

No. 785,559.

PATENTED MAR. 21, 1905.

P. KYLE & J. R. CRESS.
RAILROAD FROG.

APPLICATION FILED NOV. 17, 1904.

2 SHEETS—SHEET 1.

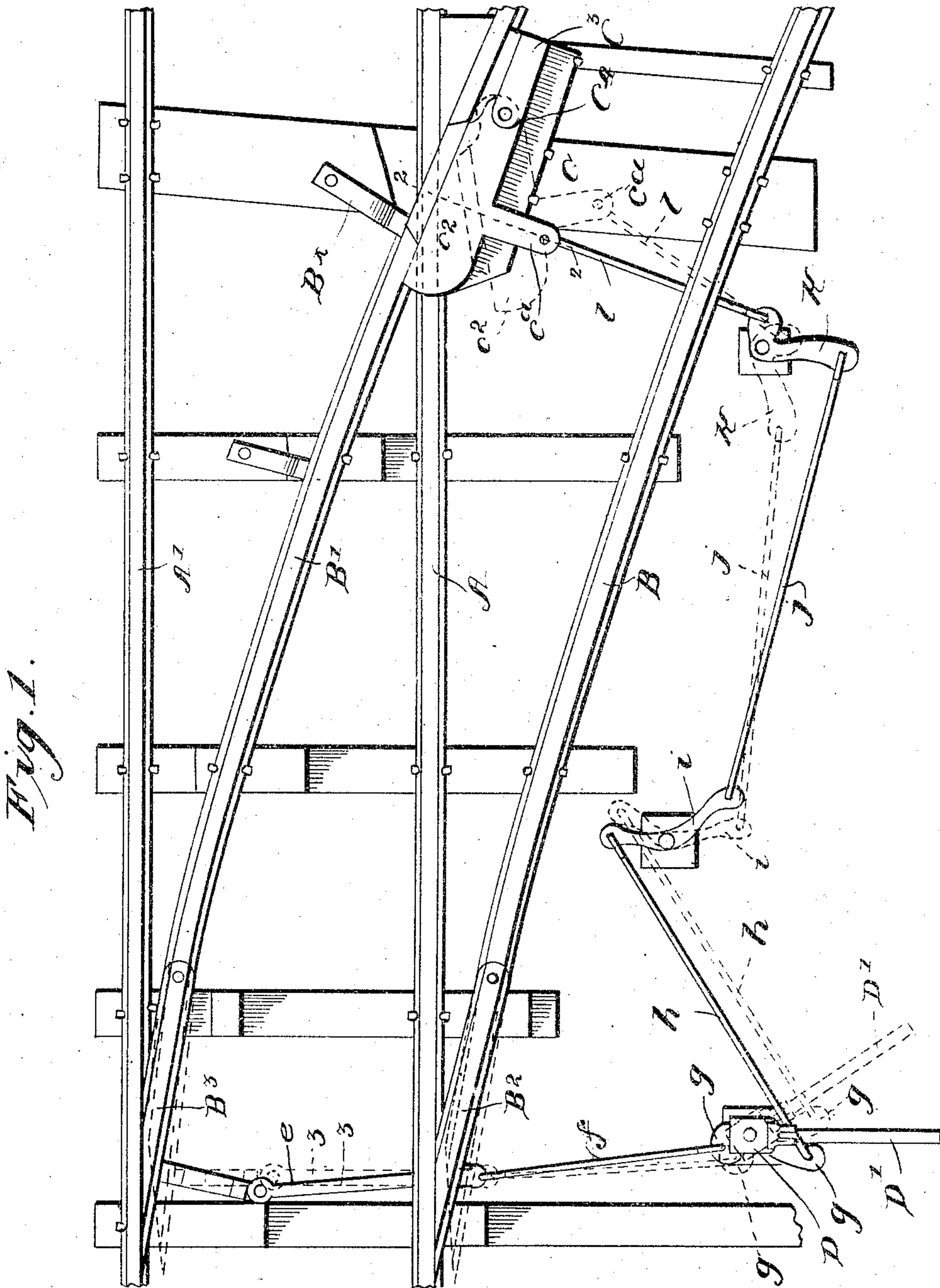


Fig. 1.

WITNESSES:

W. S. Rockwell
E. E. Overholt

INVENTORS

Preston Kyle
John R. Cress

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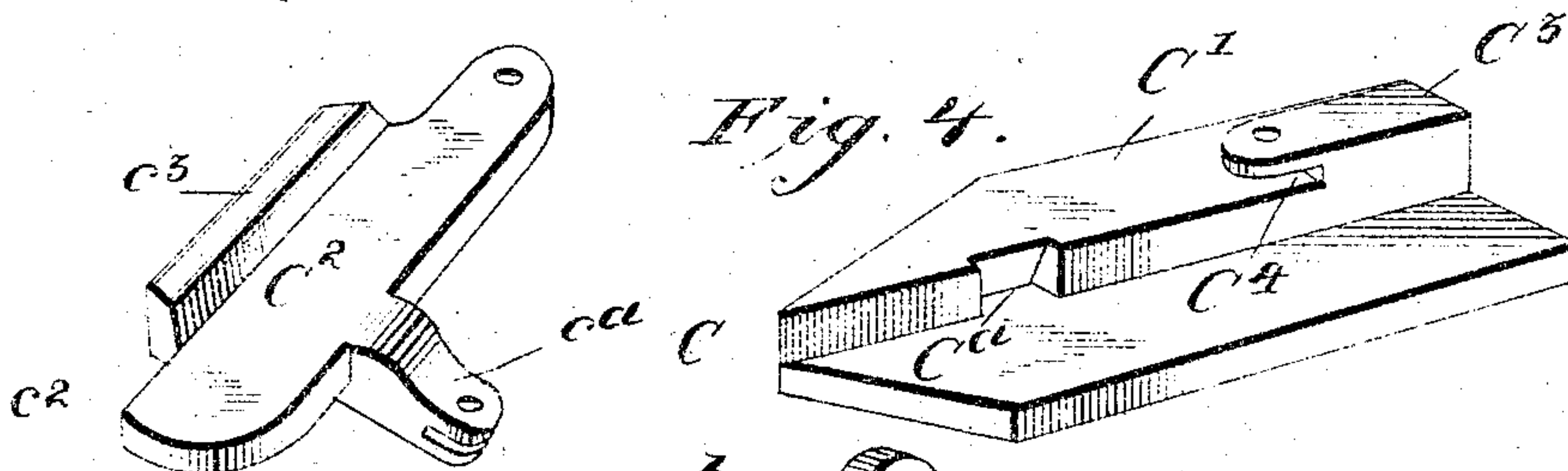
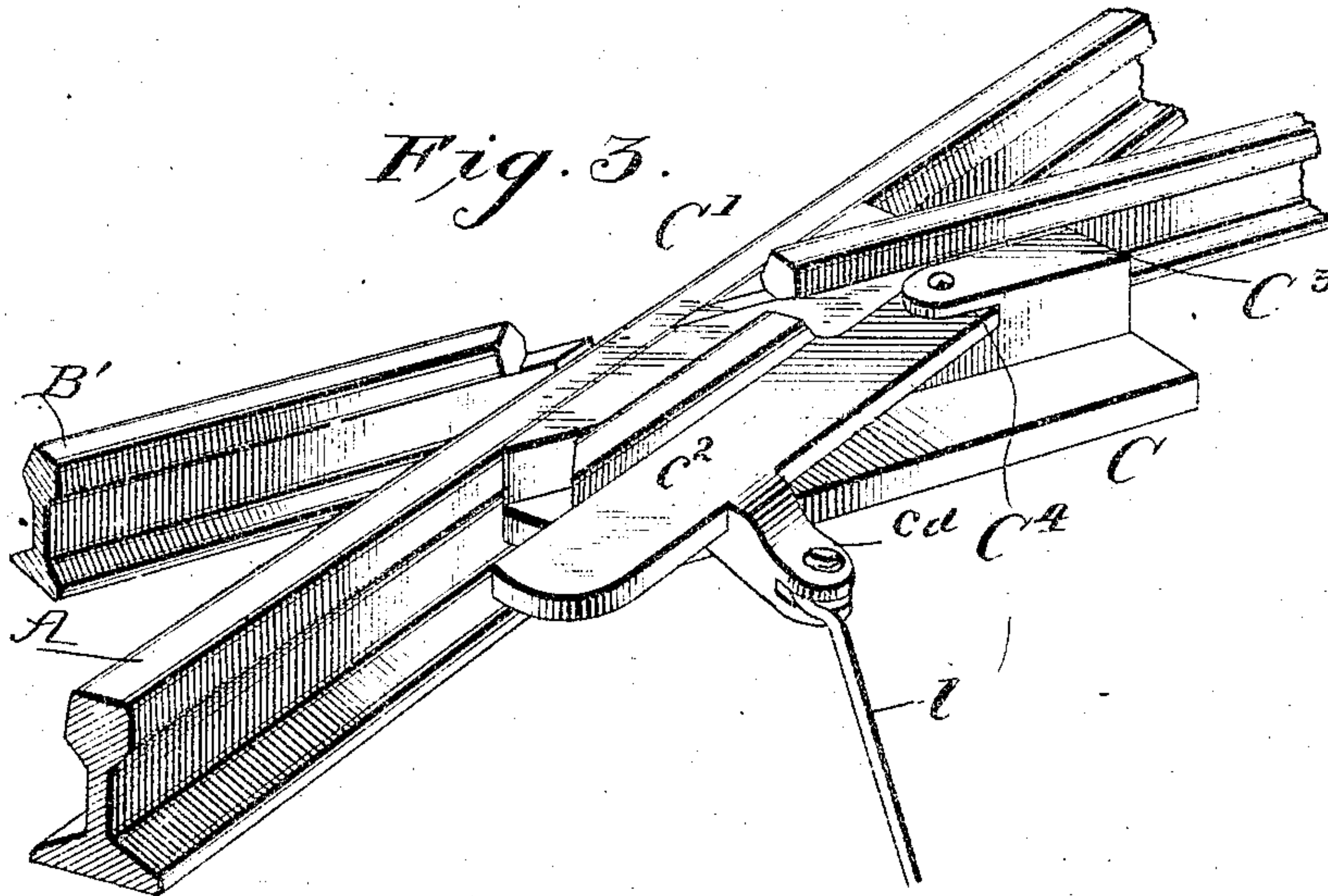
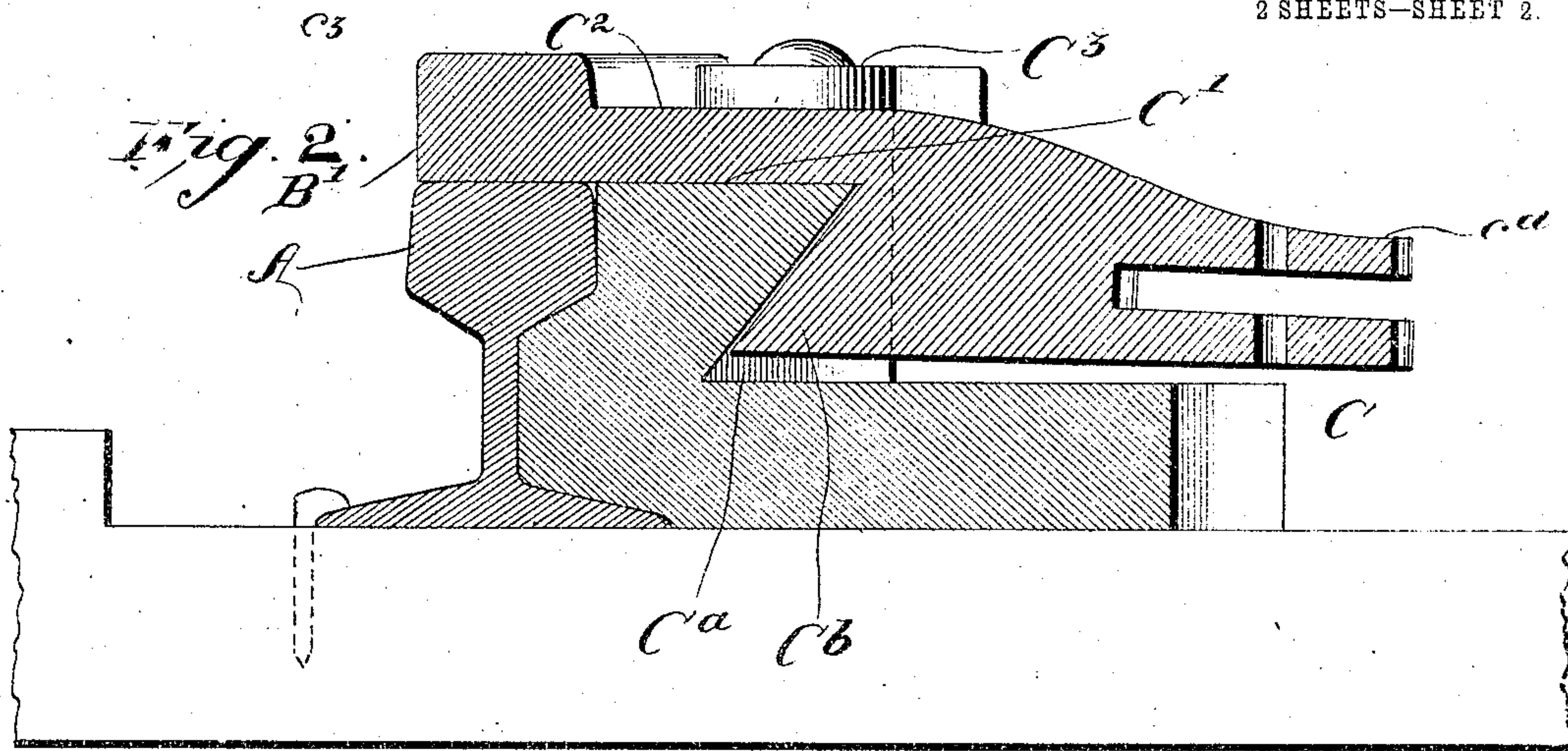
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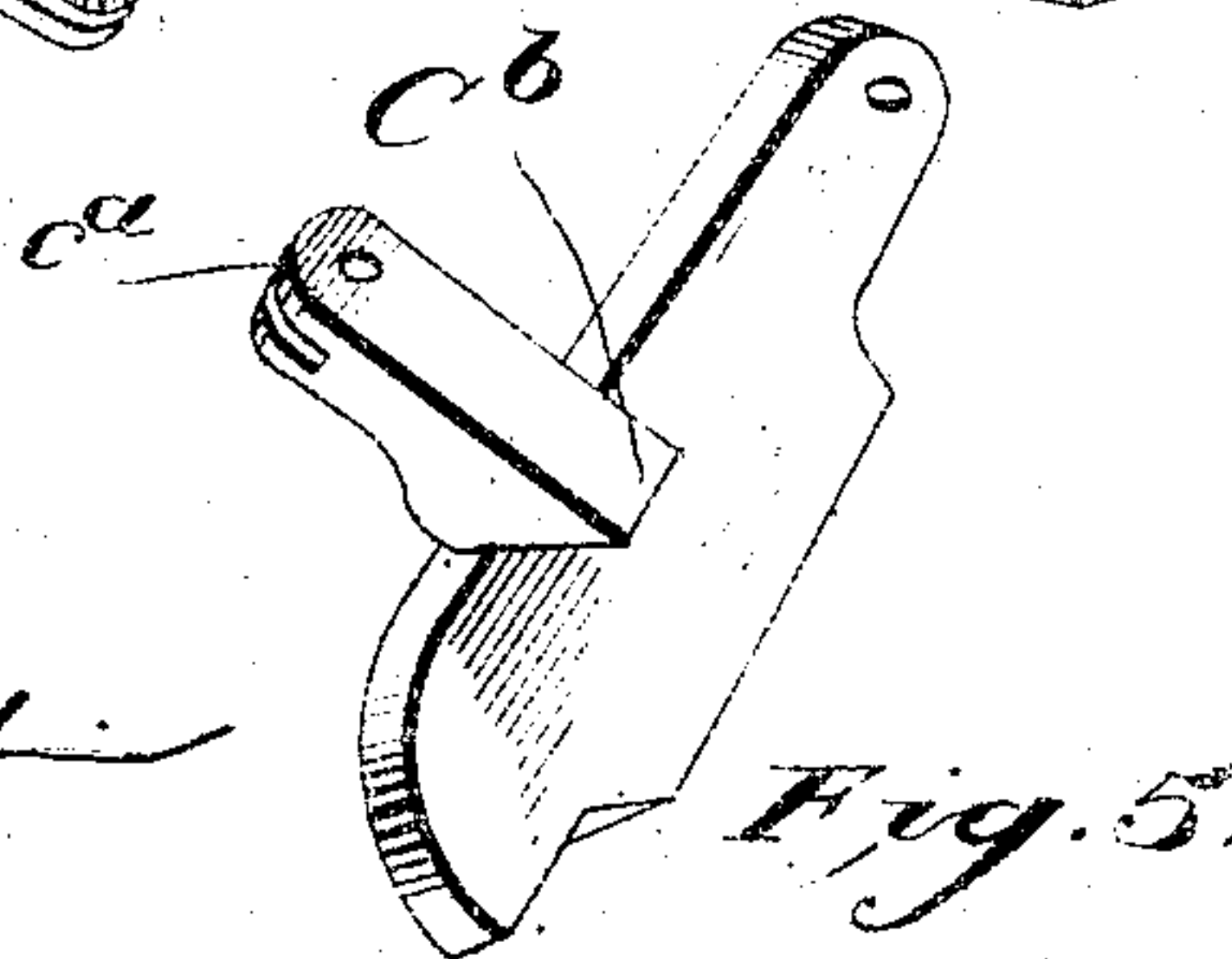
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2 SHEETS—SHEET 2.



WITNESSES:

W. S. Rodwell
E. E. Overholt



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UNITED STATES PATENT OFFICE.

PRESTON KYLE AND JOHN R. CRESS, OF COALBLUFF, INDIANA.

RAILROAD-FROG.

SPECIFICATION forming part of Letters Patent No. 785,559, dated March 21, 1905.

Application filed November 17, 1904. Serial No. 233,130.

To all whom it may concern:

Be it known that we, PRESTON KYLE and JOHN R. CRESS, citizens of the United States, residing at Coalbluff, in the county of Vigo and State of Indiana, have invented a new and useful Improvement in Railroad-Frogs, of which the following is a specification.

The object of our invention is to provide a frog for railroad-switches which shall have its movable part locked when in use against any tendency to be moved or tilted by the lateral outward force of the car-wheel flanges when passing over the same.

A further object is to provide means by which said movable part of the frog shall also be automatically clamped to the fixed part thereof by said lateral outward pressure of the wheel-flanges in proportion to the force of said pressure.

A still further object is to provide a frog of such construction that both the main track and switch, whichever is used, shall present an unbroken tread to the car wheels, so that there will be no jarring or bumping when the frog is passed over:

The invention consists in certain novel features and parts and combinations of the same, which will be hereinafter described and claimed, reference being had to the accompanying drawings, forming a part of this specification, and in which similar letters of reference indicate similar parts in all the figures.

Figure 1 is a top plan view of a railway track and switch provided with our improvement in operative position, the inoperative position of the same being shown in dotted lines. Fig. 2 is a sectional view taken on line 2-2 of Fig. 1. Fig. 3 is a perspective view showing our improved frog with the pivoted top plate thrown back in position to leave the main track open. Fig. 4 is a perspective view of our improvement, showing the parts thereof separated from each other; and Fig. 5 is an inverted view of the frog-plate.

A A' indicate the rails of the main track, and B B' the switch-rails.

C indicates the switch-frog wherein our improvement resides.

The ends of the switch-rails are pivoted and

tapered to a vertical edge and are adapted to cooperate with the main rails in any ordinary or preferred manner.

The switch-rail B' is gradually elevated from its point rearwardly, so that at the point where it crosses the rail A of the main track it is considerably higher than said rail, and its tread portion is suitably cut away at this point to permit trains running on the main track to pass the switch without obstruction.

Our improved switch-frog is located between the switch-rails, at the inner side of the cut-away portion of the rail B', and consists of a block or body portion C', fixedly secured to the rails of the track by spikes or otherwise and fitting in the angle formed by the junction of the switch-rail B' with the rail A of the main track. The top of this frog-block C' is flush with the top of the track-rail A, except at the rear end thereof, where it is provided with an upwardly-extending portion C³, having a horizontal slot C⁴ in its forward end, the lower side of said slot being a continuation of the top of the block. The plate C² is pivoted at its rear end within said slot to the top of the block C' and is adapted when in operative position to lie flat upon said block with its forward end c² projecting beyond the block and resting upon the track-rail A and abutting the inner side of the switch-rail B'. The plate C² is further provided at its inner side with the track-flange c³, which when the plate is moved inwardly fills the gap made in the tread of the switch-rail B', so that a train in passing over the same will pass without bump or jar.

Special attention is now called to an important feature of our construction. The fixed block C' of our improved frog is provided at its rear or inner side with the recess C^a, having its upper face inclined downwardly and inwardly, and the plate C² is provided at its inner under side opposite said recess with a hook C^b, adapted to engage said recess and having its upper face suitably inclined to fit the inclined upper face of the recess. The plate C² is further provided with means for connection with the operating mechanism of the switch, said means consisting, preferably, of the arm c d, forming a rearward extension

of said plate and of the hook C^b , said arm being provided at its rear end with means for pivotal connection with the switch-operating mechanism.

- 5 The movable plate C^2 of our improved frog and the pivoted switch-points B^2 and B^3 are simultaneously operated by the switch-lever D , having the handle D' , and are connected with each other through said lever, as follows:
- 10 The switch-points are connected by the jointed bar e , which in turn is connected by the link f with one arm of the bell-crank lever g , carried by said switch-lever D . The other arm of the bell-crank lever g is connected with
- 15 the plate C^2 through the link h , the bell-crank lever i , the link j , the bell-crank lever k , and the link l , which latter connects the bell-crank lever k with the arm c of the plate C^2 .

From the foregoing it will be seen that my

20 improved frog requires no break in the main track and that when the frog is closed there will be no break in the switch-rail which intersects with the main track. It will further be seen that when the frog is closed the hook

25 C^b at the rear of the plate C^2 will be in engagement with the recess C^a , which will effectually prevent any tendency the plate might otherwise have to tilt due to the weight imposed on the flange at the inner side thereof

30 when a train passes over the frog. Moreover, it will be further seen that the lateral outward pressure of the wheel-flanges against the flange or tread section c^3 of the frog-plate will but tend to bind the rear side of said plate into

35 firmer engagement with the top of the block c' through the coöperation of the inclined hook C^b of the plate with the recess C^a of said block. The slot C^4 , in which the rear end of the plate C^2 works, also assists in counteracting any tendency of the plate to tilt as a load passes over

40 its flange. For this reason the hook C^b and the coöperating recess C^a may be located at a point somewhat in advance of the center of the plate.

- 45 The cut-away section of the switch-rail B' is beveled at its ends, and the ends of the supplemental track-flange c^3 are correspondingly beveled to fit the beveled ends of said cut-away section and to hold the plate C^2 against outward movement.

The front and rear ends of the plate C^2 , projecting beyond the ends of the flange c^3 and abutting the inner side of the switch-rail, also powerfully assist in holding the plate C^2

55 against the lateral outward strain imposed thereupon, and the outer side of the flange c^3 is adapted to engage the track-brace B^x for the same purpose when the frog-plate is in operative position, said track-brace having a part of its face projecting into the plane of said cut-away portion at the forward end thereof

60 and at the rear side of the switch-rail B' .

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A railway-frog comprising a support adapted to be fixedly secured to the track, a plate having a section of railway-track and mounted to move horizontally outward on said support and interlocking means between said support and plate, designed to come into engagement with each other when the plate is moved to its inward position on the block.

2. A railway-frog comprising a block adapted to be fixedly secured to the track, a track-plate pivoted to the top of said block to swing horizontally thereupon, and interlocking means between said block and plate.

3. A railway-frog comprising a block adapted to be fixedly secured to the track, a plate pivoted to the top of said block to swing horizontally thereupon, a track-flange at one side of said plate, and interlocking means between the plate and block, at the other side of the plate.

4. A railway-frog comprising a block having a recess at its inner side and adapted to be fixedly secured to the track, a plate pivoted to the top of said block to swing horizontally thereon and carrying a section of railway-track at its forward side and means at the rear side of said plate for engaging said recess in the block.

5. A railway-frog comprising a block having a recess at its rear inner side provided with a top wall inclined downwardly and inwardly, said block being adapted to be fixedly secured to a railway-track, a plate pivoted to the top of said block to swing horizontally thereon and carrying a section of railway-track at its forward side, and a hook at its rear under side for engaging said recess, said hook having an inclined upper face adapted to fit the inclined top wall of the recess.

6. A railway-frog comprising a block provided with a recess at its rear inner side having its top wall inclined downwardly and inwardly, said block being adapted to be fixedly secured to a railway-track, a plate pivoted to the top of said block to swing horizontally thereon and carrying a section of railway-track at its forward side, a hook at the rear under side of said plate for engaging said recess, said hook having an inclined upper face adapted to fit the inclined top wall of said recess, and an arm extending rearwardly from said plate and provided with means for connection with an operating means.

7. A railway-frog comprising a block having a recess at its rear inner side with the top wall of said recess inclined downwardly and inwardly, and an upwardly-projecting portion at its rear end, provided with a horizontal slot, the lower side of said slot forming a continuation of the top surface of the block, said block being adapted to be fixedly secured to the track, a plate pivoted at its rear end in said horizontal slot to swing on the top of the block, said plate being provided at its inner side with a section of track, a hook at

the rear under side of said plate for engaging said recess in the block and having an inclined upper face adapted to fit the inclined face of said recess to cause the plate to be clamped upon the block when said parts are forced into engagement with each other, and an arm forming a rearward extension from said plate and hook and provided with means for connection with switch-operating mechanism.

8. The combination with a main railway-track and a switch-track having its intersecting rail elevated somewhat above the main track at its point of intersection therewith, and having a section of its tread portion cut away at said intersecting-point, of a switch-frog comprising a block adapted to be fixedly secured to the railway-track between the sides of the switch and fitting in the angle formed at the inner side of the intersecting rail opposite said cut-away portion thereof with the top of the block flush with the top of the main-track rail, a plate supported on the top of said block and adapted to be moved horizontally thereupon, said plate being provided with a section of track adapted to supply the cut-away portion of the intersecting switch-rail, when the plate is moved inwardly, means for utilizing the lateral outward force of the car-wheels to automatically clamp said plate into binding engagement with said block and means for operating said plate.

9. The combination with a main railway-track, a switch having its intersecting rail elevated somewhat above the main track at its point of intersection therewith, and having a section of its tread portion cut away at said intersecting-point, and a switch-operating

means, of a block rigidly secured to the track at one side of the intersecting-point of the rails, a movable member pivoted to said block and adapted to swing into position to supply said cut-away portion in the intersecting rail, and an operative connection between said movable member and the switch-operating means.

10. The combination with the movable points of a railway-switch having its inner rail elevated above the rail of the main-train track with which it intersects, and having a portion of its tread cut away at said intersecting-point, of a switch-frog, comprising a block adapted to be fixedly secured to the track between the sides of the switch and fitting in the angle formed at the inner side of the intersecting rails opposite said cut-away portion, with the top of the block flush with the top of the main-track rail, a plate pivoted to the top of said block to swing horizontally thereon, said plate being provided at its inner side with a section of track adapted to supply the cut-away portion of the intersecting switch-rail when the plate is moved inwardly, interlocking means between said block and plate, a plurality of bell-crank levers and links connecting said swinging plate with the switch-points, and a switch-lever secured to one of said bell-crank levers for simultaneously operating said connected parts.

his
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Witnesses:

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J. E. GARRISON.