

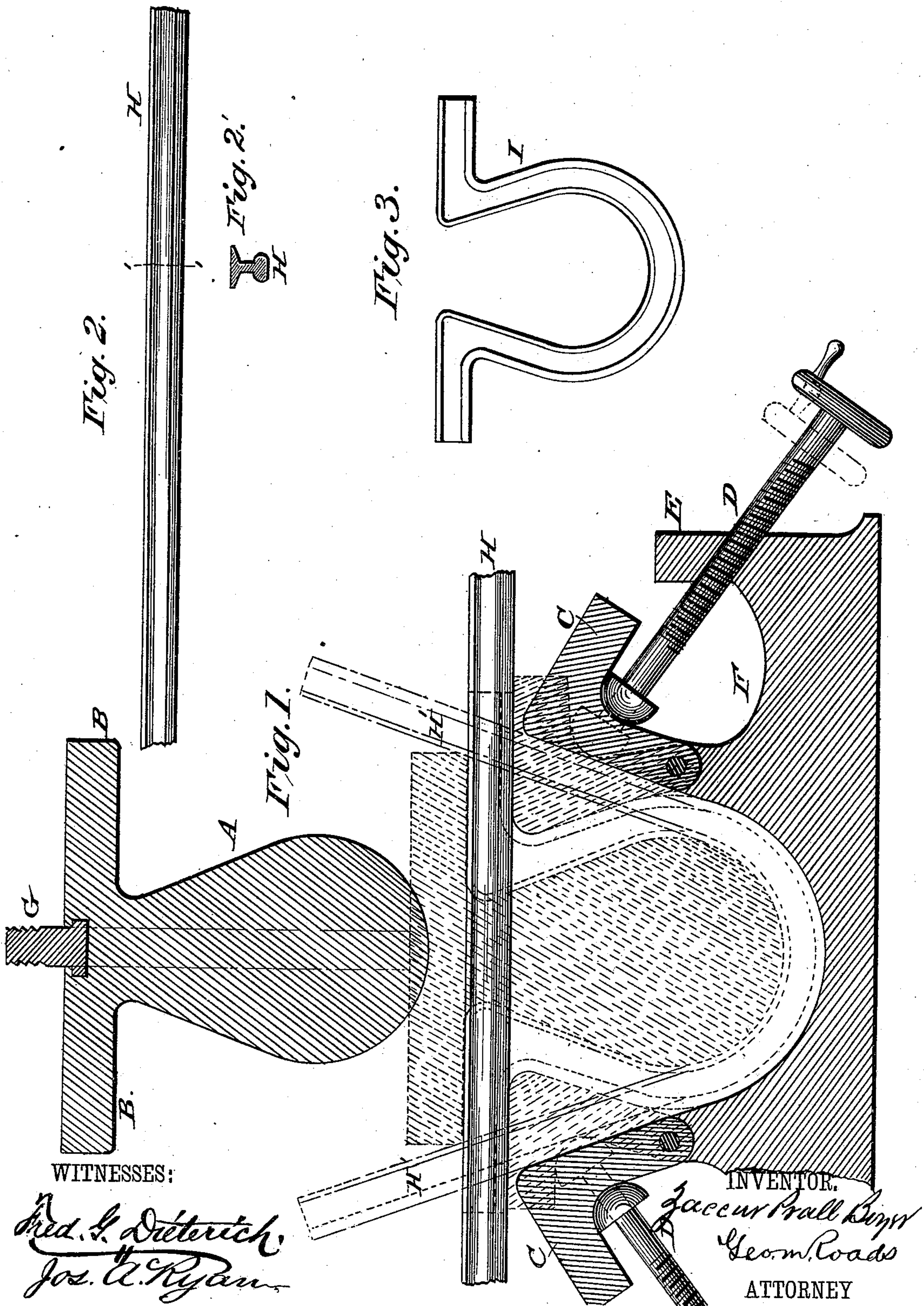
(No Model.)

Z. P. BOYER.

DEVICE FOR BENDING METAL BEAMS OR BARS.

No. 370,371.

Patented Sept. 27, 1887.



UNITED STATES PATENT OFFICE.

ZACCUR PRALL BOYER, OF PHILADELPHIA, PENNSYLVANIA.

DEVICE FOR BENDING METAL BEAMS OR BARS.

SPECIFICATION forming part of Letters Patent No. 370,371, dated September 27, 1887.

Application filed May 23, 1884. Renewed October 13, 1886. Serial No. 216,162. (No model.)

To all whom it may concern:

Be it known that I, ZACCUR PRALL BOYER, a citizen of the United States, residing at Philadelphia, Pennsylvania, have invented a new and useful Device for Bending Metal Beams or Bars into Approximately a Horseshoe Shape, of which the following is a specification.

My invention relates to a device for bending metal beams or bars into approximately a "horseshoe" shape having horizontal wings for the purpose of use as a yoke in the construction of tubes or conduits in cable railways; and my object is to economically bend by the machinery herein described the said bars or beams into the form above described. I attain this object by the mechanism illustrated in the accompanying drawings, which form part of this specification, in which—

Figure 1 represents a vertical section through the device, with the rail in place upon the former, preparatory to the operation of bending. Fig. 2 is a side elevation of the rail. Fig. 2' is a cross-section of rail on line 1 1, Fig. 2. Fig. 3 represents the yoke when completed, similar letters throughout the figures designating corresponding parts.

The device consists, principally, of a die having movable angular jaws or wings and a traveling follower having horizontal wings.

A represents the main body of the follower, around which the rail is pressed to give it the general horseshoe shape.

B are the horizontal wings of the follower, by means of which the horizontal wings of the yoke are formed in connection with the movable angular jaws C. Said jaws C are shown in the present instance as pivoted to the die and operated by screws D and hand-wheels, the former passing through a lug, E, or standard forming part of the base or die; but it is evident that a hydraulic jack or other pressure may be employed in lieu of the screw for the purpose of forcing the jaws of the former into position to form the horizontal wings of the yoke, as also to operate the follower A.

F represents the main body of the die.

H represents the rail previous to being bent or formed into a yoke. It is here represented as an ordinary T-rail, but of course may be of any other form of bar metal suitable for the purpose.

I in Fig. 3 represents the yoke when completed.

The operation of the device is as follows: The rail, being heated to a proper degree, is placed in front of the die and between the same and the follower A, which is given a horizontal motion by means of the screw G or otherwise, as above stated, the effect of which is to gradually force the rail into contact with the walls of the die or former, as into the position shown by the dotted lines H', Fig. 1. When the follower has thus been forced home, power is then applied to the wings C C, the effect of which is to cause the outer ends of the bar to assume a horizontal position nearly at right angles to the horseshoe portion of the yoke, thereby causing the rail to completely embrace the body portion A of the follower. The wings B B of the follower form abutments which cause the ends of the bar to assume a horizontal position during the process of forcing the jaws C inward toward the die. To readily release the yoke thus formed from the follower the wings C are withdrawn into the position they assumed before the horizontal wings of the yoke had been formed, and the follower is then caused to travel back to its normal position, as shown in full lines, Fig. 1, whereupon, in view of the cooling of the yoke, it will from its own weight free itself from the follower A.

It is understood that suitable guides are provided on the upper and lower sides of the follower, to cause the rail, during the process of bending or forcing into the die, to travel in a proper plane and to hold it in its proper position.

The principal feature of this device is that by means of the employment of the hinged jaws of the die I am enabled to bend the bar into the horseshoe shape and at once release it from the machine without the necessity of causing the follower to be withdrawn from the die in any other than the plane in which it travels into the same.

From the foregoing description it is evident that in view of the simplicity of the device great economy is effected in the production of the yoke I, and it is apparent that the length of the rail used for the formation of the yoke is immaterial, this depending upon whether the

horizontal portions thereof are to be extended laterally far enough to underlie the rail-sills or not.

I am aware that it is not new to bend iron bars or wire into various forms through the instrumentality of dies and movable followers or formers, and hence do not desire to claim such devices, broadly.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a device for forming cable - conduit yokes, the combination, with the die or base proper, of the movable hinged jaws C, the operating-rods D, and the reciprocating follower A B, all substantially as shown and described.

2. In a device for bending metal bars into a form approximating that of a horseshoe having horizontal wings, the combination, with a die,

of hinged wings or jaws movable to and from the bar to be operated upon, and a traveling follower, A, having the horizontal wings B, substantially as shown and described.

3. In a machine for bending bar-iron into substantially a horseshoe shape having horizontal wings, the combination of a reciprocating plunger, A B, and the die, of the angular wings C C, hinged to the die, and mechanism, such as described, for operating the plunger and the wings, all substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 23d day of May, 1884.

ZACCUR PRALL BOYER.

Witnesses:

FRED. G. DIETERICH,
GEO. M. ROADS.