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DYNAMIC WORKSTATION APPARATUS, METHODS, AND SYSTEMS

Abstract

Aspects of dynamic workstation apparatus, methods, systems, and kits are disclosed. One aspect disclosed herein is an apparatus comprising: a frame that is expandable in a generally vertical direction to obtain a press fit between a ceiling and a floor; a work surface that is attachable to the frame and selectively positionable at a plurality of different work surface heights between the ceiling and the floor when the frame is press fit between the ceiling and the floor, the plurality of different work surface heights including a ceiling height, a standing height, a seated height, and a floor height; and an actuator that is attachable to and operable with the frame to move the work surface within a range of movement including the plurality of different work surface heights while maintaining an orientation of the work surface relative to the frame. Related methods, systems, and kits also are disclosed.

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Background/Summary

CROSS-REFERENCE TO RELATED APPLICATIONS [0001] This application is a § 371 National Stage Entry of International Patent Application No. PCT/CA2023/051508, filed Nov. 10, 2023, claiming the benefit of priority of U.S. Provisional Patent Application No. 63/424,848, filed Nov. 11, 2022, the entireties of which are hereby incorporated by reference into this application.

TECHNICAL FIELD
[0002] Aspects of this disclosure relate generally to dynamic workstation apparatus, methods, systems, and kits. Some aspects comprise selectively moveable exercise grips and related structures.
BACKGROUND
[0003] The benefits of regular exercise for an office worker are well established. For example, regular changes of body position and movement are known to be healthier for the worker's muscles, joints, and circulation, in contrast with the detrimental health effects of sitting or standing at a workstation in fixed positions for an extended period of time.
[0004] Existing workstations are commonly adjustable between chair-seated and standing positions, but do not allow the office worker to work in a squatted position, while seated on the floor, or while hanging from an overhead structure. Different types of fitness equipment may permit these movements, but are typically located separately from the workstation, limiting the changes in body position the office worker may experience during the day.
[0005] Further improvements are required to improve the health of office workers by providing more frequent opportunities to work in different body positions and exercise regularly each day.
SUMMARY
[0006] Aspects of dynamic workstation apparatus, methods, systems, and kits are disclosed.
[0007] One aspect of this disclosure is an apparatus. For example, the apparatus may comprise: a frame that is expandable in a generally vertical direction to obtain a press fit between a ceiling and a floor; a work surface that is attachable to the frame and selectively positionable at a plurality of different work surface heights between the ceiling and the floor when the frame is press fit between the ceiling and the floor, the plurality of different work surface heights including a ceiling height, a standing height, a seated height, and a floor height; and an actuator that is attachable to and operable with the frame to move the work surface within a range of movement including the plurality of different work surface heights while maintaining an orientation of the work surface relative to the frame.
[0008] The frame may comprise posts that are independently expandable in the generally vertical direction to obtain the press fit. The posts may be independently expandable toward the floor. Each post may comprise a leveling mechanism that is expandable toward the floor. Each post may comprise a base plate with a plurality of leveling feet that are independently expandable toward the floor. Each post may comprise a base plate, a threaded bolt that is rotatably attached to the base plate, and a floor contact that is attached to the threaded bolt so that rotation of the threaded bolt relative to the base plate moves the floor contact toward the floor. The threaded bolt may be attached to the contact plate by a multiaxial connection so that the contact plate is adjustable relative to the floor. The frame may comprise a header that spans between the posts and is expandable in the generally vertical direction toward the ceiling to obtain the press fit.

[0009] The header may comprise a leveling mechanism that is expandable toward the ceiling. The header may comprise a plurality of jack screws that are independently expandable toward the floor. The header may comprise a top plate, a threaded shaft that is rotatably attached to the top plate, and a ceiling contact that is attached to the threaded shaft so that rotation of the threaded shaft relative to the top plate moves the ceiling contact toward the ceiling. The threaded shaft may be attached to the ceiling contact by a multiaxial connection so that the ceiling contact is adjustable relative to the ceiling. A portion of the actuator may be located in the header. The actuator may comprise an electric motor that is located in the header. The actuator may comprise a controller that is located in the header and electronically operable with the electric motor to move the work surface within the range of movement. The controller may be electronically operable with the electric motor responsive to one or more of a switch, a timer, a sensor, a program, and a mobile device.
[0010] The apparatus may comprise a lift system in the posts that is operable with the actuator to cause vertical movements of the work surface within the range of movement and stabilize the work surface during the vertical movements of the work surface. The apparatus may comprise a gear box in the header that is operable with the actuator and the lift system to cause the vertical movements of the work surface. The gear box may comprise a manual crank that is located outside the interior cavity of the header and operable with the lift system to cause the vertical movements of the work surface. The manual crank may be operable to cause the vertical movements of the work surface without electricity.
[0011] The apparatus may comprise a lift system operable with an input torque applied by the actuator to cause the vertical movements of the work surface. The lift system may comprise a threaded rod that is rotatably mounted and vertically fixed in a first post of the posts. The lift system may comprise a first actuator member in the first post that is operably attached to the threaded rod and the work surface so that rotation of the threaded rod causes the vertical movements of the work surface. The apparatus may comprise a first actuator member comprising threads that are operable with corresponding threads of the threaded rod to cause the vertical movements of the work surface when the threaded rod is rotated, stabilize the work surface during the vertical movements within the range of movement, and maintain a vertical position of the work surface when the threaded rod is not rotated.
[0012] The apparatus may comprise a first post comprising a first elongated opening and a portion of the first actuator member may extend through the elongated opening to vertically support the work surface. The first actuator member may comprise a plurality of wheels that act on the interior surfaces of the first post to stabilize the work surface during the vertical movements of the work surface. The first actuator member may be operable to position the plurality of wheels against the interior surfaces of the first post. The lift system may comprise: a guide rod that is rotatably and vertically fixed in a second post of the posts; and a second actuator member in the second post that is operably attached to the first actuator member, the guide rod, and the work surface so that rotation of the threaded rod causes the vertical movements of the work surface. Rotation of the threaded rod may cause the first actuator member to move together with the second actuator member in the generally vertical direction to maintain a generally level orientation of the work surface during the vertical movements of the work surface. The threads of the first actuator member may be operable with the corresponding threads of the threaded rod to cause the vertical movements of the work surface when the threaded rod is rotated, stabilize the work surface during the vertical movements within the range of movement, and maintain the vertical position of the work surface when the threaded rod is not rotated.
[0013] The second post may comprise a second elongated opening and a portion of the second actuator member extends through the second elongated opening to vertically support the work surface. The second actuator member may comprise a second plurality of wheels that act on interior surfaces of the second post to stabilize the second side of the work surface during the vertical movements within the range of movement. The second actuator member may be operable to

position the second plurality of wheels against the interior surfaces of the second post. The lift system may comprise a cable that is operatively attached to the first actuator member and the second actuator member so that rotation of the threaded rod causes the first actuator member to move vertically with the second actuator member.

[0014] The cable may be routed through the first post, into the header, and into the second post. The cable may comprise: a first cable length extending downwardly from the first actuator member to a pulley located below the threaded rod; a second cable length extending upwardly from the first pulley to a first roller located above the threaded rod; a third cable length extending generally horizontally from the second pulley to a second roller located above the guide rod; and a fourth cable length extending downwardly from the second roller to the second actuator member. The first cable length, the pulley, and the second cable length may be located in the first post. The first roller, the third cable length, and the second roller may be located in the header. The fourth cable length may be located in the second post. The pulley may be attached to a first base plate that vertically supports the threaded rod.

[0015] The work surface may be operable with the frame to support a weight of a user at each height of the plurality of different work surface heights. The work surface may comprise an exercise grip that is operable to support the weight of the user. The exercise grip may be selectively movable: together with the work surface in the generally vertical direction between the plurality of different heights, and independent of the work surface in a generally horizontal direction between a plurality of different grip positions including a working position where the exercise grip is spaced apart from the desk and operable to support a weight of a user and a stored position where the exercise grip is adjacent the desk frame. An underside of the work surface may comprise a plurality of tubes operable to support the weight of the user. The exercise grip may be receivable in a tube of the plurality of tubes. The exercise grip may comprise a U-shape with a pair of grip shafts that are receivable in two tubes of the plurality of tubes.

[0016] The frame may comprise an equipment support that is operable with the frame to position a piece of exercise equipment at a plurality of different equipment support heights relative to the frame when the frame is press fit between the ceiling and the floor. The plurality of different equipment support heights may comprise an equipment ceiling height, an equipment standing height, an equipment seated height, and an equipment floor height. The apparatus may comprise the piece of exercise equipment. The piece of exercise equipment may comprise a plurality of exercise grips operable to support a weight of a user. The plurality of exercise grips may comprise one or more of: a pull-up bar; a plurality of monkey bars; and a plurality of finger grips. The piece of exercise equipment may be removably attached to the frame at each height of the plurality of different equipment support heights. The frame may comprise pegs and the piece of exercise equipment may be removably attachable to the pegs.

[0017] The apparatus may comprise a second actuator that is attachable to and operable with the frame to move the equipment support within a second range of movement including the plurality of different equipment support heights while maintaining an orientation of the equipment support relative to the frame. The second actuator may comprise a second electric motor. The second actuator may comprise a second controller that is electronically operable with the second electric motor to move the equipment support within the second range of movement. The second controller may be electronically operable with the second electric motor responsive to one or more of a second switch, a second timer, a second sensor, a second program, and a second mobile device.

[0018] The apparatus may comprise a second lift system in the posts that is operable with the second actuator to cause vertical movements of the equipment support within the second range of movement and stabilize the equipment support during the vertical movements of the equipment support. The second lift system may comprise a second threaded rod that is rotatably mounted and vertically fixed in the first post of the posts. A third actuator member in the first post may be operably attached to the second threaded rod and the equipment support so that rotation of the

threaded rod causes the vertical movements of the work surface. The third actuator member may comprise threads that are operable with corresponding threads of the second threaded rod to cause the vertical movements of the equipment support when the second threaded rod is rotated, stabilize the equipment support during the vertical movements within the second range of movement, and maintain a vertical position of the equipment support when the second threaded rod is not rotated.
[0019] The second lift system may comprise a third threaded rod that is rotatably mounted and vertically fixed in the second post of the posts. A fourth actuator member in the second post may be operably attached to the third threaded rod and the equipment support so that rotation of the third threaded rod causes the vertical movements of the equipment support. The fourth actuator member may comprise threads that are operable with corresponding threads of the third threaded rod to cause the vertical movements of the equipment support when the third threaded rod is rotated, stabilize the equipment support during the vertical movements within the second range of movement, and maintain the vertical position of the equipment support when the third threaded rod is not rotated.
[0020] The first post may comprise a third elongated opening and a portion of the third actuator member extends through the third elongated opening to vertically support the equipment support. The second post may comprise a fourth elongated opening and a portion of the fourth actuator member extends through the fourth elongated opening to vertically support the equipment support. The third actuator member may comprise a third plurality of wheels that act on the interior surfaces of the first post to stabilize the equipment support during the vertical movements of the equipment support. The fourth actuator member may comprise a fourth plurality of wheels that act on the interior surfaces of the second post to stabilize the equipment support during the vertical movements of the equipment support. The third actuator member may be operable to position the third plurality of wheels against the interior surfaces of the first post. The fourth actuator member may be operable to position the fourth plurality of wheels against the interior surfaces of the second post. The second actuator may be operable to rotate the second threaded rod and the third threaded rod to at the same time to cause the vertical movements of the equipment support. The first lift system and the second lift system are independently operable.
[0021] Another aspect of this disclosure is an apparatus. For example, the apparatus may comprise: a frame; a work surface that is attachable to the frame and selectively positionable at a plurality of different work surface heights relative to the frame; and an actuator that is attachable to and operable with the frame to move the work surface within a range of movement including the plurality of different work surface heights while maintaining an orientation of the work surface relative to the frame, wherein the work surface comprises an exercise grip that is operable to support a weight of a user at each height of the plurality of different work surface heights.
[0022] The exercise grip may be selectively movable together with the work surface in a generally vertical direction between the plurality of different heights. The exercise grip is selectively movable independent of the work surface between a plurality of different grip positions including: a working position where the exercise grip is spaced apart from the work surface and operable to support the weight of the user; and a stored position where the exercise grip is adjacent the work surface. The exercise grip may be moveable in a generally horizontal direction between the plurality of different grip positions. An underside of the work surface may comprise a plurality of tubes operable to support the weight of the user. The exercise grip may be receivable in a tube of the plurality of tubes. The exercise grip may comprise a U-shape with a pair of grip shafts that are receivable in two tubes of the plurality of tubes. The exercise grip may be moveable in a generally lateral direction between the posts by removing the pair of grip shafts from a first set of two tubes of the plurality of tubes and receiving the pair of grip shafts in a second set of two tubes of the plurality of tubes. The apparatus may comprise a second the exercise grip is receivable in a second tube of the plurality of tubes. The second exercise grip may comprise a second U-shape with a second pair of grip shafts that are receivable in two different tubes of the plurality of tubes.

[0023] The frame may be free standing on the floor. The frame may comprise posts that are independently expandable in the generally vertical direction to obtain a press fit between a ceiling and a floor. The frame may comprise a header that spans between the posts and is expandable in the generally vertical direction toward the ceiling to obtain the press fit. A portion of the actuator may be located in the header. The apparatus may comprise a lift system in the posts that is operable with the actuator to cause vertical movements of the work surface within the range of movement and stabilize the work surface during the vertical movements of the work surface. The lift system may comprise a threaded rod that is rotatably mounted and vertically fixed in a first post of the posts. The lift system may comprise a first actuator member in the first post that is operably attached to the threaded rod and the work surface so that rotation of the threaded rod causes the vertical movements of the work surface. The first actuator member may comprise threads that are operable with corresponding threads of the threaded rod to cause the vertical movements of the work surface when the threaded rod is rotated, stabilize the work surface during the vertical movements within the range of movement, and maintain a vertical position of the work surface when the threaded rod is not rotated.

[0024] The first post may comprise a first elongated opening and a portion of the first actuator member extends through the elongated opening to vertically support the work surface. The first actuator member may comprise a plurality of wheels that act on the interior surfaces of the first post to stabilize the work surface during the vertical movements of the work surface. The first actuator member may be operable to position the plurality of wheels against the interior surfaces of the first post. The lift system may comprise: a guide rod that is rotatably and vertically fixed in a second post of the posts; and a second actuator member in the second post that is operably attached to the first actuator member, the guide rod, and the work surface so that rotation of the threaded rod causes the vertical movements of the work surface. Rotation of the threaded rod may cause the first actuator member to move together with the second actuator member in the generally vertical direction to maintain a generally level orientation of the work surface during the vertical movements of the work surface.

[0025] The threads of the first actuator member may be operable with the corresponding threads of the threaded rod to cause the vertical movements of the work surface when the threaded rod is rotated, stabilize the work surface during the vertical movements within the range of movement, and maintain the vertical position of the work surface when the threaded rod is not rotated. The second post may comprise a second elongated opening and a portion of the second actuator member extends through the second elongated opening to vertically support the work surface. The second actuator member may comprise a second plurality of wheels that act on interior surfaces of the second post to stabilize the second side of the work surface during the vertical movements within the range of movement. The second actuator member may be operable to position the second plurality of wheels against the interior surfaces of the second post.

[0026] The lift system may comprise a cable that is operatively attached to the first actuator member and the second actuator member so that rotation of the threaded rod causes the first actuator member to move vertically with the second actuator member. The frame may comprise an equipment support that is operable with the frame to position a piece of exercise equipment at a plurality of different equipment support heights relative to the frame when the frame is press fit between the ceiling and the floor. The plurality of different equipment support heights may comprise an equipment ceiling height, an equipment standing height, an equipment seated height, and an equipment floor height. The apparatus may comprise the piece of exercise equipment. The piece of exercise equipment may be removably attached to the frame at each height of the plurality of different equipment support heights.

[0027] The apparatus may comprise a second actuator that is attachable to and operable with the frame to move the equipment support within a second range of movement including the plurality of different equipment support heights while maintaining an orientation of the equipment support

relative to the frame. The apparatus may comprise a second lift system in the posts that is operable with the second actuator to cause vertical movements of the equipment support within the second range of movement and stabilize the equipment support during the vertical movements of the equipment support. The second lift system may comprise a second threaded rod that is rotatably mounted and vertically fixed in the first post of the posts. The apparatus may comprise a third actuator member in the first post that is operably attached to the second threaded rod and the equipment support so that rotation of the threaded rod causes the vertical movements of the work surface. The third actuator member may comprise threads that are operable with corresponding threads of the second threaded rod to cause the vertical movements of the equipment support when the second threaded rod is rotated, stabilize the equipment support during the vertical movements within the second range of movement, and maintain a vertical position of the equipment support when the second threaded rod is not rotated.

[0028] The second lift system may comprise a third threaded rod that is rotatably mounted and vertically fixed in the second post of the posts. The apparatus may comprise a fourth actuator member in the second post that is operably attached to the third threaded rod and the equipment support so that rotation of the third threaded rod causes the vertical movements of the equipment support. The fourth actuator member may comprise threads that are operable with corresponding threads of the third threaded rod to cause the vertical movements of the equipment support when the third threaded rod is rotated, stabilize the equipment support during the vertical movements within the second range of movement, and maintain the vertical position of the equipment support when the third threaded rod is not rotated. The first post may comprise a third elongated opening and a portion of the third actuator member extends through the third elongated opening to vertically support the equipment support. The second post may comprise a fourth elongated opening and a portion of the fourth actuator member may extend through the fourth elongated opening to vertically support the equipment support.

[0029] The third actuator member may comprise a third plurality of wheels that act on the interior surfaces of the first post to stabilize the equipment support during the vertical movements of the equipment support. The fourth actuator member may comprise a fourth plurality of wheels that act on the interior surfaces of the second post to stabilize the equipment support during the vertical movements of the equipment support. The third actuator member may be operable to position the third plurality of wheels against the interior surfaces of the first post. The fourth actuator member may be operable to position the fourth plurality of wheels against the interior surfaces of the second post. The second actuator may be operable to rotate the second threaded rod and the third threaded rod to at the same time to cause the vertical movements of the equipment support. The first lift system and the second lift system may be independently operable.

[0030] Another aspect of this disclosure is an apparatus. For example, the apparatus may comprise a frame that is expandable in a generally vertical direction to obtain a press fit between a ceiling and a floor; and a work surface that is attachable to the frame and selectively positionable at a plurality of different work surface heights between the ceiling and the floor when the frame is press fit between the ceiling and the floor, the plurality of different work surface heights including at least a seated height and a standing height.

[0031] Another aspect of this disclosure is an apparatus. For example, the apparatus may comprise: a frame; a work surface that is attachable to the frame and selectively positionable at a plurality of different work surface heights; and an actuator that is attachable to and electronically or manually operable with the frame to move the work surface between the plurality of different work surface heights while maintaining an orientation of the work surface relative to the frame.

[0032] Another aspect of this disclosure is an apparatus. For example, the apparatus may comprise: a frame that comprising an upper portion attachable to an upper support structure and a lower portion attachable to a lower support structure; a work surface that is attachable to the frame and selectively positionable at a plurality of different work surface heights between the upper support

structure and the lower support structure; and an actuator that is attachable to and operable with the frame to move the work surface within a range of movement including the plurality of different work surface heights while maintaining an orientation of the work surface relative to the frame.
[0033] The upper support structure may comprise a first portion of a building and the lower support structure may comprise a second portion of the building. The upper support structure may comprise one of: a door frame; a window frame; and a wall. The lower support structure my comprise a floor.
[0034] Another aspect of this disclosure is an apparatus. For example, the apparatus may comprise: a door or window frame; and a work surface that is attachable to the door or window frame and selectively positionable at a plurality of different work surface heights, the plurality of different work surface heights including at least a seated height and a standing height.
[0035] Another aspect of this disclosure is an apparatus. For example, the apparatus may comprise: a door or window frame; and an equipment support that is attachable to the door or window frame and selectively positionable at a plurality of different equipment support heights.
[0036] Another aspect of this disclosure is an apparatus. For example, the apparatus may comprise a work surface that is attachable to a door frame, a window frame, or a wall and selectively positionable at a plurality of different work surface heights relative to the door frame, the window frame, or the wall.
[0037] Another aspect of this disclosure is an apparatus. For example, the apparatus may comprise an equipment support that is attachable to a door frame, a window frame, or a wall and selectively positionable at a plurality of different equipment support heights relative to the door frame, the window frame, or the wall.
[0038] Any apparatus described herein may comprise a resistance training system that is located in the work surface and operable at each height of the plurality of different work surface heights. The resistance training system may comprise one or more of: an exercise grip; and a resistance device that is attached to the work surface operable to apply a resistance force to the exercise grip when moved away from the work surface. The resistance device may comprise a cable and work surface may comprise an internal frame that is attachable to the frame, the resistance device is rigidly attached to the internal frame, and the cable is operatively attached to exercise grip and the resistance device. The cable may be removably attached to the exercise grip. The resistance device may comprise an electronic motor that is operable to apply the resistance force. The electronic motor may comprise a spool, the spool may be operatively attached to the cable, and the electronic motor may apply the resistance force by rotating the spool. The internal frame may comprise a tube defining a lumen and the cable may be routed from the spool and through the lumen.
[0039] The apparatus may comprise a cable guide defining a cable guide lumen. The cable guide may be slidably mounted in the tube. The cable may be routed through the cable guide lumen. The cable guide is slidable between a first position where the cable exits the cable guide lumen at a first location spaced apart from the internal frame and a second position where the cable exits the cable guide lumen at a second location adjacent the frame. The exercise grip may comprise one of a palm grip and a bar. The apparats may comprise a track that is attached to the frame; and a support structure that is moveably attachable to the track and operable to maintain a vertical position of the exercise grip by countering the resistance force.
[0040] The track may comprise a front surface comprising an elongated opening and a rear surface comprising a plurality of holes; and the support structure may comprise a hook portion extending through the elongated opening and a protrusion that is receivable in one hole of the plurality of holes and operable to resist counter the resistance force when received in the one hole. The support structure may comprise an L-shaped body with a vertical leg, a horizontal leg, and wheels on the vertical leg. The hook portion may be located on the horizontal leg. The hook portion may comprise one or both of: a first J-hook operable to counter the resistance force when the work surface is at the ceiling height; and a second J-hook operable to counter the resistance force when the work surface is at the floor height.

[0041] Any apparatus described herein may comprise a mounting arm that is moveably attached to the frame and operable to support a piece of electronic equipment. The piece of electronic equipment may comprise one of: a camera; a light; a microphone; a monitor; a motion sensor; and a script prompter.
[0042] Any apparatus described herein may comprise a retractable computer system that is removably attached to a computer and moveable between: a working position where a monitor of the computer is visible to a user; and a stored position where the monitor is contained in the work surface. The work surface may comprise a monitor cavity and the monitor may be folded into the monitor cavity when the retractable computer system is moved into the stored position. The work surface may comprise a keyboard cavity and a keyboard of the computer may be stowable in the keyboard cavity when the retractable computer system is moved into the stored position. The work surface may comprise a peripheral cavity and a mouse of the computer is stowable in the peripheral cavity when the retractable computer system is moved into the stored position. The retractable computer system may comprise a monitor stand that is foldable between: a first position operable to support the monitor in the working position; and a second position operable to cover the plurality of cavities.
[0043] Any apparatus described herein may comprise a side support that is extendable from the work surface and operable to support one or both of a side table and a weight of the user.
[0044] Another aspect of this disclosure is an apparatus. For example, the apparatus may comprise a frame, a work surface that is attachable to the frame, and a resistance training system that is located in the work surface. The frame may be expandable in a generally vertical direction to obtain a press fit between a ceiling and a floor. The work surface may be attachable to the frame and selectively positionable at a plurality of different work surface heights between the ceiling and the floor when the frame is press fit between the ceiling and the floor. The plurality of different work surface heights may include a ceiling height, a standing height, a seated height, and a floor height. The actuator may be attachable to and operable with the frame to move the work surface within a range of movement including the plurality of different work surface heights while maintaining an orientation of the work surface relative to the frame. The frame may comprise posts that are independently expandable in the generally vertical direction to obtain the press fit.
[0045] The apparatus may comprise a lift system in the posts that is operable with the actuator to cause vertical movements of the work surface within the range of movement and stabilize the work surface during the vertical movements of the work surface. The lift system may comprise a threaded rod that is rotatably mounted and vertically fixed in a first post of the posts. The lift system may comprise a first actuator member in the first post that is operably attached to the threaded rod and the work surface so that rotation of the threaded rod causes the vertical movements of the work surface. The work surface may be operable with the frame to support a weight of a user at each height of the plurality of different work surface heights.
[0046] The resistance training system comprises an exercise grip that is selectively movable together with the work surface in the generally vertical direction between the plurality of work surface different heights, and independent of the work surface in a generally horizontal direction between a plurality of different grip positions including a working position where the exercise grip is spaced apart from the desk and a stored position where the exercise grip is adjacent the desk frame. The resistance training system may comprise a resistance device that is attached to the work surface and operable to apply a resistance force to the exercise grip when moved away from the work surface. The resistance training system comprises a cable. The work surface may comprise an internal frame that is attachable to the frame. The resistance device may be rigidly attached to the internal frame. And the cable may be operatively attached to exercise grip and the resistance device. The cable may be removably attached to the exercise grip. The resistance device may comprise an electronic motor that is operable to apply the resistance force.
[0047] The electronic motor may comprise a spool. The spool may be operatively attached to the

cable. And the electronic motor may apply the resistance force by rotating the spool. The internal frame may comprise a tube defining a lumen and the cable may be routed from the spool and through the lumen. The apparatus may comprise a cable guide defining a cable guide lumen, wherein the cable guide is slidably mounted in the tube, the cable is routed through the cable guide lumen, and the cable guide is slidable between a first position where the cable exits the cable guide lumen at a first location spaced apart from the internal frame and a second position where the cable exits the cable guide lumen at a second location adjacent the frame. The exercise grip may comprise one of a palm grip and a bar.

[0048] The apparatus may comprise a track that is attached to the frame and a support structure that is moveably attachable to the track and operable to maintain a vertical position of the exercise grip by countering the resistance force. The track may comprise a front surface comprising an elongated opening and a rear surface comprising a plurality of holes. The support structure may comprise a hook portion extending through the elongated opening and a protrusion that is receivable in one hole of the plurality of holes and operable to resist counter the resistance force when received in the one hole. The support structure may comprise an L-shaped body with a vertical leg, a horizontal leg, and wheels on the vertical leg. The hook portion may be located on the horizontal leg. The hook portion may comprise one or both of: a first J-hook operable to counter the resistance force when the work surface is at the ceiling height; and a second J-hook operable to counter the resistance force when the work surface is at the floor height.

[0049] For any apparatus described herein, one or both of the first J-hook and the second J-hook may comprise a clamping mechanism operable to secure the exercise grip to the support structure so that apparatus may be operable like a Smith machine.

[0050] Related apparatus, methods, systems, and kits also are disclosed, each possible combination and variation thereof being part of this disclosure.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

[0051] The accompanying drawings, which are incorporated in and constitute part of this disclosure, illustrate exemplary aspects that, together with the written descriptions, serve to explain the principles of this disclosure. Numerous aspects are shown conceptually in the drawings and particularly described, pointed out, and taught in the written descriptions. Some structural and operational aspects may be better understood by referencing the written portions together with the accompanying drawings, of which:

[0052] FIG. **1** depicts a perspective view of an exemplary workstation with a frame and a work surface that is selectively movable relative to the frame between a plurality of different work surface heights;

[0053] FIG. **2** depicts an opposite-facing perspective view of the FIG. **1** workstation;

[0054] FIG. **3** depicts an exploded perspective view of the FIG. **1** workstation;

[0055] FIG. **4** depicts an assembled perspective view of a frame of the FIG. **1** workstation;

[0056] FIG. **5** depicts a perspective view of an actuator of the FIG. **1** workstation;

[0057] FIG. **6** depicts a profile view of the FIG. **5** actuator;

[0058] FIG. **7** depicts a top-down section view of a post of the FIG. **4** frame;

[0059] FIG. **8** depicts a top-down section view of another post of the FIG. **4** frame;

[0060] FIG. **9** depicts a profile section view of the FIG. **7** post;

[0061] FIG. **10** depicts another profile section view of the FIG. **7** post;

[0062] FIG. **11** depicts a perspective view of the FIG. **1** workstation looking under the work surface after being moved to a ceiling height;

[0063] FIG. **12** depicts a bottom-up plan view of the FIG. **1** work surface;

[0064] FIG. **13** depicts a section view of the FIG. **1** workstation with the work surface at a floor height;
[0065] FIG. **14** depicts a section view of the FIG. **1** workstation with the work surface at a standing height;
[0066] FIG. **15** depicts a section view of the FIG. **1** workstation with the work surface at a seated height;
[0067] FIG. **16** depicts a section view of the FIG. **1** workstation with the work surface at a ceiling height;
[0068] FIG. **17** depicts a perspective view of an exemplary workstation with frame, a work surface that is selectively movable relative to the frame between a plurality of different work surface heights, and an equipment support that is selectively movable relative to the frame between a plurality of different equipment support heights.
[0069] FIG. **18** depicts an exploded perspective view of the FIG. **17** workstation;
[0070] FIG. **19** depicts an assembled perspective view of a frame of the FIG. **17** workstation;
[0071] FIG. **20** depicts a profile section view of an actuator of the FIG. **17** workstation;
[0072] FIG. **21** depicts a top-down section view of a post of the FIG. **19** frame;
[0073] FIG. **22** depicts a top-down section view of another post of the FIG. **19** frame;
[0074] FIG. **23** depicts a bottom-up plan view of the FIG. **17** work surface;
[0075] FIG. **24** depicts a profile section view of the FIG. **21** post;
[0076] FIG. **25** depicts another profile section view of the FIG. **21** post;
[0077] FIG. **26** depicts a section view of the FIG. **17** workstation with the work surface at a ceiling height and the equipment support at a standing height;
[0078] FIG. **27** depicts a section view of an exemplary workstation with a work surface at a seated height and an equipment support at a standing height;
[0079] FIG. **28** depicts a perspective view of the FIG. **27** workstation integrated into a door frame;
[0080] FIG. **29** depicts a perspective view of the FIG. **27** workstation integrated into a wall surrounding a door frame;
[0081] FIG. **30** depicts a perspective view of an exemplary workstation integrated into a wall with a work surface at a seated height and an equipment support at a standing height;
[0082] FIG. **31** depicts a perspective view of an exemplary workstation with frame, a work surface that is selectively movable relative to the frame between a plurality of different work surface heights, an equipment support that is selectively movable relative to the frame between a plurality of different equipment support heights, and a plurality of mounting arms, in which the work surface is at a ceiling height and the equipment support is at a standing height;
[0083] FIG. **32** depicts a perspective view of an exemplary internal frame for an exemplary workstation;
[0084] FIG. **33** depicts a top-down view of the FIG. **32** internal frame;
[0085] FIG. **34** depicts a perspective view of the FIG. **32** internal frame attached to exemplary posts;
[0086] FIG. **35** depicts exemplary tracks for the FIG. **31** frame;
[0087] FIG. **36** depicts an exemplary support structure for use with the FIG. **35** tracks;
[0088] FIG. **37** depicts the FIG. **31** workstation with the work surface at a ceiling height, the equipment support at a standing height, and an exemplary set of cable guides in an extended position;
[0089] FIG. **38** depicts the FIG. **31** workstation with the work surface at a floor height, the equipment support at a standing height, and an exemplary set of cable guides in an extended position;
[0090] FIG. **39** depicts the FIG. **31** workstation with the work surface at a floor height, the equipment support at a standing height, and an exemplary set of cable guides in a retracted position;

[0091] FIG. **40** depicts an exemplary work surface with a retractable computer;
[0092] FIG. **41** depicts the FIG. **40** work surface in which the computer is partially retracted;
[0093] FIG. **42** depicts the FIG. **40** work surface in which the computer is partially retracted; and
[0094] FIG. **43** depicts the FIG. **40** work surface in which the computer is fully retracted.
[0095] FIG. **44** depicts the FIG. **31** workstation with optional side tables.
[0096] Aspects of the examples illustrated in the drawings may be explained further by way of citations to the drawing and element numbers in the text of the description. The drawings and any citations thereto are provided for illustration purposes, and to further clarify the description of the present disclosure and are not intended to limit the present disclosure unless claimed.

DETAILED DESCRIPTION

[0097] Aspects of the present disclosure are not limited to the exemplary structural details and component arrangements described in this description and shown in the accompanying drawings. Many aspects of this disclosure may be applicable to other aspects and/or capable of being practiced or carried out in various variants of use, including the examples described herein.
[0098] Throughout the written descriptions, specific details are set forth to provide a more thorough understanding to persons of ordinary skill in the art. For convenience and ease of description, some well-known elements may be described conceptually to avoid unnecessarily obscuring the focus of this disclosure. In this regard, the written descriptions and accompanying drawings should be interpreted as illustrative rather than restrictive, enabling rather than limiting.
[0099] Exemplary aspects of this disclosure reference dynamic workstation apparatus, methods, systems, and kits are disclosed. Some aspects are described with reference to particular elements (e.g., a work surface) moveable relative to other elements (e.g., a frame) utilizing particular mechanisms (e.g., an actuator) operable to cause particular movements (e.g., moving the work surface vertically relative to the frame) with particular movement characteristics (e.g., between a standing position and a floor position). Unless claimed, these descriptions are provided for convenience and not intended to limit this disclosure. Accordingly, any aspects described in this disclosure with reference to these particular examples may be similarly utilized with any comparable apparatus, methods, systems, and kits.
[0100] Several exemplary reference axes are described, including a lateral axis X-X, a longitudinal axis Y-Y, and a vertical axis Z-Z. Some elements and/or movements thereof are described relative to these axes, such as a first or upward movement direction D**1** and a second or downward movement path D**2**. For example, lateral axis X-X and longitudinal axis Y-Y may define a horizontal working plane, and various elements may be movable along or about vertical axis Z-Z in directions toward and away from the plane. As a further example, some objects may be described as “elongated,” meaning that they have a length greater than a width along a reference axis. Additional movements and forces are similarly described. These relative terms are provided for convenience and do not limit this disclosure unless claimed.
[0101] Inclusive terms such as “comprises,” “comprising,” “includes,” “including,” and variations thereof, are intended to cover a non-exclusive inclusion, such that any motion isolation apparatus, methods, systems, and kits described herein, or element(s) thereof described as comprising a list of elements does not include only those elements but may include other elements not expressly listed and/or inherent thereto. Unless stated otherwise, the term “exemplary” means “example” rather than “ideal.” Various terms of approximation may be used, including “approximately” and “generally.” Approximately means “roughly” or within 10% of a stated number or outcome and generally means “usually” or more than a 50% probability of a stated number or outcome.
[0102] Connective terms such as “attached to,” “attachable to,” and “attaching” are intended to generically describe a structural connection between two or more elements. Some structural connections may be “rigidly attached” so that the connected elements are generally non-rotatable relative to one another, as when the elements are formed together (e.g., cast, bolted, and/or welded) and cannot be rotated independently without deflecting relative to one another or being damaged.

Other structural connections may be “rotatably or movably attached” so that the connected elements are coupled together to permit movements relative to one another, as when the elements are pinned together (e.g., with any type of rotating, sliding, and/or telescoping connection) and can be rotated or moved freely and independently without damage. Unless stated otherwise, these exemplary connective terms and their modifiers may comprise any such variations.

[0103] Aspects of any exemplary computing device are described. Functional terms such as “processing,” “computing,” “calculating,” “determining,” “displaying,” and the like, may refer to actions and processes performable by the computing, which may comprise any type of software and/or hardware. The software of the computing device may comprise program objects (e.g., lines of codes) executable to perform various functions. Each program object may comprise a sequence of operations leading to a desired result, such as an algorithm. The operations may require or involve physical manipulations of physical quantities, such as electrical or magnetic signals capable of being stored, transferred, combined, compared, and otherwise manipulated. The signals may be described conceptually as bits, characters, elements, numbers, symbols, terms, values, or the like.

[0104] The hardware of the computing device also may comprise any known technologies for storing the program objects and any data associated therewith. For example, the program objects may be stored in any machine (e.g., computer) readable storage medium in communication with the processing unit, including any mechanism for storing or transmitting data and information in a form readable by a machine (e.g., a computer). Exemplary storage mediums may comprise read only memory (“ROM”); random access memory (“RAM”); erasable programmable ROMs (“EPROMs”); electrically erasable programmable ROMs (“EEPROMs”); magnetic or optical cards or disks; flash memory devices; and/or any electrical, optical, acoustical, or other form of propagated signals (e.g., carrier waves, infrared signals, digital signals, etc.).

[0105] In keeping with above, the computing device may comprise a smartphone or similar device, such as iPhone or other iOS device, an Android phone or other Android device, or any comparable and/or compatible devices operable as the computing device described herein.

[0106] Some aspects of the present disclosure are described with reference to methods, steps of which may be performable with the computing device. To help orient the reader, some methods may be described with reference to a conceptual drawing, such as a flowchart with boxes interconnected by arrows. Each box may represent a particular step or technology. The boxes may be combined, interconnected, and/or interchanged to provide options for additional modifications according to this disclosure. The arrows may define an exemplary sequence of operation for the steps, the order of which may be important. For example, a particular order of the steps may describe a sequence of operation that is performable by the computing element to realize specific processing benefits, such as improving a computational performance and/or an operational efficiency.

[0107] Aspects of this disclosure are now described with reference to exemplary workstation **100**. As shown in FIG. **1**, for example, workstation **100** may comprise a work surface that is adjustable between an extended range of positions including a floor height, a seated height, a standing height, and a ceiling height. Workstation **100** may comprise overhead elements that are positioned to enable various types of fitness enhancing activities, such as hanging by the hands. Some of the elements may be moveable to different heights, allowing for customization. As shown in FIGS. **1** and **2**, for example, workstation **100** may comprise a frame **101**, a work surface **102**, an actuator **103**, and an overhead element **104**, aspects of which are now described in detail.

[0108] Frame **101** may comprise a rigid configuration of structural shapes operable to support work surface **102**, actuator **103**, overhead element **104**, and transfer any forces applied therewith and/or therewith to a supporting structure, such as a building. Aspects of frame **101** may be expandable in a generally vertical direction to obtain a press fit between an upper supporting structure such as a ceiling **2** and a lower supporting structure such as a floor **3** to reduce a footprint of workstation **100**.

As described further below, frame **101** may comprise or be integrated into a door frame, a window frame, and/or a wall, such that ceiling **2** and floor **3** are exemplary supporting structures provided to facilitate understanding of this disclosure and not limiting unless claimed as such.

[0109] Frame **101** may comprise structural elements that are independently expandable upwards and/or downwards in the generally vertical direction to obtain the press fit. As shown in FIG. **3**, for example, frame **101** may comprise a post **105**, a post **106**, and a header **107**. As shown in FIG. **7**, for example, post **105** may be a composite structure comprising a tube **110**, a cladding element **111**, and interior channel **112**. As shown in FIG. **8**, for example, post **106** may be a composite structure comprising a tube **114**, a cladding element **115**, and interior channel **116**. Each tubes **110**, **114** may be a structural shape, such as a 3″×3″×⅛″ aluminum tube made of an aluminum alloy such as AA 6063. Cladding elements **111**, **115** may be wooden structures that are attached to an outer side of tubes **110**, **114** by adhesives and/or screws. Interior channels **112**, **116** may be defined by vertical grooves in cladding elements **111**, **115** that are sealed off by the outer sides of tubes **110**, **114** when attached to elements **111**, **115** to provide spaces for routing electrical wiring and controls. Cladding element **111** may comprise threaded inserts **117** (e.g., FIG. **7**) and cladding element **115** may comprise threaded inserts **118** (e.g., FIG. **8**). Pegs **119** (e.g., FIG. **1**) may be inserted into threaded inserts **117** and pegs **120** (e.g., FIG. **2**) may be inserted into threaded inserts **118**, such that pegs **119**, **120** may be aligned vertically and horizontally.

[0110] Aspects of frame **101** may be independently expandable in the generally vertical direction to obtain the press fit. Posts **105**, **106** may be independently expandable in a downward direction toward floor **3**. Each post **105**, **106** may comprise a leveling mechanism that is expandable downwardly toward floor **3**. As shown in FIG. **6**, for example, post **105** may be located between header **107** and a base plate **121** and post **106** may be located between header **107** and a base plate **122**. As shown in FIG. **9**, for example, base plate **121** may comprise a raised portion that is receivable inside of tube **110** and leveling feet **123** that are expandable to adjust a vertical location and orientation of post **105** relative to floor **3**. Base plate **122** may similarly comprise a raised portion that is receivable inside of tube **114** and leveling feet **124** like feet **123**, making plate **122** similarly expandable to adjust a vertical location and orientation of post **106** relative to floor **3**. In keeping with FIG. **9**, for example, leveling feet **123**, **124** may comprise floor contact plates **125** and threaded bolts **126** that are rotatably attachable to threaded openings in base plates **121**, **122** so that the vertical location and orientation of posts **105**, **106** may be adjusted by rotating threaded bolts **126** to move floor contact plates **125**, **126** toward or away from floor **3**. Each threaded bolt **126** may be attached to floor contact plates **125**, **126** by a multiaxial connection so that frame **101** may be adjustable relative to the floor **3**, even it is unlevel.

[0111] Header **107** may extend between posts **105** and **106**. As shown in FIG. **4**, for example, header **107** may comprise structural shapes rigidly attached to one another, like a box beam. As shown in FIGS. **4** and/or **10**, for example, header **107** may comprise a header base plate **130**, a C-channel **131**, and a C-channel **132** that are bolted together to form a box beam spanning between post **105** and **106**. Header base plate **130** may comprise a ⅜″ steel plate and C-channels **131**, **132** may comprise 3″×5″×¼″ aluminum channels made of an aluminum alloy such as AA 6063. As shown in FIG. **4**, for example, each end of header **107** may comprise an end plate (e.g., another ⅜″ steel plate) that is rigidly attached to header base plate **130** and one of C-channels **131**, **132**. In keeping with FIG. **10**, for example, header base plate **130** may comprise lowered portions that are receivable inside of and rigidly attached to tubes **110**, **114**.

[0112] Aspects of header **107** may be expandable in the generally vertical direction toward ceiling **2** to obtain the press fit. Like base plates **121**, **122**, header **107** may comprise a leveling mechanism that is vertically expandable toward ceiling **2**, such as jack screws that are independently expandable toward ceiling **2**. As shown in FIG. **6**, for example, header **107** may comprise a jack screw **135** located above post **105** at one end of header **107** and a jack screw **136** located above post **106** at an opposite end of header **107**. Jack screw **135** may comprise a base plate **137**, a

threaded shaft **138**, and a ceiling contact plate **139** and jack screw **136** may comprise a base plate **140**, a threaded shaft **141**, and a ceiling contact plate **142**. Base plate **137** may be rigidly attached to the one end of header **107** and base plate **140** may be rigidly attached to the opposite end of header **107**. Threaded shafts **138**, **141** may be rotatably engaged with threaded openings extending through base plates **137**, **140**. Jack screws **135**, **136** may thus be operable to adjust the vertical location and orientation of frame **101** relative to ceiling **2** by rotating threaded shafts **138**, **141** to move ceiling contact plates **139**, **142** toward or away from ceiling **2**. As shown in FIG. **6**, for example, ceiling contact plates **139**, **142** may comprise a lever and a multi-axial connection with threaded shafts **138**, **141** so that jack screws **135**, **136** may be adjustable relative to ceiling **2**, even it is unlevel.

[0113] Work surface **102** may be attachable to frame **101** and selectively positionable at a plurality of different work surface heights between ceiling **2** and floor **3**. By way of example, the plurality of different work surface heights may comprise a floor height like that shown in FIG. **13**, a seated height like that shown in FIG. **14**, a standing height like that shown in FIG. **15**, and a ceiling height like that shown in FIG. **16**, in each of which the depicted person may be of average height. Work surface **102** may be made of any rigid materials that resist bending and provide a suitable work surface for any type of work requiring a flat surface. A computer **4** is shown in FIG. **1** as an example of desk-based work, although work surface **102** may be similarly utilized to support a bed, machines, a kitchen sink, tools, and/or anything requiring a generally flat surface or proximity thereto. As shown in FIGS. **1** and **2**, for example, work surface **102** may have a “winged” profile shape defined by a flat surface area **150** flanked by a pair of curved surface areas **151**.

[0114] Aspects of work surface **102** may be operable with frame **101** to support a weight of a user at each height of the plurality of different work surface heights. Edges of work surface **102** may support the weight and/or work surface **102** may comprise one or more exercise grips operable to support the weight. As shown in FIGS. **11** and/or **12**, for example, work surface **102** may comprise an internal or internal frame **152**, support grips **153**, and movable grips **154**.

[0115] Internal frame **152** may comprise a box frame structure formed by plurality of structural steel shapes that are arranged into a rectangular shape and rigidly attached to one another via bolting or welding. As shown in FIG. **12**, for example, three sides of internal frame **152** may be embedded into work surface **102** and a side **155** of internal frame **152** may be offset from an outer perimeter of work surface **102**. Side **155** of internal frame **152** may comprise holes and support grips **153** may comprise steel tubes that are inserted into the holes and rigidly attached to internal frame **152**, resulting in lumens extending into work surface **102**. As shown in FIG. **12**, for example, support grips **153** may be fixed relative to internal frame **152** and used as pull-up bars or monkey bars when work surface **102** is at the ceiling height. Support grips **153** and moveable grips **154** may be moveable together with work surface **102** in the generally vertical direction between the plurality of different heights.

[0116] Moveable grips **154** may be selectively moveable relative to internal frame **152**. As shown in FIG. **3**, for example, each moveable grip **154** may comprise a U-shape defined by a palm grip with two grip shafts extending outwardly therefrom. The grip shafts may be receivable in two lumens of support grips **153**, allowing the grip shafts to both support the weight of a user and be slid back and forth inside support grips **153**. As shown in FIGS. **11** and **12**, for example, moveable grips **154** may thus be moveable independent of work surface **102** in a generally horizontal direction between a plurality of different grip positions including a working position where they are spaced apart from the desk and operable to support a weight of a user (e.g., as in FIG. **11**) and a stored position where they are adjacent the desk frame (e.g., as in FIG. **12**). The grip portion of moveable grips **154** may be hidden under work surface **102** and similarly operable to support the weight of the user when in the stored position.

[0117] Actuator **103** may comprise mechanical and/or electrical components that are attachable to and operable with frame **101** to move work surface **102** within a range of movement including the plurality of different work surface heights while maintaining an orientation of work surface **102**

relative to frame **101**. All or portions of actuator **103** may be located inside elements of frame **101**, such as inside of posts **105**, **106** and/or header **107** to keep its components out of sight and harm's way. As shown in FIG. **3**, for example, actuator **103** may comprise an electric motor **160** that is located in header **107**, rigidly attached to header base plate **130**, and operable with frame **101** to move work surface **102** within the range of movement including the plurality of different work surface heights. By way of example, electric motor **160** may comprise a drive motor with 500 W delivered to mechanical load with a maximum speed of 1,500 rpm (157 rad/s) (1.5 Nm of output motor shaft torque); or a rated power of 250 W, a rated volts of 42 VDC, a rated amps of 6 ADC, a max speed of 4000 RPM, and DC res of 0.60 OHMS.

[0118] As shown in FIG. **3**, for example, actuator **103** may comprise a controller **161** that is located in header **107** and electronically operable with electric motor **160** to move work surface **102**. Controller **161** may be electronically operable with electric motor **160** responsive to one or more of a switch, a timer, a sensor, a program, and a computing device, any of which may be part of computer **4** or controller **161** (e.g., FIG. **1**), a control element **162** (e.g., FIG. **2**), and/or an external control device in communication therewith over a wired or wireless connection, such as a mobile phone with a WiFi connection to controller **161** rendering workstation **100** operable with an application on the mobile phone.

[0119] Actuator **103** may comprise a lift system comprising mechanical components operable to generate an input torque sufficient to move work surface **102**. As shown in FIGS. **3** and **5-10**, for example, the lift system may be operable with frame **101** and an input torque applied by electric motor **160** to move work surface **102** within the range of movement including the plurality of different work surface heights, while maintaining an orientation of work surface **102** relative to frame **101**. Portions of the lift system may be located in frame **101**, such as in post **105**, post **106**, and/or header **107**, to keep them out of harm's way. As shown in FIG. **3**, for example, the lift system may comprise a gear box **164**, a threaded rod **165**, a first actuator member **166**, a guide rod **167**, a second actuator member **168**, and a cable **169**.

[0120] Gear box **164** may be located in header **107** and operable to cause the vertical movements of work surface **102**. As shown in FIG. **6**, for example, electric motor **160** may comprise an output shaft **170** extend into and through gear box **164**. As shown in FIGS. **4** and/or **6**, a manual crank **171** may be located outside of header **107**, attached to output shaft **170**, and operable to cause vertical movements of work surface **102**. In the event of a power outage, manual crank **171** may thus be manually operable to cause vertical movements of work surface **102** without electricity.

[0121] Threaded rod **165** may be rotatably mounted and vertically fixed in post **105** between an upper rotational bearing located in gear box **164** (e.g., FIG. **10**) and a lower rotational bearing located on base plate **121** (e.g., FIG. **9**). Threaded rod **165** may comprise a 30 mm leadscrew with exterior threads. A drive gear located in gear box **164** may be operable with an input torque applied by output shaft **170** to rotate threaded rod **165** in a clockwise or counterclockwise direction within post **105**. As shown in FIGS. **3**, **7**, and **9**, for example, first actuator member **166** may be located in post **105** and operably attached to threaded rod **165** and work surface **102** so that rotation of threaded rod **165** with the input torque causes vertical movements of work surface **102**.

[0122] As shown in FIGS. **5**, **7**, and **9**, for example, first actuator member **166** may comprise a lifting nut **173**, a guide track **174**, and a connector arm **175**.

[0123] Lifting nut **173** may comprise threads operable with corresponding threads of threaded rod **165** to cause the vertical movements of work surface **102** when threaded rod **165** is rotated; stabilize work surface **102** during the vertical movements; and maintain a vertical position of work surface **102** when threaded rod **165** is not rotated. As shown in FIG. **9**, for example, lifting nut **173** may comprise a circular bronze structure with internal threads. Guide track **174** may comprise a machined stainless-steel rectangular structure that is rigidly attached to lifting nut **173** and comprises wheels (e.g., nylon rollers) that act on interior surfaces of tube **110** to stabilize work surface **102** during vertical movements thereof. As shown in FIG. **9**, for example, guide track **174**

may be sized to position the wheels against the interior surfaces of tube **110** so that exterior surfaces of the wheels remain in contact therewith.

[0124] Connector arm **175** may be rigidly attached to guide track **174**. As shown in FIG. **4**, for example, post **105** may comprise an elongated opening extending in the generally vertical direction.

[0125] Connector arm **175** may extend outwardly from guide track **174** and through the elongated opening to vertically support work surface **102**. As shown in FIGS. **9** and/or **12**, for example, connector arm **175** may be rigidly attached to a portion of work surface **102**, such as internal frame **152** and/or an underside of generally flat area **150**, to transfer shear and moment forces from work surface **102**, to guide track **175**, and back to post **105** with the wheels of guide track **175**.

[0126] As shown in FIGS. **3**, **5-6**, and **8**, for example, guide rod **167** may be rotatably and vertically fixed in post **106** between an upper mount located on header base plate **130** (e.g., the opening shown in FIG. **3**), and a lower mount located on base plate **122** (e.g., FIG. **5**). Guide rod **167** may comprise a ¾″ stainless steel solid-core shaft with a polished exterior finish. In contrast to threaded rod **165**, guide rod **167** may not be rotatable. For example, each end of guide rod **167** may be rigidly attached to one of upper or lower mounts. Second actuator member **168** may be located in post **106** and operably attached to first actuator member **166**, guide rod **167**, and work surface **102** so that rotation of threaded rod **165** causes the vertical movements of work surface **102**.

[0127] As shown in FIGS. **5** and **8**, for example, second actuator member **168** may comprise a guide shaft **176**, a guide track **177**, and a connector arm **178**.

[0128] Guide shaft **176** may comprise smooth interior surfaces operable with the corresponding smooth exterior surfaces of guide rod **167** to guide the vertical movements of work surface **102** so that rotation of threaded rod **165** causes first actuator member **166** to move together with second actuator member **168** in the generally vertical direction to maintain a generally level orientation of work surface **102** during the vertical movements of work surface **102**. Because of their size and strength, the internal threads of first actuator member **166** may thus be operable with the corresponding threads of threaded rod **165** to cause the vertical movements of work surface **102** when threaded rod **165** is rotated manually or electronically; stabilize the work surface in cooperation with the interior surfaces of guide shaft **175** and the corresponding exterior surfaces of guide rod **166** during the vertical movements of work surface **102** within the range of movement; and maintain the vertical position of work surface **102** when threaded rod **165** is not rotated. Guide track **177** may comprise a machined stainless-steel rectangular structure that is rigidly attached to guide shaft **176** and comprises wheels (e.g., nylon rollers) that act on interior surfaces of tube **114** to stabilize work surface **102** during vertical movements thereof. As shown in FIG. **8**, for example, guide track **177** may be sized to position the wheels against the interior surfaces of tube **114** so that exterior surfaces of the wheels remain in contact therewith.

[0129] Connector arm **178** may be rigidly attached to guide track **177**. As shown in FIG. **4**, for example, post **105** may comprise an elongated opening extending in the generally vertical direction. Connector arm **178** may extend outwardly from guide track **177** and through the elongated opening to vertically support work surface **102**. As shown in FIGS. **8** and/or **12**, for example, connector arm **178** may be rigidly attached to a portion of work surface **102**, such as internal frame **152** and/or an underside of generally flat area **150**, to transfer shear and moment forces from work surface **102**, to guide shaft **177**, and back to post **106** with wheels of guide track **177**.

[0130] Cable **169** may be operable to transfer tensile forces from first actuator member **166** to second actuator member **168**. A ⅛″ braided steel cable may be used, which may comprise an external coating or surface treatment for durability and corrosion protection, such as a polymeric coating. As shown in FIGS. **3**, **5**, and/or **6**, for example, cable **169** may be operatively attached to first actuator member **166** and second actuator member **169** so that rotation of threaded rod **165** causes first actuator member **166** to move vertically with second actuator member **168** at

approximately the same time and speed in a smooth, controlled manner. Like other components of actuator **103**, cable **169** may be located inside frame **101**, such as by routing through post **105**, post **106**, and header **107**, so that it is out sight and harm's way.

[0131] As shown in FIGS. **5** and **6**, for example, cable **169** may comprise a continuous length comprising a first cable portion **180** extending downwardly from first actuator member **166** to a first pulley **181** located below threaded rod **165** (e.g., FIG. **9**); a second cable portion **182** extending upwardly from first pulley **181** to a first guide roller **183** located above threaded rod **165** (e.g., FIG. **10**); and a third cable portion **184** extending generally horizontally from first guide roller **183** to a second guide roller **185** located above guide rod **167** (e.g., FIG. **10**); and a fourth cable portion **186** extending downwardly from second guide roller **185** to second actuator member **168** (e.g., FIG. **10**). In this example, first cable portion **180**, first pulley **181**, and second cable portion **182** may be located in post **105**; first guide roller **183**, third cable portion **184**, and second guide roller **185** may be located in header **107**; and fourth cable portion **186** may be located in post **106**. As shown in FIG. **9**, for example, a terminal end of first cable portion **180** may be rigidly attached to guide track **174** and first pulley **181** may be rigidly attached to base plate **121**.

[0132] Overhead element **104** may comprise exercise grips operable to support a weight of a user. Different types of exercise grips may be utilized. As shown in FIG. **11**, for example, overhead element **104** may comprise a pull-up bar **190**, monkey bars **191**, and finger grips **192**. Overhead element **104** may be removably attached to frame **101** at a plurality of different heights, making it adjustable to accommodate different users and/or removable when not in use. As shown in FIG. **11**, for example, overhead element **104** may comprise a support leg **193** comprising a set of two grooves and a support leg **194** comprising another set of two grooves.

[0133] Operational aspects of workstation **100** are now described. As shown in FIG. **4**, for example, the above-described elements of frame **101**, work surface **102**, and actuator **103**, may be assembled on-site to provide functional structure **100** with a rigid U-shape that is ready for installation between ceiling **2** and floor **3**. Fully assembled views of workstation **100** are provided in FIGS. **1** and **2**, in which computer **4** has been on work surface **102**; and again in FIG. **11**, in which a pair of ring grips has been attached to overhead element **104**.

[0134] Some portions of workstation **100**, like post **105**, post **106**, and header **107** and the above-described elements of actuator **103** attached thereto, may be assembled in a factory setting and then fully assembled on-site to reduce shipping costs and simplify installation. In keeping with FIGS. **9** and **10**, for example, once fully assembled, the rigid U-shape of frame **101** may then be stood on end, slid into a desired position between ceiling **2** and floor **3**, and then expanded upwards and/or downwards by operation of leveling feet **123**, **124** and/or jack screws **135**, **138** until floor contact plates **125**, **127** and ceiling contact plates **131**, **134** are firmly pressed against ceiling **2** and floor **3**, thereby establishing the press fit. Additional elements may be used to solidify these connections, such adhesives and/or screws for rigidly attaching plates **125**, **127** and **131**, **134** to ceiling **2** and floor **3** for increased safety and stability if needed.

[0135] Once the press fit has been obtained, work surface **102** may be removably attached to frame **101** by rigidly attaching connector arms **175**, **178** to internal frame **152**, preferably when first actuator member **166** and second actuator member **168** are in the floor position. For example, some leveling objects (e.g., wood blocks) may be used to safely align bolt openings of arms **175**, **178** with corresponding bolt openings of internal frame **152** during attachment of work surface **102** to internal frame **152**, although other methods are possible. The two grip shafts of each moveable grip **154** may then be slid into a corresponding two lumens of support grips **153**, rendering grips **154** operable to support weight. Overhead element **104** may be removably attached to frame **101** at a desired height by receiving two of pegs **119**, **120** in the corresponding two grooves of support legs **193**, **194**. Pegs **119**, **120** may be used to support other pieces of exercise equipment, such as one or more resistive elements (e.g., FIG. **16**), weight bar supports (e.g., FIG. **17**), and the like. At this time, it may be desirable to double-check and/or further expand leveling feet **123**, **124** and/or jack

screws **135**, **138** to ensure that the press fit may be safely maintained during operation of workstation **100**.
[0136] Elements of actuator **103** (e.g., either electric motor **160** or manual crank **171**) may then be operable to move work surface **102** in a generally vertical direction from the floor height to the seated height, from the seated height to the standing height, from the standing height to the ceiling height, and vice versa, all while maintaining a generally horizontal orientation of work surface **102** relative to frame **101** to avoid toppling computer **4** or otherwise disturbing items placed on work surface **102**. When work surface **102** is at the floor height, first cable portion **180** may be at its shortest length (e.g., FIG. **9**), second cable portion **182** may run the length of post **105**, third cable portion **184** may run the length of header **107**, and fourth cable portion **186** may run the length of post **106**. For comparison, when work surface is at the ceiling height, first cable portion **180** and second cable portion **182** may run the length of post **105**, third cable portion **184** may run the length of header **107**, and fourth cable portion **186** may be at its shortest length.
[0137] As described herein, actuator **103** (e.g., either electric motor **160** or manual crank **171**) may be electronically or manually operable to move work surface **102**, together with moveable grips **154**, by rotating threaded rod **165**, causing its threads to interact with corresponding threads of lifting nut **173** and move first actuator member **166**. This threaded interaction may, turn-by-turn, apply a tensile force to cable portion **169** that is routed through its cable portions **180**, **182**, **184**, and **186**, incrementally moving second actuator member **168** with first actuator member **166** in a generally vertical direction, upwardly or downwardly, at approximately the same time, in a smooth and controlled manner so that workstation **100** may be adjusted as needed for a desired use.
[0138] Additional aspects of this disclosure are now described with reference to exemplary workstations **200**, **400**, **500**, and/or **600** that are similar to workstation **100**, but for the differences shown in FIGS. **17** to **43** and described in relation thereto. Workstations **200**, **400**, **500**, and/or **600** may comprise elements that are similar to those of workstation **100**, but within the respective **200**, **400**, **500**, and/or **600** series of numbers, whether or not those elements are called out in FIGS. **17** to **43** or expressly described herein. Any aspects described with reference to workstation **200**, **400**, **500**, and/or **600** may be included within any variation thereof, each possible combination or iteration being part of this disclosure and available to provide support for the claims.
[0139] As shown in FIG. **17**, for example, workstation **200** may similarly comprise a work surface that is adjustable between an extended range of positions including a floor height, a seated height, a standing height, and a ceiling height. Workstation **200** also may comprise overhead elements that are positioned to enable various types of fitness enhancing activities, such as hanging by the hands. Some of the elements may be moveable to different heights, allowing for customization. In contrast to workstation **100**, workstation **200** also may comprise an equipment support that is adjustable between an extended range of positions including a floor height, a seated height, a standing height, and a ceiling height.
[0140] As shown in FIG. **17**, for example, workstation **200** may comprise a frame **201**, a work surface **202**, an actuator **203**, an overhead element **204**, an equipment support **208**, and an actuator **209**.
[0141] Like frame **101**, frame **201** may comprise a rigid configuration of structural shapes operable to support work surface **202**, actuator **203**, overhead element **204**, equipment support **208**, and actuator **209** and transfer any forces applied therewith and/or therewith to a supporting structure, such as a building. Frame **201** may be expandable in a generally vertical direction to obtain a press fit between an upper support structure such as a ceiling **2** and a lower support structure such as a floor **3** thereby reducing a footprint of workstation **200**. As described further below, frame **201** may comprise or be integrated into a door frame, a window frame, and/or a wall, such that ceiling **2** and floor **3** are exemplary supporting structures provided to facilitate understanding of this disclosure and not limiting unless claimed as such.
[0142] Frame **201** may comprise structural elements that are independently expandable upwards

and/or downwards in the generally vertical direction to obtain the press fit. As shown in FIG. **18**, for example, frame **201** may comprise a post **205**, a post **206**, and a header **207**. As shown in FIG. **21**, for example, post **205** may be a composite structure comprising a first tube **210**, a second tube **211**, and a spacer **212**. As shown in FIG. **22**, for example, post **206** may be a composite structure comprising a first tube **214**, a second tube **215**, and a spacer **216**. Each tube **210**, **211**, **214**, and **215** may be a structural shape, such as a 3″×3″×⅛″ aluminum tube made of an aluminum alloy such as AA 6063. Spacers **212**, **216** may be wooden structures that are attached to tubes **210**, **211** or **214**, **215** by adhesives and/or screws. As shown in FIG. **21** or **22**, for example, spacer **212** may comprise threaded inserts **217** and spacer **216** may comprise threaded inserts **218**. Pegs **219** (e.g., FIG. **20**) may be inserted into threaded inserts **217** and pegs **220** (e.g., FIG. **19**) may be inserted into threaded inserts **218**, such that pegs **219**, **220** are aligned vertically and horizontally when frame **201** is assembled and installed.

[0143] Aspects of frame **201** may be independently expandable in the generally vertical direction to obtain the press fit. Posts **205**, **206** may be independently expandable in a downward direction toward floor **3**. Each post **205**, **206** may comprise a leveling mechanism that is expandable downwardly toward floor **3**. As shown in FIG. **20**, for example, post **205** may be located between header **207** and a base plate **221** and post **206** may be located between header **207** and a base plate **222**. As shown in FIG. **24**, for example, base plate **221** may comprise raised portions that are receivable inside of tubes **210**, **211** and leveling feet **223** like feet **123** described above, making base plate **221** expandable to adjust a vertical location and orientation of post **205** relative to floor **3**. Base plate **222** may similarly comprise raised portions that are receivable inside of tube **214**, **215** and leveling feet **224** like feet **124** described above, making base plate **122** similarly expandable to adjust a vertical location and orientation of post **206** relative to floor **3**.

[0144] Header **207** may extend between posts **205** and **206**. As shown in FIG. **19**, for example, header **207** may comprise structural shapes rigidly attached to one another, like a box beam. As shown in FIGS. **19** and/or **25**, for example, header **207** may comprise a header base plate **230**, a C-channel **231**, and a C-channel **232** that are bolted together to form a box beam spanning between post **105** and **106**. Header base plate **230** may comprise a ⅜″ steel plate and C-channels **231**, **232** may comprise 3″×5″×¼″ aluminum channels. Each end of header **207** may comprise an end plate (e.g., another ⅜″ steel plate) that is rigidly attached to header base plate **230** and one of C-channels **231**, **232**. In keeping with FIG. **25**, for example, header base plate **230** may comprise first lowered portions that are receivable inside of and rigidly attached to tubes **210**, **211** and second lowered portions that are receivable inside of and rigidly attached to tubes **214**, **215**.

[0145] Aspects of header **207** may be expandable in the generally vertical direction toward ceiling **2** to obtain the press fit. As shown in FIG. **25**, for example, header **207** may comprise a leveling mechanism that is vertically expandable toward ceiling **2**, such as jack screws that are independently expandable toward ceiling **2**. As shown in FIGS. **17**, **18**, and **25**, for example, header **207** may comprise a pair of jack screws **235** located above post **205** at one end of header **207** and a pair of jack screws **236** located above post **206** at an opposite end of header **207**. Pairs of jack screws **235**, **236** may be similar to jack screws **135**, **136** and thus similarly operable to adjust the vertical location and orientation of frame **201** relative to ceiling **2**.

[0146] Work surface **202** may be similar or identical to work surface **102** described above. For example, aspects of work surface **102** may be similarly operable with frame **201** to support a weight of a user at each height of the plurality of different work surface heights. As a further example, work surface **202** may similarly comprise an internal frame **252**, support grips **253**, and movable grips **254** like their counterparts described above.

[0147] Like actuator **102**, actuator **203** may comprise any combination of electrical and/or mechanical components operable to move work surface **202** within a range of movement including the plurality of different work surface heights while maintaining an orientation of work surface **202** relative to frame **201**. All or portions of actuator **203** may be located inside elements of frame **201**,

such as inside of posts **205**, **206** and/or header **207** to keep its components out of sight and harm's way. As shown in FIG. **18**, for example, actuator **203** may comprise an electric motor **260**, a controller **261** (e.g., operable with a control element **262**), and a lift system like their counterparts described above. The lift system of actuator **203** may comprise a gear box **264**, a threaded rod **265**, a first actuator member **266** with a connector arm **275**, a guide rod **267**, a second actuator member **268** with a connector arm **278**, and a cable **269** like their counterparts described above, of which gear box **264** may similarly comprise a manual crank **271** operable to cause vertical movements of work surface **202** in the event of a power outage.

[0148] Equipment support **208** may comprise one or more structures operable with frame **201** to support a piece of exercise equipment. As shown in FIGS. **18** and **23**, for example, equipment support **208** may comprise a J-hook structure **380** and a J-hook structure **381** that are operable with actuator **209** to support a weight bar with frame **201**. Equipment support **208** may be attachable to frame **221** and selectively positionable at a plurality of different equipment support heights between ceiling **2** and floor **3** when frame **201** is press fit between ceiling **2** and floor **3**, allowing J-hook structures **280**, **281** to be moved vertically with the piece of equipment. By way of example, the plurality of different equipment support heights may include a floor height like that shown in FIG. **13** for work surface **102**, a seated height like that shown in FIG. **14** for work surface **102**, a standing height like that shown in FIG. **26**, and a ceiling height like that shown in FIG. **16** for work surface **102**, in each of which the depicted person may be of average height.

[0149] Much like actuator **203**, actuator **209** may comprise any combination of electrical and/or mechanical components operable to move equipment support **208** within a range of movement including the plurality of different equipment support heights while maintaining an orientation of equipment support **208** relative to frame **201**. Aspects of actuator **209** may be similar to actuator **203** with select modifications to accommodate for the possibility of heavier structural loads being applied by the piece of exercise equipment, such as those applied when dropping the weight bar into J-hook structures during a vigorous workout. All or portions of actuator **209** may be located inside elements of frame **201**, such as inside of posts **205**, **206** and/or header **207** to keep its components out of sight and harm's way. As shown in FIG. **18**, for example, actuator **209** may comprise an electric motor **360** that is located outside of header **207** and supported by an extension of header base plate **230** and similarly operable with frame **201** to move equipment support **208** within the range of movement including the plurality of different equipment support heights. Electric motor **360** may be similar to or more powerful than electric motors **160**, **260**.

[0150] As shown in FIG. **18**, for example, actuator **209** may comprise a controller **361** that is located in header **207** with controller **261** and electronically operable with electric motor **360** to move equipment support **208**. Controller **361** may be electronically operable with electric motor **360** responsive to one or more of a switch, a timer, a sensor, a program, and a computing device, any of which may be part of computer **4** or controller **261**, **361** (e.g., FIG. **18**), a control element **262**, **362** (e.g., FIG. **17**), and/or an external control device in communication therewith over a wired or wireless connection, such as a mobile phone with a WiFi connection to controller **261**, **361** rendering workstation **200** operable with an application on the mobile phone.

[0151] Actuator **209** may comprise a lift system comprising mechanical components operable to generate an input torque sufficient to move equipment support **208**. The lift system may be operable with frame **201** and an input torque applied by electric motor **360** to move equipment support **208** within the range of movement including the plurality of different equipment support heights, while maintaining an orientation of equipment support **208** relative to frame **201**. Portions of the lift system may be located in frame **201**, such as in post **205**, post **206**, and/or header **207**, to keep them out of harm's way. As shown in FIG. **18**, for example, the lift system may comprise a gear box **364**, a threaded rod **365**, a first actuator member **366**, a gear box **367**, a threaded rod **368**, and a second actuator member **369**.

[0152] Gear boxes **364**, **367** may be located in header **207** and operable to cause the vertical

movements of equipment support **208**. As shown in FIG. **20**, for example, electric motor **360** may comprise an output shaft **370** extending into and through header **207** and gear boxes **364**, **367**. As shown in FIGS. **19** and **20**, for example, a manual crank **371** may be located outside of header **207**, attached to output shaft **370**, and operable to cause vertical movements of equipment support **208**. In the event of a power outage, manual crank **371** may thus be manually operable to cause vertical movements of equipment support **208** without electricity.

[0153] As shown in FIG. **18**, for example, threaded rod **365** may be rotatably mounted and vertically fixed in post **205** between gear box **364** and a lower rotational bearing located on base plate **221** (e.g., FIG. **24**). Threaded rod **368** may similarly be rotatably mounted and vertically fixed in post **206** between gear box **367** and a lower rotational bearing located on base plate **222** (e.g., FIG. **18**). Threaded rods **365**, **368** may comprise 30 mm leadscrews with exterior threads. Drive gears located in gear boxes **364**, **367** (e.g., FIG. **20**) may be operable with an input torque applied by output shaft **370** to rotate threaded rods **365**, **368** in a clockwise or counterclockwise direction within posts **205**, **206**. As shown in FIGS. **18**, **19**, and/or **20**, for example, first actuator member **366** may be located in post **205** and operably attached to threaded rod **365** and equipment support **208** and second actuator member **369** may be located in post **206** and operably attached to threaded rod **368** and equipment support **208** so that rotation of threaded rods **365**, **368** with the input torque causes vertical movements of equipment support **208**.

[0154] As shown in FIG. **21**, for example, first actuator member **366** may comprise a lifting nut **373**, a guide track **374**, and a connector arm **375**. As shown in FIG. **22**, for example, second actuator member **369** may similarly comprise a lifting nut **376**, a guide track **377**, and a connector arm **378**. Lifting nuts **373**, **376** may comprise internal threads operable with the external threads of threaded rods **365**, **368** to cause the vertical movements of equipment support **208** when threaded rods **365**, **368** are rotated, stabilize equipment support **208** during the vertical movements, and maintain a vertical position of equipment support **208** when threaded rods **365**, **368** are not rotated. Lifting nuts **373**, **376** may comprise circular bronze structures with internal threads. Guide tracks **374**, **377** may comprise machined stainless-steel rectangular structures that are rigidly attached to lifting nuts **373**, **376** and comprise wheels (e.g., nylon rollers) that act on interior surfaces of tubes **211**, **215** to stabilize equipment support **208** during vertical movements thereof. As shown in FIG. **24**, for example, guide track **374** of first actuator member **366** may be operable to position the wheels against the interior surfaces of tube **211** so that exterior surfaces of the wheels remain in contact therewith. In keeping with FIG. **22**, for example, guide track **377** of second actuator member **269** may be operable to position the wheels against the interior surfaces of tube **215** so that exterior surfaces of the wheels remain in contact therewith.

[0155] Connector arms **375**, **378** may be rigidly attached to guide tracks **374**, **377**. As shown in FIG. **19**, for example, posts **205**, **206** may comprise elongated openings extending in the generally vertical direction. Connector arm **375**, **378** may extend outwardly from guide tracks **374**, **377** through their respective elongated openings to vertically support equipment support **208**. As shown in FIGS. **21**, **22**, and/or **23**, for example, connector arms **375**, **378** may be rigidly attached to a portion of equipment support **208**, such as J-hook structures **380**, **381**, to transfer shear and moment forces from equipment support **208**, to guide tracks **374**, **377** and back to post **205**, **206** with the wheels of guide tracks **374**, **377**.

[0156] Overhead element **204** may be similar or identical to overhead element **104** described above. As shown in FIG. **18**, for example, overhead element **204** may be similarly comprise a pull-up bar **290**, monkey bars **291**, finger grips **292** (e.g., FIG. **26**), a support leg **292**, and a support leg **293** like their counterparts described above. As a further example, overhead element **204** may similarly be removably attached to frame **201** at a plurality of different heights, making it adjustable to accommodate different users and/or removable when not in use.

[0157] Operational aspects of workstation **200** may be similar to those of operational **100**, meaning that workstation **200** may be assembled and installed using methods like those described above

with reference to workstation **100**. After which, aspects of actuator **203** (e.g., either electric motor **260** or manual crank **271**) may be operable to move work surface **202** in a generally vertical direction from the floor height to the seated height, from the seated height to the standing height, from the standing height to the ceiling height, and vice versa, all while maintaining a generally horizontal orientation of work surface **202** relative to frame **201**; and/or aspects of actuator **209** (e.g., either electric motor **360** or manual crank **371**) may be operable to move equipment support **208** in a generally vertical direction from the floor height to the seated height, from the seated height to the standing height, from the standing height to the ceiling height, and vice versa, all while maintaining a generally horizontal orientation of equipment support **208** relative to frame **201**.

[0158] As described herein, actuators **203** and/or **209** may be electronically or manually operable to move work surface **202** and/or equipment support **208** by independently rotating threaded rods **265** and/or **365**, **368**, causing their respective threads to interact with corresponding threads of the lifting nuts first actuator member **266** and/or lifting nuts **373**, **376** and move actuator members **166** and/or **366**, **369**. Each of these threaded interactions may, turn-by-turn, incrementally move actuators **266**, **268** and/or **366**, **369** in a generally vertical direction, upwardly or downwardly, at approximately the same time, in a smooth and controlled manner so that workstation **200** may be adjusted as needed for a desired use.

[0159] As shown in FIGS. **27** to **29**, for example, workstation **400** may comprise a frame **401**, a work surface **402**, an actuator **403**, an overhead element **404**, an equipment support **408**, and an actuator **409** like their counterparts described above. In contrast to workstations **100** and **200** described above, aspects of workstation **400** may be integrated directly into a portion of a building in order to leverage existing structural and/or electrical systems of the building, a feature that may be particularly desirable for some types of construction, such as wood framed buildings.

[0160] As shown in FIG. **27**, for example, workstation **400** may comprise a bifurcated frame comprising a first or left frame half **401**-L that is integrated into a left side of a door frame **6** and a second or right frame half **401**-R is integrated into a right side of door frame **6**. In this example, frame half **401**-L may comprise overhead element **404**, equipment support **408**, and actuator **409**; and frame half **401**-R may comprise work surface **402** and actuator **403**. Instead of a single box beam header, frame half **401**-L may comprise a first or left header **407**-L that is rigidly attached to a left side of a wall **5** surrounding door frame **6** and frame half **401**-R may comprise a second or right header **407**-R that is rigidly attached to a right side of wall **5** surrounding door frame **6**. The bottom portions of frame halves **407**-L, **407**-R may be rigidly attached to floor **3** with leveling mechanisms like those described above, making it easy to square **407**-L, **407**-R with wall **5** before rigidly attaching their respective headers **407**-L, **407**-R.

[0161] As shown in FIG. **28**, for example, door frame **6** may comprise a metal structure (e.g., a steel frame) that is packaged together with workstation **400** as part of an upgrade kit that may be ideal for new construction projects, in which frame halves **407**-L, **407**-R may be rigidly attached to door frame **6** and/or installed together therewith. As shown in FIG. **29**, for example, workstation **400** may be part of a remodel kit that is installed independently of door frame **6** (e.g., much later), in which frame halves **407**-L, **407**-R may be rigidly attached to one or more portions of wall **5** surrounding door frame **6**. Either way, the various features of work surface **402**, overhead element **404**, and equipment support **408** described above may be fully utilized without damaging wall **5** or door frame **6**. As further shown in FIGS. **28** and **29**, for example, installing workstation **400** in front of door frame **6** may be desirable in small living spaces, like those found in big cities, because it allows for conversion of door frame **6** from a mere passageway into a multifunction workspace and/or an exercise space that can be adjusted to accommodate the needs of a particular user and put away when not in use, converting door frame **6** back into a passageway by lifting work surface **402** and exercise support **408** up and out of the way with actuators **403** and **409**.

[0162] Although shown as being part of one kit, it is contemplated that workstation **400** may be

sold as a first kit comprising frame half **401**-L and a second kit comprising frame half **401**-R, making it possible to convert door frame **6** into either a workspace or an exercise space, allowing for independent and/or incremental enhancements. Moreover, although described with reference to door frame **6**, it is completed that workstation **400** also may be part of a window frame kit for upgrade or remodel that functions in substantially the same way as depicted in FIGS. **27** to **29** and described in relation thereto. In complement to above, for small living spaces, this alternative kit may be used to enhance high value spaces like a bathroom or kitchen that may otherwise be deprived of usable square footage absent the functionality afforded by workstation **400**.

[0163] As shown in FIG. **30** for example, workstation **500** may comprise a frame **501**, a work surface **502**, an actuator **503**, an overhead element **504**, an equipment support **508**, and an actuator **509** like their counterparts described above. Like workstation **400**, aspects of workstation **400** may be integrated directly into a portion of building, such as concrete or wood frame wall **5**. In contrast to workstations **100**, **200**, and **400**, aspects of workstation **500** may be located on the same side of wall **5** to reduce a footprint of workstation **500**. As shown in FIG. **30**, for example, frame **501** may comprise a first or outer frame half **501**-O that is rigidly attached to an outer perimeter of wall **5** and a second or inner frame half **501**-I that is rigidly attached to an inner perimeter of wall **5**. In this example, frame halves **501**-O and **501**-I may be assembled and installed separately in a stages to ensure proper attachment to wall **5**.

[0164] As shown in FIG. **30**, for example, frame half **501**-O may comprise equipment support **508** and an actuator **509** and frame half **501**-I may comprise work surface **502** and an actuator **503**, allowing for independent movements of work surface **502** and equipment support **508**. As shown in FIG. **30**, for example, pegs (e.g., like pegs **119**, **120** of workstation **100**) may be located between frame halves **401**-O and **401**-I so that support legs of overhead element **404** may be located between frame halves **401**-O and **401**-I and further stabilized thereby. Aspects of work surface **502** and/or equipment support **508** may be modified to allow for vertical passage. For example, equipment support **508** may comprise foldable J-hook structures (e.g., like J-hook structures **380**, **381** of workstation **200**) and/or work surface **502** may comprise corresponding cut outs, making it possible to move work surface **502** vertically past equipment support **508** and vice versa.

[0165] Although shown as being part of one kit, it is contemplated that workstation **500** also may be sold as a first kit comprising frame half **501**-O and a second kit comprising frame half **501**-I, making it possible to convert wall **5** into either a workspace or an exercise space, allowing for independent and/or incremental enhancements. Moreover, although described with reference to wall **5**, it is completed that workstation **500** also may part of a door or window frame kit for upgrade or remodel that functions in substantially the same way as depicted in FIGS. **27** to **29** and described in relation thereto. In complement to above, for small living spaces, this alternative kit may advantageously be used to free up additional floor space when workstation **500** is not in use.

[0166] As shown in FIG. **31**, for example, workstation **600** may similarly comprise a work surface that is adjustable between an extended range of positions including a floor height, a seated height, a standing height, and a ceiling height (e.g., like work surface **102** described above); and an equipment support that is adjustable between an extended range of positions including a floor height, a seated height, a standing height, and a ceiling height. As shown in FIGS. **31** and/or **32**, for example, workstation **600** may comprise a frame **601**, a work surface **602**, an internal frame **652**, movable grips **653**, a resistance training system **654**, and an equipment support **655**.

[0167] Frame **601** may be similar or identical to frame **101**, **201** described above, with exception for the differences noted below. As shown in FIG. **31**, for example, frame **601** may comprise a post **605**, a post **606**, and a header **607** like those of frame **101**, **201**. Work surface **602** may be similar or identical to work surface **102**, **202** described above. For example, aspects of work surface **602** may be similarly operable with frame **601** and internal frame **652** to support weight at each height of the plurality of different work surface heights.

[0168] Internal frame **652** may be similar to internal frame **152** and uniquely configured for

workstation **600**. Like frame **152**, internal frame **652** also may comprise a box frame structure formed by plurality of structural steel shapes that are arranged into a rectangular shape and rigidly attached to one another via bolting or welding. As shown in FIGS. **31**, **32** and **33**, for example, three sides of internal frame **652** may be embedded into work surface **602** and a side **656** of frame **652** may be offset from an outer perimeter of work surface **602**. Similar to side **155** of frame **152**, side **656** may comprise holes and internal frame **652** may comprise tubes **657** that are inserted into the holes and rigidly attached to internal frame **652**, resulting in lumens extending into work surface **602**.

[0169] Moveable grips **653** may be selectively moveable relative to internal frame **652**. As shown in FIGS. **32** and **33**, for example, some tubes **657** and their respective lumens may have square cross-sectional shapes and each moveable grip **653** may comprise a palm grip with a square grip shaft extending outwardly therefrom. Like support grips **153** described above, each grip shaft of each grip **653** may be received in one of the lumens, allowing the grip shafts to both support the weight of a user and be slid back and forth inside tubes **657**. Moveable grips **653** may thus be moveable independent of work surface **602** in a generally horizontal direction between a plurality of different grip positions including a working position where they are spaced apart from the desk and operable to support a weight of a user (e.g., like FIG. **11**) and a stored position where they are adjacent the desk frame (e.g., as in FIG. **32**). The grip portion of moveable grips **653** may be hidden under work surface **602** and similarly operable to support the weight of the user when in the stored position.

[0170] As shown in FIGS. **32**, **33**, and **34**, for example, resistance training system **654** may comprise one or more of an exercise grip **658**, a cable **659**, a cable guide **660**, and a resistance device **661**. Each exercise grip **658** may comprise a palm grip and be attached to one or both of cables **659**. As shown in FIGS. **32** and **33**, for example, two of steel tubes **657** and their respective lumens may have circular cross-sectional shapes and each cable guide **660** may a circular shaft extending outwardly therefrom. Like moveable grips **653** described above, each circular shaft of each cable guide **660** may be received in one of the lumens, allowing cable guides **660** to be slid back and forth inside tubes **657**. Each cable guide **660** may define a cable guide lumen and be slidably mounted in the lumen of one of tubes **657**. Cable **659** may be routed through the cable guide lumen. Cable guides **660** may thus be moveable independent of work surface **602** in a generally horizontal direction between a plurality of different grip positions including a first position where cable **659** exits the cable guide lumen at a first location spaced apart from internal frame **652** and a second position where cable **659** exits the cable guide lumen at a second location adjacent frame **652**. Put another way, the plurality of different grip positions may include a working position where exercise grip(s) **658** are spaced apart from the desk and operable transfer a pulling force applied thereto by a user back to resistance device **661** via cable(s) **659** (e.g., at left in FIG. **32**) and a stored position where exercise grip(s) **658** are adjacent the desk frame and yet similarly operable to transfer the pulling force back to resistance device **661** via cable(s) **659** (e.g., at right in FIG. **32**).

[0171] Resistance device **661** may be operable to apply a resistance force to cables **659** when they are pulled by the user during a workout. Different types of electronic (e.g., motors) and/or manual (e.g., tension bands) components may be used to apply the resistance force. By way of example, resistance device **661** may operate similar to a counter-balanced Smith machine or similar device.

[0172] As shown in FIGS. **32** and **33**, for example, resistance device **661** may comprise a pulley **662**, a spool **663**, and an electric motor **664**. Each cable **659** may extend from an anchor point on spool **663**, around spool **663**, through pulley **662**, and into one of cable guides **660** before terminating at one or more exercise grips **658**, each of which may an eyelet or other quick-release mechanism for attachment to cable **659**. In this configuration, each electronic motor **664** may be operable to apply the resistance force when a user pulls on one of handle grips **658** during a workout.

[0173] Different types of exercise grip(s) **658** may be used with resistance device **661**. As shown in FIGS. **32**-**35**, for example, one or more exercise grips **658** may comprise a pair of palm grips, one for each cable **659**, allowing the user to exercise each side of their body (e.g., each arm) at different times. As shown in FIG. **35**, for example, one or more exercise grips **658** may comprise a bar and each cable **659** may be attached to each side of the bar, allowing the user to exercise both sides of their body (e.g., each leg) at the same time. Either way, because they are extendable, cable guides **660** may operable one or more exercise grips to provide the user with an opportunity to adjust their centre of gravity relative to their pulling force and/or the resistance force applied by resistance device **661**, allowing for different types of eccentric loading. Equipment support **655** may thus be operable with exercise grip(s) **658** to allow the user to perform a plurality of different types of exercises. As shown in FIGS. **35** and **36**, for example, equipment support **655** may comprise a track **665**, a track **666**, a support structure **667**, and a support structure **668**.
[0174] Tracks **665**, **666** may be rigidly attached to frame **601** and structurally support therewith. As shown in FIGS. **31**, **34**, and **37**-**40**, for example, a rear face of track **665** may be mounted to a front side of post **605** and a rear side of track may be mounted to a front side of post **606**. As shown in FIGS. **35** and **36**, for example, each track **665**, **666** may comprise a tube (e.g., like tubes **110**, **114** described above) with an elongated opening extending through its front face in a generally vertical direction and plurality of holes extending through its rear face in a generally horizontal direction. Support structures **667**, **668** may comprise quick-release mechanisms that are slidable inside of tracks **665**, **666** and removeable attachable thereto at different equipment support heights. As shown in FIG. **36**, for example, each of support structure **667** and support structure **668** may comprise an L-shaped body **669**, an axle **670**, wheels **671**, a protrusion **672**, a J-hook **673**, and a J-hook **674**. First and support structures **667**, **668** may be manually moveable in the generally vertical direction to locate exercise grip(s) **658** at the plurality of different equipment support heights. As shown in FIG. **36**, for example, axle **670** may be located on a vertical portion of L-shaped body **669** and one wheel **671** may be located on each side thereof and sized to interact with interior surfaces of track **665** or **665** when corresponding structure **667** or **668** is moved vertically.
[0175] As shown in FIGS. **35** and **36**, for example, the vertical portion of L-shaped body **669** may be located inside of each track **665**, **666** along with axle **670**, wheels **671**, and protrusion **672** so that a horizontal portion of L-shaped body **669** may extend outwardly through the elongated opening of each track **665**, **666**. A vertical position of each support structure **667** and **668** may be maintained by locating its protrusion **672** in one of the plurality of holes extending through the rear face of track **665** and **666**. By way of example, each L-shaped body **669** may be moved between different equipment support heights by rotating body **669** in a first direction away from track **665** or **666**, moving body **669** upwards or downwards to the desired equipment support height, and rotating body in a second direction toward track **665** or **666** to locate protrusion **672** in one of said holes.
[0176] Each protrusion **672** may be made of a metallic material having a shear strength suitable for support a weight of the user and any resistance forces applied by resistance device **661**. By way of example, because of protrusions **672**, J-hooks **673**, **674** may be operable as a traditional pull-up bar, to support a traditional exercise bar (e.g., one not attached to cables **659**), and/or to support traditional bar bells. Because of resistance device **661**, exercise grip(s) **658** (e.g., the depicted bar) may be operable with resistance device **661** like a Smith machine, allowing the user to utilize whatever forms of exercise they deem appropriate.
[0177] Each J-hook **673**, **674** may comprise a pair catchment arms facing in opposite directions, one up and down, so that equipment support **655** may be used to resist upward tensile forces applied to exercise grip(s) **658** by cable **659** when work surface **602** is moved to an elevated position (e.g., as shown in FIG. **37**) or downward tensile forces applied to grip(s) **658** by cable **659** when work surface **602** is moved to a lowered position (e.g., as shown in FIG. **38**). Although depicted as open in FIG. **36**, the catchment arms of J-hooks **673**, **674** may comprise a clamping

mechanism (e.g., a vise-like structure) operable to secure exercise grip(s) **658** (e.g., the bar) support structures **667**, **668** and/or prevent grip(s) **658** from rotating relative to frame **601** so that interactions between support structures **667**, **668** and tracks **665**, **666** may be used to guide and control vertical movements of exercise grip(s) **658**. In this example, when clamped into J-hooks **673**, **674**, exercise grips(s) **658** may be constrained horizontally by interactions between side surfaces of L-shaped bodies **669** and interior surfaces of the elongated openings extending through tracks **665**, **666**; allowed to move freely in vertical directions by forces that prevent protrusions **672** from engaging any of the plurality holes extending through the rear face of tracks **665**, **666** (e.g., by tilting it during a lift); and guided vertically by interactions between wheels **671** and interior surfaces of tracks **665**, **666**.

[0178] Aspects of support structures **667**, **668** may thus be operable aspects of tracks **665**, **666**, frame **601**, work surface **602**, and/or exercise grip(s) **658** to enable different types of exercises. One exemplary exercise is a straight bar pushdown for working the triceps. As shown in FIG. **37**, for example, work surface **602** may be moved to the ceiling height position (e.g., by operation of an actuator like actuators **103**, **203** described above), cable guides **660** may be extended into the working position, and exercise grip **658** (e.g., shown as a bar) may be attached to cables **659** and engaged with J-hook **674** so that the user may perform straight bar pushdowns by pressing grip **658** downwards with an sufficient amount of force for overcoming the resistance force applied to cables **659** by resistance device **661**.

[0179] Another exemplary exercise is a squat for working the legs. As shown in FIG. **38**, for example, work surface **602** may be moved to the floor height position (e.g., by operation of an actuator like actuators **103**, **203** described above), cable guides **660** may remain extended in the working position, and exercise grip(s) **658** (e.g., the bar) may be attached to cables **659** and engaged with J-hook **673** so that the user may perform squats by stepping under exercise grip **658**, placing it against their back, and pressing grip **658** upwards an sufficient amount of force for overcoming the resistance force applied to cables **659** by resistance device **661**. In this example, as described above, it may be desirable to clamp exercise grip(s) **658** onto J-hooks **673**, **674** to constrain grip(s) **658** horizontally and/or vertically when performing squats, like a Smith machine.

[0180] Another exemplary exercise is an overhead press for working the shoulders. As shown in FIG. **38**, for example, work surface **602** may remain the floor height position (e.g., by operation of an actuator like actuators **103**, **203** described above), cable guides **660** may be moved toward work surface **602**, and exercise grip **658** (e.g., the bar) may be attached to cables **659** and engaged with J-hook **673** so that the user may perform overhead presses by stepping under exercise grip **658** and pressing grip **658** upwards and away from frame **601** with an sufficient amount of force for overcoming the resistance force applied to cables **659** by resistance device **661**. Here again, it may be desirable to clamp exercise grip(s) **658** onto J-hooks **673**, **674** to constrain grip(s) **658** horizontally and/or vertically, like a Smith machine.

[0181] Each of these exemplary exercise and many others may be performed adjusting one or all of the vertical position of work surface **602** relative to frame **601**, the vertical position of support structures **667** and **668**, the position of cable guides **660** relative to work surface **602**, and/or the type of exercise grip(s) **658**. If resistance device **661** comprises an electric motor, then aspects of the resistance force applied therewith may be modified responsive to the user, such as by increasing or decreasing the resistance force applied by resistance system **661** during the exercise, such as during the positive and/or negative portions of any such exercises. Altogether, the adjustability of these and other elements workstation **600** make it an exceptionally versatile product suitable for use as both a home office and home gym.

[0182] To further increase its versatility, workstation **600** also may comprise one or more mounting arms **680** and/or a retractable computer system **681**.

[0183] As shown in FIGS. **31** and **32**, for example, each mounting arms **680** may comprise an adjustable support arm that is rotatably mounted to header **607**, extendable therefrom, and operable

to support a piece of electronic equipment from frame **601**. Each mounting arm **680** may comprise multiple links, including hinges and related structures, making arms **680** foldable outwardly from frame **601** as shown in FIG. **31**, extendable from one of tubes **657**, and/or otherwise movably attached to frame **601**. Different pieces of electronic equipment may be supported by each arm **680**. By way of example, each mounting arm **680** may be operable to support a camera, a light, a microphone, a monitor, a motion sensor, a script prompter, and/or any other piece of equipment that is operable (e.g., with computer **4**, controller **261** or **361**, retractable computer system **681**, and the like) to support a particular activity or exercise that is performable with workstation **600**. As described herein, mounting arms **680** may increase the versatility of workstation **600** may making it convertible between a home studio for content producers, a home office for remote workers, and/or a home gym with similar capabilities for content production and online coaching.

[0184] As shown in FIG. **31**, for example, header **607** may comprise a jack screw located above post **605** at one end of header **607** and a jack screw located above post **606** at an opposite end of header **607**, each of which may be like jack screws **135**, **136** described above and thus similarly operable to adjust the vertical location and orientation of frame **601** relative to a ceiling **2** (e.g., FIG. **10**). In this example, the jack screw above post **605** may comprise a ceiling contact plate **639**, the jack screw above post **606** may comprise a ceiling contact plate **642**, each mounting arm **680** may be located in a space between header **607** and plates **639**, **642** so that is moveable relative to frame **601** when attached to ceiling **2** by operation of the jack screws.

[0185] Retractable computer system **681** may be folded into and out of work surface **602**, manually or automatically. As shown in FIGS. **40**, **41**, **42**, and/or **43**, for example, retractable computer system **681** may comprise a monitor **682**, a keyboard **683**, and a mouse **684** like those of an Apple® iMac® or similar device; and work surface **602** may comprise a monitor stand **685**, a monitor cavity **686**, a keyboard mount **687**, and a keyboard cavity **688**. Monitor stand **685** may support monitor **682** when retractable computer system **681** is in a working position and double as a cover for retractable computer system **681** when not in use. As shown in FIGS. **40**, **41**, **42**, and/or **43**, for example, monitor stand **685** may comprise a first panel that is rotatably attached to an edge of monitor cavity **686** (e.g., with a mechanical hinge); a second panel that is mounted to a back of monitor **682**, rotatably attached to an edge of the first panel (e.g., with a living hinge), and rotatably attached to an edge of a third panel (e.g., with another living hinge). By way of example, monitor stand **685** may comprise a leather desk blotter and each living hinge may comprise a crease formed therein so that aspects of system **681** may be easily contained thereunder.

[0186] As shown in FIG. **40**, for example, when retractable computer system **681** is in the working position, a bottom edge of monitor **682** may be located inside of monitor cavity **686** and supported by the first panel of monitor stand **685**, allowing monitor **682** to be propped up with said first panel; and the third panel may be folded backwardly over the second panel so that a front of monitor **682** is visible. Keyboard mount **687** may comprise a cover for keyboard cavity **688**, which may extend into an interior portion of work surface **602** located between an interior two of tubes **657**. As shown in FIG. **40**, for example, when retractable computer system **681** is in a working position, keyboard **683** may be placed on top of keyboard mount **687**, a top of which may be flush with a top of work surface **602** when covering keyboard cavity **688** (e.g., FIG. **41**). Mouse **684** may rest on work surface **602**. As shown in FIGS. **41** and **42**, for example, an edge of keyboard mount **687** may attached to an edge of keyboard cavity **688** with a hinge so that cavity **688** may be opened to receive keyboard **683** therein. As shown in FIG. **42**, for example, monitor cavity **686** may comprise a peripheral storage cavity **689** for mouse **684**, which may be similarly opened to receive it. As shown in FIGS. **42** and **43**, for example, monitor **682** may be received in monitor cavity **686** by lifting it upward, moving its bottom edge toward the hinge of monitor stand **685**, and folding it into monitor cavity **686** on top of peripheral storage cavity **689**. As shown in FIG. **43**, for example, the third panel of monitor stand **685** may be folded over keyboard mount **687** so that the entirety of retractable computer system **681** may be covered therewith.

[0187] As shown in FIGS. **31** and/or **43**, for example, it may be desirable to move retractable computer system **681** into a stored position when moving work surface **602** to the ceiling height to avoid any conflicts between monitor **682** and ceiling **2**, further increasing the versatility of workstation **600** by allowing computer system **681** to be moved out of sight when not in use.
[0188] The structural strength of frame **601** may allow for additional structures to be attached to, supported by, and moved vertically with work surface **602**. As shown in FIGS. **32** and **33**, for example, to increase the versatility of workstation **600**, internal frame **652** also may comprise side supports **690** comprise shafts that are insertable through an outer set of holes extending through side **656** and into lumens of an outer set of tubes **657**. Each side support **690**, much like moveable grips **653** and cable guides **660**, may thus be selectively moveable relative to internal frame **652** in a generally horizontal direction between an extended position, where they can be used to support weight; and a retracted position, where they are hidden under work surface **602**. As shown in FIGS. **32** and **33**, for example, each side support **690** may be extendable from work surface **602** and operable to support a weight of the user during particular exercise, such as dips or pull-ups, much like support grips **135** and moveable grips **653**.
[0189] The shape and/or size of work surface **602** may be changed to accommodate different uses. As shown in FIG. **44**, each side support **690** may be extended from work surface **602** and operable to support a side table **691**. A pair of side supports **690** and side tables **691** are depicted in FIG. **44**. Each side table **691** may be removably attachable to work surface **602** and/or operatively attached to work surface **602**. As shown in FIG. **44**, each side support **690** may be stored in a cavity of work surface **602** when not in use. Should need arise, then each side support **690** may be moved into the extended position so that each side table **691** may be at least partially removed from its cavity into a working position where it is supported by one of side supports **690**. As shown in FIG. **44**, each side table **691** also may be attached to work support **602** with hinges and folded back over work surface **602** and/or into recess thereof when not in use.
[0190] While principles of the present disclosure are described herein with reference to illustrative aspects for particular applications, the disclosure is not limited thereto. Those having ordinary skill in the art and access to this disclosure will recognize additional modifications, applications, aspects, and substitution of equivalents all fall in the scope of the described aspects. Accordingly, the present disclosure is not to be considered as limited by the foregoing description.

Claims

1. An apparatus comprising: a frame that is expandable in a generally vertical direction to obtain a press fit between a ceiling and a floor; a work surface that is attachable to the frame and selectively positionable at a plurality of different work surface heights between the ceiling and the floor when the frame is press fit between the ceiling and the floor, the plurality of different work surface heights including a ceiling height, a standing height, a seated height, and a floor height; and an actuator that is attachable to and operable with the frame to move the work surface within a range of movement including the plurality of different work surface heights while maintaining an orientation of the work surface relative to the frame.
2. The apparatus of claim 1, wherein the frame comprises posts that are independently expandable in the generally vertical direction to obtain the press fit.
3. The apparatus of claim 2, wherein the posts that are independently expandable toward the floor.
4. The apparatus of claim 3, wherein each post comprises a leveling mechanism that is expandable toward the floor.
5. The apparatus of claim 3, wherein each post comprises a base plate with a plurality of leveling feet that are independently expandable toward the floor.
6. The apparatus of claim 3, wherein each post comprises a base plate, a threaded bolt that is rotatably attached to the base plate, and a floor contact that is attached to the threaded bolt so that

rotation of the threaded bolt relative to the base plate moves the floor contact toward the floor.
7. The apparatus of claim 6, wherein the threaded bolt is attached to the contact plate by a multiaxial connection so that the contact plate is adjustable relative to the floor.
8. The apparatus of any one of claims 2 to 7, wherein the frame comprises a header that spans between the posts and is expandable in the generally vertical direction toward the ceiling to obtain the press fit.
9. The apparatus of claim 8, wherein the header comprises a leveling mechanism that is expandable toward the ceiling.
10. The apparatus of claim 8, wherein the header comprises a plurality of jack screws that are independently expandable toward the floor.
11. The apparatus of claim 8, wherein the header comprises a top plate, a threaded shaft that is rotatably attached to the top plate, and a ceiling contact that is attached to the threaded shaft so that rotation of the threaded shaft relative to the top plate moves the ceiling contact toward the ceiling.
12. The apparatus of claim 11, wherein the threaded shaft is attached to the ceiling contact by a multiaxial connection so that the ceiling contact is adjustable relative to the ceiling.
13. The apparatus of any one of claims 8 to 12, wherein a portion of the actuator is located in the header.
14. The apparatus of claim 13, wherein the actuator comprises an electric motor that is located in the header.
15. The apparatus of claim 13, wherein the actuator comprises a controller that is located in the header and electronically operable with the electric motor to move the work surface within the range of movement.
16. The apparatus of claim 15, wherein the controller is electronically operable with the electric motor responsive to one or more of a switch, a timer, a sensor, a program, and a mobile device.
17. The apparatus of any one of claims 13 to 16, comprising a lift system in the posts that is operable with the actuator to cause vertical movements of the work surface within the range of movement and stabilize the work surface during the vertical movements of the work surface.
18. The apparatus of claim 17, comprising a gearbox in the header that is operable with the actuator and the lift system to cause the vertical movements of the work surface.
19. The apparatus of claim 18, wherein the gear box comprises a manual crank that is located outside the interior cavity of the header and operable with the lift system to cause the vertical movements of the work surface.
20. The apparatus of claim 19, wherein the manual crank is operable to cause the vertical movements of the work surface without electricity.
21. The apparatus of claim any of claims 17 to 20, wherein the lift system is operable with an input torque applied by the actuator to cause the vertical movements of the work surface.
22. The apparatus of claim any of claims 17 to 20, wherein the lift system comprises a threaded rod that is rotatably mounted and vertically fixed in a first post of the posts.
23. The apparatus of claim 22, wherein the lift system comprises a first actuator member in the first post that is operably attached to the threaded rod and the work surface so that rotation of the threaded rod causes the vertical movements of the work surface.
24. The apparatus of claim 23, wherein the first actuator member comprises threads that are operable with corresponding threads of the threaded rod to cause the vertical movements of the work surface when the threaded rod is rotated, stabilize the work surface during the vertical movements within the range of movement, and maintain a vertical position of the work surface when the threaded rod is not rotated.
25. The apparatus of claim 24, wherein the first post comprises a first elongated opening and a portion of the first actuator member extends through the elongated opening to vertically support the work surface.
26. The apparatus of claim 25, wherein the first actuator member comprises a plurality of wheels

that act on the interior surfaces of the first post to stabilize the work surface during the vertical movements of the work surface.

27. The apparatus of claim 26, wherein the first actuator member is operable to position the plurality of wheels against the interior surfaces of the first post.

28. The apparatus of claim any of claims 22 to 27, wherein the lift system comprises: a guide rod that is rotatably and vertically fixed in a second post of the posts; and a second actuator member in the second post that is operably attached to the first actuator member, the guide rod, and the work surface so that rotation of the threaded rod causes the vertical movements of the work surface.

29. The apparatus of claim **30**, wherein rotation of the threaded rod causes the first actuator member to move together with the second actuator member in the generally vertical direction to maintain a generally level orientation of the work surface during the vertical movements of the work surface.

30. The apparatus of claim 29, wherein the threads of the first actuator member are operable with the corresponding threads of the threaded rod to cause the vertical movements of the work surface when the threaded rod is rotated, stabilize the work surface during the vertical movements within the range of movement, and maintain the vertical position of the work surface when the threaded rod is not rotated.

31. The apparatus of claim 30, wherein the second post comprises a second elongated opening and a portion of the second actuator member extends through the second elongated opening to vertically support the work surface.

32. The apparatus of claim 31, wherein the second actuator member comprises a second plurality of wheels that act on interior surfaces of the second post to stabilize the second side of the work surface during the vertical movements within the range of movement.

33. The apparatus of claim 32, wherein the second actuator member is operable to position the second plurality of wheels against the interior surfaces of the second post.

34. The apparatus of any one of claims 28 to 33, wherein the lift system comprises a cable that is operatively attached to the first actuator member and the second actuator member so that rotation of the threaded rod causes the first actuator member to move vertically with the second actuator member.

35. The apparatus of claim 34, wherein the cable is routed through the first post, into the header, and into the second post.

36. The apparatus of claim 35, wherein the cable comprises: a first cable length extending downwardly from the first actuator member to a pulley located below the threaded rod; a second cable length extending upwardly from the first pulley to a first roller located above the threaded rod; a third cable length extending generally horizontally from the second pulley to a second roller located above the guide rod; and a fourth cable length extending downwardly from the second roller to the second actuator member.

37. The apparatus of claim 36, wherein: the first cable length, the pulley, and the second cable length are located in the first post; the first roller, the third cable length, and the second roller are located in the header; and the fourth cable length is located in the second post.

38. The apparatus of claim 37, wherein the pulley is attached to a first base plate that vertically supports the threaded rod.

39. The apparatus of any preceding claim, wherein the work surface is operable with the frame to support a weight of a user at each height of the plurality of different work surface heights.

40. The apparatus or claim 39, wherein the work surface comprises an exercise grip that is operable to support the weight of the user.

41. The apparatus or claim 40, wherein the exercise grip is selectively movable: together with the work surface in the generally vertical direction between the plurality of different work surface heights, and independent of the work surface in a generally horizontal direction between a plurality of different grip positions including a working position where the exercise grip is spaced apart from

the desk and operable to support a weight of a user and a stored position where the exercise grip is adjacent the desk frame.

42. The apparatus or claim 41, wherein an underside of the work surface comprise a plurality of tubes operable to support the weight of the user.

43. The apparatus of claim 42, wherein the exercise grip is receivable in a tube of the plurality of tubes.

44. The apparatus of claim 43, wherein the exercise grip comprises a U-shape with a pair of grip shafts that are receivable in two tubes of the plurality of tubes.

45. The apparatus of any preceding claim, wherein the frame comprises an equipment support that is operable with the frame to position a piece of exercise equipment at a plurality of different equipment support heights relative to the frame when the frame is press fit between the ceiling and the floor.

46. The apparatus of claim 45, wherein the plurality of different equipment support heights including an equipment ceiling height, an equipment standing height, an equipment seated height, and an equipment floor height.

47. The apparatus of claim 45, comprising the piece of exercise equipment.

48. The apparatus of claim 46, wherein the piece of exercise equipment comprises a plurality of exercise grips operable to support a weight of a user.

49. The apparatus of claim 46, wherein the plurality of exercise grips comprise one or more of: a pull-up bar; a plurality of monkey bars; and a plurality of finger grips.

50. The apparatus of any one of claims 45 to 49, wherein the piece of exercise equipment is removably attached to the frame at each height of the plurality of different equipment support heights.

51. The apparatus of claim 50, wherein the frame comprises pegs and the piece of exercise equipment is removably attachable to the pegs.

52. The apparatus of any one of claims 45 to 51, comprising a second actuator that is attachable to and operable with the frame to move the equipment support within a second range of movement including the plurality of different equipment support heights while maintaining an orientation of the equipment support relative to the frame.

53. The apparatus of claim 52, wherein the second actuator comprises a second electric motor.

54. The apparatus of claim 53, wherein the second actuator comprises a second controller that is electronically operable with the second electric motor to move the equipment support within the second range of movement.

55. The apparatus of claim 54, wherein the second controller is electronically operable with the second electric motor responsive to one or more of a second switch, a second timer, a second sensor, a second program, and a second mobile device.

56. The apparatus of any one of claims 52 to 55, comprising a second lift system in the posts that is operable with the second actuator to cause vertical movements of the equipment support within the second range of movement and stabilize the equipment support during the vertical movements of the equipment support.

57. The apparatus of claim 56, wherein the second lift system comprises a second threaded rod that is rotatably mounted and vertically fixed in the first post of the posts.

58. The apparatus of claim 57, wherein a third actuator member in the first post that is operably attached to the second threaded rod and the equipment support so that rotation of the threaded rod causes the vertical movements of the work surface.

59. The apparatus of claim 58, wherein the third actuator member comprises threads that are operable with corresponding threads of the second threaded rod to cause the vertical movements of the equipment support when the second threaded rod is rotated, stabilize the equipment support during the vertical movements within the second range of movement, and maintain a vertical position of the equipment support when the second threaded rod is not rotated.

60. The apparatus of claim 57, wherein the second lift system comprises a third threaded rod that is rotatably mounted and vertically fixed in the second post of the posts.
61. The apparatus of claim 60, wherein a fourth actuator member in the second post that is operably attached to the third threaded rod and the equipment support so that rotation of the third threaded rod causes the vertical movements of the equipment support.
62. The apparatus of claim 61, wherein the fourth actuator member comprises threads that are operable with corresponding threads of the third threaded rod to cause the vertical movements of the equipment support when the third threaded rod is rotated, stabilize the equipment support during the vertical movements within the second range of movement, and maintain the vertical position of the equipment support when the third threaded rod is not rotated.
63. The apparatus of claim 62, wherein the first post comprises a third elongated opening and a portion of the third actuator member extends through the third elongated opening to vertically support the equipment support; and the second post comprises a fourth elongated opening and a portion of the fourth actuator member extends through the fourth elongated opening to vertically support the equipment support.
64. The apparatus of claim 63, wherein: the third actuator member comprises a third plurality of wheels that act on the interior surfaces of the first post to stabilize the equipment support during the vertical movements of the equipment support; and the fourth actuator member comprises a fourth plurality of wheels that act on the interior surfaces of the second post to stabilize the equipment support during the vertical movements of the equipment support.
65. The apparatus of claim 64, wherein: the third actuator member is operable to position the third plurality of wheels against the interior surfaces of the first post; and the fourth actuator member is operable to position the fourth plurality of wheels against the interior surfaces of the second post.
66. The apparatus of claim 65, wherein the second actuator is operable to rotate the second threaded rod and the third threaded rod to at the same time to cause the vertical movements of the equipment support.
67. The apparatus of any one of claims 56 to 66, wherein the first lift system and the second lift system are independently operable.
68. An apparatus comprising: a frame; a work surface that is attachable to the frame and selectively positionable at a plurality of different work surface heights relative to the frame; and an actuator that is attachable to and operable with the frame to move the work surface within a range of movement including the plurality of different work surface heights while maintaining an orientation of the work surface relative to the frame, wherein the work surface comprises an exercise grip that is operable to support a weight of a user at each height of the plurality of different work surface heights.
69. The apparatus or claim 68, wherein the exercise grip is selectively movable together with the work surface in a generally vertical direction between the plurality of different heights.
70. The apparatus or claim 69, wherein the exercise grip is selectively movable independent of the work surface between a plurality of different grip positions including: a working position where the exercise grip is spaced apart from the work surface and operable to support the weight of the user; and a stored position where the exercise grip is adjacent the work surface.
71. The apparatus or claim 70, wherein the exercise grip is moveable in a generally horizontal direction between the plurality of different grip positions.
72. The apparatus or claim 71, wherein an underside of the work surface comprises a plurality of tubes operable to support the weight of the user.
73. The apparatus of claim 72, wherein the exercise grip is receivable in a tube of the plurality of tubes.
74. The apparatus of claim 73, wherein the exercise grip comprises a U-shape with a pair of grip shafts that are receivable in two tubes of the plurality of tubes.
73. The apparatus of claim 72, wherein the exercise grip is moveable in a generally lateral direction

between the posts by removing the pair of grip shafts from a first set of two tubes of the plurality of tubes and receiving the pair of grip shafts in a second set of two tubes of the plurality of tubes.
74. The apparatus of claim 73, comprising a second the exercise grip is receivable in a second tube of the plurality of tubes.
75. The apparatus of claim 74, wherein the second exercise grip comprises a second U-shape with a second pair of grip shafts that are receivable in two different tubes of the plurality of tubes.
76. The apparatus of any one of claims 68 to 75, wherein the frame is free standing on the floor.
77. The apparatus of any one of claims 68 to 75, wherein the frame comprises posts that are independently expandable in the generally vertical direction to obtain a press fit between a ceiling and a floor.
78. The apparatus of claim 77, wherein the frame comprises a header that spans between the posts and is expandable in the generally vertical direction toward the ceiling to obtain the press fit.
79. The apparatus of claim 78, wherein a portion of the actuator is located in the header.
80. The apparatus of claim 78, comprising a lift system in the posts that is operable with the actuator to cause vertical movements of the work surface within the range of movement and stabilize the work surface during the vertical movements of the work surface.
81. The apparatus of claim 80, wherein the lift system comprises a threaded rod that is rotatably mounted and vertically fixed in a first post of the posts.
82. The apparatus of claim 81, wherein the lift system comprises a first actuator member in the first post that is operably attached to the threaded rod and the work surface so that rotation of the threaded rod causes the vertical movements of the work surface.
83. The apparatus of claim 82, wherein the first actuator member comprises threads that are operable with corresponding threads of the threaded rod to cause the vertical movements of the work surface when the threaded rod is rotated, stabilize the work surface during the vertical movements within the range of movement, and maintain a vertical position of the work surface when the threaded rod is not rotated.
84. The apparatus of claim 83, wherein the first post comprises a first elongated opening and a portion of the first actuator member extends through the elongated opening to vertically support the work surface.
85. The apparatus of claim 84, wherein the first actuator member comprises a plurality of wheels that act on the interior surfaces of the first post to stabilize the work surface during the vertical movements of the work surface.
86. The apparatus of claim 85, wherein the first actuator member is operable to position the plurality of wheels against the interior surfaces of the first post.
87. The apparatus of claim any of claims 81 to 86, wherein the lift system comprises: a guide rod that is rotatably and vertically fixed in a second post of the posts; and a second actuator member in the second post that is operably attached to the first actuator member, the guide rod, and the work surface so that rotation of the threaded rod causes the vertical movements of the work surface.
88. The apparatus of claim 87, wherein rotation of the threaded rod causes the first actuator member to move together with the second actuator member in the generally vertical direction to maintain a generally level orientation of the work surface during the vertical movements of the work surface.
89. The apparatus of claim 88, wherein the threads of the first actuator member are operable with the corresponding threads of the threaded rod to cause the vertical movements of the work surface when the threaded rod is rotated, stabilize the work surface during the vertical movements within the range of movement, and maintain the vertical position of the work surface when the threaded rod is not rotated.
90. The apparatus of claim 89, wherein the second post comprises a second elongated opening and a portion of the second actuator member extends through the second elongated opening to vertically support the work surface.

91. The apparatus of claim 90, wherein the second actuator member comprises a second plurality of wheels that act on interior surfaces of the second post to stabilize the second side of the work surface during the vertical movements within the range of movement.
92. The apparatus of claim 91, wherein the second actuator member is operable to position the second plurality of wheels against the interior surfaces of the second post.
93. The apparatus of any one of claims 87 to 92, wherein the lift system comprises a cable that is operatively attached to the first actuator member and the second actuator member so that rotation of the threaded rod causes the first actuator member to move vertically with the second actuator member.
94. The apparatus of claim 93, wherein the frame comprises an equipment support that is operable with the frame to position a piece of exercise equipment at a plurality of different equipment support heights relative to the frame when the frame is press fit between the ceiling and the floor.
95. The apparatus of claim 94, wherein the plurality of different equipment support heights including an equipment ceiling height, an equipment standing height, an equipment seated height, and an equipment floor height.
96. The apparatus of claim 95, comprising the piece of exercise equipment.
97. The apparatus of any one of claims 94 to 96, wherein the piece of exercise equipment is removably attached to the frame at each height of the plurality of different equipment support heights.
98. The apparatus of any one of claims 94 to 97, comprising a second actuator that is attachable to and operable with the frame to move the equipment support within a second range of movement including the plurality of different equipment support heights while maintaining an orientation of the equipment support relative to the frame.
99. The apparatus of claim 98, comprising a second lift system in the posts that is operable with the second actuator to cause vertical movements of the equipment support within the second range of movement and stabilize the equipment support during the vertical movements of the equipment support.
100. The apparatus of claim 99, wherein the second lift system comprises a second threaded rod that is rotatably mounted and vertically fixed in the first post of the posts.
101. The apparatus of claim 100, wherein a third actuator member in the first post that is operably attached to the second threaded rod and the equipment support so that rotation of the threaded rod causes the vertical movements of the work surface.
102. The apparatus of claim 101, wherein the third actuator member comprises threads that are operable with corresponding threads of the second threaded rod to cause the vertical movements of the equipment support when the second threaded rod is rotated, stabilize the equipment support during the vertical movements within the second range of movement, and maintain a vertical position of the equipment support when the second threaded rod is not rotated.
103. The apparatus of claim 102, wherein the second lift system comprises a third threaded rod that is rotatably mounted and vertically fixed in the second post of the posts.
104. The apparatus of claim 103, wherein a fourth actuator member in the second post that is operably attached to the third threaded rod and the equipment support so that rotation of the third threaded rod causes the vertical movements of the equipment support.
105. The apparatus of claim 104, wherein the fourth actuator member comprises threads that are operable with corresponding threads of the third threaded rod to cause the vertical movements of the equipment support when the third threaded rod is rotated, stabilize the equipment support during the vertical movements within the second range of movement, and maintain the vertical position of the equipment support when the third threaded rod is not rotated.
106. The apparatus of claim 105, wherein the first post comprises a third elongated opening and a portion of the third actuator member extends through the third elongated opening to vertically support the equipment support; and the second post comprises a fourth elongated opening and a

portion of the fourth actuator member extends through the fourth elongated opening to vertically support the equipment support.

107. The apparatus of claim 106, wherein: the third actuator member comprises a third plurality of wheels that act on the interior surfaces of the first post to stabilize the equipment support during the vertical movements of the equipment support; and the fourth actuator member comprises a fourth plurality of wheels that act on the interior surfaces of the second post to stabilize the equipment support during the vertical movements of the equipment support.

108. The apparatus of claim 107, wherein: the third actuator member is operable to position the third plurality of wheels against the interior surfaces of the first post; and the fourth actuator member is operable to position the fourth plurality of wheels against the interior surfaces of the second post.

109. The apparatus of claim 87, wherein the second actuator is operable to rotate the second threaded rod and the third threaded rod to at the same time to cause the vertical movements of the equipment support.

110. The apparatus of any one of claims 99 to 109, wherein the first lift system and the second lift system are independently operable.

111. An apparatus comprising: a frame that is expandable in a generally vertical direction to obtain a press fit between a ceiling and a floor; and a work surface that is attachable to the frame and selectively positionable at a plurality of different work surface heights between the ceiling and the floor when the frame is press fit between the ceiling and the floor, the plurality of different work surface heights including at least a seated height and a standing height.

112. An apparatus comprising: a frame; a work surface that is attachable to the frame and selectively positionable at a plurality of different work surface heights; and an actuator that is attachable to and electronically or manually operable with the frame to move the work surface between the plurality of different work surface heights while maintaining an orientation of the work surface relative to the frame.

113. An apparatus comprising: a frame that comprising an upper portion attachable to an upper support structure and a lower portion attachable to a lower support structure; a work surface that is attachable to the frame and selectively positionable at a plurality of different work surface heights between the upper support structure and the lower support structure; and an actuator that is attachable to and operable with the frame to move the work surface within a range of movement including the plurality of different work surface heights while maintaining an orientation of the work surface relative to the frame.

114. The apparatus of claim 113, wherein the upper support structure comprises a first portion of a building and the lower support structure comprises a second portion of the building.

115. The apparatus of claim 113, wherein the upper support structure comprises one of: a door frame; a window frame; and a wall.

116. The apparatus of claim 115, wherein the lower support structure comprises a floor.

117. An apparatus comprising: a door or window frame; and a work surface that is attachable to the door or window frame and selectively positionable at a plurality of different work surface heights, the plurality of different work surface heights including at least a seated height and a standing height.

118. An apparatus comprising: a door or window frame; and an equipment support that is attachable to the door or window frame and selectively positionable at a plurality of different equipment support heights.

119. An apparatus comprising a work surface that is attachable to a door frame, a window frame, or a wall and selectively positionable at a plurality of different work surface heights relative to the door frame, the window frame, or the wall.

120. An apparatus comprising an equipment support that is attachable to a door frame, a window frame, or a wall and selectively positionable at a plurality of different equipment support heights

relative to the door frame, the window frame, or the wall.
121. An apparatus according to any preceding claim, comprising a resistance training system that is located in the work surface and operable at each height of the plurality of different work surface heights.
122. The apparatus of claim 121, wherein the resistance training system comprises one or more of: an exercise grip; and a resistance device that is attached to the work surface and operable to apply a resistance force to the exercise grip when moved away from the work surface.
123. The apparatus of claim 122, comprising a cable wherein: the work surface comprises an internal frame that is attachable to the frame; the resistance device is rigidly attached to the internal frame; and the cable is operatively attached to exercise grip and the resistance device.
124. The apparatus of claim 123, wherein the cable is removably attached to the exercise grip.
125. The apparatus of claim 123, wherein the resistance device comprises an electronic motor that is operable to apply the resistance force.
126. The apparatus of claim 125, wherein: the electronic motor comprises a spool; the spool is operatively attached to the cable; and the electronic motor applies the resistance force by rotating the spool.
127. The apparatus of claim 126, wherein: the internal frame comprises a tube defining a lumen; and the cable is routed from the spool and through the lumen.
128. The apparatus of claim 127, comprising a cable guide defining a cable guide lumen, wherein: the cable guide is slidably mounted in the tube; the cable is routed through the cable guide lumen; and the cable guide is slidable between a first position where the cable exits the cable guide lumen at a first location spaced apart from the internal frame and a second position where the cable exits the cable guide lumen at a second location adjacent the frame.
129. The apparatus of claim 128, wherein the exercise grip comprises one of: a palm grip; and a bar.
130. The apparatus of claim 128, comprising: a track that is attached to the frame; and a support structure that is moveably attachable to the track and operable to maintain a vertical position of the exercise grip by countering the resistance force.
131. The apparatus of claim 130, wherein: the track comprises a front surface comprising an elongated opening and a rear surface comprising a plurality of holes; and the support structure comprises a hook portion extending through the elongated opening and a protrusion that is receivable in one hole of the plurality of holes and operable to resist counter the resistance force when received in the one hole.
132. The apparatus of claim 131, wherein: the support structure comprises an L-shaped body with a vertical leg, a horizontal leg, and wheels on the vertical leg; and the hook portion is located on the horizontal leg.
133. The apparatus of claim 132, wherein the hook portion comprises one or both of: a first J-hook operable to counter the resistance force when the work surface is at the ceiling height; and a second J-hook operable to counter the resistance force when the work surface is at the floor height.
134. The apparatus of any preceding claim, wherein the frame comprises a mounting arm that is moveably attached to the frame and operable to support a piece of electronic equipment.
135. The apparatus of claim 134, wherein the piece of electronic equipment comprises one of: a camera; a light; a microphone; a monitor; a motion sensor; and a script prompter
136. The apparatus of any preceding claim, comprising a retractable computer system that is removably attached to a computer and moveable between: a working position where a monitor of the computer is visible to a user; and a stored position where the monitor is contained in the work surface.
137. The apparatus of claim 136, wherein the work surface comprises a monitor cavity and the monitor is folded into the monitor cavity when the retractable computer system is moved into the stored position.

138. The apparatus of claim 137, wherein the work surface comprises a keyboard cavity and a keyboard of the computer is stowable in the keyboard cavity when the retractable computer system is moved into the stored position.
139. The apparatus of claim 138, wherein the work surface comprises a peripheral cavity and a mouse of the computer is stowable in the peripheral cavity when the retractable computer system is moved into the stored position.
140. The apparatus of claim 139, wherein the retractable computer system comprises a monitor stand that is foldable between: a first position operable to support the monitor in the working position; and a second position operable to cover the plurality of cavities.
141. The apparatus of any preceding claim, comprise a side support that is extendable from the work surface and operable to support one or both of: a side table; and a weight of the user.
142. An apparatus comprising: a frame; a work surface that is attachable to the frame; and a resistance training system that is located in the work surface.
143. The apparatus of claim 142, wherein the frame is expandable in a generally vertical direction to obtain a press fit between a ceiling and a floor.
144. The apparatus of claim 143, wherein the work surface is attachable to the frame and selectively positionable at a plurality of different work surface heights between the ceiling and the floor when the frame is press fit between the ceiling and the floor.
145. The apparatus of claim 144, wherein the plurality of different work surface heights include a ceiling height, a standing height, a seated height, and a floor height.
146. The apparatus of claim 145, comprising an actuator that is attachable to and operable with the frame to move the work surface within a range of movement including the plurality of different work surface heights while maintaining an orientation of the work surface relative to the frame.
147. The apparatus of claim 146, wherein the frame comprises posts that are independently expandable in the generally vertical direction to obtain the press fit.
148. The apparatus of claim 147, comprising a lift system in the posts that is operable with the actuator to cause vertical movements of the work surface within the range of movement and stabilize the work surface during the vertical movements of the work surface.
149. The apparatus of claim 148, wherein the lift system comprises a threaded rod that is rotatably mounted and vertically fixed in a first post of the posts.
150. The apparatus of claim 149, wherein the lift system comprises a first actuator member in the first post that is operably attached to the threaded rod and the work surface so that rotation of the threaded rod causes the vertical movements of the work surface.
151. The apparatus of any one of claims 142 to 150, wherein the work surface is operable with the frame to support a weight of a user at each height of the plurality of different work surface heights.
152. The apparatus any one of claims 142 to 151, wherein the resistance training system comprises an exercise grip that is selectively movable: together with the work surface in the generally vertical direction between the plurality of work surface different heights, and independent of the work surface in a generally horizontal direction between a plurality of different grip positions including a working position where the exercise grip is spaced apart from the desk and a stored position where the exercise grip is adjacent the desk frame.
153. The apparatus or claim 152, wherein the resistance training system comprises a resistance device that is attached to the work surface and operable to apply a resistance force to the exercise grip when moved away from the work surface.
154. The apparatus of claim 153, wherein: the resistance training system comprises a cable; the work surface comprises an internal frame that is attachable to the frame; the resistance device is rigidly attached to the internal frame; and the cable is operatively attached to exercise grip and the resistance device.
155. The apparatus of claim 154, wherein the cable is removably attached to the exercise grip.
156. The apparatus of claim 155, wherein the resistance device comprises an electronic motor that

is operable to apply the resistance force.

157. The apparatus of claim 156, wherein: the electronic motor comprises a spool; the spool is operatively attached to the cable; and the electronic motor applies the resistance force by rotating the spool.

158. The apparatus of claim 157, wherein: the internal frame comprises a tube defining a lumen; and the cable is routed from the spool and through the lumen.

159. The apparatus of claim 158, comprising a cable guide defining a cable guide lumen, wherein: the cable guide is slidably mounted in the tube; the cable is routed through the cable guide lumen; and the cable guide is slidable between a first position where the cable exits the cable guide lumen at a first location spaced apart from the internal frame and a second position where the cable exits the cable guide lumen at a second location adjacent the frame.

160. The apparatus of claim 159, wherein the exercise grip comprises one of: a palm grip; and a bar.

161. The apparatus of claim 160, comprising: a track that is attached to the frame; and a support structure that is moveably attachable to the track and operable to maintain a vertical position of the exercise grip by countering the resistance force.

162. The apparatus of claim 161, wherein: the track comprises a front surface comprising an elongated opening and a rear surface comprising a plurality of holes; and the support structure comprises a hook portion extending through the elongated opening and a protrusion that is receivable in one hole of the plurality of holes and operable to resist counter the resistance force when received in the one hole.

163. The apparatus of claim 162, wherein: the support structure comprises an L-shaped body with a vertical leg, a horizontal leg, and wheels on the vertical leg; and the hook portion is located on the horizontal leg.

164. The apparatus of claim 163, wherein the hook portion comprises one or both of: a first J-hook operable to counter the resistance force when the work surface is at the ceiling height; and a second J-hook operable to counter the resistance force when the work surface is at the floor height.

165. The apparatus of claim 164, wherein one or both of the first J-hook and the second J-hook comprise a clamping mechanism operable to secure the exercise grip to the support structure.