Jan. 6, 1970 B. E. OWENS ET AL 3,487,952

MATERIAL LIFT AND PRESS

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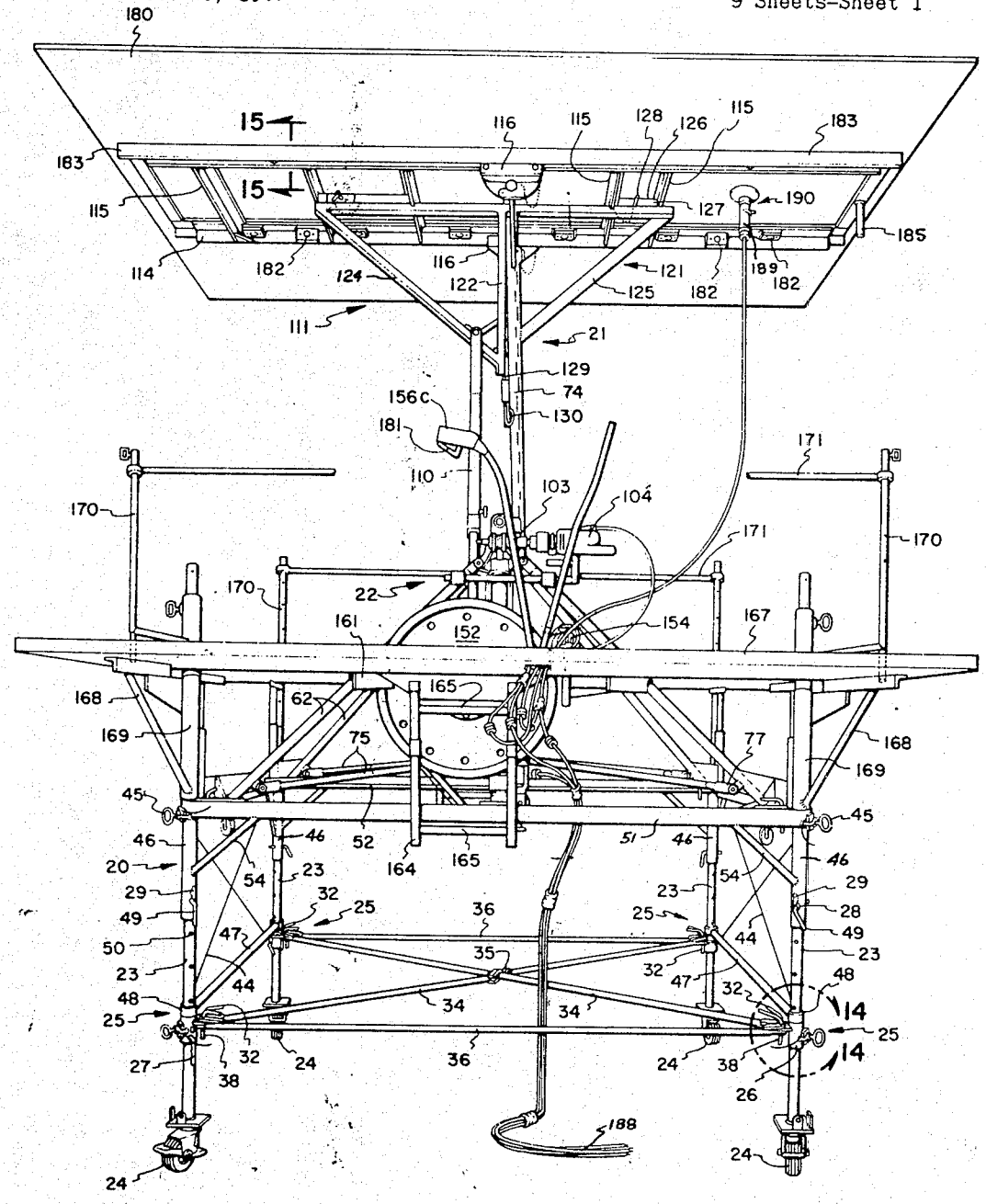


FIG. 1

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MATERIAL LIFT AND PRESS

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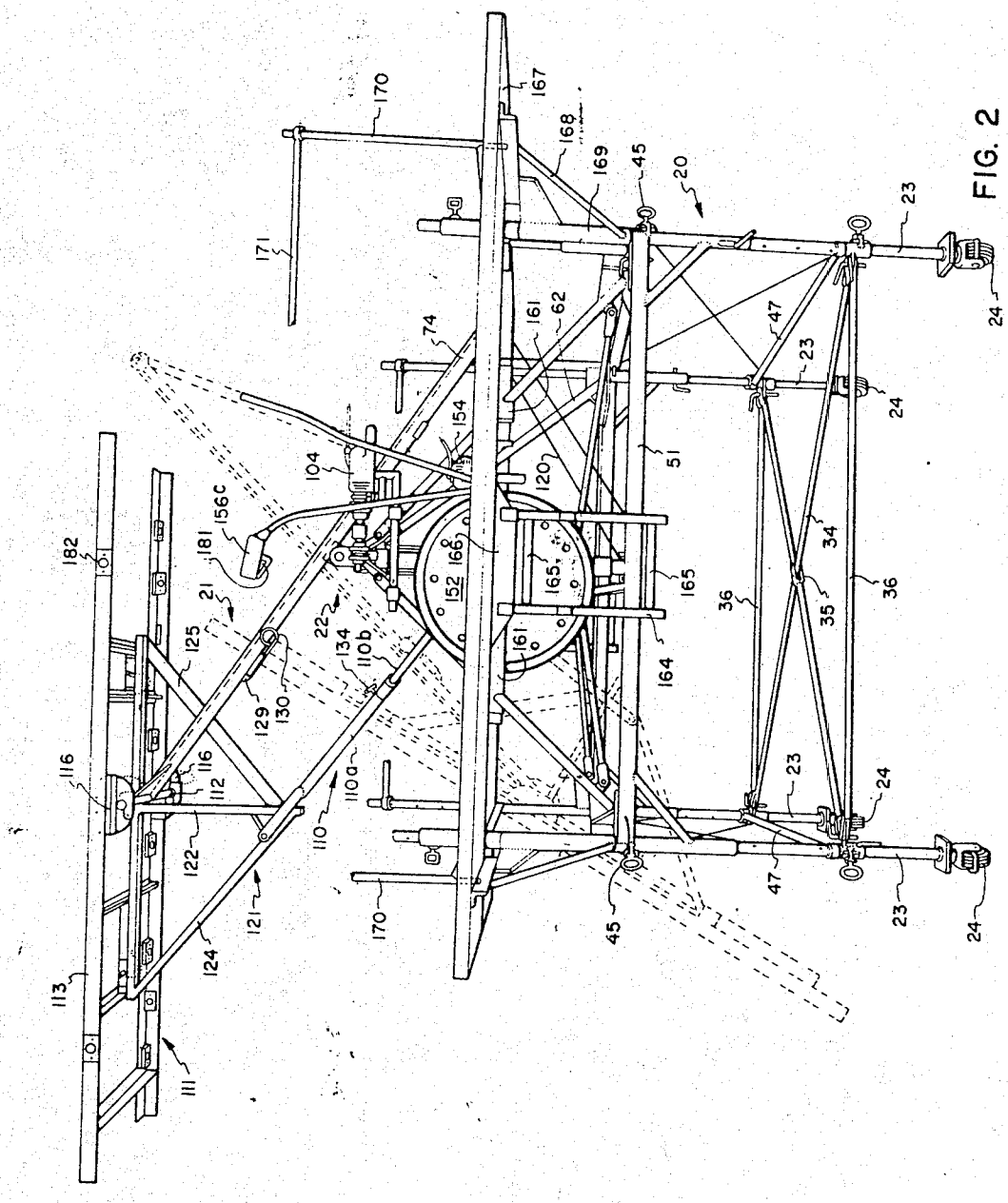


FIG. 2

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MATERIAL LIFT AND PRESS

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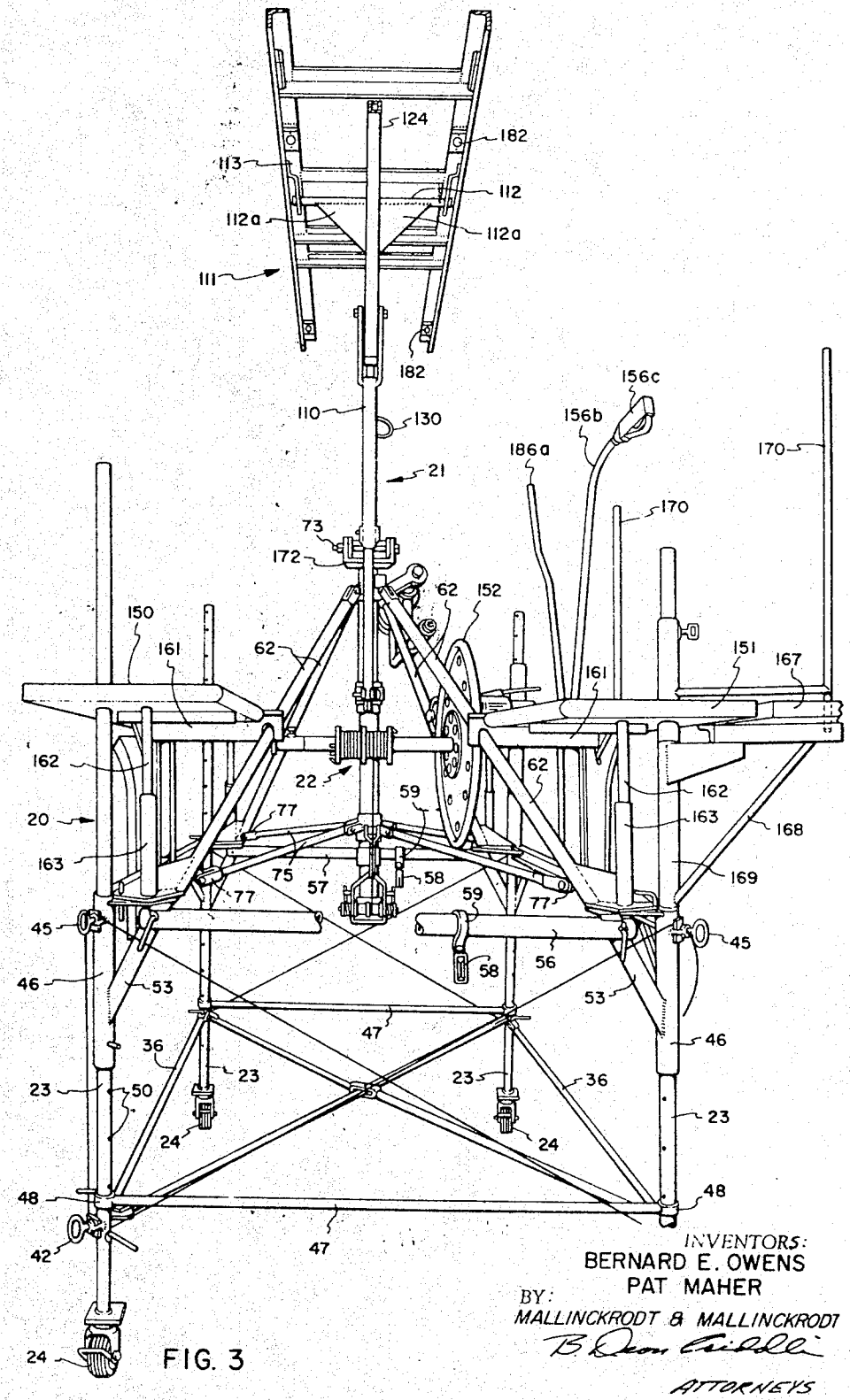


FIG. 3

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MATERIAL LIFT AND PRESS

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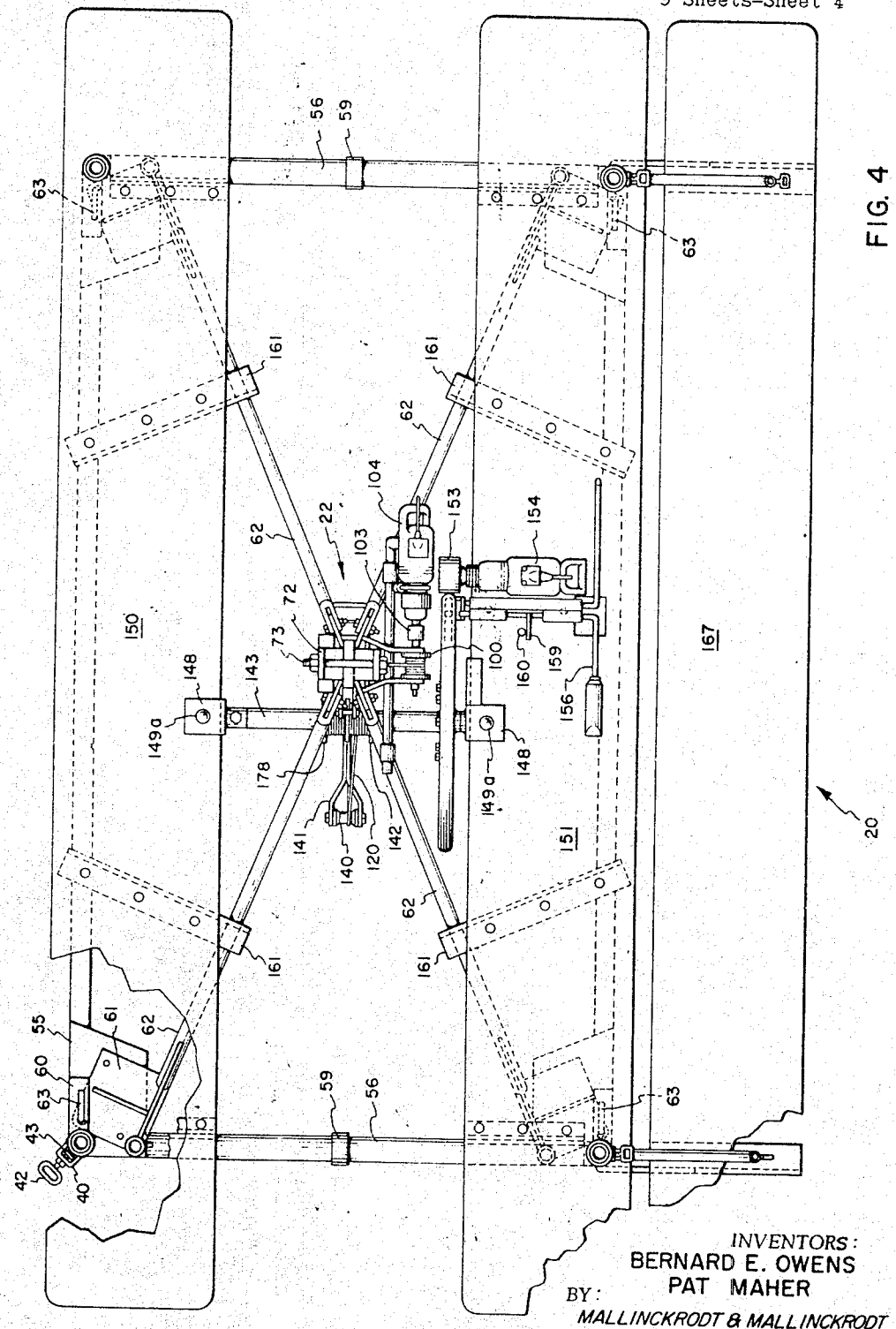


FIG. 4

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MATERIAL LIFT AND PRESS

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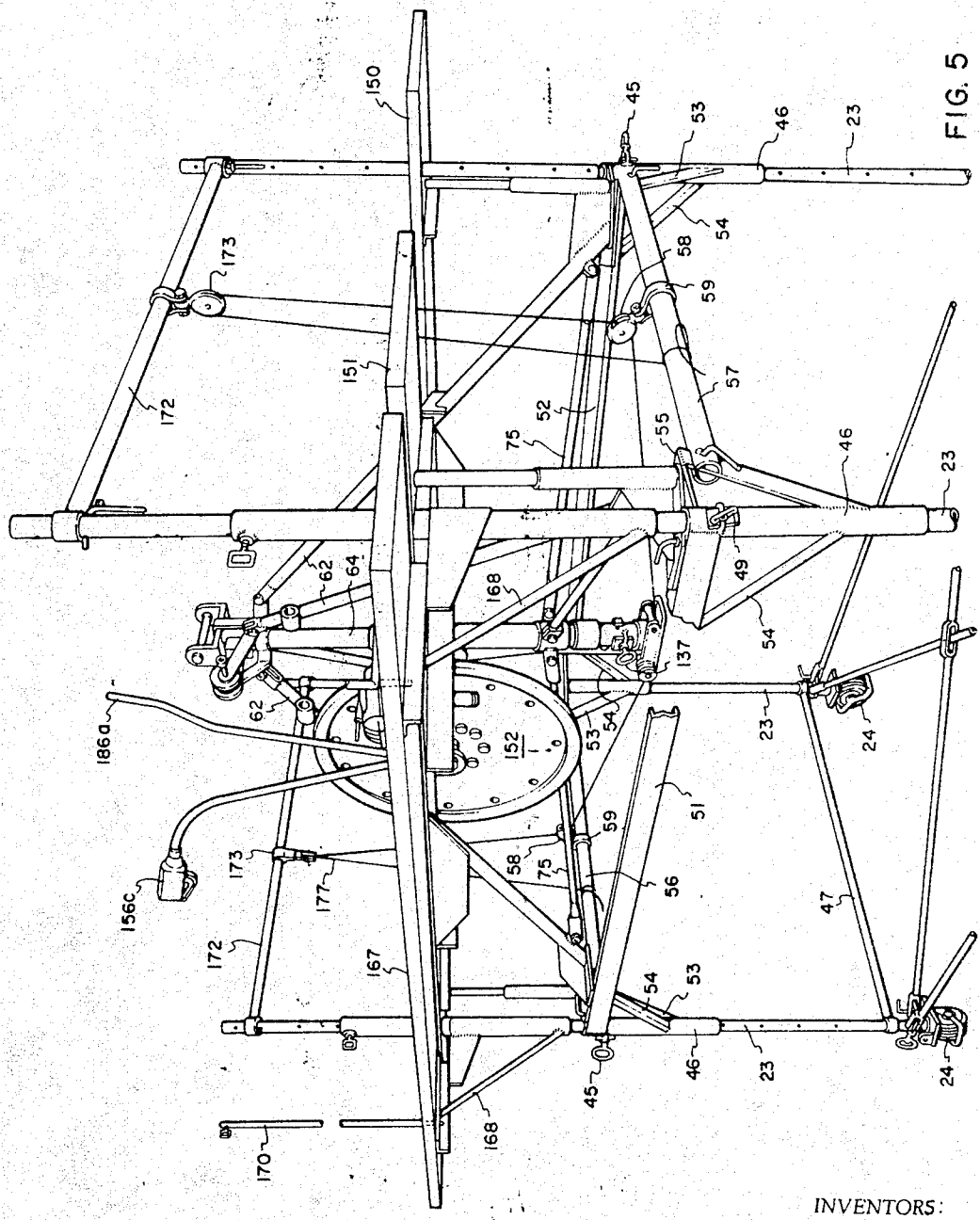


FIG. 5

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MATERIAL LIFT AND PRESS

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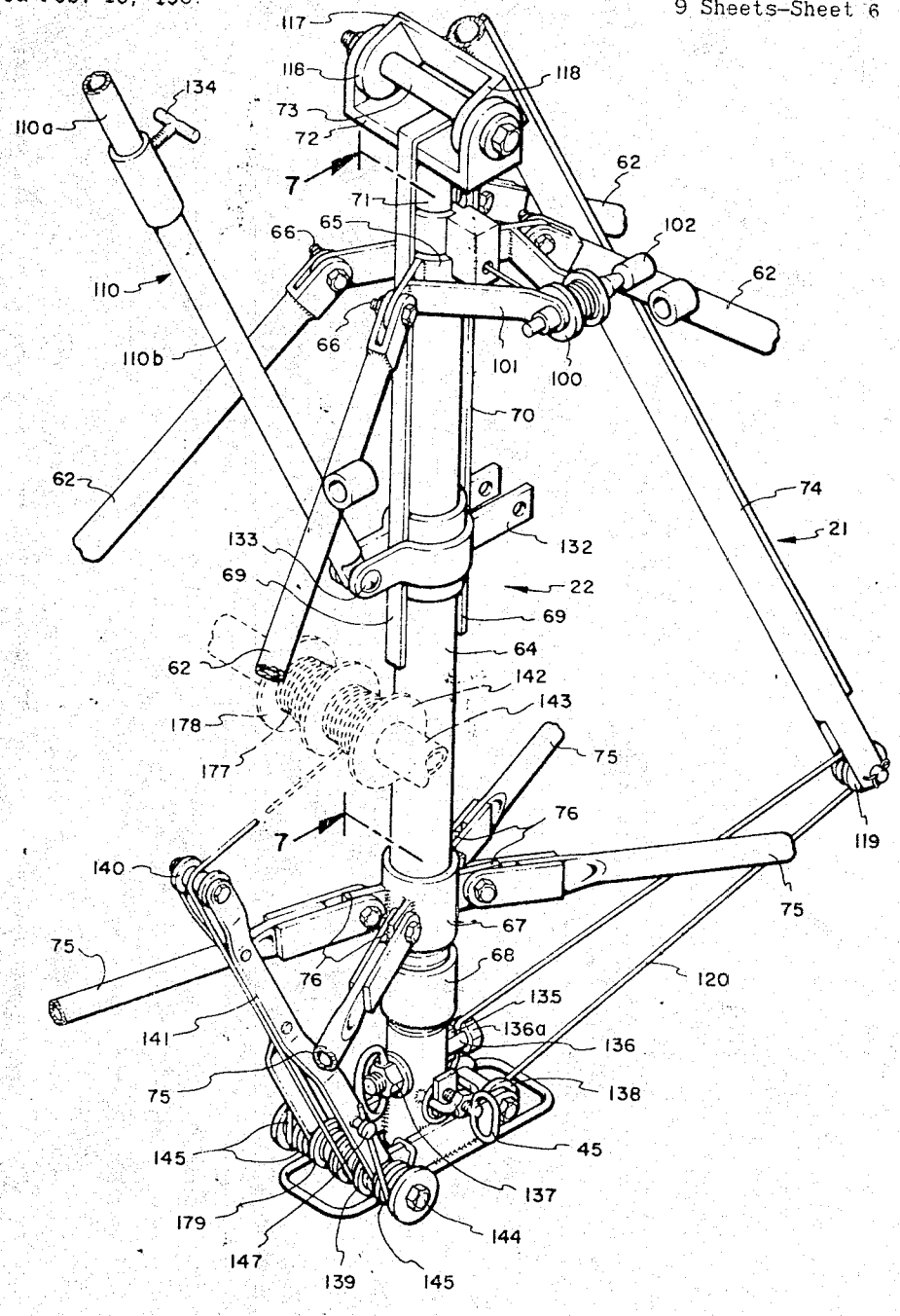


FIG. 6

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MATERIAL LIFT AND PRESS

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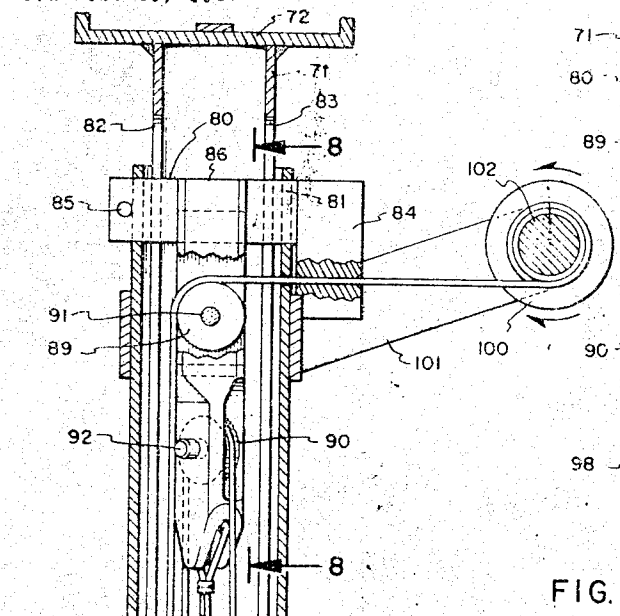


FIG. 8

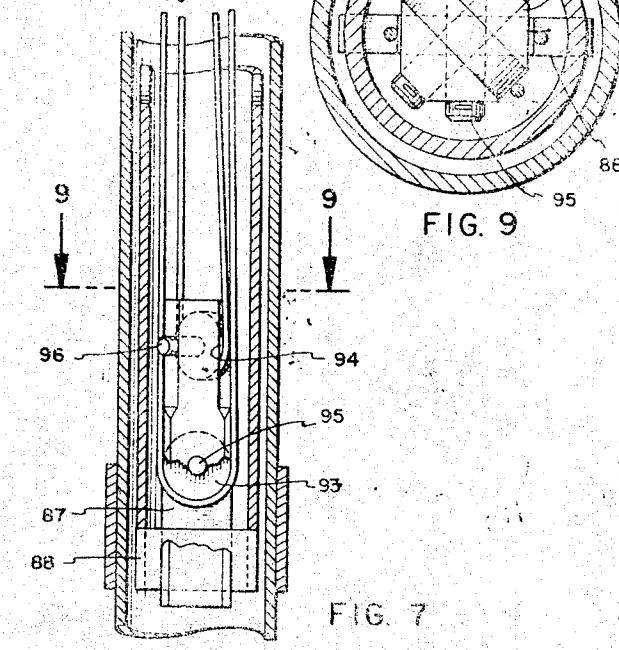


FIG. 7

FIG. 9

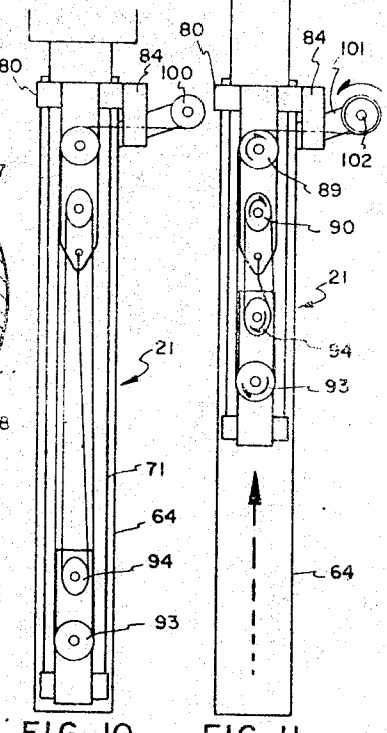


FIG. 10 FIG. 11

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MATERIAL LIFT AND PRESS

Filed Feb. 13, 1967 9 Sheets-Sheet 8

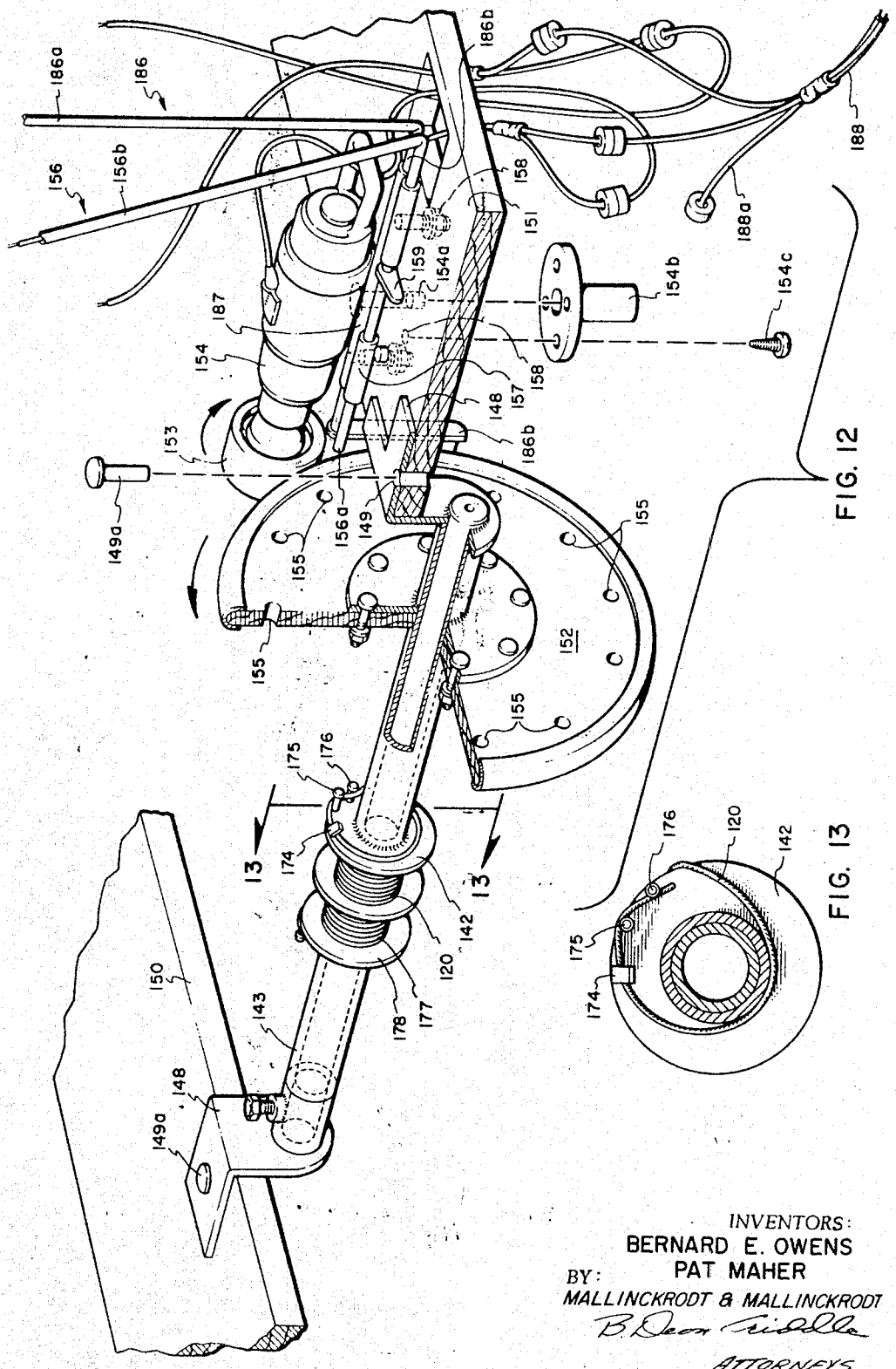


FIG. 12

FIG. 13

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MATERIAL LIFT AND PRESS

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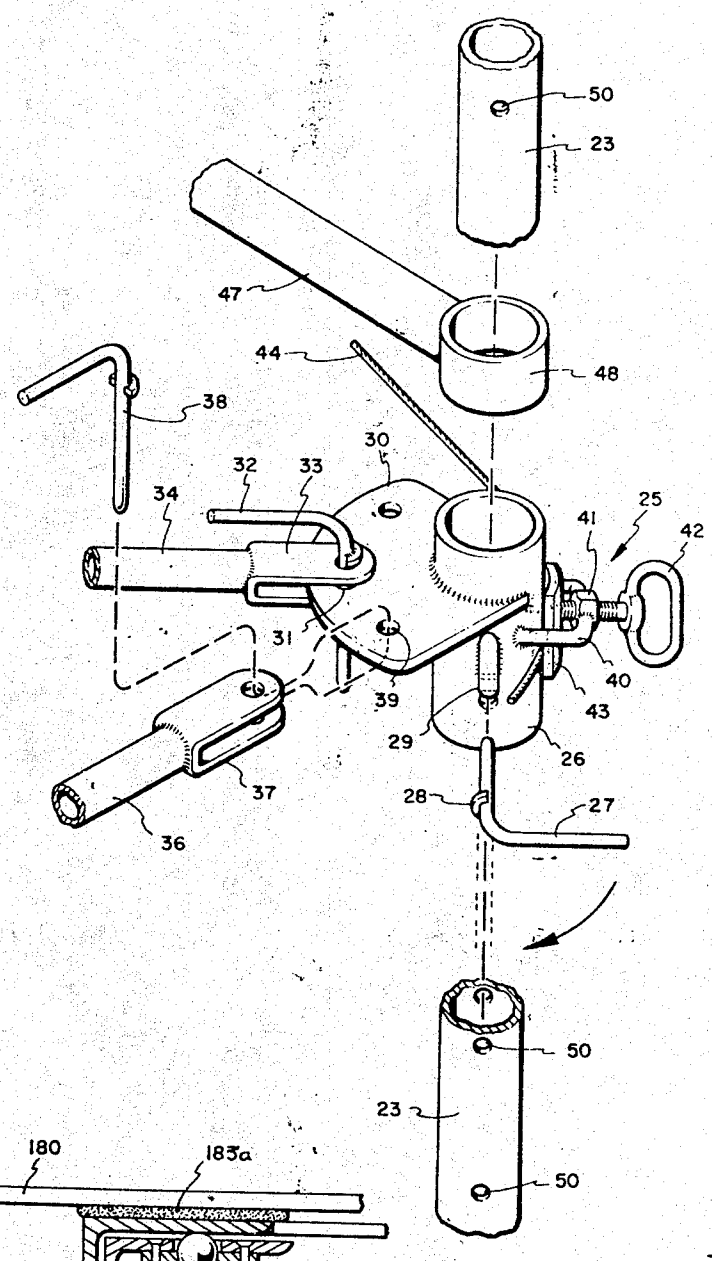


FIG. 14

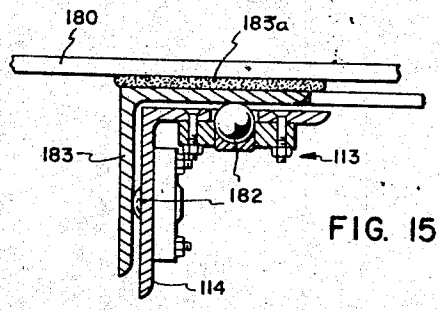


FIG. 15

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United States Patent Office

3,487,952

Patented Jan. 6, 1970

3,487,952

MATERIAL LIFT AND PRESS

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Filed Feb. 13, 1967, Ser. No. 615,765

Int. Cl. B66f 9/12; E04g 1/22

U.S. Cl. 214—1 18 Claims

ABSTRACT OF THE DISCLOSURE

An easily assembled device for receiving large, flat, construction materials, for elevating them into position and for pressing them flat against a ceiling surface. It includes a vertically adjustable scaffold, a pivoted, derrick-type lift unit and a press assembly for holding the material tightly against a ceiling surface.

BRIEF SUMMARY OF THE INVENTION

This invention relates to apparatus for elevating sheet-type construction materials such as panels of plywood or sheet rock and for pressing these materials tightly against a ceiling surface while they are nailed or otherwise secured in place.

In the past a number of devices have been developed for elevating and positioning sheet materials but none have been entirely satisfactory.

We have found that for such a device to be practical it must enable fewer men to do at least the same amount of work, in an easier manner, as could heretofore be performed by a larger work crew. The work of lifting the sheet material must be eliminated, the press must securely hold the sheet material against the ceiling and the worker must be positioned to easily fasten the sheet material to the ceiling, regardless of its height.

On a typical construction project, in the past, a minimum of four men have been required for an efficient sheet-rock ceiling installation. Two men have been required to transport sheets of material to a conveyor that carries the material up to two other men on a scaffold, custom constructed to place the workers thereon at a convenient working height where they can readily reach the ceiling surface. The two men on the scaffold have then had to lift the sheet-rock into place on the ceiling, and while holding it tightly against the surface, nail or otherwise secure it in place. The men must stop operations frequently to reposition the scaffolding.

Objects of the present invention are to provide a scaffold that is easily repositioned and adjusted to place workers thereon at a height where they can conveniently reach any normal ceiling surface and to provide a lift that will raise sheet material into an overhead position and then tightly hold it against the ceiling surface, and to perform these operations faster and with less manpower than has heretofore been required.

In accomplishing these objects we utilize a self-elevating scaffold that includes walkways on which one or more workers can stand and members that telescope over supporting legs of the scaffold to support the walkways, a derrick type lift unit and a press assembly.

The entire apparatus is constructed to be assembled or disassembled quickly, without special tools and without specially trained personnel.

Locking wheels are provided on the legs so that the entire assembly can be readily repositioned.

There is shown in the accompanying drawing a specific embodiment of the invention representing what is presently regarded as the best mode of carrying out the generic concepts in actual practice. From the detailed description of this presently preferred form of the invention, other more specific objects and features will become apparent.

THE DRAWINGS

FIG. 1 is a side perspective view of the invention, partially broken away for clarity, and with the lift shown in its elevated position supporting a sheet of building material and with the press unit extended;

FIG. 2, a similar view, with the lift shown partially lowered by full lines and fully lowered in dotted lines;

FIG. 3, a front perspective view, partially broken away for clarity, and with the lift unit in its elevated position and the press assembly extended;

FIG. 4, a top plan view with the lift removed;

FIG. 5, a perspective view, partially broken away, with the lift unit removed for clarity, and with the cables arranged for self-elevating of the scaffold;

FIG. 6, an enlarged perspective view of the press assembly, with the lift unit being shown fragmentarily;

FIG. 7, a still further enlarged vertical section, taken on the line 7—7 of FIG. 8 and showing interior details of the press assembly;

FIG. 8, a fragmentary vertical section taken on the line 8—8 of FIG. 7, and showing the displacement of the pulleys inside the press assembly;

FIG. 9, a horizontal section taken on the line 9—9 of FIG. 8;

FIGS. 10 and 11, schematic representations, showing the telescoping action of the press assembly, and drawn to a reduced scale;

FIG. 12, an enlarged and exploded perspective view of the drive means for the lift unit and the press assembly;

FIG. 13, a vertical section taken on the line 13—13 of FIG. 12;

FIG. 14, an enlarged and exploded perspective view of a typical connector for the scaffold, taken within the line 14—14 of FIG. 1; and

FIG. 15, a vertical section taken on the line 15—15 of FIG. 1, and showing the sheet material, sliding, table-type support structure.

DETAILED DESCRIPTION

Referring now to the drawings:

In the illustrated preferred form, the invention includes a scaffold, shown generally at 20, that supports a derrick-type lift unit 21 and a press assembly 22.

The scaffold

The scaffold includes four legs 23, each of which has a locking wheel 24, of commercially available type on its bottom end.

A connector 25 (FIG. 14) is affixed to each leg adjacent to its lower end by sliding a tubular section 26 over the leg. A pin 27 is inserted through the tubular section 26 and through the leg 23 and is then rotated until a flange 28 on the pin is wedged beneath a finger 29 carried by the tubular section. The coaction between flange 28 and finger 29 prevents the pin inadvertently working out to release the connector.

A plate 30 is fixed to and extends outwardly from each tubular section 26 and a hole 31 in each plate 30 is arranged to receive pin 32 that is passed downwardly through a clevis 33 on the end of a diagonal brace 34.

A pair of the diagonal braces 34 extend diagonally between legs and are pivotally interconnected at 35 to facilitate assembly.

Side braces 36 extend between the legs 23 at each side of the scaffold and each brace has a clevis 37 on each end that is adapted to fit onto a plate 30 of a connector 25 so that a pin 38 can be inserted downwardly through the clevis and a hole 39 in the plate 30 to secure them together.

A bracket 40, FIG. 14, on the side of each tubular section 26 supports a nut 41 into which a bolt 42 is threaded.

The threaded end of bolt 42 engages a clamping plate 43 to force it against the tubular section. As is best seen in FIG. 3, a strong wire 44 can be clamped between each plate 43 and its associated tubular section 23 and when the wire is diagonally stretched between connectors 25 on adjacent legs at the front and rear of the scaffold and is also connected to similar connectors 45 on telescoping sections 46, it serves as bracing against undesired spreading of the scaffold legs.

Cross braces 47 also extend between the forward legs 23 and the rear legs 23 to provide additional strengthening of the scaffold. The cross braces each include collars 48 at their ends that slide downwardly over the legs 23 to rest on the connectors 25.

Telescoping sections 46 are positioned on legs 23, by pins 49 that are inserted through holes in the telescoping sections and through corresponding ones of the holes 50 spaced along legs 23.

In the event the device is to be used in connection with very high ceiling surfaces one or more additional sets of reinforcement structure comprising connectors 25, diagonal braces 34, side braces 36, wings 44 and cross-braces 47 can be used as additional reinforcement between the lowermost ones previously described and the telescoping sections 46. The additional sets of reinforcement structure will be telescoped over the legs before the telescoping sections 46 are positioned, so that as the telescoping sections are moved up the legs the sets of reinforcement structure can be pinned in place. The sets of reinforcement structure will then be interconnected by strong wires clamped in the same manner as wire 44.

Two of the telescoping sections 46 are respectively connected to opposite ends of a side rail 51 and the other two are similarly connected to another side rail 52. Each telescoping section has braces 53 and 54, FIG. 5, that support a shelf 55, and after the telescoping sections are secured to the legs 23 by pins 49, front cross brace 56 and rear cross brace 57 are secured to the braces 53, as shown.

Pulleys 58 are suspended from collars 59 that are slidable on each of the front and rear cross braces, 56 and 57, respectively, for use in raising the lift unit and press assembly to desired height, as will be further explained.

As is best seen in FIG. 4, each shelf 55 includes a turned back flange 60, beneath which a flat foot-plate 61 of a leg 62 of the press assembly 22 can slide. A pin 63 is inserted downwardly through each flange 60, its associated foot-plate 61 and its shelf 55, to securely, but removably, hold the lift unit and press assembly in place.

The press assembly

In addition to legs 62, each having a foot-plate 61, the press assembly 22 includes an outer tube 64, FIG. 6, having a collar 65 fixed at its upper end, to which the legs 62 are connected by pivot pins 66.

Another collar 67 is slidable on outer tube 64, between a lower stop 68 and upper stop 69, formed by the ends of a strap 70 that extends over the top of an inner tube 71 to hold a bracket 72 which carried a pivot pin 73 on which the derrick arm 74 of the lift unit 21 is mounted.

Braces 75 are pivotally connected at one end to, and extend outward from ears 76 on collar 67. The other ends of braces 75 are each pivotally connected to an ear 77 at the lower end of a leg 62, FIGS. 1–3.

When legs 62 are extended to position the foot-plates 61 on shelves 55 and beneath flanges 60, collar 67 is moved down into engagement with stop 68 and the braces 75 extend substantially horizontal to keep the legs from collapsing. When the collar 67 is moved up tube 64 and the pins 63 are removed the legs 62 can be collapsed and the press assembly 22 can be removed from the scaffold.

Inner tube 71 telescopes within outer tube 64, FIGS. 7–11, and a hangar 80 extends through an opening 81 provided therefor in the upper end of the outer tube and through opposing slots 82 and 83 in the wall of the inner tube. A guide block 84 at one end of hangar 80 abuts the outside of the wall of outer tube 64, and a pin 85 inserted through the other end of the hangar holds the hangar against its being withdrawn.

A block 86 is suspended from hangar 80, inside inner tube 71 and a similar block 87 straddles an end member 88 that reaches across the lower end of inner tube 71 and extends upwardly into the tube. Block 86 supports two pulleys 89 and 90 that are mounted for rotation on non-aligned axes 91 and 92 respectively and block 87 supports pulleys 93 and 94 on similar non-aligned axes 95 and 96, respectively. The axes 91 and 95 extend parallel to one another and axes 92 and 96 similarly extend parallel to one another so that the strands of a hoist cable 98 that is anchored to the lower end of block 86 and that passes down around pulley 94, up over pulley 90, down around pulley 93 and up over pulley 89, out through guide block 84 before being anchored at its other end to a reel 100. Because the axes of the pulleys of each block 86 and 87 are non-aligned the cable can move freely within tube 71 and the multiple strands of the cable result in an increased mechanical advantage during operation of the press unit.

Reel 100 is carried by a frame 101 that is fixed to outer tube 64, and that has a shaft 102, FIG. 6 adapted to be gripped and rotated by the chuck 103, FIGS. 1, 2 and 4, of a reversible-type press motor of a drill 104. A dog and ratchet, not shown, can be used in conventional fashion to prevent inadvertent reversing of reel 100, should this be found desirable.

Operation of the motor of drill 104 to rotate shaft 102 counterclockwise (as viewed in FIG. 7) will wind hoist cable 98 onto reel 100 to thereby raise block 89 and lift the inner tube 71. Reverse operation of the motor allows the cable to unwind from reel 100 as the block 89 and inner tube 71 move down under their own weight and the weight of any additional load carried thereby. The gearing in press motor 104 will normally prevent too rapid lowering of the inner tube but, if desired, a separate brake, not shown, acting on the cable 89, the reel 100, or directly on the inner tube 71 can be used to positively prevent slippage of the inner tube.

The lift unit

The lift unit 21, in addition to derrick arm 74 also includes another arm 110 and a table assembly, shown generally at 111. A transverse pivot bar 112 is fixed by webs 112*a*, FIG. 3, to one end of derrick arm 74 and is arranged to be a pivot axis for a main frame 113 of the table assembly. Main frame 113 includes a pair of spaced side angles 114 that are rigidly interconnected by braces 115. A flange 116 depends from each side angle and each flange 116 releasably surrounds pivot bar 112 to provide pivot connections between the main frame and derrick arm 74.

Intermediate its length a bracket 117, FIG. 6, is fixed to derrick arm 74, with ears 118 that have holes therethrough adapted to be aligned with holes in bracket 72 and to have pivot pin 73 inserted therethrough. Thus the derrick is pivotable on the upper end of inner tube 71. A pulley 119 is carried by the other end of derrick arm 74 and is adapted to have a cable 120 passed thereabout to pivot the derrick arm in a manner to be more fully explained.

An A-frame 121 is releasably connected to the underside of main frame 113. The A-frame includes a tubular center post 122, one end of which intersects a base member 123, and a pair of diagonal members 124 and 125 that connect the ends of base member 123 and the center post adjacent to its other end.

Upstanding flanges 126 on the base member, straddle

members **127** that interconnect braces **115** of the main-frame and pins **128**, inserted through matching holes in the flanges **126** and in the members **127**, releasably hold the A-frame to the underside of the main frame. The A-frame is positioned such that when the derrick arm **74** is in its upright position (FIG. 1) the center post of the A-frame is moved against the derrick arm and a spring biased latch **129** snaps into the open end of the tubular center post to prevent inadvertent pivoting of the table assembly **111** and to hold the upper surface of the main frame **113** normal to the derrick arm and parallel to a ceiling surface, not shown. A handle **130** can be grasped to pull latch **129** from the center post, so that when the derrick arm is lowered the angular relationship between the derrick arm and the table assembly can change.

Arm **110**, FIG. 6, is made up of telescoping sections **110***a* and **110***b* and has one of its ends pivotally connected to diagonal member **124** of the A-frame and its other end releasably and pivotally connected to a collar **132** that is fixed to and carried by the lower ends of strap **70**, by a pin **133**. Thus collar **132** and arms **110** move up and down with strap **70** whenever the press unit is operated. A bolt **134**, threaded into section **110***a* and abutting section **110***b* securely fixes the length of arm **110**.

Arm **110** is substantially parallel with derrick arm **74** and the two arms form a parallel linkage that holds the upper surface of the table assembly substantially parallel with the ceiling until the arms have moved down past their horizontal positions.

The derrick arm **74** is pivoted between its upright position, FIG. 1, and its dotted line lowered position, FIG. 2, by action of cable **120**. Cable **120** has one end releasably clamped between a member **135** fitted within a slotted bolt **136** and the head of the bolt **136***a*. Member **135** abuts the outer wall of tube **64** and as nut **137** is tightened on the bolt to pull it through the tube the head **136***a* is pulled against member **135** to securely clamp the end of cable **120** therebetween.

Cable **120**, as has been noted before, passes around pulley **119**, and then passes across pulleys **138** and **139** at the bottom of tube **64**, around a pulley **140** on the end of a pivoted tension arm **141** and is anchored to a reel **142** rotatable with a shaft **143**.

Tension arm **141** is pivotally mounted on the same shaft **144** as is the pulley **139**, and springs **145** on the shaft each have one end anchored to a frame **146** fixed on the bottom of tube **64** and their other end anchored to a pin **147**, projecting from the arm **141** such that the arm is biased counterclockwise, or down, as viewed in FIG. 6.

Rotation of reel **142** to take up cable **120**, i.e. counterclockwise, pulls down on pulley **119** and the end of the derrick arm to which it is attached to thereby lift the table assembly **111**. Rotation of reel **142** in the other direction allows the derrick arm to move toward its lowered position, under the weight of the table, any sheet material carried thereby, and the weight of the end of the derrick arm **74** and arm **110** to which the table assembly is attached. Spring biased arm **141** maintains tension on cable **120** whether the cable is being payed out or taken in.

The ends of shaft **143**, FIG. 13, are each journaled for rotation in one leg of an angle plate **148**, the other leg of which has a hole **149** therein adapted to receive a pin **149***a* that is inserted downwardly through a walkway plank **150** or **151** (FIG. 4). A large drive wheel **152** is fixed on the shaft **143** adjacent to the walkway plank **152** and a smaller wheel **153**, driven by a motor **154**, mounted on the walkway plank **151**, engages the outer edge of wheel **152** to frictionally drive it. Both wheels **152** and **153** are preferably rubber coated to insure a positive drive. A stem **154***a* projects downwardly from motor **154** and is adapted to fit into a socket **154***b* held on the underside of plank **151** by screws **154***c*.

Spaced holes **155** are provided around the periphery of wheel **153** and an angulated brake rod **156** has one leg **156***a* arranged such that its end can be moved into and out of the holes and another leg **156***b* on which a gripping handle **156***c*, FIGS. 1–4, is provided. Leg **156***a* is slidable and rotatable through aligned tubes **157** that are secured to plank by bolts **158**. A projection **159** (FIG. 4) from leg **156***b* is arranged to contact a pin **160** protruding upwardly from the plank when the leg **156***a* is withdrawn from holes **155** and handle **156***c* is rotated down, i.e. clockwise. The pin **160** then keeps the brake rod from inadvertently moving into a hole **155**.

When the lift unit **21** has been operated to raise the table assembly **111** to desired height, handle **156***c* is raised until projection **159** clears the top of pin **160** and the brake rod is then pushed through tubes **157** until the end of leg **156***a* is inserted into a hole **155**. This immobilizes wheel **152**, shaft **143** and reel **142**.

Walkway planks **150** and **151** each have holes therethrough to enable them to be slipped over the legs **23** of the scaffold **20** and they each have notched members **161** on their undersurfaces that will straddle and rest on the legs **62** of the press unit. Legs **162**, FIG. 3, also depend from the bottoms of these planks and extend into upright hollow posts **163** that are carried by each footplate **61** of the press unit. If desired, for additional strength, a pair of vertical braces **164**, FIGS. 1–4, interconnected by cross braces **165** can be positioned between each plank **150** or **151** and the angle side rails **51** or **52** therebeneath that interconnect legs **23**. As illustrated, the vertical braces **164** each are notched at the tops to engage a depending member **166** of the planks **150** and **151** and at their bottoms to engage a side rail **51** or **52**.

If additional working area is desired one or more additional planks **167** can be used. These are carried by brackets **168** that are cantilevered out from a sleeve member **169** that fits over the legs **23** above the shelves **55**.

Upright posts **170** can be threaded into or otherwise affixed to the planks as desired, and safety rails made from rigid members **171** or flexible rope or cable, not shown, can be attached thereto for the safety of workers on the platform, with clamps, by tieing, or in any other suitable fashion.

THE OPERATION

In use, the device is taken to a job site in a completely disassembled condition and two men can easily and quickly assemble it.

The lower section of the scaffold is assembled in the manner previously described, the walkways are positioned, the press assembly is put in place with its legs spread and the feet **61** fastened to shelves **55**, the shaft **143** is positioned, and motor **154** is fixed to walkway plank **151** such that wheel **153** will drive wheel **152**.

As best seen in FIG. 5, an upper cross bar **172** carrying a pulley **173** is pinned in place at the top of the legs for each end of the scaffold. The free end of cable **120** is released from pins **174**, **175** and **176**, FIG. 12, which hold it to reel **142** to keep the cable from unwrapping and is passed under pulleys **139** and **138**, around a pulley **58** on a cross brace **57** at one end of the scaffold, up over the pulley **138** carried by the upper crossbar **172** at the same end of the scaffold and back down to where it is tied around the cross brace **57**.

Another cable **177** has one end fixed to a reel **178** on shaft **143** and is normally wound therearound with its free end held against unwrapping pins on the reel that correspond to those on reel **142**. In use, the free end of cable **177** is released from its holding pins and the cable is passed beneath a pulley **179** journaled on the same shaft **144** as is pulley **139**, around a pulley **58** carried by rear cross brace **56**, up and over the pulley **173** carried

by the upper brace **172** at that end of the scaffold and is then tied to the lower cross brace **56**.

Operation of motor **154** will then drive shaft **143** and reels **142** and **178** to simultaneously take up cables **120** and **177**. This will raise the cross braces **56** and **57**, the walkway and the press assembly **22**. By adding bracing, as required, and sections of end posts, the process can be repeated until the press assembly is properly positioned beneath the ceiling surface to which sheet material is to be affixed. The lift unit **21** can be attached to the press unit either before or after the cables **120** and **177** are used to raise the press assembly, walkways, etc. but will not be powered by motor **154** until cable **120** has been released from lower cross brace **57**, pulleys **173** and **58** and been reconnected by passing it around pulley **140** on pivoted tension arm **141**, pulleys **139** and **138** at the bottom of the press unit, pulley **119** on the derrick arm **74** and clamping it between member **135** and bolt head **136***a*, in the manner previously described.

Once the walkways are at desired height and cable **120** has been reconnected to operate the lift unit, motor **154** is started to pay out cable **120** and to allow the table assembly **111** to drop to its lowermost or receiving position. Sheet material, such as wall board **180**, is placed thereon by a workman on the ground and, if necessary for lifting, the material is clamped to the table by clamps (not shown) preferably carried by the main frame **113** of thet table. A material handling apparatus such as is disclosed in our copending application Ser. No. 559,312, filed June 21, 1966 can be used, for example, to position sheet material on table assembly **111**.

After the sheet material is in place on the table assembly motor **154** is operated by control switch **181**, conveniently placed on the elevated handle **156***c*, to drive wheels **153** and **152** and therefore reel **142** to take up cable **120**. This pivots derrick arm **74** to its upright position and positions the sheet material substantially parallel with the ceiling surface, above the head of an operator standing on plank **151**. While the lift unit is raising the sheet material the workman on the ground can unlock wheels **24**, move the scaffold beneath the ceiling surface on which the sheet material is to be placed and then relock the wheels. The operator on the scaffold then operates press motor **104** to drive reel **100** and take up hoist cable **98**. This raises the inner tube **71** and presses the sheet material carried by the table tightly against the ceiling surface. The control switch for motor **104** is preferably carried on the handle **189** of a suction cup unit **190** so that the operator can control motor **104** while simultaneously using both hands, one of which holds the suction cup, to nail or otherwise fasten the sheet material in place.

Brake rod **156** is then manipulated in the manner previously described to positively hold wheel **152**, shaft **143** and reel **142** against rotation.

After each sheet of material has been positioned, latch **129** is released, motor **104** is operated to lower the press assembly and motor **154** is operated to lower the lift unit to receive another sheet of material.

As is best seen in FIGS. 1 and 15, main frame **113** of table assembly **111** preferably has roller bearings **182** protruding through side angles **114** and although the main frame can be used as a platform on which sheet material can be elevated, in many instances it is desirable to use a sliding frame **183**. The sliding frame has angle-type side members **184** that rest on the roller bearings and the slide frame will move beyond the main frame when the lift unit is in its lowered position so that the sheet material can be more easily placed thereon. This is especially useful if the walkways have been raised so that the apparatus can be used for a high ceiling. As the lift unit is raised the slide frame will move back into position centered over the main frame, or it can be manually moved back to that position.

Using the slide frame the sheet material can be readily positioned to abut other sheets previously placed on the ceiling, and it is not so necessary that the scaffolding be accurately positioned.

A handle **185**, depending from the sliding frame hits a brace **115** of the main table to prevent the sliding frame moving beyond the main frame **113** to a point where it will become overbalanced and fall off. The handle **185** also allows an operator on the scaffold to easily position the sliding frame and material carried thereby.

The top face of the sliding frame is preferably covered with a padding material **186** to prevent damage to the sheet material being handled and if necessary conventional clamps (not shown) can be used to hold sheet material on the sliding frame. Naturally, if only the main frame were to be used as a material support, it would also be covered with padding material.

If desired, a brake can also be provided to slow rotation of wheel **152** when the derrick arm **74** of the lift unit is being moved to its lowered position in the manner previously described. This brake can, for example, comprise a crank **186**, FIG. 12, including an upwardly extending handle **186***a* and a weighted wheel engaging portion **186***b*, interconnected by a shaft **186***c* that is journaled through a tube **187** fixed on plank **151**. In many instances the gearing of motor **154** will be sufficient to prevent arm **174** dropping too fast, but, if not, pivoting of handle **156***a* will move portion **186***b* into engagement with the periphery of wheel **152** to slow its rotation, and will, therefore, slow the downward movement of arm **74**.

Power to the power drill **104** and motor **154** and the switches controlling them is supplied from an extension cord **188**, which also has a branch **188***a* to which a power nailing device, stapler or other powered tool can be connected.

With the apparatus of the invention two or three men can panel a ceiling surface as rapidly as six men could heretofore, and can do so without the physical exertion previously expended in manually lifting the sheets of material. The entire apparatus is readily set-up and easily disassembled so that little time is required to get ready for placing ceiling panels or to take the apparatus down upon completion of the job.

Whereas this invention is here described and illustrated with respect to a certain form thereof, it is to be understood that many variations are possible, without departing from the subject matter particularly pointed out in the following claims, which subject matter we regard as our invention.

We claim:

1. A material lift and press comprising

a scaffold having supporting legs;

a press assembly carried by the scaffold, said press assembly being movable with respect to said legs and having walkways secured thereto for movement therewith with respect to the supporting legs, a first telescoping section, secured to and movable with the walkways and a second telescoping section movable with respect to the said first telescoping section;

a lift unit including an arm;

means pivotally connecting said arm of the lift unit to the second telescoping section;

a table assembly providing a broad material receiving and holding surface;

means pivotally connecting the table assembly to the arm of the lift unit at a point spaced from the connection of the arm to the second telescoping section, whereby the lift is pivotable to move the table assembly between a lowered material receiving position and a raised material placing position above the press assembly;

means for driving said lift unit to pivotally raise said arm and table assembly; and

means for driving said press assembly to extend the said second section from the first section; and

motor means for raising said press assembly and the walkways with respect to the legs.

2. A material lift and press according to claim 1, wherein the means for raising the press assembly and walkway includes a motor; a pair of reels driven by the motor; cables fixed to the reels; pulleys carried by the upper ends of the legs; and means attached to said press assembly below the pulleys, to which the cables are adapted to be connected.

3. A material lift and press according to claim 2, wherein the pivoted arm of the lift unit has a pulley on the end opposite the end to which the table assembly is connected; and one of the cables is adapted to be passed around the pulley and to be connected to the press assembly, whereby operation of the motor to drive the reel to which the cable is fixed will rotate the pivoted arm about its connection with the press assembly.

4. A material lift and press according to claim 3, wherein the table assembly has a frame suspended therefrom; a second arm is pivotally connected at one of its ends to the movable section of the press assembly and at its other end to the frame; said second arm extending substantially parallel with the pivoted arm and forming a parallel linkage therewith.

5. A material lift and press according to claim 4, further including means for releasably locking the table assembly to the pivoted arm when the said pivoted arm is substantially vertical and the table assembly extends substantially normal thereto.

6. A material lift and press according to claim 3, further including a small friction wheel driven by the motor; a shaft for the reels; a large friction wheel fixed on the shaft and adapted to be driven by the small friction wheel.

7. A material lift and press according to claim 6, further including means for immobilizing the pivoted arm.

8. A material lift and press according to claim 7, wherein the means for immobilizing the pivoted arm comprises a shaft carried by and slidable with respect to the walkway and spaced holes in the periphery of the large friction wheel into which the said shaft is adapted to be inserted.

9. A material lift and press according to claim 6, further including means for frictionally engaging the periphery of the friction wheel to retard rotation thereof.

10. A material lift and press according to claim 1, wherein the table assembly includes a main frame; a sliding frame carried by said main frame; and means for moving said sliding frame with respect to said main frame.

11. A material lift and press according to claim 10, wherein the means for moving said sliding frame with respect to said main frame includes roller bearing means between said frames; and handle means on the sliding frame for use in manually moving said sliding frame with respect to said main frame.

12. A material lift and press comprising

a scaffold;

a press assembly carried by the scaffold, said press assembly including telescoping sections, one of said sections being adapted to be rigidly, but removably connected to the scaffold and another section being movable and providing a pivot connection;

a lift unit including an arm connected to the pivot connection;

a table assembly providing a broad material receiving and holding surface connected to the arm and movable by said lift unit between a lowered material receiving position and a raised material placing position;

a frame suspended from the table assembly;

a second arm pivotally connected at one of its ends to the movable section of the press assembly and at its other end to the frame, said second arm extending substantially parallel with the pivoted arm and forming a parallel linkage therewith; and

means for driving said press assembly to raise said lift unit and material carried thereby.

13. A material lift and press according to claim 12, further including means for releasably locking the table assembly to the pivoted arm when the said pivoted arm is substantially vertical and the table assembly extends substantially normal thereto.

14. A material lift and press according to claim 13, wherein the means for driving the press assembly includes a press motor adapted to be fixed to the section connected to the scaffold; a reel driven by the press motor; a hoist cable having one end fixed to the reel, and its other end anchored to one of the sections of the press assembly, said cable, intermediate its length being passed around at least one guide pulley fixed to the upper end of the section connected to the scaffold, and around at least one pulley fixed to the lower end of the movable section.

15. A material lift and press according to claim 14, further including means to prevent undesired rotation of the reel driven by the press motor.

16. A material lift and press comprising

a scaffold;

a press assembly carried by the scaffold, said press assembly including telescoping sections, one of said sections being adapted to be rigidly, but removably, connected to the scaffold and another section being movable and providing a pivot connection;

a lift unit including an arm connected to the pivot connection;

a table assembly providing a broad material receiving and holding surface, connected to the arm and movable by said lift unit between a lowered material receiving position and a raised material placing position; and

means for driving said press assembly to raise said lift unit and material carried thereby, said means including a press motor adapted to be fixed to the section connected to the scaffold, a reel driven by the press motor, a hoist cable having one end fixed to the reel and its other end anchored to one of the sections of the press assembly, said cable, intermediate its length, being passed around at least one guide pulley fixed to the upper end of the section connected to the scaffold and around at least one pulley fixed to the lower end of the movable section.

17. A material lift and press according to claim 16, further including means to prevent undesired rotation of the reel driven by the press motor.

18. A material lift and press according to claim 16, further including a suction cup; a handle for said suction cup; a control switch on the said handle for operating the press motor; and a cord interconnecting said control switch and said press motor.

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