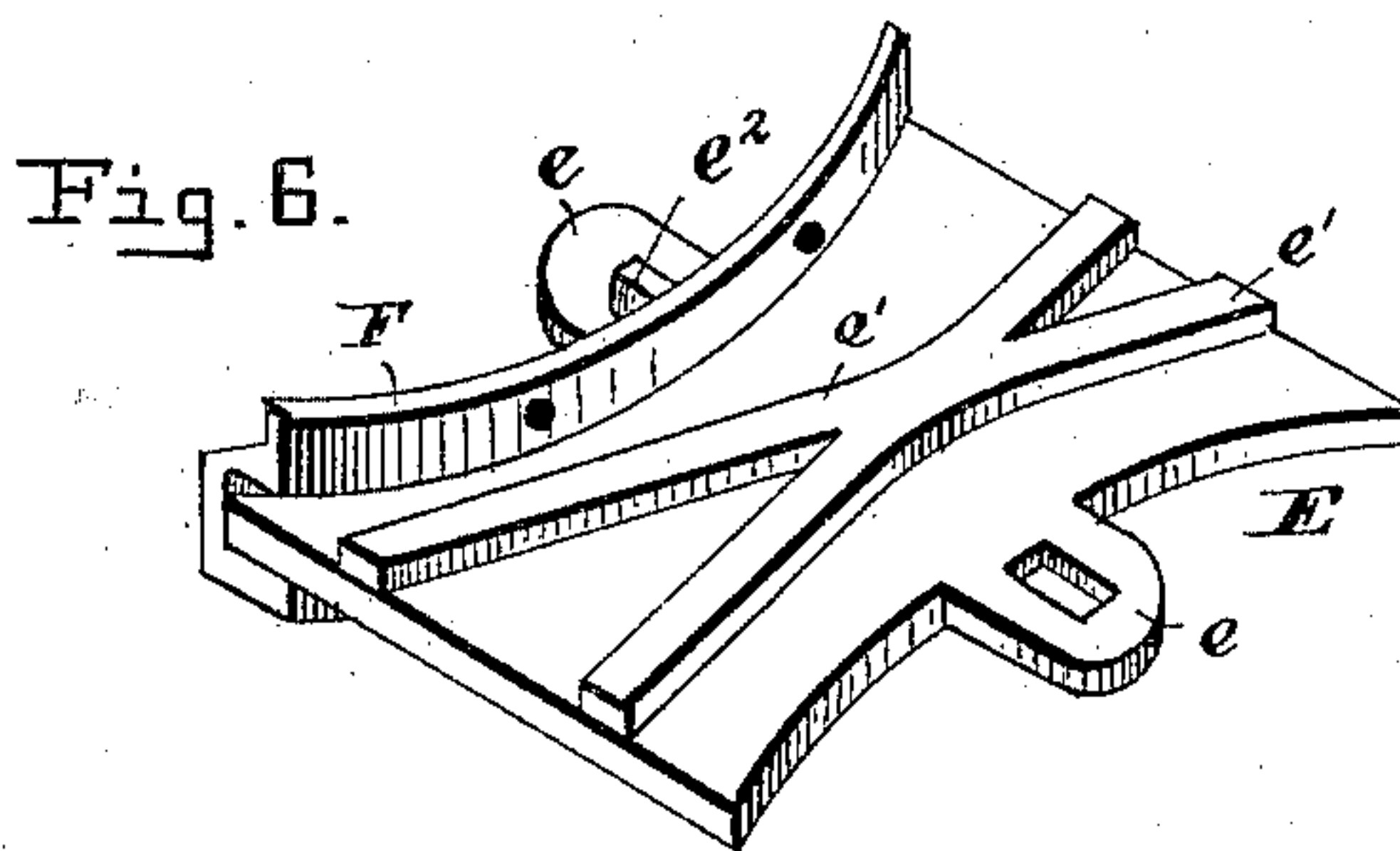
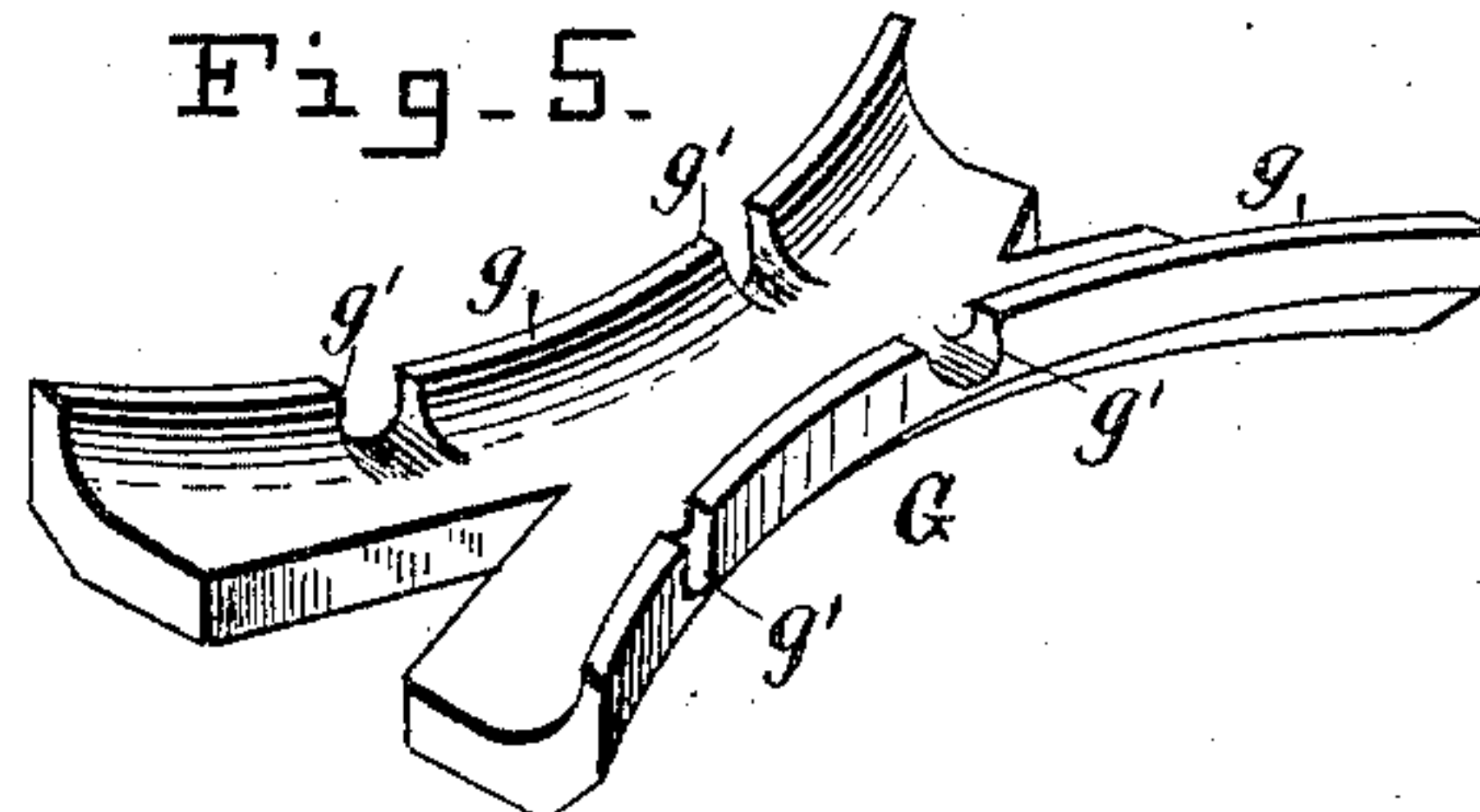
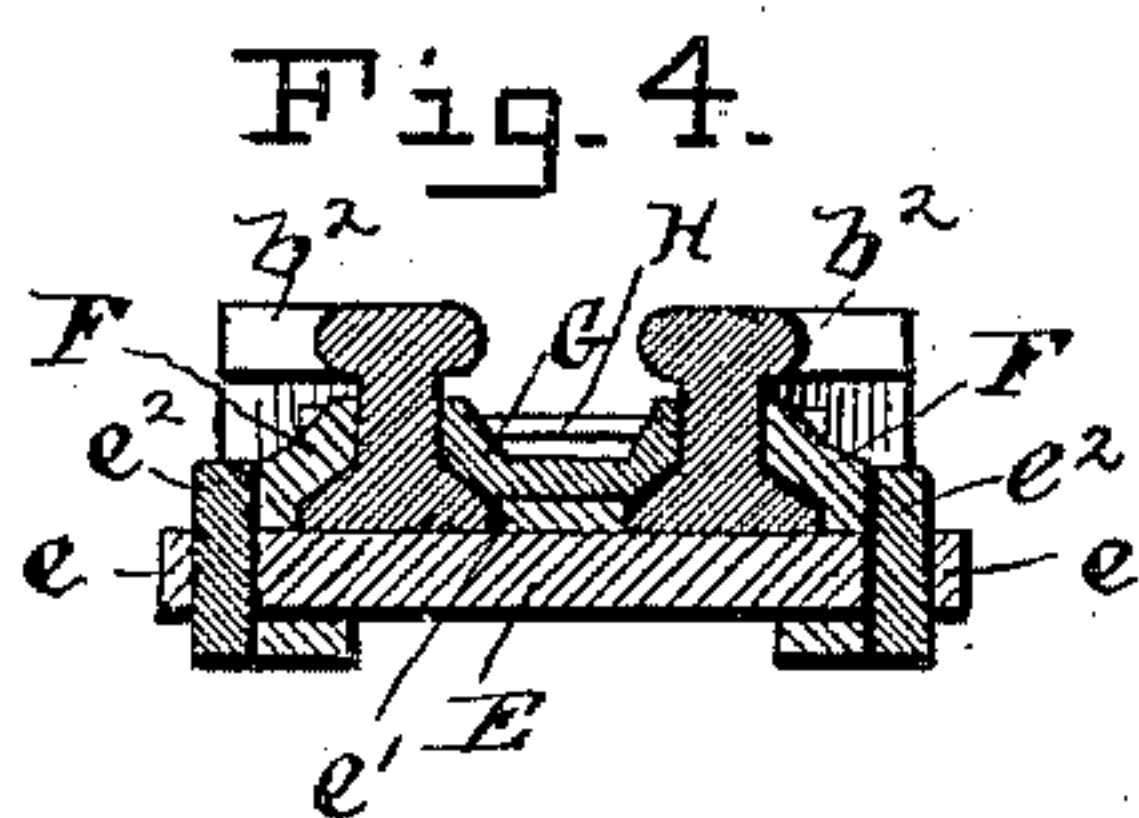
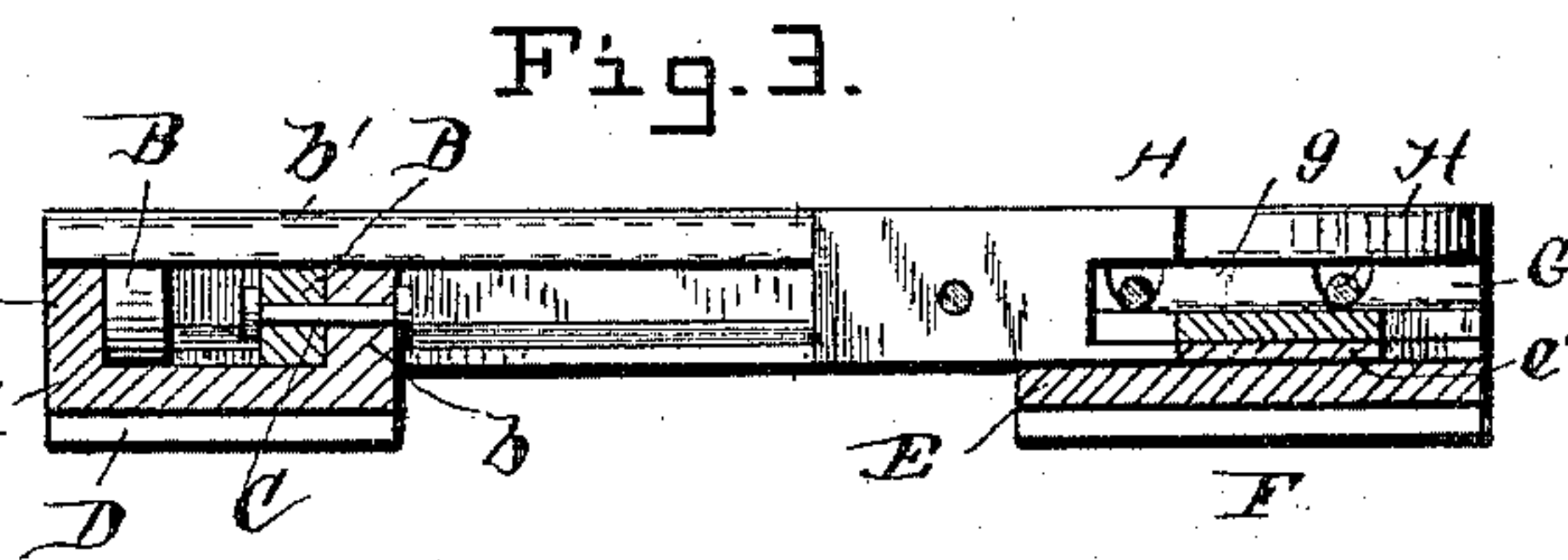
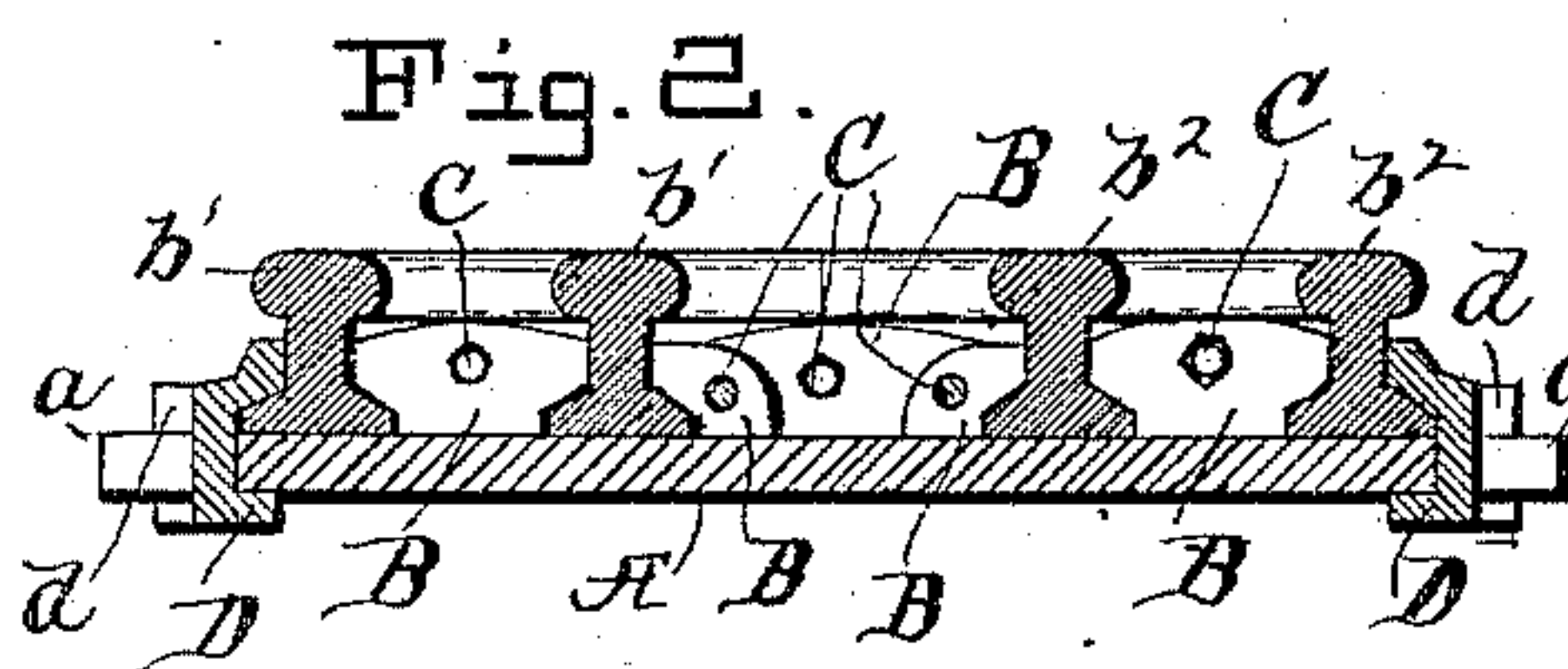
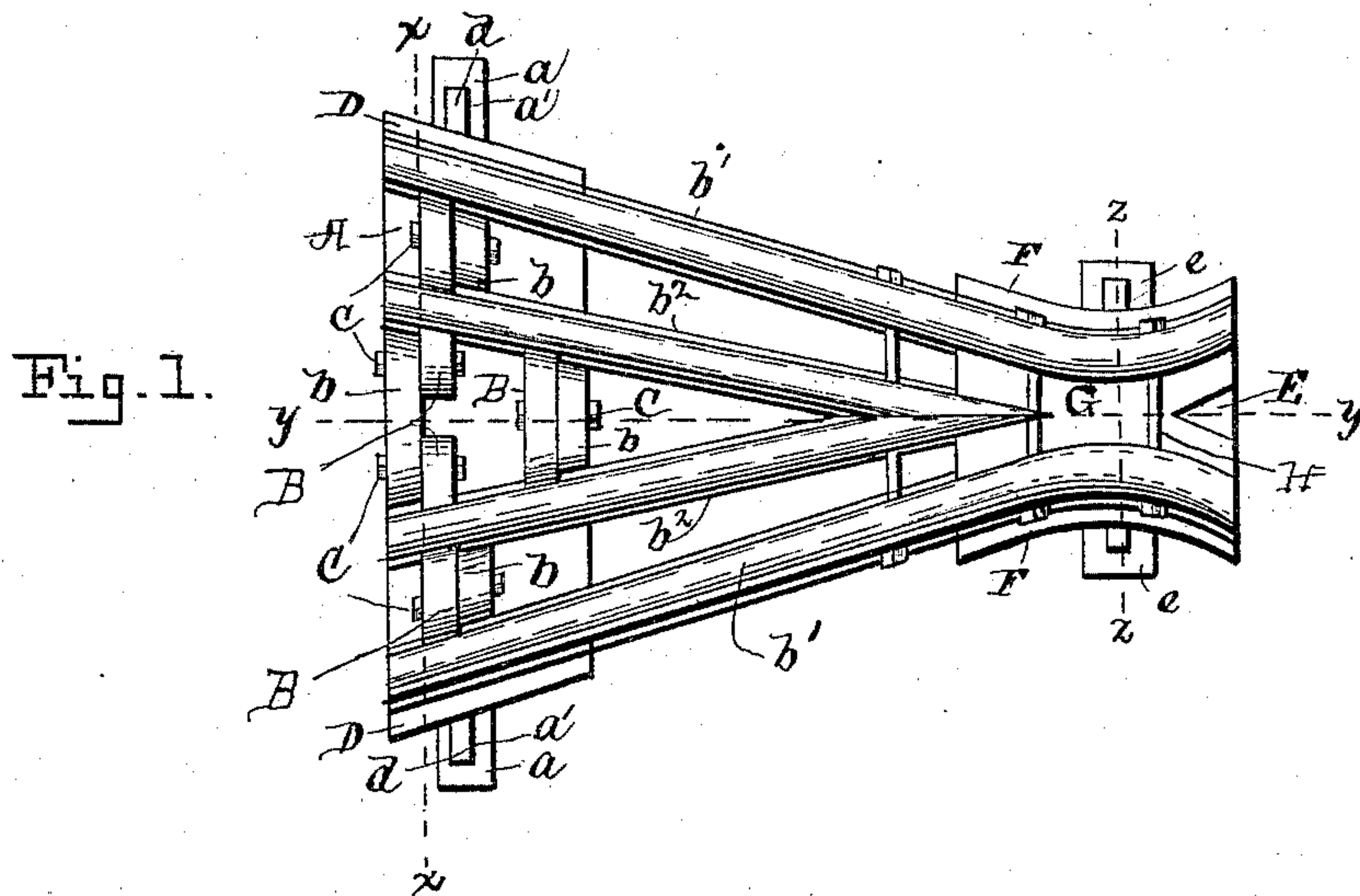


(No Model.)

G. N. MOATS & C. R. CRAWSHAW.
RAILWAY FROG.

No. 445,839.

Patented Feb. 3, 1891.



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE N. MOATS AND CHARLES R. CRAWSHAW, OF IRONTON, OHIO.

RAILWAY-FROG.

SPECIFICATION forming part of Letters Patent No. 445,839, dated February 3, 1891.

Application filed November 1, 1890. Serial No. 370,023. (No model.)

To all whom it may concern:

Be it known that we, GEORGE N. MOATS and CHARLES R. CRAWSHAW, citizens of the United States of America, residing at Iron-
5 ton, in the county of Lawrence and State of Ohio, have invented certain new and useful Improvements in Railway-Frogs, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention pertains to a new and improved railroad-frog, having for its object the production of simple and highly-efficient means whereby the rails are firmly and securely locked or held to each other and to
15 their bed-plates.

The invention comprises the detail construction, combination, and arrangement of parts, substantially as hereinafter fully set forth, and particularly pointed out in the
20 claims.

In the accompanying drawings, Figure 1 is a top plan view of our improved frog. Fig. 2 is a cross-sectional view on the line xx , Fig. 1. Fig. 3 is a sectional view on the line yy ,
25 taken at right angles to Fig. 2. Fig. 4 is a cross-sectional view on the line zz , Fig. 1. Fig. 5 is a view of the central fish-plate. Fig. 6 is a detail view showing the bed-plate and one of its securing fish-plates.

30 Referring to the drawings, A designates a bed-plate, which is rigidly secured by spikes to the ties or sleepers and is provided with ears or lugs a , having slots a' . To the upper surface of this bed-plate are secured or formed
35 integral therewith lugs or buttons b , which are designed to project up between the rails b' b' and b^2 b^2 . To these lugs or buttons b are rigidly secured brace-bars B, which at their ends bear firmly against opposite points
40 of adjoining rails, whereby the latter are firmly held in place with relation to each other. These brace bars and lugs or buttons have coincident holes or apertures, through which
45 nutted bolts C are passed for firmly holding the parts together.

D D designate outer brace-plates which conform to the outer sides of the outer rails and the ends of the bed-plates, said brace-plates being provided with holes or openings,

through which ears or lugs a extend, skew- 50 back pins d , inserted in slots a' , serving to hold said plates together.

E is a second bed-plate having curved sides and ears or lugs e projecting therefrom, and on the upper surface of this plate are formed 45 X-shaped ribs or ridges e' , against the outer surface of which bear the inner curved portions of rails b' , and into its vertex fit the V-shaped ends of the rails b^2 .

To the outer sides of the rails are secured 60 curved brace-plates F, which are provided with slots or openings, through which ears or lugs e project, skew-back pins e^2 being inserted through slots in said ears or lugs.

G is a central approximately X-shaped fish- 65 plate designed to fit snugly on the ribs or ridges e' , said plate being located at the vertex or extreme inner end of the frog. The raised sides g of this fish-plate are designed to fit snugly against the inner surface of the outer 70 rails b' , and in said ribs, as well as in the upper face of the fish-plate, are formed two grooves or recesses g' .

H designates a series of nutted bolts, which are passed through coincident holes or aper- 75 tures in the webs of the rails, two of said bolts being projected through the grooves or recesses g' of the fish-plate, so as to hold the latter firmly in place.

The advantages of our invention will be 80 readily apparent to those skilled in the art to which it appertains, and it will be especially observed that by means thereof a firm and secure fastening is secured for the rails at every point, and the same are held in proper 85 relation to each other.

We claim as our invention—

1. A railroad-frog comprising a bed-plate having a series of lugs or buttons and brace- 90 bars rigidly secured thereto, as set forth.

2. A railroad-frog comprising a bed-plate having a series of lugs or buttons provided with holes or openings, brace-bars having co- 95 incident holes or openings, and nutted bolts passed through said holes or openings, substantially as set forth.

3. A railroad-frog comprising the bed-plate having slotted ears or lugs, the series of in-

intermediate brace-bars, the outer brace-plates, and the pins inserted through the slots of said ears or lugs, substantially as set forth.

4. A railroad-frog comprising a bed-plate
5 having ribs or ridges, a central X-shaped fish-plate, outer brace-plates, and nutted bolts, substantially as set forth.

5. A railroad-frog comprising a bed-plate
having slotted ears or lugs and X-shaped ribs
10 or ridges, the central X-shaped fish-plate hav-

ing raised sides, the outer brace-plates, and the series of nutted bolts, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

GEORGE N. MOATS.

CHARLES R. CRAWSHAW.

Witnesses:

E. J. WALBURN,

ROBERT MCKINLAY.