June 8, 1926. 1,587,910

W. KEELY

RAIL STRAIGHTENING DEVICE

Filed August 11, 1922 2 Sheets-Sheet 1

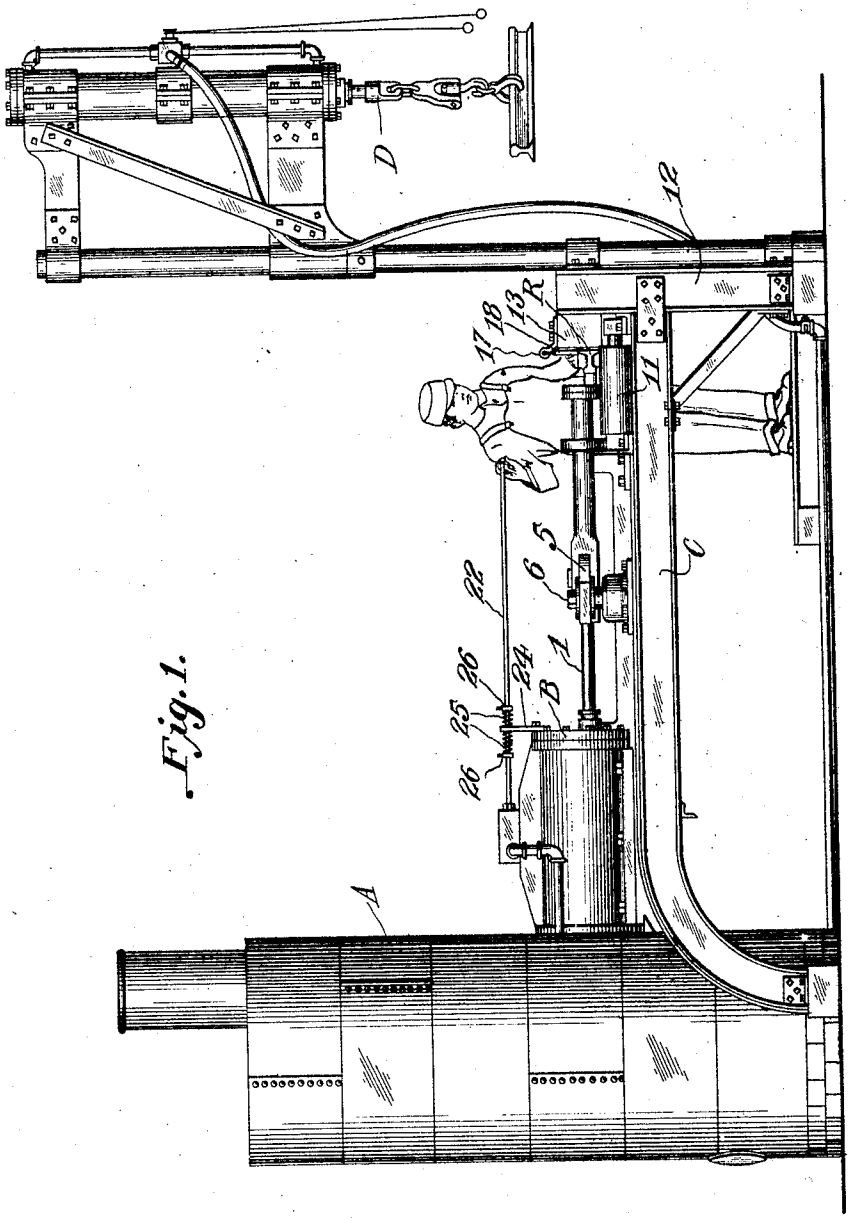


Fig. 1.

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Fig. 2.

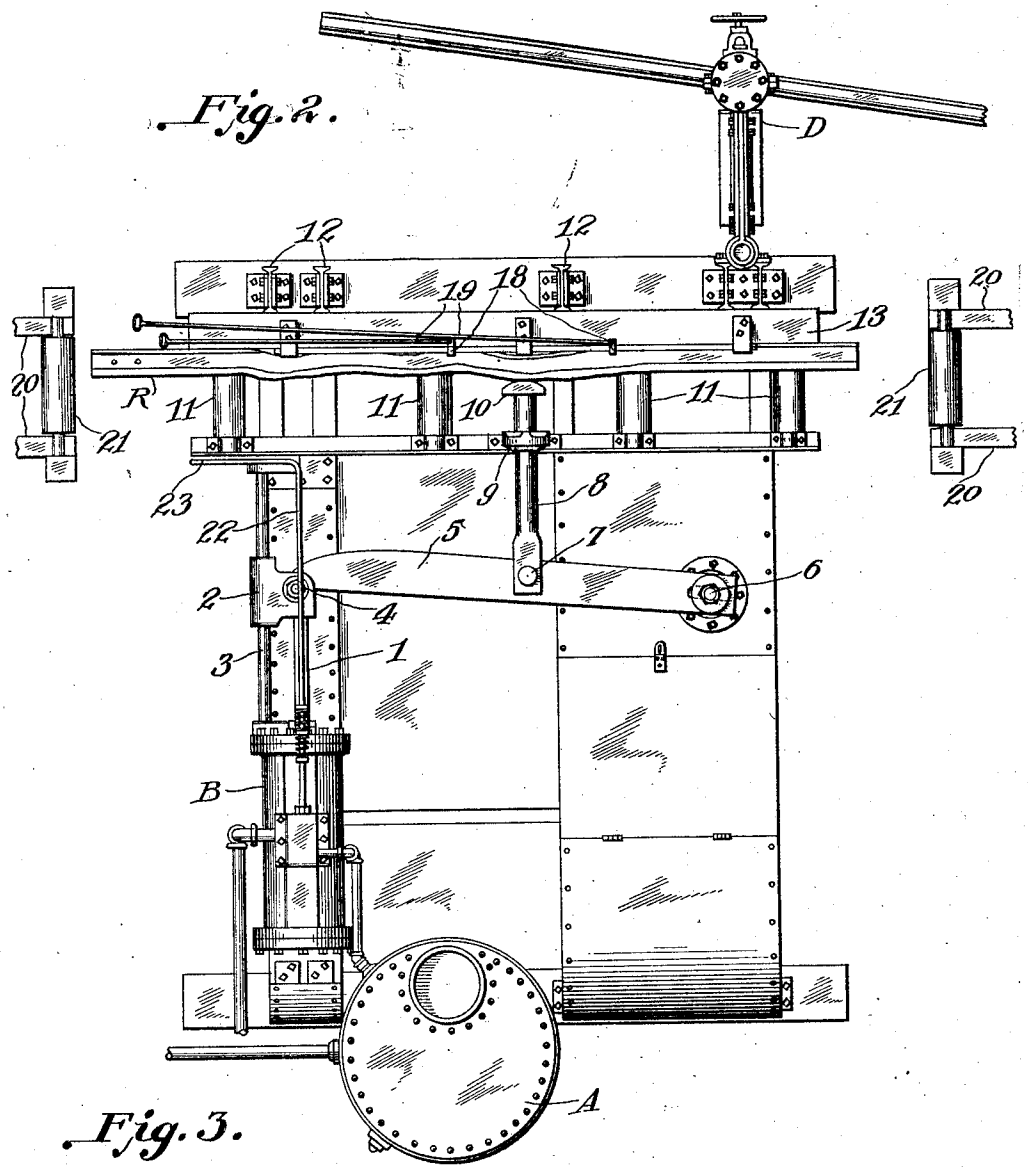
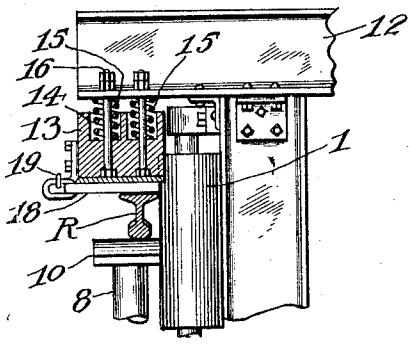


Fig. 3.



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Patented June 8, 1926. 1,587,910

UNITED STATES PATENT OFFICE.

WILLIAM KEELY, OF BEAUMONT, TEXAS.

RAIL-STRAIGHTENING DEVICE.

Application filed August 11, 1922. Serial No. 581,086.

This invention relates to improvements in machines for straightening bent railroad rails or similar articles such as structural steel, and has for its object the provision of means in such a device for eliminating shock and the provision of suitable tension elements to prevent breakage of the material being straightened.

The invention consists in the novel construction, arrangement and combination of parts as hereinafter more particularly described and claimed.

Two sheets of drawings accompany this specification as part thereof, in which like reference characters indicate similar parts throughout.

Figure 1 is a vertical elevation of the improved machine;

Fig. 2 is a plan view, and

Fig. 3 is a detail view partly in section illustrating the improved cushioning device.

Referring to the drawings in which I have illustrated an improved form of machine embodying my present invention, A represents a boiler; B represents a steam cylinder; C represents the frame work for supporting the device, and D refers to a lifting crane for placing the rails in position.

The cylinder B is mounted upon the frame C so that its piston rod 1 operates in a horizontal direction, being guided by a head 2 which slides upon a guide rod 3. Pivoted to the head 2 as at 4 is a lever 5 which is in turn pivoted through a suitable slot as at 6 to the bed C. Pivoted to the lever 5 as at 7 is a plunger 8 operating through a guide 9 and provided with a head 10 adapted to contact the rail to be straightened. A plurality of rollers 11 are suitably journalled upon the frame of the device to provide an anti-friction bed upon which the rails R can be guided in front of the plunger 8 and a plurality of vertical standards 12 secured to and supporting frames C are arranged adjacent rollers 11 and support a head 13 which extends transversely across the bed and against which the rails are adapted to be pressed by the plunger 8.

The head 13 (see Fig. 3) is in accordance with my present invention provided with channels 14 adapted to receive a plurality of stiff compression springs 15 secured therein as by bolts 16, by which arrangement it will be apparent that the head member 13 is held elastically away from the rigid supporting members 12.

In order to permit the forcing of the rail beyond the normal straight line to permit its natural recoil, spacing members 18 are utilized supported by hand rods 19 so that they may be arranged as is illustrated in Fig. 2, one on either side of the bend which is to be straightened.

The steam cylinder is controlled by the usual port valves operated by a rod 22 which passes through a guide 24 and is held in normal inoperative position by means of two compression springs 25 secured upon either side of the guide 24, and between adjustable heads 26 secured on the control rod.

In operation, the rails R are lifted by the derrick or crane B and rolled upon rollers 11 between head 13 and head 10 carried by the plunger until the bend which it is desired to straighten, is adjacent the head 10 with its convexed face directed toward the plunger. The spacing members are then positioned one on either side of the bend and between the rail and the elastically supported head 13. Steam is then admitted into the cylinder B by means of the valve control rod 22, operating to force lever 5 forward and hence plunger head 10 against the rail. The force thus applied bends the rail R beyond the normal straight line of the rail by reason of the spacing members 18, but at the same time the resistance of the elastically supported head member 13 prevents the sudden or undue exertion of pressure which would be calculated to break the rail.

Suitable frame members 20 can be arranged upon either side of the device and provided with transverse rollers 21 so that the straightened rail can be readily removed from the device without lifting, and carried away.

Modifications in the precise structure of my improved device will readily suggest themselves to those skilled in the art, but all within the scope of the present invention.

Having thus fully described my invention, I claim:

In a rail straightening device, the combination with a plunger and a fixed member of a slidable abutment adapted to contact with said fixed member, resilient members operatively arranged on said slidable abut-

ment to force the same away from said fixed member and against the rail to be straightened, means for applying force to said plunger to operate it against a bent rail and means for permitting the rail to be forced beyond the normal straight line, the said last named means comprising spacing members and hand rods supporting said spacing members, the said rods being adapted for adjusting the spacing members one on each side of the bend which is to be straightened.

In testimony whereof I affix my signature.

WILLIAM KEELY.