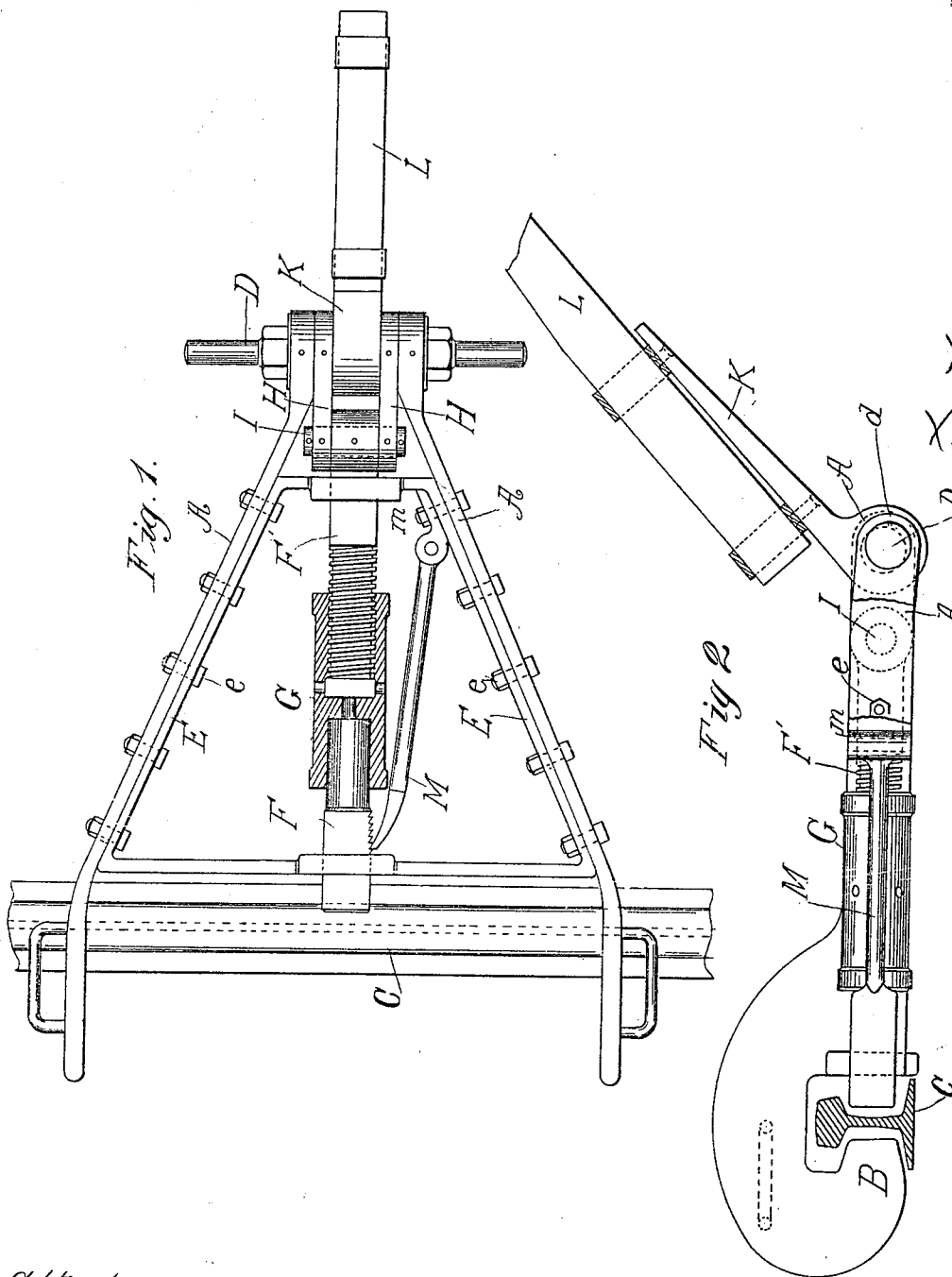


M. H. BROWN.  
RAIL OR BAR BENDER.

No. 520,876.

Patented June 5, 1894.

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Attest:  
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# UNITED STATES PATENT OFFICE.

MORRIS H. BROWN, OF YONKERS, NEW YORK.

## RAIL OR BAR BENDER.

SPECIFICATION forming part of Letters Patent No. 520,876, dated June 5, 1894.

Application filed September 19, 1893. Serial No. 485,796. (No model.)

*To all whom it may concern:*

Be it known that I, MORRIS H. BROWN, a citizen of the United States, residing at Yonkers, Westchester county, State of New York, have invented a new and useful Improvement in Rail or Bar Benders, which is fully set forth in the following specification.

The present invention relates more particularly to that type of rail or bar bender in which the rails are held by hooks or jaws at the extremities of a triangular frame, and the pressure, for curving, bending or straightening the rail, is applied by an eccentric worked by means of a lever, this eccentric acting upon one end of a sliding extensible ram or plunger, whose opposite end bears upon the rail. Rail-benders of this type are now in common use, and the object of the present invention is to improve their construction in such a manner as to render them more efficient in action, as will be hereinafter explained. In using rail-benders of this type, the handle is raised to a position nearly perpendicular, the ram extended until it bears against the rail to be bent, and then the lever is forced down, the weight of two or more men being usually employed for this operation. In applying pressure the handle of the lever swings toward the rail, the effect being that the force exerted tends not only to push the ram longitudinally (which is the result desired) but also to raise the end of the frame in which the eccentric shaft is journaled. When the force exerted is considerable, it is often necessary to employ one or two men to hold down this end of the frame and counteract its tendency to tilt upward.

One object of the present invention is to obtain a better application of the power, so that this may be wholly expended upon the bending of the rail, and to obviate the employment of hands to prevent the tilting of the frame, and the consequent wrenching or twisting of the rail. This object is accomplished in a very simple but effectual manner, by reversing the position of the eccentric upon its shaft, so that the lever, instead of turning toward the rail in applying pressure thereto, turns in the opposite direction.

In using rail-benders having a two-part extensible ram and an eccentric and lever move-

ment, the pressure upon the rail is relaxed when the lever is thrown back, and while the ram is being extended, preparatory to another bending operation. This relaxation of pressure is attended with disadvantageous results. The rail, after each bend, springs back, attempting to regain its original position, and the amount of this return is lost motion, to be taken up again on the next thrust of the ram. Furthermore, the repeated bending of the rail back and forth has the effect of weakening the fiber, which it is very desirable to avoid. For these reasons it is considered important to maintain a steady pressure upon the rail during the entire series of operations by which it is bent to the ultimate curvature desired. The present invention includes means whereby this constant pressure is maintained while the lever is swung back, and the pressure of the eccentric removed.

The invention will be fully understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view partly in section, and Fig. 2 is a side view, one of the side bars being broken away.

In its general features the device shown is of known construction. It has the side bars A, carrying at one end the jaws B, against which the rail C rests, and converging toward their opposite ends, in which the eccentric-shaft D is journaled. These bars are held together and stiffened by a secondary frame E, secured thereto by bolts e. The ram is, as heretofore, composed of two parts F F', coupled by an adjusting sleeve G, the construction of these parts having been somewhat modified as will be presently explained. The upper or outer end of the part F' is pivoted to two links H by means of a strong bolt I. The opposite ends of these links inclose eccentrics d, (one of which is shown in Fig. 2) from which eccentrics motion is communicated to the ram.

K represents the lever for operating shaft D, the lever being provided with the usual means for applying a wooden handle L.

As will be seen from Fig. 2 the eccentric d is placed on the opposite side of its shaft from lever K, so that in order to advance the ram F toward the rail, the lever K is forced

by the workmen in the opposite direction to the movement of the ram, that is, away from the rail. This pressure, therefore, cannot have the effect of tilting the frame, (which in use rests upon the ground,) out of its horizontal position. On the other hand, it will be readily understood that, when the lever worked in the opposite direction, as has been the case heretofore, the great pressure exerted on the end of the handle L tended to turn the entire device upon the axis of the rail as a center, requiring often the force of several men at the end of shaft D to hold the frame horizontal.

M is a bar or dog pivoted at *m* to one side of the frame, and at its free end adapted to engage a series of notches or teeth formed in the side of the ram or plunger F. When the pressure has been applied, and the rail bent as far as possible with one movement of the lever K, dog M is swung into engagement with the ram F holding it in hard contact with the rail while the lever is swung back. Heretofore, the adjusting coupling sleeve G has been threaded at each end, and the extremities of the parts F F' of the ram were provided with right and left-handed screw threads respectively; but in the construction shown the end of the part F' only is threaded. This change further contributes to the strength of the ram and somewhat facilitates its construction.

In addition to the advantages already pointed out, of maintaining the pressure upon the rail during the reversal of the lever and adjustment of the ram for another bend, it may be observed that it is usual to insert between the rail and the end of the ram a steel block, shaped to fit the flange of the rail, which block frequently fell out of place when

the ram was withdrawn. The contact pressure of the ram now holds the block in place until the bending is completed.

Other means for maintaining the constant pressure of the ram may obviously be employed in place of the dog M, but the construction shown is regarded as the best practical embodiment of the invention.

I claim—

1. In a rail or bar bender, the combination with the frame having jaws or hooks to hold the rail, and the ram slidingly supported between the jaws, of an eccentric for imparting pressure to the ram, and an operating lever attached to the eccentric shaft on the side opposite to the eccentric so that it moves away from the ram in operating the latter, substantially as described.

2. The combination of the extensible ram composed of two parts, and a coupling sleeve engaging by means of screw threads with one of the said parts; the operating eccentric and lever, and means for maintaining the pressure of the ram when the lever is reversed, substantially as described.

3. The combination of the triangular frame, the extensible ram sliding therein, the operating eccentric connected with the end of said ram, and a dog or holding bar pivoted to one side of the triangular frame and extending alongside of said ram so as to sustain the pressure thereof longitudinally, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

MORRIS H. BROWN.

Witnesses:

THOS. B. INNESS,  
E. S. BLUNT.