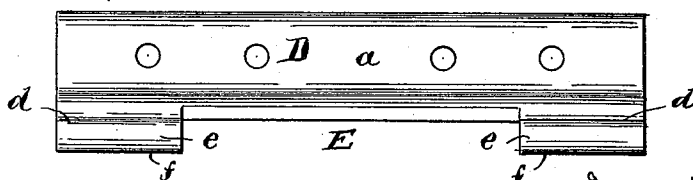
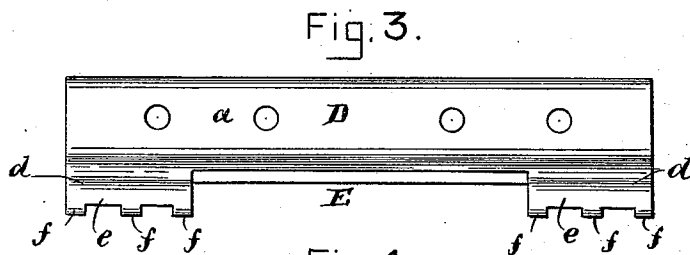
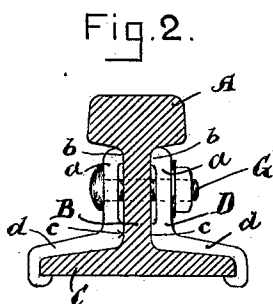
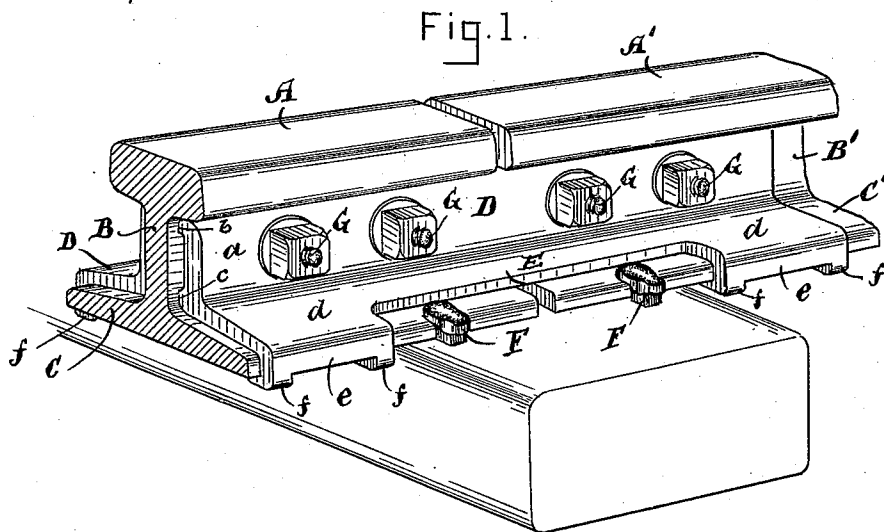


(No Model.)

H. W. LIBBEY.
FISH PLATE.

No. 468,881.

Patented Feb. 16, 1892.



Witnesses.

Henry H. Miller.
George Feltgen.

Inventor.

Hosea W. Libbey
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Attorney.

UNITED STATES PATENT OFFICE.

HOSEA W. LIBBEY, OF BOSTON, MASSACHUSETTS.

FISH-PLATE.

SPECIFICATION forming part of Letters Patent No. 468,881, dated February 16, 1892.

Application filed April 22, 1889. Serial No. 308,080. (No model.)

To all whom it may concern:

Be it known that I, HOSEA W. LIBBEY, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Fish-Plates, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to fish-plates for securing the ends of railroad-rails together; and it consists in certain improvements in the shape and construction of the same, whereby a very efficient result is obtained, as will be hereinafter more particularly pointed out and set forth in the claims.

Referring to the accompanying drawings, Figure 1 represents the ends of two adjacent rails connected together by fish-plates embodying my invention. Fig. 2 represents a cross-vertical section of a rail and end view of my improved fish-plates. Figs. 3 and 4 show side elevations of modifications of my invention.

A A' represent the treads, B B' the webs, and C C' the flanges, of two adjacent rails and connected together by my improved fish-plates D. These fish-plates are of an angle-iron, formed so as to fit against the web B of the rail and upon the top of the flange C, and at each end they pass down over the edge of the flange C and catch or hook under the same.

The portion *a* of the fish-plate that fits against the web B, I prefer to form hollow, as shown—that is, with a bearing on the web at the top and bottom, as at *b c*—and the portion *d*, which extends over the flange of the rail, I prefer to fit and rest solidly upon the same, and at each end the fish-plate is extended out beyond the flange C of the rail, then turns down, as at *e*, the lower part of which is provided with one, two, or more lips *f*, that pass under the flange C of the rail. A space E is formed or cut out between the end pieces *e*, so that the spikes F may be driven into the sleeper and hold directly upon the lower flange C of the rail.

G are bolts for connecting the fish-plates and rails together. By making the vertical portion of the plate with the two longitudinal ribs or points of contact with the web of the rail and locating the bolt-holes between them a certain amount of elasticity is given to that

portion of the plate which could not be obtained otherwise than by this construction. This elasticity or inward pressure of the plate between the two points of contact causes the lower point to act as a fulcrum upon which the base or lower part of the plate can be rocked or slightly moved away from the base of the rail; but the caps at the outer edge of the base of the plate engage with the lower side of the base of the rail and tend to prevent the base of the plate from being raised from the base of the rail, thus utilizing the elasticity of the base of the plate in connection with the elasticity of the vertical portion to give the bolt-head and nut such a seat as to practically prevent their coming apart.

It will be seen that by this construction of fish-plates the ends of the rails rest directly upon the sleeper and the spikes have a direct hold upon the flanges of the rails, while the fish-plate has a better hold upon the rails, the lips grasping and holding the flange of the rail, and should the nuts or the bolts work loose the fish-plate is not liable to slip and loosen its grip upon the rail, as with fish-plates now in use. Moreover, by the fish-plate being held under the flange by the lips the liability of the bolts G being loosened by jarring is much reduced, vibration at the ends of the rails is prevented, and settling at the joints is overcome, because the ends of the rails have a direct bearing upon the sleeper, and the liability of spreading of the rails can be prevented, because when a spike works loose another spike can be driven by its side into the sleeper.

In Fig. 3 I have shown a modification in which the portion *e* is provided with three lips *f*, and in Fig. 4 I have shown the lips extended the whole length of the portions *e*.

What I claim as my invention is—

1. A fish-plate of angle form, the vertical portion of which is provided upon its inner face with a longitudinal groove, whereby two contact-points are formed, one at the top and one at the bottom, which are adapted to bear against the sides of the web of the rail, said vertical portion being also provided with bolt-holes between said contact-points, and the base portion of the plate is cut away at its intermediate portion, whereby the head of the nails may engage with the base of the rail

without coming in contact with the plate, and each end of the base of the plate beyond the cut-away portion being extended and provided with an inturned ear adapted to engage with the bottom of the base of the rail, substantially as described.

2. The combination, with the abutting ends of two railway-rails, each being provided with bolt-holes through the web, of a fish-plate on each side thereof, each plate being of angle form and provided upon the inner face of its vertical portion with two bearing-surfaces, each of which is in contact with the web of the rail, said vertical portion being also provided with bolt-holes between the bearing-surfaces and registering with the holes in the webs of the rails and the base of the plate being cut away intermediate its ends, whereby a portion of the top of the base of each rail is exposed or not covered by the plate, and

each end of the plate beyond the cut-away portion is extended to the edge of the base of the rail and bent over the edge and provided with an inturned ear which engages with the bottom of the base of the rail, a tie between the opposite ends of the plates, bolts through the webs of the rails and the vertical portions of the plates, and nails in the tie, the heads of which engage with the tops of the bases of the rails at the cut-away portions of the plates between the ends thereof, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 20th day of March, A. D. 1889.

HOSEA W. LIBBEY.

Witnesses:

CHAS. STEERE,
EDWIN PLANTA.