BUILDING BOARD LIFTER

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The present invention relates to a new and improved building board or dry wall lifter apparatus and more particularly relates to a new and improved assembly machine designed for raising and holding in position building wall boards or dry wall components that are too heavy for one or more men to handle with convenience. The apparatus of the invention is used for placing and holding boards for being applied to ceilings from ceiling heights of 5 feet 3 inches to 9 feet 6 inches, and for wall applications from the floor to 11 feet 6 inches high, and can be built for greater heights as may be desired.

One of the advantages of the present invention is that it provides a method of holding the board from off the floor, moves it with great facility on the machine, which has rubber wheel casters or the like, to a desired location for application in holding it in place on the ceiling until it is secured to such wall or ceiling. The apparatus of the invention is adapted to receive and hold a 4 foot by 12 foot board through a 50 inch door as long as there is clearance for the board to turn through the door.

By means of the present invention, one man is capable of handling boards of the aforementioned size, or the like, and there are no other known lifting means of comparable advantages, features and objects as those of the present invention with the characteristics here set forth.

The main object of the present invention is to provide a machine for lifting and applying, as well as in holding in place, sheet rock or dry wall for being nailed or applied in the construction of ceiling. The machine is adapted to handle other types of wall board such as Bison Board, Buffalo Board, plywood sheets and Plywood, among others.

The above and other objects and advantages of the invention will become apparent upon full consideration of the following detailed description and accompanying drawings in which:

FIGURE 1 is a perspective view of the building board lifter means of the present invention showing the essential and preferred arrangement of the present invention;

FIGURE 2 is a cross-sectional view taken along lines 2—2 of FIGURE 1;

FIGURE 3 is a cross-sectional view of a base support construction taken along lines 3—3 of FIGURE 1;

FIGURE 4 is a cross-sectional view taken along lines 4—4 of FIGURE 2, showing a detailed construction of the arrangement thereof;

FIGURE 5 is a cross-sectional view in part taken along lines 5—5 of FIGURE 4;

FIGURE 6 is a cross-sectional view of the tilt locking lever mechanism in detail according to the preferred embodiment of the present invention;

FIGURE 7 is a cross-sectional view taken along lines 7—7 of FIGURE 1; and

FIGURE 8 is a broken-away view of the apparatus taken along lines 8—8 of FIGURE 7 in accordance with the preferred embodiment of the present invention.

Referring now to the drawings, there is shown a main frame 10 provided with a set of upright bars 12, 14 for said frame, a wench assembly 16, an intermediate carriage 20, and a main carriage or building board lifter apparatus 22, 22.

A pair of cables 26, 26 is threaded on each side of the carrier and adapted to wind on a cable drum 28 over a pulley 34, 34, and then over pulley 36, 36, and then connected to the cable clamp 88, 88, mounted in the main carriage guide roller assemblies 86, 86, which are connected to the main carriage assembly 22, by means of 80, and which moves with the main carriage. Thus the main carriage assembly 22 may move up and down on the intermediate carriage assembly by means of guide roller assemblies 86, 86, in the main carriage assembly. The intermediate carriage assembly 20, 20 moves up and down on the main frame 12, 12, 14, 14, in FIG. 1, and is guided by guide roller assembly 40, 40, which is stationary with the main frame 12, 12, 14, 14, and the guide rollers in the guide roller assembly 42, 42, which move with the intermediate carriage 20.

The main frame is rolled up to the edge of the material to be lifted, and as is evident from the illustration in FIGURE 1, the material 50 is placed on a side edge and is then lifted onto a lip 52, 52, at the bottom edge of the main carriage assembly 22, and then laid back against the main carriage 22. The main carriage is lifted to clear the floor by winding cable 26 onto the cable drum 28. By turning the crank of the wench assembly 16, the material 50 is lifted as desired until the crank of assembly 16 is stopped and then it is locked in place by means of a ratchet and dog 56. Then the lifter of the main frame is rolled to a desired location for application of the material 50 to a given position for installation. The cable 26, 26 is wound onto the drum 28 until the main carriage carrier 20 stops against the top of the intermediate carriage 20 where it is again locked in position by means of the ratchet and dog 56. The material is then tilted to position by setting in a nearly vertical position for wall application or to a horizontal position for ceiling application or to any position along line 62, FIG. 2, by means of adjustment of tilt clamp means 70 illustrated in FIG. 6 and described in more detail hereafter. The cable is then further wound onto the cable drum 28 and the intermediate carriage 20, 20 raises carrying the main carriage 22 with it to a desired position for application of the material 50.

When the tilt lock lever 70, mounted on the main carriage assembly 22, is moved in the direction indicated by the arrow 74 towards the position opposite from what is shown in FIG. 6, it moves a link 74 which moves the locking arm 76 for releasing the clamp at 78 which clamps onto 82, FIG. 7, which is part of the main carriage roller assembly 86 and which allows the main carriage to tilt at pivot 80 in the direction of the arrow 82, FIG. 7, to a desired tilt for applying the wallboard as described above. When the tilt locking lever 70 is moved back to the position as shown in FIGURES 6 and 7, it rotates the link 74 back to a position that is passed deadcenter at lever 84, thereby holding the tilt locking lever at a position which clamps the main carriage at 78. This arrangement allows the operator to release the main carriage tilt lock 70 by moving only one lever with great facility which may also be used to tilt the carriage and then lock the main carriage in its new position by moving the lever back to its original position. This clamping arrangement thus allows the main carriage to be set to any angle from substantially vertical to horizontal and back again.

In the main carriage hinging device, as shown at 92 in FIG. 2, sleeve 95 is fitted so that it can slide back and forth from position as shown by arrow 92, or to a position as shown as element 96 or 98, respectively. When the sleeve is in position as shown by arrow 96, it covers the leg hing, a portion of the leg 100 and a sufficient portion of the part of the main carriage 22 to which the leg is hinged, to hold the leg in a rigid position with respect to the main frame and in a position to pick up sheets of building board. After the main carriage is tilted to the horizontal position or nearly horizontal posi-
tion, the sleeve may be moved to position as shown at 98, at which position the sleeve no longer covers the leg 100 or the hinge, and the main carriage leg 100 will fold or hinge down, reducing the width of the main carriage, as shown as component 60.

This arrangement allows the main carriage to be reduced in width to 24 inches and also allows the main carriage to be used in clothes closets, halls, and other places of limited size.

Therefore, the device is designed to raise and hold in position building wallboards of conventional size and dimensions, and other flat components that are too heavy for one or more workmen to handle with convenience. The device of the invention places wallboards for ceiling application from 5 feet 3 inches to 9 feet 6 inches high, and for wall application from the floor to 11 feet 6 inches high, and can be built for greater height within the scope of the invention.

The invention has the advantage of picking the wallboard off the floor, moving it with ease on rubber wheel casters, or the like, to a desired place for application and holding the wallboard in place until it is secured to the wall or ceiling. The device of the invention will take a 4 feet by 12 feet board through a 50 inch door providing there is an end clearance for the board. One man can operate and control the apparatus of the invention and can handle any board that is being installed with its aid. The device of the invention is capable of handling sheetrock and will handle other types of wallboard such as Bison Board, Buffalo Board, plywood sheets and Plyscord, among others.

Additional embodiments of the invention in this specification will occur to others and therefore it is intended that the scope of the invention be limited only by the appended claims and not by the embodiment described hereinabove. Accordingly, reference should be made to the following claims in determining the full scope of the invention.

What is claimed is:

1. A building board lifter, a main carriage for rotatably carrying and supporting building boards from a main frame, a tilt lock lever mounted on said main carriage for controlling rotation of said main carriage, and movable in an arcuate direction, and saidable sleeve means on said main carriage having a tilt lock lever to allow tilting of the main carriage to a horizontal position from a substantially vertical position when said sleeve is displaced along a portion of the main carriage, and a winding cable and cable drum assembly disposed on said main frame and connected to the main carriage to turn the main carriage on said tilt lock lever when said sleeve is displaced from said substantially vertical position to the horizontal position upon release of said slidable sleeve, said main frame comprising a horizontally disposed base member and a pair of upstanding vertical members supported therefrom, and said carriage being supported from said main frame by an intermediate carriage which raises and lowers said carriage assembly by a cable and cable drum arrangement from the vertical components of said main frame, the tilt locking lever including a locking arm and a clamp for allowing the main carriage to be pivotally mounted and movable from its horizontal position to its substantially vertical position.

2. The invention according to claim 1 wherein the tilt locking lever is pivotally mounted for rotation through and beyond a dead center position for thereby holding the tilting lock lever at a position for clamping the main carriage in a given position.

3. The invention according to claim 2 wherein the main carriage is released by the tilt lock lever for tilting the carriage and then locking the main carriage in a given position by moving the lever to an original position, and in which the main carriage may be set at any angle from said substantially vertical position to a horizontal position.

4. The invention according to claim 3 wherein only a single lever of said tilt locking lever is required to actuate and control said mechanism, so that the building board lifter may be actuable and operable by one hand of an operator.

5. A building board lifter comprising a main frame comprised of horizontally disposed base members mounted on swivel casters having two pairs of upstanding vertical members supported therefrom, an intermediate carriage mounted in the main frame and capable of vertical telescoping movement within the main frame by means of guide roller assemblies, a main carriage assembly forming a building board carrier mounted on the intermediate carriage assembly and capable of substantially vertical movement along the intermediate carriage assembly by means of guide roller assemblies, means carried by the main frame for raising and lowering the intermediate carriage in a telescoping action in the main frame and also for raising and lowering the main carriage on the intermediate carriagage, a main carriage tilt lock arrangement in which the main carriage to tilt from substantially vertical position to horizontal position or any point in between along an axis parallel with the length of the supported board, a slidable sleeve on the main carriage building board supporting legs which allows a portion of the legs to fold down after the board is placed in horizontal position, thereby leaving both edges of the board exposed and also reducing the width of the apparatus for installations in narrow places such as halls and closets, including the tilt lock lever for ceiling application, a locking arm which actuates a clamping device and upon moving the locking lever to a position where the clamp is open, the locking lever swings to a position where it may be used to tilt the main carriage to any desired angle between substantially vertical position to horizontal position and lock the main carriage in that position by returning the locking lever back to the clamped position, where it is held by virtue of placing a link in the locking mechanism past dead center position, thereby allowing the operator to perform the entire tilting operation with only one lever and by using only one hand.

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