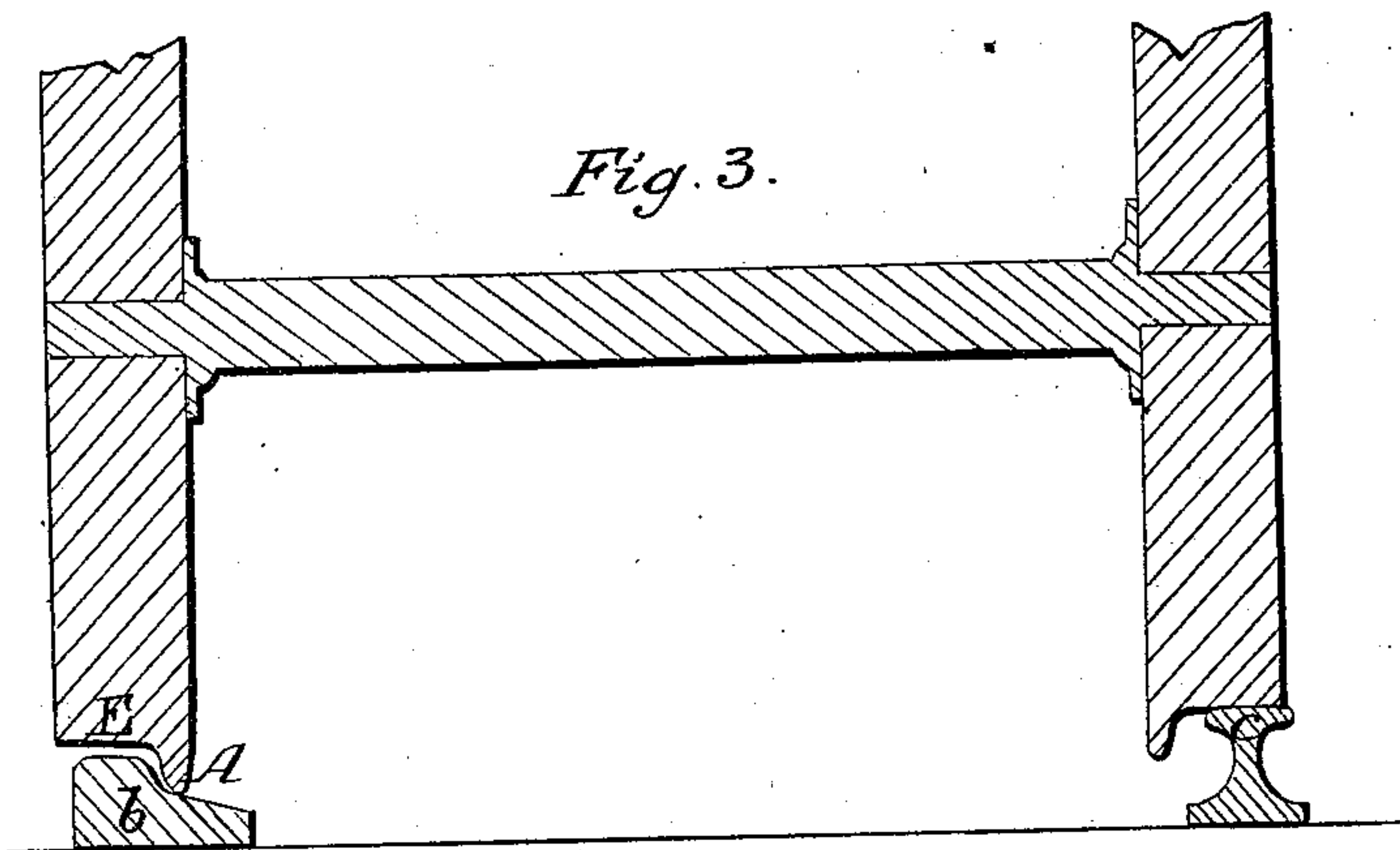
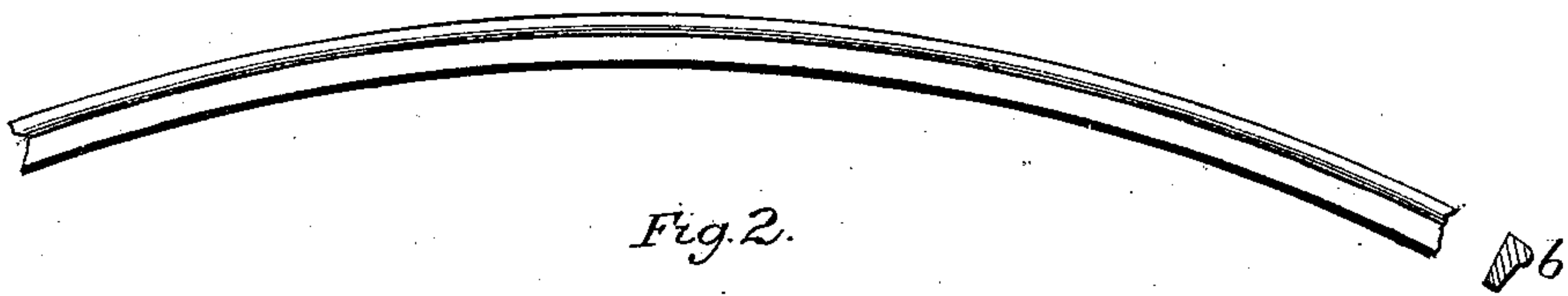
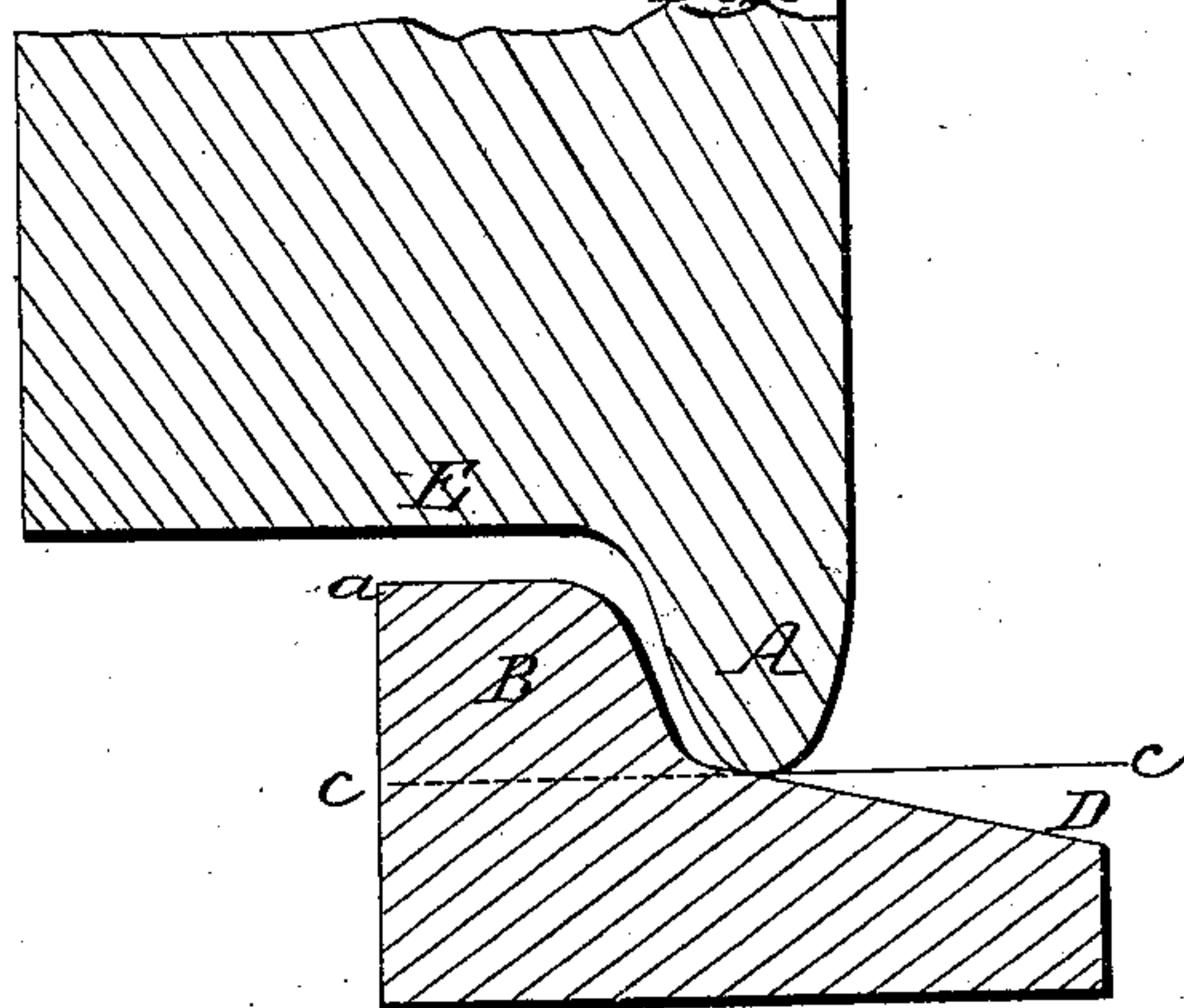


*H. M. Naglee,*  
*Railroad Track,*

*No. 1,726. Fig. 1.*

*Patented Aug. 22, 1840*





# UNITED STATES PATENT OFFICE.

HENRY M. NAGLEE, OF PHILADELPHIA, PENNSYLVANIA.

## MODE OF CONSTRUCTING RAILWAY TRACKS OR RAILS TO ENABLE CARS TO TURN SHORT CURVES.

Specification of Letters Patent No. 1,726, dated August 22, 1840.

*To all whom it may concern:*

Be it known that I, HENRY M. NAGLEE, of the city of Philadelphia, in the State of Pennsylvania, civil engineer, have invented a new and useful improvement in the mode of constructing or forming railway-tracks, by means of which improved construction railway cars and carriages are enabled to run around short curves at the corners of streets and in other situations with greater facility than by any other known plan; and I do hereby declare that the following is a full and exact description thereof.

Where curves are to be formed in railways for the purpose of enabling railroad cars and carriages to turn around the corners of streets, or in other situations where it is necessary that such curves should be of much shorter radius than that usually admitted on railway tracks, I construct a rail, usually of cast-iron, which rail is to constitute the convex side, or rail of largest radius, in such manner as that the wheel which is to pass around it will run either on its ordinary tread, or upon its flanch, and will thereby adjust itself to the designated curve. The inner rail of the curve, or that of shortest radius, may be the ordinary edge-rail, or any of the other rails in common use, which may suit the particular location of the curve.

Figure 1, in the accompanying drawing, is a cross section of the cast-iron rail, and of the wheel thereon, drawn to one-half of the actual size, the wheel being shown as sustained, and running upon its flanch; Fig. 2, is a top view of the two rails, drawn to a reduced size, and Fig. 3, a cross section thereof, with the wheels upon the rails.

The height of the flanch of the wheel A, Fig. 1, is one inch and a quarter, more or less; and upon the outer rail I make a projection, or rise, B, which is elevated above the horizontal line C, C, one inch; the inclined plane being continued from this line to the commencement of the elevation B. When the flanch A, of the wheel approaches the projection B, it will, in consequence of the inclination which I give to the inner portion D, of the rail, be brought into contact with said inclined part, and have its bearing upon it; and this will tend to raise the tread E, of the wheel, above the upper part of the rail B, C, D, upon which it runs

until the curvature of the rail brings the flanch into contact with the inclined plane which descends toward D, so that, ordinarily the tread E, bears on the elevation B. It will, manifestly, be a consequence of this construction that when the curvature given to the rails is less than that which would enable the flanch of the outer wheel, and the tread of the inner wheel, to roll around equably on the respective rails, the flanch will be brought into contact with, and will roll around upon, a more elevated part of the inclined plane of the outer rail, while the projection B, will serve as an effective check and guide, should the flanch be brought into actual contact with it. When the radius is greater than this, the wheel in turning will run alternately upon its flanch and its tread, on the outer rail, and will thus become self-regulating; the distance between the two rails being, of course so adjusted as to admit of the necessary play.

In Fig. 1 the upper and outer angle  $\alpha$ , of the outer rail is left perfect, as this will admit of the paving directly up to, and flush with, it, when desired; in the other figures, this corner is shown as rounded off, but neither of these modes of forming the rail affects the principle of construction, or manner of operation;  $b$ , and  $c$ , Figs. 2, and 3, are end views of the respective rails.

Having thus, fully described the nature of my improvement in the construction of rails for enabling cars and carriages to turn with facility upon short curves, what I claim therein as constituting my invention, and desire to secure by Letters Patent, is—

The manner of forming the outer rails of such curves with the projection B, and the inclined plane D, in such manner, and in such proportion to the flanch and tread of the wheel, and the curvature of the rails, as that they shall coöperate, in the manner set forth, in producing the effect herein fully described; the inner rail, in this case, being one of the ordinary kind, and a grooved, or guard rail not being necessary, or indeed admissible.

HENRY M. NAGLEE

Witnesses:

J. MORRELL,  
ROBERT B. MORRELL.