Jan. 21, 1930. C. W. GALLOWAY 1,744,540

MOTOR WRENCH

Filed April 12, 1929 3 Sheets-Sheet 1

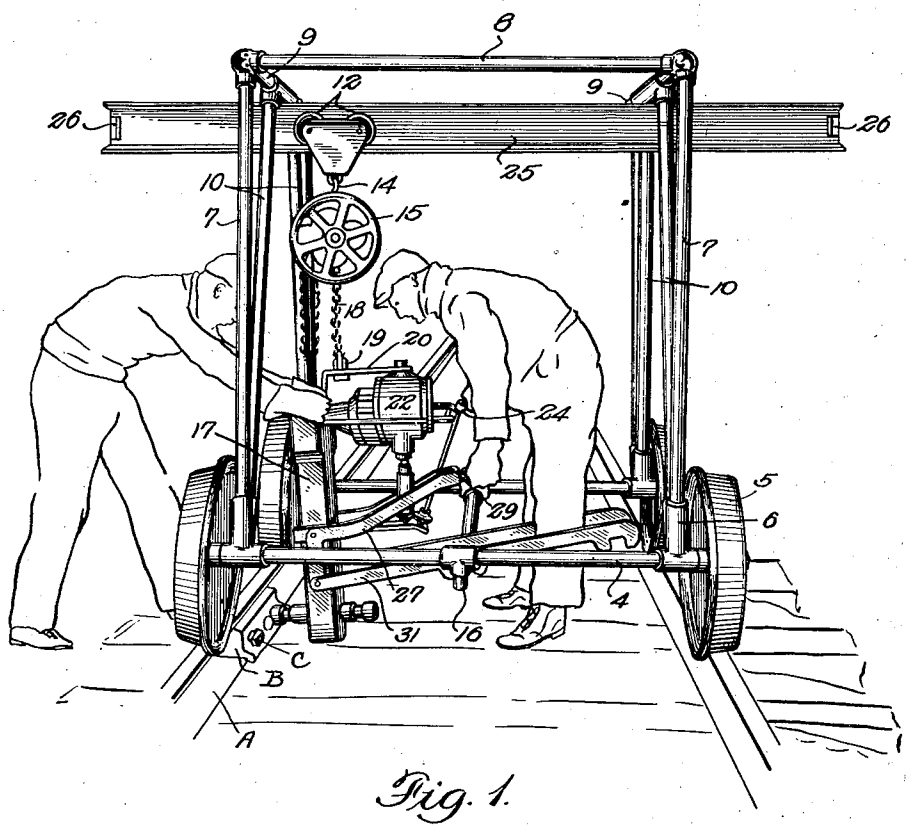


Fig. 1.

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MOTOR WRENCH

Filed April 12, 1929 3 Sheets-Sheet 2

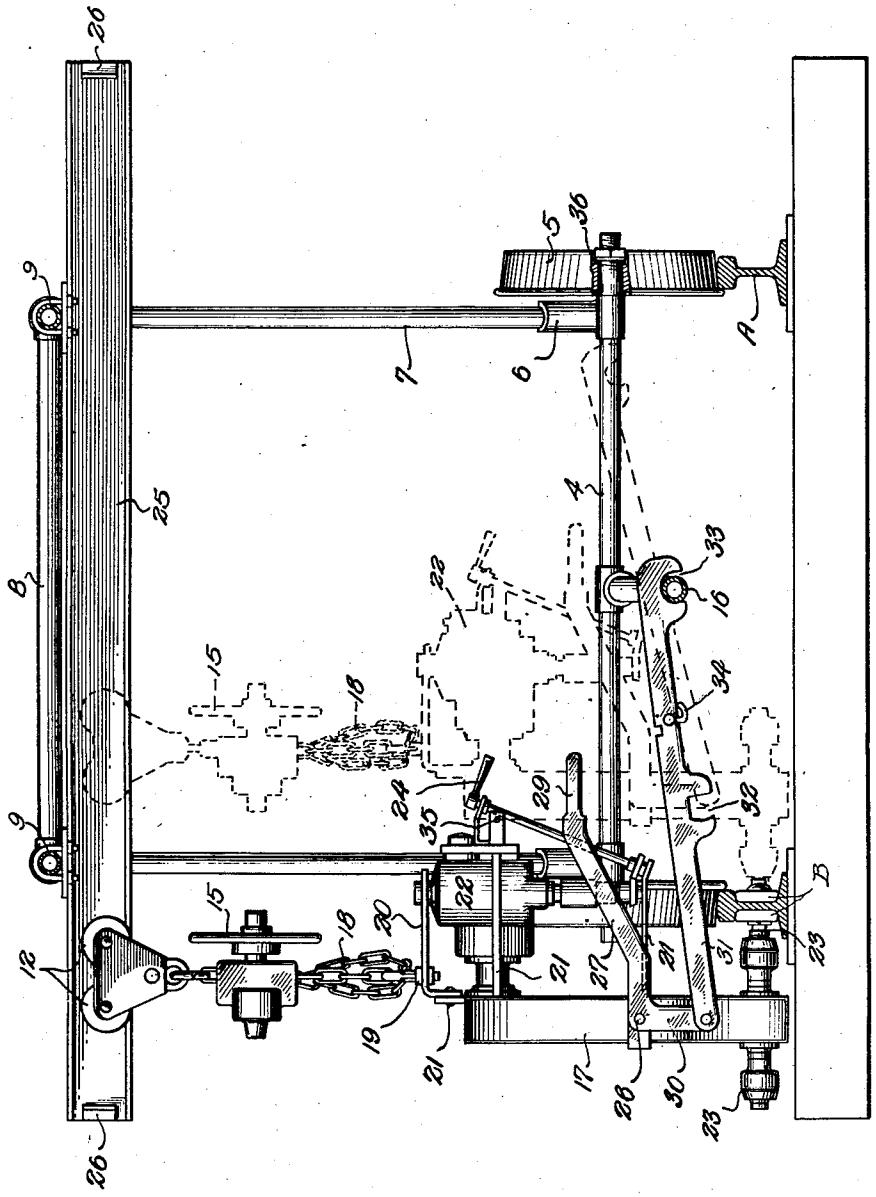


Fig. 2.

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Filed April 12, 1929 3 Sheets-Sheet 3

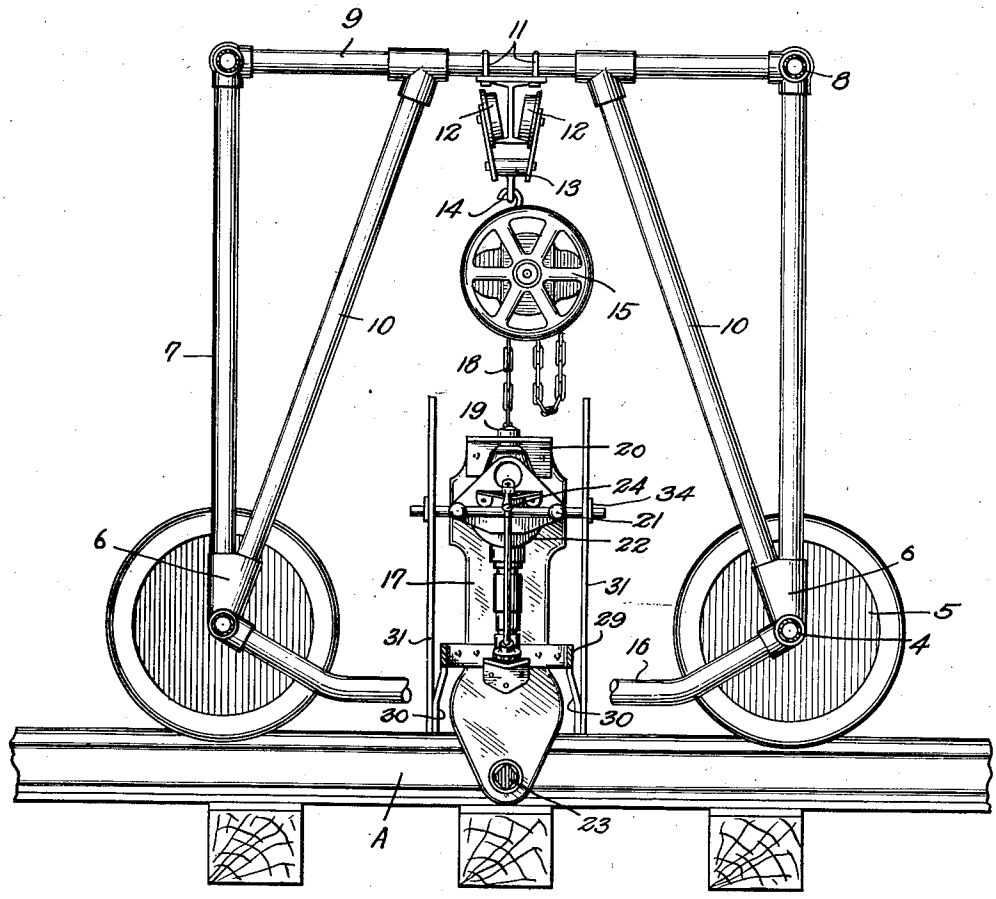


Fig. 3.

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Patented Jan. 21, 1930 1,744,540

UNITED STATES PATENT OFFICE

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MOTOR WRENCH

Application filed April 12, 1929. Serial No. 354,652.

A motor wrench for applying, adjusting and removing nuts on bolts used in rail joint, angle bars, where rail joints are spliced together is a labor saving device over the present method of using an open end hand wrench.

The old standard nut and lock washer used on rail joints has been superseded by a lock nut having distorted threads which require a wrench for application from the time it is started on the bolt until it is brought in contact with surfaces it is to secure; nuts become corroded and are so tight they cannot be removed with a hand wrench, and it is necessary to split the nuts with a chisel and maul, or burn them off with a torch.

The primary object of my invention is to reduce the labor costs of applying and removing nuts, and to provide means whereby the wrench may be applied to either side of the rail and to both rails of a railroad trackway; and with these and other objects in view, my invention consists of the parts and comibnation of parts hereinafter set out.

In the drawings:

Figure 1 is a perspective view of my improved motor wrench in operative position on railroad rails.

Figure 2 is an enlarged end elevation of Figure 1 showing the motor wrench in dotted lines in shifted position.

Figure 3 is a vertical central section of my wrench.

The reference letter A designates railway rails, B angle bars, and C bolts and nuts of standard construction.

The frame constituting a part of my motor wrench comprises axles 4 on which are journaled wheels 5 adapted to run on the rails A. T couplings 6 are secured to the axles 4 near each wheel into each of which is secured a standard 7, the standards being connected together at the top by spacing members 8 and 9. Braces 10 are connected at one end to the couplings 6, and at their upper ends to the side members 9, thereby bracing the side members 9 from the axles 4. Suspended by the straps 11 is an I beam 25 extending transversely of the machine, upon the lower flanges of which are mounted rollers 12 which support a carriage 13 having a depending eye 14 in which a chain hoist 15 of approved construction is suspended. A strut 16 is secured at each end to the axles 4 and is disposed at right angles thereto and deflected downwardly intermediate its ends as shown in Figure 3.

The wrench operating mechanism comprising a train of gears (not shown) is suitably mounted in the casing 17 which is connected to and suspended from the chain 18 of the hoist 15 by means of a swivel 19 mounted on a bar 20 bolted at 21 to the housing 17. A suitable motor 22 is also connected to the bar 20, there being additional bars 21 connecting the motor and housing as a unit. Extending from the gear housing 17 at the bottom are nut wrenches 23, mounted on a common shaft geared with the train of gears in the housing. The motor has a suitable control 24 conveniently positioned for the operator. The I beam 25 is provided with stops 26 at each end to prevent the rollers 12 from accidentally rolling off the ends thereof.

A crank arm 27 is pivotally mounted at 28 on the gear housing 17 with its handle 29 positioned near the motor control 24. To the shorter arm 30 of the lever, or arm 27, I pivotally secure the outer end of locking bar 31, which is provided with notches 32, 33, adapted to engage the strut 16 as shown in Figure 2 for holding the wrench in position on the units C. This bar 31 is provided with a suspension hook 34 adapted to engage the rod 35 to hold the bar in elevated position when the machine is moved from place to place. The machine may be provided with a propelling motor or may be coupled to a motor car for quick transportation from one point to another.

In the regular practice in rail splices the heads of the bolts alternate, that is to say, the head of the first bolt is on the outside of the rail and the head of the next bolt on the inside of the rail, and so on throughout the splice.

As shown in Figure 2 in full lines, the wrench nut socket 23 is operating on a nut on the outside of the rail, the operator

through the lever 27, and the connection of the bar 31 to the strut, holding the wrench snug against the nut. Now when the nut of the next succeeding bolt is to be operated upon the housing 17 and associated parts are elevated above the top of the rail by means of the chain hoist 15, and the hoist and housing are then moved on the rollers 12 to the position shown in dotted lines in Figure 2 and full lines in Figure 2, whereupon the wrench is lowered to enable the socket 23 to engage the nut. This shifting of the wrench is repeated until all the nuts of a splice bar have been properly tightened, whereupon the hoist 15, housing 17, and associated parts are moved on the beam 25 and rollers 12 to the opposite rail A, and the operations repeated on the nuts of the splice of that rail, after which the whole machine is propelled along the rails to the next splice. When the wrench sockets 23 are operating on the inside of the rail the notch 32 of the bar 31 engages the strut 16 as shown in dotted lines in Figure 2.

The wheels 5 are provided with a fibre bushing 36 to insulate the machine from the track to avoid the possibility of the machine operating the track signals as it moves along the rails.

It is obvious that changes may be made in the details of construction without departing from the spirit of my invention and the scope of the appended claims.

What I claim is:

1. In a wrench for operating upon railway track rails each having splice bars with a plurality of bolts provided with nuts on opposite sides of the rail, the combination with a support movable on the railway rails, of a power operated wrench comprising a housing carrying a pair of nut engaging wrenches respectively projecting from opposite sides thereof for respective engagement with the nuts on the inside and outside of a rail, flexible means movable on said support and suspending said wrench from the support whereby the wrench may be moved from side to side of the track to act upon the rail at either side and to be disposed on the inside or outside of either rail to bring the one or the other of said nut engaging wrenches for engagement with the inside or outside nuts of the splice bars of the rail, a locking member on the support, a locking member projecting beyond one side of the wrench housing for engagement with the locking member on the support to lock the wrench in working position on either side of a rail, and a swivel joint between the wrench and its suspending means whereby said wrench may be reversed side for side when shifted from one side to the other of the track to dispose said locking member on the housing, when the latter is disposed at either side of the track, for a locking coaction with the locking member on the support.

2. In a wrench for operating upon railway track rails each having splice bars with a plurality of bolts provided with nuts on opposite sides of the rail, the combination with a wheeled support movable on the railway rails, of a transverse I-beam mounted on said support and having its ends extended equidistantly beyond the sides of the support so as to project beyond the track rails, a power operated wrench comprising a housing carrying a pair of nut engaging wrenches respectively projecting from opposite sides thereof for respective engagement with the nuts on the inside and outside of a rail, suspension means embodying a wheeled carriage mounted to travel upon the lower flanges of the I-beam and suspending the wrench therefrom, whereby the wrench may be moved from side to side of the track to act upon the rail at either side and to be disposed on the inside or outside of either rail to bring the one or the other of said nut engaging wrenches for engagement with the inside or outside nuts of the splice bars of the rail, a locking member on the support, a locking member projecting beyond one side of the wrench housing for engagement with the locking member on the support to lock the wrench in working position on either side of a rail, and a swivel joint between the wrench and its suspending means whereby said wrench may be reversed side for side when shifted from one side to the other of the track to dispose said locking member on the housing, when the latter is disposed at either side of the track, for a locking coaction with the locking member on the support.

3. In a wrench for operating upon railway track rails each having splice bars with a plurality of bolts provided with nuts on opposite sides of the rail, the combination with a support movable on the railway rails, of a power operated wrench comprising a housing carrying a pair of nut engaging wrenches respectively projecting from opposite sides thereof for respective engagement with the nuts on the inside and outside of a rail, flexible means movable on said support and suspending said wrench from the support whereby the wrench may be moved from side to side of the track to act upon the rail at either side and to be disposed on the inside or outside of either rail to bring the one or the other of said nut engaging wrenches for engagement with the inside or outside nuts of the splice bars of the rail, a longitudinally extending stationary locking bar on the support, a manually operable crank lever pivoted to and projecting beyond one side of the wrench housing, a locking bar pivoted to said lever and slidable on the stationary locking bar on the support and provided with spaced notches to engage said station-

ary locking bar for respectively locking the wrench in its inside and outside locking positions with respect to a rail, and a swivel joint between the housing and its suspending means whereby the wrench may be reversed side for side when shifted from one side to the other of the track to dispose the locking bar on the housing, when the housing is at either side of the track, for engagement with the stationary locking bar on the support.

In testimony whereof I affix my signature.

CHARLES W. GALLOWAY.