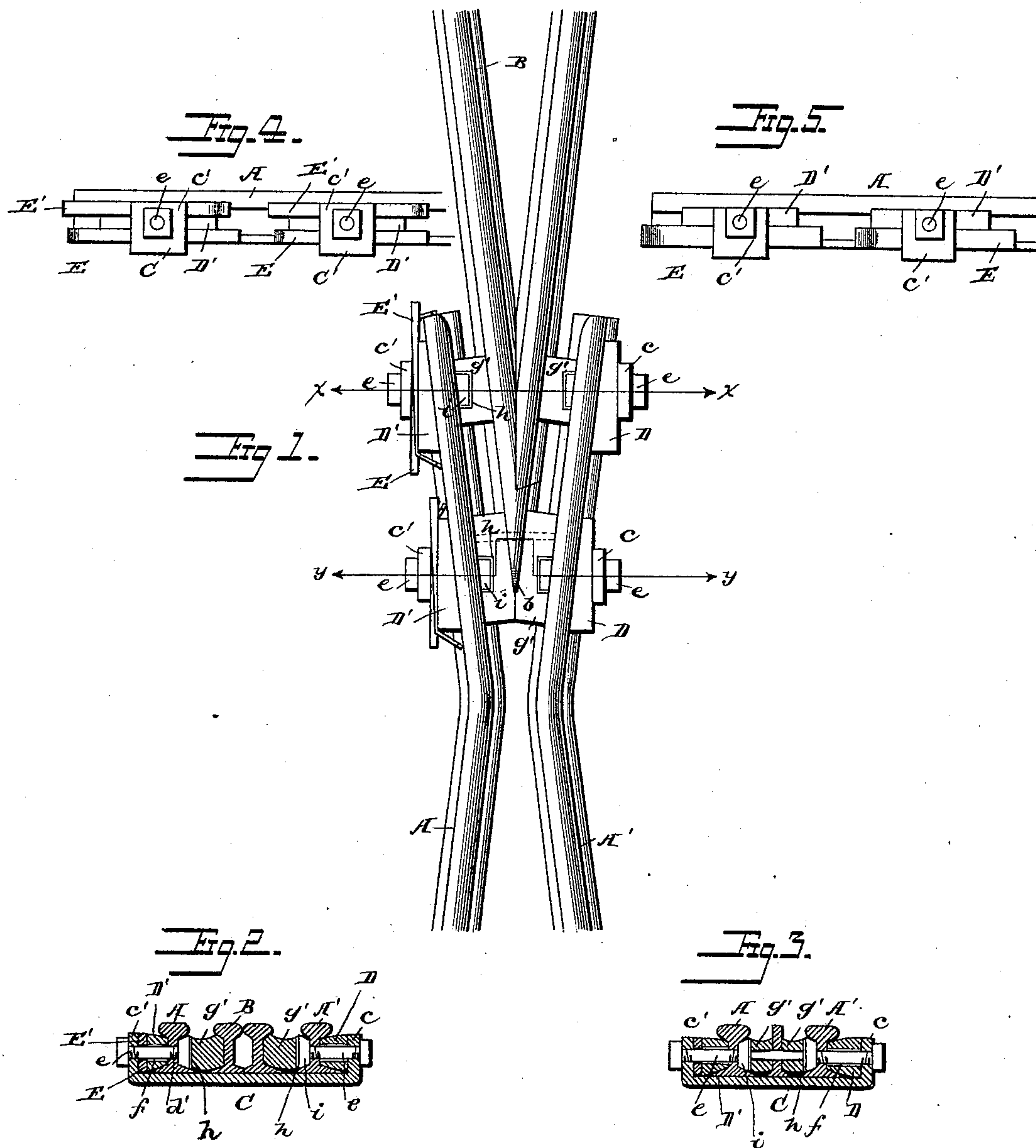


(No Model.)

A. H. EGE.
RAILWAY FROG.

No. 370,051.

Patented Sept. 20, 1887.



Attest:
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UNITED STATES PATENT OFFICE.

ALEXANDER H. EGE, OF MECHANICSBURG, PENNSYLVANIA.

RAILWAY-FROG.

SPECIFICATION forming part of Letters Patent No. 370,051, dated September 20, 1887.

Application filed June 14, 1887. Serial No. 241,286. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER H. EGE, a citizen of the United States, and a resident of Mechanicsburg, county of Cumberland, and State of Pennsylvania, have invented certain new and useful Improvements in Railway-Frogs, of which the following is a specification.

The object of my invention is to construct a frog that shall combine simplicity and flexibility of structure with durability and efficiency in the performance of its required functions, an end that I attain by the use of clamping-bars, distance or filling blocks, side supports, wedges, and bolts, as hereinafter described, and illustrated in the accompanying drawings.

In referring to the drawings, Figure 1 shows a plan view of my improved frog. Fig. 2 is a transverse section on line *xx* of Fig. 1, taken longitudinally through the longest clamp. Fig. 3 is a section on line *yy* of Fig. 1, taken through the shorter clamp. Fig. 4 is a side view of a portion of the frog. Fig. 5 is a side view showing a modification.

A A' are the outer curved or wing rails of the frog, and B B the inner rails converging to and terminating in the point or tongue *b* of the frog. The rails constituting the frog rest upon clamping-bars C, of which at least two are used in each structure. Said clamping-bars terminate in flanges *c c c'*, that are turned upward to a degree more or less inclined from a vertical line inward and preferably at unequal angles. One terminal flange at least of each clamp is perforated at a point about equidistant from the angle of the base to the end of the flange, for the reception of a binding-bolt, *e*, as hereinafter more fully set forth. Plano-convex side supporting-blocks, D D D' D', are interposed between the webs *d* on the one side and the upturned flange *c* of the said clamp C and between the web *d'* and the clamping key or keys E E' on the other side of the frog. A clamping key or keys, E E', of a general wedge shape, are inserted, the one above and the other below, (when two keys are used,) the binding-bolts *e e* between the side supporting-blocks, D' D', and the flanges *c' c'*, said keys having their angular edges inserted from opposite sides of said clamping-bars, the point of the one being directed toward the tongue thereof

when driven home, as hereinafter more fully described, and for reasons hereinafter set forth. By said construction and insertion of the keys not only may all parts of the opposite terminal flanges, *c c c'*, lie in planes parallel to each other, but an equal pressure or binding power brought to bear upon all parts at the same time of the clamp-flanges, side supporting-blocks, and the frictional surfaces of the keys themselves, the same thickness of key, and hence wedging power, being in contact with the lateral edges of the clamp-flanges when being driven home.

In Fig. 5 is shown a construction wherein but a single plane wedge or key is used, it being inserted below the clamping-bolt *e* and locked in position by having its end bent over. While good results are attained by the use of the invention as illustrated in this figure, I still prefer the construction employing two wedges driven in opposite directions.

In line with the perforations in the clamp-flanges *c' c'* the webs of the wing-rails A are also perforated for the reception of the binding-bolts *e e*; also, in line with and upon the vertical faces of the filling-blocks *g' g'*, that are interposed between the outer and inner rails of the frog, at least upon one side, depressions or rabbeted seats *h h* are wrought, and into these seats the nuts *i i* rest when the binding-bolts *e e* are in place, and are prevented thereby from revolving either under vibration or normal motion of the bolts. To bind the co-operating parts of the frog together, the side supporting-blocks, D D D' D', are first placed in position upon the outer sides of the wing-rails and in close lateral contact with the webs thereof. The binding bar or clamp C is then brought into position from below, the one flange, *c'*, being brought into close lateral contact with the blocks D' D', and the other flange, *c*, separated by a narrow interval from its supporting-block D D for the reception of the binding-keys E E'. Said binding-keys E E', having then been inserted into said intervals from their acute ends, the one above and the other below the binding-bolts *e e* at the opposite lateral edges of the clamps C, the said binding-bolts having been inserted through the circular perforations *d' d'* of the flanges *c c*, and through the circular openings *f f'* of the side

blocks, D D D' D', and thence through the contiguous perforations of the wing-rails A A, and terminating in the nuts *i i*, the said binding-keys E E' are driven home by sledge blows until the entire frog structure is made a compact and rigid whole. The angular ends of said keys are then bent outward, being when in position upon opposite sides of the clamping-bar C, and thus not only are made to bind equally upon all parts of the clamp-flanges *c c*, but also by said bend are locked against any reverse movement, and thus prevent the loosening of the parts of the frog under the vibration of passing trains of cars. In considering, further, the function of the binding-bolts *e e*, it is evident that in being made to pass through the flanges of clamping-bars and the webs of the wing rails, and held thereto by means of the terminal nuts *i i*, that said bolts not only prevent the slipping forward or backward of the clamping-bars, wedges, side supporting-blocks, and throat or filling blocks, but that they also perform in addition the very important function of preventing the flanges of the clamping-bars being bent outward under the excessive blows of the sledge-hammer in driving forward the keys that may subsequently become necessary to take up the slack that arises from the friction of the constituent parts in contact.

The wedges or keys E E' being plain and narrow, can be prepared for use and easily shaped from standard small sizes of bar-iron, and hence entail less expense than when required to be forged or made in the slotted form, which I have shown and claimed in another application which I filed June 21, 1887, Serial No. 242,027.

I have shown the wedges used upon but one side of the frog; but it might be found desirable under certain circumstances to duplicate the arrangement on the opposite side of the frog.

This invention, as will be understood, may be applied to rail-joints with such slight modifications or changes in construction as will readily suggest themselves to those skilled in the art.

I am aware that a bolt vertically placed in connection with a slotted key and clamping device has been used, and also a bolt passing horizontally through the flanges of the clamping-bars, through slotted keys, the webs of contiguous wing-rails, and terminated at this point by a nut resting in a depression or seat on the side of the adjacent block-filling has also been used, and therefore I do not claim either of these combinations, broadly; but I do claim the use of a bolt passing horizontally through the flanges of the clamping-bars, between two binding-keys driven in two opposite directions and bent out of a right line terminally to prevent the reverse movement of the same, through a circular perforation in side supporting-blocks, through the webs of the contiguous wing-rails, and terminating at this point in a nut resting in a depression or

seat in the side of the adjacent block filling.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

1. The combination, with the rails and filling-blocks of a frog, of a clamping-plate having upward-extending flanges, side supporting-blocks interposed between the flanges and the webs of the rails, binding-bolts, and two wedges lying above and below the binding-bolts on one or both sides the frog, said wedges being arranged to be driven in opposite directions to tighten the parts after the bolts have been tightened, substantially as described.

2. The combination, with the rails, of a clamping-plate having upward-extending flanges, side supporting-blocks interposed between the flanges and the webs of the rails, binding-bolts, and two keys or wedges inserted between the flanges on one or both sides the rails and the supporting-blocks, said keys or wedges extending in opposite directions and having their ends bent over to prevent their accidental removal, substantially as described.

3. The combination, with the rails, of a clamping-plate having upward-extending flanges, side supporting-blocks interposed between the flanges and the webs of the rails, binding-bolts passing through the flanges, blocks, and rails, and keys or wedges inserted between the flanges and blocks, one above a binding-bolt and another below the same, said keys extending in opposite directions and having their ends bent over to prevent their accidental removal, substantially as described.

4. The combination, with the rails and filling-block of a railway-frog, of a clamping-plate extending under the frog and having upward-extending flanges on opposite sides of the frog, and side supporting-blocks interposed between the flanges and the webs of the rails, binding-bolts passing in opposite directions through said flanges, blocks, and the rails, and keys or wedges inserted between the flange on one side of the frog and the block, said keys extending in opposite directions and having their ends bent over to prevent their accidental removal, substantially as described.

5. The combination of the laterally-pierced flanges of the clamping-plate C, the plane wedges E E', driven in opposite directions, the laterally pierced plano-convex side supporting-blocks, D D', perforated but not slotted, the perforated wing-rails A A', and the laterally-rabbeted block fillings or distance-pieces *f*, with the inclosed nuts *i*, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALEXANDER H. EGE.

Witnesses:

D. E. KAST,

GEO. F. LONGSDORE.