

No. 663,598.

Patented Dec. 11, 1900.

W. J. BRADLEY.

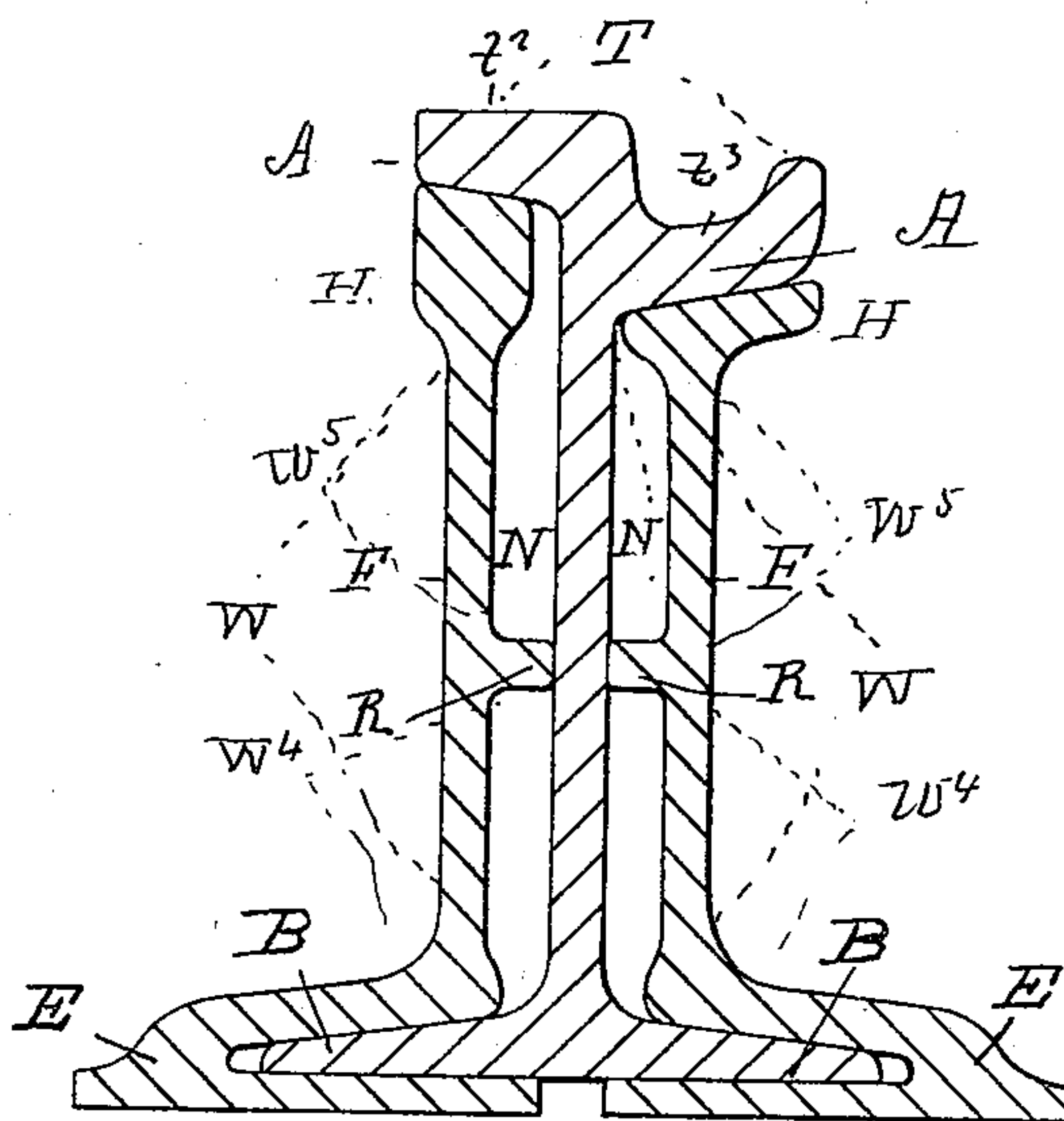
ROLL TRAIN AND ITS PASSES FOR SHAPING BARS FROM WHICH TO SECTIONALLY  
CUT FISH PLATES.

(No Model.)

(Application filed Oct. 23, 1899.)

3 Sheets—Sheet 1.

Fig 1



WITNESSES

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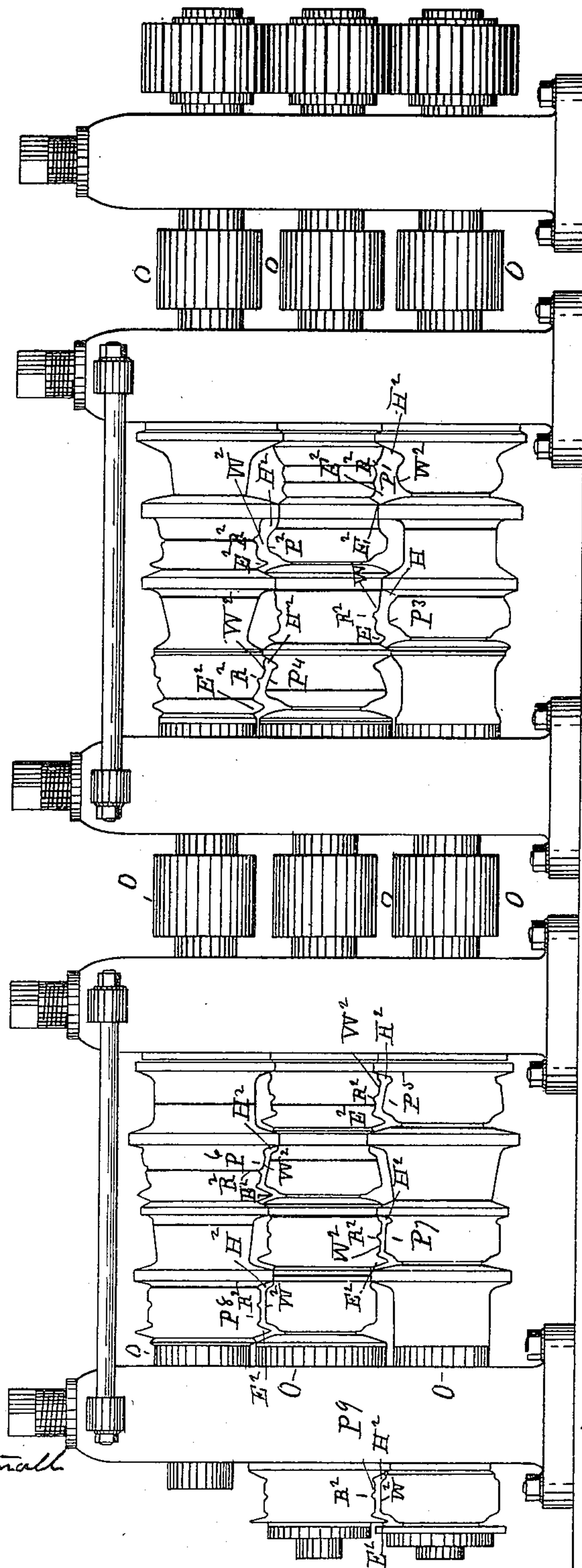
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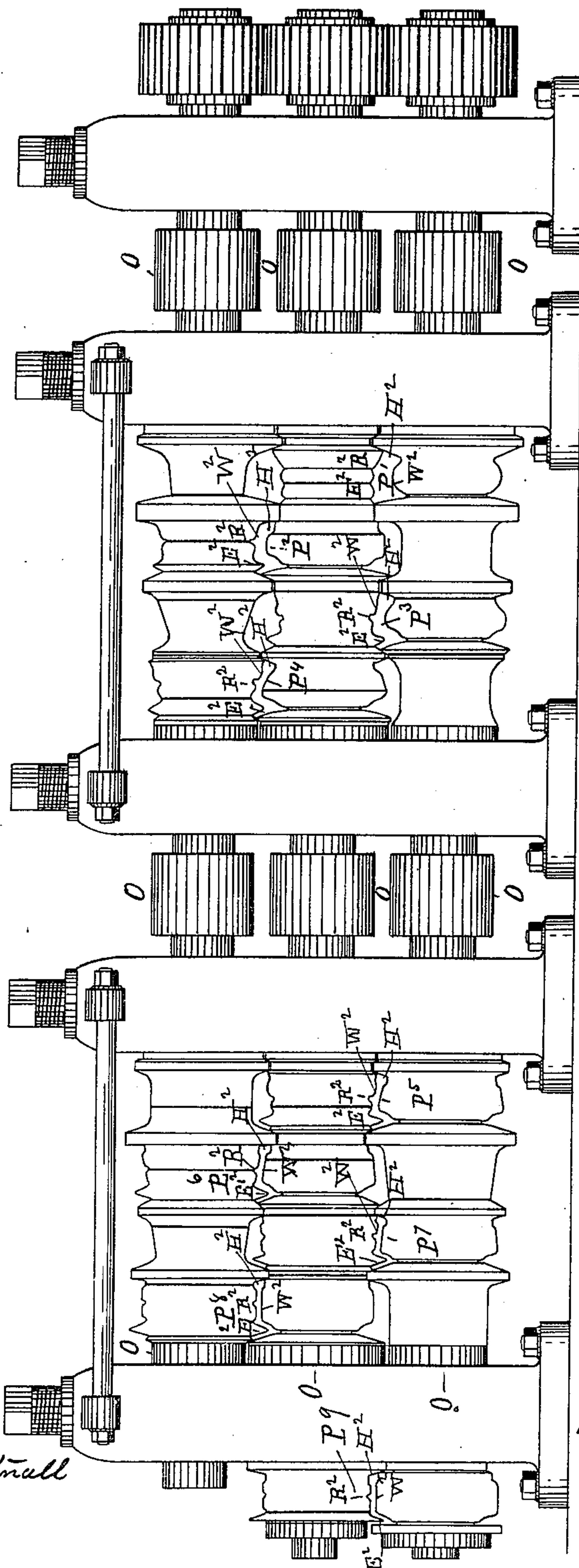
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# UNITED STATES PATENT OFFICE.

WILLIAM J. BRADLEY, OF TROY, NEW YORK, ASSIGNOR TO THE CONTINUOUS RAIL JOINT COMPANY OF AMERICA, OF NEWARK, NEW JERSEY.

ROLL-TRAIN AND ITS PASSES FOR SHAPING BARS FROM WHICH TO SECTIONALLY CUT FISH-PLATES.

SPECIFICATION forming part of Letters Patent No. 663,598, dated December 11, 1900.

Application filed October 23, 1899. Serial No. 734,462. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM J. BRADLEY, of the city of Troy, county of Rensselaer, and State of New York, have invented new and useful Improvements in Roll-Trains and Their Passes for Shaping Bars from which to Sectionally Cut Fish-Plates, of which the following is a specification.

My invention relates to the form given to and the arrangement of the passes of a roll-train whereby a bar may be rolled from which sections having a head, a rib, and an entrant groove and waist may be cut to form fish-plate parts, my improvements upon the passes of a roll-train relating to a means for the addition of a rib, a head, and elongation of the waist to the bar from which the fish-plates shown and described in Letters Patent No. 427,017 are cut, so as to adapt this form of fish-plate to the rails of street-car tracks.

Accompanying this specification to form a part of it there are three plates of drawings containing three figures illustrating the application of my invention, with the same designation of parts by letter reference used in all of them.

Of the illustrations, Figure 1 is a section of a street-car-track rail having fish-plates applied thereto which have been sectionally cut from a bar rolled by a train of rolls having passes containing my invention. Fig. 2 is a side elevation of a train of rolls having passes formed therein adapted to give to a bar rolled by them the proper shape from which to cut sections having the form of the fish-plates shown herein. Fig. 3 is a side elevation of a train of rolls having passes that are interiorly of the same form as those shown at Fig. 2, with the exception that the finishing-pass of the train shown at Fig. 3 is made to give a lateral inclination to that part of the bar which when cut into sections will form the head of the fish-plate.

The several parts of the apparatus thus illustrated are designated by letter reference, and the function of the parts is described as follows:

The letters F designate the fish-plate parts, each of which has an angular recess E, a rib R, and a head H, with the rib laterally projected from the waist W, with that part of

the latter between the angular recess E and the rib R designated at  $w^4$  and that part of the waist between the head H and the rib R designated at  $w^5$ . These fish-plate parts are made from a bar that has been rolled to have the required form and from which bar they have been cut in sections. When used, they are applied to a street-car-track rail, as shown at Fig. 1, in which the rail is designated at A, its tread at T, its tread-flanges at  $t^2$  and  $t^3$ , with its waist at N and its base B at each side entered within what is that part of one of the fish-plates designated as the "angular recess" E and which forms a part of the entrant groove of the bar after having been rolled and before being cut into sections to form fish-plates. The rib parts R of each of the fish-plates are projected laterally from that side of the fish-plate waist wherein the angular recess is formed, so that the rib where located will bear upon the rail-waist N, with the heads of the fish-plates arranged immediately beneath the tread of the rail at each side of the latter.

To roll a bar which will have in cross-section the form of the fish-plates F, the passes  $P^1$ ,  $P^2$ ,  $P^3$ ,  $P^4$ ,  $P^6$ ,  $P^7$ ,  $P^8$ , and  $P^9$  of the rolls O are used. Each of these before-named passes is so formed interiorly as to give to the entered bar by successive increasing development and distribution of metal the form of the entrant groove E, the rib R, and the head H, with the proportion of the waist W, as shown. As illustrated by the interior form of the pass  $P^1$ , the development incipiently of these features of form are designated by letter reference, and this designation is made with like letters indicating the same features of interior form as manifested with increasing development in all the passes.

In the pass  $P^1$  the interior form of the latter which commences to produce the entrant groove in the bar from which the angular recess E of the fish-plate sections are produced is designated at  $E^2$ , that portion of this initial pass which commences the disposition of the metal to form the rib R is designated at  $R^2$ , and that portion of this pass interior which shapes that part of the bar which produces the fish-plate heads of the sections cut from the bar is designated at  $H^2$ , while that por-



tion of the interior of this pass P' by which the disposition of the metal to form the waist of these fish-plate parts is shown is designated at W<sup>2</sup>. The same designation of the interior parts of the other passes having the same functional form, although in differing stages of development, is accomplished by the same letter reference.

The interior form of the passes herein described and shown causes them to differ from the passes of other roll-trains in the fact of their having the intaglio or recessed features E<sup>2</sup>, R<sup>2</sup>, H<sup>2</sup>, and W<sup>2</sup>, by which a form is given to a bar rolled by them from which sections may be cut to produce the fish-plate parts F, each having the angular recess E, the rib R, the head H, and the waist W, and to which fish-plates, independently of the form given to the passes of a train to produce them, I make no claim.

I make no claim to the form of the fish-plate parts herein described and shown, my invention being limited to the mechanism which I illustrate as constructed and arranged to produce the form of bar from which sections are cut to produce the fish-plate parts.

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

1. The combination with a roll-train of a series of passes having interiorly arranged therein with intaglio production and in consecutive measures of development from the first pass to the last pass of the train, the entrant-groove formation E<sup>2</sup>, the rib formation R<sup>2</sup>, the head formation H<sup>2</sup>, and that of the waist W<sup>2</sup>, whereby a bar rolled thereby when cut into sections will produce the fish-plates F, having the recess E, the rib R, the head H, and the waist W, substantially as described.

2. The combination with a train of rolls of a series of passes having interiorly arranged the intaglio elements of form produced in consecutive measures of development from the initial to the finishing passes of the train, of the entrant groove E<sup>2</sup>, the head H<sup>2</sup>, the rib R<sup>2</sup>, and the waist W<sup>2</sup>, whereby there may be cut from a bar rolled thereby sections having the form of the fish-plates F, as herein described.

Signed at the city of Troy, New York, this 24th day of June, 1899, and in the presence of the two witnesses whose names are hereto above written.

WILLIAM J. BRADLEY.

Witnesses:

CHARLES S. BRINTNALL,  
WILLIAM E. HAGAN.