Oct. 16, 1962 R. M. KILMAN 3,058,602

TILT PANEL HOIST DEVICE

Filed Dec. 22, 1960

2 Sheets-Sheet 1

Fig. 1

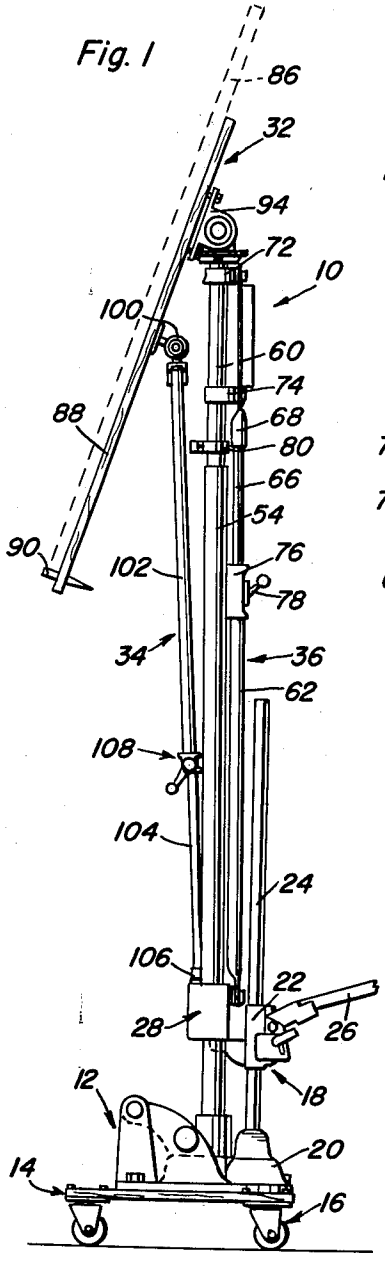


Fig. 8

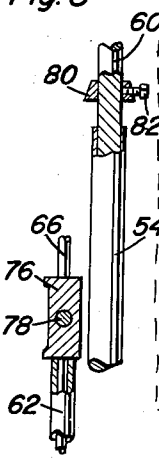
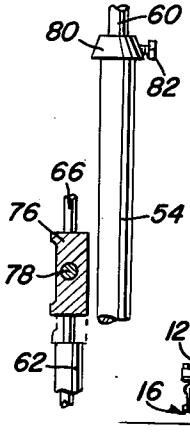


Fig. 9



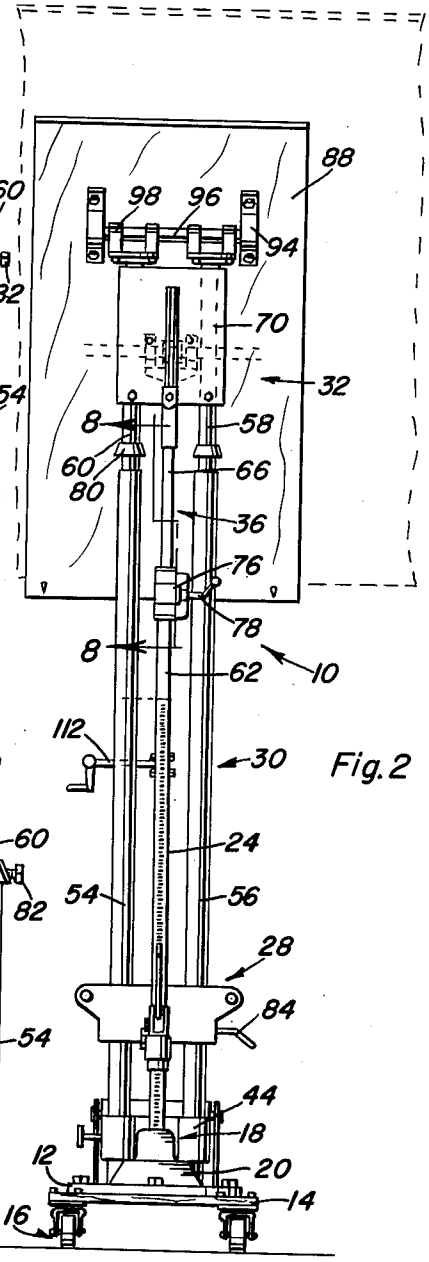


Fig. 2

Robert M. Kilman

INVENTOR.

BY Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

Oct. 16, 1962 R. M. KILMAN 3,058,602

TILT PANEL HOIST DEVICE

Filed Dec. 22, 1960

2 Sheets-Sheet 2

Fig. 3

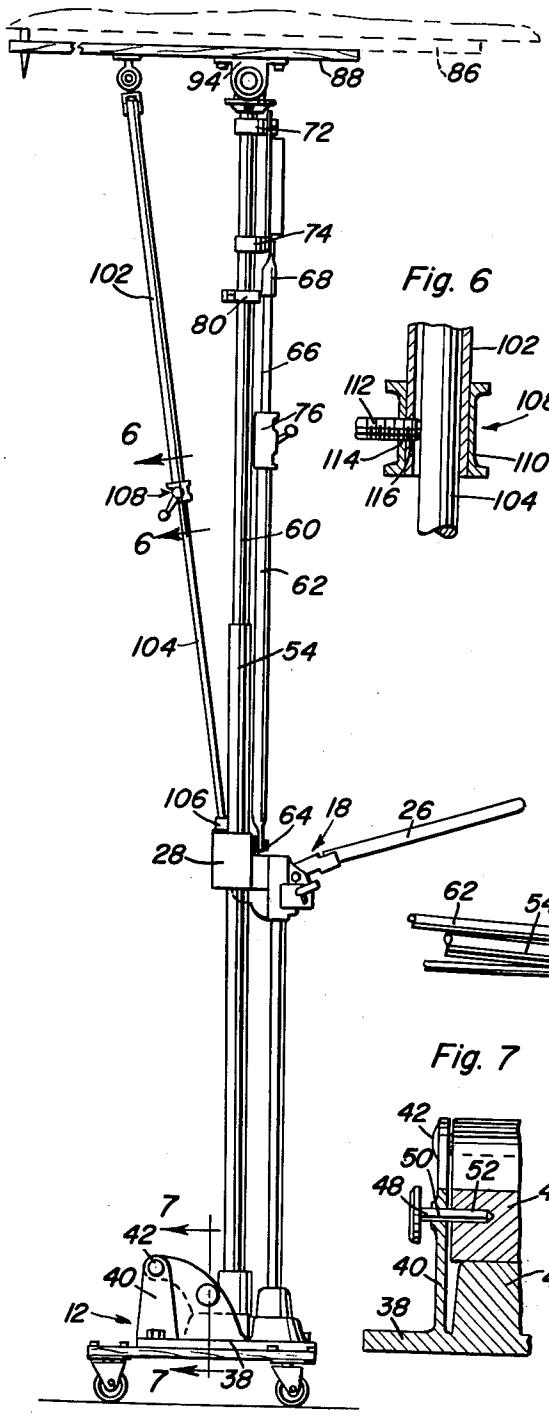


Fig. 6

Fig. 4

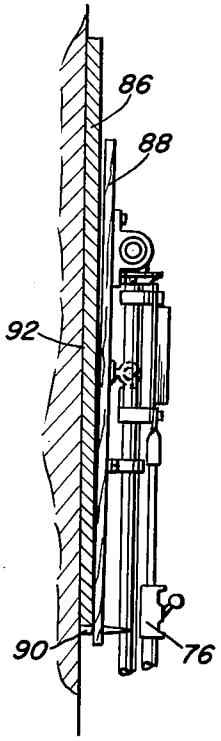


Fig. 5

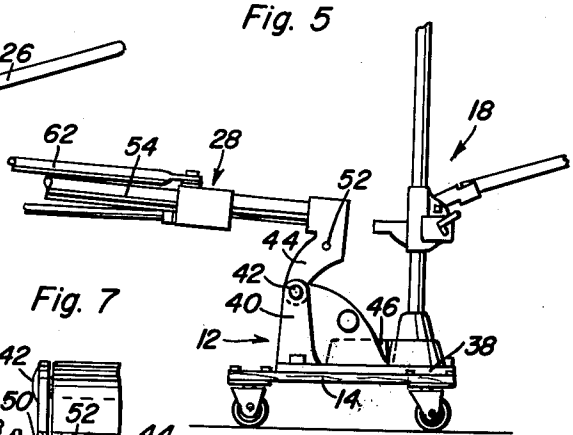


Fig. 7

Robert M. Kilman

INVENTOR.

BY Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

United States Patent Office 3,058,602 Patented Oct. 16, 1962

3,058,602

TILT PANEL HOIST DEVICE

Robert M. Kilman, 1303 E. 14th St., Amarillo, Tex.

Filed Dec. 22, 1960, Ser. No. 77,713
14 Claims. (Cl. 214—1)

This invention relates to an implement for hoisting and adjustably positioning large building panel material such as wallboard and ceiling panels.

A primary object of this invention is to provide a device which is easily maneuvered and capable of rigidly supporting and positioning wallboard, ceiling panels or the like so that the panels may be hoisted into place and held in position to be fastened to the building frame that it is to enclose.

Another object of this invention is to provide a panel hoist device capable of adjustably tilting or positioning the panels for attachment to a wall surface or ceiling surface, which device is adjustable for accommodating varying dimensional requirements for the panel installation.

An additional object of this invention is to provide a tiltable panel hoist device which is operated by any conventional type of automotive jack implement or other type of jack implement so that an extended hoisting range and load limit of the device will be determined by the jack implement with which it is associated. The novel portion of the instant hoist device is therefore readily disassembled and also locked in assembled condition when the jack implement associated therewith may be locked in place. Also, when in operative condition, the hoist device may still be maneuverable without being disassembled. Depite the design of the hoist device rendering it highly maneuverable, it is efficient and rigid to an extent not expected in view of its maneuverability and in view of the ease with which it may be disassembled.

A still further object of this invention is to provide a tilting panel hoist device capable of being manufactured with great economy as compared with hoist devices having comparable adjustment features and functions.

Other objects of this invention includes adjustment in the maximum height to which the device may hoist a panel both be replacement of the jack implement by one having a greater range of operation and by internal adjustment of the novel hoist device itself.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a side elevational view of the hoist device in a lower tilted position.

FIGURE 2 is a front elevational view of the hoist device as shown in FIGURE 1.

FIGURE 3 is a side elevational view of the hoist device illustrated in an extended and horizontal panel condition.

FIGURE 4 is a partial side elevational view of the hoist device showing a wall panel in place.

FIGURE 5 is a partial side elevational view of the lower portion of the hoist device shown in a disassembling condition.

FIGURE 6 is a sectional view taken through a plane indicated by section line 6—6 in FIGURE 3.

FIGURE 7 is a partial sectional view taken through a plane indicated by section line 7—7 in FIGURE 3.

FIGURE 8 is a partial sectional view with parts shown in section taken through a plane indicated substantially by section line 8—8 in FIGURE 2.

FIGURE 9 is a sectional view similar to FIGURE 8 illustrating the procedure for varying the hoisting range.

Referring now to the drawings in detail, FIGURES 1 and 2 illustrate the hoisting device of this invention generally referred to by reference numeral 10. The device 10 includes a disassembling base generally referred to by reference numeral 12 which is mounted on a dolly 14 including caster wheel assemblies 16 enabling the device 10 to be maneuvered. Mounted on the base and locked thereto when in assembled condition as illustrated in FIGURES 1 and 2, is a jack implement generally referred to by reference numeral 18, which jack implement may be of any conventional type such as the automotive bumper jack which includes a base portion 20 mounted on the disassembling base 12 and a load engaging housing member 22 capable of hoisting a load by riding up a rack bar 24 fixed to the base portion 20 by oscillation of a jack handle 26. The jack implement accordingly engages a slide generally referred to by reference numeral 28 which is slidable with respect to vertical guide mechanism generally referred to by reference numeral 30. A panel supporting assembly generally referred to by reference numeral 32 is therefore operatively connected to the slide 28 for vertical positioning thereof in response to sliding movement of the slide 28, said panel supporting assembly 32 being operatively connected to the slide 28, said panel supporting assembly 32 being operatively connected to the slide 28 by a tilt adjusting mechanism generally referred to by reference numeral 34 and a hoist assembly generally referred by reference numeral 36.

Referring now to FIGURES 3, 5 and 7, it will be observed that the base 12 includes a bottom plate portion 38 one side of which has projecting upwardly on both sides thereof a pair of pivot plate members 40 which rotatably mounts at the upper end a pivot pin 42. Pivotally mounted on the pin 42 is a pivoted base portion 44 upon which the remaining structure of the device 10 is carried. Accordingly, when the portion 44 is in a horizontal position resting on a rest block 46 projecting upwardly from the bottom plate 38 between the side plates 40, the device 10 will be in its vertical position as illustrated for example in FIGURES 1, 2 and 3. In such operative position, the pivoted base portion 44 will be locked in position by means of the lock pin 48 which extends through apertures 50 and 52, within one side plate 40 and pivoted base portion 44 respectively. In order to disassemble the device 10, the lock pin 48 will be withdrawn and the base portion 44 pivoted to the position illustrated in FIGURE 5 wherein the device 10 will be in a horizontal position enabling one to disassemble the parts thereof. When the device 10 is in the position illustrated in FIGURE 5 the jack implement 18 may be placed on or removed from the bottom plate portion 38 of the base 12. Accordingly, when the pivoted base portion 44 is returned to its operative position and the lock pin 48 reinserted, the base portion 20 of the jack implement 18 will be locked in position on the base 12.

The guide structure 30 is mounted in the base portion 44 of the base 12 and includes a pair of parallel base tubes 54 and 56 as more clearly seen from FIGURE 2. The base tubes 54 and 56 accordingly slidably mount the slide 28 and also slidingly receive therewithin a pair of rod members 58 and 60 which form part of the panel supporting assembly 32. The base tubes 54 and 56 accordingly separately and slidingly mount both the slide and the panel supporting assemblies. The slide 28 includes a pair of bores through which the base tubes 54 and 56 extend and is engaged by the engaging portion of the jack housing 22 which projects between the base tubes. It will therefore be apparent that upon oscillation of the handle 26 of the jack implement 18, the slide 28 will be engaged by the housing 22 of the jack to thereby cause the slide 28 to ride up the base tubes 54 and 56 with the rod members 58 and 60 telescoping outwardly from the base tubes to raise or hoist the panel supporting assembly

32 of which said rod members are a part. Therefore, the panel supporting assembly 32 is operatively connected to the slide 28 by means of the tilting mechanism 34 and the adjustable hoist assembly 36.

The actual hoisting loads for raising the panel supporting assembly 32 is sustained by the hoist assembly 36 which is therefore more rigidly interconnected between the slide 28 and the assembly 32. The assembly 36 therefore includes a lower tubular bar section 62 which is connected by fastener 64 to the slide 28 on one side of the base tubes. The upper end of the bar section 62 telescopically receives the bar section 66 which is connected by the fitting 68 to a reinforced plate member 70 which is clamped to the rod members 58 and 60 by clamp elements 72 and 74. The bar section 66 which is telescopically received within the section 62 is limited in relative movement with respect to the section 62 by means of the adjuster mechanism 76 adjustably positioned on the bar section 66.

As seen from FIGURES 2, 8 and 9, the adjuster member 76 includes a lock screw element 78 which fastens the member 76 to the bar section 62 for abutment against the upper end of the tubular section 62. Accordingly, upward movement of the slide 28 will transmit upward movement to the tubular bar section 62 and through the adjuster member 76 transmit the force to the section 66 which is directly connected to the assembly 32 by means of its connection to the rod members 58 and 60.

In order to vary or increase the effective length of the assembly 36 so as to increase the maximum height to which the jack implement 18 may raise the assembly 32 through the assembly 36, the adjuster member 76 must be released from the bar section 66 and lowered thereon and then re-tightened so that the bar 66 will be further extended from the tubular section 62 when the adjuster member 76 abuts thereagainst. In order to effect such an adjustment, attention is invited in particular to FIGURES 8 and 9 wherein it is indicated that the collar members 80 which are adjustably fixed to the rod members 58 and 60 by setscrews 82, may be lowered into abutment with the top of the base tubes 54 and 56 when the device has been raised to a certain extent by the jack implement 18 as illustrated in FIGURES 1, 2, and 8. The jack implement 18 may then be lowered so that the slide 28 and the tubular section 62 connected thereto will drop, the rod members 58 and 60 and the upper bar section 66 being retained elevated however by virtue of the abutment collars 80 abutting against the top of the base tubes 54 and 56. Accordingly, the adjuster member 76 will no longer abut against the top end of the tubular section 62 as illustrated in FIGURE 9 whereupon the adjuster member may be released from the bar section 66 and dropped into abutment with the top of the tubular section 62 lowered with respect thereto, as illustrated by dotted line in FIGURE 9. The lock screw element 78 may then be retightened so as to provide an effectively lengthened connecting assembly 36. The collars 80 may then be repositioned to their original position if so desired representing the lowermost position for the slide 28 and rod members 58 and 60 which are interconnected by the connecting assembly 36. It will therefore be apparent from the foregoing description, that the height to which the device 10 may position the assembly 32 may be easily adjusted without any complicated adjusting mechanism. After being adjusted, operation of the jack will raise the slide 28 and assembly 32 connected thereto by means of the connecting assembly 36 to any desired height. Once adjusted to the desired height, the panel having been angularly positioned by the mechanism 34 with respect to the device 10 may be held in vertically adjusted position by an additional safety device including the lock screw member 84 which may be rotated to lock the slide 28 to one of the base tubes 56. Accordingly, if the jack implement 18 should fail during the fastening operation being performed on the panels held in position by the device 10, the device will not collapse.

It will therefore be evident that a panel 86 may be raised from a lowered position as shown in FIGURE 1 to an upper position as shown in FIGURE 3 and may be positioned either vertically as shown in FIGURE 4 for fastening to the building wall framing or may be positioned horizontally as illustrated in FIGURE 3 for forming the ceiling. Accordingly, the panel supporting assembly 32 includes a relatively large supporting rack board 88 the lower end of which has a pair of lugs 90 against which one edge of the panel 86 abuts. When the device 10 is being used to hold wall panels in place as shown in FIGURE 4, the rack board 88 may be adjusted to position the panel 86 against the wall 92 at a slight angle thereto whereupon the panel 86 may then be tilted against the wall 92 and fastened thereto while it rests on the lugs 90. When the rack board 88 is being used for positioning panel 86 for ceiling construction, it will of course be positioned on the device in a horizontal position as illustrated in FIGURE 3. Accordingly, a pair of hinge brackets 94 are fastened to the back of the board 88 closer to the upper end thereof as illustrated in FIGURE 2. Mounted between the hinge bracket 94 is a hinge pin 96 to which the upper end of the rod members 58 and 60 are connected by the strap members 98. Accordingly, the board 88 is hingedly connected to the upper end of the rod members 58 and 60, whereby the assembly 32 is slidably mounted with respect to the base tube of the guide mechanism 30. However, the board 88 will be pivotally movable with respect to the guide mechanism 30 for which reason the tilt adjustment mechanism 34 is provided.

The tilt adjustment mechanism 34 therefore pivotally interconnects the board 88 and slide 28. Hinge connection 100 is fastened to the back of the rack board 88 in spaced relation to the hinge members 94, the hinge connection 100 being pivotally connected to a tubular tilt bar section 102. The lower end of the tubular section 102 telescopingly receives tilt bar section 104 which is pivotally connected to the slide 28 at the lower end 106 thereof. It will therefore be apparent that by varying the effective length of the assembly 34 by extending or retracting the section 104 with respect to the tubular section 102, the tilt position of the board 88 may be varied or adjusted. Accordingly, a tilt adjustment mechanism 108 as more clearly seen in FIGURE 6 is provided for the purpose. The mechanism 108 includes a sleeve member 110 positioned at the lower end of the tubular section 102 by means of an adjustment screw member 112 extending through threaded apertures 114 and 116 within the the sleeve member 110 and tubular section 102 respectively. By tightening the screw member 112 the position of the section 104 relative to the tubular section 102 may be predetermined so as to correspondingly adjust the angular position of the board 88.

From the foregoing description, operation and utility of the hoisting device of this invention will be apparent. It will therefore be appreciated that the device 10 may be maneuvered from place to place even when in its operative vertical position. When in a lowered position, the tilt angle of the board 88 may be adjusted whether it be for mounting of wall panels or ceiling panels and then the jack implement 18 may be actuated to raise the panel supporting board 88 to its desired height at the adjusted tilt position.

It will also be apparent that when the board 88 is in its lowered position, as shown in FIGURE 1, mechanism 108 may be tightened and member 76 loosened by element 78 so as to position the board in a horizontal position. Upon retightening of the member 76, the board may then be raised to an elevated position. It should of course be understood that the length of the board 88 and dolly 14 would be such as to best accommodate loads carried thereon.

The maximum height to which the device **10** may raise the panel **86** may be varied by means of the procedure hereinbefore outlined involving the height adjuster member **76** and the collar members **80**. Also, when it is desired to disassemble the mechanism, the base portion **44** on which most of the parts of the device are mounted may be pivoted so as to position the device in a horizontal position whereby the jack implement may be replaced or removed.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A panel hoisting and positioning device comprising, maneuverable base means, guide means mounted on the base means and extending upwardly therefrom, slide means slidingly mounted on the guide means, a panel supporting assembly slidingly mounted in the guide means, and panel positioning means operatively connected to the slide means and panel supporting assembly for vertically positioning the supporting means at an adjusted angular position relative to the guide means in response to vertical movement of the slide means on the guide means.

2. The combination of claim 1, including jack means removably mounted on the base means and engageable with the slide means for vertical movement thereof.

3. The combination of claim 2, wherein said panel positioning means includes tilt adjustment means pivotally connected to the slide means and panel supporting assembly and operative in response to variation in effective length to vary the angular position of the panel supporting means relative to the guide means.

4. The combination of claim 3, wherein said panel positioning means includes hoist means connected to the slide means and the panel supporting assembly.

5. The combination of claim 4, wherein the panel supporting assembly comprises rack board means hingedly connected to rod means slidingly received within the guide means.

6. The combination of claim 5, including height adjustment means mounted on the rod means of the panel supporting assembly and the hoist means and operative in conjunction with said slide means to effect a variation in the effective length of the hoist means upon release of the jack means from the slide means, whereby the maximum height to which the panel supporting assembly is positioned may be varied.

7. The combination of claim 1, wherein said guide means comprises a pair of base tubes pivotally mounted on the base means for dissassembly purposes and base lock means for holding the base tubes in vertical position on the base means.

8. The combination of claim 7, wherein the panel supporting assembly comprises a pair of rod members slidingly received within said base tubes and a panel supporting board hingedly connected to the rod members.

9. The combination of claim 8, wherein the slide means is slidingly mounted on the base tubes for engagement by jack means locked in position on the base means by the base lock means.

10. The combination of claim 9, wherein the panel positioning means comprises panel tilt adjustment pivotally connected to the slide means and supporting board on one side of the base tubes and hoist means connected to the slide means and rod members on the other side of the base tubes.

11. The combination of claim 10, wherein the hoist means includes telescoping hoist bar sections respectively connected to the slide means and rod members, and a height adjuster adjustably fixed to one bar section to limit inward telescoping movement of the bar section relative to each other.

12. The combination of claim 11, including adjustable collar means fixed to the rod members to limit downward movement thereof within the base tubes, whereby adjustment of the position of the height adjuster may be effected.

13. The combination of claim 1 wherein the panel positioning means includes means for tilting the panel supporting assembly to a horizontal position when in a lowered position relative to the guide means.

14. A panel hoisting and positioning device comprising, maneuverable base means, a pair of tubular guide means mounted on the base means and extending upwardly therefrom, a pair of rod members slidingly received within said tubular guide means, collar means fixed to the rod members to limit downward movement thereof within the tubular guide means, a panel supporting board hingedly connected to the upper ends of said rod members, slide means slidingly mounted on the guide means and presenting a lower abutment edge spaced outwardly from said guide means for engagement therebeneath by a jack means removably mounted on the base means for vertical movement thereof, a panel tilt adjustment means pivotally connected to the slide means and supporting board on one side of the tubular guide means and hoist means connected to the slide means and rod members on the other side of the tubular guide means, said tilt adjustment means and hoist means each including telescoping sections and a height adjuster adjustably fixed to one section to limit inward telescoping movement of said sections relative to each other.

References Cited in the file of this patent

UNITED STATES PATENTS

1,725,329	Blandford	Aug. 20, 1929
1,726,786	Whitney	Sept. 3, 1929
2,603,543	Barbin	July 15, 1952
2,828,870	Corley	Apr. 1, 1958
2,846,085	Johnson	Aug. 5, 1958
2,962,730	Carnes	Dec. 6, 1960