Nov. 5, 1957 M. A. PROCTOR 2,812,077

WALL JACK

Filed March 12, 1956 2 Sheets-Sheet 1

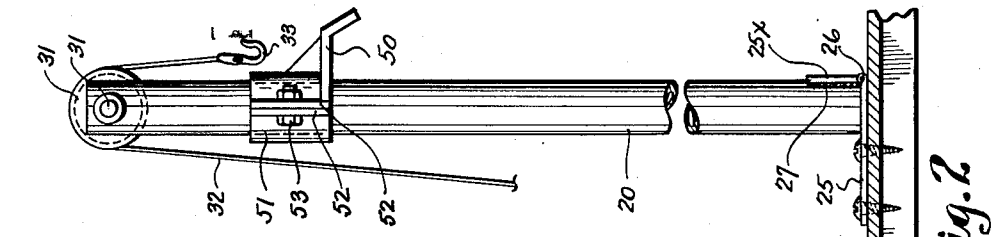


Fig. 2

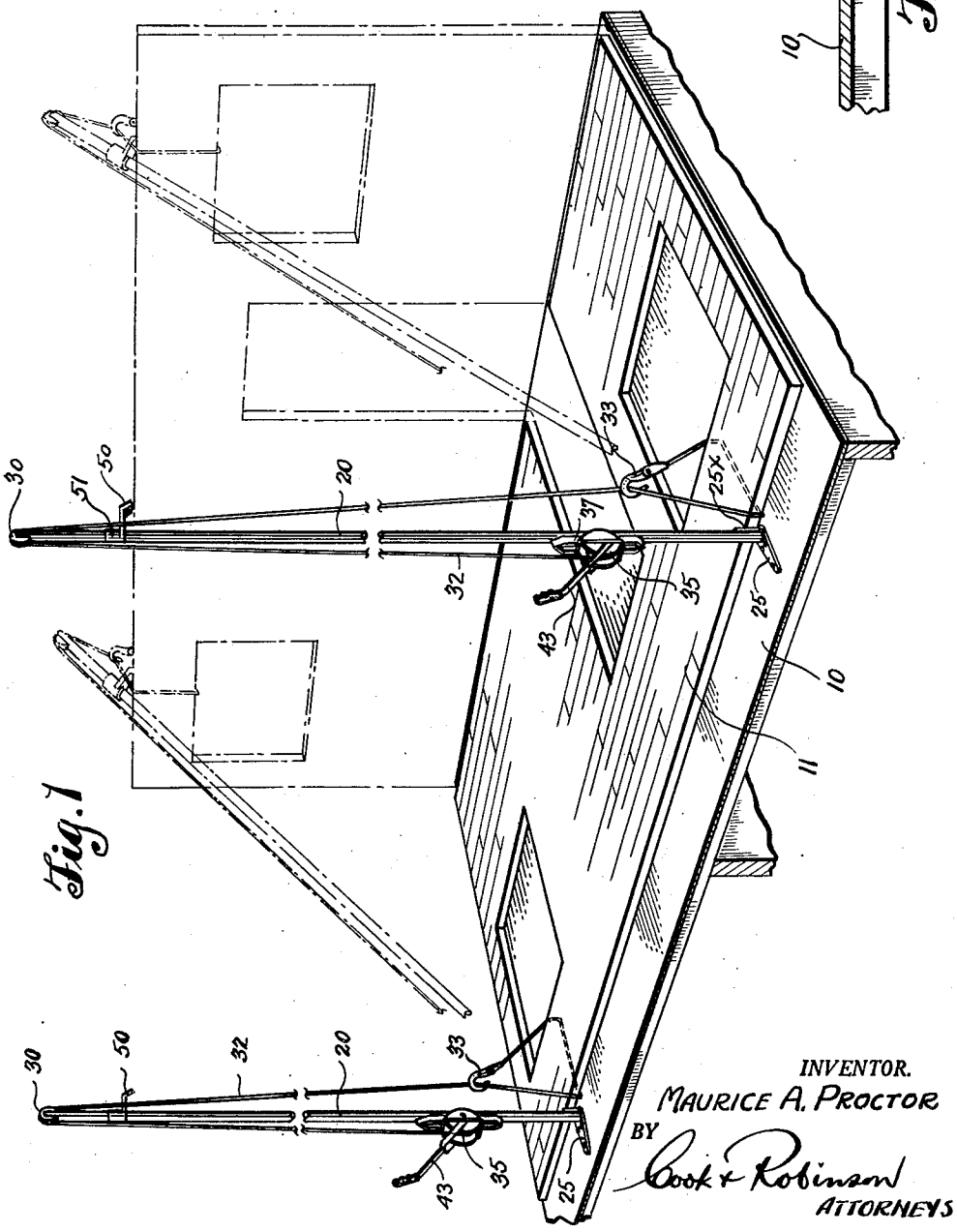


Fig. 1

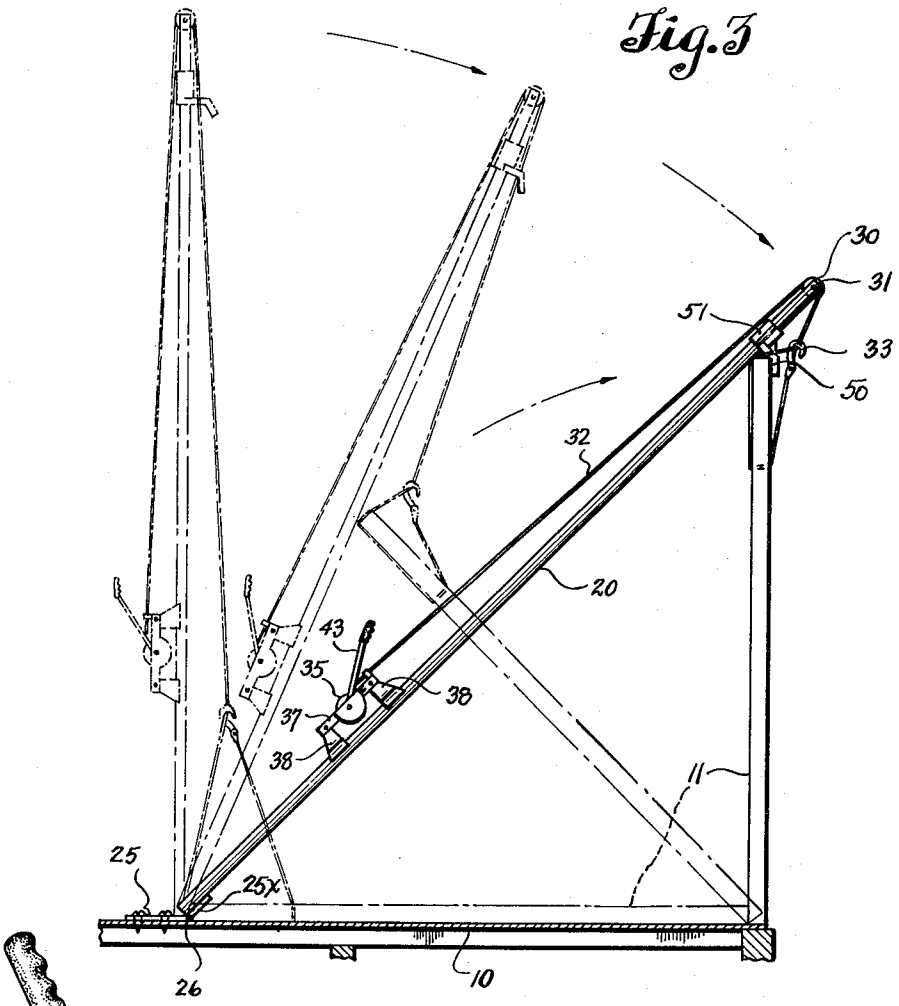
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Fig. 3



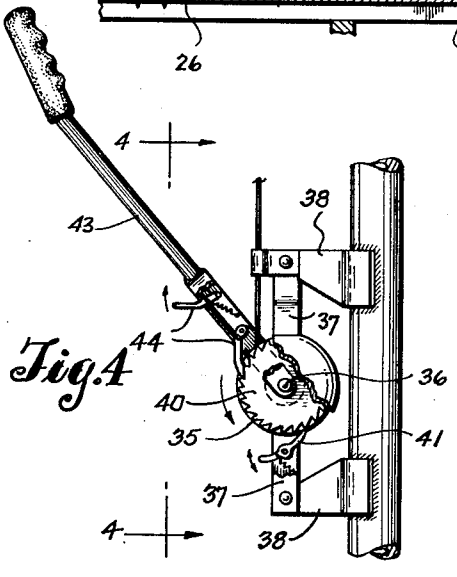


Fig. 4

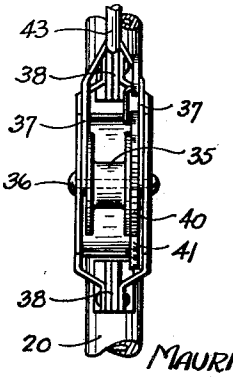


Fig. 5

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WALL JACK

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1 Claim. (Cl. 214—1)

This invention relates to devices which are generally referred to as "wall jacks." More particularly it relates to a form of mechanical hoist especially designed to be used for the lifting of preformed wall structures that are originally built on a horizontal surface and are then lifted or tipped up to an upright position of use; this method of wall construction and erection, now quite extensively practiced in warehouse, factory and even in residence building, being referred to in the industry as "tip up" wall construction.

It is the principal object of the present invention to provide a wall jack, or hoist, especially designed for the purpose above stated; that is light in weight; easy to place in position of use; practical in its mode of use, relatively inexpensive and adapted to temporarily serve as a wall brace after the wall has been erected thereby, until the wall has been properly secured.

A further object of the present invention resides in the provision of a wall jack that is adapted for use with walls of various heights; and whereby a wall being lifted, upon reaching its upright position, will be stopped and positively held until it can be otherwise properly secured.

More specifically stated, the present invention resides in the provision of a wall jack of the character and for the purposes above stated, comprising a straight, rigid spar or shaft, equipped near its lower end with cable winding means, and a cable extended therefrom upwardly and over a sheave at the top end of the shaft, thence downwardly, being equipped at its end with means for effecting a lifting connection with the top edge portion of a wall that is to be tipped up; said shaft also having means at its lower end whereby a hinged connection with the supporting surface can be effected to provide that the shaft can be permitted with safety to swing toward and maintain contact with the top edge of the wall as it is tilted upwardly thereby, and which shaft is equipped at a proper and predetermined distance from its lower end with a stop against which the top edge portion of the wall will engage when it reaches a vertical position.

Further objects of the invention are to be found in the particular relationship of the jack to the wall preparatory to the wall being lifted and in the manner or mode of use of the jack to accomplish the erection of a wall in a safe and satisfactory manner.

Still other objects of the invention reside in the details of construction of the various parts of the jack; in their combination and in the mode of use of the jack as will hereafter be fully described.

In accomplishing the above mentioned and other objects of the invention, I have provided the improved details of construction, the preferred forms of which are illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view showing a wall jack or hoist, embodied by the present invention, as arranged for the erecting of a preformed wall structure from a horizontal position of rest to a vertical position of use.

Fig. 2 is a somewhat enlarged side view of upper and lower end portions of the jack shaft, showing the hinge member at its lower end whereby it may be fixed in position for functional use, and also showing the wall stop bracket at its upper end.

Fig. 3 is an elevational view showing the relationship of the wall and jack after the wall has been tipped up to a vertical position of use, and indicating the starting and an intermediate position of the jack during the wall erecting operation.

Fig. 4 is a side view of the cable winding means as employed.

Fig. 5 is a front view of the same.

Referring more in detail to the drawings:

In Fig. 1, for purpose of better understanding of the character and specific use of the present hoist or jack, I have illustrated what represents the floor of a building and a preformed wall that is disposed on the floor, in horizontal position and ready for "tilt up" erection to the final vertical position of use in which it is indicated in dash lines. The floor in this view and also in Figs. 2 and 3, is designated by reference numeral **10** and the preformed wall structure is designated by reference numeral **11**. It is to be understood that these parts, **10** and **11**, may be of cement, wood or other materials, as used in present day building construction and that the wall is of sufficient rigidity that it can be tilted up to its vertical position of use by the upward pull of one or more cables attached to its top edge portion.

For the lifting or tilt up of a wall structure, one or more jacks of the present form may be employed. In Fig. 1, I have shown the use of two jacks for the operation. However, the number employed would depend on the particular job.

Referring now more particularly to Fig. 3; **20** designates the jack shaft. This comprises an elongated, straight member, usually a metal tube, but which might be of wood, or any other suitable material, and it might well be in the form of an I-beam or channel bar. In the following description this member **20** will be referred to as the jack shaft.

For its present use, the jack shaft **20** must have a length somewhat greater than the hypotenuse of a square, the sides of which have a length equal to the height of the wall which is to be lifted, as presently will be understood.

At its lower end, the shaft **20** has a securing plate **25** hingedly attached thereto as at **26**; the hinge axis being at a right angle to the axial line of the jack shaft. As seen best in Fig. 2, the plate **25** comprises one of the members of a strap hinge, the other member **25***x* of which is extended along the base end portion of the shaft **20** and is welded thereto as indicated at **27**. The hinge axis **26** is located just below the end of the shaft to permit the plate **25** to swing to a position across and flatly against the end of shaft **20** as seen in Fig. 2.

At its outer end, the shaft **20** mounts a sheave wheel **30** therein on an axle **31** that is perpendicular to the axis of the shaft and parallel to the hinge axis. This sheave carries a wall lifting cable **32** thereover, which cable is equipped at its outer end with a suitable means for its easy attachment to, and its easy release from the top edge portion of a wall **10** that is to be lifted. In the present instance this means of attachment is shown to comprise a hook **33**. The inner end portion of the cable **32** extends downwardly from the sheave wheel **30**, along what will be designated as the forward side of the shaft **20**, to a cable winding drum **35** which is rotatably mounted on the forward side of the lower end portion of the jack shaft. This cable winding drum may be operated by any suitable means to wind in the cable thereon for the lifting of a wall.

In the present instance I have shown the drum **35** to be

rotatably mounted on an axle **36** extended between parallel bars **37—37**. These bars extend along and are fixed at their ends, above and below the drum, to the shaft **20** through the mediacy of lugs **38** welded or otherwise fixed to the shaft and bars. The drum **35** is equipped at one end with ratchet gear **40** engageable by a pivoted pawl **41** to hold it against unwinding. It is also equipped with a hand lever **43** carrying a pawl **44** thereon, to engage the ratchet gear, whereby the drum can be rotated to wind in the cable thereon.

Various other power means might be employed for winding in the cable on the drum. Therefore, it is not the intent that the present device be restricted to the use therewith of any specific form of cable winding means.

Assuming that the present jack is so constructed, its use for the present "tip up" wall erection is as follows: Assuming first that a side wall **11** has been constructed and has been properly disposed on floor **10** in horizontal position for tip up to its final vertical position of use, the jack shaft **20** is disposed in vertical position with its base end disposed against the floor **10**, closely adjacent the top edge portion of the wall, as seen in Fig. 1; these relative positions of jack and wall being shown in dotted lines in Fig. 3. The hinge plate **25** is then secured to the floor **10** as illustrated in Fig. 2, with the hinge axis **26** parallel with and closely adjacent the top edge of the wall. The cable **32**, as extended from the drum **35** over sheave wheel **30**, is then drawn down and attached at its hook equipped end to the top plate or top portion of the wall **11** in any suitable manner, for example, as seen in Fig. 1. Then, by means of the hand lever **43**, or whatever other suitable means might be provided, the drum is rotated to cause the cable to be wound thereonto.

As the cable is wound onto the drum, the wall is tipped up, pivoting on its lower edge portion as it swings upwardly through the inclined dotted line position in which it is shown in Fig. 3 to the vertical position. As the wall swings upwardly, the shaft **20** will lean toward it accordingly, at all times maintaining rubbing contact with the top edge portion of the wall. When the wall reaches the desired vertical position, it is stopped by reason of its engagement with a stop bracket **50** that is adjustably fixed to the upper end portion of the jack shaft **20**. The exact distance of this bracket on the jack shaft from the hinge axis is predetermined so that in the erection of the wall, it is only required that the cable be wound onto the drum until the wall engages and is stopped by the bracket. After being stopped, the wall is held against the bracket by the cable, the drum being locked at that time against unwinding by the pawl **41** as engaged with ratchet gear **40**. Thus, the jack may serve as a brace until the wall is properly secured. The jack cable is then detached from the wall, the plate **25** is detached from the floor and the jack is thus made available for use at another location.

To provide for easy adjustment of the stop bracket **50** along the jack shaft, it is mounted by a split sleeve or collar **51** that is slidably fitted to the jack shaft, and a bolt **52** is applied through flanged ends **53** of the collar forming member to draw the collar tightly about the shaft.

Wall jacks or hoists of this kind can be made in various lengths as required to accommodate walls within various ranges of heights. One or more, as may be found desirable, may be used for the erection of a wall. The successful use of such jacks depends to great extent in the proper setting, or relationship of the jacks to the wall, and in the use of jack shafts of sufficient length that the relationship that has been illustrated in Fig. 3 can be attained. The stop bracket **50** should be fixed in exactly the right location on the shaft, to stop the wall when it reaches the desired upright position.

One of the advantages of the use of jacks of this kind in this way resides in the fact that lateral bracing of the jack shafts is not necessary. Furthermore, extra men are not required to steady and hold the wall in place after erection until it can be properly secured.

The present device makes possible a great saving in time, man power and expense, and its use is now being very favorably accepted.

In the following claim, the forward side of the shaft will be understood to be that on which the cable winding drum is mounted, and the rearward side is that which is opposite the side on which the drum is mounted.

What I claim as new is:

A jack for the tilt-up erection of a preformed wall section comprising, a straight jack shaft of a length that is substantially greater than the height of the wall to be erected thereby, a securing plate hingedly affixed to the jack shaft at its lower end with the hinge axis at a right angle to the shaft axis; said securing plate extending to the forward side of the shaft and being adapted to be temporarily fixed to a jack supporting surface, a cable guide sheave wheel mounted by said shaft at its upper end, a cable winding drum mounted on the lower end portion of said jack shaft at its forward side, a cable wound on said drum and extended upwardly therefrom over said sheave wheel and thence downwardly, and a hook on the lower end of the cable for use in its attachment to the top edge of a wall that is to be erected and a stop bracket mounted on and adjustable to different positions along the upper end portion of the jack shaft and equipped with means for fixing it at a set position of adjustment; said bracket being adapted to hook over the top of a wall being lifted to stop it when it reaches its fully erected position and to coact with the jack shaft in holding the wall until otherwise secured.

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