-wide decisions can be made that affect the performance of the seat adjusting element 34 and/or other control elements 32 provided for the vehicle. For
20 example, the state or detected position of the operator's seat may affect operability of working implements provided on the vehicle, and may alternatively be used to enable, limit, disable, or otherwise affect the state of the other tasks performed by the control elements 32. Correspondingly, a state or condition of the vehicle, working implement or task may affect the ability of the operator to reposition the operator's seat 10.

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For example, even though the operator may control the seat adjusting element 34 simultaneously with other control elements 32, e.g., vehicle speed controls, the vehicle system electronics (not shown) may prohibit the seat release system 42 from unlocking the operator's seat 10 if the detected vehicle speed exceeds a predetermined threshold speed.
30 Examples of the above described communication and control aspects are set out in greater detail in U.S. Patent Application Serial No. 10/948,495, titled "Seat Repositioning Device with Release on Control Handle", and U.S. Patent Application Serial No. 10/948,500, titled "Rotating and Swiveling Seat".

The above examples were presented by way of illustration and not by way of limitation to demonstrate the broad flexibility of the present invention and to demonstrate exemplary approaches to integrate seat release commands into the workflow and control decisions of other vehicle processes. As such, the exact implementation of the seat release assembly will likely be dependent upon the capabilities and features of the particular working vehicle and the tasks to be performed. Thus, the release assembly may comprise mechanical, electrical, electro-mechanical, pneumatic, hydraulic and other powered sources. Still further, Fig. 5 illustrates an operator's seat 60 similar to that illustrated in Fig. 2 except that there is no armrest 74 as shown in Fig. 2. Rather, the control elements 32, including the seat adjusting element 34 are positioned within a control area of a panel 112 of the vehicle. The panel 112 is positioned proximate to the operator's seat 60 such that an operator seated in the operator's seat 60 will be able to position a hand in the vicinity of the control area, e.g., with the corresponding arm resting on the upper surface of the panel 112, and operate the control elements 32, 34, which may comprise elements such as finger operated levers, buttons or other controls as set out more fully herein. Under this arrangement, the adjustable feature of the operator's seat 60 may be limited to fore/aft adjustments. However, the control elements 32 including the seat adjusting element 34 may be positioned in any reasonable position such that an operator, either sitting in the operator's seat or standing proximate to the operator's seat can be positioned in a work operative position as set out in greater detail herein.

Having described the invention in detail and by reference to preferred embodiments thereof, it will be apparent that modifications and variations are possible without departing from the scope of the invention defined in the appended claims.

What is claimed is:

CLAIMS

1. A vehicle seat arrangement comprising:

an operator's seat (10, 60) having an adjustable feature;

a first control area (100);

5 a first control element (106) arranged within said first control area such that a first work operative position is defined with respect to an operator, said first control element (32) and said operator's seat; and

a seat adjusting element (34) positioned within said first control area such that said adjustable feature of said operator's seat is selectively controlled by said operator without
10 interrupting said first work operative position.

2. The vehicle seat arrangement according to claim 1, wherein said first control area comprises a control handle (100), wherein said first work operative position comprises a hand engaged with said control handle.

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3. The vehicle seat arrangement according to claim 1, wherein said first control area comprises a joystick (102), wherein said first work operative position comprises a hand engaged with said joystick.

20 4. The vehicle arrangement according to claim 1, wherein said first control area comprises at least one finger operated control element (106).

5. The vehicle seat arrangement according to claim 1, wherein said first control element (32) and said seat adjusting element (34) are positioned proximate to each other on an armrest (74)
25 of said operator's seat (10, 60) such that each of said first control element and said seat adjusting element can be operated without interrupting said first work operative position.

6. The vehicle seat arrangement according to claim 1, wherein said first control area further comprises a sensor (110) to detect the presence of a hand of said operator, the presence of
30 said hand comprising one indication of said first work operative position.

7. The vehicle seat arrangement according to claim 1, wherein said first control element (32) and said seat adjusting element (34) are configured so as to allow the performance of a first task involving operation of said first control element concomitantly with control of said

adjustable feature of said operator's seat (10, 60) without interrupting said first work operative position.

5 8. The vehicle seat arrangement according to claim 1, wherein said vehicle further comprises a second control element (32) arranged such that a second work operative position is defined with respect to an operator, said second control element, said seat adjusting element and said operator's seat (10, 60), wherein said operator can transition from a first task involving said first control element (32) to a second task involving operation of said second control element without interrupting said first or second work operative positions, wherein said adjustable
10 feature of said operator's seat is selectively controlled by said operator before, during or after transitioning from said first work operative position to said second work operative position.

9. The vehicle seat arrangement according to claim 1, wherein operation of said seat adjusting element (34) releases said adjustable feature of said operator's seat (10, 60) for
15 adjustment in at least one of fore, aft, lateral or rotational repositioning.

10. The vehicle seat arrangement according to claim 1, wherein:

said adjustable feature of said operator's seat (10, 60) is normally locked into a select one of at least two designated positions; and

20 said seat adjusting element (34) comprises a control element (32) for selectively releasing said adjustable feature for repositioning, wherein said adjustable feature of said operator's seat is locked into a next one of said at least two designated positions upon release of said seat adjusting element.

25 11. The vehicle seat arrangement according to claim 10, wherein said adjustable feature is adjustable between a fixed number of discrete locking positions.

12. The vehicle seat arrangement according to claim 10, wherein said adjustable feature is infinitely adjustable within a range of positions.

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13. The vehicle seat arrangement according to claim 1, wherein said seat adjusting element (34) is positioned above a horizontal plane of said first control area.

14. The vehicle seat arrangement according to claim 1, wherein:

said operator's seat (10, 60) comprises an armrest (28, 30, 74);

said first control area is located on said armrest; and

said seat adjusting element (34) is positioned above a horizontal plane of said armrest.

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15. A vehicle seat arrangement comprising:

an operator's seat (10, 60) having an adjustable feature;

a first control element (32); and

a seat adjusting element (34); wherein:

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said first control element is spaced from said seat adjusting element such that a first work operating position comprises said operator positioned to operate said first control element and said first seat adjusting element such that said adjustable feature of said operator's seat is selectively controlled by said operator without interrupting said first work position.

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16. The vehicle seat arrangement according to claim 15, wherein said first work operating position comprises said operator having a first hand positioned to operate said first control element (32) and a second hand positioned to operate said seat adjusting element (34).

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17. The vehicle seat arrangement according to claim 16, wherein said first control element (32) is positioned on a first armrest (28, 30, 74) of said operator's seat (10, 60) and said seat adjusting element (34) is positioned on a second armrest of said operator's seat.

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18. The vehicle seat arrangement according to claim 15, wherein said first control element (32) is located about a select one of a control handle (100), a joystick (102), or a control area.

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19. The vehicle seat arrangement according to claim 15, further comprising a sensor (110) to detect the presence of at least one of said first and second hands of said operator, the detected presence of said at least one of said first and second hands comprising one indication of said first work operative position.

20. The vehicle seat arrangement according to claim 15, wherein said first control element (32) and said seat adjusting element (34) are configured so as to allow the performance of a first task involving operation of said first control element concomitantly with control of said

adjustable feature of said operator's seat (10, 60) without interrupting said first work operative position.

21. The vehicle seat arrangement according to claim 15, wherein said operator's seat (10, 60) comprises a second control element (32) arranged such that a second work operative position is defined with respect to an operator, said second control element, said seat adjusting element (34) and said operator's seat, wherein said operator can transition from a first task involving said first control element (32) to a second task involving operation of said second control element without interrupting said first or second work operative positions, wherein said adjustable feature of said operator's seat is selectively controlled by said operator before, during or after transitioning from said first work operative position to said second work operative position.

22. The vehicle seat arrangement according to claim 15, wherein operation of said seat adjusting element (34) releases said adjustable feature of said operator's seat (10, 60) for adjustment in at least one of fore, aft, lateral or rotational repositioning.

23. The vehicle seat arrangement according to claim 15, wherein:
said adjustable feature of said operator's seat (10, 60) is normally locked into a select one of at least two designated positions; and
said seat adjusting element (34) comprises a control element (32) for selectively releasing said adjustable feature for repositioning, wherein said adjustable feature of said operator's seat is locked into a next one of said at least two designated positions upon release of said seat adjusting element.

24. The vehicle seat arrangement according to claim 23, wherein said adjustable feature is adjustable between a fixed number of discrete locking positions.

25. The vehicle seat arrangement according to claim 23, wherein said adjustable feature is infinitely adjustable within a range of positions.

26. The vehicle seat arrangement according to claim 15, wherein said seat adjusting element (34) is positioned above a horizontal plane of a surface upon which said seat adjusting element is positioned.

27. The vehicle seat arrangement according to claim 15, wherein:

said operator's seat (10, 60) comprises an armrest (28, 30, 74); and

said seat adjusting element (34) is positioned above a horizontal plane of said armrest.

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28. A vehicle seat arrangement comprising:

an operator's seat (10, 60) having an adjustable feature;

a first control element (32) arranged such that a first work operative position is defined with respect to an operator, said first control element and said operator's seat; and

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a seat adjusting element (34) positioned such that said adjustable feature of said operator's seat is selectively controlled by said operator without interrupting said first work operative position.

29. A vehicle seat arrangement comprising:

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an operator's seat (10, 60) having an adjustable feature;

a first control element (32) arranged such that a first work operative position is defined by an operator's hand positioned so as to operate said first control element; and

a seat adjusting element (34) positioned such that said adjustable feature of said operator's seat is selectively controlled by said operator without requiring large limb

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movements or excessive awkward adjustments of said first work operative position.

30. A vehicle seat arrangement comprising:

an operator's seat (10, 60) having an adjustable feature;

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a first control element (32) arranged such that an operator's first hand is in a first work operative position with respect to said first control element when said operator is operating said first control element;

a second control element (32) arranged such that said operator's first hand is in a second work operative position with respect to said second control element when said operator is operating said second control element;

30

and

a seat adjusting element (34) positioned such that said adjustable feature of said operator's seat is selectively controlled by an operator's second hand;

wherein said first control element, said second control element and said seat adjusting element are arranged such that said operator can transition from said first work operative

position to said second work operative position without removing said operator second hand from a working position with respect to said seat adjusting element.

31. A method of increasing productivity in a working vehicle comprising:

- 5 providing an operator's seat (10, 60) having an adjustable feature;
- providing a first control element (32);
- defining a first work operative position with respect to an operator, said first control element and said operator's seat; and
- providing a seat adjusting element (34) positioned such that said adjustable feature of
- 10 said operator's seat is selectively controlled by said operator without interrupting said first work operative position.

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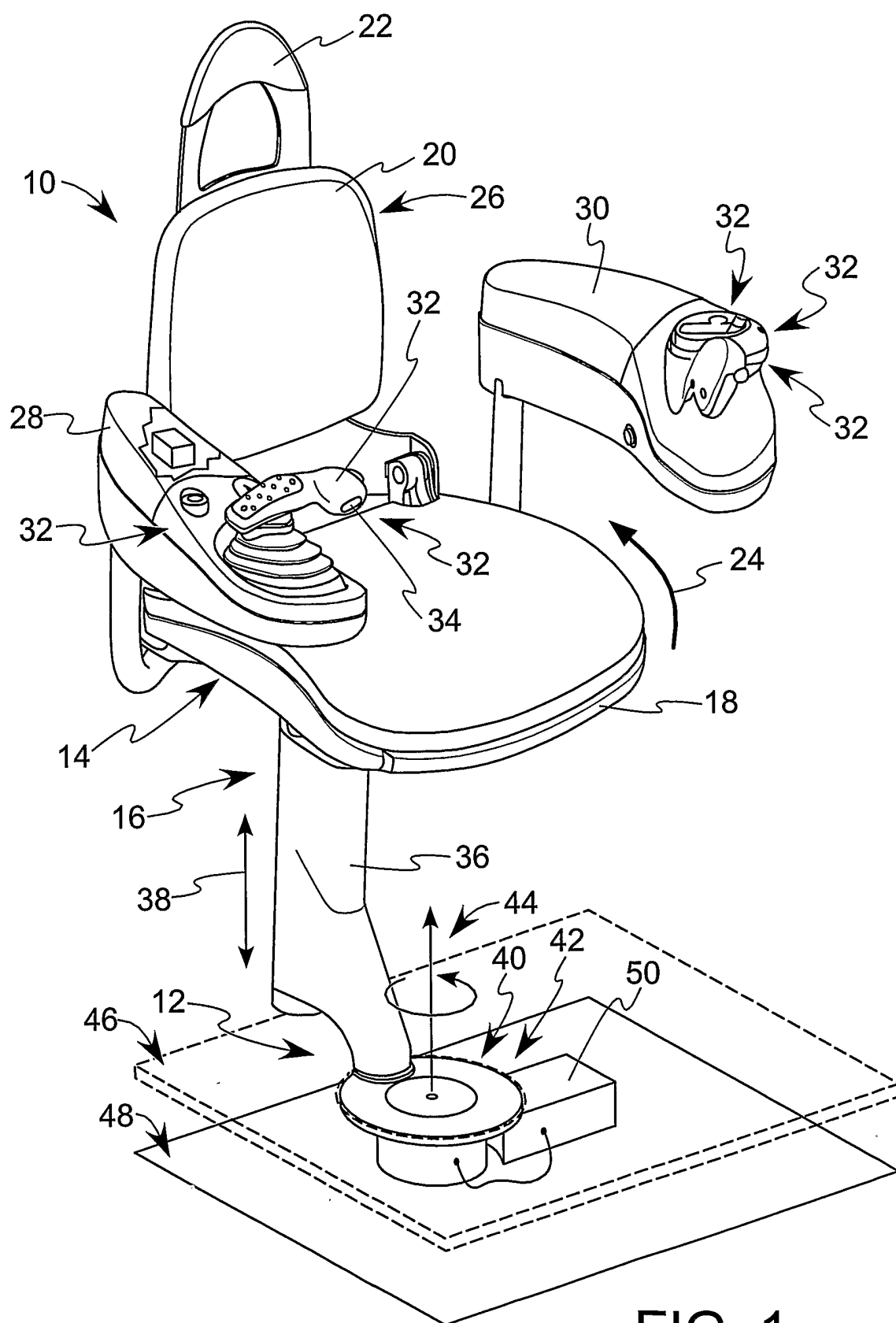


FIG. 1

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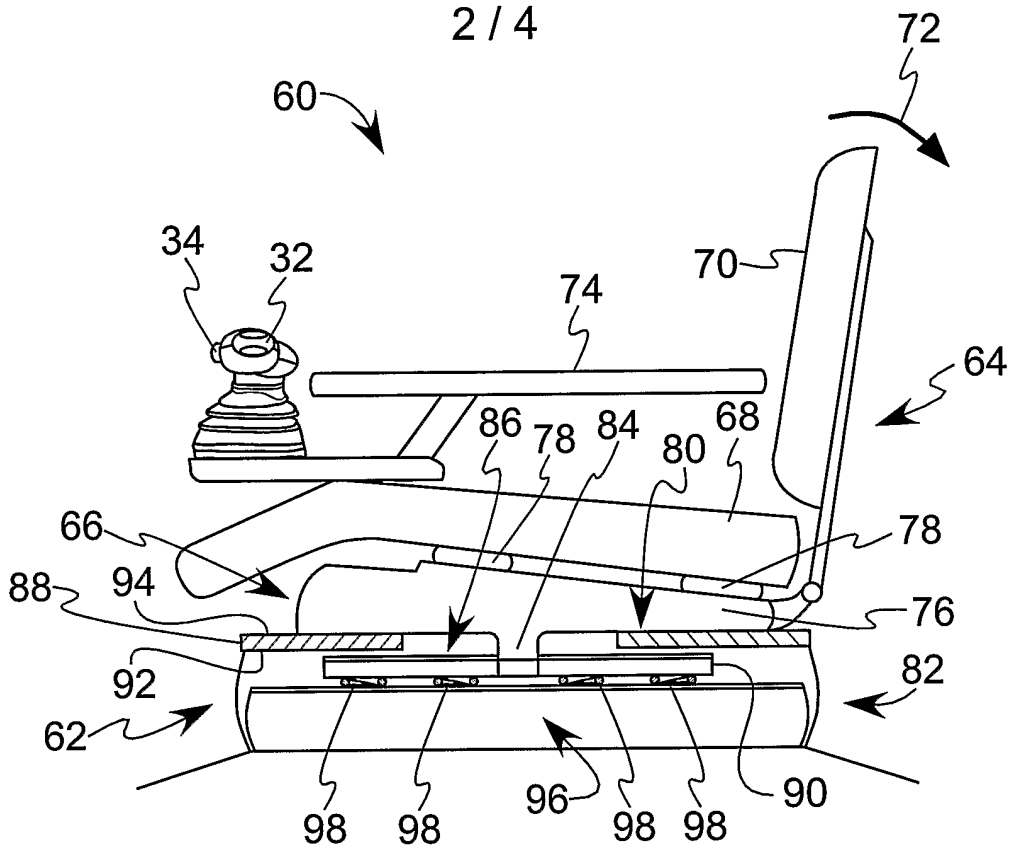


FIG. 2

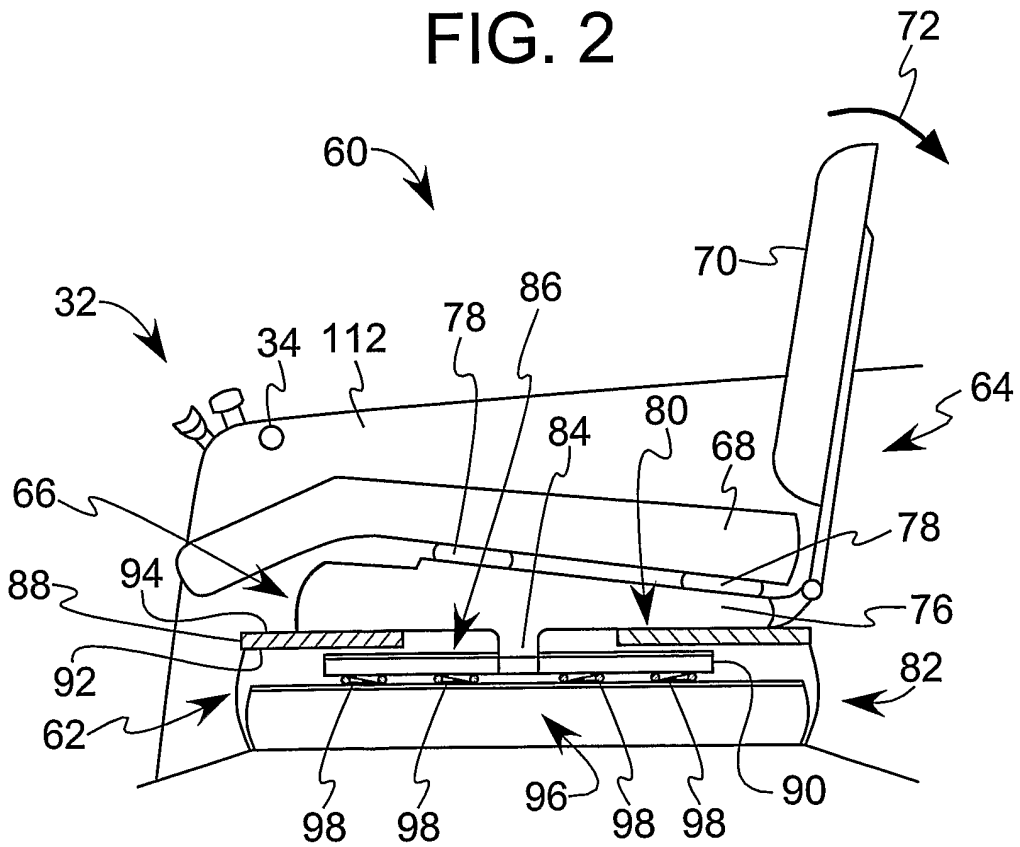


FIG. 5

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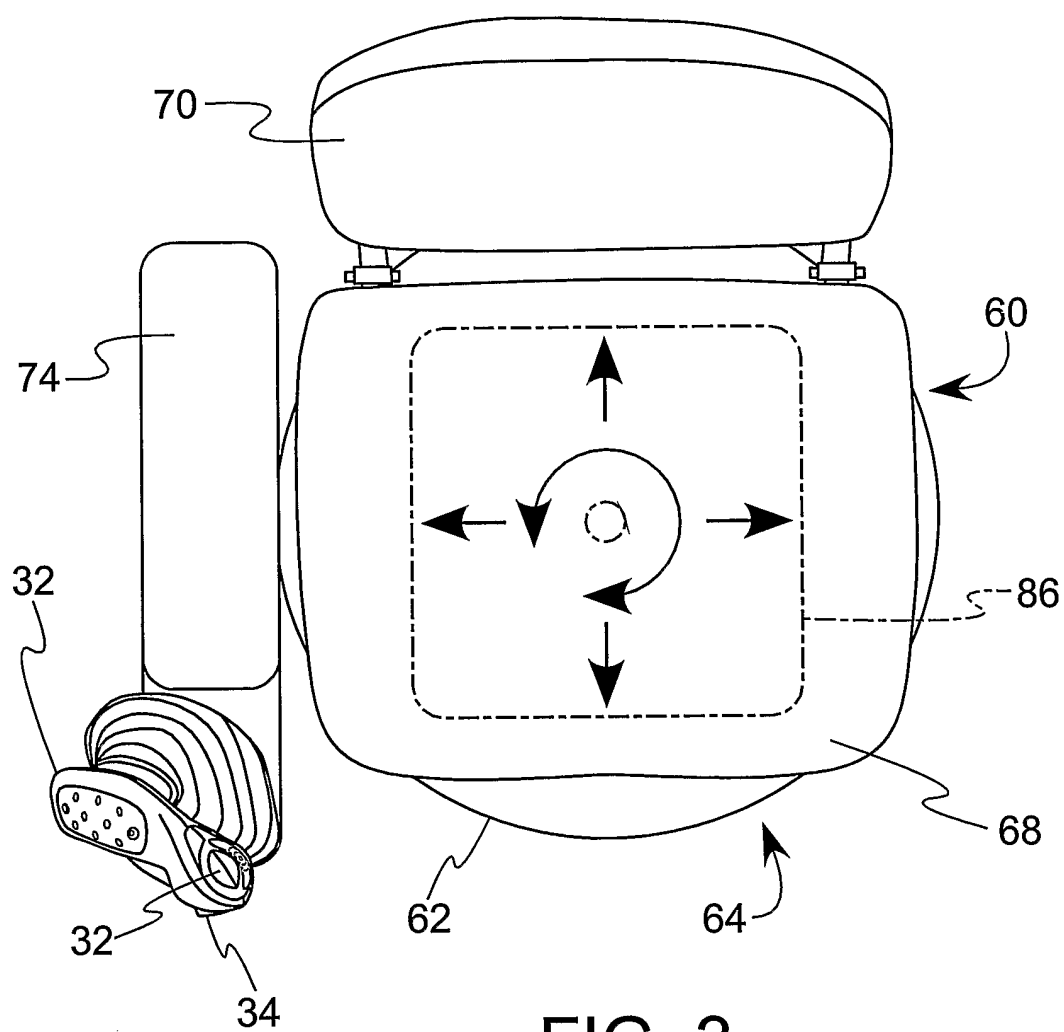


FIG. 3

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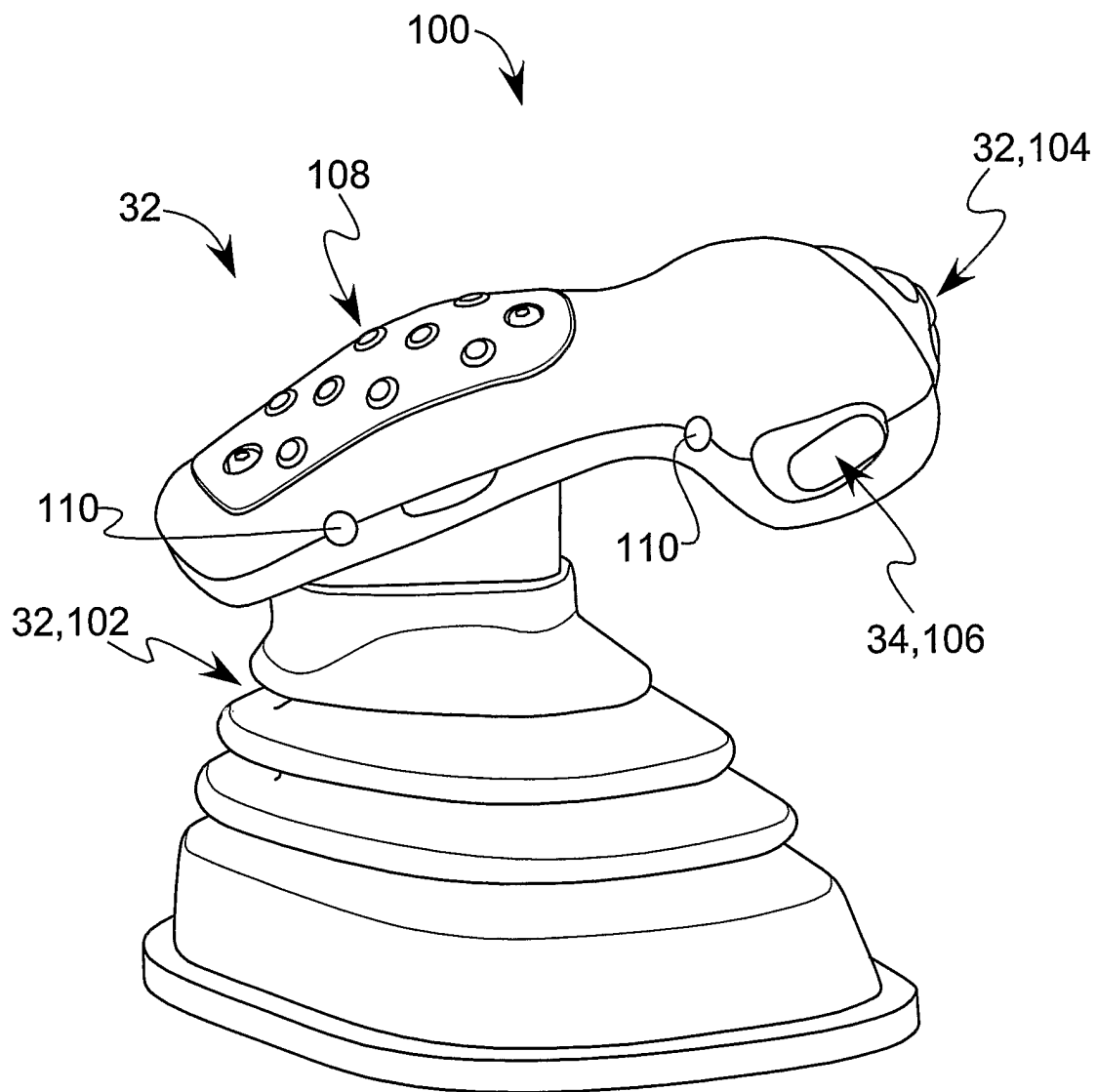


FIG. 4