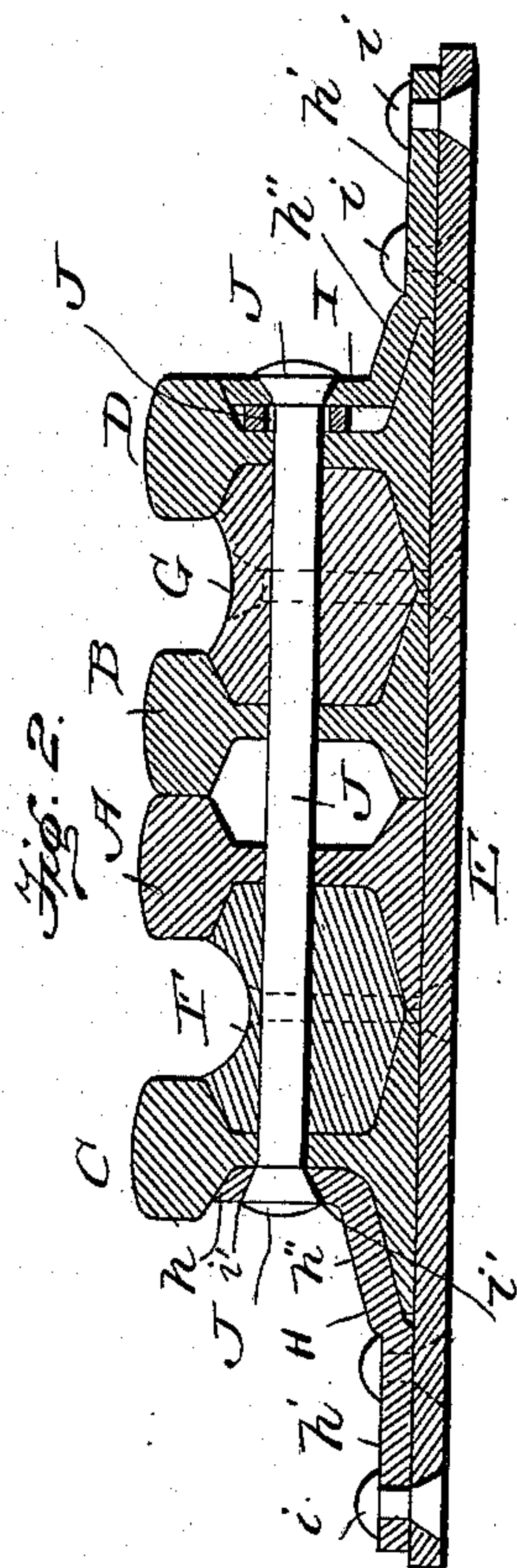
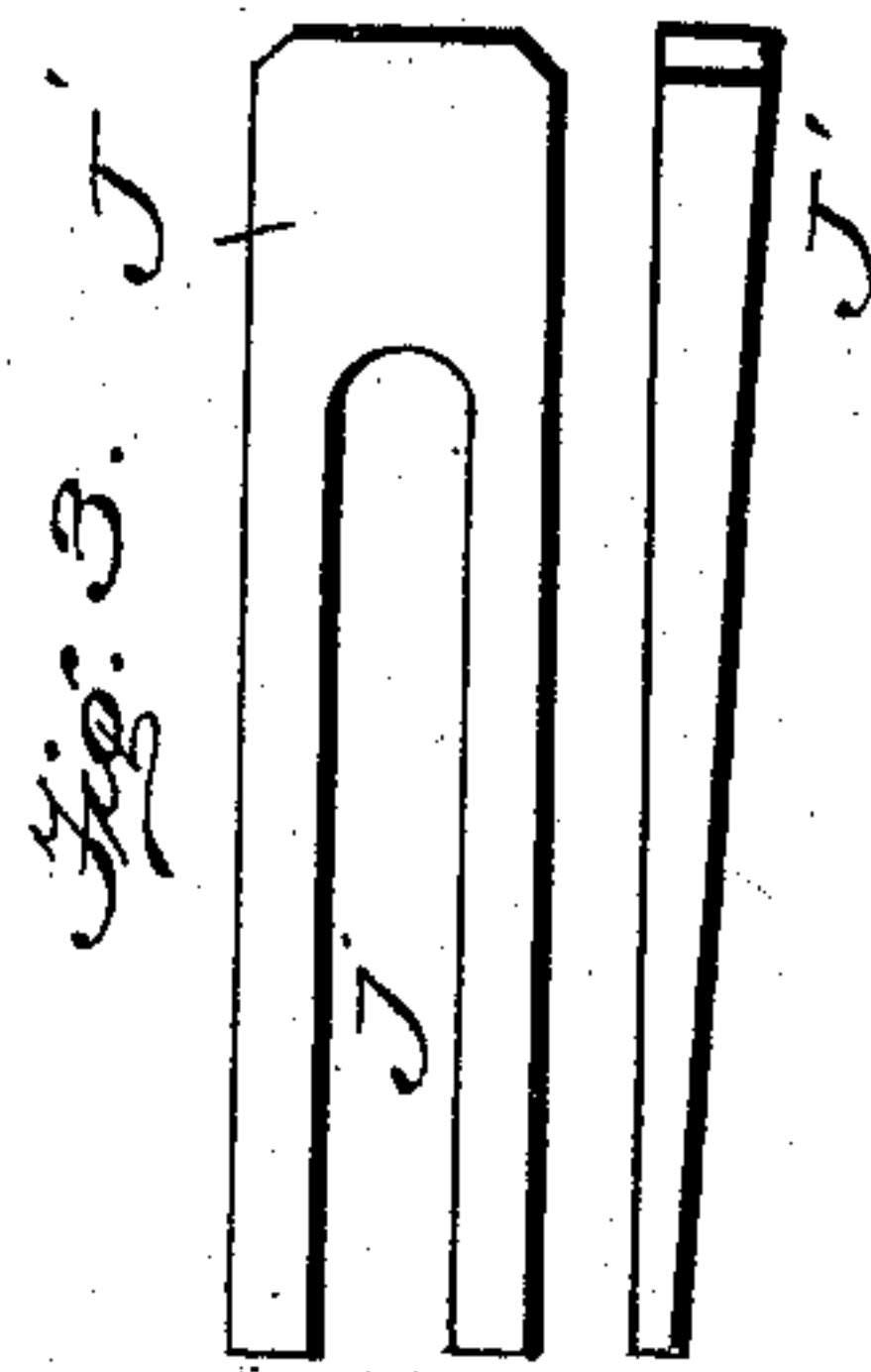
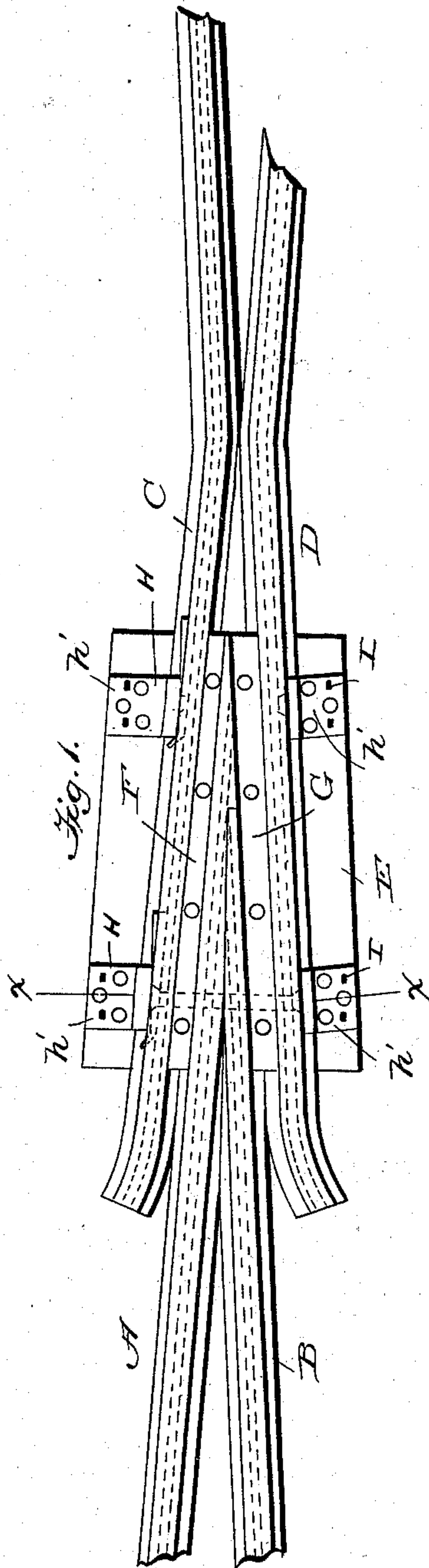


(No Model.)

N. W. BOYD.
RAILWAY FROG.

No. 505,023.

Patented Sept. 12, 1893.



witnesses:

Wm. C. Ashiee
H. J. Buckner

Inventor:

N. W. Boyd
Edson Bros
Atty's.

UNITED STATES PATENT OFFICE.

NATHANIEL W. BOYD, OF CARLISLE, PENNSYLVANIA.

RAILWAY-FROG.

SPECIFICATION forming part of Letters Patent No. 505,023, dated September 12, 1893.

Original application filed September 12, 1892, Serial No. 445,658. Divided and this application filed February 15, 1893. Serial No. 462,425. (No model.)

To all whom it may concern:

Be it known that I, NATHANIEL W. BOYD, a citizen of the United States, residing at Carlisle, in the county of Cumberland and State of Pennsylvania, have invented certain new and useful Improvements in Stiff Railway-Frogs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in railway frogs, and the object in view is to provide simple means for immovably holding and bracing in the position the point and main line rails of the frog to prevent the same from spreading under the impact and pressure of the wheels of a railway train.

With these ends in view, the invention consists in the combination with the rails, distance blocks, and a bearing plate, of outside braces fixed to the bearing plate and fitted against the feet and webs of the outside rails of the frog, a through bolt passing through said braces, rails and distance blocks, and a slotted key forced between one of the rails and the adjacent brace.

The invention further consists in the combination with the rails, distance blocks, and a bearing plate, of the fixed braces fitted against the outside rails and each provided with a countersunk opening, and a through bolt having one head thereof seated in the countersunk opening of one brace and its other end upset or swaged to form a head which is seated or fitted in the countersunk opening of the other brace.

The invention further consists in the combination with the rails, a bearing plate, and distance blocks, of braces each fastened to the bearing plate and bent to fit against the foot and web of one outside rail, a double headed through bolt passing through said braces, rails and distance blocks, and seated against the braces, and a slotted key.

I have illustrated my invention in the accompanying drawings forming a part of this specification, and in which—

Figure 1 is a plan view of a stiff frog embodying my improvements. Fig. 2 is a vertical cross sectional view through the same

on the plane indicated by the dotted line *xx* of Fig. 1. Fig. 3 is a detail view of the key, showing the same by plan and edge views.

The invention which forms the subject matter of my present application forms a division of an earlier application filed by me on the 12th day of September, 1892, Serial No. 445,658.

This application is restricted to the combination and construction of parts forming a stiff or rigid frog in which all of the parts of the frog are rigidly or immovably held in place, while the original application just referred to relates to a spring rail frog in which one of the rails is capable of a limited lateral play or movement relative to the stiff or rigid body of the frog and normally held in lateral contact with said stiff body by means of tension or pressure springs, as will more fully and at large appear by reference to said application Serial No. 445,658.

Like letters denote like parts in all the figures of the drawings, referring to which—

A, B, designate the fixed frog rails and C, D, are the main line rails of a railway track and frog, which rails are seated or bear on a bearing plate E placed underneath the rails and firmly spiked or otherwise fixed on the ties of a track. This bearing plate E may be made of a single, continuous flat piece of metal, as shown in Figs. 1 and 2, or it may be made in sections, each of which is spiked to a tie; hence I do not strictly confine my invention to the use of either a single or continuous plate or a sectional bearing plate, either of which is within the scope of my invention. All the rails forming the body of the frog are united and braced solidly together to prevent them from spreading under the action of the wheel-flanges and the weight of a passing train by the novel devices which I will now describe. The frog and main line rails are arranged in the usual manner, and between the adjacent frog and main line rails A, C, and B, D, are interposed, respectively, the distance or filling blocks F, G, which lie a suitable distance below the heads of the rails and which extend from the frog-point a proper distance toward the ends of the main line rails. The main line rails C, D, and the whole frog, are braced

and strengthened by means of the braces H, I, which are fixed or rigidly united to the bearing plate E and are arranged to bear against the outside of the webs of said rails C, D.

5 The fixed braces H, I, are each preferably made of a single piece of metal, and consist of a vertical arm, h , a flat horizontal base h' , and an inclined arm h'' , which arm joins the vertical upper arm h and the flat base h' .

10 The flat base of the brace is riveted or otherwise united, at i , to the bearing plate E, and the inclined and vertical arms bear firmly against the foot and web of the rail, as shown more clearly by Fig. 2.

15 Through the rails, filling or distance blocks, and the upper parts of the braces, H, I, are passed the through bolts J, which secure the several parts so firmly and rigidly together that the rails cannot be separated or "spread"

20 apart by the action of the wheel flanges or the weight of a train. This through bolt is of peculiar form, and without a nut or other kind of removable fastening, said bolt having an imperforate plain shank and integral

25 head at one end of said shank. The bolt is passed through aligned openings in the braces, distance blocks, and the rails, with the head thereof resting in a countersunk opening i' in one of the braces, and the other end of the

30 bolt having been heated, the metal is upset or swaged to form another head which fits in a similar countersunk recess in the other brace on the opposite side of the frog, whereby the bolt is secured without employing a

35 nut or fastening of any kind.

Between the web of one of the main line rails and one of the braces is fitted a tapering key or wedge J' , which is provided with a longitudinal slot j , see Fig. 3, that receives the

40 bolt within itself, said tapered key serving to bind the parts tightly together after the bolt has been applied, in the manner described in my prior patent No. 462,297, dated November 3, 1891.

45 I am aware that changes in the form and proportion of parts and details of construction

of the device herein shown and described as an embodiment of my invention can be made without departing from the spirit or sacrificing the advantages of my invention, and I 50 therefore reserve the right to make such modifications and alterations as fairly fall within the scope of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by 55 Letters Patent, is—

1. In a stiff railway frog, the combination with the rail, the distance blocks, and a bearing plate, of the outside braces H, I, fixed to the bearing plate and fitted against the feet 60 and webs of the outside rails of the frog, the through bolt passing through said braces, rails and distance blocks, and the slotted key J forced between one of the rails and the adjacent brace, substantially as and for the purpose described. 65

2. In a stiff railway frog, the combination with the rails, the distance blocks, and the bearing plate, of the fixed braces H, I, fitted against the outside rails and each provided 70 with a countersunk opening, and the through-bolt having one head thereof seated in the countersunk opening of one brace and its other end upset or swaged to form a head which is seated or fitted in the countersunk opening 75 of the other brace, substantially as and for the purpose described.

3. In a stiff railway frog, the combination with the rails, a bearing plate, and the distance blocks, of the braces H, I, each fastened 80 to the bearing plate and bent to fit close against the foot and web of one outside rail, the double-headed through bolt passing through said braces, rails and distance blocks, and seated against the braces, and the slotted key, sub- 85 stantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

NATHANIEL W. BOYD.

Witnesses:

JOHN R. MILLER,
W. A. KRAMER.