(No Model.) 4 Sheets—Sheet 1.

M. WUERPEL.

WRECKING CAR.

No. 402,378. Patented Apr. 30, 1889.

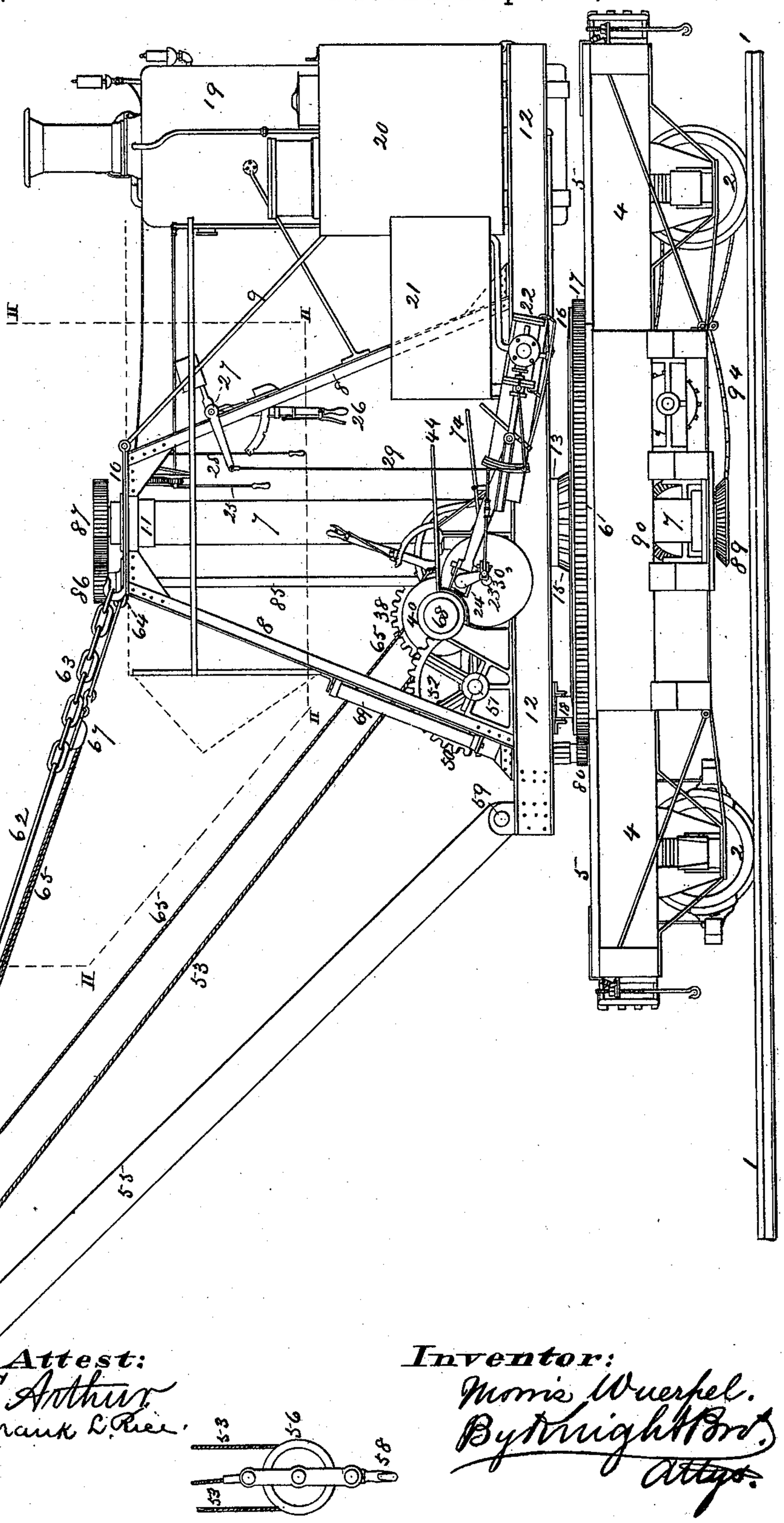

Fig. I.

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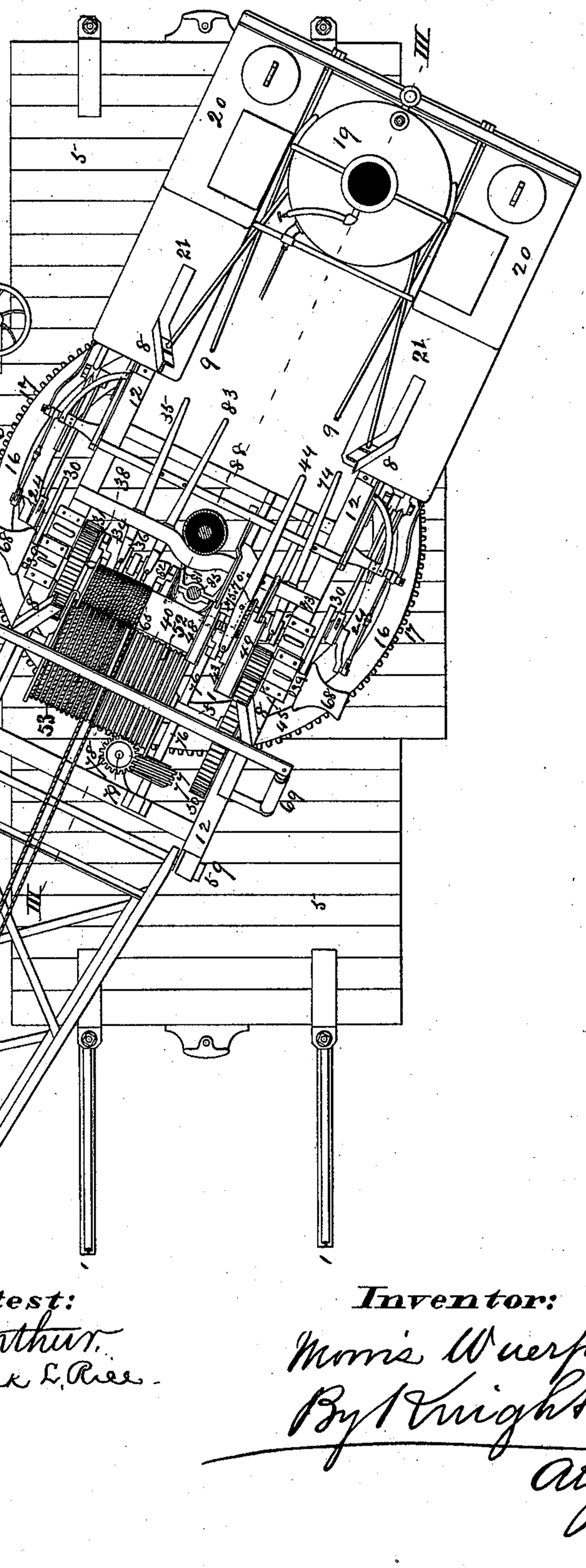

Fig. II.

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Fig. III.

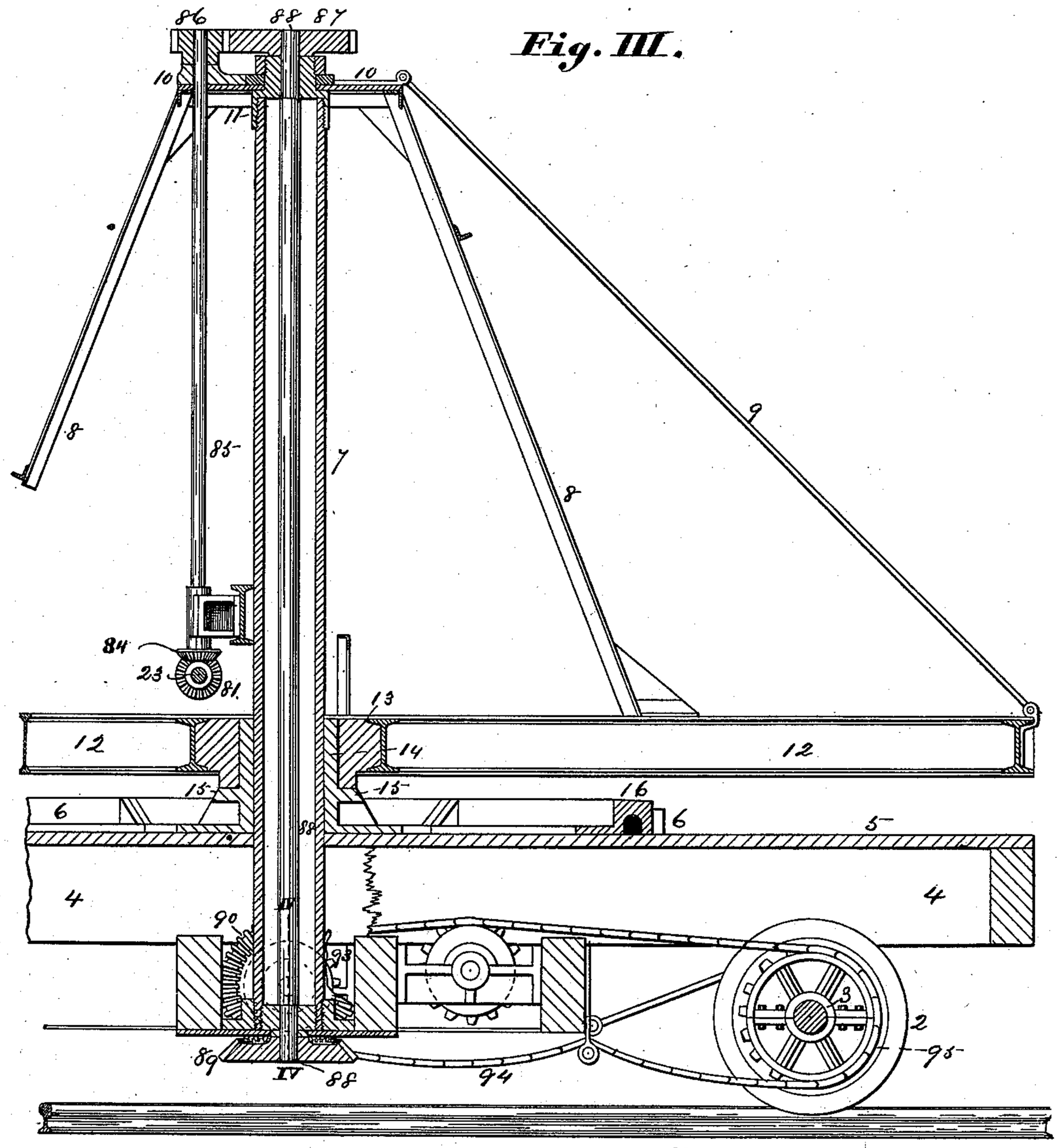
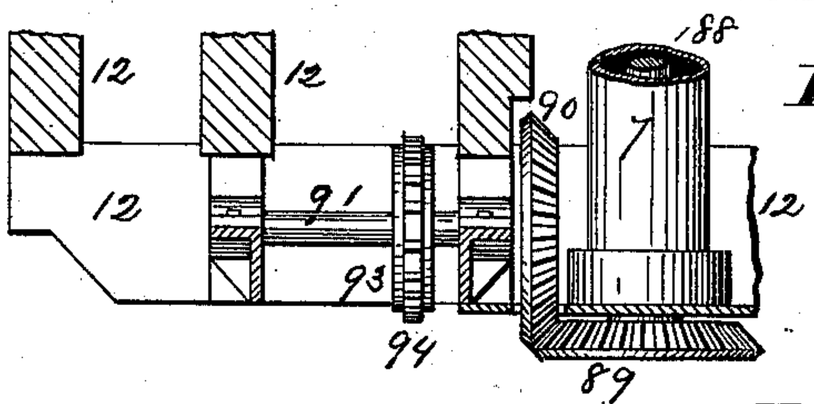


Fig. IV.



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WRECKING CAR.

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Fig. V.

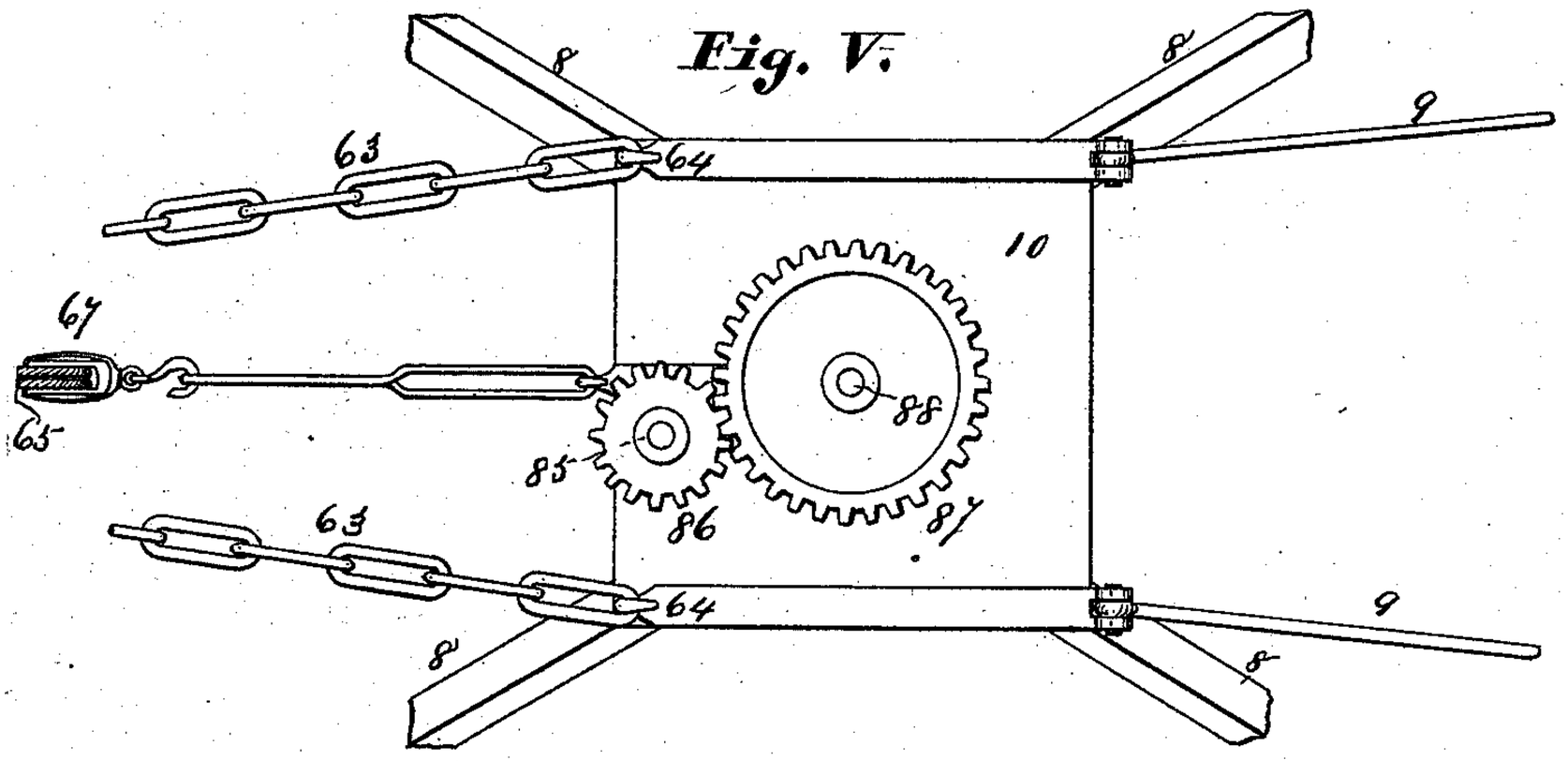
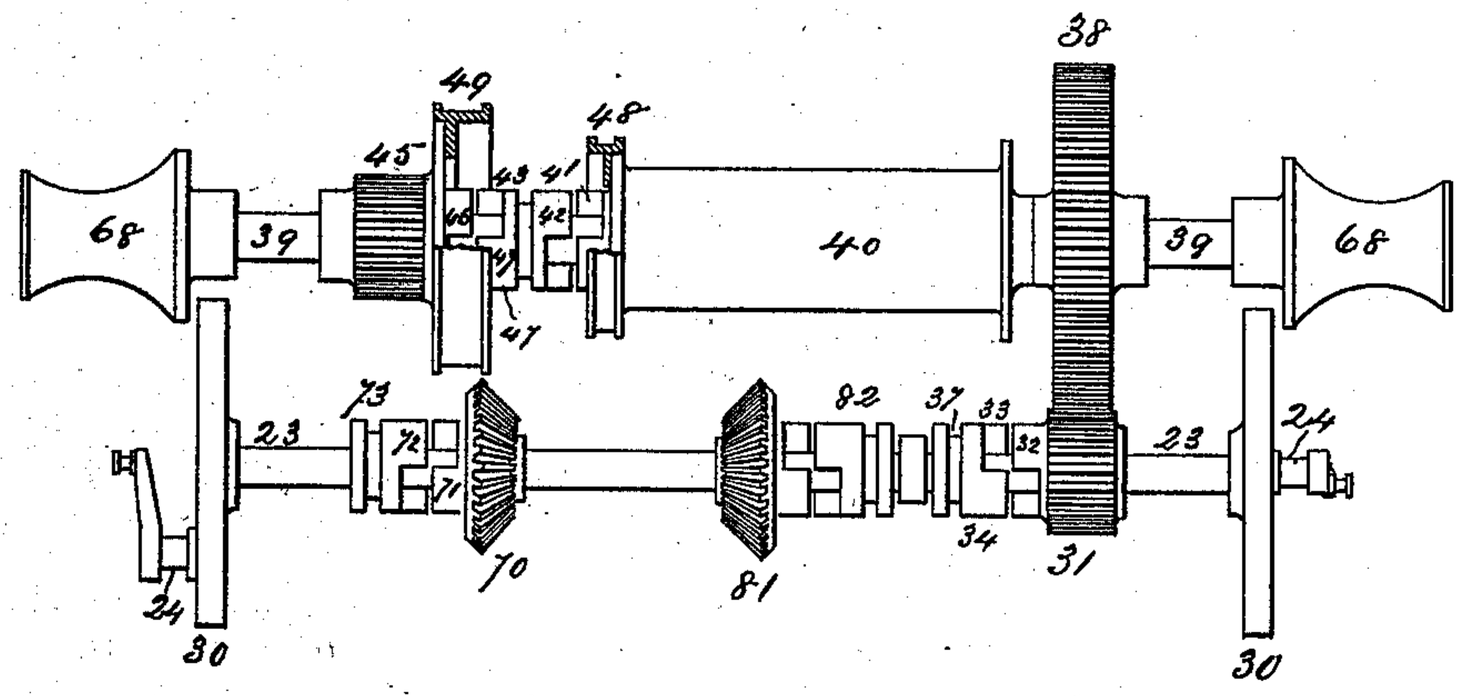


Fig. VI.



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UNITED STATES PATENT OFFICE.

MORRIS WUERPEL, OF ST. LOUIS, MISSOURI.

WRECKING-CAR.

SPECIFICATION forming part of Letters Patent No. 402,373, dated April 30, 1889.

Application filed April 30, 1888. Serial No. 272,355. (No model.)

To all whom it may concern:

Be it known that I, MORRIS WUERPEL, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Wrecking-Cars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This is a machine intended to be supported on a railway-track, and adapted to raise and remove heavy bodies from place to place. The wheels may be adapted to travel over the surface of the ground.

Figure I is a side elevation of the machine. Fig. II is a plan, the parts above broken line II II in Fig. I being removed to show the parts beneath. Fig. III is a detail vertical section at III III, Fig. II. Fig. IV is a detail section at IV IV, Fig. III. Fig. V is a detail plan of the mast-head and attachments. Fig. VI is a detail top view, partly in section, of the main and drum shafts.

At 1 are shown the rails upon which run the supporting-wheels 2, similar to railway-car wheels and fixed to axles, one of which is seen at 3, Fig. III. The main frame of the car is seen at 4 and the floor at 5.

6 is a master-wheel fixed to the body of the car. 7 is a tubular mast, which is fixed to the car-body and whose top is braced by braces 8 and guys 9. The upper ends of the braces and guys are attached to the head 10, which has a circular hole through which the upper end of the mast passes. The head bears upon a collar, 11, secured to the mast and turns freely thereon. The lower ends of the braces 8 and guys 9 are attached to the frame 12, on which the derrick is supported, and which turns on the master-wheel having a hub, 13, through which passes the hub 14 of the master-wheel, the hub 13 resting on a collar, 15, of the hub 14. (See Fig. III.) The master-wheel has an inclined track, 16, all around just within the cogs 17. Upon the track run rollers 18, turning in bearings of the frame 12, relieving the strain upon the mast. (See Fig. 1.

The frame 12 has longitudinal I-beams connected by suitable cross-beams, the inclined braces 8 forming the main uprights of the frame.

19 is the steam-boiler, which is placed upon the end of the derrick-frame 12 opposite to the derrick, so as to act as a counter-balance.

20 is the water-tank, and 21 the coal-bin.

At 22 are steam-engines, which drive the crank-shaft 23 by means of the cranks 24, which are set to carry each other over the dead-centers.

25 is the throttle-valve lever. (See Fig. I.)

The engines are reversed by a common link-motion operated by a lever, 26, which actuates the reversing mechanism on both the engines by means of a rock-shaft, 27, with arms 28 and rods 29. (See Fig. I.) The crank-shaft has fly-wheels 30, and carries a spur-pinion, 31, which turns loosely on the shaft except when clutched to the shaft. (See Figs. II and VI.) The pinion has clutch-teeth 32, which engage similar teeth, 33, upon a clutch-collar, 34, adapted to slide endwise upon the shaft, but connected therewith by a spline or other means, so as to be carried around with the shaft, as usual.

35 is a hand-lever, whose forked end 36 has studs engaging in the circumferential groove 37 of the clutch-collar, or a ring in said groove, so that the collar is moved endwise on the shaft by the swinging of the lever from side to side. (See Figs. II and VI.)

The pinion 31 engages a spur-wheel, 38, fast upon the drum-shaft 39. This shaft carries a drum, 40, that turns loosely upon the shaft, except when clutched thereto. (See Figs. II and VI.) The drum has at one end clutch-teeth 41, that are adapted to engage similar teeth, 42, upon the clutch-collar 43. This collar has spline or other usual connection with the shaft, to insure its rotation therewith, and has endwise movement thereon to engage or disengage the clutch 41 42. The endwise movement of the clutch is imparted by a hand-lever, 44, which is forked at the end and has the usual connection with the clutch-collar, so as to allow the latter to revolve within the fork. (See Figs. II and VI.) The shaft 39 carries also a spur-pinion, 45, that turns loosely on the shaft, except when clutched to it. The pinion has clutch-teeth 46, engaging similar teeth, 47, on the clutch-collar 43. The drum 40 carries a wheel, 48, to which a friction-brake may be applied, and the loose pinion 45 carries a similar wheel, 49, for a like

purpose. The pinion 45 engages a spur-wheel, 50, that is fast upon a drum-shaft, 51, the drum 52 being also fixed to the shaft. (See Figs. I and II.) Upon this drum is coiled the main hoisting-cable 53. The cable 53 passes over a pulley, 54, at the head of the derrick 55 and through a pulley-block, 56, and may extend upward from the block and over another pulley, 57, at the head of the derrick and down to the block to which its end is attached, all as shown. (See Figs. I and II.) The block 56 and pulley 57 may be dispensed with and the hook or link 58 attached directly to the end of the cable, or the pulleys of the derrick and block may be increased in number to any desired extent and the cable carried around them to increase the lifting-power. The booms of the derrick are connected at their lower ends to the longitudinal I-beams of the frame by hinges 59. The head of the derrick has a bolt, 60, which forms the arbor on which the pulleys 54 and 57 have bearing. The bolt 60 passes through the ends of links 61, whose other ends are connected by a bolt passing through them to guy-rods 62. The other ends of the guy-rods are connected to chains 63, which engage on hooks 64, attached to the head 10 to hold the derrick to the desired inclination. The hooks 64 may be changed from link to link of the chain to change the inclination of the derrick. In making this change a cable or rope, 65, is used. The cable is coiled upon the drum 40 and is shown passing through pulley-blocks 66 and 67, one of which (66) is connected to the head of the derrick and the other (67) to the head 10.

On the ends of the drum-shaft 39 are "nigger-heads" 68, which may be used to wind up a rope in the manner of a capstan. At 69 are shown rollers against which such rope may bear. (See Fig. II.)

The derrick-frame is turned around on the mast as an axis, by means which will now be described.

70 is a bevel-wheel turning loosely on the crank-shaft 23. The wheel 70 has projections or clutch-teeth 71 engaging with similar teeth, 72, upon a cluch-collar, 73, sliding on the crank-shaft, but turned therewith by the usual means, such as spline-connection. The clutch-collar 73 is operated by the hand-lever 74. The bevel-wheel 70 engages a similar wheel, 75, upon a shaft, 76, carrying a gear-worm, 77, that engages a worm gear-wheel, 78, on a shaft, 79. The shaft carries at the lower end a spur-wheel, 80, that engages the master-wheel 6, so that when the wheel 80 is turned the whole derrick-frame 12 will be turned around. (See Figs. I and II.) The direction of rotation is reversed by reversing the engines.

The means of propelling the machine on the rail-track will now be described.

81 is a bevel-wheel turning loosely on the crank-shaft 23 and clutched to the shaft by a clutch, 82, when the clutch is thrown into action. The clutch is constructed in the same manner as those before described, and is moved in the same manner by a similar hand-lever, 83. The wheel 81 engages a similar wheel, 84, on a vertical shaft, 85. (See Fig. III.) The shaft 85 extends up through the head 10, and carries at its upper end a spur-pinion, 86, that engages a spur-wheel, 87, on a shaft, 88, that extends axially through the tubular mast. This shaft 88 carries at its lower end a bevel-wheel, 89, that engages a similar wheel, 90, upon a horizontal transverse shaft, 91, which carries a sprocket-wheel, 93, connected by a drive-chain, 94, with a sprocket-wheel, 95, upon the axle 3. (See Figs. I, III, and IV.)

I claim—

In a wrecking-car, the combination, with the truck mounted on wheels, of the master-wheel mounted on said truck and having a hub, 14, provided with a flange, the frame 12, having a hub surrounding the hub 14 and resting upon said flange, a hollow mast passing through said hubs, the collar 11, secured to the upper end of said mast, a shaft, 88, passing through said mast and collar and carrying a gear-wheel at both ends, the head 10, swiveled upon said collar, braces supporting said head, the driving mechanism, the vertical shaft 85, passing through said head and having a gear meshing with the gear on the shaft 88 and geared to the driving mechanism, and gearing connecting the said shaft 88 with the truck-wheels, substantially as set forth.

MORRIS WUERPEL.

In presence of—

SAML. KNIGHT,

JOS. WAHLE.