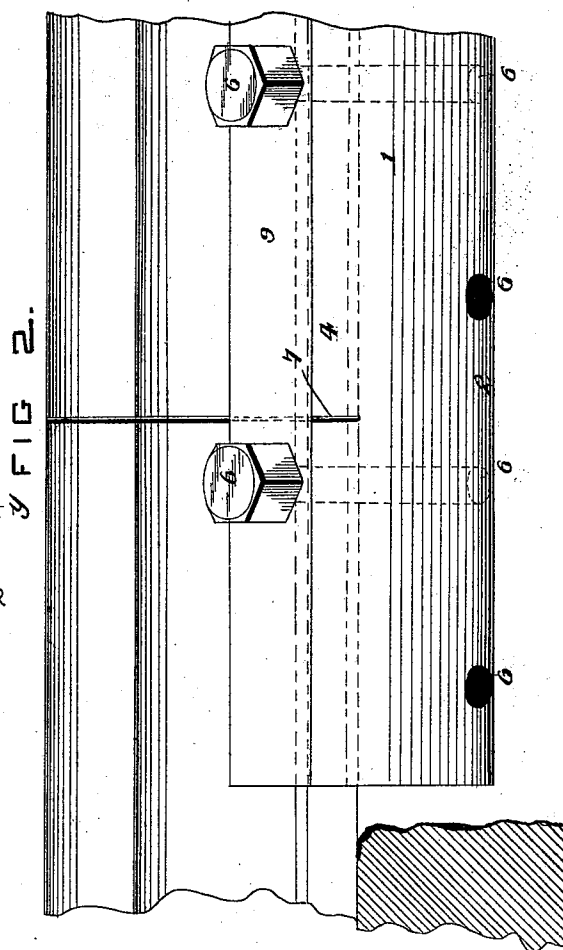
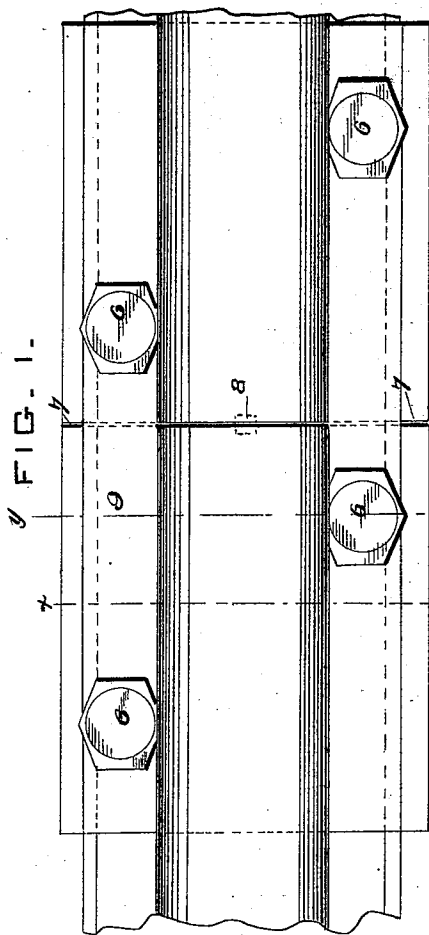
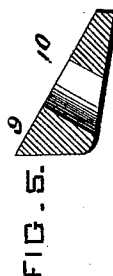
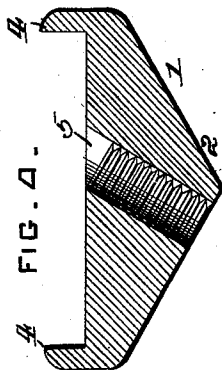
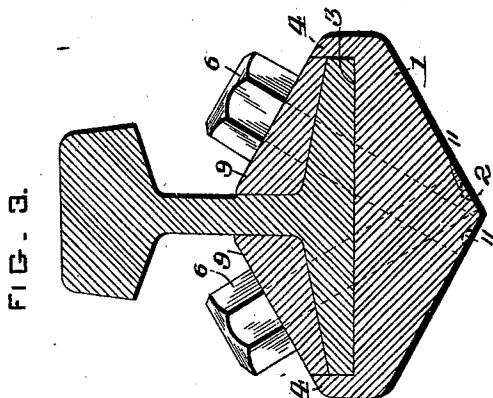


(No Model.)

W. C. CRANMER.
RAIL JOINT.

No. 518,834.

Patented Apr. 24, 1894.



WITNESSES

John Samie
Chas. B. Hyer

INVENTOR

William C. Cranmer
By John Wedder
his ATTY

UNITED STATES PATENT OFFICE.

WILLIAM C. CRANMER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF
ONE-HALF TO ROBERT C. MATLACK, JR., OF SAME PLACE.

RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 518,834, dated April 24, 1894.

Application filed July 12, 1893. Serial No. 480,293. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. CRANMER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Rail-Joints; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to rail joints, and has for its object to prevent creeping of rails, securing perfect uniformity and level of the rail ends, and obviate battering action of the same, and also to provide for expansion and contraction, as well as to permit elasticity in the rails, and by reason of the fact that the joint does not rest upon supporting ties, but is located between the latter.

With these and other objects in view, the invention consists of the construction and arrangement of the several parts as will be more fully hereinafter described and claimed.

In the drawings:—Figure 1 is a top plan view of a rail joint embodying the invention. Fig. 2 is a side elevation of the same. Fig. 3 is a transverse vertical section on the line *x, x*, Fig. 1. Fig. 4, is a similar view of the flange plate on the line *y, y*, Fig. 1. Fig. 5 is a cross sectional view of one of the top angle plates.

Similar numerals of reference are employed to indicate corresponding parts in the several figures of the drawings.

Referring to the drawings, the numeral 1 designates a bottom flange plate which has a lower substantial triangular formation as at 2, and an upper plane surface, 3, upon which the rails are adapted to rest, and on opposite sides of said plane surface are longitudinally disposed ears, 4, which rise vertically. Alternately arranged throughout the length of the said angle plate, is a series of screw threaded bolt openings, 5, which extend downward obliquely on opposite sides of the central vertical line, and their angle is such with relation to the under oblique sides of the plate, 1, that when a common nut and bolt is employed the bearing plates of the nut will rest firmly against a parallel surface on the under side of the plate. It is preferable, however,

to dispense with the use of nuts, and the threaded or tapped end of each bolt, 6, is caused to engage a screw thread of each bolt opening, 5, and in this arrangement it has been found that not only will greater security be given, but also that there will be less tendency for the bolt to work loose. This latter construction obviates the use of any other securing contrivance or device. At the point where the rail ends will be located in each angle plate, the ears, 4, are provided with slots, 7, and at the center of said angle plate is an opening 8, which extends vertically therethrough, and by this means dirt and dust are prevented from congregating between the opposed ends of the rails, it being understood that the slots, 7, extend downwardly only through the depth of the ears, 4. After the rails are placed within the flange plate, top angle plates, 9, with openings, 10, therein are mounted on the upper sides of the opposite flanges of each rail, the said openings 10, aligning with similar openings in the rail flanges and the openings, 5, of the flange plate, and partaking of the same obliquity. These top angle plates are of the same length as the flange plate and their open sides are inclined or beveled and slope downwardly to form a flush fitting with the ears, 4. Both the upper and lower sides of each of said angle plates are beveled or inclined, the bottom inclination to compensate for the inclination of the rail flanges, and the upper inclined surface being adapted to provide a surface which will be parallel with the engaging face of the bolt head in order to produce a firm securement. As will be understood the joints are intended for connecting rails of railroads, forming a continuous rail, and omitting, if desired, the opening, 8, and the slot, 7. By making the bolt holes in the rail of the usual oblong shape, a ready contraction and expansion of the rails will be permitted, and in all events the bolt hole in the rail will be made slightly larger than the bolt to allow the parts of the joint to be tightly drawn against the rail web and flange. To permit of the elasticity in the rails, the joint is not to rest on the ties, and will be short enough in length to permit the standard distance between the ties to be maintained. It is in-

tended that the length of the joint shall be such that the ends will abut against the ties so spaced at equal distances from the joint of the abutting rail. By having the bolts fixed in pairs with alternate opposite directions of inclinations to the vertical, the upper and lower plates are interlocked, and must remain so, until the two bolts on one side are broken off below the lower flange of the rail.

10 Perfect alignment of the rails at their connections is secured by the ears of the bottom flange plate projecting above the bottom flange of the rails on the outer side thereof, and with the bolts wedges the rail and the

15 parts of the joint in rigid contact. Suitable slots, 11, will be formed in the ends of the bolts, 6, which will allow of the same being backed out by suitable devices, if for any reason they cannot be otherwise removed, or

20 become broken while in locked position.

It is obviously apparent that many minor changes in the construction and arrangement of the several parts, so far as they are within the scope of the invention, might be made and

25 substituted for those shown and described without in the least departing from the nature or spirit of the said invention.

Having thus described the invention, what is claimed as new is—

30 1. In a rail joint adapted to rest between supporting ties, the combination of a bottom flange plate having longitudinally disposed ears, top angle plates fitting into the said flange plate, railroad rails seated in said bot-

35 tom flange plate and having the top angle plates mounted over opposite flanges thereof, and securing bolts passing through the top angle plates, the flanges of the rails and the bottom flange plate, said bolts being arranged

apart from each other and crossing diagonally through the under portion of the said bottom flange, substantially as described. 40

2. In a rail joint adapted to be located between ties, the combination of a bottom flange plate, having upper longitudinally disposed ears, railroad rails having their abutting ends seated in said flange plate, top angle plates mounted on the rail flanges and abutting against the ears of the bottom flange plate, said parts having alternately arranged open-

45 ings at oblique angles of inclination, and bolts having their heads resting on the top angle plates, and engaging the said bolt openings, substantially as described. 50

3. In a rail joint adapted to be located between supporting ties, the combination of a bottom flange plate, with longitudinally disposed ears having slots extending transversely throughout, said flange plate being also provided with vertical openings in line with said slots, rails mounted in said flange plate, top angle plates located over the rail flanges, and alternately arranged below for securing said parts together, substantially as described. 60

4. In a rail joint, the combination with the rail sections and supports therefor, and bolts passing through said rail sections and supports, and apart from each other and crossing under the rail sections through the central plane of said sections, substantially as described. 65 70

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM C. CRANMER.

Witnesses:

FRANK P. LAFFERTY,
ISAAC C. YOCUM.