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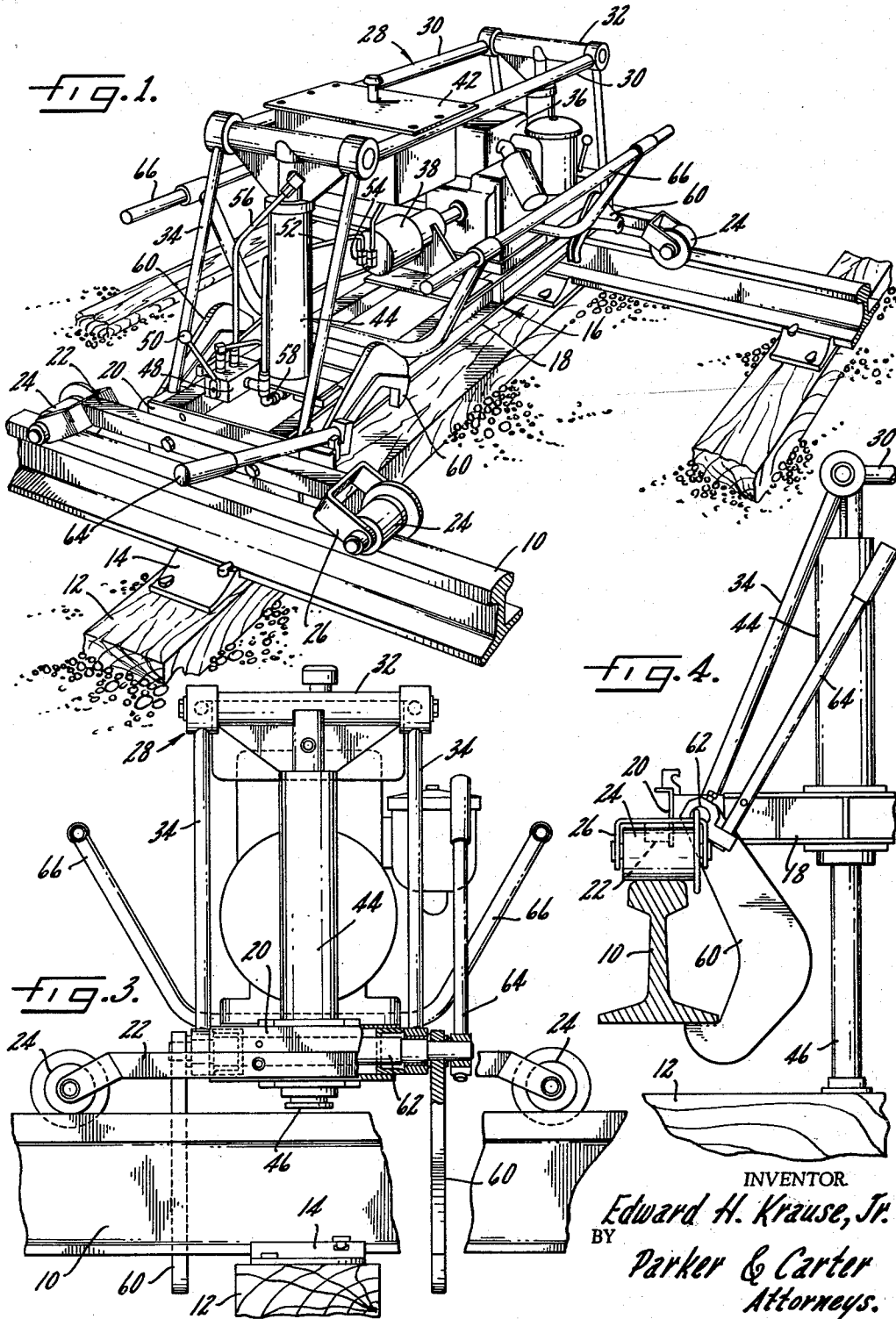
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RAIL LIFTER

Filed Feb. 25, 1963

2 Sheets-Sheet 1



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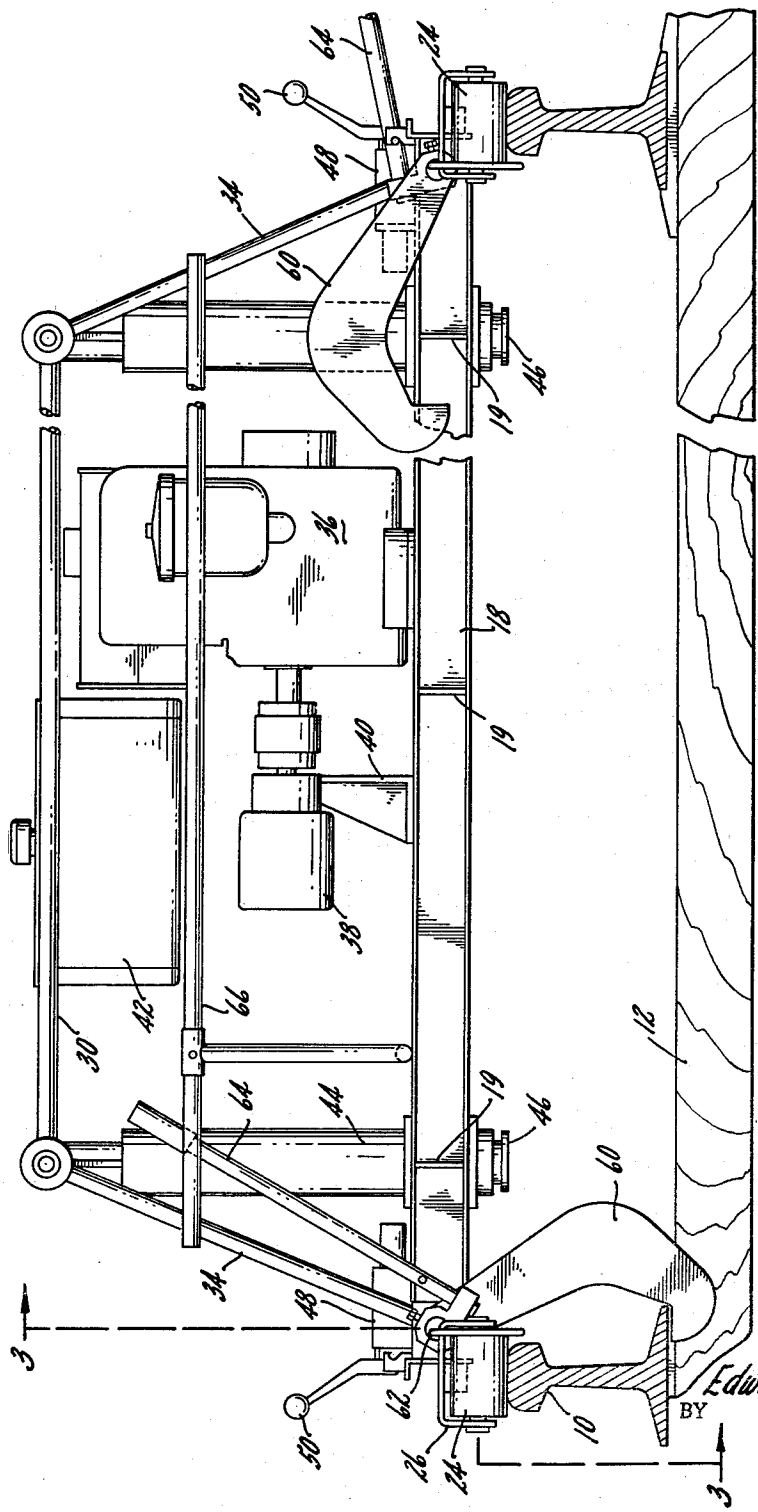


FIG. 2.

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RAIL LIFTER

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5 Claims. (Cl. 104-7)

This invention relates to a rail lifter adapted to run along a railroad track and to lift one or both rails in a stretch of track above a single tie.

A primary purpose of the invention is a rail lifter of the type described having a pair of spaced rams which are independently operable and which are positioned to apply an upthrust between a rail and the underlying tie at a position just inside of and adjacent the rail.

Another purpose is a rail lifter of the type described having means at each side for independently gripping and raising a rail.

Another purpose is a rail lifter having independently operable hooks at each side of the frame for gripping a rail.

Another purpose is a rail lifter of the type described which is adapted to grip a rail beneath the bottom flange.

Another purpose is a rail lifter of the type described which is stabilized on the rails during the lifting operation.

Another purpose is a compact portable rail lifter.

Other purposes will appear in the ensuing specification, drawings and claims.

The invention is illustrated diagrammatically in the following drawings wherein:

FIGURE 1 is a perspective view of the rail lifter positioned on a railroad track,

FIGURE 2 is a front plan view of the rail lifter, with portions of the hydraulic system removed for clarity,

FIGURE 3 is a view along plane 3-3 of FIGURE 2, and

FIGURE 4 is a partial front plan view showing a rail in the raised position.

Considering FIGURE 1, the railroad track consists of the conventional rails 10 mounted on ties 12. Tie plates 14 are used in mounting the rails on the ties.

The rail lifter includes a lower frame, indicated generally at 16, the frame having laterally extending beams 18 which span the rails and cross beams 20. Fillets 19 may be used in the frame 16. At the outside of the frame 16 and fastened to the cross beams 20 are wheel support bars 22 mounting yokes 26 and wheels 24.

An upper framework 28 may be mounted on the lower frame 16 and may include lateral cross bars 30 held together at opposite ends by rods 32, and downwardly and outwardly extending bars 34 which are fastened to the beams 18 at their outer ends.

Mounted on the frame 16 is an engine 36 which preferably is a gasoline engine. The engine 36 will drive a pump 38 mounted on a support 40. The pump 38 is a hydraulic pump which receives hydraulic fluid from a reservoir or the like 42 attached to the upper framework 28.

Positioned at opposite sides of the rail lifter and mounted on the lower frame 16 and supported by the upper frame 28 are a pair of piston and cylinder assemblies or rams 44, which preferably are hydraulic, but may be otherwise. Each of the rams 44 has a piston 46 which, upon actuation, will move downwardly and seat upon an underlying tie. The rams 44 are independently operable and there is a control valve 48 at each side of the frame, with each control valve having a manual actuating handle 50.

A pressure line 52, shown in FIGURE 1, runs from the pump 38 to each control valve 48 and a return line

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54 runs from each valve 48 back to the pump. A line 56 runs from each valve 48 to the upper end of each ram and a line 58 runs from the lower end of each ram to each valve 48. Each valve 48 is effective to supply pressure to the cylinder to move the piston 46 down or to retract it.

As illustrated particularly in FIGURES 2 and 4, there is an air of hooks 60 pivotally mounted to each side of the frame. The hooks 60 are each fixed to a rod 62 journaled in the outer ends of beams 18 and there is a manual actuating handle 64 attached to each of the rods 62. Movement of a handle 64 is effective to pivot the hooks 60 from the fully retracted position shown at the right side of FIGURE 2. The hooks 60 are adapted to grip a rail beneath the lower flange and will raise the rail, as shown in FIGURE 4, when the rams 44 are in the fully down position.

Upwardly and outwardly extending handles 66 are mounted on top of frame 16 and are used in setting the rail lifter on and off the railroad track.

The use, operation and function of the invention are as follows:

The rail lifter is designed to be manually moved over a railroad track, although it is also within the scope of the invention to make the device self-propelled. When it is desired to lift one or both rails at a particular location, the rail lifter is positioned or centered over a particular tie with the hooks being positioned outside of the tie. The hooks are pivoted downwardly until they grasp the rail on each side of the tie and beneath the rail flange. Note that the hooks are independently operated. After the hooks are in position, the ram at that side of the track is operated so that the piston moves down until it seats upon the tie. Further downward movement of the piston will result in the rail being lifted above the tie. The old tie plate may be removed and a new one placed on the tie, or in the case of new track, a tie plate may be placed on the tie. The rail at the opposite side of the track may be worked on simultaneously or after the first rail is dropped. In normal practice, there will be two operators, one on each side of the machine.

Of importance is the fact that the hooks are spaced longitudinally a distance greater than the width of a tie. In this way, the hooks may grab the rail adjacent and at each side of a tie. This also permits the hooks to grab the rail beneath the bottom flange. This is important as it permits a firmer grip of the rail.

It is important to position the wheels mounting the frame outside of the hooks. In this way, the frame is stabilized on the rails during the lifting operation. It is important to have the wheels spaced apart as far as possible to provide a good base for lifting.

By permitting the hooks to grab the rail beneath the bottom flange rather than beneath the rail head, the rail lifter can be used even over a rail joint. There are side plates at a rail joint which run up close to the rail head and there is no room for the hooks to grab the rail head at a rail joint. Along the same line, note that the hooks have a bend which extends substantially away from the rail. This again is advantageous in permitting the hooks to lift a rail at a rail joint.

Whereas the preferred form of the invention has been shown and described herein, it should be realized that there are many modifications, substitutions and alterations thereto within the scope of the following claims.

I claim:

1. In a rail lifter, a frame adapted to span the rails, wheels attached to the frame for moving it along a railroad track, a pair of spaced pivotal hooks on each side of the frame said hooks pivoting about axes above the rails, each pair of hooks being pivotal outwardly toward the rails and being spaced apart a distance greater than

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the width of a tie, manual means for independently pivoting each pair of hooks into position to grip a rail, from inside, and under the bottom flange of the rail, a pair of fluid rams mounted on the frame and positioned to apply an upthrust adjacent and inside of each rail and between each rail and the underlying tie, and means for independently operating each ram.

2. The structure of claim 1 further characterized in that there is a pair of wheels at each side of the frame, with each pair of wheels being spaced apart a distance greater than the space between hooks so that the wheels lie outside of the hooks.

3. The structure of claim 1 further characterized in that the manual means for independently pivoting each pair of hooks includes a pair of handles, pivotal on said frame, and each attached to a pair of hooks.

4. The structure of claim 1 further characterized by and including a fluid pump and drive therefor mounted on said frame, and a connection between said pump and each of said rams.

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5. The structure of claim 1 further characterized in that manual means for independently pivoting each pair of hooks are located adjacent each end of the frame, whereby an operator at either end of the frame may operate directly and manually the rail gripping means for the rail adjacent that end of the frame.

References Cited by the Examiner

UNITED STATES PATENTS

1,114,460	10/14	Fulcher	254—43
2,762,313	9/56	Sublett	104—16
3,111,908	11/63	Plasser et al.	104—7
3,119,346	1/64	Derler	104—7 X

OTHER REFERENCES

Schlipper, German application 1,021,400, printed Dec. 27, 1957 (K1. 19a 28/09).

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