March 1, 1932. J. GRIFFIN 1,847,943

BENDING AND STRAIGHTENING TOOL

Filed April 3, 1931.

Fig. 1.

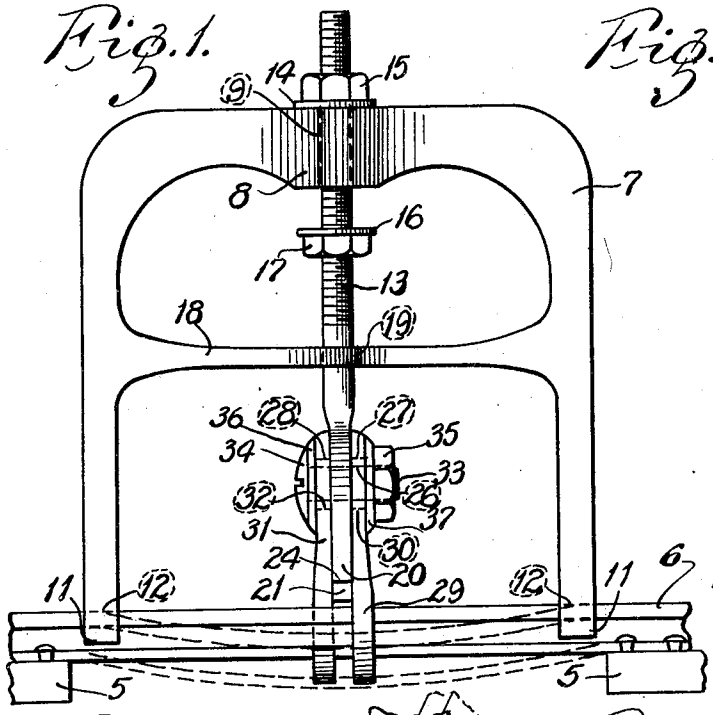


Fig. 2.

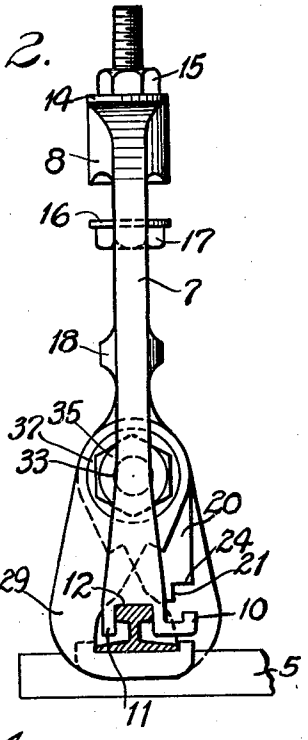


Fig. 3.

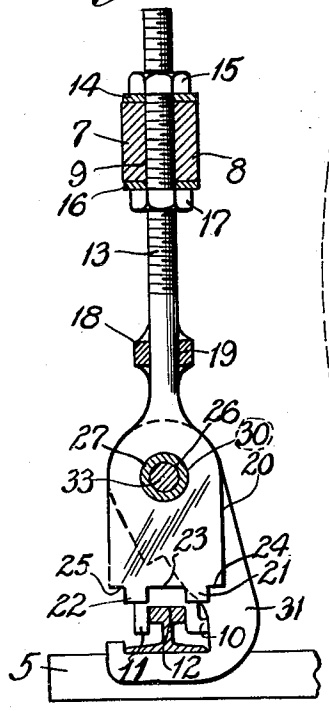
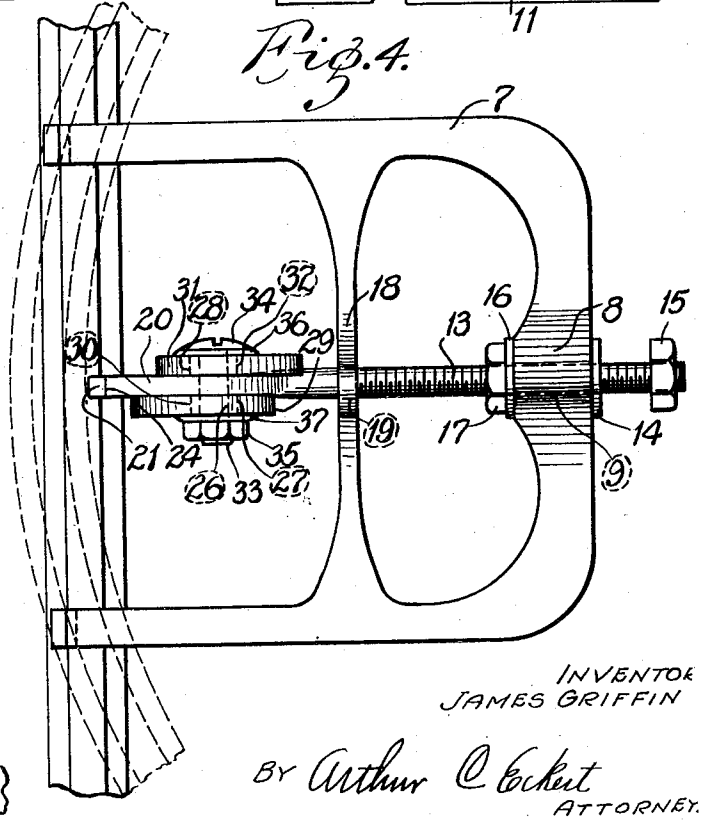


Fig. 4.



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UNITED STATES PATENT OFFICE

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BENDING AND STRAIGHTENING TOOL

Application filed April 3, 1931. Serial No. 527,376.

The object of my device is to make a bending and straightening tool, particularly to be used in bending or straightening rails, without removing the rails from the ties.

The device may be equally well used in bending or straightening pipe, either in or out of a fixed position. The device may be either mechanically or manually operated. In the drawings of this specification, I am describing the manually operated tool. It finds particular application in straightening rails of light weight, such as are used in mines, that is, a forty pound rail or less.

My device may be used to put the desired curvature in a straight rail or pipe or may be used to remove such a curvature, either laterally or vertically.

My device may be made of few and simple parts that lend themselves readily to multiple production.

With these and other objects in view, my invention has relation to certain novel features of construction and arrangement of parts, as will be hereinafter more fully described, pointed out in the claim and illustrated in the drawings, in which

Fig. 1 is a front elevation of my device, showing it in position to straighten a rail between two ties vertically.

Fig. 2 is an end elevation of Fig. 1.

Fig. 3 is a transverse sectional elevation through the screw of my device, with one of the hooks omitted.

Fig. 4 is a front elevation of my device, showing it in position in the act of curving a rail laterally between ties.

Numerals 5 designate railroad ties and numeral 6 a railroal rail. In Fig. 1 the vertically bent rail is shown in dash line and the straightened rail is shown in full line. In Fig. 4 the straight rail is shown in full line and the laterally arcuated rail in dash line.

My tool consists of the U shaped casting 7 enlarged at 8 and having the hole 9 formed therein, as shown in the drawings. The free ends of the U shaped casting 7 have the catches 10 formed on one side, the prongs 11 formed on the other side with the notch 12 formed between the catches 10 and the prongs 11. Numeral 13 designates a screw mounted loosely in the hole 9.

Numeral 14 designates a washer secured on the screw 11 above the U shaped casting 7. Numeral 15 designates a nut in threaded engagement on the screw 13 above the washer 14. Numeral 16 designates a washer secured on the screw 13 below the U shaped casting 7. Numeral 17 designates a nut in threaded engagement on the screw 13 below the washer 16.

Numeral 18 designates a guide connecting the horizontal portions of the U shaped casting 7, having a hole 19 centrally positioned. The screw 13 passes through the hole 19. The lower end of the screw 13 has formed integral therewith, the wedge 20. Numerals 21 and 22 designate fingers formed on the lower surface of the wedge 20 in spaced relationship with each other and with the lateral edges of the wedge 20, thereby forming the notch 23 and the countersunk portions 24 and 25.

It will be seen that by the structure thus far described that when the washer 14 is in contact with the U shaped casting 7 and the nut 15 is in contact with the washer 14, that by a turning of the nut 15, that the screw 13 may be raised or lowered, depending upon the rotational direction of the nut 15.

It will likewise be seen that when the washer 16 is in contact with the U shaped casting 7 and the nut 17 is in contact with the washer 16, that a rotation of the nut 17 will raise and lower the screw 13, provided the nut 15 is not in such a position, as to prevent this action.

In the wedge 20 centrally is formed the hole 26.

Numeral 27 designates a shoulder formed on the wedge 20 on one side immediately surrounding the hole 26. Numeral 28 desig-

nates a shoulder formed on the wedge 20 on the opposite side immediately surrounding the hole 26. Numeral 29 designates a hook having the hole 30 formed therein. The hole 30 is of the same diameter as the shoulder 27.

Numeral 31 designates a second hook having the hole 32 formed therein, which hole is of the same diameter as the hole 30. In assembling the hook 29 is positioned on the shoulder 27 and the hook 31 is positioned on the shoulder 28. Numeral 33 designates a bolt having the head 34 and the nut 35.

Numeral 36 designates a washer positioned immediately beneath the head 34, and 37 designates a washer positioned immediately beneath the nut 35.

In further assembly, therefore, the bolt 33 passes through the washer 36, through the hole 30, the washer 37 and into the nut 35. By these means the hooks 29 and 31 are rotatively secured to the screw 13, so that the hooks take the position shown in Figs. 1 and 2.

The use of the tool is as follows:

Assuming that the rail 6 has been bent between the ties 5, as shown in Fig. 1, and it is desired to straighten the rail, as shown in that figure, the device is secured on the rail 6, as shown in Fig. 1, with the hooks in the position shown in Figs. 1 and 2. The nut 15 is then screwed down against the U shaped casting 7, thereby raising the screw 13, and thereby pulling up the rail 6 to the desired position.

When it is desired to produce a curvature in a rail laterally, the tool is placed in the position shown in Fig. 4, that is with the hooks 29 and 31 in an upward inoperative position, with the catches 10 around the lower flange of the rail, and with the countersunk portion 24 of the wedge 20, in contact with the opposite edge of said flange of the rail and the nut 17 is screwed against the washer 16, which is now against the lower surface of the U shaped casting 7, thereby exerting a pressure on the rail at the point of contact between the wedge 20 and between the ends of the U shaped casting 7, thereby forcing the rail laterally outwardly and bending it arcuately. If it is desired to straighten a curved rail, the tool is positioned on the outside of the rail and the arcuated portion pushed toward the tool to the straight position.

What I claim is:

In a tool of the character described, a U shaped casting, the free ends of which have catches formed on one side and prongs formed on the other side, with a notch formed between the catches and prongs, a screw in engagement in a hole in said U shaped casting, a washer secured on said screw above said U shaped casting, a nut in threaded engagement on said screw above said washer, a second washer secured on said screw below said U shaped casting, a second nut in threaded engagement on said screw below said second washer, a guide connecting the horizontal portions of said U shaped casting and having a hole formed therein, through which said screw passes, a wedge formed integral with the lower end of said screw, prongs formed on the lower surface of said wedge in spaced relationship with each other and with the lateral edges of said wedge, hooks rotatively secured to said wedge.

In testimony whereof I affix my signature.

JAMES GRIFFIN.