

No. 637,723.

Patented Nov. 21, 1899.

F. T. FEAREY.
RAILWAY RAIL JOINT.

(Application filed Apr. 4, 1898.)

(No Model.)

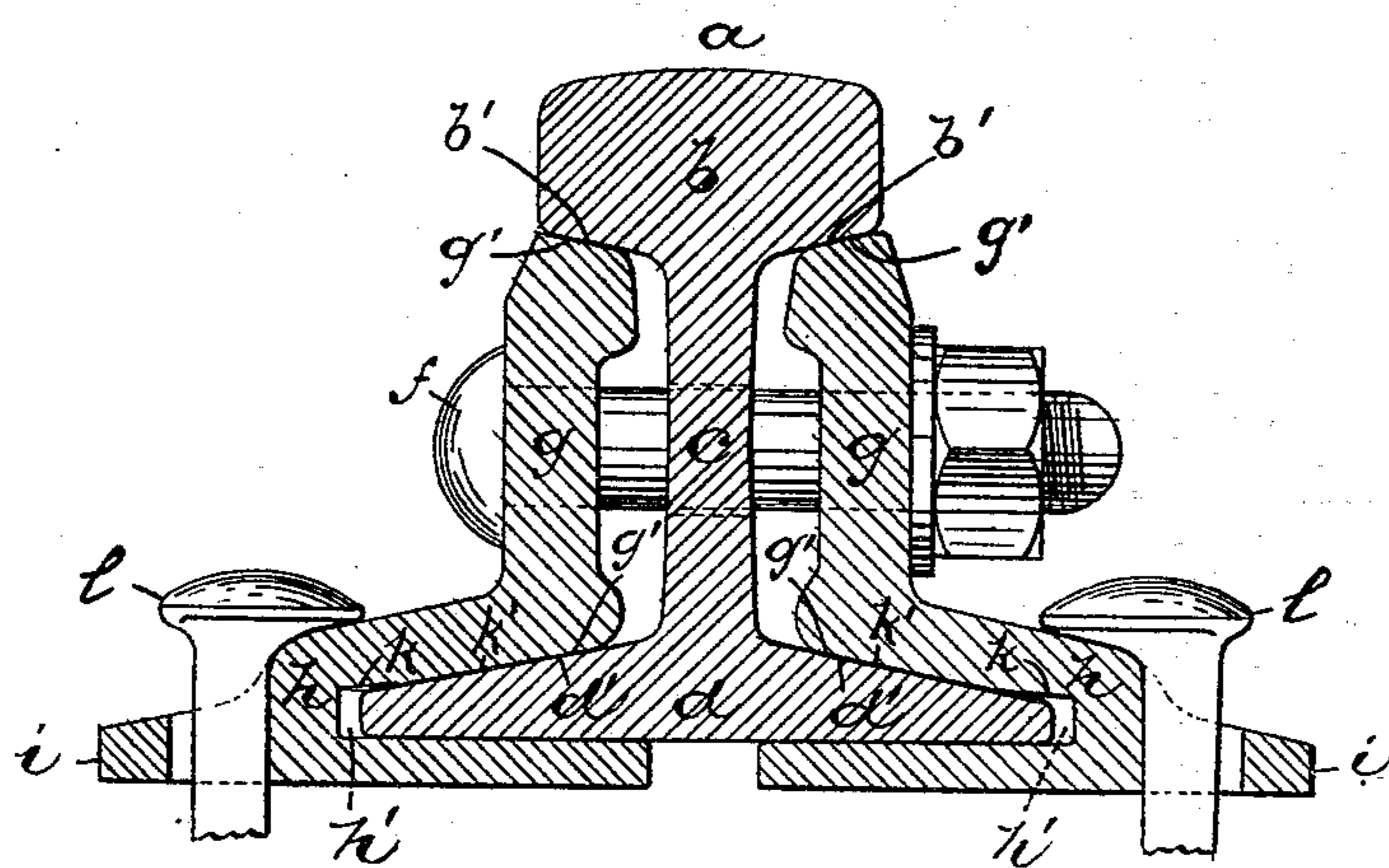


Fig. 1.

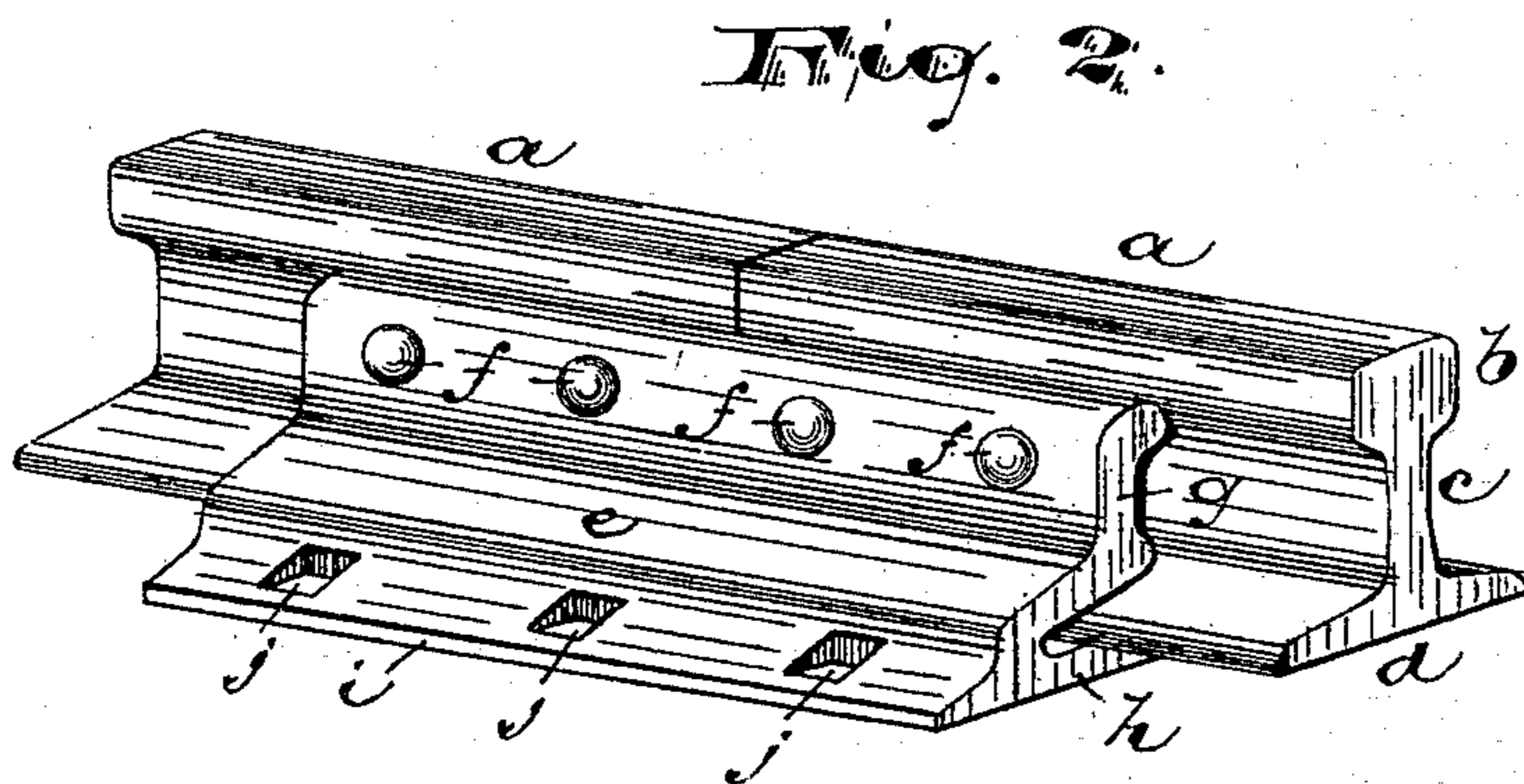


Fig. 2.

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RAILWAY-RAIL JOINT.

SPECIFICATION forming part of Letters Patent No. 637,723, dated November 21, 1899.

Application filed April 4, 1898. Serial No. 676,307. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK T. FEAREY, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Railway-Rail Joints; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of railway fish-plates in which the plate is longitudinally doubled and adapted to engage the upper and lower surfaces of the flange of the rail; and the objects of the invention are to enable the fish-plate to be more firmly and rigidly fastened to the ties, to secure the greatest possible strength and efficiency of the fish-plate, to enable the fish-plate to be more perfectly adjusted to the rails, to obtain a more perfect rail-joint, and to secure other advantages and results, some of which may be referred to hereinafter in connection with the description of the working parts.

The invention consists in the improved fish-plate and in the combinations and arrangements of parts of the same, all substantially as will be hereinafter set forth, and finally embraced in the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the views, Figure 1 is a transverse section showing my improved fish-plate in position, and Fig. 2 is a perspective view of a rail-joint to which my improved fish-plate has been applied.

In said drawings, *a a* indicate the rails, each having the usual head *b*, web *c*, and flange *d*. The fish-plates *e e* are placed at the opposite sides of said rails and fastened there- to by bolts *f f* in the usual manner. Each of said fish-plates comprises a vertical plate *g*, having oppositely-inclined bearings *g' g'* at the upper and lower edges of the same, adapted to engage correspondingly-inclined bearings *b' d'* on the under side of the head and the upper side of the flange, respectively. Below the said vertical portion *g* is a longi-

tudinally doubled or folded portion *h*, lying in a horizontal position and providing an opening or space *h'*, adapted to receive the flange *d* of the rail. The walls of said doubled portion *h* rest against the upper and lower sides of the flange *d* and bear against the same, as shown, thus firmly holding said flange. The vertical plate *g* is wedged between the head *b* and the flange *d* of the rail, as has been described. Any looseness at the upper and lower inclined bearings *g' g'* of the vertical plate or between the walls of the doubled portion *h* and the flange *d* may be readily taken up by tightening the nuts upon the bolts *f*, as will be understood. Said looseness may result from variations in the castings or may be due to slight wear at the bearing-surfaces.

The upper fold of the doubled portion *h* has its inner surface inclined, as at *k'*, with reference to the lower fold for a portion of its width adjacent to the open end of the flange-space *h'*, the degree of inclination being such as to make that portion of the inner surface lie parallel to the top of the flange. Beyond this inclined portion *k'* and next to the closed end of the flange-space *h'* the said inner surface is parallel or approximately parallel to the lower fold. Thus the part of the doubled portion *h* adjacent to the outer edge of the rail-flange does not come in contact with the top of said flange, and a more firm and positive bearing of the upper fold of the doubled portion against the flange *d* is secured by affording space for any inequalities at the edge of the flange due to rolling.

At the turn in the doubled portion *h'* I form an outwardly-projecting flange *i*, extending lengthwise of the fish-plate. Said flange *i* has its under surface in the plane of the under surface of the doubled portion *h*, and its upper surface is suitably inclined to present a pleasing appearance and give the desired strength. In said flange *i* are perforations *j* to receive the spikes *l*, used in fastening the fish-plate and rails to the ties. Said perforations are preferably rectangular in shape to correspond to the cross-sectional shape of the spike in common use, although they may be of any desirable form. The perforations are, in a direction at right angles to the length of the fish-plate, slightly longer than the thick-

ness of the spike, as will be understood upon reference to Fig. 1. This allows a limited movement of the fish-plate toward the rail when the bolts *f* are tightened to take up any
 5 looseness of bearings, as has been explained. The distance between the inner edge of the perforations *j* and the flange-space *h'* of the doubled portion is equal to the greatest thickness of the walls of the doubled portion, so
 10 that no weakening of the fish-plate is caused by forming said perforations, yet the perforations are as close to the doubled portion as is consistent with strength, so that when the spikes *l* are inserted into place their heads
 15 extend inward over the edge of the doubled portion *h*, thus holding the fish-plate down firmly upon the road-bed. Since the flange *i* surrounds the spike *l*, it is evident that the fish-plate cannot slip either laterally or longitudinally, so as to escape from the spikes.
 20 The methods of placing the spikes with reference to the fish-plate heretofore have been open to various objections. For instance, when the spikes are placed against the straight
 25 edge of the fish-plate sufficient lateral movement may take place to cause the edge or edges of the plate to slip from under the heads of the spikes, rendering said spikes useless, or longitudinal movement may draw the fish-
 30 plate out from under the end spikes in a similar manner. Rectangular recesses in the edge of the fish-plate to receive the spikes will not remedy the difficulty due to lateral movement and will only lessen in some degree that due
 35 to longitudinal movement. Again, if dove-tail recesses are formed it necessitates the use of a peculiar form of spike, which entails great inconvenience and expense in practical use. By my improved construction of the
 40 fish-plates the ordinary form of spike may

be used and the fish-plate be held securely in place without possibility of escape from the spike, since the flange entirely surrounds the spike. At the same time the peculiar shape of the perforations *j* for the spikes *l* permits
 45 the flange *i* to move with respect to the spikes when the fish-plate is drawn closer to the web of the rail by tightening the nuts on the bolt *f* to take up wear at the top and bottom of the vertical portion *g*.
 50

Having thus described the invention, what I claim as new is—

The combination with the adjacent ends of railway-rails, of a fish-plate having a vertical portion standing away from the web of the
 55 rails and bearing at its upper and lower parts against the heads and flanges, respectively, of the rails, means for drawing said fish-plate nearer to the web of the rails as the said bearing-surfaces wear away, said fish-plate hav-
 60 ing a doubled lowered portion receiving the flange of the rail without engaging its edge, and a horizontal outwardly-projecting flange integrally formed at the turn of said doubled
 65 portion and being perforated, spikes passing through said perforations, said flange entirely surrounding the spikes (and the perforations being in a direction at right angles to the
 70 length of the fish-plate of greater width than the spikes therein) whereby movement with respect to the spikes is permitted when the fish-plate is tightened to take up wear, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 29th day of
 75 March, 1898.

FREDERICK T. FEAREY.

Witnesses:

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 C. B. PITNEY.