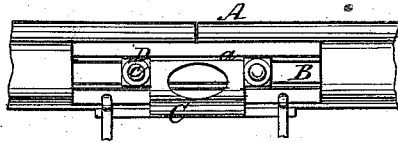


*G. W. R. Bayley*  
*R. R. Joint Bolts.*

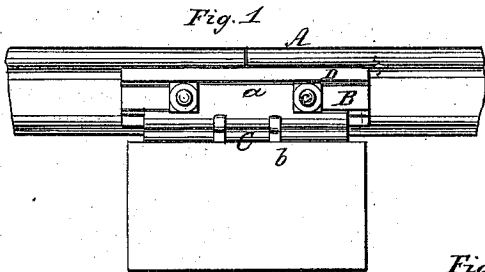
*N<sup>o</sup> 87,460.*

*Patented Mar. 2, 1869.*

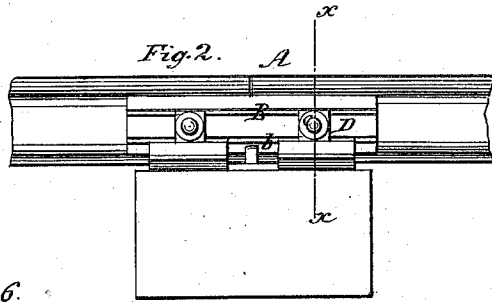
*Fig. 5.*



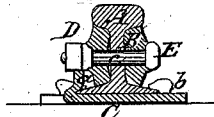
*Fig. 1.*



*Fig. 2.*



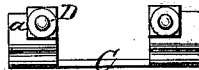
*Fig. 6.*



*Fig. 7.*



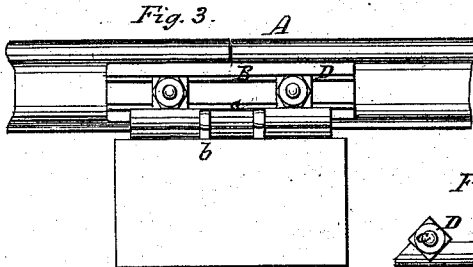
*Fig. 9.*



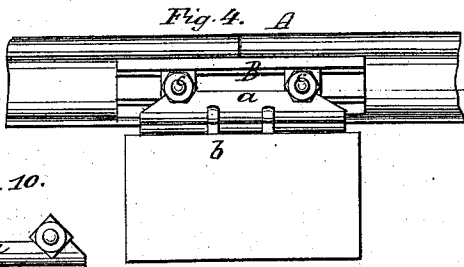
*Fig. 8.*



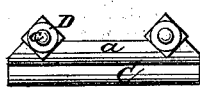
*Fig. 3.*



*Fig. 4.*



*Fig. 10.*



*Witnesses.*

*L. Hailer.*  
*P. T. Dodge.*

*Inventor.*

*G. W. R. Bayley.*  
*by Dodge & Munro*  
*his attys.*

# United States Patent Office.

G. W. R. BAYLEY, OF ALGIERS, LOUISIANA.

Letters Patent No. 87,460, dated March 2, 1869.

## LOCK-NUT ATTACHMENT FOR RAILROAD-CHAIRS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, G. W. R. BAYLEY, of Algiers, in the parish of Orleans, and State of Louisiana, have invented certain new and useful Improvements in Means for Locking the Nuts of Railroad-Rail-Joint Bolts, or of intermediate rail-bolts; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

My invention relates to the fastening of railway-rail joints, where "fishing-bars" and screw-bolts are used to connect the ends of the rails, or to the fastening together the parts of compound rails, by means of screw-bolts; and consists in certain modifications and additions to the plan patented to me, December 29, 1868, in which I employ a novel method of constructing and proportioning the rail-joint or intermediate chair in relation to the nuts of the rail-joint or intermediate screw-bolts, in such a manner as to lock the nuts securely in place, and prevent them from turning or working loose, as hereinafter more fully explained.

In the drawings—

Figures 1, 2, 3, 4, and 5, are side or plan views of rail-joints, and different forms of the chair for locking the nuts.

Figure 6 is a cross-vertical section, on the line  $x-x$  of fig. 2.

Figures 7, 8, 9, and 10, are views of certain modifications of the lips of the chair for locking the nuts.

As is well known, in the construction of railroads, it is a common practice to unite the adjoining ends of the rails by means of "fishing-bars" and screw-bolts. The fishing-bars consist of a pair of short iron bars or plates, made to fit, one on each side of the rails, between the head and base of the same, so as to lap over each way past the joint or point of contact of the ends of two rails, where they are secured to the same by screw-bolts, which pass through them and the ends of the rail. The heads of these bolts on the one side, and the nuts on the other, when screwed up, clamp the bars firmly to the rails, and cause them to preserve that continuity of line and surface at the joint which is essential to smoothness of track.

In the case of compound rails, the two or more parts composing it may be bound together, by screw-bolts, at intermediate points, without the use of fishing-bars, and with but a single one at the half joints.

In practice, it has been found impossible to keep the nuts of railway-rail bolts from working loose or entirely off. As the continuity of the line of rail, as well as the intermediate fastening, depends upon these nuts keeping their proper position, constant attention and labor are required to detect them when loose, and screw

them up again, but under this operation they soon become so worn as to be useless, as well as the bolts themselves, from the wearing out of the screw-threads.

To remedy this difficulty, various devices have been invented for the purpose of locking the nuts, but heretofore these devices have consisted principally in the use of supplemental pieces as wedges, pins, keys, washers, &c., or in new and unusual forms of bolts or nuts, or of double or jam-nuts. Many of these devices are entirely useless for the purpose designed, and others are expensive, difficult of construction, application, or maintenance, or are otherwise objectionable.

My invention has for its object the accomplishment of the end desired, to wit, the perfect, secure, reliable, and permanent locking of railroad-rail-bolt nuts, without the use of any unusual or complicated parts or pieces, and without requiring any change in the forms or dimensions usually given to bolts and nuts. Being simple in construction, it can readily be applied to any fished joints, old or new.

To accomplish this locking of the nuts, as described, I construct a railroad-chair, C, having a lip,  $a$ , formed on it in some one, substantially, of the shapes shown in the different figures in the drawings.

This lip  $a$ , I construct of different shapes, sizes, lengths, heights, &c., as is clearly shown in the drawings, so that when the screw-bolts  $c$  are inserted through the fishing-bars B and the rails A, and the nuts D are placed thereon and screwed up, so as to bring their sides into proper position, the corresponding sides or edges of the lip  $a$  shall abut against or fit near to one or more of the sides of the nut D, whether the same are horizontal, inclined, or vertical, and thus securely lock them, so as to prevent their turning, as clearly shown in figs. 1, 2, 3, 4, 5, 6, 8, 9, and 10.

This lip  $a$  of the chair C may also be so constructed as to have holes or openings in them, in shape corresponding to the shape of the nut D, whatever that may be, as shown in fig. 1.

The object, it will be seen, is in all cases to lock the nut of the bolt by means of the lip of the chair, by bringing the lip in contact with the nut in any manner that will secure this result.

In a similar manner, the nuts of rail-bolts used for confining or binding together the parts of a compound rail, either with or without a fish-bar or fishing-bars, can be locked securely in place.

It is obvious that the form, position, and dimensions of the lip or lips  $a$  of the chair C, whether made of cast, wrought, rolled, or plate-iron, or other suitable metal, must be such as to fit or correspond to one or more of the sides of the nut or nuts to be locked.

The forms and dimensions of the nuts used may or may not be different from those in common use. They may have four or more sides, or be elliptical in shape, and, with their bolts, be placed in any desired position.

One or more bolts, as desired, may be used at the

joints of the rails, or at intermediate points. The nut or nuts of the bolt or bolts can be readily and securely locked by the lip or lips of the chair, as described.

In applying my invention, the screw-bolts *c* are first inserted through the fishing-bars *B* and rails *A*, and the nuts *D* placed thereon and screwed up. Then the chair *C* is slipped on or under the rail, so as to bring the lip or lips *a* into the proper position for locking the nuts *D*, as shown in all the figures, especially in fig. 6. This done, the chair may be spiked or screwed down to the cross-tie, sill, or timber-bearing, by spikes *b*, as shown, or, in case of placing the joint of the rails between the bearings, the chair may be secured to the flange or base of the rail, by a gib and key, or by any other suitable fastening.

When the chair, thus constructed, is so placed that its lip or lips conform in any way to one, or more, or all of the sides of the nut, it is obvious that so long as it remains in position, the nuts of the rail-bolts can-

not be moved or taken off, and that they cannot get loose.

By these means, I lock the nuts perfectly, in a simple and secure manner, without the use of any separate or complicated parts, by the prolongation or continuation inward and upward of the lip or lips of the chair, and bringing the same in contact with one, or more; or all of the sides of the nut or nuts to be locked.

If desired, for any reason, it is obvious that the heads of the bolts may be locked in a similar manner.

Having thus described my invention,

What I claim, is—

The method of locking the nut or nuts of railroad-joint bolts, or of intermediate rail-bolts, by means of the lip or lips of the railroad-chair, in the manner substantially as herein described and set forth.

Witnesses: G. W. R. BAYLEY.

JOHN C. DUDLEY,

FRANCIS P. KILLEEN.