What is Claimed:

1. A system for positioning a load, comprising:

a support column;

a drive rail unit coupled to the support column, said drive rail unit moveable relative to the support column;

a vertical carriage moveable along the support column, wherein the vertical carriage supports the load,

an engagement member which engages the drive rail unit and which moves along the drive rail unit;

a motor which applies force to the engagement member, causing the engagement member to move along the drive rail unit;

said motor coupled to the vertical carriage so that, as said motor applies force to the engagement member, said vertical carriage moves relative to the drive rail unit, said vertical carriage also moveable with said drive rail unit so that said vertical carriage and said drive rail unit move relative to the support column.

2. The system according to claim 1 wherein application of a force independent of the force provided by the motor causes a) the drive rail unit to move relative to the support column; and b) the vertical carriage to move relative to the support column.

3. The system according to claim 1 wherein:

a) the drive rail unit includes a plurality of teeth and the driving member is a toothed gear;

b) the drive rail unit includes a chain and the driving member is a sprocket wheel; or

c) the driving wheel is a friction wheel which moves along the drive rail unit using friction.

4. The system according to claim 1 wherein the drive rail unit is supported on one or more linear rails positioned on the support column via one or more linear bearings.

5. The system according to claim 4 further comprising one or more bumpers positioned between the drive rail unit and the support column.

6. The system according to claim 1 wherein the drive rail unit includes an upper stop surface and a lower stop surface and a stop extends from the support column and is positioned between the upper and lower stop surfaces to limit movement of the drive rail unit to the given range.

7. The system according to claim 6 wherein the drive rail unit further comprises an upper limit switch and a lower limit switch, each limit switch configured to transmit a signal to a control unit when the stop is adjacent to a respective one of the stop surfaces.

8. The system according to claim 7 wherein the control unit is configured to determine the presence of a positioning obstacle when a signal is received from either of the limit switches.

9. The system according to claim 1 further comprising resilient elements coupled between the drive rail unit and the support column which allows movement between the drive rail unit and the support column.

10. The system according to claim 9 further comprising a decouple member configured to decouple one or more resilient members upon motion in a direction toward the respective one or more resilient members.

11. The system according to claim 9 wherein a first set of at least one resilient element exerts force in a first direction substantially parallel to the axis and a second set of at least one resilient element exerts force in a second opposite direction.

12. The system according to claim 9 wherein the drive rail unit includes first and second compliance plates attached at opposed ends thereof and the first set of resilient elements extends between the first compliance plate and the support column and the second set of resilient elements extends between the second compliance plate and the support column.

13. The system according to claim 12 wherein each resilient member of the first set is coupled at one end to the support column and at the other end to a first attachment bar configured to be supported by at least one first support post on the first compliance plate and each resilient member of the second set is coupled at one end to the support column and at the other end to a second attachment bar configured to be supported by at least one second support post on the second compliance plate.

14. The system according to claim 13 wherein a first decouple post extends from the support column between the connected ends of the resilient members of the first set and the at least first support post and is configured to contact and prevent movement of the first attachment bar when the first compliance plate moves toward the connected ends of the resilient members of the first set.

15. The system according to claim 14 wherein a second decouple post extends from the support column between the connected ends of the resilient members of the second set and the at least second support post and is configured to contact and prevent movement of the second attachment bar when the second compliance plate moves toward the connected ends of the resilient members of the second set.

16. The system according to claim 1 wherein the load includes a test head.

17. The system according to claim 1, wherein the drive rail unit is limited to being moveable over a limited range relative to the support column.

18. The system according to claim 1, wherein the vertical carriage is moveable relative to both the drive rail unit and the support column.

19. The system according to claim 1 wherein the resilient elements include either a spring or a pneumatic device.

20. The system according to claim 1, wherein the load is counterbalanced so as to be in equilibrium or in a substantially weightless condition.

21. A method of positioning a load, said method comprising the steps of:

moving a drive rail unit relative to a support column, wherein the drive rail unit is coupled to the support column;

driving a motor which applies force to an engagement member, causing the engagement member to move along the drive rail unit; wherein

a) the engagement member engages the drive rail unit;

b) as said motor applies force to the engagement member, a vertical carriage which supports the load moves relative to the drive rail unit; and

c) said vertical carriage is also moveable with said drive rail unit so that said vertical carriage and said drive rail unit move relative to the support column.

22. The method of claim 21, wherein application of a force independent of the force provided by the motor causes a) the drive rail unit to move relative to the support column; and b) the vertical carriage to move relative to the support column.

23. The method according to claim 22 wherein resilient elements are coupled between the drive rail unit and the support column and the application of the force independent of the force provided by the motor counters a biasing force of at least one of the resilient elements.

24. The method according to claim 22 wherein the force independent of the force provided by the motor is applied manually by an operator.

25. The method according to claim 22 wherein the force independent of the force provided by the motor is applied by an external actuator.

26. The method according to claim 21 wherein the load includes a test head.

What is Claimed:

1. A system for positioning a load, comprising:

a support column;

a drive rail unit coupled to the support column, said drive rail unit vertically compliant relative to the support column so that the drive rail unit is moveable relative to the support column;

a vertical carriage moveable along the support column, wherein the vertical carriage supports the load,

an engagement member which engages the drive rail unit and which moves along the drive rail unit;

a motor which applies force to the engagement member, causing the engagement member to move along the drive rail unit;

said motor coupled to the vertical carriage so that, as said motor applies force to the engagement member, said vertical carriage moves relative to the drive rail unit, said vertical carriage also moveable with said drive rail unit so that said vertical carriage and said drive rail unit move relative to the support column.

2. The system according to claim 1 wherein application of a force independent of the force provided by the motor causes a) the drive rail unit to move relative to the support column; and b) the vertical carriage to move relative to the support column.

3. The system according to claim 1 wherein:

a) the drive rail unit includes a plurality of teeth and the driving member is a toothed gear;

b) the drive rail unit includes a chain and the driving member is a sprocket wheel; or

c) the driving wheel is a friction wheel which moves along the drive rail unit using friction.

4. The system according to claim 1 wherein the drive rail unit is supported on one or more linear rails positioned on the support column via one or more linear bearings.

5. The system according to claim 4 further comprising one or more bumpers positioned between the drive rail unit and the support column.

6. The system according to claim 1 wherein the drive rail unit includes an upper stop surface and a lower stop surface and a stop extends from the support column and is positioned between the upper and lower stop surfaces to limit movement of the drive rail unit to the given range.

7. The system according to claim 6 wherein the drive rail unit further comprises an upper limit switch and a lower limit switch, each limit switch configured to transmit a signal to a control unit when the stop is adjacent to a respective one of the stop surfaces.

8. The system according to claim 7 wherein the control unit is configured to determine the presence of a positioning obstacle when a signal is received from either of the limit switches.

9. The system according to claim 1 further comprising resilient elements coupled between the drive rail unit and the support column which allows vertical movement between the drive rail unit and the support column.

10. The system according to claim 9 further comprising a decouple member configured to decouple one or more resilient members upon motion in a direction toward the respective one or more resilient members.

11. The system according to claim 9 wherein a first set of at least one resilient element exerts force in a first direction substantially parallel to the axis and a second set of at least one resilient element exerts force in a second opposite direction.

12. The system according to claim 9 wherein the drive rail unit includes first and second compliance plates attached at opposed ends thereof and the first set of resilient elements extends between the first compliance plate and the support column and the second set of resilient elements extends between the second compliance plate and the support column.

13. The system according to claim 12 wherein each resilient member of the first set is coupled at one end to the support column and at the other end to a first attachment bar configured to be supported by at least one first support post on the first compliance plate and each resilient member of the second set is coupled at one end to the support column and at the other end to a second attachment bar configured to be supported by at least one second support post on the second compliance plate.

14. The system according to claim 13 wherein a first decouple post extends from the support column between the connected ends of the resilient members of the first set and the at least first support post and is configured to contact and prevent movement of the first attachment bar when the first compliance plate moves toward the connected ends of the resilient members of the first set.

15. The system according to claim 13 wherein a second decouple post extends from the support column between the connected ends of the resilient members of the second set and the at least second support post and is configured to contact and prevent movement of the second attachment bar when the second compliance plate moves toward the connected ends of the resilient members of the second set.

16. The system according to claim 1 wherein the load includes a test head.

17. The system according to claim 1, wherein the drive rail unit is limited to being moveable over a limited range relative to the support column.

18. The system according to claim 1, wherein the vertical carriage is moveable relative to both the drive rail unit and the support column.

19. The system according to claim 9 wherein the resilient elements include either a spring or a pneumatic device.

20. The system according to claim 1, wherein the load is counterbalanced so as to be in equilibrium or in a substantially weightless condition.

21. A method of positioning a load, said method comprising the steps of:

vertically moving a drive rail unit relative to a support column, wherein the drive rail unit is coupled to the support column and the drive rail unit moves with vertical compliance relative to the support column;

driving a motor which applies force to an engagement member, causing the engagement member to move along the drive rail unit; wherein

a) the engagement member engages the drive rail unit;

b) as said motor applies force to the engagement member, a vertical carriage which supports the load moves relative to the drive rail unit; and

c) said vertical carriage is also moveable with said drive rail unit so that said vertical carriage and said drive rail unit move relative to the support column.

22. The method of claim 21, wherein application of a force independent of the force provided by the motor causes a) the drive rail unit to move relative to the support column; and b) the vertical carriage to move relative to the support column.

23. The method according to claim 22 wherein resilient elements are coupled between the drive rail unit and the support column and the application of the force independent of the force provided by the motor vertically moves the drive rail unit and counters a biasing force of at least one of the resilient elements.

24. The method according to claim 22 wherein the force independent of the force provided by the motor is applied manually by an operator.

25. The method according to claim 22 wherein the force independent of the force provided by the motor is applied by an external actuator.

26. The method according to clam 21 wherein the load includes a test head.