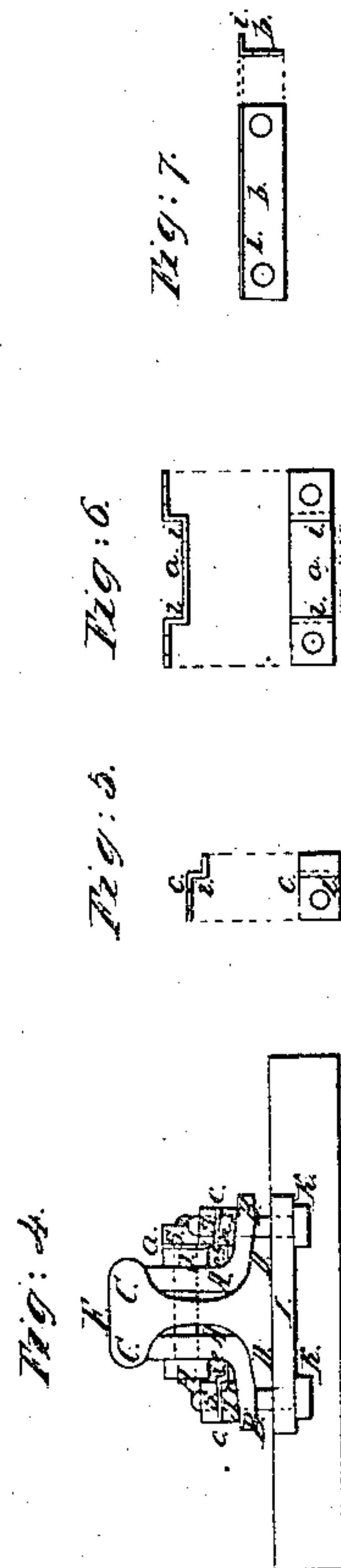
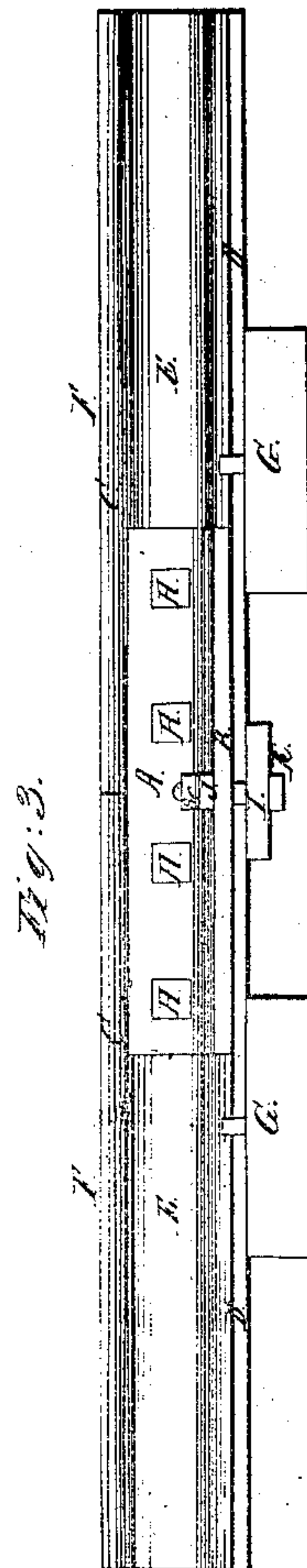
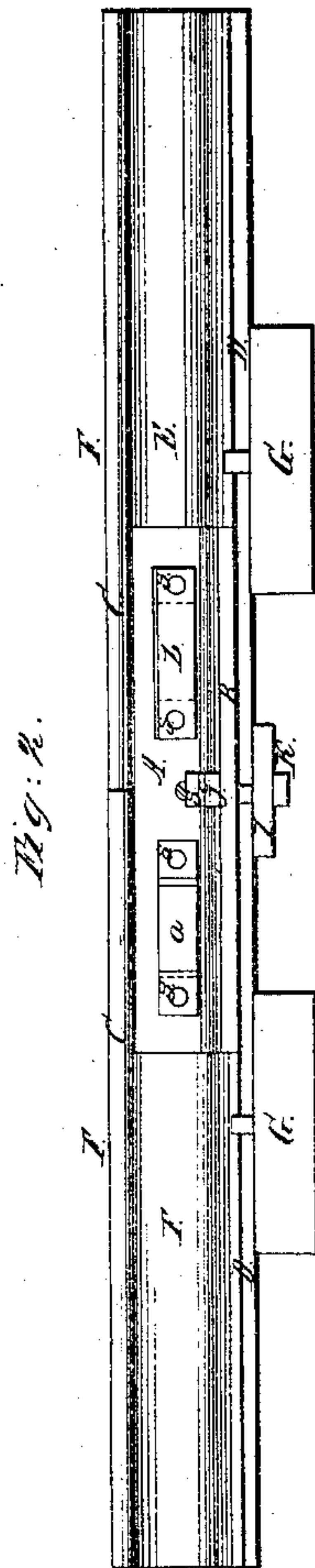
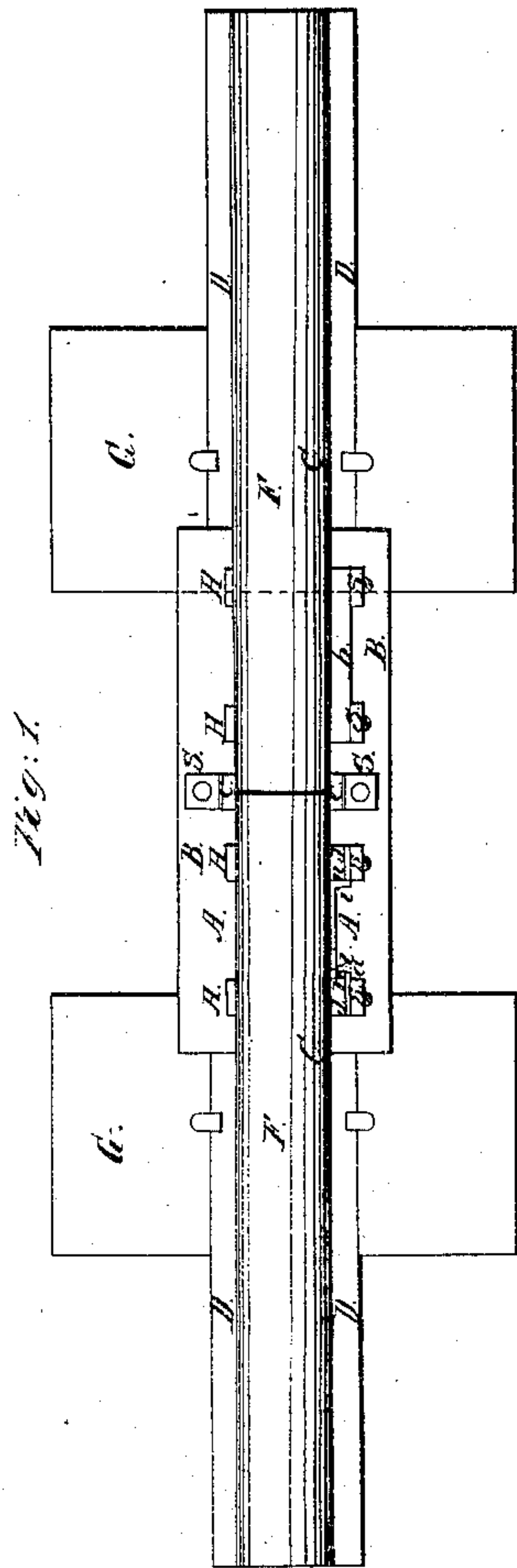


No. 30,014.

PATENTED SEPT. 11, 1860.

L. B. TYNG.
RAILROAD JOINT.



Witnesses:
P. V. Kelley
J. A. Partridge

Inventor:
L. B. Tying
By A. W. N. Scott.

UNITED STATES PATENT OFFICE.

LEVI B. TYNG, OF LOWELL, MASSACHUSETTS.

RAILROAD-JOINT.

Specification of Letters Patent No. 30,014, dated September 11, 1860.

To all whom it may concern:

Be it known that I, LEVI B. TYNG, of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a new and useful Improvement in Railroad-Joints for Railroads; and I do hereby declare that the following specification is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings and the letters of reference marked thereon, making a part of this specification, in which—

Figure 1, is a plan or top view. Fig. 2, an outside elevation. Fig. 3, an inside elevation. Fig. 4, an end elevation. Figs. 5, 6, and 7, are different views of the angle plate hereinafter described, for holding the nuts on the bolts.

Letters of like name and kind refer to like parts in each of the figures.

To enable others skilled in the art, to make and use my invention, I will proceed to describe its construction and operation.

I construct iron splice pieces A, Figs. 1, 2, 3, and 4, with flanges B, projecting laterally from the bottom sides. These splice pieces are made to fit the rail sides similar to splice pieces in the "fish joint," their top edges fit the under side of the rail head C, and the bottom side of the flanges fit the upper side of the rail base D, leaving a small space between the splice pieces, and rail stem E, as shown in Fig. 4.

Two rails F, Figs. 1, 2, 3, and 4, are placed in position upon the sleepers, the contiguous ends of the rails being placed half way between two sleepers G. I then place one splice piece upon the inside, and one, upon the outside of the rail joint, so as to lock half their length upon each rail, and secure them firmly thereto by bolts H, passed laterally through both splice pieces and the rail stem. This arrangement thus far grips the joint laterally only, they having only a lateral grip upon the rail joint do not, and cannot give them sufficient vertical support to make the joint effectually self supporting. Consequently a sleeper is placed directly under the ends of the rails, upon which both the bracket and rail ends bear in the "bracket joint," and in the "fish joint" a "chair" is usually placed on between the sleeper and under the rail ends. These devices however like the various kinds

of "chair joints," have proved in the end unsatisfactory from their inability to maintain a smooth and even joint, and preserve the rail ends from being crushed and battered down. Therefore in order to make the rail joint fully self supporting, and practically a continuous rail, and preserve the rail ends from being crushed, I dispense with both the sleeper and chair, at the joint, and in place thereof I sling the rail ends to the side splices A. This sling is constructed by placing a bar of iron I, transversely under the ends of the rails. This bar is 4, to 6, inches wide and $\frac{1}{2}$, to $\frac{5}{8}$, of an inch thick, locking half its width upon each rail and extending in length from outside to outside of the flanges of the side splices. I then bind the bar I, firmly to the side splices, and the splices and bar to the rails by bolts H, and K, which pass vertically through the ends of the bar and central portion of the flanges of the side splices, and laterally through the side splices and rails, as shown in Figs. 1, 2, 3, and 4. This arrangement not only affords ample support to the rail ends but when the bolts K, are turned tight up, a very firm and powerful grip is given to the joint in a vertical line, in addition to the lateral grip before obtained.

This new and highly important element of strength imparted to the joint dispenses with the necessity of otherwise placing a sleeper directly under it to afford the necessary vertical support, and it makes it impossible for the end of one rail in a joint to be elevated or depressed out of line with that of the other. It also transfers the great strain of the rail head—under the pressure of a train, from the thin edges of side splices, to the broad bearing of the rails upon the bar I, and to the broad bearing of the flanges B, of the side splices upon the rail base, thereby so greatly enlarging the points subject to wear, as to effectually remedy a serious evil in the "fish," and "bracket joint," of wearing out of line. This is of the greatest importance in maintaining a smooth and even rail joint. This peculiar manner of slinging the rail ends up to the side splices, also relieves the lateral bolts H, of the excessive strain which would be otherwise thrown upon them by the wedging power of the rail head under the pressure of a train, upon the upper edges of the side splices, the tendency of which is to

spread them, and in the "fish joint" and "bracket joints," often causes those bolts to break.

My joint, it being suspended is likewise perfectly free from the crushing and battering effect of "chair joints," upon the rail ends; rail road chairs are now usually termed by rail road men, "the anvil" from their well known property in causing the rapid destruction of rail ends so common on most roads.

I am aware that suspended rail joints have been made before, but none of them embrace the peculiar features set forth in mine, as herein described, which distinguish it from other joints.

It is important to the stability of my rail joint that the nuts J, on the bolts be made secure against turning off, by the jarring of the rails, and thereby allow the parts to get loose.

Various devices are used to secure bolts and nuts from turning; but none of them are adapted to my rail joint. I therefore construct angle plates *a, b, c*, Figs. 5, 6 and 7, not a washer. This plate is made of a strip of iron of a suitable thickness to hold the nuts, on which it is used, and should be formed when hot, angles are then made in one or both ends of the plate to correspond to, and fit the angles of the face and side of the nut, a hole is then made in the angle of the plate that is to fit the face of the nut, so as to receive the bolt when the plate is applied. The nut J, is then turned up to its place, and the plate is applied. The angle in the plate corresponding to the side of the nut presents a shoulder *i*, against the square side *n*, of the nut, and thus secures it from turning so long as the plate remains upon the nut and does not turn itself, and to secure the plate from turning, when it is convenient, I place one plate upon two nuts as shown at *a*, Figs. 2 and 3, and when I place the plate upon one nut only, one end *e*, of the plate is brought against the square side of the side splice as shown in Fig. 4.

The plate is held in its position upon the

nuts J, by an outer nut S, or a pin through the bolt or in any other convenient manner. Plate C, Fig. 7, is made with an angle on its side. In rail joints it is often necessary to adjust the nuts, or remove the bolts in doing which the angle plate is readily removed from the nuts J. It can be taken off and replaced at pleasure, an indefinite number of times without destruction or injury in the least. This is not the case, and cannot be with the "flexible metallic washer," that device cannot be removed from the nut, until the nut is removed from the bolt, and the nut cannot be removed until the washer is destroyed as a nut lock, as the operation in straightening out the sharp angle in the washer with the metal cold as it must be done, would be certain to break it. The "washer" in order to be made to hold the nut from turning, must after the nut is turned up, be bent cold into a sharp angle, and then before the nut can be either removed or adjusted, the washer must be unbent and straightened while cold and as it is well known, iron will not bear such operations, without breaking, this device therefore cannot be made applicable to my rail joints.

These peculiar features in the "flexible metallic washer," which is designed to serve both the office of a washer, as well as to hold the nut from turning; clearly distinguish its principle and operation from that of my angle plate.

Having thus described my invention I will state my claim as follows:

What I claim as my invention, and desire to secure by Letters Patent, is—

The method herein described of constructing rail joints for rail roads, that is to say I claim the bar I, connected to side splices A, in combination with rails F, and plates, *a, b, c*, substantially as herein described, and for the purposes fully set forth.

L. B. TYNG.

Witnesses:

E. W. SCOTT,
M. A. SCOTT.