G. J. BURY.

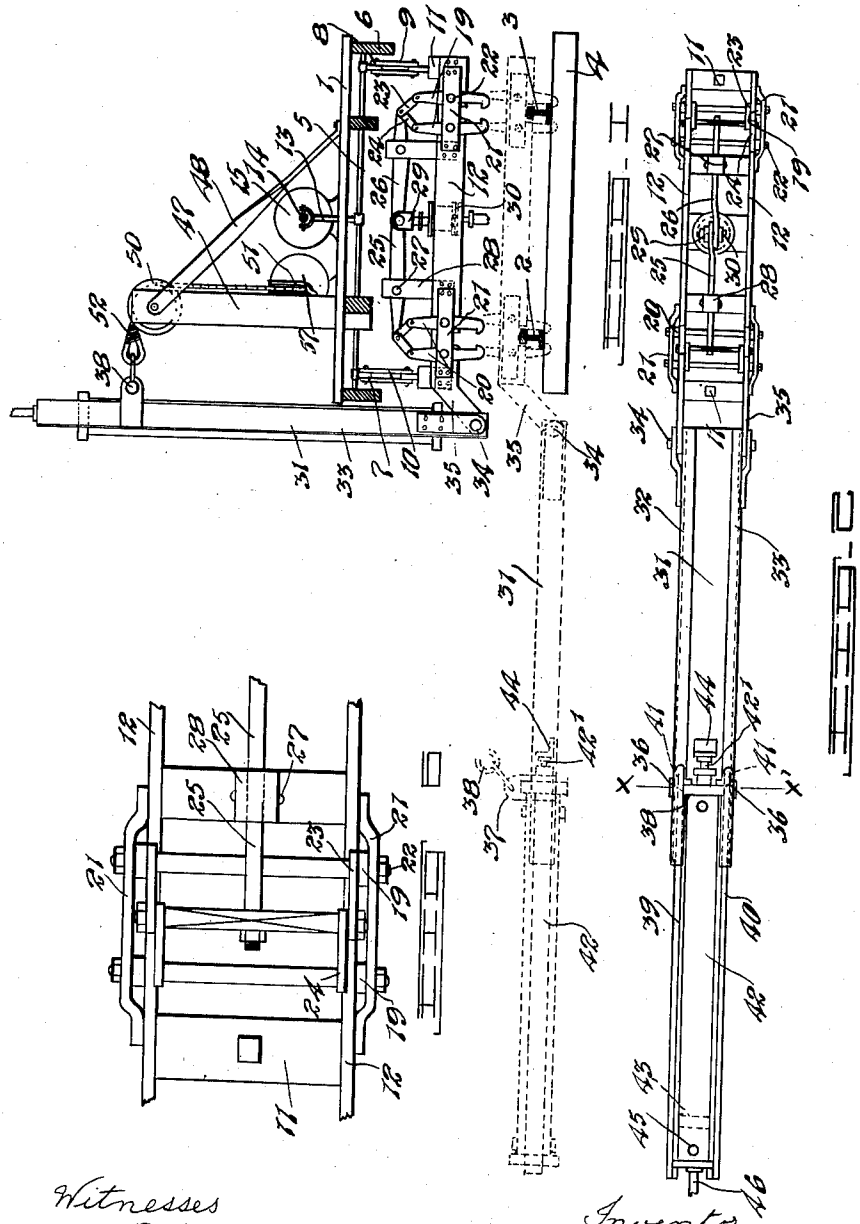
MACHINE FOR REMOVING AND REPLACING TRACK TIES.

APPLICATION FILED SEPT. 28, 1911.

1,034,072.

Patented July 30, 1912.

2 SHEETS—SHEET 1.



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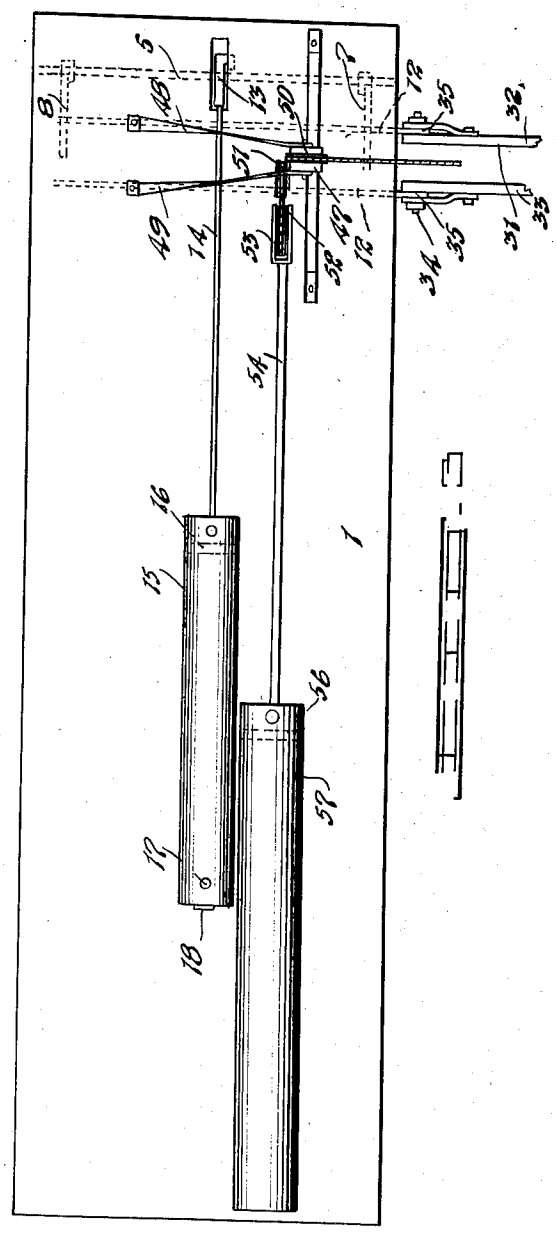

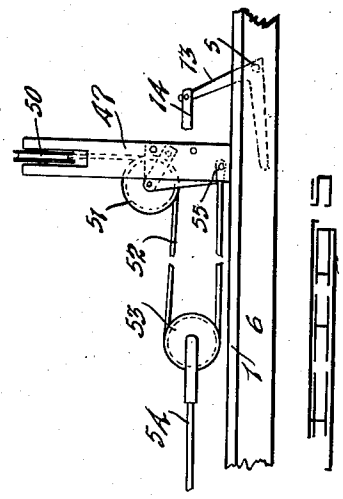

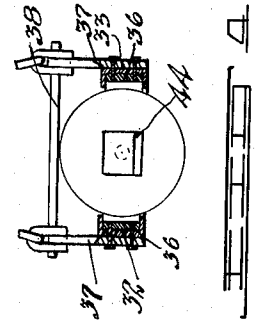

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UNITED STATES PATENT OFFICE.

GEORGE JOSEPH BURY, OF WINNIPEG, MANITOBA, CANADA.

MACHINE FOR REMOVING AND REPLACING TRACK-TIES.

1,034,072. Specification of Letters Patent. Patented July 30, 1912.

Application filed September 28, 1911. Serial No. 651,850.

To all whom it may concern:

Be it known that I, GEORGE JOSEPH BURY, of the city of Winnipeg, in the Province of Manitoba, Canada, have invented certain new and useful Improvements in Machines for Removing and Replacing Track-Ties, of which the following is the specification.

My invention relates to a machine for removing and replacing track ties, and the object of the invention is to provide a machine of the above class which can be quickly and effectively operated when in use, the device being carried, on what is commonly called, "a flat car".

It consists essentially in a suitably supported platform, pivoted gripping jaws located beneath the platform and movable toward and away from the same, means for controlling the movement of the jaws, a swingable arm located to the side of the platform, a reciprocating rod carried by the arm, means for reciprocating the rod and means for raising or lowering the arm, the parts being arranged and constructed as hereinafter more particularly described.

Figure 1 is an end elevation of the device showing it in the inoperative and then in the operative position, the latter position being dotted. Fig. 2 is a plan view of the parts appearing beneath the platform, the arm being down. Fig. 3 is a plan view of the platform and parts located thereon. Fig. 4 is an enlarged detail cross sectional view through the arm and cylinder carried thereby, the section being taken in the plane denoted by the line X X′, Fig. 2. Fig. 5 is an enlarged detailed side elevation of part of the apparatus employed for raising or lowering the arm. Fig. 6 is an enlarged detailed plan view of the arm located at the side of the platform and the head of the cylinder carried thereby.

In the drawings like characters of reference indicate corresponding parts in each figure.

1 represents a platform such as the ordinary platform of a box car, which platform is supported above the rails 2 and 3 by suitable car trucks, (not shown) of the ordinary form. The rails 2 and 3 are supported on the ties or sleepers 4.

5 is a cross shaft mounted in suitable bearings formed in the platform beams 6. The shaft carries arms 7 and 8 which are connected through sets of links 9 and 10 with end blocks 11 which space and connect opposing horizontally directed bars 12. A lever 13 passes upwardly from the shaft 5 and is connected by a pin to a reciprocating piston rod 14 passing into a cylinder 15 and supplied with a piston 16. The cylinder is fitted with inlet and outlet ports 17 and 18 of any suitable design so that air or steam can be led into and away from the cylinder to reciprocate the piston backwardly and forwardly within the cylinder as desired. The bars 12 carry pairs of gripping jaws 19 and 20 held in place by straps 21 and pins 22 and connected at their upper ends by links 23 and 24 to common rocker arms 25 and 26, said arms being swung on pins 27 carried by standards 28 extending upwardly from the bars. The approaching ends of the rocker arms are connected to the upper end of the piston rod 29 which operates in the cylinder 30, which cylinder is supplied with inlet and outlet ports to allow of the admission of steam or air as the case may be.

31 is an arm formed from channel iron members 32 and 33 swingably secured at their inner ends by means of pins 34 to the extending ends 35 of the bars 12. Stops 36 are located in the channel iron pieces toward the outer ends thereof and are bolted through such pieces to plates 37, which plates are united by a cross rod 38 which prevents the ends of the channel iron pieces from spreading.

39 and 40 are similar bars slidable within the channel iron pieces and having their inner ends turned backwardly on themselves at 41 so as to engage with the stop pieces and prevent the bars from being withdrawn endwise from the arm 31. A cylinder 42 is permanently secured to the bars 39 and 40 and is supplied with a piston rod 42^1 and piston 43. The piston rod carries a head 44 of angle iron cross section, which head is adapted to receive and support the end of the tie as will be better understood hereinafter. Inlet and outlet ports 45 and 46 are supplied at the ends of the latter cylinder to allow steam or air to be led to or away from the cylinder so that the piston can be reciprocated as desired backwardly or forwardly.

47 is a post carried by the platform and suitably reinforced by braces 48 and 49. The post carries pulleys 50 and 51 located at right angles to each other, and a cable 52 passes from the cross rod 38 over the pulley 50 around the pulley 51 to a pulley 53 car-

ried by the extending end of the piston rod 54 where it returns to the base of the post and is anchored at 55. The piston rod 54 is supplied with a piston 56 which operates in a cylinder 57 in turn supplied with inlet and outlet ports which allow steam or air to pass into or out of said cylinder as desired to reciprocate the piston rod.

It is to be understood of course that the flat car is drawn along the track by the usual railroad engine and that the steam or air used in the cylinders is supplied from the engine. I have not considered it necessary to give a detailed description of this particular part nor of the particular manner in which the pipe lines are connected to the respective cylinders as such connections are very common and could be fitted very readily by any ordinary mechanic.

When the device is used the car is moved along the track to the point where the tie that is to be removed is located. Steam or air is then admitted to the cylinder 15 to draw the piston rod so as to swing the arms 9 and 10 downwardly. This lowers the gripping jaws so that they grip the rails of the track immediately at the sides of the tie that is to be removed, and the steam or air is then led into the outer end of the cylinder and the piston rod is forced in the opposite direction so that the bars carrying the gripping jaws are raised to release the rails from the tie. The piston rod 54 is next forced out to its outer position thereby allowing the arm 31 to swing downwardly to the horizontal position. The new tie to be placed beneath the track is inserted between the head 44 and the end of the old tie and air or steam is then forced into the outer end of the cylinder 42 causing the piston rod to pass toward the track. The new tie forces the old tie from beneath the track and takes its place. The piston is then drawn back into the cylinder by admitting steam to the opposite end thereof and the gripping jaws are released from the rail by allowing steam or air to pass into the cylinder 30 to draw the adjoining ends of the rocker arms 25 and 26 downwardly. The machine is then ready to advance to the next position where it is necessary to remove a tie and the operation is continued.

It might be found necessary owing to obstructions to raise the arm when the machine is removed from one place to another, and this is done simply by withdrawing the piston rod 54 which tightens up the cable 52 and raise the arm to the position shown in full lines in Fig. 1 of the drawings.

What I claim as my invention is:

1. The combination with a car platform mounted on the usual rails, of jaws carried by the platform and adapted to grip the rails, means for raising and lowering the jaws, a swiveled arm carried by the platform and located to the side of the rails, and means carried by the arm and adapted to be advanced toward the rails, as and for the purpose specified.

2. The combination with a car platform mounted on suitable track rails, of adjustable means located beneath the platform and above the rails, jaws carried by the adjustable means, and adapted to grip the track rails, an arm pivotally secured to the adjustable means, and means carried by the arm adapted to be advanced toward the rails from the side, as and for the purpose specified.

3. The combination with a car platform mounted upon suitable track rails, and ties supporting the rails, of adjustable means located between the rails and the platform, said means being adjustable toward and away from the rails, gripping means pivotally secured to the adjustable means and adapted to grasp the rails when the adjustable means is lowered toward the same, an arm pivotally secured to the adjustable means and contained within a vertical plane at right angles to the rails, and means carried by the arm adapted to advance toward the rails, as and for the purpose specified.

4. The combination with a car platform supported upon suitable track rails, and ties supporting the rails, of means carried by the platform adapted to grip and ease the rails from any one of the supporting ties, and means adapted to displace the above specified tie beneath the tracks by forcing it endwise, as and for the purpose specified.

5. The combination with a car platform mounted upon suitable track rails, and ties supporting the rails, of means carried by the platform adapted to grip and raise the rails from the tie, and means located at right angles to the track rails adapted to remove the said tie from beneath the rails by end displacement, as and for the purpose specified.

6. The combination with a car platform mounted on suitable track rails, and ties supporting the rails, of a cross shaft mounted beneath the platform, arms extending from the shaft, a set of bars dependent from the arms, means for turning the shaft, gripping jaws pivotally secured to the bars in pairs, said jaws being designed to grip the rails when the bars are lowered toward the same, an arm pivotally secured to the bars, adjustable means for supporting the arm, and a reciprocating rod carried by the arm and provided with a head adapted to receive the end of a tie, as and for the purpose specified.

7. The combination with a car platform mounted on suitable car tracks and ties supporting the tracks, of a cross shaft rotatably mounted beneath the platform, arms extending from the shaft, links secured to

the arms, united cross bars carried by the links, opposing sets of jaws secured to the bars and located directly above the rails in pairs, means controlling the movement of the pairs of jaws toward or away from each other, an arm pivotally secured to the bars, a movable rod carried by the arms and provided with a head, means for reciprocating the rod backwardly and forwardly and means for raising the arm, as and for the purpose specified.

8. The combination with a car platform mounted on track rails, and ties supporting the rails, of a cross rod rotatably mounted beneath the platform, a lever extending upwardly through the platform, means for swinging the lever backwardly and forwardly as desired, arms extending from the shaft, links connected to the arm, opposing connected bars carried by the lower ends of the links, opposing pairs of jaws pivotally secured to the bars and located immediately above the rails, links connecting the upper ends of each pair of jaws, rocker arms connected to the latter links, means for swinging the free ends of the rocker arms upwardly or downwardly as desired, an arm comprising opposing channel iron members pivotally secured to the bars aforesaid, a cylinder carried slidably by the channel iron members, stops preventing the escape of the cylinder from the arms, a piston within the cylinder, a piston rod extending from the piston beyond the cylinder, a head fixed on the outer end of the piston rod, means for reciprocating the piston rod, and means for raising the arm, as and for the purpose specified.

9. The combination with a car frame mounted on suitable track rails, of adjustable means located between the rails and the platform, such means being carried by the platform, an arm pivotally secured to the adjustable means, an upright post carried by the platform, an upper and a lower pulley secured to the post and located at right angles the one to the other, a cylinder located on the platform, a reciprocating rod operating within the cylinder, a pulley mounted on the rod and a cable extending from the arm over the pulley at the top of the post under the pulley at the bottom of the post and around the pulley carried by the rod, such cable terminating at the base of the post, as and for the purpose specified.

GEORGE JOSEPH BURY.

In the presence of—
C. E. STOCKDILL,
C. F. MARTIN.