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Patented Oct. 14, 1902.

J. H. ALLEN.

INSULATED RAIL JOINT OR CONNECTION.

(Application filed Mar. 7, 1902.)

(No Model.)

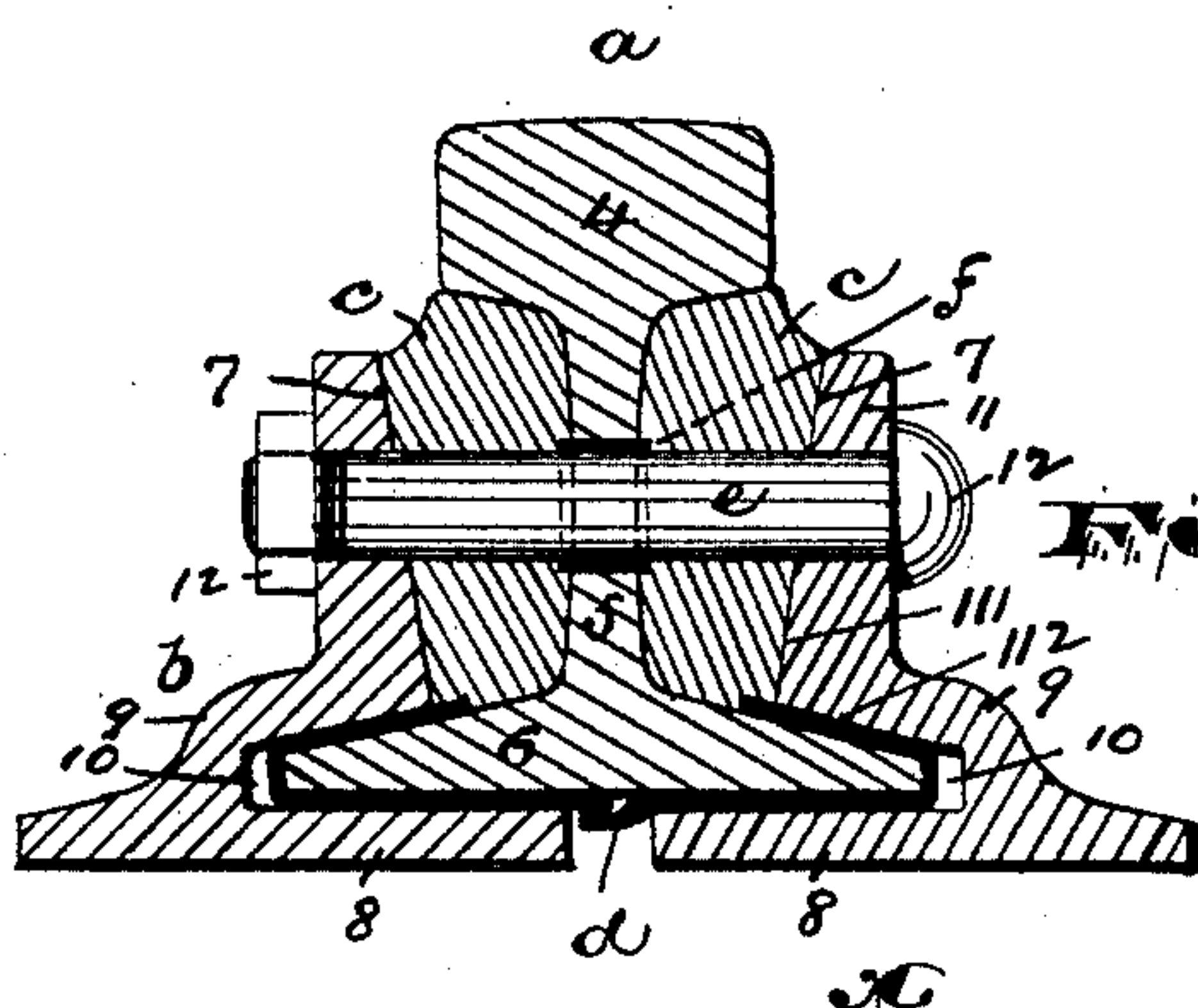


Fig. 1.

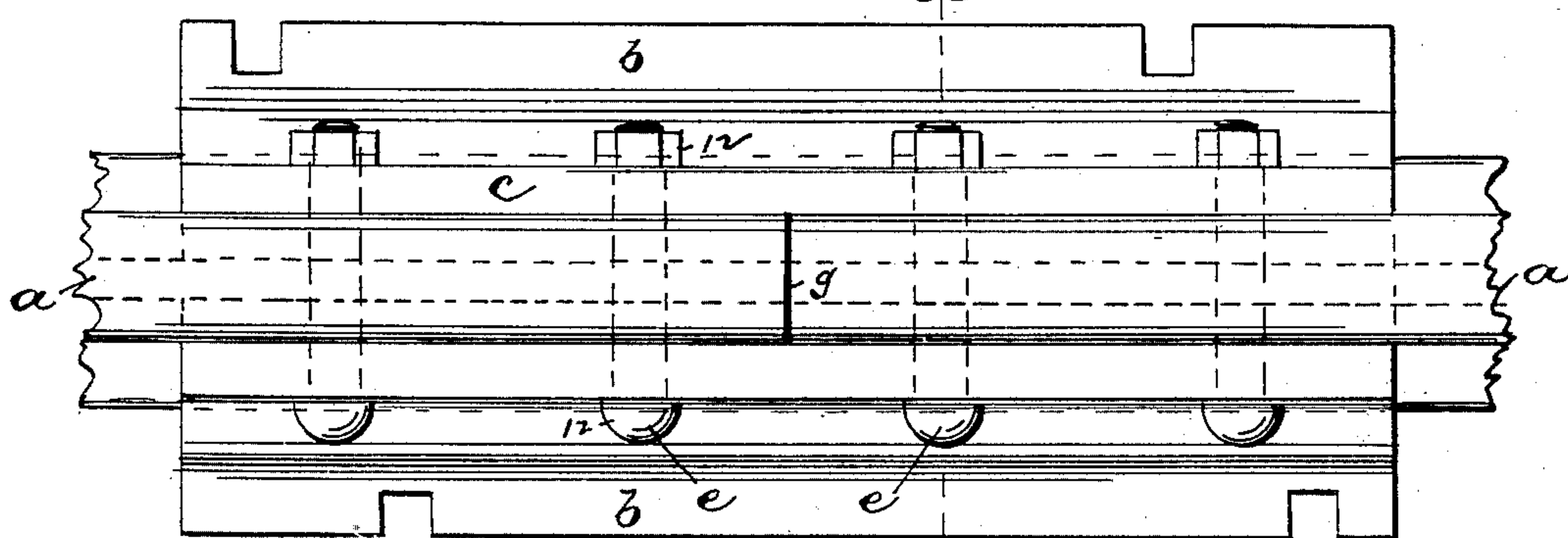


Fig. 2.

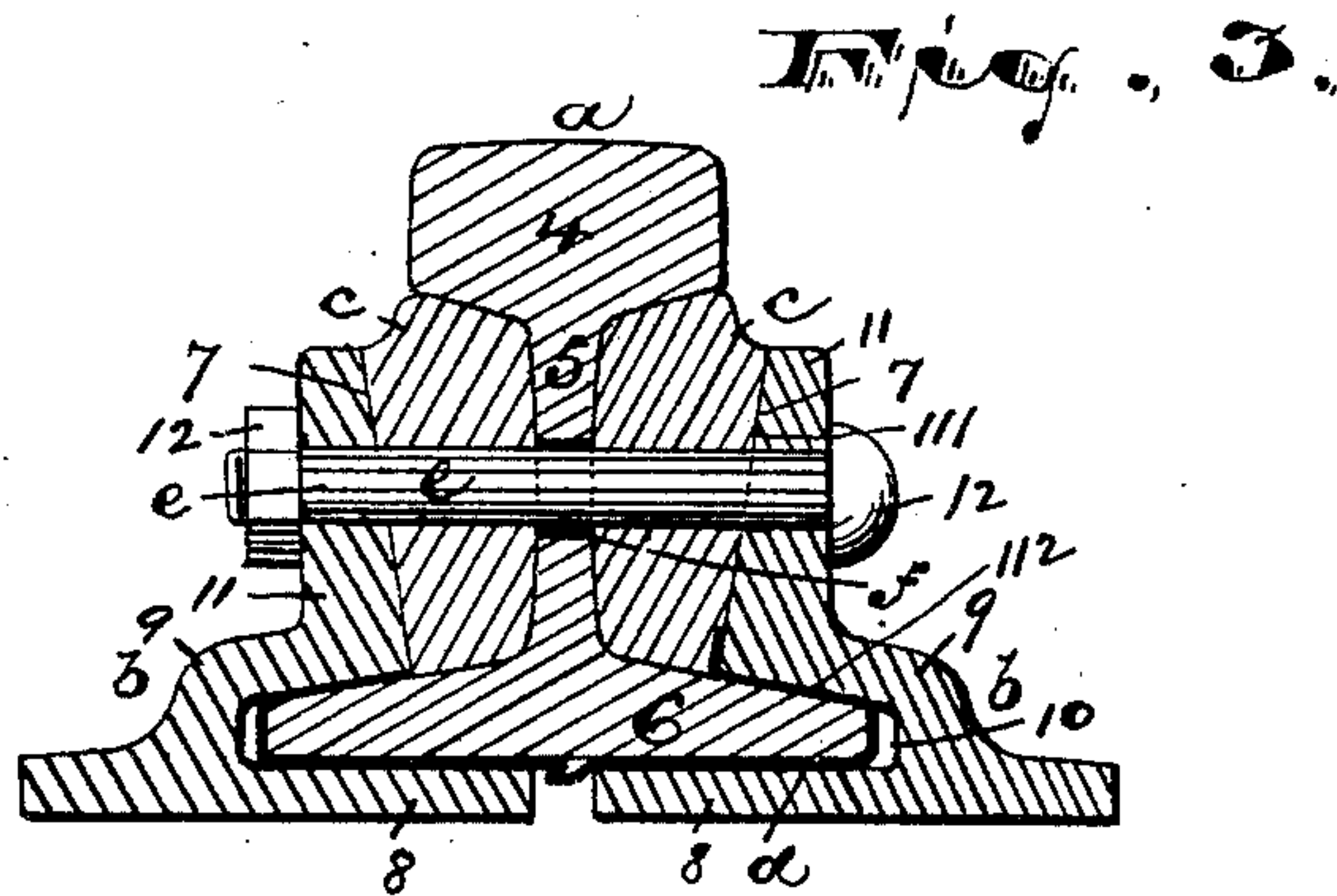


Fig. 3.

WITNESSES:

Henry D. Cragg
Russell M. Everett

INVENTOR=

John H. Allen,

BY

Drake & Co.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN H. ALLEN, OF EAST ORANGE, NEW JERSEY.

INSULATED RAIL JOINT OR CONNECTION.

SPECIFICATION forming part of Letters Patent No. 711,411, dated October 14, 1902.

Application filed March 7, 1902. Serial No. 97,186. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. ALLEN, a citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Insulated Rail Joints or Connections; 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, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

The object of this invention is to provide an insulated rail-joint of greater simplicity and cheapness of construction and one which, while serving its insulating functions efficiently and well, will secure ample strength and rigidity at the joint between the contiguous ends of the aligned rails and to secure other advantages and results, some of which may be referred to hereinafter in connection with the description of the working parts.

The invention consists in the improved insulated rail joint or connection for railway-rails and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like characters of reference indicate corresponding parts in each of the several figures, Figure 1 is a transverse section of a rail and insulated connections, taken through line *x* of Fig. 2. Fig. 2 is a plan of a pair of contiguous rails and their insulated connections; and Fig. 3 is a section similar to Fig. 1, showing certain modifications of construction.

In said drawings, *a a* indicate the railway-rails, of any usual form of construction, said rails being in alinement and having the head 4, web 5, and flange 6 extending oppositely in a horizontal plane from the base of said web. Between the head 4 and flange 6 on opposite sides of the web 5 are insulating blocks or billets *c* of insulation, preferably of wood, and around the opposite edges and at the top and bottom of the flange 6 is sheet insulation *d*. Outside of said sheet and block insulation, at opposite sides of the rail, are

the connecting-plates *b b*, which are firmly clamped in place by bolts *e*, which latter extend through the plates *b b*, blocks *c*, and the perforated web of the rail, the perforations of said web being lined with sheet or tubular insulation *f*. The ends of the rails at the joint are also preferably insulated one from the other by sheet or plate insulations, as at *g* in Fig. 2.

In the specific construction of the parts I have shown and above referred to the wooden blocks or billets *c c* are horizontally of considerable thickness and strength, so that they project at the top laterally out beyond the head of the rail. They are somewhat thinner at their lower parts, and thus are of a wedge shape, the inner side of each lying against the web, while the outer side 7 is inclined to the vertical plane of the web.

The clamping plates or connections *b b* are of peculiar construction in that they each integrally unite a bottom flange 8 to support the base of the rail, an upward and inward extension 9 forming a deep groove 10 with the said bottom flange 8 to receive rail-flanges and a vertical flange 11, the said rail-flange 6 or its sheet insulations *d* fitting closely at its upper and lower faces against the upper and lower walls of the groove, whereby the rails are held at the joint with great security and firmness.

The upward and inward extension 9 is preferably inclined, particularly at the wall on the inside of the groove, so that any wear on the parts due to service can be taken up by the bolts *e*. The vertical flanges 11, extending up from the extremities of the extensions 9, are adapted to lie flat against the inclined surfaces 7 of the blocks *c*, the inclinations of the blocks and the inclined surfaces 11 of the flanges 11 coinciding, and thus when the bolts *e* are screwed up the pressure of the heads 12 thereof upon the flange 11 tends not only to tighten the parts 8 and 9 against the opposite sides of the rail-flange, but to force the blocks *c* against the web and up against the head of the rail, the inclined surfaces 11 and 112 entering the acute angles formed by the blocks *c* and flange 6 for that purpose. The outer faces of the flanges 11 are substantially vertical and parallel to provide proper bearings for the heads 12 of the bolt.

I prefer to arrange the sheet insulation *d* so that it breaks the joints between the flange 11 and blocks *c*, as shown in Fig. 1, the lower outer edge of the block being recessed, as indicated, to receive the upper edge of the said sheet insulation; but said insulation may terminate at said joint or extend up into said joint, as shown at opposite sides of Fig. 3.

I am aware that other changes and modifications of construction may be employed without departing from the spirit or scope of the invention, and I do not wish to be understood as limiting myself by the positive statements employed in the foregoing description, excepting as the state of the art may require.

Having thus described the invention, what I claim as new is—

1. The improved rail-connecting plate, comprising a single integral piece of metal having the rail-base-supporting flange 8, the upward and inward extension 9, therefrom, adapted to overlie the flange of the rail and a vertical, perforated flange extending up from said extension, the inner face of which perforated flange inclines outward to engage an inclined surface of an insulated block, substantially as set forth.

2. The combination with the rails *a, a*, of the insulating-blocks *c, c*, having the outer surfaces 7, 7, inclined to the vertical plane of the web of the rail, the inclined surfaces of said blocks diverging from the said vertical plane of the rail-web at or toward the top of said insulating-blocks, connecting-plates

comprising horizontal flanges 8, upward and inward extensions 9, adapted to overlie the flange of the rail and vertical flanges 11, having inclined inner surfaces coinciding with the inclined surfaces of the blocks bolts and sheet insulation interposed between the rail-flange and the said horizontal flanges and said upward and inward extensions, substantially as set forth.

3. The combination with the rails *a, a*, of the insulating-blocks disposed at the opposite sides of said rails, between the head and base-flange thereof, said blocks being wide at the top and narrow at the bottom, sheet insulation covering the top of the rail-flange and lying underneath the same, plates arranged at the outer sides of said blocks and extending underneath the rails, the said plates comprising each a base part and an upward and inward extension forming, with said base part, a groove for the rail-flange, and a vertical flange having its inner face inclined to and its outer face parallel with the vertical plane of the rail-web and bolts, all arranged and adapted to operate, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 26th day of February, 1902.

JOHN H. ALLEN.

Witnesses:

BANCROFT G. BRAINE,
CHARLES H. PELL.