

(No Model.)

2 Sheets—Sheet 1.

E. SAMUEL.  
FISH PLATE JOINT FOR STREET RAILWAY RAILS.  
No. 489,878. Patented Jan. 10, 1893.

FIG. 1.

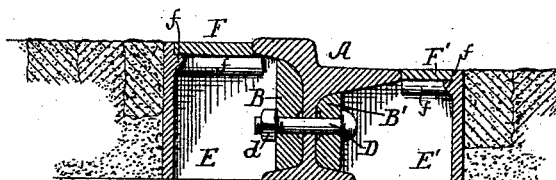


FIG. 2.

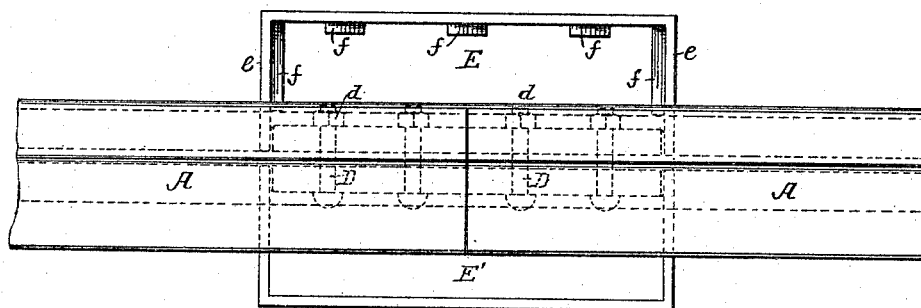
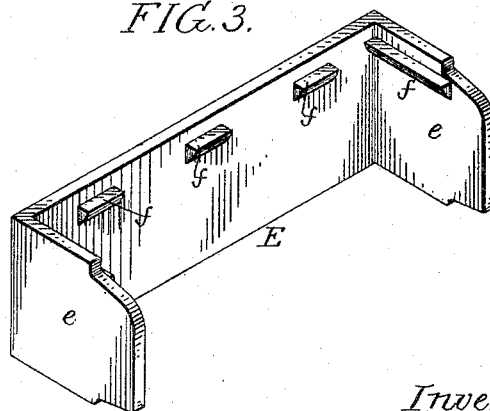


FIG. 3.



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FIG. 4.

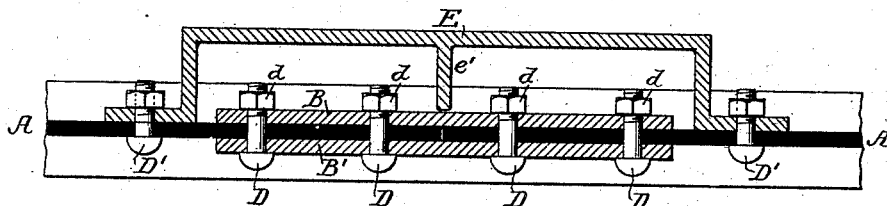


FIG. 5.

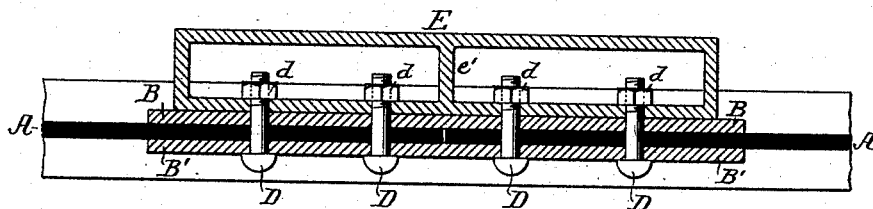
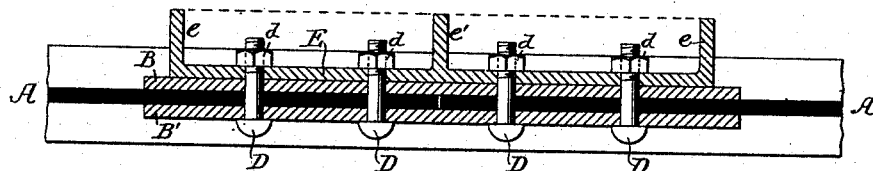


FIG. 6.



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# UNITED STATES PATENT OFFICE.

EDWARD SAMUEL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE  
WILLIAM WHARTON, JR., & COMPANY, INCORPORATED, OF SAME PLACE.

## FISH-PLATE JOINT FOR STREET-RAILWAY RAILS.

SPECIFICATION forming part of Letters Patent No. 489,878, dated January 10, 1893.

Application filed August 8, 1890. Serial No. 361,479. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD SAMUEL, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Fish-Plate Joints for Street-Railway Rails, of which the following is a specification.

The object of my invention is to provide for readily gaining access to the fish plates or rail joints of street railway rails, so that the nuts on the securing bolts can be readily tightened, or the bolts and fish plates removed, without the necessity of removing the surrounding earth and paving. This object I attain by inclosing the joints in boxes or casings in the following manner, reference being had to the accompanying drawings, in which—

Figure 1, is a transverse section of a street railway rail joint illustrating my invention; Fig. 2, is a plan view with the covers of the boxes removed; Fig. 3, is a perspective view of one of the inclosing boxes or casings without its cover; and Figs. 4, 5 and 6, are horizontal sectional views of different forms of boxes illustrating my invention.

Street railway rails are now frequently made in the form of girders, as shown in the cross-section Fig. 1, the tread of the rail being on a level with the paving of the street, and the girder portion being below the surface. These girder rails are fastened together by fish plates, bolted to the abutting rails, and it often happens that the nuts on the bolts have to be tightened at intervals, or the plates removed and replaced, as on ordinary railways, but as these joints are below the surface of the street the nuts cannot be tightened without first removing the paving and earth adjacent thereto. I overcome this objection in the following manner:—

Referring to the drawings, A A are the abutting girder rails of a street railway track, secured together by fish plates B B', one on each side of the web portion of the rail as shown in Fig. 1, these fish plates being secured together and to the rails by bolts D, having nuts *d*, in the present instance.

On one side of the rails A, is a three-sided box E, the rails forming the fourth side. The

ends *e, e*, of the box, are preferably formed to suit the contour of the rail to which the box is adapted. The box in the present instance is bottomless; but in some instances, where a more elaborate box is required, a bottom may be provided, or an independent bottom of wood or other material may be used.

On the interior of the box is a series of lugs *f*, which support the lid F, and the latter may be serrated or roughened on its upper surface to prevent horses from slipping when passing over the same.

On the opposite side of the rail, I prefer to place a box E', having a cover plate F'. This box E', however, is not absolutely necessary, and in some instances it may be dispensed with.

Although I prefer to make the inclosing box long enough to include the whole length of the fish plate in order that when desired the fish plate can be readily removed, it is evident that for the purpose only of tightening up the nuts of the bolts the inclosing box need not be so long as the entire length of the fish plate, in which case the ends of the box may bear against the fish plate and not against the rails.

In Fig. 4, I have shown the box secured to the rails by bolts D', which pass through the webs of the rails and through a flange on the box.

In Figs. 5 and 6, the box is shown as secured to the fish plate and rails by the bolts D. The box shown in Fig. 5, has four sides, but the box shown in Fig. 6, has only three sides, and the blocks of the pavement or a separate plate may form the other side. Intermediate supporting or strengthening webs *e'*, may be formed on the inclosing box as shown in Figs. 4, 5 and 6.

It will be seen that the track-walker or repairer can, by simply lifting the lid of the box E, readily tighten the nuts upon their respective bolts without disturbing the paving, and the bolts and fish plates can be readily removed and replaced when required.

I am aware that inclosing devices at the street curb or at the slot plates of cable railways, are not new, as these are shown in the

Patent No. 315,984, of April 14, 1885, granted to Wharton and Samuel, and No. 354,350, of December 14, 1886, granted to myself, and therefore I do not claim the inclosing box  
5 broadly, but

I claim as my invention:—

1. The combination of a rail having an overhanging head and a depending web, with an inclosing box for the fish plate bolts, said  
10 box having end plates which extend under the overhanging head of the rail and to or almost to the depending web of the rail, substantially as specified.

2. The combination of a rail having an overhanging head and base flange, and web uniting the head and base flange, with an inclosing box for the fish plate bolts, said box having ends which extend into the space between the overhanging head and base flange, and

which extend to or almost to the web of the rail, substantially as specified. 20

3. The combination of the rails, the fish plates, the inclosing box and devices for securing the fish plates and rails together and to the box, substantially as set forth. 25

4. The combination of the abutting rails, the fish plates, devices for securing the rails and fish plates together, with an inclosing box for the securing devices, said box extending only from the tread of the rail to its base, substantially as set forth. 30

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

EDWD. SAMUEL.

Witnesses:

EVAN J. LESTER,

LOUIS KOPPENHOEFER.