April 17, 1945. F. T. CLIFFORD 2,373,743

DERRICK

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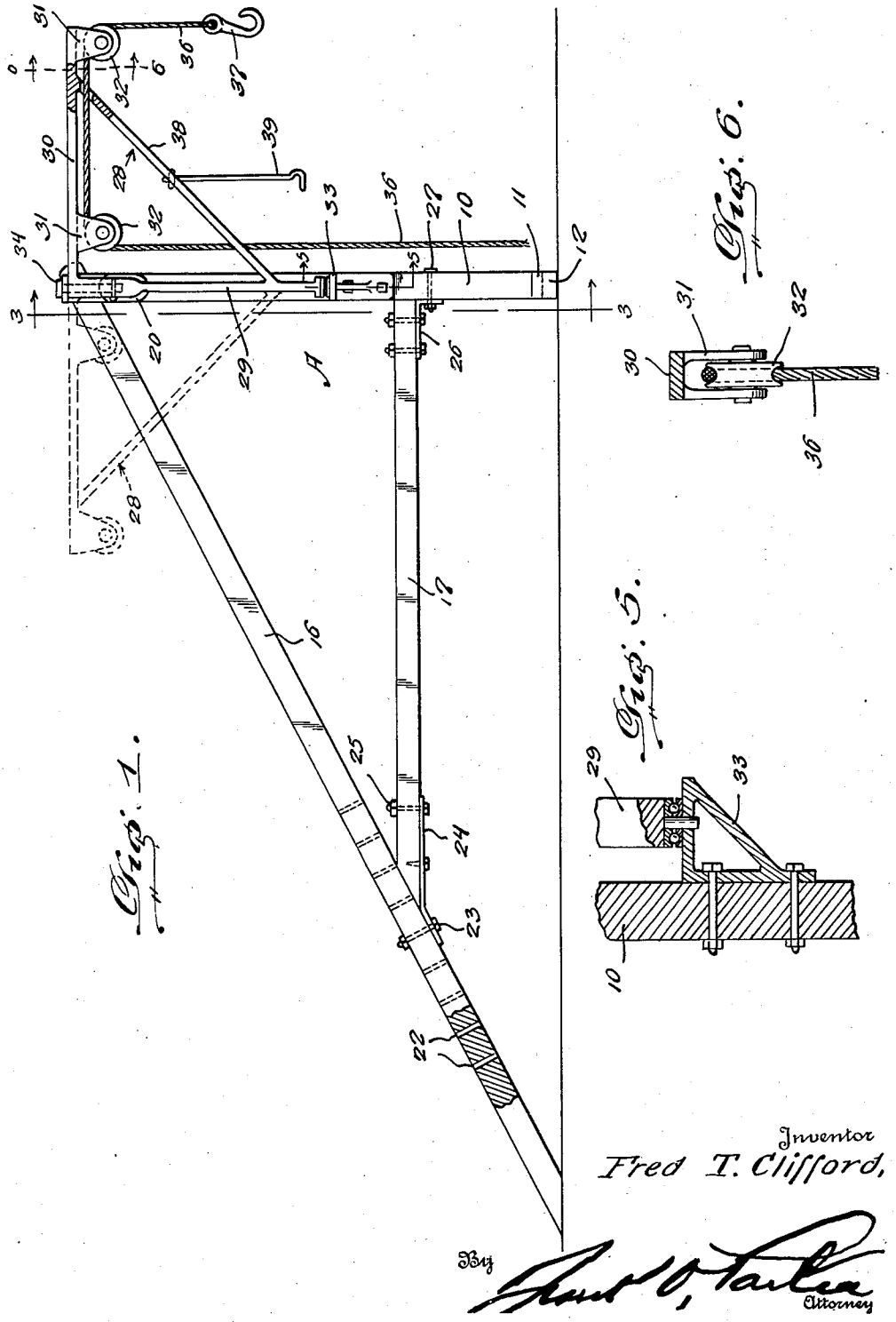


Fig. 1.

Fig. 6.

Fig. 5.

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Fig. 2.

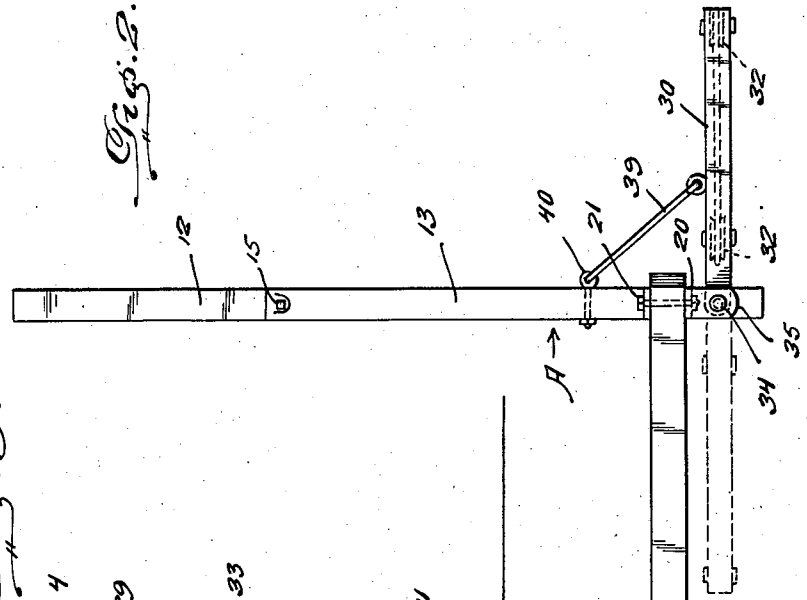


Fig. 3.

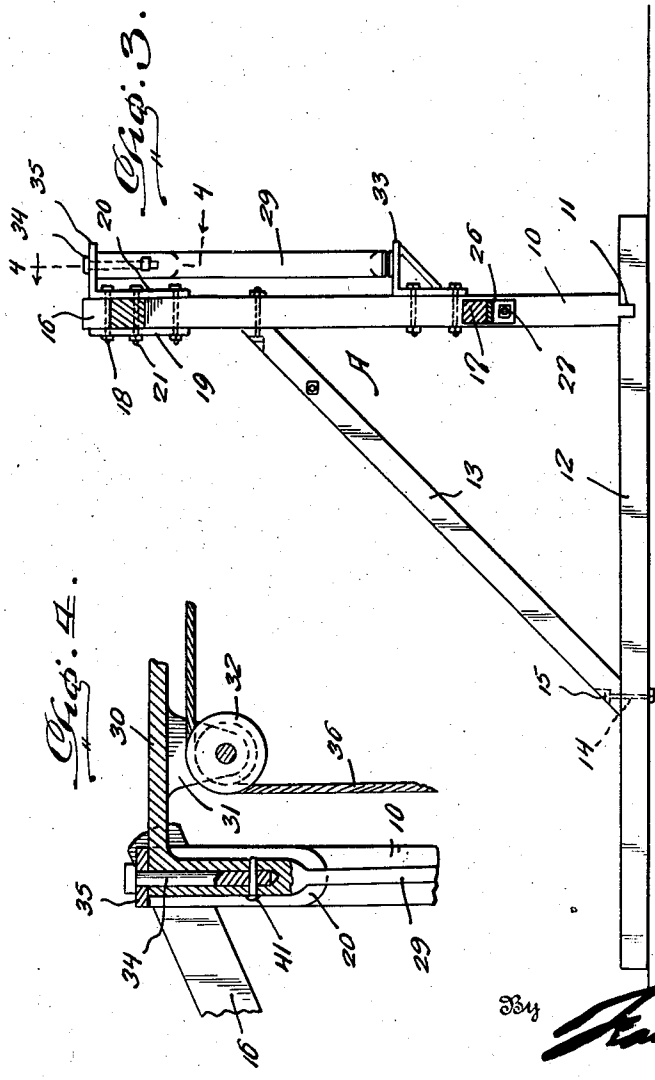


Fig. 4.

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UNITED STATES PATENT OFFICE

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DERRICK

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Application May 15, 1944, Serial No. 535,696

1 Claim. (Cl. 212—61)

The invention relates to a crane, and more especially to a hoisting derrick.

The primary object of the invention is the provision of a derrick of this character, wherein the hoisting cable or the like is movably supported on a swinging bracket, so that it can be shifted in a lateral arcuate direction horizontally of a vertical loading position, the derrick being of a novel and unique construction to withstand the load weight.

Another object of the invention is the provision of a derrick of this character, wherein the same can be anchored in place, and its upright support can be brought into a plumb position regardless of the surface elevation upon which the same is set, and such derrick is readily and easily operated for loading and unloading purposes with minimum manual labor in the working thereof.

A further object of the invention is the provision of a derrick of this character, wherein the construction thereof involves few parts, it being handled with dispatch, and is assured of a maximum lifting capacity with a minimum of manual exertion on the part of an operator.

A still further object of the invention is the provision of a derrick of this character, which is simple in construction, thoroughly reliable and efficient in operation, strong, durable, readily and easily erected and knocked down, easily operated, and inexpensive to manufacture and install.

With these and other objects in view the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings, which show the preferred and modified forms of construction thereof, and pointed out in the claims hereunto appended.

In the accompanying drawings:

Figure 1 is a side elevation, partly broken away, of a derrick constructed in accordance with the invention, the adjustable head bracket being shown by full lines in one position and by dotted lines in an adjusted position.

Figure 2 is a fragmentary top plan view of the derrick as shown in Figure 1.

Figure 3 is a sectional view taken on the line 3—3 of Figure 1 looking in the direction of the arrows.

Figure 4 is a sectional view taken on the line 4—4 of Figure 3 looking in the direction of the arrows.

Figure 5 is a sectional view taken on the line 5—5 of Figure 1 looking in the direction of the arrows.

Figure 6 is a detail sectional view taken on the line 6—6 of Figure 1 looking in the direction of the arrows.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings in detail A designates generally a crane or derrick constructed in accordance with the invention, comprising a main upright or vertical standard, 10, post or the like, having at its lower end a tongue and groove fitting 11 with a laterally extending base sill 12, which is disposed at substantially right angles to its normal vertical position when rising from a foundation or the ground. This sill 12 at the end next to the standard 10 is slightly projected beyond the vertical plane of the latter. Fitted with the standard 10 and the sill 12 is a laterally inclined brace bar 13 which has its ends next thereto matched beveled and secured thereto by nut-carrying bolts 14, the heads 15 of the latter being countersunk in the said bar 13.

At substantially right angles to the lay of the sill 12 and fitted to the standard 10 is a plumbing leg frame involving the leg rail 16 and an adjustable horizontally disposed brace rail 17, respectively, the leg rail being outwardly inclined to the vertical, and at its upper end has pivotal connection at 18 between a pair of coupling plates 19 and 20, respectively, beyond the upper end of the standard 10, these plates being transversely bolted at 21 to opposite sides of such standard.

For a distance along the lower portion of this rail 16 is provided a series of spaced bolt holes 22 selectively accommodating a coupling bolt 23 fitting an attaching plate 24 fastened at 25 to the end next to said rail of the rail 17, which at the other end of the latter is fitted an angle piece 26 having connection by a bolt 27 to the standard 10. It should be seen that by making minor adjustments between the rails 16 and 17, this makes possible to bring the standard 10 in a plumb position, regardless of the surface elevation upon which the derrick is set.

On the side of the standard 10 opposite to the position of the lateral sill 12 and the brace bar 13, at the uppermost portion of said standard, is a swingable cable hoisting head bracket involving an inverted substantially L-shaped hanger 28, its vertical branch forming a turning stem 29, while its horizontal branch 30 constitutes a pulley support having inner and outer bearings 31 for pulleys 32, the stem 29 being equipped with ball-bearing fittings with a lower mounting 33 on the standard 10, and the upper

end of such stem has a pivot pin fitting 34 with an outturned bearing ear 35 on the plate 20, and in this manner the head bracket can swing in a horizontal path in an arcuate direction at one side of the standard 10 for load changing positions.

Trained over the pulleys 32 is a hoisting cable 36 or the like, and the latter carries a load hook 37 at the lifting end thereof. This cable 36 can be manually or mechanically operated, which is optional with the user of the derrick A.

The head bracket has unitary therewith a brace 38 which joins the branches of this bracket, and the brace loosely carries a latching hook 39 to engage a keeper eye 40 stationarily held on the brace bar 13 of the sill 12, so that the head bracket can be held against movement when in one position, as will appear in Figure 2 of the drawings.

The pin 34 is held secure by a retaining key 41 engaged therewith and fitting the standard 10 of the derrick.

The head bracket connection with the standard as described and shown may be modified, if found desirable. The pin 34 is socketed in the stem branch of the bracket, as is shown in Figure 4 of the drawings.

From the foregoing it is thought that the construction and manner of operation of the derrick will be clearly understood, and therefore, a more extended explanation has been omitted for the sake of brevity.

Changes, variations and modifications of the invention may be resorted to as fall properly within the scope of the claim hereunto appended, without departing from the spirit of the said invention, or sacrificing any of its advantages.

What is claimed is:

A portable knockdown derrick having a two point ballast comprising, a main upright forming a standard, a base sill having detachable tongue and groove fitting therebetween and projecting laterally a greater distance from the upright at one side than at the opposite other side thereof, a brace between the upright and sill and detachable therefrom, a plumbing leg frame on the upright, inclined to the vertical at substantially right angles to the sill and having a horizontal brace rail and an inclined leg rail, respectively, a pivot detachably connecting the leg rail to the upright in bridging relation to its uppermost end, said leg rail having spaced holes intermediate of its ends, a detachable fastener on the brace rail and selectively engaging the holes for plumbing the upright by said frame, an inverted substantially L-shaped hanger located opposite to the position of the longer portion of the sill and next to the pivoted end of the leg rail, brackets fixed to the upright for accommodating the hanger therebetween, a pivot pin at the lower end of the hanger and removably engaging the bracket next thereto, a pivot pin removably interfitting the other bracket next to the uppermost end of the upright and detachably inserted and socketed in the hanger with the latter free to swing arcuately to a distance substantially one-half of a circle, the leg frame and sill being effective as a two point ballast to the upright in opposition to the hanger, and means for holding the hanger fixed in parallel relation to the frame.

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