March 20, 1962 D. R. ANDERSON 3,026,090

CEILING MATERIAL HOIST

Filed Feb. 15, 1960

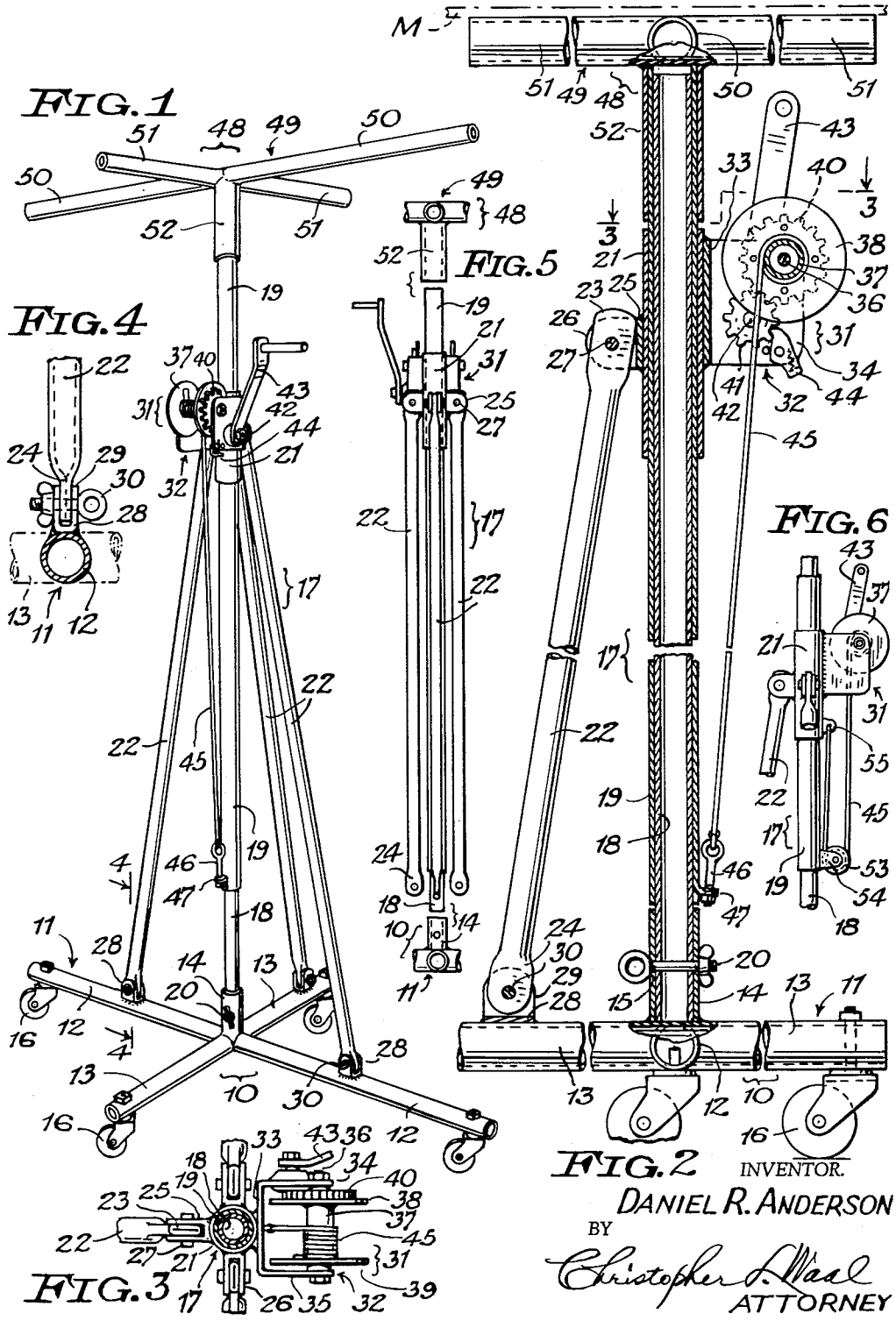


FIG. 1

FIG. 2

FIG. 3

FIG. 4

FIG. 5

FIG. 6

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United States Patent Office 3,026,090 Patented Mar. 20, 1962

3,026,090

CEILING MATERIAL HOIST

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Filed Feb. 15, 1960, Ser. No. 8,627
4 Claims. (Cl. 254—4)

This invention relates to hoists or jacks for handling building board material, such as ceiling plasterboard and plywood panels, during installations of the material.

An object of the invention is to provide a ceiling material hoist which is of strong, durable and light-weight construction, and which can be inexpensively manufactured.

Another object is to provide a ceiling material hoist which can be conveniently loaded and operated and readily maneuvered to selected positions to facilitate installation of the material.

A further object is to provide a ceiling material hoist capable of being readily disassembled or dismantled to a knockdown condition in which it can be compactly transported and stored.

The invention further consists in the several features hereinafter described and claimed.

In the accompanying drawing,

FIG. 1 is a perspective side view of a ceiling material hoist constructed in accordance with the invention, a material-supporting portion of the hoist being in an intermediate elevated position;

FIG. 2 is a fragmentary vertical sectional view of the hoist showing the material-supporting portion thereof near its lowered position;

FIG. 3 is a detail transverse sectional view taken generally on the line 3—3 of FIG. 2;

FIG. 4 is a detail vertical sectional view taken generally on the line 4—4 of FIG. 1;

FIG. 5 is a fragmentary side view of the hoist in a dismantled or knocked-down condition, and

FIG. 6 is a fragmentary side view of the hoist with a modified form of cable lift.

In the drawing, the numeral **10** designates a mobile base which forms a separable unit or subassembly of the hoist. The base is here shown to include a cross-shaped horizontal frame **11** having a pair of aligned arms **12** and a pair of aligned arms **13** at right angles to the arms **12**, the arms being formed of lengths of metal tubing, such as thin-wall conduit, welded together at their common junction, which is at the middle of the base frame. Either pair of the arms may be formed of a single length of the tubing. Preferably, the arms **12** are somewhat longer than the arms **13**. At the junction of the base frame arms is welded an upstanding vertical metal tube or pipe **14** forming a short upwardly opening socket, the tube being provided with aligned diametrically opposite bores **15**, FIG. 2. The base frame is supported by ball-bearing casters **16** secured to the outer ends of the frame arms, permitting the base to be rolled along a floor.

A mast structure **17** is detachably supported on the base **10**, as hereinafter described, and forms another separable unit or subassembly of the hoist. The mast structure includes a telescopic extensible upright comprising a vertical guide post or standard **18** formed of metal tubing or pipe and a tubular lifting standard **19** slidably fitting on the post, the lifting standard being formed of metal tubing such thin-wall conduit. The guide post has its lower end seated in the base socket **14** and detachably secured thereto by a cross bolt or eyebolt **20** extending through the socket cross bores **15**. In its lowermost position the tubular lifting standard **19** rests on the upper end of the base socket.

The tubular lifting standard passes coaxially and slidably through a guide member **21** spaced a considerable

distance above the base, the guide member **21** being preferably in the form of a short metal sleeve of thin-wall conduit. The sleeve extends vertically and is braced against lateral displacement by three angularly extending tubular brace bars **22** which connect the sleeve and the base, as hereinafter described, each brace bar having flattened upper and lower ends **23** and **24**. The sleeve has welded thereto about midway of its length three U-shaped brackets **25** which extend radially therefrom, two of the brackets being disposed at opposite sides of the sleeve, and the third or intermediate bracket being disposed at 90° to the first and second brackets. Each bracket forms a pair of spaced parallel vertical ears **26** between which is disposed the flattened upper end **23** of the corresponding brace bar, the flattened bar end being secured to the bracket ears by a horizontal pivot bolt **27**. Similar U-shaped brackets **28** are welded in upstanding position on both of the long base arms **12** and on one of the short base arms **13**. Each base bracket **28** forms a pair of spaced parallel vertical ears **29** which receive between them the flattened lower end **24** of the corresponding brace bar, the lower bar end being detachably secured to the base bracket by a cross bolt or eyebolt **30**. The base brackets **28** are spaced from the middle of the base frame a distance about one-half the length of the long base frame arms **12**. The vertical guide sleeve **21** is thus mutually supported by the brace bars **22** and by the post-guided lifting standard extending within the sleeve, maintaining the guide post and lifting standard in their vertical position against lateral displacement. The flattened upper ends **23** of the brace bars are here shown to form abutments engageable with the sleeve brackets **25** to limit the outward angular displacement of the brace bars.

Mounted on the sleeve **21** is a winch **31** of any conventional type. The winch is here shown to include a channel-shaped frame **32** having a flat vertical web **33** and flat vertical side walls or flanges **34** and **35**, the frame web **33** being welded to the side of the sleeve opposite the intermediate U-shaped bracket **25**. A horizontal pintle bolt **36** extends between and is carried by the winch frame side flanges and rotatably supports thereon a cable-winding drum **37** with end flanges **38** and **39**. A gear **40** is coaxially secured to the outer face of the drum end flange **38** and meshes with a pinion **41** carried on a horizontal stub shaft **42** journalled in the adjacent side flange **34** of the frame, the outer end of the pinion shaft **42** being provided with a detachable crank handle **43**. A manually releasable spring-pressed pawl **44** is pivoted on the winch frame side flange **34** and is engageable with the pinion **41** to hold the drum against reverse rotation. A lifting cable **45** is anchored on the winding drum and is operatively connected to the lower end portion of the tubular lifting standard, as by attaching the lower end of the cable to an eyebolt **46** which is secured to a lug **47** bent outwardly from the lower end of the lifting standard.

The upper end of the slidable tubular lifting standard **19** detachably carries thereon a material-supporting head **48** which forms a third separable unit or subassembly of the hoist. The head **48** comprises a cross-shaped horizontal frame **49** here shown to be generally similar to the base frame and comprising a pair of aligned long arms **50** and a pair of aligned short arms **51** extending at right-angles to the long arms, the several arms being formed of lengths of metal tubing, such as thin-wall conduit, welded together. At the junction of the arms is welded a downwardly projecting tubular socket member **52**, such as of thin-wall conduit, which extends vertically and opens downwardly. The socket member **52** slidably fits over the upper end of the slidable lifting standard **19**, thus supporting the head frame in its normal position. In the structure illustrated, the head frame may swivel on the lifting standard. The head frame is adapted to sup-

port thereon a sheet or board of building material M, FIG. 2, such as a plasterboard ceiling sheet or a plywood panel.

When the hoist is to be used, the head-carrying lifting standard is dropped to its lowermost position where the head frame is convenient to the user. A ceiling board or panel, such as of plasterboard, fibreboard, or plywood, is placed on the head frame in a horizontal position, the head frame being disposed at the middle region of the board. The head frame is then raised by operating the winch **31**, bringing the horizontal board close to the ceiling structure of the room. The hoist can be wheeled about to place the board in the desired position. If desired, the head frame can then be raised farther to abut the board against the ceiling. While the head frame is in its elevated position, the board is fastened to the ceiling structure, whereupon the head-carrying lifting standard is lowered to its loading position, ready for the next operation.

If desired, the hoist head frame may also serve to support a scaffold board or seat board, not shown, for use in painting, decorating, and other operations.

The hoist can be readily disassembled or knocked-down into the three separable units, **10**, **17**, and **48**, as indicated in FIG. 5, to facilitate transport and storage, and when in such condition can be compactly packed. The base and head frame form two of these units, and the extensible mast structure, with the three brace bars thereof swung inwardly, forms the third unit. If desired, the winch crank handle **43** may be detached and reversed to provide further compactness of the mast structure.

In the modified form of hoist shown in FIG. 6, the lifting cable **45** is trained or looped about a grooved pulley **53** mounted on a bracket **54** welded or otherwise secured to the lower portion of the slidable lifting standard **19**, and the end portion of the cable extends upwardly from the pulley and is anchored on a bracket or ear **55** welded or otherwise secured to the guide sleeve **21**. This arrangement provides additional mechanical advantage. The hoist of FIG. 6 is otherwise the same as that of FIG.1.

I claim:

1. A hoist for handling ceiling material and the like, comprising a base, a vertical post upstanding from said base, a tubular lifting standard surrounding and vertically slidable on said post, a guide member spaced above said base and extending about said lifting standard in slidable engagement with said standard, said standard being slidable up and down within said guide member, supporting means connecting said guide member and base, a material support carried by the upper end of said lifting standard, and winch means carried by said guide member at the outer side of said member and including a hoisting cable exterior to said lifting standard and operatively connected to the lower end portion of said lifting standard.

2. A hoist for handling ceiling material and the like, comprising a base, a vertical post upstanding from said base, a tubular lifting standard surrounding and vertically slidable on said post, a guide member spaced above said base and extending about said lifting standard in slidable engagement with said standard, said standard being slidable up and down within said guide member, three supporting brace bars connecting said guide member and base and being divergent downwardly and outwardly, two of said brace bars being disposed at opposite sides of said standard and lying substantially in a vertical plane of said standard, and the third brace bar lying in a vertical plane of said standard spaced substantially 90° from said first-name plane, a material support carried by the upper end of said lifting standard, and winch means carried by said guide member at the outer side thereof and at a region opposite said third brace bar and including a hoisting cable exterior to said lifting standard and operatively connected to the lower end portion of said lifting standard.

3. A hoist for handling ceiling material and the like, comprising a base having an upstanding projection, a vertical post upstanding from said base and having its lower end detachably interfitting with said base projection, a tubular lifting standard surrounding and vertically slidable on said post, a guide member spaced above said base and extending about said lifting standard in slidable engagement with said standard, said standard being slidable up and down within said guide member, inclined brace bars connecting said guide member and base and being detachably secured to said base, a material support carried by the upper end of said lifting standard and having a downwardly extending projection detachably interfitting with the upper end of said lifting standard, and winch means carried by said guide member at the outer side of said member and including a hoisting cable exterior to said lifting standard and operatively connected to the lower end portion of said lifting standard, the connection of the upper ends of said brace bars to said guide member being pivotal and permitting said brace bars to be swung inwardly close to said lifting standard when said bars are detached from said base and said base is detached from said post.

4. A hoist for handling ceiling material and the like, comprising a cross-shaped base having four rigidly connected arms extending radially from a junction, a vertical guide post upstanding from said base at said junction, a tubular lifting standard surrounding and vertically slidable on said post, a vertical guide sleeve spaced above said base and surrounding said lifting standard in slidable engagement with said standard, said tubular standard being slidable up and down within said guide sleeve, said sleeve having thereon a pair of diametrically opposite laterally projecting brackets and an intermediate laterally projecting bracket spaced substantially 90° from said first named brackets, three inclined brace bars having their upper ends respectively connected to said sleeve brackets and having their lower ends respectively connected to three arms of said base, said brace bars being downwardly divergent with respect to each other, a winch mounted on the side of said sleeve opposite said intermediate bracket and including a rotatable drum, and a hoisting cable wound on said drum and projecting downwardly therefrom exterior to said lifting standard and operatively connected to the lower end portion of said lifting standard for elevating said standard.

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