March 19, 1929. E. WOODINGS 1,706,274

APPARATUS FOR FORMING ANTICREEP CHECKS OR RAIL ANCHORS

Filed Dec. 4, 1925 2 Sheets-Sheet 1

FIG. 1.

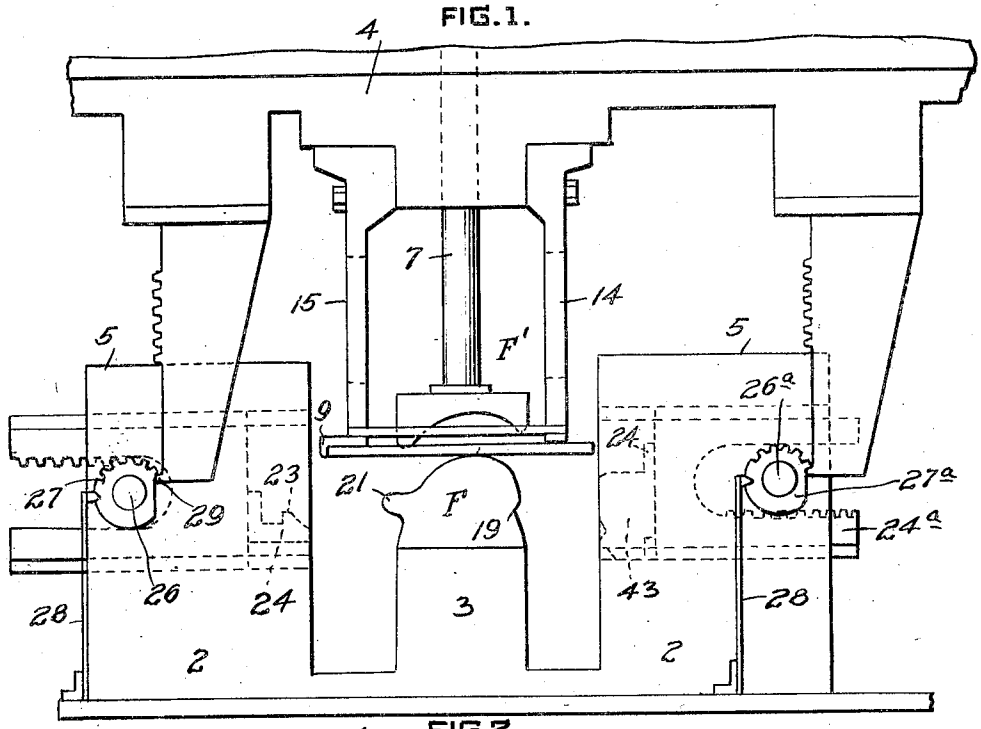
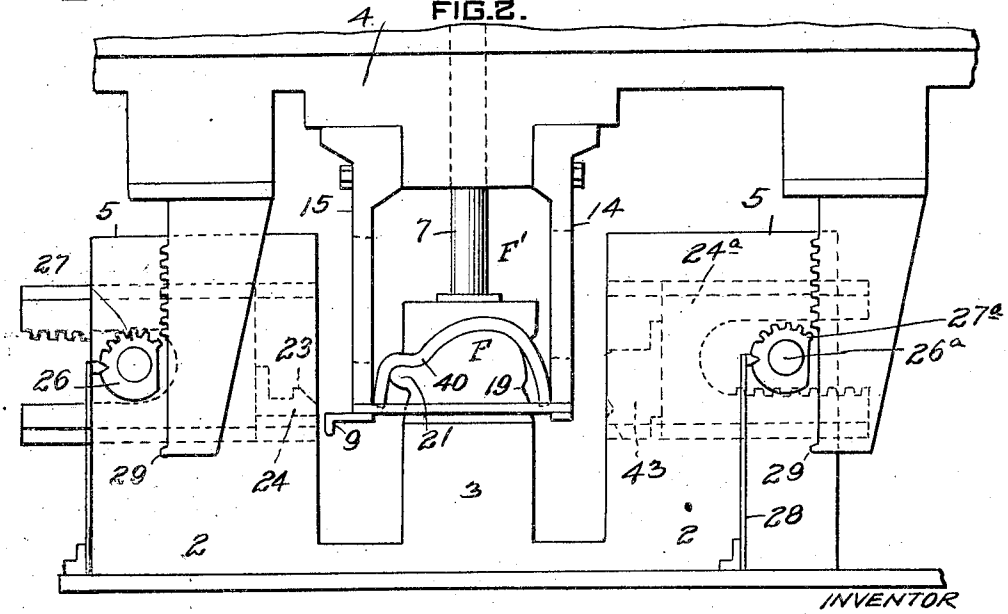


FIG. 2.



INVENTOR

Emanuel Woodings

by Dennis B. Wolcott

Atty

WITNESSES

J. Herbert Bradley.

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FIG.3.

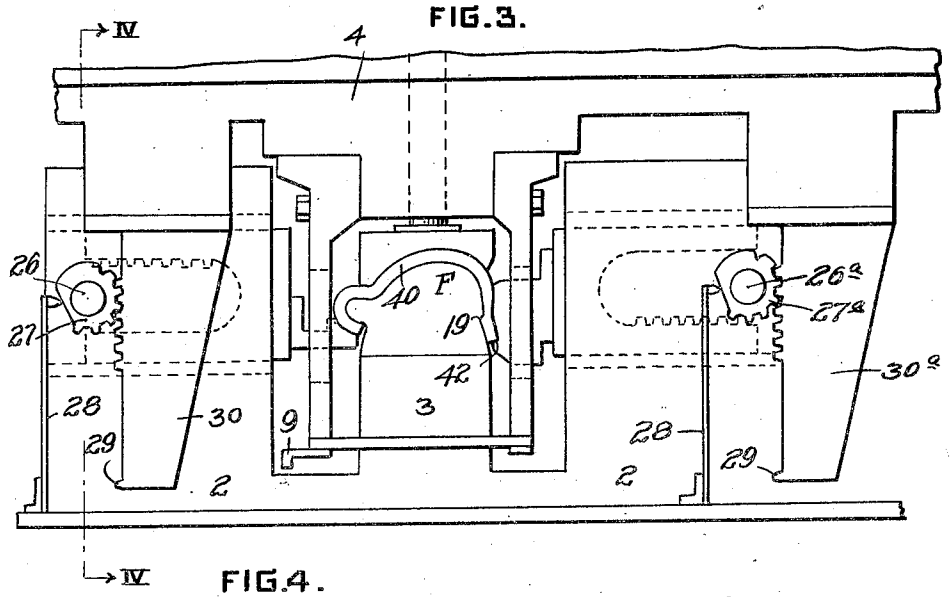


FIG.4.

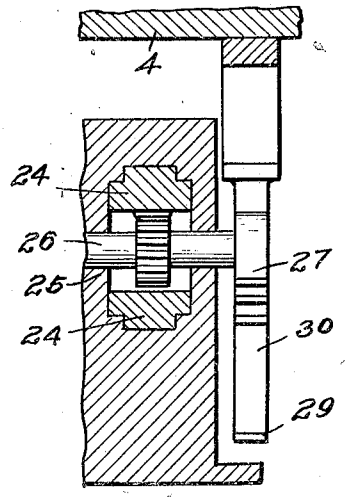


FIG.6.

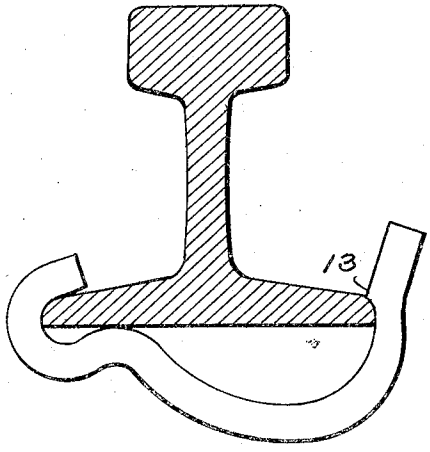
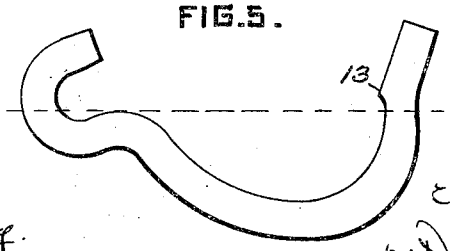


FIG.5.



WITNESSES
J. Hobart Bradley.

INVENTOR
Emanuel Woodings
by Duncan & Wolcott
atty

Patented Mar. 19, 1929. 1,706,274

UNITED STATES PATENT OFFICE.

EMANUEL WOODINGS, OF OAKMONT, PENNSYLVANIA, ASSIGNOR TO WOODINGS FORGE & TOOL COMPANY, OF VERONA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

APPARATUS FOR FORMING ANTICREEP CHECKS OR RAIL ANCHORS.

Application filed December 4, 1925. Serial No. 73,109.

In an application filed March 17, 1925, Serial Number 16,130, a method of and apparatus for manufacturing rail anchors or creep checks of the type or construction covered by Letters Patent No. 1,527,427, granted February 24, 1925, to A. Dinklage, and embodying a jaw adapted to grip the flange on one side of the rail, a lock adapted to engage the opposite flange of the rail and a bowed intermediate portion, is described and claimed. The method specified in said application consists in bowing an intermediate portion of a blank, forming a gripping jaw and a lock respectively on opposite ends of the bowed portion and then bringing the jaw and lock into predetermined spaced relationship. As disclosed in said application, when filed, this method can be effected in two operations or in one operation. The invention described in this application which is similar to the invention described in said application, Serial No. 16,130, relates to mechanisms for shaping or forming such an anchor or creep check at one operation as hereinafter more fully described and claimed.

In the accompanying drawings forming a part of this specification, Figs. 1, 2 and 3 are front elevations of a mechanism embodying the improvements claimed herein and then treating different steps in forming the anchor; Fig. 4 is an end elevation of the mechanism; and Figs. 5 and 6 illustrate respectively the improved anchor and the manner of applying the same to a rail.

The improved machine consists of a base 2, carrying the anvil 3 for the lower die F and housings 5 for forming members hereinafter described. The movable cross head 4 which can be reciprocated by any suitable means known in the art, has so mounted thereon a fluid pressure cylinder (not shown) that its piston rod 7 will pass down through the cross head. Sufficient pressure is maintained in the cylinder above the piston that the upper die F′ carried by the piston rod will, when the cross head is moved down, exert sufficient pressure to effect the desired bending of the blank around the upper surface of the lower die and also to firmly clamp the bent blank during the shaping of the end portions of the blank. As will be seen by reference to Figs. 1, 2 and 3, the operative faces of the dies are shaped to properly bow or curve the middle portions of the blank and also to form the fulcrum 40 of the anchor. The longitudinal position of the blank between the dies is determined by a stop 9.

In order to bend the left hand end of the blank partially around the horn 21 on the lower die, and to bring the right hand end of the blank into proper relation to the side of the die, forming arms 14 and 15 are secured to the cross head on opposite sides of the piston rod 7. These arms are adapted when the cross head moves down to effect an initial bending of the blank around the lower die preparatory to the completion of the bending or bowing operation being effected by the upper die F′.

During the continued movement of the cross head after the blank has been gripped between the dies, the cylinder, carried by the cross head, will slide over its piston thereby ensuring the continuation of the grip of the dies on the blank. As the cross head moves down the left hand end of the blank is bent by arm 15 around the horn to the position shown in Fig. 2 and the right hand end brought by the forming arm 14 to position whereby it may be forced against the lower die and the lock formed therein.

The final shaping operations on the ends of the blank are effected by slides 24 and 24ª mounted in the housings 5 arranged as hereinbefore stated on opposite sides of the anvil 3. The slide 24 is provided with a finger 23 adapted to engage the end portion of the blank and force it under the horn 21. The operative face of the head 43 on the slide 24ª is so shaped as to press the right hand end of the blank inwardly against the lower die with such force as to cause metal to flow into a recess 19 in the lower die and thereby form on the inner face of the blank a shoulder 13 adapted to bear on the flange of the rail and hold the anchor in operative position as shown in Fig. 6.

In order to prevent a vertical movement of metal when operated on by the head 43 the latter is provided with a toe 42 which will pass under the end of the blank, as shown in Fig. 3 before the end portion of the blank is subjected to shaping pressure.

While the slides 24—24ª can be operated

in proper synchronism with the forming arms 14, and 15 i. e., after the arms have been moved down to bend the ends of the blanks as above described, it is preferred that said slides should be operated by the cross head 4 as shown herein. The slides 24, 24ª, are toothed so as to intermesh with pinions 25, 25ª on shafts 26, 26ª mounted in suitable bearings in the housings 5. On the projecting ends of these shafts are secured pinions 27, 27ª, adapted to be engaged and rotated by the toothed bars 30, 30ª, extending from the cross head. The pinions 27, 27ª are toothed for only portions of their peripheries and the teeth on the bars 30, 30ª are so located that they will not engage the pinions until the ends of the blank have been bent down by the operation of the forming arms 14 and 15, which are slotted to permit of the passage of the slides through them, when moved down. In order to ensure the proper engagement of the teeth on the bars 30, 30ª with the pinions 27, 27ª when the cross head moves down, the bars are provided with teeth 29 spaced a suitable distance below the series of teeth in the bars and adapted to engage teeth on the pinions 27, 27ª, and shift them, and parts operated thereby to position to be engaged by spring detents 28.

I claim herein as my invention:

1. A rail anchor forging apparatus having in combination a lower die provided with a shaping horn and a groove-forming shoulder, a reciprocating cross head, a die yieldingly carried by the cross head, said dies having operative faces corresponding to the contour desired in the intermediate portion of the anchor, toothed slide members mounted to reciprocate transversely with respect to the travel of said cross head and adapted to engage the ends of the anchor and to force said ends against the first mentioned die, and toothed means carried by said cross head to engage driving mechanism attached to said slide members, whereby as the cross head passes through the lower extremity of its travel positively to drive the slide members against the ends of the anchor.

2. The combination substantially as set forth in claim 1, the means to drive the slide members comprising toothed bars attached to the cross head and pinions adapted to drive said slide members and positioned to engage and be driven by the said toothed bars.

3. The combination substantially as set forth in claim 1, and forming arms carried by the cross head and adapted to bend the ends of the blank against the lower die and into the path of movement of the said slide members.

4. The combination substantially as set forth in claim 1, the means carrying the die on the cross head comprising an air pressure cylinder carried by the cross head.

5. A rail anchor forging apparatus having in combination a lower die provided with a shaping horn and a groove-forming shoulder, a reciprocating cross head, an air pressure cylinder carried by the cross head, a second die yieldingly mounted upon the air pressure cylinder, said dies having operative faces corresponding to the contour desired in the intermediate portions of the anchor, slide members mounted to reciprocate transversely with respect to the travel of said cross heads and adapted to engage the ends of the anchor and to force them around and against the lower die, toothed bars attached to the cross head, pinions adapted to drive said slide members and positioned to engage and be driven by the said toothed bars, forming arms carried by the cross head and adapted to bend the ends of the blank into the path of movement of the said sliding members.

In testimony whereof, I have hereunto set my hand.

EMANUEL WOODINGS.