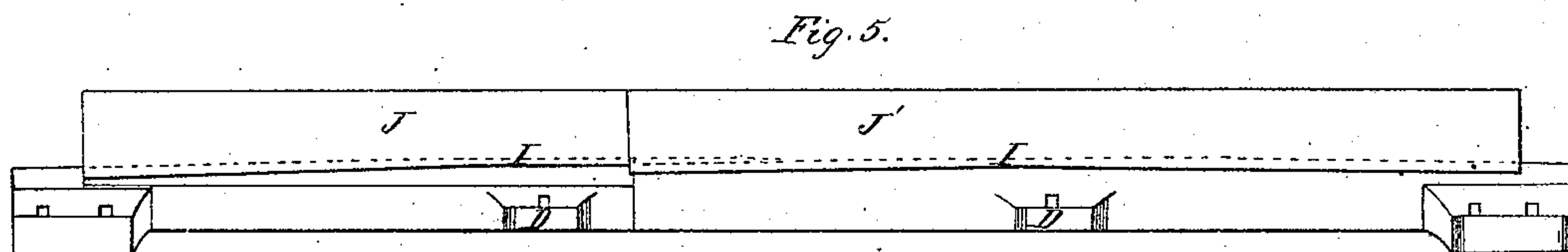
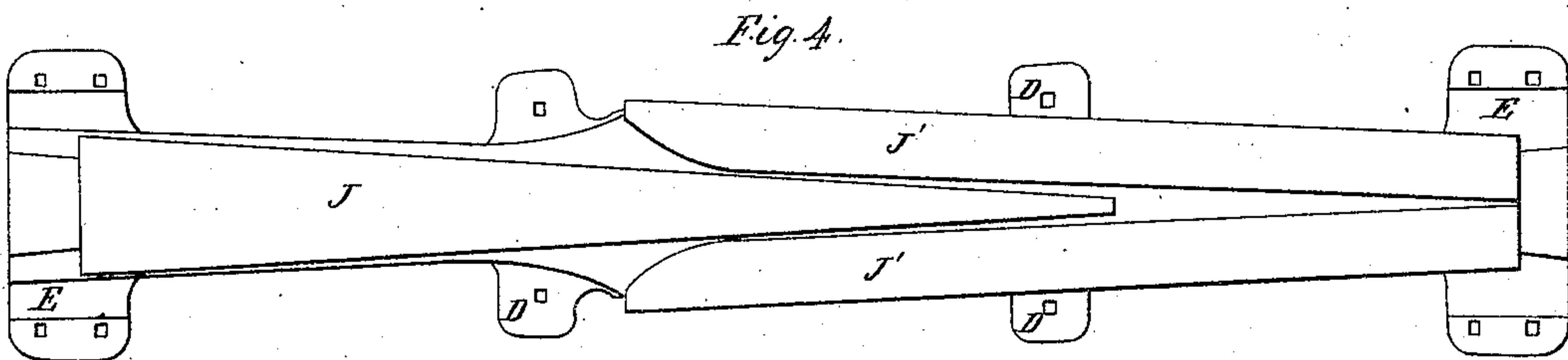
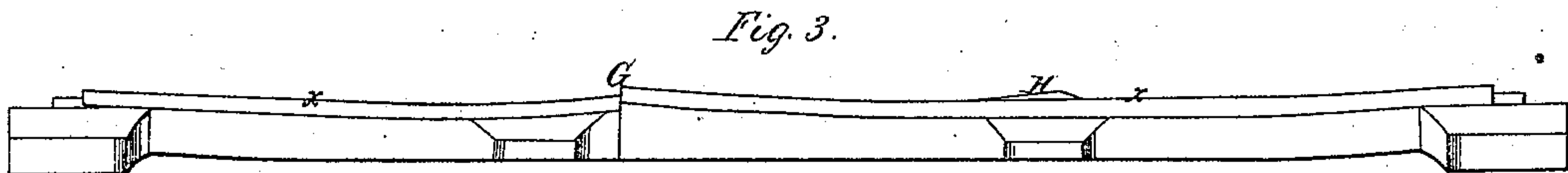
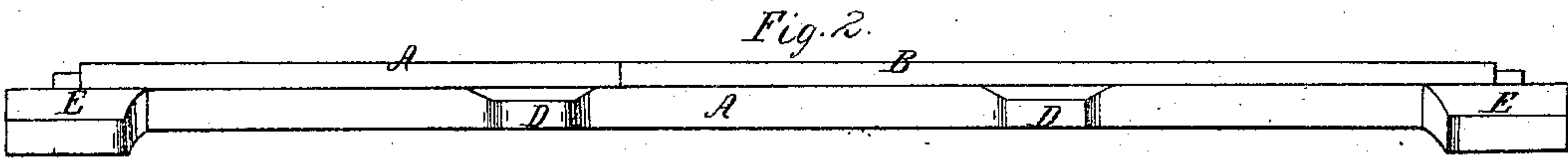
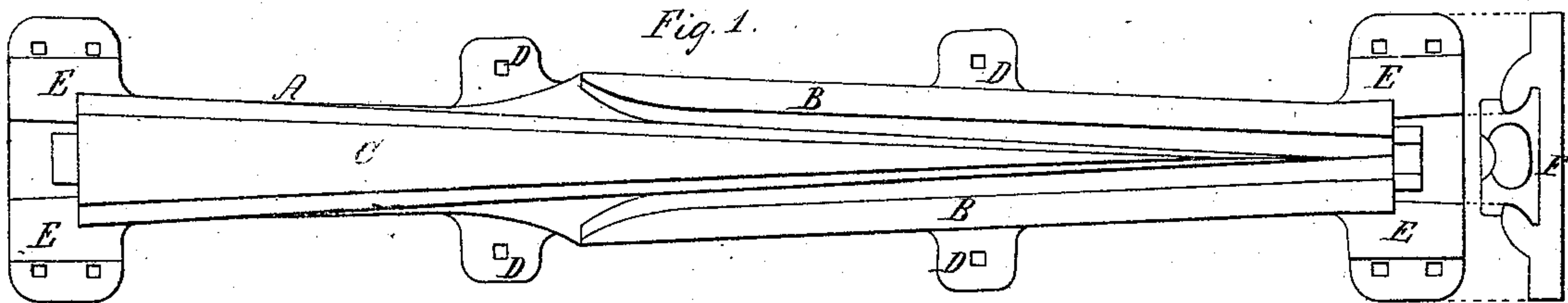


N. P. Bowler.

Making Railroad Track Irons.

N^o 63,203.

Patented Mar. 26, 1867.



Witnesses;
W. H. Burdige
J. Holmes

Inventor;
N. P. Bowler

United States Patent Office.

N. P. BOWLER, OF CLEVELAND, OHIO, ASSIGNOR TO HIMSELF, THOMAS MAHER, WILLIAM BOWLER, AND J. W. LUNT, OF THE SAME PLACE.

Letters Patent No. 63,203, dated March 26, 1867.

IMPROVED RAILROAD FROG.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, N. P. BOWLER, of Cleveland, in the county of Cuyahoga, and State of Ohio, have invented certain new and useful improvements in Railroad Frogs; and I do hereby declare that the following is a full and complete description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a top view of an improved frog.

Figure 2 is a side view of the same.

Figure 3 is a side view of the old-shaped frog.

Figure 4 is a top view of a frog, with the chills attached.

Figure 5 is a side view of the same.

Like letters of reference refer to like parts in the several views.

A, fig. 1, is the frog, of which B B are the side rails and C the central rail. D are ears, by which the frog is spiked to the cross-ties. E are chairs, by the means of which the rails of the road are secured to the frog; an end view of the same is shown at F. Fig. 2 is a side view of the frog, in which it will be seen that the face of the side rails and centre rail is perfectly level, whereas the old frog is not, as is shown in fig. 3. In this figure it will be observed that the inner end of the side rails projects above the general surface of the frog, as seen at G; and so also does the pointed end of the central rail, as seen at H, producing thereby a downward curving of the tread of the rails. This curving of the rails is caused by the chills, in which the tread of the rail is cast, by the sudden contraction of the metal, in immediate contact with the chills, thereby throwing up the ends, as above described. This curving of the rail does not take place when the softer or lower grades of iron are used for this work. It results only when the higher grades or hard iron is used. Hence frogs have been usually made of soft iron, and faced with steel; and when used without being thus faced, as they sometimes are, they soon wear out, and therefore become very expensive; and so, on using the higher grades of iron for frogs, in consequence of the curving they offer projecting points, against which the passing wheels strike, which often results in the breaking of the frog, or its displacement, and frequently the breaking of the wheels, and thereby throw the car off the rails. In order to obviate this curving of the frog, when made of a higher grade of iron, so that when it is cast it will be straight, the pattern of the frog is made to curve upward at the points *x*, so that the face of the rails of the pattern at these points is the reverse of that in the old frog, as shown in fig. 3. This fullness of the rails is indicated by the dotted line I, fig. 5, in which it will be seen that the general surface of the frog is rounded; and thus is provided a compensatory measure to meet the curving of the frog when cast in the chill, so that, when the frog or the rails of the frog bend in the process of chilling, they shall be straight when cold, as shown in fig. 2. The depression of the additional thickness at the points *x*, making the tread of the rails perfectly level, also the additional thickness, gives greater strength to the frog; hence it is less liable to break; and being made of a higher grade of iron, will wear much longer than one made of a low grade, and therefore it is largely cheaper. The chills in which the rails are cast are shown in fig. 5, in which J is the chill of the centre rail, and J' the chills of the side rails. These chills are shown as being placed upon the frog, and the shape of which is such as to conform to the upward curving of the rails, and will secure the tread of the rails the desired curvature, even if the rail on the pattern be without it. Hence it is found in practice that the curvature of the pattern may be omitted if the chill be provided with it.

I am aware that frogs have been made of cast iron, with chilled treads; but those which have been made of a low grade are soft, and very soon wear out, whereas those made of a high grade are imperfect, in consequence of this springing in the manner as above described. Hence they are very liable to break, and are therefore expensive. But that which distinguishes my invention is the making a frog of a high grade of iron, so that when made the tread of the rail shall be as straight as a frog made of soft or low grade of iron, and by this means obtain a frog that is durable, and, as a consequence, cheaper than those made in the old way.

What I claim as my improvement, and desire to secure by Letters Patent, is—

Making railroad frogs by the method and in the manner substantially as specified.

N. P. BOWLER.

Witnesses:

FREDK. A. BRAND,

J. P. McMAHAN.