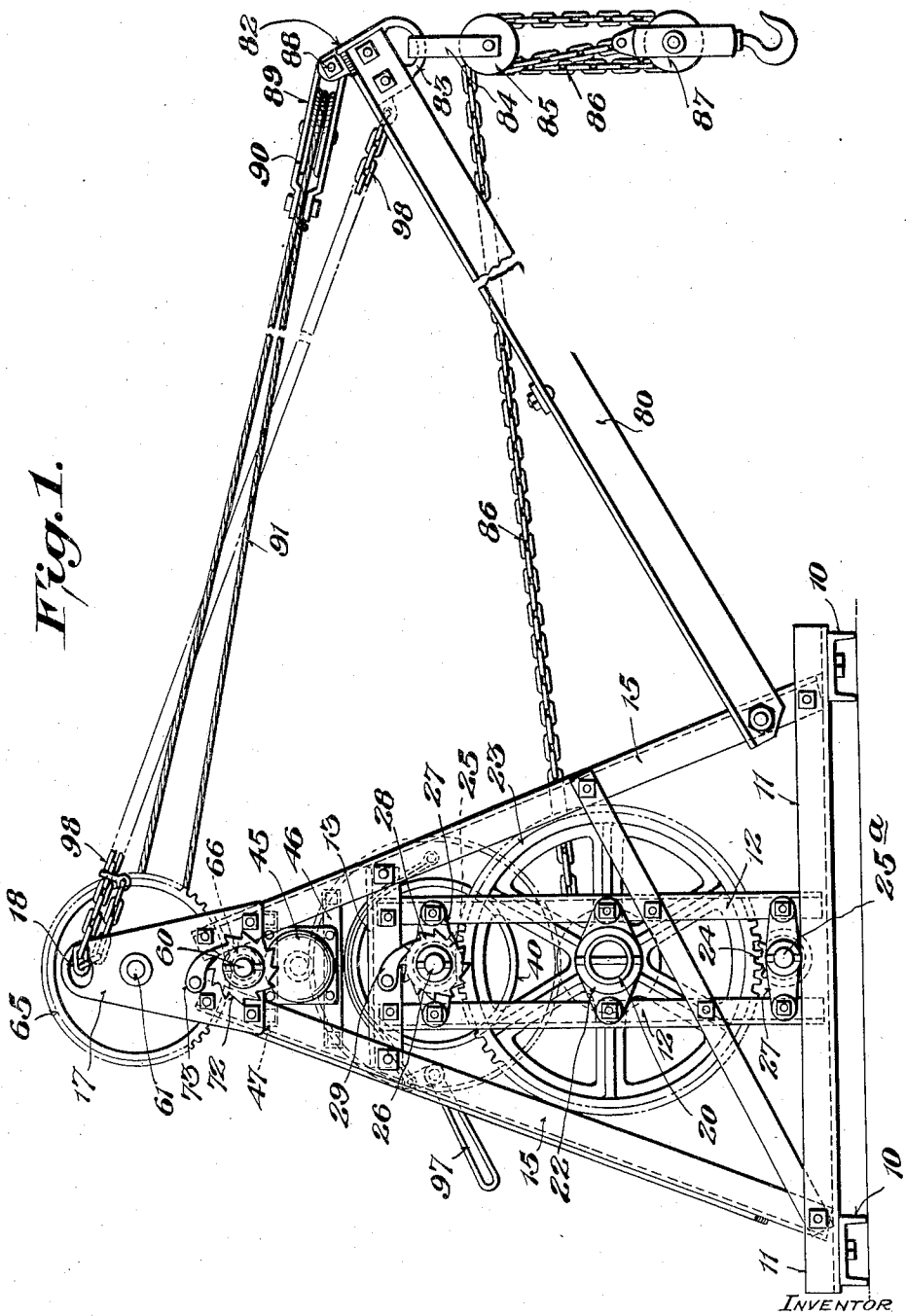
Sept. 29, 1931. R. E. MANLEY 1,825,359

LIGHT WRECKING CRANE

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Fig. 1.



INVENTOR

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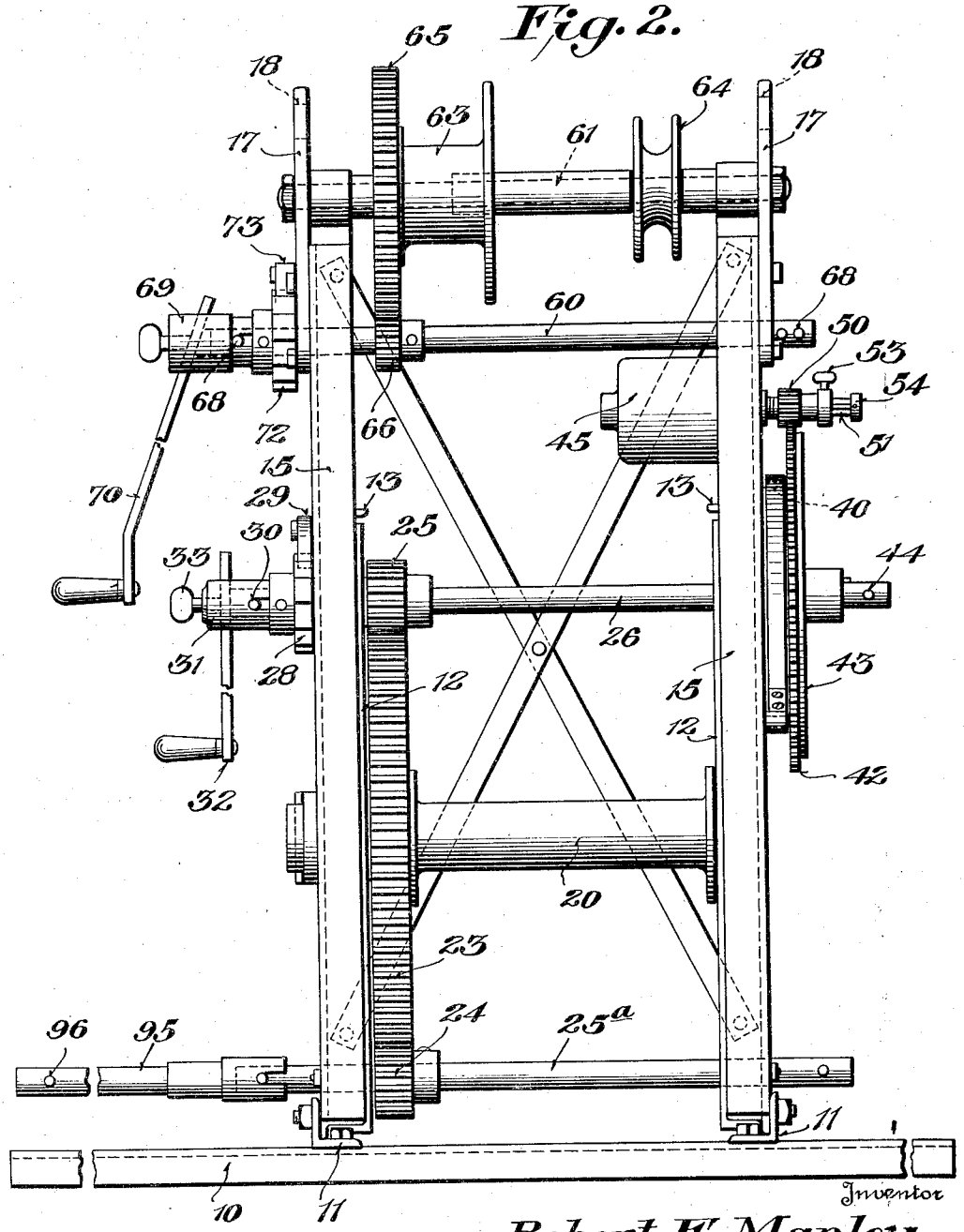
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LIGHT WRECKING CRANE

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Fig. 2.



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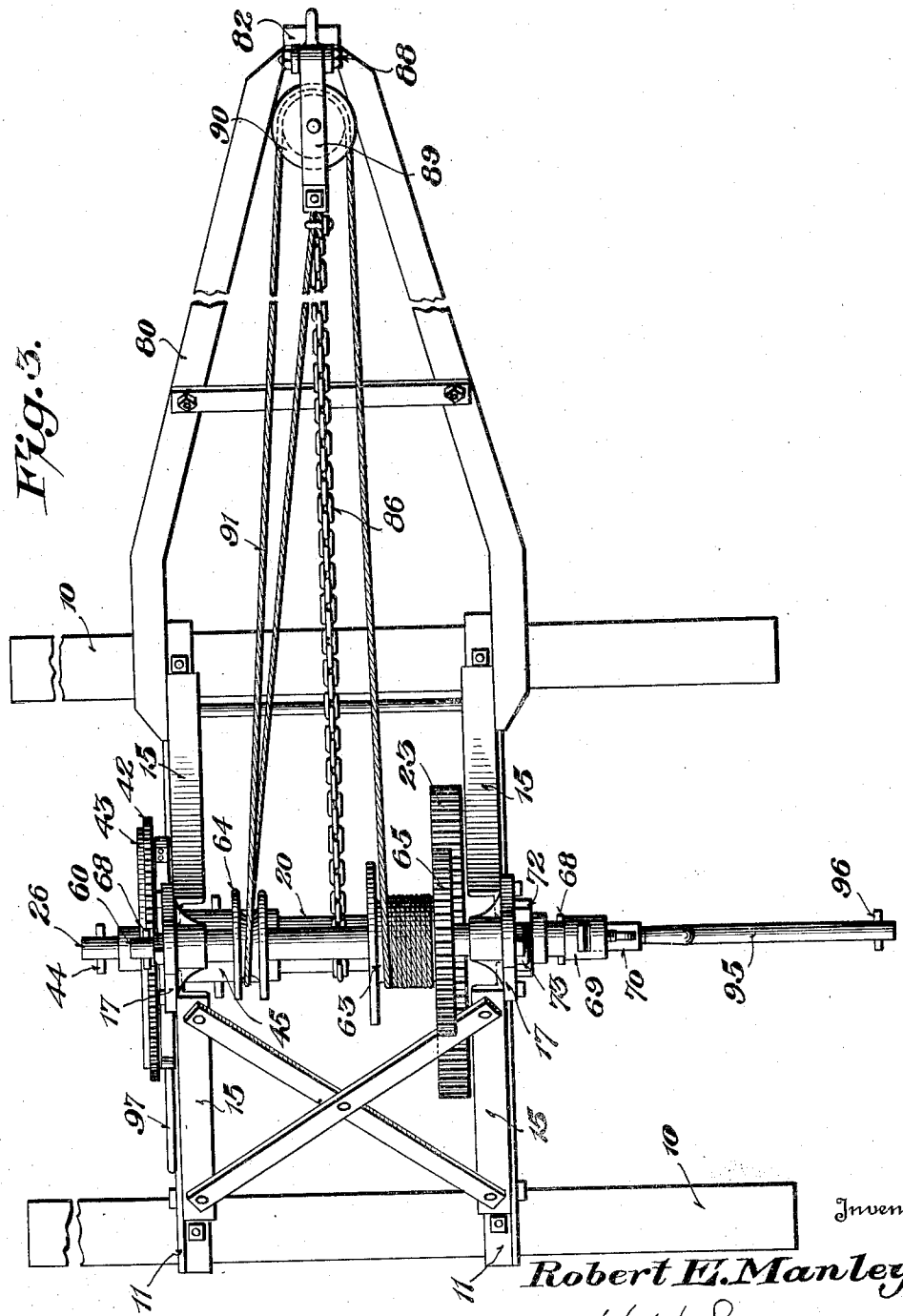
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LIGHT WRECKING CRANE

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Fig. 5.



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Patented Sept. 29, 1931

1,825,359

UNITED STATES PATENT OFFICE

ROBERT E. MANLEY, OF YORK, PENNSYLVANIA, ASSIGNOR TO MANLEY MANUFACTURING COMPANY, OF YORK, PENNSYLVANIA, A CORPORATION OF DELAWARE

LIGHT WRECKING CRANE

Application filed November 7, 1927. Serial No. 231,703.

This invention relates to cranes and has for its object the provision of a light wrecking crane having all essential features of the more usual wrecking jobs and yet simplified to such an extent that it can be sold to the smaller garages at a price materially lower than that of the wrecking cranes in general use in the larger garages.

In the drawings:—

Figure 1 is a side elevation.

Figure 2 is a rear elevation.

Figure 3 is a plan view.

The base of the hoist is formed of two parallel channel bars 10 which are transversely arranged on the wrecking truck and are secured together by two parallel longitudinal angle bars 11 from each of which rise centrally two vertical angles 12 extending to the cross-piece 13 of the side A-frame formed by these angle cross-pieces 13 and by the two sloping angle members 15 which are bolted to the longitudinal angle bar 11 at the bottom and to a casting 17 at the top at each side, these two castings together forming the bearings for the top shaft which carries the boom raising mechanism. Each casting 17 has an eye 18 thru which a chain from the end of the boom may be placed to hold the boom elevated under desired conditions, for example, when hauling a wreck to the garage.

The hoisting drum 20 is mounted in bearings 22 carried by the uprights 12 and is driven by a gear 23 which meshes with a lower pinion 24 on the bottom shaft 25^a and a similar pinion 25 on the main drive shaft 26 which latter is supported by the uprights 12 thru the bearings 27.

The drive shaft 26 extends thru its bearings 27 at either side carrying at the left, as seen from the rear, a ratchet 28 which is engaged by a pawl 29 pivoted to the cross-piece 13. Beyond the ratchet wheel the shaft is provided with a transversely extending pin 30 forming a convenient quick detachable connection between the drive shaft 26 and the socket 31 which slidably receives the handle lever 32 which is made fast in the socket in desired relation by means of the thumb nut 33. At the opposite end the drive shaft 26 carries a brake drum 40 and just beyond this a ring gear 42 fast to a spider 43 which is keyed or otherwise secured to the drive shaft 26. A pin 44 similar to pin 30 and for the same purpose projects thru the shaft on both sides for operation of the shaft by hand from that side.

The motor 45 is secured to the A-frame on one side by cross-pieces 46 and 47 in convenient position to drive the ring gear 42 by means of a pinion 50 splined to the armature shaft 51, the pinion being provided with a set screw 53 whereby the pinion may be secured to the armature shaft in the driving position shown or in the non-engaging position against the head 54 which is merely for the purpose of preventing loss of the sliding pinion.

The upper manually driven shaft 60 is directly beneath the winch shaft 61 on which are loosely mounted the winch drum 63 and an idle pulley 64, the former having a gear 65 whereby the drum is driven from a pinion 66 fast on the shaft 60 which, like the bottom shaft 25^a, is manually operated from either side and is provided with pins 68 to afford engagement of the socket 69 generally similar to the socket 31 save that it has been found more convenient to arrange the slot for the handle lever 70 at an angle so that this lever will clear the set screw 33 without the necessity of extending the shaft 60 on either side beyond that necessary to afford room to receive the ratchet 72 which is fast to this shaft and is held by the pawl 73.

Pivoted near the bottom of the forward sloping sides of the A-frames are a pair of angle irons 80 together forming a boom at the free end of which is a casting 82 forming the end connecting member for the two channels 80 and provided with a bail 83 for the reception of the yoke 84 of the pulley 85 which guides the chain 86 (one end of which is fast to the drum 20) to the grapple pulley 87. The casting 82 also has an eye 88 to swivel the hood 89 of the winch pulley 90. The cable 91 is fast at one end to the winch drum 63, then passes in turn over the pulley 90, back to the idle pulley 64, and is then secured at its free end to the hood 89 so that by turning the shaft 60 the boom 80 is raised

or lowered and may be held in desired position and locked there by dropping the pawl 73.

In general the boom 80 is first dropped to the desired angle by turning the shaft 60 by means of the hand lever 70 from the most convenient side and is then locked in such position by the pawl which engages the ratchet wheel 72 fast on the shaft 60. The grapple hook is now caught in the wreck at the desired point whereupon the chain 86 is wound upon the drum 20 to raise the wreck, this being accomplished in any one of three ways, by the motor 45, by the shaft 26 at either end, or, as is usually most convenient on location, by the shaft 25^a which is at about the right height for operation by a man standing on the ground, this shaft having a detachable extension 95 which engages the pin at either side of this shaft and itself carries a thru pin 96 for reception of the socket 31. The brake band is applied by the lever 97 which is preferably on the motor side. This affords a very convenient means for the lowering of the grapple hook simultaneously with the raising of the boom. While obviously a wreck could be hauled back to the garage by engaging the pawl 73 with the ratchet wheel 72 to secure the boom, it is frequently more satisfactory to secure chains such as 98 to the ends of the boom, pass their hooks thru the eyes 18 and back to the chain and thereby hold the boom at the desired elevation, in which case the winch cable 91 may be released.

What I claim is:

1. In a light wrecking crane, a pair of triangular members forming a hoist frame, a winch shaft, a winch drive shaft, a hoisting drum shaft, a plurality of hoist drum drive shafts, all of said shafts mounted in the hoist frame and having their axes in the same vertical plane, means for locking the hoist drum and the winch drum against rotation in a direction to pay out cable, a motor drive for winding the hoist cable on the hoist drum and additional means for winding both drums simultaneously.

2. In a wrecking crane, a hoist mechanism including a drum, a winch drum, a boom pivoted to the hoist, an idle pulley coaxial with the winch drum, cable means connecting the end of the boom with the winch drum and said idle pulley to change the angular elevation of the boom, ratchet and pawl mechanism for holding the boom in chosen position, and means for controlled releasing of a load held by the hoisting drum while raising the end of the boom.

3. In a light wrecking crane, a pair of triangular members forming a hoist frame, a cross bar secured to said triangular members, parallel members extending from the base of the triangular members to the cross bar adapted to support in the same vertical plane a hoisting drum shaft and a plurality of hoist drive shafts, a winch shaft and a winch drive shaft in alinement with the other shafts and means for operating said shafts from either end.

4. In a light wrecking crane, a pair of triangular members forming a hoist frame, a pair of parallel members extending from the base of the triangular members adapted to support a hoisting drum shaft and a plurality of hoist drum drive shafts above and below said drum shaft, a winch shaft, a winch drive shaft, said shafts having their axes in the same vertical plane, means for locking the hoist drum and the winch drum against rotation in a direction to pay out cable, a motor drive secured within the frame for winding the hoist cable on the hoist drum, and additional means for winding both drums simultaneously.

5. In a hoist mechanism, a hoisting drum, a winch drum, an idle pulley coaxial with said winch drum, a plurality of vertically alined shafts for supporting said drums, a gear fast to said hoisting drum, a pinion above and a pinion below said gear both meshing therewith, manual means for driving either shaft from either side of the hoist, means fitting either side of either shaft, said means including an element to receive the readily detachable handle lever for manually driving said drum from any one of said shafts and additional means for driving said winch drum from either side of the hoist.

In testimony whereof I affix my signature.

ROBERT E. MANLEY.