

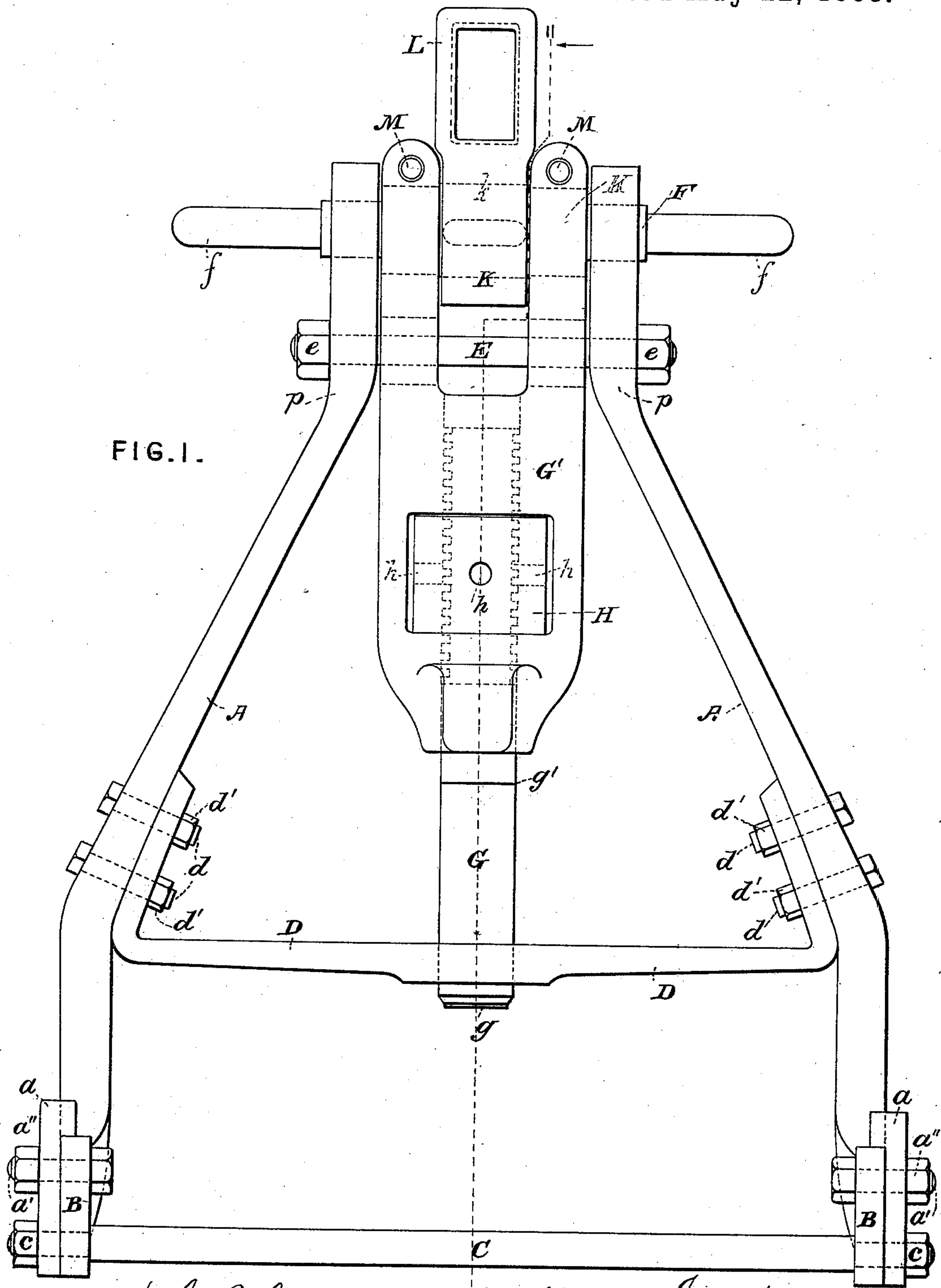
(No Model.)

2 Sheets—Sheet 1.

M. H. BROWN.
RAIL OR BAR BENDER.

No. 383,168.

Patented May 22, 1888.



Attest { Geo. T. Smallwood.
Philip Hanna.

Inventor.
Morris H. Brown by
A. Pollak. his attorney.

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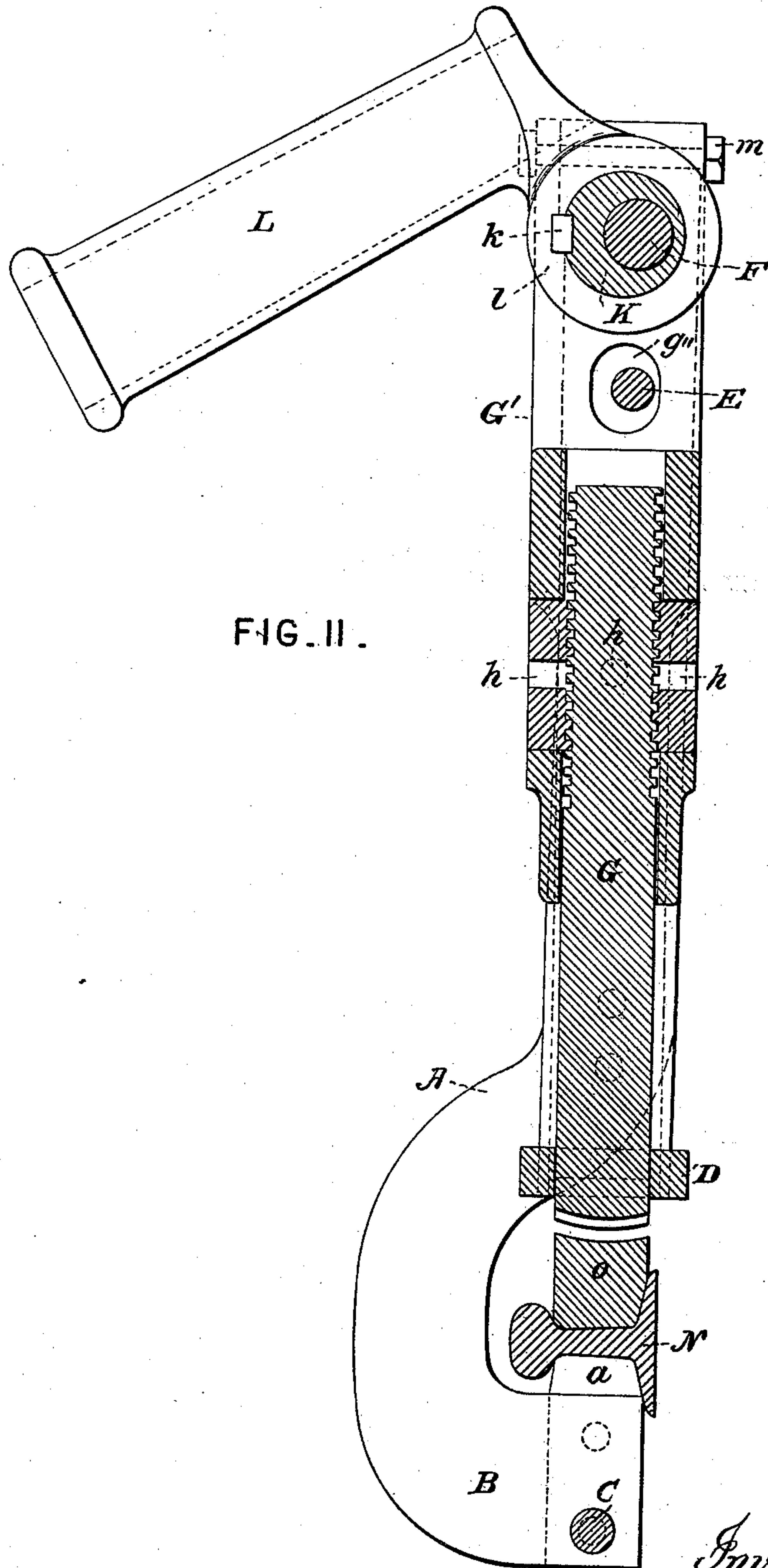


FIG. II.

Attest:
Geo. T. Smallwood.
Philip Hanna.

Inventor:
Morris H. Brown by
J. H. Allen,
his attorney.

UNITED STATES PATENT OFFICE.

MORRIS H. BROWN, OF YONKERS, NEW YORK.

RAIL OR BAR BENDER.

SPECIFICATION forming part of Letters Patent No. 383,168, dated May 22, 1888.

Application filed March 5, 1888. Serial No. 266,161. (No model.)

To all whom it may concern:

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

This invention relates to the construction of apparatus or implements for bending, curving, or straightening bars of metal, particularly rails, and has for its object to improve such apparatus in point of simplicity, strength, and efficiency.

The general elements of a rail-bender are a strong frame, usually triangular, terminating in hooks or jaws, against which the rail or bar rests, a ram or plunger by which pressure is applied to the rail at a point midway between the hooks or jaws, and means for applying power to the ram to bend the rail or bar. The power is usually applied either by a screw or by a cam or eccentric worked by a lever. When the latter construction is used, it is necessary, in order to obtain the requisite amplitude of movement for the ram, to make the latter adjustable lengthwise. This has been done heretofore by making the ram or plunger in two parts having right and left handed screws on their adjacent ends and coupled by a threaded sleeve, whereby the two parts of the ram can be moved closer together or farther apart to shorten or lengthen it, according to the length of radius of the curve to be given to the rail or bar. This arrangement not only involves a difficult and costly construction, but impairs the strength of the ram. In the present invention the ram is cored into a strong block of cast-iron, in which it has a long bearing, and is adjusted by means of a nut. When pressure is applied to bend a rail, there is a tendency on the part of the jaws to spread apart or separate. This is obviated by connecting the jaws together at their extreme ends beyond the points where the rail rests by a bar or tie rod, which both adds to the strength of the implement and also serves as a handle for carrying it from place to place.

Other improvements in details of construction have been made, as hereinafter described.

In the accompanying drawings, which form part of this specification, Figure I is a plan view of the under side of a rail-bender constructed in accordance with the invention, and

Fig. II a longitudinal section thereof on the line 11 11.

The side frames, A, which may be of wrought-iron, are bent at their lower ends to form the hooks or jaws B. For a short distance from this end the frames A are parallel, and then they incline toward each other, as shown, until the point *p* is reached, where there is another bend, the frames being parallel from this point to their upper ends. The tie rod or bar C, of wrought-iron, is secured at its ends to the frames A by nuts *c* beyond the hooks or jaws—*i. e.*, on the other side of the rail from that on which the pressure is applied—and counteracts the tendency of the jaws to spread apart under heavy pressure. The ends of the hooks or jaws B are provided with removable bearing-blocks *a*, which are held in place by the tie-rod C and nuts *c* and by the additional bolts *a'* and nuts *a''*. By removing the nuts *c* and *a''* the blocks *a* can be taken out and other blocks of different pattern substituted therefor. Side frames, A, are also connected by the cross-bar D, securely bolted at its flanged ends to the side frames by bolts *d* and nuts *d'*, and the bolt E and nuts *e* connect the frames at the bend *p*, thus partly relieving the eccentric-shaft F of strain.

The ram or plunger consists of two parts, G and G'. The former is the ram proper, being a solid bar of steel or wrought-iron, having a head, *g*, adapted to press upon the rail midway between the bearing-blocks *a*. At its lower part the plunger G is square in cross-section, and it passes through a square opening in cross-bar D. From the point *g'* to the upper end it is turned to a circular cross-section and enters a hole formed lengthwise in the part G', herein called the "block." The latter may be of cast-iron. The ram G is screw-threaded on its surface inside the block G', and it can be moved longitudinally in either direction by the nut H, working in an opening cut transversely through said block and provided with holes *h* for insertion of a pin or handle for turning. By this means the head *g* of the ram can be set at any desired initial distance from the side of the rail.

The ram G does not ordinarily bear against the rail N direct; but, as shown in Fig. II, a block, *o*, shaped to correspond with the rail, is interposed.

The shaft F has bearings in the end of the frame A, and its projecting ends *f* constitute handles by which and the tie-rod C the tool can be carried. Shaft F has a long eccentric, 5 K, extending across the space between the side frames, A, as indicated by dotted lines, Fig. I. The block G' is bifurcated at its upper end, as shown in Fig. I, the operating-lever L working between the two branches. The eccentric 10 K bears against the two branches of the block G' at the bottom of the U-shaped grooves therein, as shown in Fig. II. The ends of the branches are attached together by bolts M and nuts *m*. Block G' has a slot, *g''*, for the pas- 15 sage of cross-bolt E, so that the latter does not interfere with its longitudinal movement.

The operating-lever L is a bent or bell-crank lever, preferably made of cast-steel, the main stem being hollow for insertion of a suitable 20 handle. The other arm terminates in a strap, *l*, which encircles the eccentric K and is keyed thereto at *k*.

The operation is like that of other tools of the same class. The bearing-blocks *a* are 25 placed against the web of the rail N, Fig. II, and the ram G is adjusted by means of nut H so that the block *o* is such a distance from the other side of the rail that the throw of the eccentric K will give the rail the required curva- 30 ture. The lever L is then pressed down toward the ram, whereby the latter is moved against the rail N by the pressure of the eccentric K.

It is preferred to arrange the eccentric, as 35 shown, so that the lever L is forced down in

operating the tool, since the pressure can be more effectively applied by the operatives in a downward direction.

I claim as my invention—

1. In a rail-bender, the combination of the 40 ram and means for operating the same, the diverging side frames carrying jaws, and the tie-rod connecting the ends of the side frames beyond the jaws, substantially as described.

2. The combination, with the side frames 45 provided on their ends with jaws, of the ram having a threaded portion, the bored block in which the ram has a long bearing, and the adjusting-nut working in an opening in said block and engaging the threaded portion of 50 said ram, substantially as described.

3. The combination of the angular side frames, the jaws at the ends thereof, the ram, the block carrying said ram, bifurcated at its upper end, the cross-bolt connecting the side 55 frames and passing through a slot in said block, the eccentric-shaft having bearings in said frames, the eccentric bearing against the grooved end of said block, and the operating-lever working between the branches of said 60 block and keyed to said eccentric, substantially as described.

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

MORRIS H. BROWN.

Witnesses:

PHILIP MAURO,
C. J. HEDRICK.