Dec. 13, 1932. H. PERAZZOLI 1,891,173

RAILWAY TRACK GRINDER

Filed Feb. 18, 1931 3 Sheets-Sheet 1

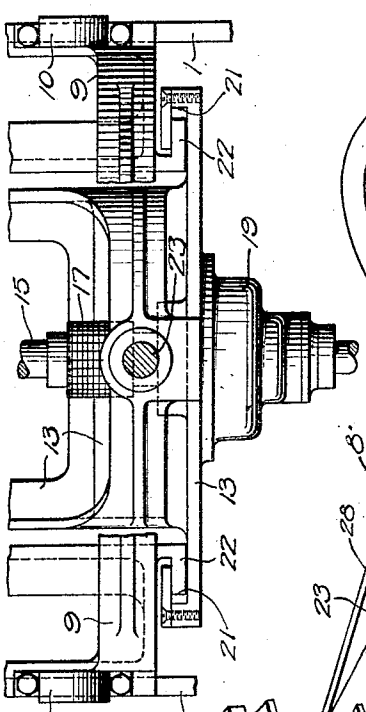


Fig. 5.

Fig. 1.

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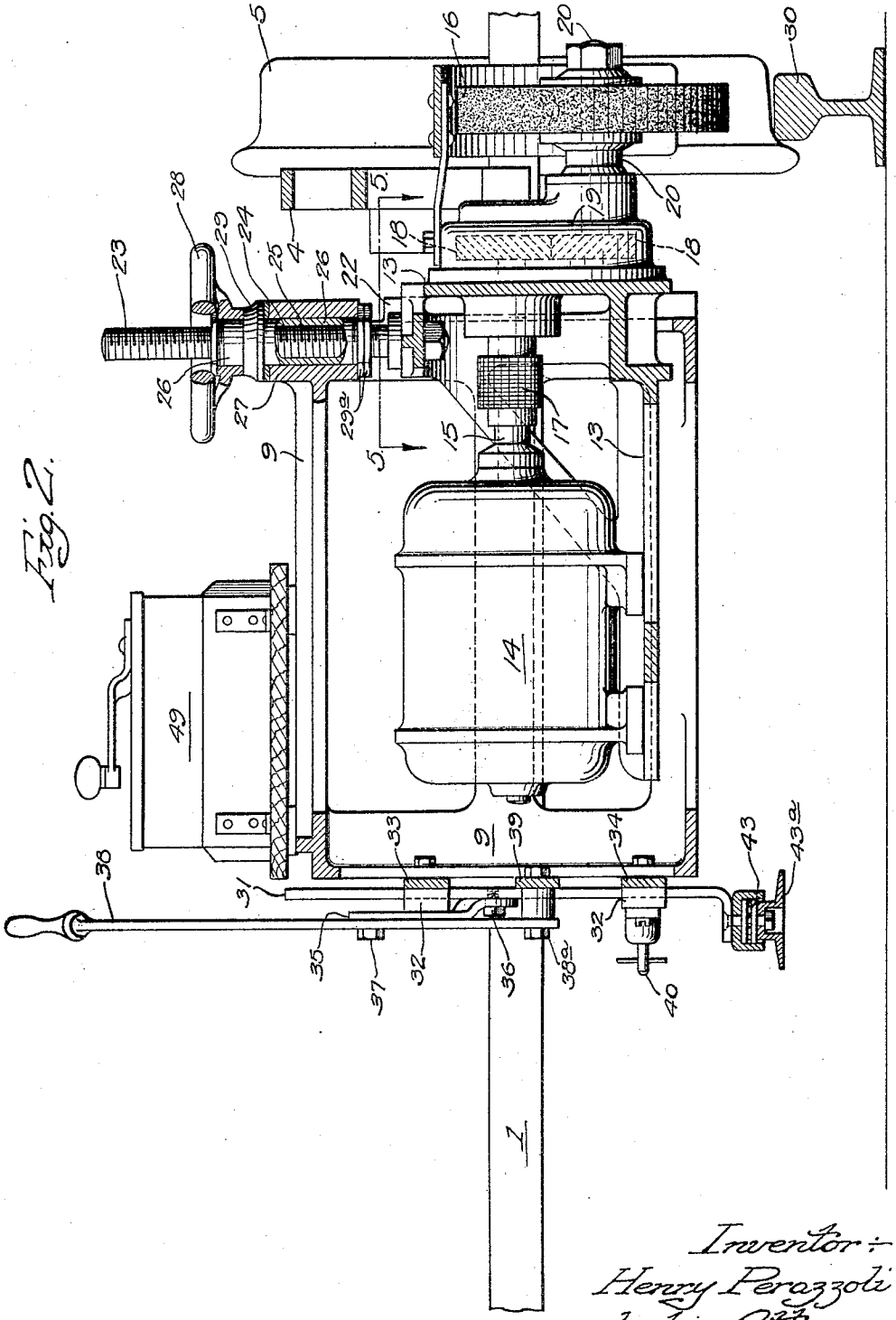


Fig. 2.

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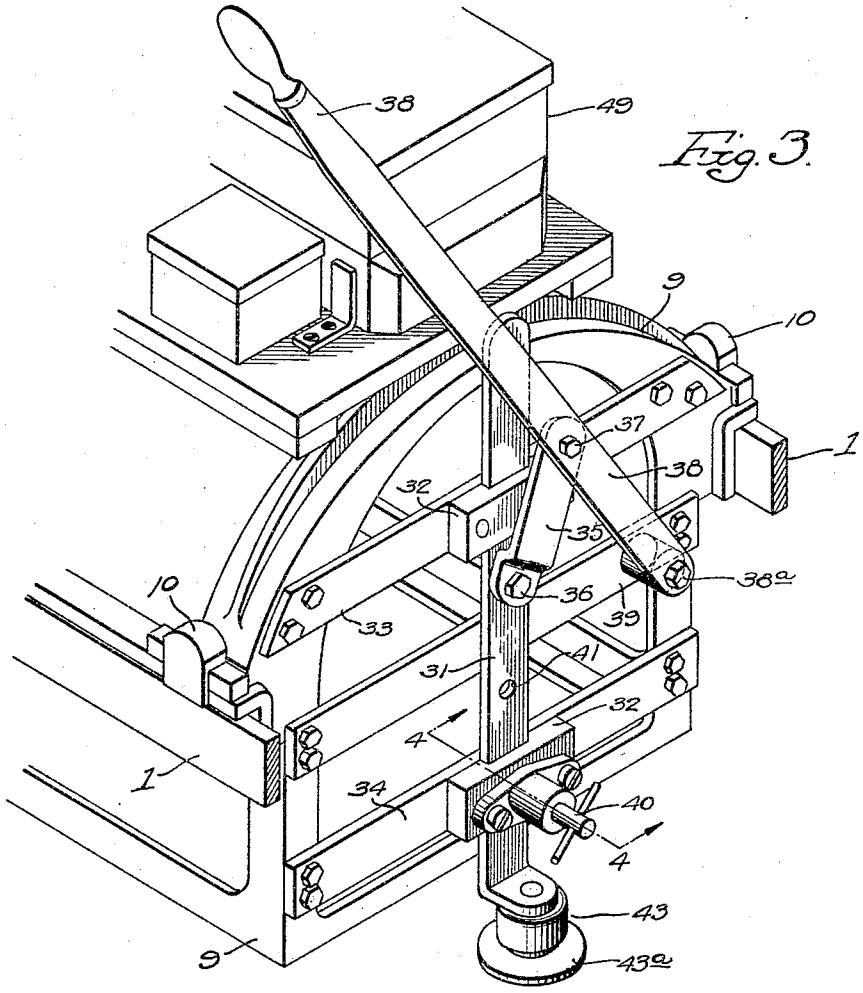


Fig. 3.

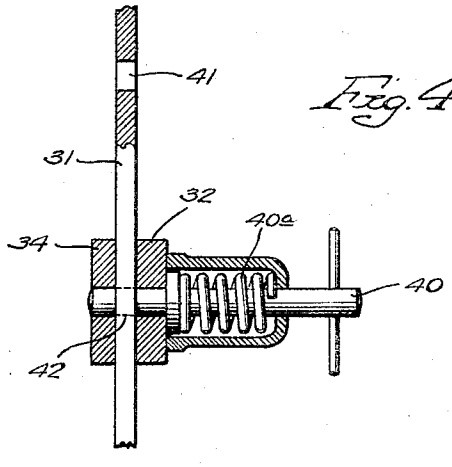


Fig. 4.

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UNITED STATES PATENT OFFICE

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RAILWAY TRACK GRINDER

Application filed February 18, 1931. Serial No. 516,715.

This invention relates to new and useful improvements in high speed grinders and more particularly in high speed railway track grinders of the portable type having a single abrasive wheel.

One object of the invention is to provide a grinding machine having a novel means for adjusting the vertical feed of the grinding wheel.

Another object of the invention is to provide a railway track grinding machine having means to permit the lateral adjustment of the grinding wheel.

Another object of the invention is to provide a grinding machine having novel means for raising the flanges of the track wheels above the rails of the track to permit the machine to be pivoted about for grinding opposite rails.

Another object of the invention is to provide a grinding machine having means for facilitating removal of the machine from the vicinity of the track to permit the passage of a railway train, street car, or the like.

The invention further resides in certain details set forth in the annexed specification and shown in the accompanying drawings in which:

Figure 1 is a view in perspective of the grinding machine;

Fig. 2 is a sectional view on line 2—2, Fig. 1, showing the means for adjustment of the feed of the grind or abrasive wheel;

Fig. 3 is an enlarged detail in perspective of the derailing device to permit the pivoting of the entire machine;

Fig. 4 is a section view along line 4—4, Fig. 3; and

Fig. 5 is a section along line 5—5, Fig. 2.

The type of grinding machine herein set forth is adaptable for use by steam or electric railroads in removing surplus metal deposited on the rails, for the purpose of leveling cupped joints, and in other special track work, effected by arc welding and the like. The machine is mounted in the present instance upon three standard insulated track wheels which rest on the rails of a standard track and comprises a single grinding or abrasive wheel. The use of a single abrasive wheel necessitates the pivoting or turning about of the entire machine to grind opposite rails of the track, and in the past, machines of this type have caused considerable trouble for the operator in bringing about this change in position. This invention provides an operable mechanism in the form of a hand lever and jack which is adapted to lift the flanges of the wheels above the upper face of the track rails, to permit the entire machine to be pivoted on a rotatable joint at the base of the jack. This greatly reduces the trouble and labor encountered in derailing and changing the position of the grinding machine. Furthermore, in the great majority of machines of this type it is difficult to remove them entirely from the vicinity of the track to permit the passage of trains. In the present case the invention provides a novel arrangement in the form of a roller, mounted in adjustable supports in the machine, whereby the operator of the machine, by merely lifting the light end of the machine, may push it, in wheelbarrow fashion, away from the track. Certain novel features are also embodied in the method of feeding the abrasive wheel onto the track rails, and in the general construction of the grinding machine.

Referring to the drawings, the grinding machine comprises a main frame consisting in the present instance of a pair of longitudinal beams 1, 1, spaced apart at one end by a transverse member 2. The beams 1, 1 in the present instance extend beyond the member 2, and are provided with handles 3, 3 to facilitate the moving of the grinding machine. An arched member 4 is rigidly secured to the opposite ends of the main frame beams 1, 1 and transversely with respect thereto, the said arched member 4 in the present instance extending a substantial distance outward from both sides of the main frame beams. The main frame is preferably braced by members 8 extending from the outer ends of the arch member to the main beams, as shown in Fig. 1.

Standard steam road insulated track wheels 5 are rigidly mounted on shafts 6 which are rotatably mounted in bearings 7,

one of said bearings 7 being suported in the transverse member 2, and the other two of one of said bearings 7 being supported in the extremities of the arched beam 4, thus providing a three point support for the structure. A transverse subframe 9 formed of suitable structural material is supported upon the main frame members 1, 1 and is adapted to slide thereon by means of ball bearings 10 suitably mounted on the said subframe 9. A spring locking pin 11 is adapted to enter one of a plurality of holes in the subframe 9, locking the subframe in any position desired.

A motor and grinding wheel carrying frame 13 is carried by the subframe 9. An electric motor 14 is mounted on the rear end of the frame 13 and drives a grinding wheel 16 beyond the outer end of the frame. The shaft 20 of the grinding wheel is driven from the motor shaft 15 through a flexible coupling 17, a pair of spiral gears 18, 18, rotatably mounted in a housing 19, mounted on the carrying frame, 13. Suitable control boxes 49 for regulating the speed of the motor 14 and the starting and stopping thereof, may be mounted on the upper portion of the subframe 9.

The carrying frame 13 in the present instance is arranged to slide vertically on the subframe 9. The recessed portions 21, 21 of the carrying frame 13 ride upon the vertical runner members 22, 22 of the subframe 9. The carrying frame 13 is moved by a jack screw 23 having threads 24 thereon and adapted for engagement with threads 25 in a bushing 26 in the supporting bracket 27 forming a part of the subframe 9. The jack screw 23 is rigidly connected to the supporting frame and is raised or lowered by the rotation of the bushing 26 by means of a hand wheel 28 secured to the bushing. The bushing 26 is further held from moving vertically in the supporting bracket 27 by means of a collar 29 and nuts 29*a*.

A derailing device is mounted at the inner end of the subframe 9 and comprises a vertical jack bar 31 which is arranged to slide in blocks 32 secured to the end members 33 and 34, of the subframe 9. In the present intance, the lower end of the vertical jack bar 31 is bent at an angle as shown and has a rotatable thrust bearing 43 secured to the under side thereof permitting the rotation of the machine upon the plate 43*a* of said bearing. The bar is raised and lowered by a lever 38 pivoted at 38*a* to a cross bar 39. This lever is connected to the vertical bar by a link 35. A spring engaging pin 40 is mounted in the lower block 32 and is normally maintained in a position to engage the aperture 41 or 42 in the vertical bar 31, by a spring 40*a*. The aperture 41 is so positioned as to allow the spring pin 40 to enter the aperture when the device is in position for derailing the machine, and maintain the said device in that position until the spring pin 40 is released. A similar aperture 42 is positioned in a similar manner for maintaining the derailing device in a raised position. On moving the hand lever 38 from the position shown in Fig. 3 to a horizontal position, the bar 31 is forced downward, and raises the light end of the machine. This enables the operator to swing the said machine around on the thrust ball bearing 43 of the toe plate 43*a*.

To allow the machine to be readily removed from the track for the passage of a railroad train or the like, a roller 47 is provided at the forward end of the machine, this roller being mounted in bearings in adjustable brackets 44, slidably mounted in guide blocks 44*a* on the ends of the beams 1, 1. The brackets 44 in the present instance are provided with a plurality of apertures 45, which are adapted for engagement by spring lock pins 46.

In removing the machine from the track, the disengagement of the lock pins 46, 46 from the apertures 45 in the brackets 44, 44, permits the said brackets to be lowered until the roller 47 rests on ties or road bed. The operator can then readily lift the opposite end of the machine by the handles 3, 3 and push the machine off the tracks.

The machine in the present instance is composed of high grade steel castings and is compact and rugged in design, and while the embodiment thereof is herein set forth for the purpose of description, it will be apparent that certain modifications and changes thereto will not depart from the spirit of the invention.

I claim:

1. In a portable railway track grinding machine comprising a frame, traction wheels supporting said frame and adapted to travel on the rails to be ground, a subframe slidably mounted on the said main frame, a supporting frame slidably mounted upon the subframe, an abrasive wheel mounted on the said supporting frame, a source of power mounted on the supporting frame and coupled with the said abrasive wheel, a jack screw mounted on the said supporting frame for varying the vertical relation of the supporting frame with respect to the subframe thereby affording adjustment of the abrasive wheel with respect to the track rails, a hand lever and jack bar mounted on the subframe for raising the flanges of the track wheels above the track rails to permit the machine to be turned to grind opposite rails, and a roller rotatably mounted in adjustable vertical supports mounted on the main frame for facilitating the removal of the said machine from the railway track.

2. A portable railway track grinding machine comprising a frame, an abrasive wheel mounted thereon, means for facilitating the

removal of the grinding machine upon the railway track comprising a pair of brackets adjacently mounted at one end of the frame and having a plurality of aligned holes therein, a roller rotatably mounted in the extremities of the said supports, and spring controlled means carried by said frame and engaging the holes in the supports constituting means for adjusting said supports and placing the said roller in or out of operative position.

3. A portable railway track grinding machine comprising a frame, a pair of traction wheels supported at one end of said frame and a third track wheel supported at the other end of the frame, a subframe mounted on the said main frame and adapted to slide thereon transversely with respect to the track rails, means arranged to secure the subframe in a predetermined transverse position with respect to said rails on the frame, a supporting frame mounted on the said subframe, an abrasive wheel, mounted on the supporting frame, a source of power mounted on the supporting frame and coupled with the abrasive wheel, means for vertically adjusting the said supporting frame with respect to the subframe, and means carried by said subframe for raising the entire machine a sufficient distance to raise the flanges of the track wheels above the track rails, to permit said machine to be pivoted to grind opposite rails.

4. A portable railway track grinding machine comprising a frame, a pair of traction wheels supported at one end of said frame and a third track wheel supported at the other end of the frame, a subframe mounted on the said main frame and adapted to slide thereon transversely with respect to the track rails, means arranged to secure the subframe in a predetermined transverse position with respect to said rails on the frame, a supporting frame mounted on the said subframe, an abrasive wheel mounted on the supporting frame, a source of power mounted on the supporting frame and coupled with the abrasive wheel, means for vertically adjusting the said supporting frame with respect to the subframe, means carried by said subframe for raising the entire machine a sufficient distance to raise the flanges of the track wheels above the track rails to permit said machine to be pivoted into positions to grind opposite rails, and independently adjustable means mounted on the main frame facilitating the removal of the grinding machine from the track.

5. A portable railway track grinding machine comprising a frame, traction wheels supporting said frame and arranged to travel on the rails to be ground, a subframe slidably mounted on the main frame, a supporting frame slidably mounted on the sub-frame, an abrasive wheel mounted on said supporting frame, a source of power operatively connected with said abrasive wheel, means mounted on said supporting frame for varying the vertical relation of the supporting frame with respect to the sub-frame and affording adjustment of the abrasive wheel with respect to the track rails, means mounted on the subframe for raising the flanges of the track wheels above the track rails to permit the machine to be turned to grind opposite rails, and a roller rotatively mounted in vertical adjustable supports mounted on the main frame for facilitating removal of the said machine from the railway track.

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