

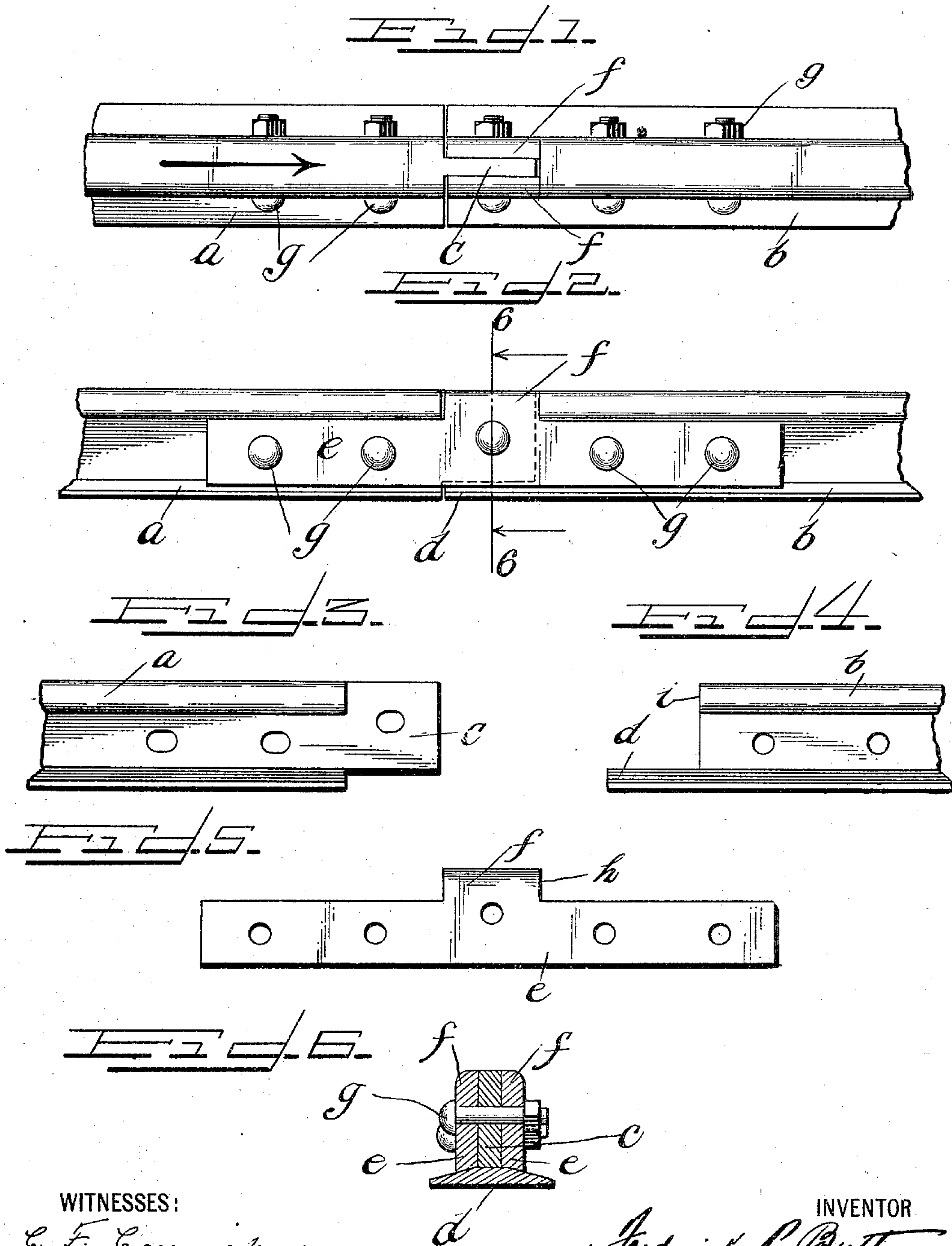
No. 725,216.

PATENTED APR. 14, 1903.

F. P. BUTTS.  
RAIL JOINT.

APPLICATION FILED NOV. 1, 1902.

NO MODEL.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 725,216, dated April 14, 1903.

Application filed November 1, 1902. Serial No. 129,629. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK P. BUTTS, a citizen of the United States of America, and a resident of New York city, county and State of New York, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to improvements in rail-joints, and is designed with a view of providing a continuous and uniform tread-surface to a railway, while at the same time permitting the necessary compensation for the contraction and expansion of the rail.

To this end my invention consists in prolonging the web portion and prolonging the central portion of the head of a rail at one end thereof, in prolonging the base portion of the contiguous rail at the end adjacent thereto, and in forming the connecting fish-plates with head portions complementary to the prolongations of the web and base portions of the rail, whereby a practically continuous tread-surface is formed.

My invention further consists in bolting the fish-plates rigidly to that portion of the rail having the base prolonged and providing a slotted connection between the fish-plates and that end of the rail having the web portion prolonged.

I will now proceed to describe a rail-joint embodying my invention and will then point out the novel features in claims.

In the drawings, Figure 1 is a top view of the end portions of two rails and fish-plates connecting them embodying my invention. Fig. 2 is a side elevation of same. Figs. 3 and 4 are views of the rail ends detached and with the fish-plates removed. These figures similarly represent opposite ends of the same rail. Fig. 5 is a detail view of one of the fish-plates detached. Fig. 6 is a view in transverse section through the joint, the section being taken on the plane of the line 6 6 of Fig. 2.

In Figs. 1 and 2 the adjacent ends of two rails *a* and *b* are illustrated connected together, while in Figs. 3 and 4 such ends are shown detached from each other and are simi-

larly designated by the same reference character. It will be understood, however, that in practice each rail has one end similar to the portion of the rail designated by the reference character *a* and illustrated in detail Fig. 3 and its other end similar to the portion designated by reference character *b* and illustrated in Fig. 4.

The rails herein illustrated are the ordinary form of T-rail having a flat base, a relatively thin central web portion, and a head overhanging the web portion. The rail portion *a* has a portion of its web projecting beyond the main body of the rail, as at *c*, and has also the central portion of its head forming an integral part of the web projecting therewith. The rail portion *b* has a portion of its base similarly projecting, as at *d*. When the two rail portions are fitted together, the web portion *c* and the base portion *d* are arranged to substantially fit or complement each other, so that the rail will be substantially continuous except for the portion of the head which is absent upon either side of the central portion above the web. Fish-plates *e* are provided having uprising or upwardly-projecting portions *f* intermediate their ends, which portions are arranged to compensate for and take the place of the head portions of the rails, which are absent when the ends *a* and *b* are joined together. The fish-plates *e* are adapted to be bolted together through the rails by bolts and nuts *g* of the usual or any desired form, and the said fish-plates are preferably bolted securely to the ends *b*, with the inner faces *h* of the upwardly-projecting portions *f* fitting snugly against the end face *i* of the rail portion *b*. (See particularly Figs. 1 and 2.) The bolt-holes in the rail end *a* are preferably slotted, so that a certain amount of play will be permitted between the fish-plates and the said rail portion. This compensated-for contraction and expansion will take place between the fish-plate and the rail *a* and not between the fish-plates and the rails *a* and *b*.

The fish-plates being rigidly secured to the rail end *b* will be substantially an integral part thereof, so that the rail end *b* will be practically continuous over and including the



head portions of the fish-plates. The rail end *a* is continuous through its central projecting portion *c* to the opposite ends of the head portions of the fish-plates, and hence the joint is an overlapping one and will always be an overlapping one regardless of the length of opening between the ends of the bases of the rails due to contraction. The direction in which a train is intended to run upon a track of this description is in the direction of the arrow in Fig. 1, and hence the wheels of any portion of the train will not only never have left the rail end *a* before they are thoroughly supported upon the rail end *b* or some part rigid therewith, but, further, because the lower portion of the projecting web end *c* will be supported upon the upper face of the projecting base *d* of the rail end *b* any deflection of the rail end *a* will be communicated to the rail end *b* and there will be no relative movement of the two parts such as would cause the wheels to pound, as in the rail-joint commonly in use at the present time.

What I claim is—

1. The combination with two rails, one having a portion of its web projecting at one end beyond the base thereof, and the other having a portion of its base projecting at one end beyond the web thereof, the said projecting portions adapted to overlap each other, of a fish-plate, connecting the two end portions of the rails together, having a head portion adapted to form a portion of the tread-surface of the rails.
2. The combination with two rails, one having a portion of its web projecting at one end beyond the base thereof, and the other having a portion of its base projecting at one end beyond the web thereof, the said projecting portions adapted to overlap each other, of two fish-plates, connecting the two end portions of the rail together, having head portions, complementary to the projecting web and base portions of the rails, to form a continuous tread-surface.
3. The combination with two rails, one having a portion of its web and the central portion of its head projecting at one end beyond the base thereof, and the other having a portion of its base projecting at one end beyond the web and head thereof, the said projecting portions adapted to overlap each other, of a fish-plate, connecting the two end portions of the rails together, having a head portion

adapted to form a portion of the tread-surface of the rails.

4. The combination with two rails, one having a portion of its web and the central portion of its head projecting at one end beyond the base thereof, and the other having a portion of its base projecting at one end beyond the web and head thereof, the said projecting portions adapted to overlap each other, of two fish-plates, connecting the two end portions of the rail together, having head portions, complementary to the projecting web and base portions of the rails, to form a continuous tread-surface.

5. The combination with two rails, one having a portion of its web projecting at one end beyond the base thereof, and the other having a portion of its base projecting at one end beyond the web thereof, the said projecting portions adapted to overlap each other, of fish-plates, having head portions, complementary to the projecting portions of the rails, to form a continuous tread-surface, means for rigidly securing the fish-plates to the rail having the projecting base contiguous thereto, and a slotted connection between the fish-plates and the other rail.

6. The combination with two rails, one having a portion of its web and the central portion of its head projecting at one end beyond the base thereof, and the other having a portion of its base projecting at one end beyond the web thereof, the said projecting portions adapted to overlap each other, of fish-plates, having head portions, complementary to the projecting portions of the rails, to form a continuous tread-surface, means for rigidly securing the fish-plates to the rail having the projecting base contiguous thereto, and a slotted connection between the fish-plates and the other rail.

7. A rail having a portion of its web and the central portion of its head projecting beyond the base and the side portions of the head, at one end, and having a portion of its base projecting beyond the web at the other end, said portions adapted to overlap corresponding portions of the opposite ends of similar rails.

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Witnesses:

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