E. P. TABOR.

RAIL GRINDER.

APPLICATION FILED DEC. 7, 1918.

1,340,991.

Patented May 25, 1920.

2 SHEETS—SHEET 1.

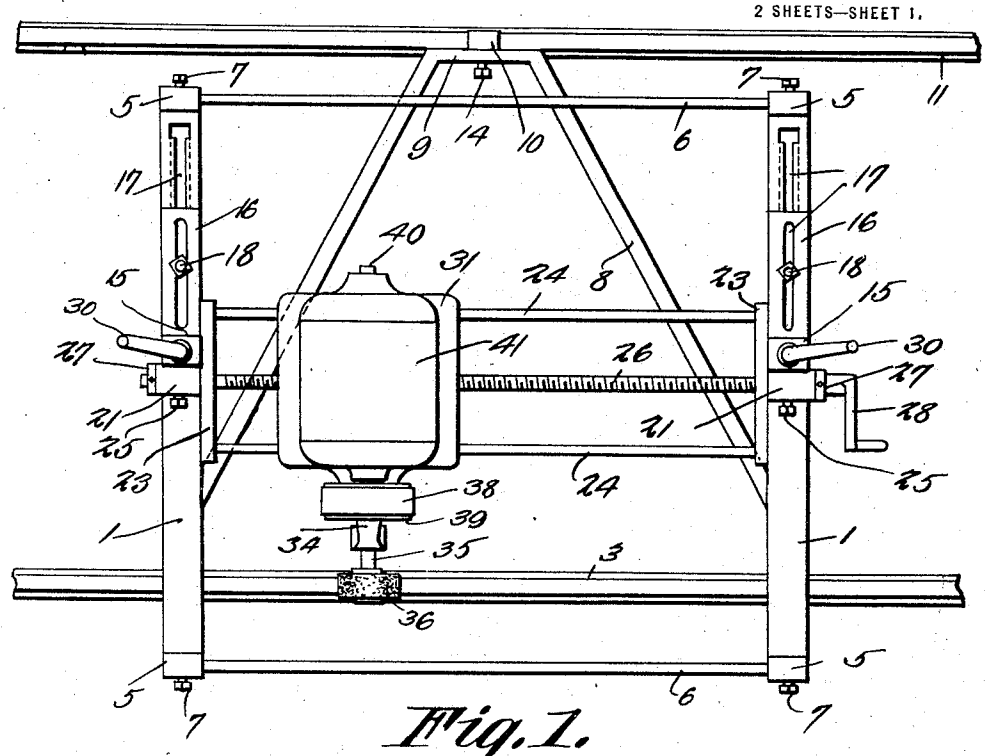


Fig. 1.

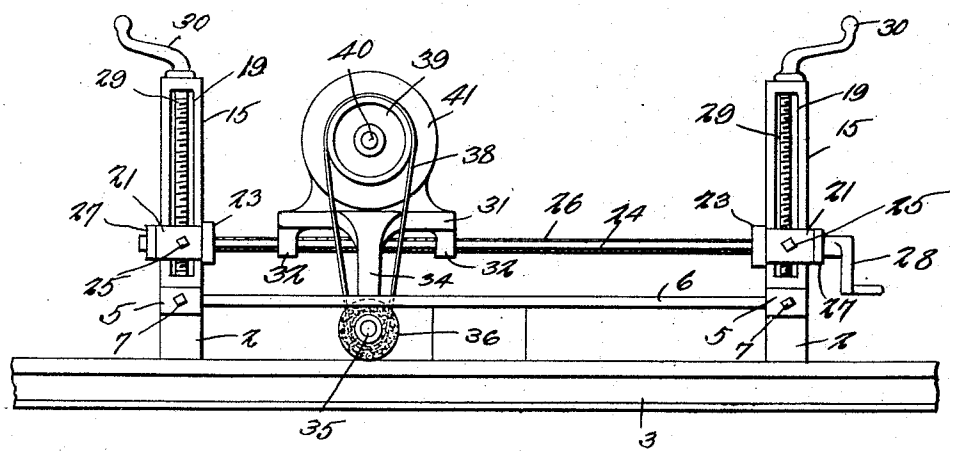


Fig. 2.

Witness

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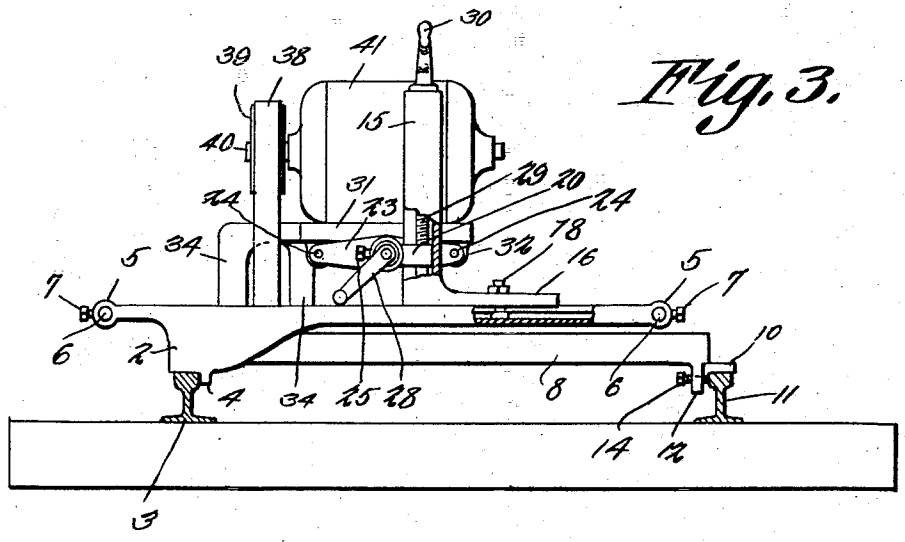


Fig. 3.

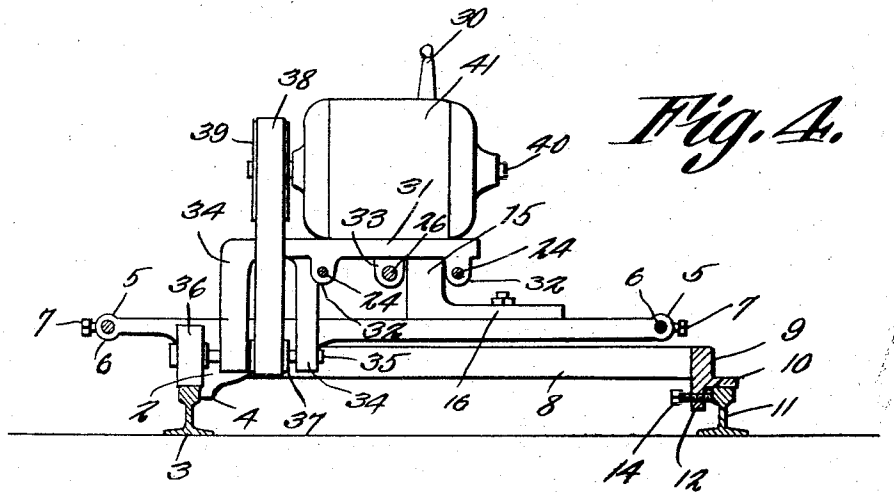


Fig. 4.

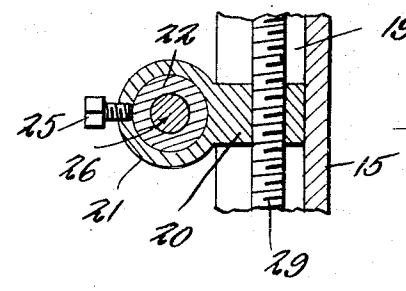


Fig. 5.

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UNITED STATES PATENT OFFICE.

EDWARD P. TABOR, OF WORCESTER, MASSACHUSETTS, ASSIGNOR OF ONE-FOURTH TO JAMES J. EGAN, OF WORCESTER, MASSACHUSETTS.

RAIL-GRINDER.

1,340,991. Specification of Letters Patent. Patented May 25, 1920.

Application filed December 7, 1918. Serial No. 265,711.

To all whom it may concern:

Be it known that I, EDWARD P. TABOR, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Rail-Grinder, of which the following is a specification.

The device forming the subject matter of this application is adapted to be employed for grinding the rails of a railroad track, for grinding frogs and for like purposes.

One object of the invention is to provide a device of the kind mentioned which may be secured to the track, thereby avoiding the disadvantages incident to the use of a wheel-mounted carriage which moves along the track, it having been found that such a carriage, following the irregularities of the track, causes the grinding wheel to gouge and to operate otherwise, in an improper way.

Another object of the invention is to provide novel means whereby the grinding wheel may be moved and adjusted with respect to the element which is being ground.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the present invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that, within the scope of what is claimed, changes in the precise embodiment of the invention shown can be made without departing from the spirit of the invention.

In the accompanying drawings:—

Figure 1 shows in top plan, a device constructed in accordance with the invention; Fig. 2 is a side elevation; Fig. 3 is an end elevation wherein parts are broken away; Fig. 4 is a cross section; and Fig. 5 is a fragmental vertical section showing one of the standards, and parts carried thereby.

In carrying out the invention there is provided a main frame including side bars 1 provided intermediate their ends with depending feet 2 adapted to rest on a rail 3, the feet 2 having lugs 4 which engage the inner edge of the rail. The side bars 1 are supplied at their ends with sockets 5 in which rods 6 are mounted, the rods being held in place by set screws 7 threaded into the sockets and engaging the rods. Intermediate their ends, the side bars 1 of the main frame are connected by a V-shaped brace 8 having a flat end 9 provided with an outstanding lip 10 adapted to rest on a rail 11, and provided with a depending ear 12, located inside the rail. A set screw 14 is threaded in the ear 12 and engages the rail 11.

Standards 15 are adjustable on the side bars 1, longitudinally of the side bars, the standards having elongated feet 16 resting slidably on the side bars, the feet 16 and the side bars being supplied with elongated slots 17, receiving clamp bolts 18, the construction being such that the standards may be adjusted longitudinally of the side bars 1, and be held in adjusted positions on the side bars. The standards 15 are supplied with vertical guides 19, wherein slides 20 reciprocate. Screws 29 are held for rotation but against longitudinal movement in the standards 15, the screws 29 being operated by means of cranks 30 or in any other suitable way. The screws 29 are threaded into the slides 20 and obviously, when the screws 29 are rotated, the slides 20 will be raised and lowered. The slides 20 include bearings 21 in which are journaled for rocking movement, hollow trunnions 22 constituting a part of an auxiliary frame, the auxiliary frame including end bars 23 carrying the hollow trunnion 22, and side bars 24 connecting the end bars 23. Set screws 25 are threaded into bearings 21 and engage the hollow trunnions 22 of the auxiliary frame. Consequently, the auxiliary frame may be tilted at any desired angle with respect to the horizontal, and may be held in any position to which it may have been tilted. A lead screw 26 is journaled for rotation in the hollow trunnions 22 and is held against longitudinal movement by means of collars 27, coacting with the outer ends of the bearings 21, the lead screw being operated by means of a crank 28.

The numeral 31 marks a carriage having lugs 32 mounted to slide on the side bars 24 of the auxiliary frame. The carriage 31 has a depending lug 33, into which the lead screw 26 is threaded. Hangers 34 depend from the carriage 31, a shaft 35 being journaled in the hangers. A grinding wheel 36 is fixed to the shaft 35, for rotation therewith. The shaft 35 is supplied with a pul-

ley 37, about which is trained a belt 38, engaging a pulley 39 on the shaft 40 of a motor 41 mounted on the carriage 31. The motor 41, preferably is driven electrically.

In practical operation, the main frame is mounted on the rails 3 and 11 as shown in Fig. 3, the lug 4 engaging the rail 3, the lip 10 resting on the rail 11, and the set screw 14 being advanced, so as to bear against the inner edge of the rail 11. In this way, the main frame is held securely on the rails. By loosening the clamp bolts 18, the standards 15 may be shifted longitudinally of the side bars 1 of the main frame so as to position the grinding wheel 36 above the rail 3 which is to be ground, the clamp bolts 18 being then tightened up, to hold the standards 15 in the positions to which they have been adjusted. The screws 29 may be rotated, and, because the said screws are threaded into the slides 20 of the auxiliary frame, the auxiliary frame, together with the grinding wheel 36 may be raised and lowered thereby adjusting the position of the grinding wheel with respect to the rail 3 which is to be ground. Further, by loosening the set screws 25, the hollow trunnions 22 of the auxiliary frame may be permitted to rock in the bearings 21 of the slides 20, and in this way, the auxiliary frame may be positioned at different angles with respect to the horizontal, the position of the working face of the grinding wheel 36 with respect to the rail being altered accordingly. The auxiliary frame may be held in any position to which it may have been tilted by tightening up the set screws 25. After the machine has been adjusted and placed as aforesaid, the lead screw 26 is rotated by means of the crank 28, the carriage 31 being moved longitudinally of the side bars 24 of the auxiliary frame, and the grinding wheel 36 being made to traverse the rail which is to be ground. Rotation is of course imparted to the grinding wheel 36 from the motor 41 by means of the shaft 40, the pulley 39, the belt 38, the pulley 37 and the shaft 35.

In addition to the advantages arising out of the various adjustments which are possible in the machine, it is to be observed that the main frame may be clamped securely to the rails 3 and 11, the carriage being reciprocated until the desired area has been ground or surfaced. In devices of this kind, wherein a carriage moves bodily along the rails of the track, the wheels of the carriage necessarily follow the vertical irregularities of the rails and the grinding wheel participates in the vertical movement, a gouging of the rail resulting. Since the structure forming the subject matter of this application includes a fixed frame, it is clear that the disadvantages arising out of the use of a wheel-mounted carriage will be avoided.

Having thus described the invention, what is claimed is:—

1. In a device for grinding railroad track rails *in situ*, a frame; a lead screw carried thereby; a carriage actuated by the lead screw; an auxiliary frame whereon the carriage slides; means for mounting the auxiliary frame for transverse tilting movement on an axis coinciding with the axis of the lead screw; and grinding means mounted on the carriage.

2. In a device for grinding railroad track rails *in situ*, a main frame; standards adjustable transversely of the main frame; means for holding the standards in adjusted positions on the main frame; an auxiliary frame; means for mounting the auxiliary frame for tilting movement; mechanism assembled with the standards and with the last specified means for raising said means and the auxiliary frame; a carriage mounted to reciprocate on the auxiliary frame; a grinding element mounted on the carriage; and means on the carriage for operating the grinding element.

3. In a device for grinding railroad track rails *in situ*, a main frame; an auxiliary frame mounted on the main frame to tilt transversely of the rails; means for adjusting the auxiliary frame toward and away from the rail to be ground and transversely thereof; a carriage mounted to reciprocate on the auxiliary frame, longitudinally of the rail to be ground; a grinding element assembled with the carriage; means for operating the grinding element; and means for reciprocating the carriage.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

EDWARD P. TABOR.

Witnesses:

CHESTER F. BAVIS,

ICRACE B. VENY.