Aug. 27, 1929. R. T. BEEBE 1,725,952

WRECKING CRANE

Filed Dec. 7, 1927

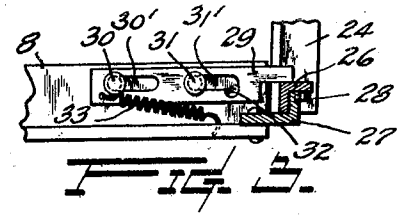


FIG. 3.

FIG. 1.

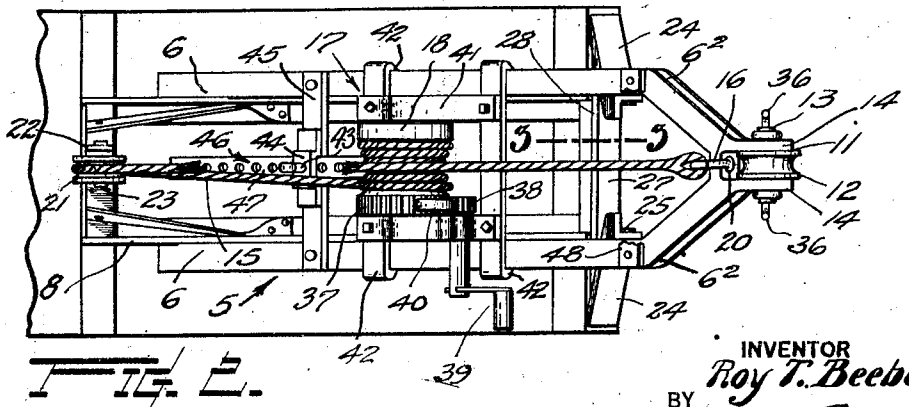


FIG. 2.

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UNITED STATES PATENT OFFICE.

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WRECKING CRANE.

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This invention relates to cranes and, more especially, to that class known as wrecking cranes which are employed on motor vehicles for the recovery and towing of injured automobiles.

The object of the invention is the improvement of cranes of this character to render the same more effective and convenient to operate and wherein the weight and sizes are reduced by a better construction and distribution of parts than with other wrecking cranes heretofore used as known to me.

Another object of the invention is to provide a wrecking crane employing a manually actuated winch which is arranged to be utilized at different positions upon the crane for the purpose of utilizing the power of the winch most advantageously to its different duties.

More specific objects and advantages of the invention will appear in the following description.

The invention consists in the novel construction, adaptation and combination of parts hereinafter described and claimed.

In the accompanying drawing,—

Figure 1 is a view in side elevation of a crane embodying the present invention illustrated by full lines as arranged for one sort of service and by dotted lines arranged for another sort of service; Fig. 2 is a plan view with the parts shown in the positions in which they are represented by full lines in Fig. 1; and Fig. 3 is a detail sectional view taken through line 3—3 of Fig. 2.

According to my invention, the crane proper comprises a bifurcated boom 5 having parallel side legs 6 through which extend axially aligned pins or bolts 7 whereby the boom is pivotally connected to the side members 8 of a base frame 9.

This base frame may be mounted upon the body 10 of a wrecking car and is rigidly secured to such body by bolts or other known fastening means, not shown. The head or free end of said boom is slotted as at 11, Fig. 2, to accommodate a sheave 12 which is rotatable upon a pin 13 extending through check elements 14 of the boom.

15 represents a cable having a hook 16 at one end, said cable being adapted to pass, as shown by dotted lines 15^2 and 15^3 in Fig. 1, over the sheave 12 and thence to a winch 17 for winding about the drum 18 thereof. The cable may thus be used for towing or elevating a car. The cable is also adapted for raising and lowering the boom to and from the car body 10.

For regulating the elevation of the boom, the cable hook 16 is engaged to the free or head end of the boom as in an aperture 20 thereof, and the cable lead about a grooved guide pulley 21 mounted in an elevated position upon a frame post 22 to the rear of the winch.

To facilitate the engagement and disengagement of the cable with respect to said guide pulley, the latter is mounted upon a stud 23 protruding from one side of the post. The boom 5 is supported at its free end by means of a prop frame having side members 24, the upper ends of which being pivotally connected to the respective legs of the boom as by pins or bolts 25. The lower ends of said prop members are rigidly coupled together by means of a transversely arranged bar element 26.

For supporting the boom in its elevated position as illustrated by full lines in the view, the bar 26 is engaged upon a transverse member 27 of said base frame, between an upturned flange 28 (Fig. 3) of the member 27 and the extremities 8^1 of the side members 8^1 of the base frame.

For releasably securing the lower end of the prop in its above described engaged relation with the base frame, a latch 29, shown in Fig. 3, may be advantageously employed.

Said latch is slidably connected to one of the base members 8 by means of studs 30 and 31 provided on the latter extending through elongated slots 30^1 and 31^1 provided in the latch. 33 represents a spring tending to maintain the latch in its advanced or engaged position in which it is represented in Fig. 3. Said spring also serves to releasably retain the latch in its retracted disengaged relation by connecting the spring to the rear end of the latch so that when manually retracted, the latch will be swung about the stud 30 as a fulcrum to cause the stud 31 to be engaged within a recess 32 provided in the latch below one end of the slot 31^1.

Chains, such as 34, are each connected at one end as by means of an eye-bolt 35 to the respective side members 24 of said prop frame, said chains being adapted to be engaged to hooks 36 which are attached to the free end of the boom as by means of the sheave pin 13. Said chains are omitted from Fig. 2.

The purpose of the chains is to prevent the prop frame being forced back under the ve-

hicle, or "jack knifed" with respect to the boom, when the boom is in approximately the position in which it is represented in Fig. 1 by dotted lines 5^1 with its free end supported from the ground by means of the prop when in approximately its dotted line 24^1 position.

When the prop is thus arranged, the chains are engaged intermediate their lengths to the respective hooks 36; the chains thereupon serving to prevent the prop being swung rearwardly beneath the vehicle body when the cable is used as in its dotted line 15^1 position for hauling a load. As shown, the winch drum 18 is provided at one end with a spur gear 37 which is driven to rotate the drum through the medium of a pinion 38 which is manually actuated by means of a crank 39.

A dog 40 connected to the frame 41 of the winch cooperates with the gear 37 to secure the drum from accidental unwinding movement.

An important feature of the invention is the mounting of the winch to permit its being employed in adjusted positions longitudinally of the boom. To each end the winch frame 41 is formed or provided with depending elements 42 which are slotted to provide ways in which engage for relative sliding movement the flange elements 6^2 of the boom legs 6. The winch is secured at adjusted positions longitudinally of the boom, as by means of a locking pin 43 engaging in a hole provided therefor in a keeper 44 of a transverse bar 45 of the boom 5, and into one of a series of holes 46 provided in a bar extension 47 of the winch frame 41.

A bar 48 is desirably provided upon the boom to serve as a stop to limit the movement of the winch toward the free or head end of the boom.

The boom 5 is represented in Fig. 1 by full lines in the position which it occupies when idle; or, for hoisting or supporting a pendant load. For load hoisting or supporting purposes, the cable 15 would be disconnected from the guide pulley 21 and be extended as shown by dotted lines 15^2 directly from the winch to and over the sheave 12 and thence downwardly as indicated by dotted lines 15^2.

For adapting the boom to hauling purposes, the cable is passed about the guide pulley 21 and with its hook 16 caught in the boom aperture 20, the winch is actuated to effect an elevation of the boom sufficiently to dislodge the prop from its engagement with the frame 8 and is then lowered into approximately its dotted line 5^1 position or to rest horizontally upon the vehicle body 10. With the boom thus lowered, the prop 24^1 serves to support its outer end, the chains are arranged as at 34^1 for retaining the prop as indicated.

The cable is then disconnected from the guide pulley 21, and overhauled from the drum to occupy a position such as represented by dotted lines 15^1 Fig. 1 to have its hook 16 connected to a car or other object to be hauled. When the cable is thus engaged, to an object the pin 43 is withdrawn to uncouple the winch from the boom, and the winch is shifted into approximately the position in which it is indicated by dotted lines 17^1 in Fig. 1 against the stop 48 to be conveniently operated by a man standing on the ground at one side of the boom.

The winch is now operated to draw a car toward the same by means of the cable. In such operation the prop, at 24^1, serves as a brace engageable with the ground to prevent rearward movement of the vehicle upon which the crane is applied.

For towing a car, the boom, prop and winch are desirably returned to the positions in which they are represented by full lines in Fig. 1, and the cable arranged as indicated by dotted lines 15^3 and 15^2 permitting the cable to be engaged by its hook to a car for supporting a portion or all of the weight of the latter.

The principles of my invention, the manner of its operation and its advantages will, it is believed, be understood from the foregoing description.

What I claim, is,—

1. A wrecking crane comprising, in combination, a frame, a boom pivotally connected at one of its ends to the frame, a prop pivotally connected at its upper end to the boom in proximity to the free end of the latter, means for detachably connecting the lower end of the prop to said frame, a flexible means for connecting the said boom and prop supplementary to the pivotal connections thereof, a winch mounted upon said boom for relative longitudinal movement, releasable means to secure said winch in adjusted position to the boom, a load hauling and hoisting cable operated by said winch, a sheave for said cable provided at the free end of the boom, means for connecting the cable to the free end of the boom, and a means provided on said frame for guiding the cable to utilize the cable and winch for raising and lowering the boom.

2. A wrecking crane comprising, in combination, a frame, a boom pivotally connected at one of its ends to the frame, a prop pivotally connected at its upper end to the boom in proximity to the free end of the latter, means for detachably connecting the lower end of the prop to said frame, a winch mounted upon said boom for relative longitudinal movement, releasable means to secure said winch in adjusted position to the boom, a load hauling and hoisting cable operated by said winch, a sheave for said cable provided at the free end of the boom, means for connecting the cable to the free end of the boom, and a means provided on said frame for guiding the cable to utilize the cable and winch for raising and lowering the boom.

3. A wrecking crane comprising, in combination, a frame, a boom pivotally connected at one of its ends to the frame, a prop pivotally connected at its upper end to the boom in proximity to the free end of the latter, means for detachably connecting the lower end of the prop to said frame, a flexible means for connecting the said boom and prop supplementary to the pivotal connections thereof, a winch, a load hauling and hoisting cable operated by said winch, a sheave for said cable provided at the free end of the boom, means for connecting the cable to the free end of the boom, and a means provided on said frame for guiding the cable to utilize the cable and winch for raising and lowering the boom.

4. A wrecking crane comprising, in combination, a frame, a boom pivotally connected at one of its ends to the frame, a prop pivotally connected at its upper end to the boom in proximity to the free end of the latter, means for detachably connecting the lower end of the prop to said frame, a winch, a load hauling and hoisting cable operated by said winch, a sheave for said cable provided at the free end of the boom, means for connecting the cable to the free end of the boom, and a means provided on said frame for guiding the cable to utilize the cable and winch for raising and lowering the boom.

5. In a wrecking crane, the combination with a rigid frame having side members and a transverse end member, a boom pivotally connected to the side members of the frame in proximity to an end of the latter, a prop, means pivotally connecting the upper end of the prop to the boom in proximity to the free end thereof, the lower end of the prop being adapted to engage the transverse member of the frame, and a latch for detachably securing the lower end of the prop to the frame.

6. In a wrecking crane, the combination with a frame, a boom pivotally connected at one end to the frame in proximity to an end of the latter, a prop, means pivotally connecting the upper end of the prop to the boom in proximity to the free end thereof, the lower end of the prop being adapted for engagement with the frame at the end of the latter opposite to that at which the boom is connected thereto, and a spring actuated means for detachably securing the lower end of the prop to the frame.

7. In a wrecking crane, in combination, a frame, a boom, a pivot having a horizontal axis to connect the boom to the frame to swing in a vertical plane, a prop connected to said boom and coacting with said pivot for supporting the boom at predetermined elevations, a winch slidably mounted upon the boom for movement longitudinally thereof into and outside of the projected area of the frame, and detachable means for securing the winch to the boom in adjusted positions.

8. In a crane of the character described, a rigid frame, a boom pivotally connected at one end thereof to the frame for movement about a horizontal axis, said boom being provided with a transverse bar member, a winch connected to the boom for movement longitudinally thereof, a stop provided upon the boom for limiting the travel of the winch toward the free end of the boom, and means engageable with said bar member of the boom for coupling the winch to the boom against relative movement in either direction.

Signed at Seattle, Washington, this 15th day of November, 1927.

ROY T. BEEBE.