

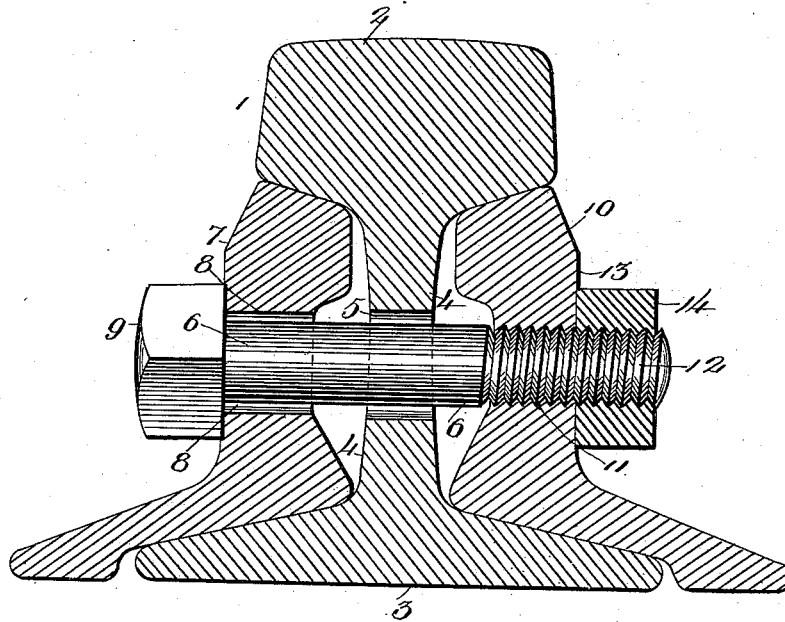
No. 649,975.

G. H. WILLIAMS.  
RAIL JOINT.

Patented May 22, 1900.

(Application filed Dec. 15, 1898.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE H. WILLIAMS, OF ST. LOUIS, MISSOURI.

## RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 649,975, dated May 22, 1900.

Application filed December 15, 1898. Serial No. 699,403. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE H. WILLIAMS, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Rail-Joints, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming a part hereof.

My invention relates to improvements in rail-joints; and it consists in the novel combination and arrangements of parts hereinafter more particularly described and claimed.

The drawing is a vertical cross-section of a rail-joint constructed according to my invention, taken through that portion of the several parts adjacent to one of the securing-bolts.

The object of my invention is to construct a simple, practical, and perfect rail-joint—that is, one that will not only stand the rough usage to which the same is necessarily subjected, but at the same time form a practical nut-lock for holding the several parts in a rigid and compact position.

Briefly stated, the invention consists of the employment of the ordinary rails without alteration of any character, vertical spring-arch angle-bars located on either side of the meeting ends of the rails, each of which is provided with a lower flanged portion covering the base portion of said rails, one of said angle-bars having smooth openings for the free passage of the bolts, the other provided with screw-threaded openings, the dimensions of which are smaller than the first-named openings for receiving the screw-threaded ends of the bolts, the said bolts being of sufficient length to extend a suitable distance beyond the said last-named angle-bar when the parts are in a compact position and having polygonal-shaped heads to which a nut-wrench or other tool is applied for drawing the several parts together and a nut screwed on the projecting ends of each of the bolts and against the adjacent angle-bars, thereby forming a perfect nut-lock for further holding the parts in their compact position.

Referring to the drawing, 1 represents a rail of ordinary construction and composed of a ball or tread portion 2, base 3, web 4, connecting the tread portion with the base, and

openings 5, formed in said web for the free passage of the bolt 6. The vertical spring-arch angle-bar 7, which is located on one side of the meeting ends of the rails, is provided with circular openings 8 of smooth bore about its medial yielding portion, through which the bolts 6 are freely passed, the inner surfaces of the polygonal heads 9 of which are normally in contact with the outer vertical surface of said angle-bar after said bolts have been turned in the proper direction to bring the several parts compactly together. The opposite angle-bar 10 is provided with screw-threaded openings 11 about its medial yielding portion which are smaller than the openings 8, formed in the opposite angle-bar, all of said openings, however, being on a line with one another for receiving the bolts 6, the said screw-threaded openings 11 receiving the screw-threaded ends 12 of the bolts. After the bolts 6 are screwed home by turning the same by the heads 9 the parts will be thoroughly drawn together, a wrench or other tool being applied to the heads 9 in the usual manner. The bolts are of sufficient length to project a suitable distance beyond the outer vertical surface 13 of the angle-bar 10 when the parts are properly assembled, and upon their projecting ends are screwed nuts 14, the latter being tightly turned against the said vertical outer surface 13 of the angle-bar, thereby forming a practical nut-lock. By this means it is impossible for the parts to become loosened, and, further, a very rigid joint is provided for the rail.

As clearly shown in the drawing, the vertical spring-arch angle-bars 7 and 10 are each provided with tapering lower flanged portions, the lower inclined surfaces of which are in binding contact and entirely cover the upper surface of the base 3 of the rails on either side thereof, the lower horizontal bearing-surfaces of each of said angle-bars being adapted to bear upon the ordinary ties, together with the lower bearing-surfaces of the base of the rails, whereby when the said angle-bars are spiked into position on the ties, together with the rails, vibration of the latter is prevented, and, further, the angle-bars are rigidly held into position to render them sufficiently yielding about the locking device of the same.

By the employment and construction of the vertical spring-arch angle-bars located on either side of the rail and their cooperation with the base of the latter, in combination with the specific construction of bolt or fastening device herein shown and described, the parts are yieldingly held together, and, further, when the parts become worn and settle by constant traffic over the rail, the elasticity of the angle-bars will automatically take up all wear, which is absolutely necessary to form a practical nut-lock of this character, it being observed that when the parts are first fastened together the said angle-bars will slightly yield sufficiently to take up the necessary wear that may occur in the future; otherwise the nut and bolt would become loose, as they do under the ordinary construction.

From the construction of the device and the description of its operation, as before described, it will be seen that the lower flat inclined surfaces of the angle-bars, as well as the upper inclined surfaces of the same, are brought into a binding position with the base and ball of the rail, respectively, by the bolts, whereby the parts are held in a clamped position before the nuts are screwed on the bolts to form the lock.

Having fully described my invention, what I claim is—

In combination with an ordinary rail having suitable openings formed in the web portions thereof, of vertical spring-arch angle-bars located on both sides of said rail, each of which is provided with lower flanged portions, the lower flat inclined surfaces of which

are in binding contact and entirely cover the upper surface of the base of the rail on either side thereof, one of said angle-bars having openings formed therein about its medial yielding portion, the other having screw-threaded openings about its medial yielding portion, screw-threaded bolts adapted to loosely pass through the openings in one of the angle-bars and the web portion of the rail, and screwed into the screw-threaded openings in the other angle-bar, and projecting a suitable distance beyond said last-named angle-bar, nuts screwed on the projecting ends of the bolts, and normally in direct contact with the yielding portion of the adjacent angle-bar, and heads formed on the opposite ends of said bolts, and normally in contact with the yielding portion of the adjacent angle-bar, the said lower flanged portions of said angle-bars adapted to be spiked upon the ordinary ties, together with the rail, whereby when the angle-bars are placed in proper position in respect to the rail, and the bolts inserted, the parts are rigidly clamped together by turning said bolts, the lower and upper inclined surfaces of said angle-bar, cooperating with the base and ball of the rail respectively, before the nuts are screwed on the bolts to lock the parts together, and prevent the bolts from turning, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE H. WILLIAMS.

Witnesses:

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