

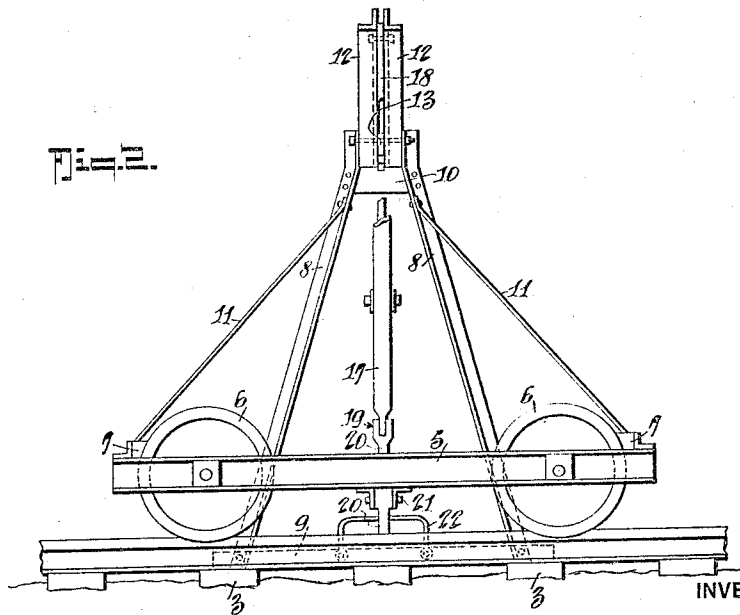
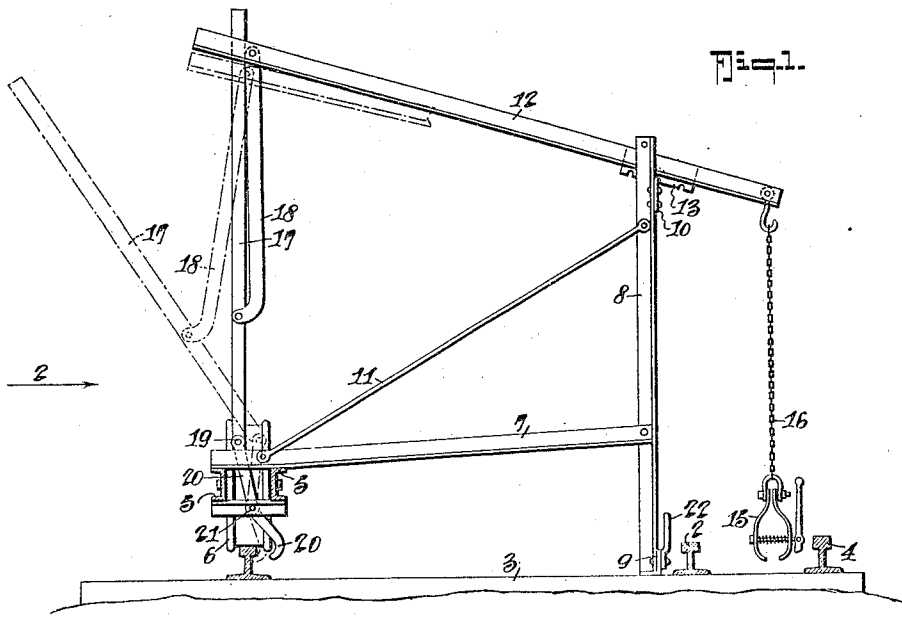
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J. FINLEY

RAIL LIFTER AND REPLACER

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RAIL LIFTER AND REPLACER.

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To all whom it may concern:

Be it known that I, JAMES FINLEY, citizen of the Dominion of Canada, residing at Vancouver, in the Province of British Columbia, Canada, have invented certain new and useful Improvements in Rail Lifters and Replacers, of which the following is a specification.

This invention relates to a railway rail relayer and is designed to remove worn rails from the ties of a track and to place the new rails in position on the ties.

The invention is particularly described in the following specification, reference being made to the drawings by which it is accompanied, in which:

Fig. 1 is a side elevation of the machine as applied across the track parts being in section.

Fig. 2 is an end elevation of the same looking in the direction of the arrow 2, a portion of the operating handle being removed.

In these drawings 2 represents the rails of the line of track to be removed from the ties 3, and 4 is the length of rail which is to replace that of 2, which rails 4 have been placed on the ties by a mechanism which forms the subject of a separate application.

The device, which is the subject of this application, comprises a frame 5 lengthwise supported on one of the rails of the track, on two double flanged wheels 6. Adjacent the other line of the track 2, which is to be removed, is an A frame composed of side members 8 secured at the lower end to a base member 9 which rests on the ties and at their upper ends connected together by a fulcrum plate 10 extending across between them.

This A frame 8, 9, 10 is supported in an upright position by members 7 extending from each opposite end of the wheeled frame 5 and secured to the lower part of each member 8 and by sway braces 11 from the end of each of the members 7 where they are secured to the frame 5 to the upper part of each member 8.

On the fulcrum plate 10 rests a notched plate 13 secured between the two angle irons which form the lower 12, one end of which lever extends approximately over the wheeled frame 5 on one line of the track and the other end of the lever projects beyond the fulcrum frame outside the other rail 2 of the track.

To the shorter end of the lever 12 a pair

of rail tongs 15 is connected by a chain 16 of such length as will enable the head of the rail 2 to be secured and the rail lifted clear of the ties by downward movement applied to the other end of the lever 12. To this end of the lever 12 a hand lever 17 is, intermediate its ends, connected by a link 18, the lever 17 being pin-connected at 19 to a lever 20 pivoted at 21 to the wheeled frame 5, the lower end of which lever is shaped to engage the underside of the rail head on which the wheeled frame 5 is mounted and hold that frame to the track rail.

It will be noted that when no rail is hanging on the chain 16 the preponderating weight of the longer part of the lever 12 from its fulcrum, is supported by the practically upright alignment of the hand lever 17 and its connecting link 18, in which position the rail engaging lever 20 is withdrawn clear of the rail. When the handle lever 17 is pulled down, as indicated by the dot and dash lines in Fig. 1, the end of the lever 12 to which it is connected by the bar 18 is also drawn down and a powerful lifting effort is exerted on the rail to which the tongs 15 is connected, and simultaneously the upper end of the lever 20 is thrown backward, as shown in Fig. 1, and the lower end is moved into holding engagement with the head of the track rail, thus checking any tendency for the weight of the rail to overbalance the structure.

In use, the machine being applied as shown in Fig. 1, to remove the existing track rail 2 and replace it with a new one 4, the spikes, which hold the rail 2 to its ties 3, and the fish plates connecting it to the adjacent rails being removed, the tongs 15 are connected to the head of the rail 2 and the hand lever 17 is drawn down to lift the rail from the ties, when it swings outward, and by lifting the handle lever 17 may be deposited somewhat in the position in which the tongs hang in the drawing.

The tongs 15 is then connected to the new rail 4, the handle 17 is drawn down and the lifted rail is moved over to the position formerly occupied by the rail 2 and the handle lever 17 is lifted to lower it there. The lifting end of the apparatus is then lifted clear of the ties by a handle 22 provided or by other suitable means, and is rolled on its wheels along the rail; it is carried on to a position opposite the middle of

the next rail, and the operation is repeated.

The work to be performed by the machine is simple and apparently trifling, but when the heavy weight of a modern long rail is considered and the difficulty of obtaining a simultaneous uniform effort of a number of men, the device is a labour saver deserving of careful attention. A gang of ten men is usually required for this work, which with this device can be done with three.

The parts 5, 7, 11, 8, 9 and 10 may be considered as a wheel mounted frame adapted to run on the rail of one line of track and including a portion projected over the other line of track.

Having now particularly described my invention, I hereby declare that what I claim as new and desire to be protected in by Letters Patent, is:

1. A rail lifting and relaying device, comprising a wheeled frame mounted to run on one line of track and including a portion projected toward but falling short of the other line of track, said projected portion having means to support it on the ties, a lever pivoted to said projecting portion of the frame and itself projected over said other line of track, means suspended from the projected end of said lever for lifting and lowering a rail connected to it, and means for gripping the frame to the track on which it is mounted and means for pulling down said lever to lift the rail and actuate said gripping means.

2. A rail lifting and relaying device, comprising a frame mounted to run on the rail of one line of track, said frame including a portion projected over the other line, means secured to said frame for supporting the projected portion from the ground, a lever pivotally mounted in the projected portion of the frame and extending over the rail mounted side of the same, a rail securing means flexibly connected to one end of said lever, a second lever pivotally mounted at one end in the frame, and means for connecting the other end of the first named lever to the second lever intermediate its ends.

3. A rail lifting and relaying device, comprising a frame mounted to run on the rail of one line of track, said frame includ-

ing a portion projected toward the other line, means connected to the frame for supporting the projected portion, a lever pivotally mounted on the projected portion of the frame and extended toward the wheel mounted side, a rail securing means flexibly connected to the end of the lever adjacent the pivot, a hand lever pivotally mounted to extend above the wheels of the frame, and means for connecting the longer end of the first named lever to the hand lever intermediate its ends.

4. A rail lifting and relaying device, comprising a frame mounted to run on the rail of one line of track, said frame including a portion projected toward the other line, means connected to the frame for supporting the projected portion, a lever pivotally mounted on the projected portion and extended toward the portion which is wheel-mounted, a rail connecting means flexibly connected to the end of said lever, means for drawing down the longer end of the rail connected lever to lift the rail clear of the track, and means co-operative with the rail lifting lever for securing the wheel-mounted end of the frame to the track rail as the lever is drawn down to lift the rail.

5. A rail lifting and relaying device, comprising a wheel-mounted frame mounted to run on one line of track, an A-frame located adjacent to the other line of track, means for supporting said A-frame from said wheel-mounted frame, a lever fulcrumed on said A-frame and extending crosswise of the line of track, tongs flexibly supporting said lever adjacent to said A-frame, a rail gripping lever carried by said wheel-mounted frame, an end lever pivoted to said rail gripping lever and linked to said first mentioned lever for the purposes described.

6. In a rail lifting and relaying device, the combination with a wheeled frame mounted to run on a track, a rail lifting lever with means to engage and lift a rail, and a track engaging lever, of an operating means connected to each of said levers to simultaneously operate both of them.

In testimony whereof I affix my signature.

JAMES FINLEY.