E. HOLMES.

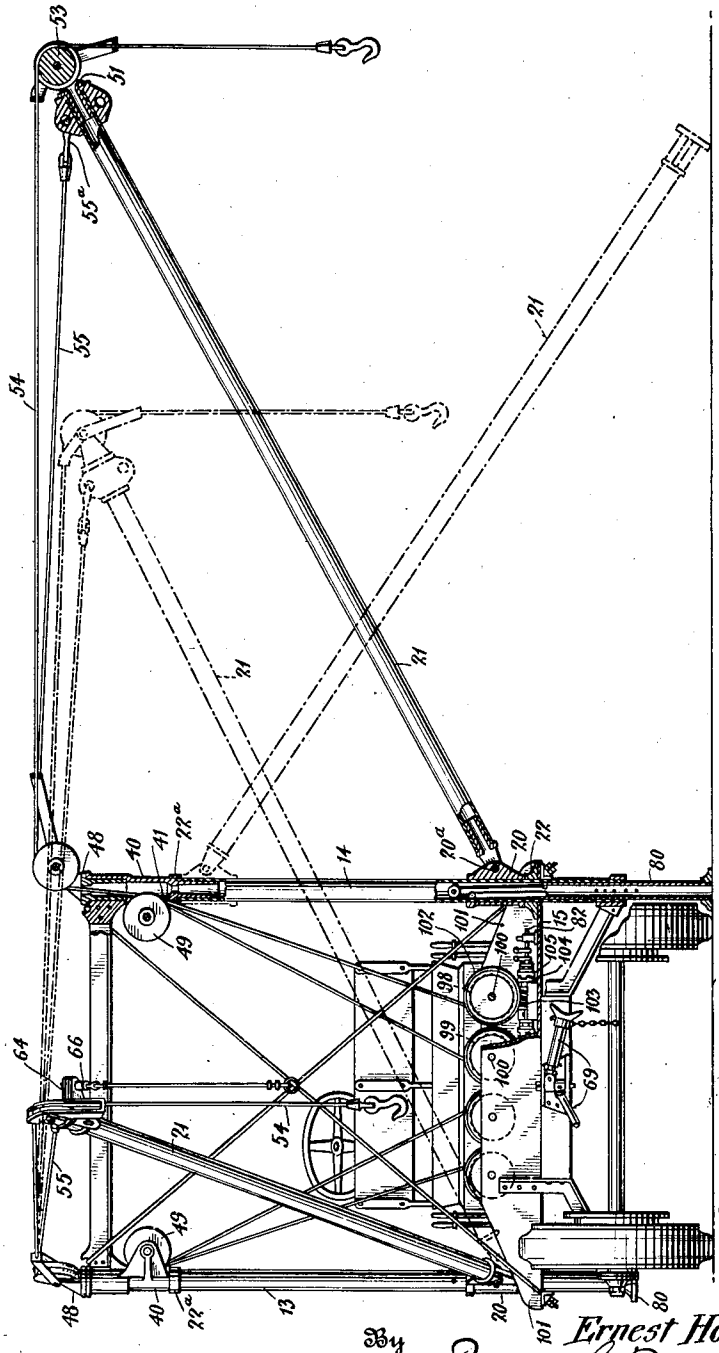
DERRICK TRUCK.

APPLICATION FILED JAN. 26, 1920.

1,359,378. **Patented Nov. 16, 1920.**

2 SHEETS—SHEET 1.

Fig. 1



Witnesses

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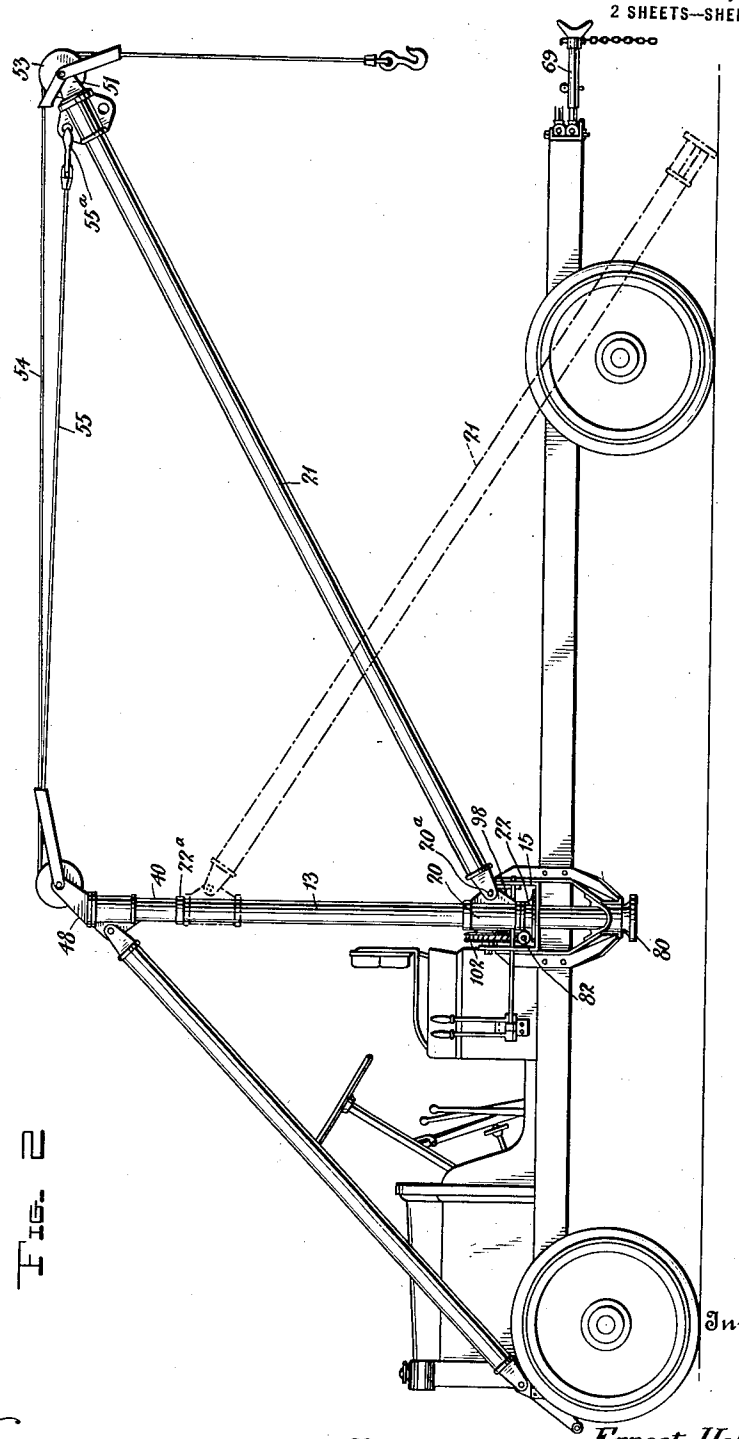


FIG. 2

Witnesses

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ERNEST HOLMES, OF CHATTANOOGA, TENNESSEE.

DERRICK-TRUCK.

1,359,378. Specification of Letters Patent. Patented Nov. 16, 1920.

Application filed January 26, 1920. Serial No. 354,027.

To all whom it may concern:

Be it known that I, ERNEST HOLMES, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented new and useful Improvements in Derrick-Trucks, of which the following is a specification.

This invention relates to improvements in derrick trucks of the general type disclosed in my reissued Letters Patent No. 14,720 of September 2, 1919. Such type of derrick truck is characterized by the provision of a pair of booms located in juxtaposition at opposite sides of the truck and each coöperating with a hoisting cable.

More particularly, the invention consists in the mounting of the booms whereby either or both of them may be reversed and positioned at various angles for anchorage or bracing purposes and whereby one may be used as a lateral brace in coöperation with the other positioned athwart the truck for the purpose of loading. Such inversion of the booms will be of value in many instances, in facilitating the loading or analogous operations, particularly in those situations wherein it may not be practical to use one of the cables as a guy in the manner disclosed in my said Letters Patent.

An embodiment of the invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a rear elevation of the improved truck showing by dot-and-dash lines the use of one of the booms as a brace and the coöperating use, for loading purposes, of the other boom.

Fig. 2 is a side elevation of the same showing another instance of the use of one of the booms as a brace.

Similar characters of reference designate corresponding parts in both of the views.

The derrick structure is mounted upon an automobile truck and is preferably supported by a cross-beam 15 secured to the chassis. The frame of the derrick structure consists of suitably braced upright posts 13 and 14 mounted on said beam adjacent the opposite sides of the truck.

The derrick structure includes a pair of booms 21, one associated with each post; and each boom is mounted for pivotal movement about both vertical and horizontal axes. In the construction shown and preferred, the posts are utilized as the vertical pivotal centers of the booms, and for this purpose, the booms are connected at their lower ends to supporting elements, *e. g.* sleeves 20 rotatably fitted upon the respective posts and normally having their seating upon shoulders 22. The connections between the booms 21 and sleeves 20 include horizontal pivots 20^a about which said booms are movable independently of their movement about their vertical axes.

Each post and its associated boom 21 constitute elements of a derrick unit and the two units, while susceptible of independent operation, are also coöperating companions. Each unit includes a cable 55 for regulating and effecting the vertical movements of the boom about its pivot 20^a and a lifting cable 54 for regulating the movements of the load. The cables 54 normally depend beyond the rear end of the truck, preferably by having the booms 21 from whose ends said cables are guided of such length that they project beyond the rear end of the truck.

The booms 21 are provided near their free ends with apertured laterally projecting lugs 64 for coöperation with a locking bolt or pin 66 engageable through the apertures of said lugs for the purpose of preventing the booms from swinging laterally from their normal operative position incident to the connection of the cables 54 to the load in tow. At the rear end of the truck a coupling head 69 is provided for connection to the vehicle in tow, the said coupling head being suitably constructed to prevent lateral oscillation of the vehicle in tow and being adaptable to the elevation at which the front end of said vehicle may be supported. The coupling head, as shown and preferred, is of the construction which forms the subject of my co-pending application Serial No. 370,257, filed March 3, 1920.

In the construction disclosed each of the posts 13 and 14 includes a hollow upper section 40 through which the cables 54 and 55 are led, the section 40 having in its side an opening 41 and having adjacent said opening cable guide pulleys 49. A bracket 48 is revolubly fitted in the upper end of each of the posts 13 and 14, said bracket having a hollow gudgeon which is journaled in the section 40. The bracket 48 carries guide pulleys over which the cables 54 and 55 are led. The cable 55 is connected to the free end of the boom 21 and the cable 54 depends from said free end, being led over a guide pulley 53 whose bracket 51 has a gudgeon

removably journaled in the end of the boom, thereby to enable the pulley 53 to turn about the boom as a pivotal axis in order to compensate for the sway or drag of the load relatively to the boom. In connection with the operation of extricating a damaged automobile, the truck frame is preferably braced relatively to the ground by stabilizing jacks 80. These may depend from the ends of the beam 15 and conveniently comprise telescopic sections, one of which for engagement with the ground is lengthwise adjustable relative to the other whereby it may be normally supported at a suitable elevation above the ground or lowered to engage the ground and secured in its lowered position. The jack at the right of Fig. 1 is shown in engagement with the ground, while the jack at the left of said figure is shown in its normal relation.

The drawings disclose an arrangement of cable drums and controlling gearing which forms the subject of my co-pending application Serial No. 370,257 and which, therefore, need not be described in any detail. It is sufficient to point out that the cables 54 and 55 of each pair are trained over a companion pair of drums 98 and 99, it being immaterial which cable is wound upon a particular drum, and that said drums are mounted on parallel longitudinal shafts 100 which are supported between side plates 101 secured to or forming parts of the beam 15. The drum operating gearing includes a transverse shaft 82 which, to enable its rotation in either direction, is connected by suitable reversing gearing (not shown) to the longitudinal driving shaft (not shown) of the truck. Each of the drums 98—99 has at one end a worm wheel 102 in mesh with a worm 103 loosely fitted on the shaft 82; and each worm is in association with cooperating clutch members 104—105 by which it may be connected or disconnected relatively to the shaft 82. In this way, the operation of each drum may be controlled independently of the others, thereby to insure the most certain control and regulation of the action of the booms and the lifting cables in any of the operations for which the truck may be used.

According to the invention, the sleeves 20 are slidably mounted on the respective posts 13 and 14 and are movable between limits which are prescribed by the shoulders 22 before mentioned and by other shoulders 22^a near the upper ends of the posts. Said sleeves are preferably freely movable along said posts and their movement from the lower to the upper position provides for the inversion of the corresponding boom.

Such inversion of either of the booms may be utilized under certain circumstances to facilitate the operation of extricating the damaged automobile from the location in which it may be ditched and of bringing such automobile into position for towing. In my Reissue Patent No. 14,720 of September 2, 1919, I have described the use of one of the hoisting cables as a guy, thereby to prevent any tilting of the truck as an incident of the lifting and swinging of the load by the boom 21 and cable 54 at the opposite side. In some situations, this may not be practical or possible, and it is in such contingency that the capacity of either of the booms for inversion becomes of value. The capacity of the booms for inversion and for use as braces will also be of value in various other cases where the manipulation of the load may be facilitated by operating either or both of the hoisting cables directly from the ends of the respective posts. This will be evidenced by Fig. 1 which shows by dot-and-dash lines the sleeve 20 of the boom at the right in its elevated position bearing against the shoulder 22^a, and the boom itself inclined diagonally downward and engaging the ground as a base. Such inversion of the boom, of course, presupposes the disconnection therefrom of the boom-operating cable 55 and of the guide bracket 51 and pulley 53 of the hoisting cable. For these purposes, the cable 55 has at its free end a hook 55^a which is engaged with an eye provided at the free end of the boom and the bracket 51 is freely removable in the endwise direction from the boom, its gudgeon being loosely socketed in the end of the boom. When the boom at the right is thus inverted and used as a ground-engaging brace, as shown, the manipulation of the load may be effected either by the associated hoisting cable 54 which is operated directly from the end of the post 14 or by the cable 54 of the other boom, which latter is moved athwart the truck to project from the same side thereof as the inverted boom. Obviously, the boom at the left may be similarly inverted and used as a brace, and its associated hoisting cable operated directly from the post 13, or, alternatively, the boom at the right may be positioned athwart the truck and its hoisting cable used for the manipulation of the load.

Fig. 2 shows another instance of the use of a boom as a brace, that is to say, it shows one of the booms inverted in the same manner as in Fig. 1 but positioned to project rearward instead of laterally, thereby to hold the truck against retrograde movement. Both of the booms may be simultaneously used in the manner shows in Fig. 2; and either or both of the booms may be similarly used but arranged to project in the forward direction, thereby to prevent the truck from forward movement. Where both of the booms are thus used as braces, both of the hoisting cables are available for the manipulation of the load and may be simultane-

ously operated directly from their respective posts.

Having fully described my invention, I claim:—

1. In an apparatus of the character described, in combination, a truck, a pair of juxtaposed booms mounted at opposite sides of the truck for lateral swinging movement beyond or athwart the truck, lifting cables associated with said booms, and vertically adjustable supporting elements to which said booms are pivoted and which, as raised, provide for the inversion of said booms for use as ground-engaging braces.

2. In an apparatus of the character described, in combination, a truck, a vertical post mounted on said truck, an element adjustable lengthwise of said post, a boom pivoted to said element as a support, the latter as raised providing for the inversion of said boom for use as a ground-engaging brace, and a pair of cables trained over the post, one cable being detachably connected to the free end of said boom and the other cable being detachably trained over said free end.

3. In an apparatus of the character described, in combination, a truck, a vertical post mounted on said truck and provided with upper and lower shoulders, a sleeve slidable on said post between said shoulders and normally resting on the lower shoulder, a boom pivoted to said sleeve as a support, the latter as raised providing for the inversion of said boom for use as a ground-engaging brace, and a pair of cables trained over the post, one cable being detachably connected to the free end of said boom and the other cable being detachably trained over said free end.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ERNEST HOLMES.

Witnesses:
S. Bartow Strang,
Betty Blocker.