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W. O. BECHMAN ET AL

HOISTING DERRICK

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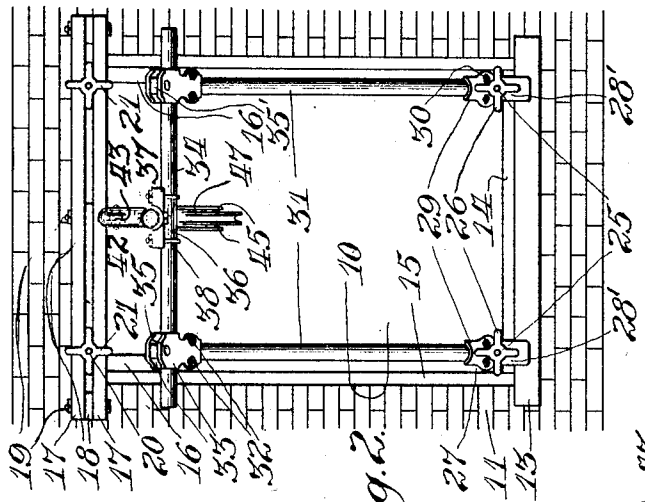


Fig. 2.

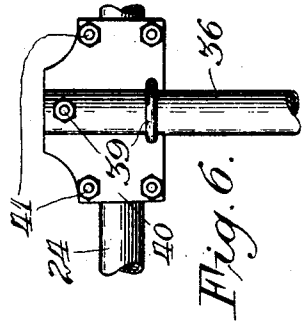


Fig. 6.

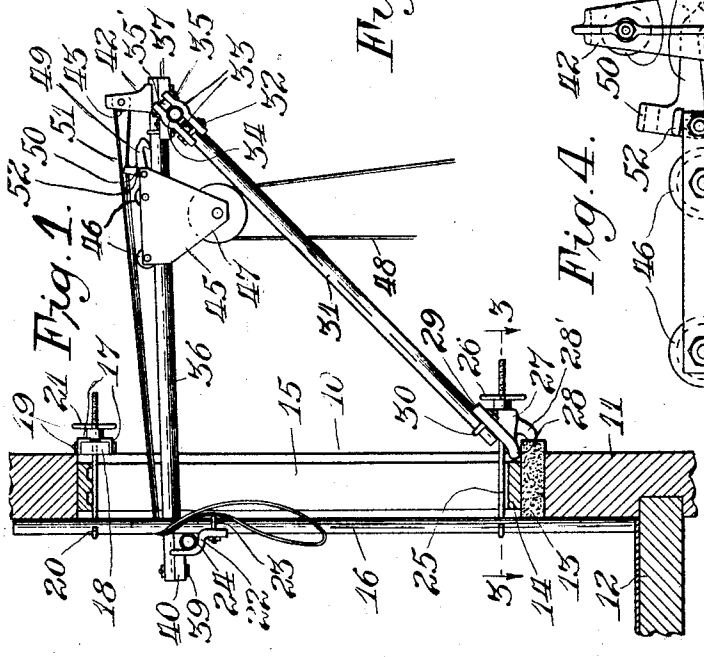


Fig. 1.

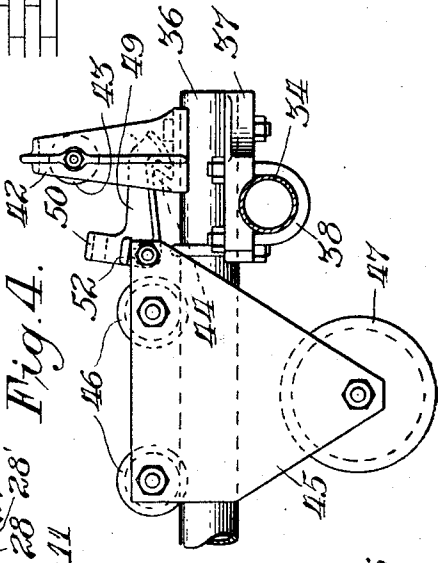


Fig. 4.

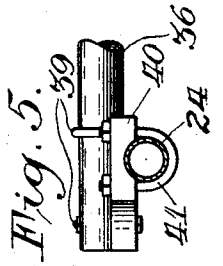


Fig. 5.

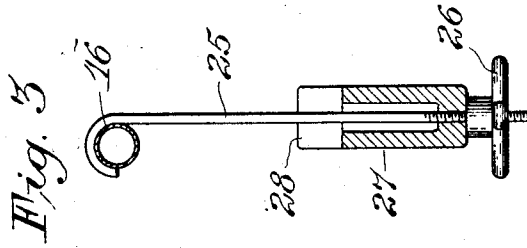


Fig. 3

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HOISTING DERRICK.

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Our invention relates to hoisting derricks, and particularly to a derrick for use in the hoisting of materials to the floors of a building under construction.

It is an object to provide a simple and inexpensive hoisting derrick which may be easily mounted in a window opening of a building for the purpose of hoisting materials thereinto.

Another object is to provide such a derrick, which can readily be adjusted to any size window opening, and which furthermore can quickly be knocked down and transported and fitted to another window opening with a minimum of effort.

A further object is to provide a simple and effective means for securing the derrick in a window opening.

Another object is to provide a novel adjustable pulley support for such a derrick.

Of course, other objects, likewise additionally advantageous, will appear to those skilled in this art as the description hereof progresses.

These very desirable objects are achieved in the derrick hereinafter to be specifically described. Briefly, the derrick comprises upright frame members placed preferably, but not necessarily, upon the floor of a building inside of a window opening and at each side thereof. These members are securely clamped to the inside wall. A cross bar is carried by these members, inside of the window opening, said bar being vertically adjustable. Two spaced, upwardly inclined frame members are secured to the window frame or stone sill and to the upright frame members, at each side of the window opening, said inclined frame members carrying, by means of adjustable connections, an outer cross frame member. On this outer cross frame is adjustably fastened a block and pulley supporting member, the inner cross bar adjustably supporting the other end of the pulley support. The pulley support is in effect an inclined track, and the pulley block travels thereon, upon actuation of a novel control means, to swing a bucket or load of material hoisted by the pulley, inwardly, through the window opening, and upon the floor, or stone sill, to be unloaded.

This brief description of our structure will suffice for the present, and attention is now directed to the accompanying sheet of drawings, in which like reference characters denote like parts in the illustrative embodiment of our invention disclosed, and wherein:

Fig. 1 is a side elevational view, showing our improved derrick mounted in operative position in the window opening of a building;

Fig. 2 is a front elevational view;

Fig. 3 is a detail top sectional view of the securing means, as seen along the line 3—3 of Fig. 1;

Fig. 4 is a detail side elevational view of the block and pulley mounting, including our novel control means therefor;

Fig. 5 is a detail side view of the connection between the inner cross bar to the pulley track member; and

Fig. 6 is a plan view of the same detail shown in Fig. 5.

Looking now to Figures 1 and 2, it will be seen that the illustrative form of our novel derrick is shown in association with a window opening 10 formed in the wall 11 of a building under construction. There are also shown a floor 12, the usual stone sill 13, and wood sill 14 of a window frame 15.

Uprights 16, one at each side of the window opening, are placed on the inside and rest preferably upon the floor 12, as shown, the uprights extending considerably above the window opening. Means is provided for securing the upper ends of the uprights 16 to the top part of the window opening and frame, in the provision of a securing member made of two angle iron bars 17, spaced apart by blocks 18, one at each end, and one in the middle. The bars and blocks are bolted together by bolts 19 to leave a space between the bars, as shown, through which at each end, between the end blocks 18 and inner block 18, are arranged clamps in the form of threaded hook bolt fastening devices 20, which carry hand tightening wheels 21. Thus, it will be seen that the hooks on the devices 20 detachably engage the uprights 16, and by means of the securing member formed of the bars 17 and the blocks 18, the uprights may be securely fastened by the adjustable hand wheels 21. The arrangement is also such that the uprights may be fitted to any size window, as the clamp devices 20 permit vertical adjustment, and the slot between the bars 17 permit horizontal adjustment by sliding the devices 20 transversely, as will be obvious.

The uprights 16, as shown, are each provided with a bracket 22 vertically adjust-

able on the uprights by means of U-bolts 23, said brackets carrying an inner cross frame member 24, for a purpose soon to appear.

Similarly, the lower ends of the uprights 16 are adjustably made fast to the window by similar clamp devices 25 and tightening wheels 26, each device passing through a casting 27 of peculiar shape. This casting, it will be observed, has a portion 28 and a second portion 28′, whereby either the wood sill 14 or stone sill 13 may be engaged; or the two portions may act together to hook over the stone sill, as shown. The portion 28 is upwardly inclined to form a portion 29. This portion 29 has secured thereto by a U-bolt 30 an upwardly and outwardly inclined frame member 31, there being one of these frame members at each side of the window opening, as will be understood. The upper ends of each of these members 31 has made fast thereto by suitable bolts 32, a split bracket 33, which brackets adjustably carry an outer cross frame member 34, the ends of this cross frame member projecting laterally beyond the brackets 33 to enable adjustment for wider window openings, as shown in Figure 2. The split brackets extend around the member 34, as shown, there being other bolts 35 with a spacer 35′ between the split bracket 33 to permit easy collapse of the structure when knocking it down, and to hold the member 34 in place when the derrick is in use.

Disposed centrally across the inner cross member 24 and outer cross member 34 is a pulley support or track member 36, its front or outer end being bolted to a block 37, which is adjustably connected to the member 34 by U-bolts 38, as shown. The inner end of the track or pulley support 36 is bolted by means of bolts 39 (see Figures 5 and 6) to a plate 40, the plate in turn being adjustably secured by U-bolts 41 to the inner or rear cross frame member 24.

Securely bolted to the top side of the outer end of the track 36 is a casting 42 carrying at its upper end a pulley 43 and, at its bottom, a hook 44. A pulley block, comprising two spaced plates 45, carries two rollers 46 resting on the track 36, the block carrying at its lower end below the track a hoisting pulley 47 around which is fitted in the usual way a rope or cable 48. The forward outer end of the block carries a pivoted latch 49 for engaging the hook 44. The latch is provided with an upstanding apertured arm 50 through which is passed a control rope 51, which also passes around the pulley 43. A stop 52 is formed on the latch, which stop co-operates with a plate 45 of the pulley block to limit the movement of the latch up and down.

From the above detailed description the operation and use of our improved derrick should be quite clear, nevertheless, a brief summary thereof will now be made.

The uprights 16 are secured in place at their top and bottom by the securing means described, the lower securing means additionally serving to secure the inclined support 31 in place. The rear cross piece 24 and front cross piece 34 are then put in place, with the rear cross piece placed lower, so that when the track 36 is placed on the cross pieces it will be inclined, as shown. The hoisting pulley block rolls on the track and is locked at the outer end of the track by the latch 49 and hook 44. A workman down on the ground hooks a load of material to one end of the cable or rope 48, as will be readily understood, and then, by pulling on the other end of said rope, raises the load to the window opening. Another workman on the floor, adjacent the window in which our derrick has been fitted, grasps one end of the latch control rope 51, and, pulling the same, unlatches the latch 49 from the hook 44 whereupon the load slides inwardly with the roller mounted pulley block, to enable the workman to swing the load inwardly onto the sill or into the building through the window opening. After the load has been discharged, the carrier is returned to the outer end of the track 36 with the latch automatically locking the pulley in that position, by pulling on the other end of the rope 51. The workman on the ground then operates the rope 48 and the hoisting operation is thus repeated.

From the above, it should be clear that our derrick accomplishes all of the objects sought, and that the same, by the adjustable features provided, may be easily fitted to different sizes of windows.

It should be understood that we have here disclosed only one embodiment of the invention which it may assume in practice, and that the same is capable of change and modification. It is our desire to cover all such changes as fairly fall within the spirit and scope of our invention as indicated in the appended claims.

What we claim as new is:

1. In a derrick, the combination of uprights adapted to be placed on the inside wall of a window opening, a transverse frame member carrying clamps engaging the uprights and adapted to be disposed at the top of the window opening, means adapted to be placed on the outside of the opening for tightening said clamps, said clamps permitting a sliding vertical adjustment of the transverse frame on the uprights through their entire length, and a guide way on the transverse member permitting lateral adjustment of the clamps through substantially the length of the transverse frame member.

2. In a derrick, the combination of uprights adapted to be placed on the inside

wall of a window opening, means adapted for securing said uprights to the top of the window opening including a member engaging the uprights, a slotted frame member adapted to be placed on the outside of the window opening, the member being vertically adjustable on the uprights and laterally adjustable in said frame member, and means engaging the member for clamping the frame member to tighten the member for holding the uprights in place.

3. In a derrick, the combination of uprights adapted to be placed on the inside wall of a window opening, clamps slidably engaging the uprights, and a transversely disposed frame in which the clamps are supported for sliding movement laterally through substantially the entire length of the the said transverse frame, whereby said transverse frame may be adjusted vertically along the length of the uprights and the clamps and uprights may be adjusted laterally substantially the length of said transverse frame.

4. In a derrick, the combination of uprights adapted to be placed on the inside wall of a window opening, clamping means slidably adjustable along the uprights for securing the upper ends thereof, a transverse frame bar slidably receiving said clamping means for lateral adjustment through substantially its entire length, said frame bar being vertically movable with the clamping means, and other means engaging the lower ends of the uprights for clamping said lower ends in place.

5. In a derrick, the combination of uprights adapted to be placed on the inside wall of a window opening, clamping means slidably adjustable along the uprights for securing the upper ends thereof, a transverse slotted frame bar slidably receiving said clamping means for lateral adjustment through substantially its entire length, said frame bar being vertically movable with the clamping means, and vertically adjustable clamping means for clamping the lower ends of the uprights in place.

6. A hoisting derrick comprising stationary uprights adapted to be disposed at the inside of a window opening, means adapted to be disposed at the outside of the window for securing the uprights to the bottom of the opening, vertically and laterally adjustable means adapted to be disposed on the outside of the window for securing the uprights to the top of the window opening, brackets adjustably carried on said uprights, and a cross bar carried on said brackets adapted to support a hoisting means.

7. A hoisting derrick comprising stationary uprights adapted to be disposed at the inside of a window opening, means adapted to be disposed at the outside of the window for securing the uprights to the bottom of the opening, vertically and laterally adjustable means adapted to be disposed on the outside of the window for securing the uprights to the top of the window opening, brackets adjustably carried on said uprights, a cross bar carried on said brackets, upwardly and outwardly inclined supports adapted to be secured to the bottom of the window opening, and a second cross bar carried on the inclined supports, said cross bars being adapted to support a hoisting means.

8. A hoisting derrick comprising stationary uprights adapted to be disposed at the inside of a window opening, laterally and vertically adjustable means adapted for securing the uprights to the top of the window opening, laterally and vertically adjustable means adapted for securing the uprights to the bottom of the window opening, a cross bar adapted adjustably to be carried on the uprights inside the window, a cross bar adapted to be arranged at the outside of the window, and supporting means adapted to be adjustably fastened to the bottom of the window for carrying the outer cross bar, said cross bars being adapted to support a hoisting means.

9. A hoisting derrick comprising a stationary frame including supporting members adapted to be disposed at the inside of a window, laterally adjustable clamping means adapted to be disposed at the outside of the window for securing the frame in place, a cross bar adapted to be adjustably carried on the frame inside the window, a cross bar adapted to be arranged at the outside of the window, and laterally adjustable supporting means for the outside cross bar, said cross bars adapted to carry a hoisting means.

10. A hoisting derrick comprising a supporting frame adapted to be disposed inside a window, means adapted to be disposed at the outside of the window for laterally adjusting and clamping said frame to the window, supports adapted to be arranged at the outside of the window, means for laterally adjusting the supports and clamping them to the frame, cross bars on the frame and supports, and a laterally adjustable track member carried on said bars adapted to support a traversing hoist.

11. A hoisting derrick comprising uprights adapted to be disposed inside a window, clamps adapted to be arranged at the bottom of the window and at the outside thereof, said clamps being adapted to be loosened and tightened for laterally adjusting and clamping said uprights to the window, supports adapted to be arranged at the outside of the window, said supports being laterally adjustable and adapted to be clamped to the window by the same clamps aforesaid, said supports and uprights being

provided with means adapted to support a hoist.

12. A hoisting derrick comprising uprights adapted to be disposed inside a window, means for permitting laterally adjusting and securing of said uprights to the window, supports adapted to be arranged at the outside of the window, means for permitting lateral adjustment of the supports and securing them to the uprights, cross members carried on the uprights and the supports, and an inclined track member carried on the cross members, said track member adapted to carry a traversing hoist.

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