

Dec. 10, 1946.

H. O. AUSTIN

2,412,488

ENGINE LIFTING HARNESS

Filed Sept. 28, 1945

FIG. 2.

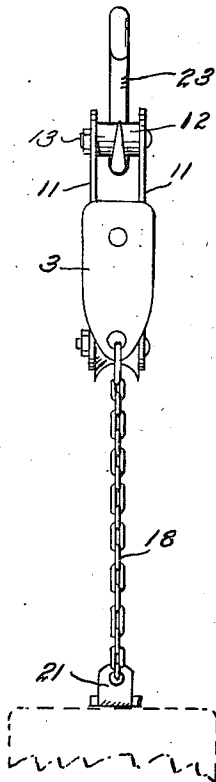


FIG. 1.

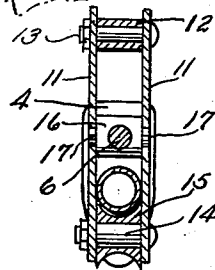
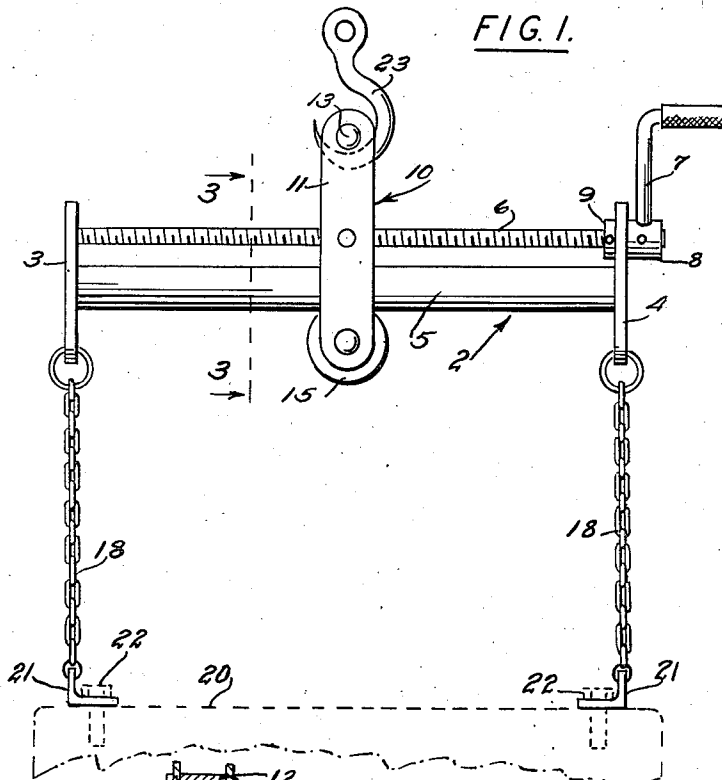


FIG. 3.

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2,412,488

ENGINE LIFTING HARNESS

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Application September 28, 1945, Serial No. 619,205

2 Claims. (Cl. 294—78)

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This invention pertains to engine lifting harness for "pulling" engines from automobiles and the like where repair is necessary.

Heretofore, engines have been pulled by attaching the ends of a chain to the stud bolts in the head, and then attempting to approximate the center of gravity on the chain loop thus formed and securing the hook of the chain hoist to the approximated center of gravity on the chain by a bolt inserted through one of the links of the chain at this point. It is often impossible to determine the center of gravity so that, after the hoist has lifted the engine partially out of its bed in the automobile frame, it will remain level. If the center of gravity is not estimated correctly, then the engine will slide to one end or the other and hang up on various frame parts, or will spill, or possibly tear loose from the hoist hook. Moreover, in certain installations, it is necessary to remove the engine at a definite predetermined angle in order that it will clear obstructions in the frame and thereafter, as the chain hoist is operated, it is necessary to level the engine so that it may be lowered on to work blocks in a level and orderly manner. To do this by shifting the position of the chain hoist on the ordinary chain loop, is awkward and inefficient, and as a result, it is necessary to use a great deal of manual effort in addition to the use of the chain hoist for balancing and guiding and pulling the engine out of the chassis and to the work block or work horses.

In view of the foregoing, one of the objects of my invention is to provide a lifting harness to be attached at any two places desired to the cylinder block of an engine to be removed from the chassis frame of a motor vehicle, which has means for attachment to a chain hoist, or the like, and mechanism for shifting the weight of the engine block between the points of attachment.

A second object is to provide a lifting harness for pulling engines from motor vehicles which has chain suspension members at each end of a frame and a hoist attaching member operative in said frame between said suspension members and arranged so that it may be shifted toward either suspension member either before or during the pulling process while under load.

Other objects will appear hereinafter.

I attain the foregoing objects by means of the construction and devices shown in the accompanying drawing in which,

Figure 1 is a side elevation of my device;

Figure 2, an end elevation thereof; and

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Figure 3, an elevational section taken substantially on line 3—3, Figure 1.

Similar numerals refer to similar parts in the several views.

A frame 2 is composed of end blocks 3 and 4 welded to the ends of a tubular longitudinally extending frame member 5. A long screw 6 is journaled in the upper portions of the end blocks and extends parallel to frame member 5.

The right end of screw 6 carries a crank 7 on collar 8 and a second collar 9 is positioned on the screw adjacent the inner face of block 4 to prevent longitudinal movement. A hoist cage 10 is composed of two side plates 11 which enclose a hoist hook attachment thimble 12 held in place by a bolt 13 at the top and a thimble 14 at the bottom. This thimble journals roller 15, which has its periphery grooved to conform to and ride on the under side of tubular frame member 5. Between these thimbles there is a block 16, supported on bosses 17 at each end bearing in holes in plates 11. This block is threaded to receive screw 6.

Chains 18 are attached to holes in the lower portions of blocks 3 and 4 and constitute a means for attaching the frame ends 2 to portions of an engine, or engine block 20 (indicated by dotted outline). L hooks 21 are linked to the lower ends of these chains and are adapted to receive cap screws 22, or the like, for securing them to block 20.

In use, these L hooks are attached by screws 22 (or other convenient means) to the engine to be pulled, and the hook 23 of a chain hoist or crane is engaged over thimble 12. Screw 6 is manipulated by crank 7 to position the cage 10 approximately in the estimated center of balance.

The hoist is operated until the engine is lifted a slight distance and the cage is then repositioned along the frame 2 so that the weight of the engine is equalized between the supporting chains 18. If the engine can be pulled clear of the chassis frame while level no further shifting of the cage is necessary, but if the engine must come out at an angle in order to clear frame or body parts, the center of balance can be easily shifted to secure this angle by manipulating crank 7. Those familiar with this type of work will readily appreciate the convenience afforded by this mechanism and device. Its use becomes more necessary as manufacturers make vehicles with body and fender parts which enclose the motor and which are difficult to remove.

I realize that many mechanical variations may

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be made in this device, and therefore wish to be limited only by the following claims.

I claim:

1. A lifting harness for pulling engines from chassis frames, comprising in combination, a frame having a longitudinally extending member with end blocks secured to the ends thereof, attaching chains in the lower portions of said end blocks, a longitudinally extending screw journaled in the upper part of said end blocks, and a cage operative along said longitudinal frame member having means in its upper portion to receive a hoist hook, and a threaded block operatively engaging said screw, whereby said cage can be moved along said frame by turning movement of said screw.

2. Lifting harness for pulling engines from vehicle chassis, comprising in combination, a frame composed of a tubular longitudinal member, and end blocks secured to each of its ends, a threaded

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screw member extending substantially parallel to and above said longitudinal member journaled at each end in the upper portions of said end blocks, secured against longitudinal displacement by collars, and provided with a crank at one end, means for attaching the ends of said frame to an engine including chains attached to the lower portions of said frame end blocks, depending therefrom and having L hooks at their lower ends, and a hoist hook cage adapted to engage a hoist hook at its upper end, and having a roller within its bottom portion adapted to support said frame by engagement with the under side of said longitudinal member and being movable along the length of said member, and having a threaded block positioned to operably engage said threaded screw member, whereby the position of said cage is maintained on said frame, and may be longitudinally shifted by turning said screw.

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