

(No Model.)

G. A. CHRIST.
RAIL JOINT.

No. 434,766.

Patented Aug. 19, 1890.

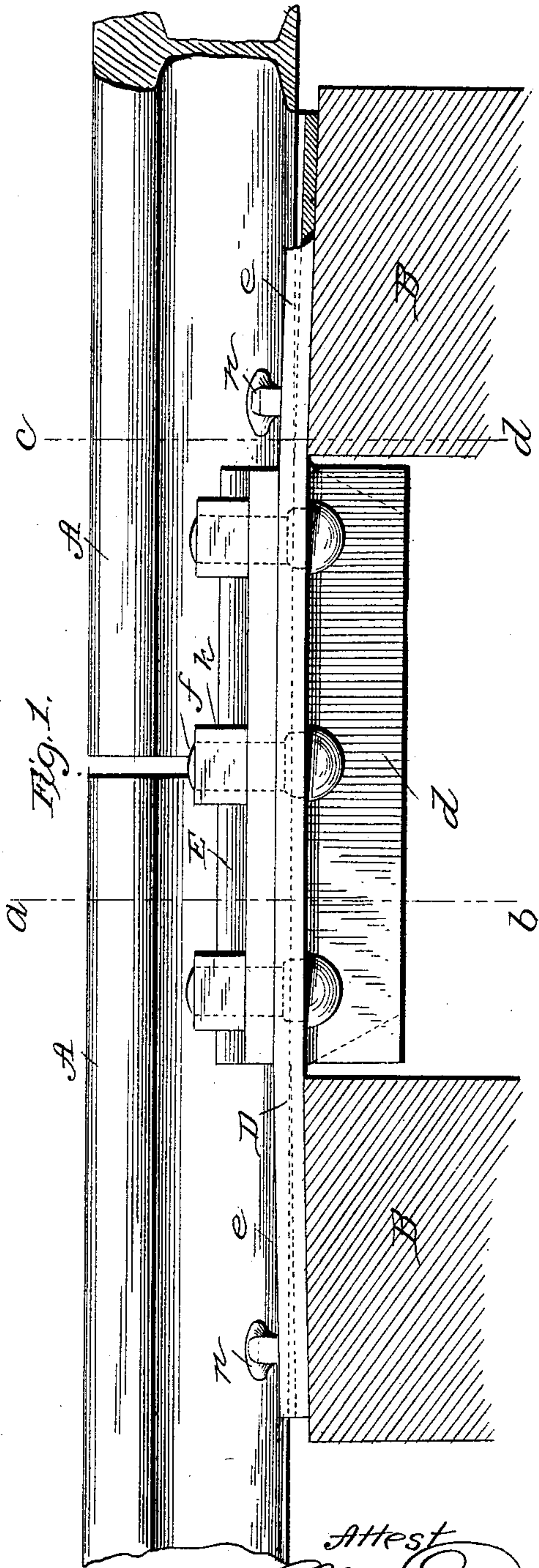


Fig. 3.

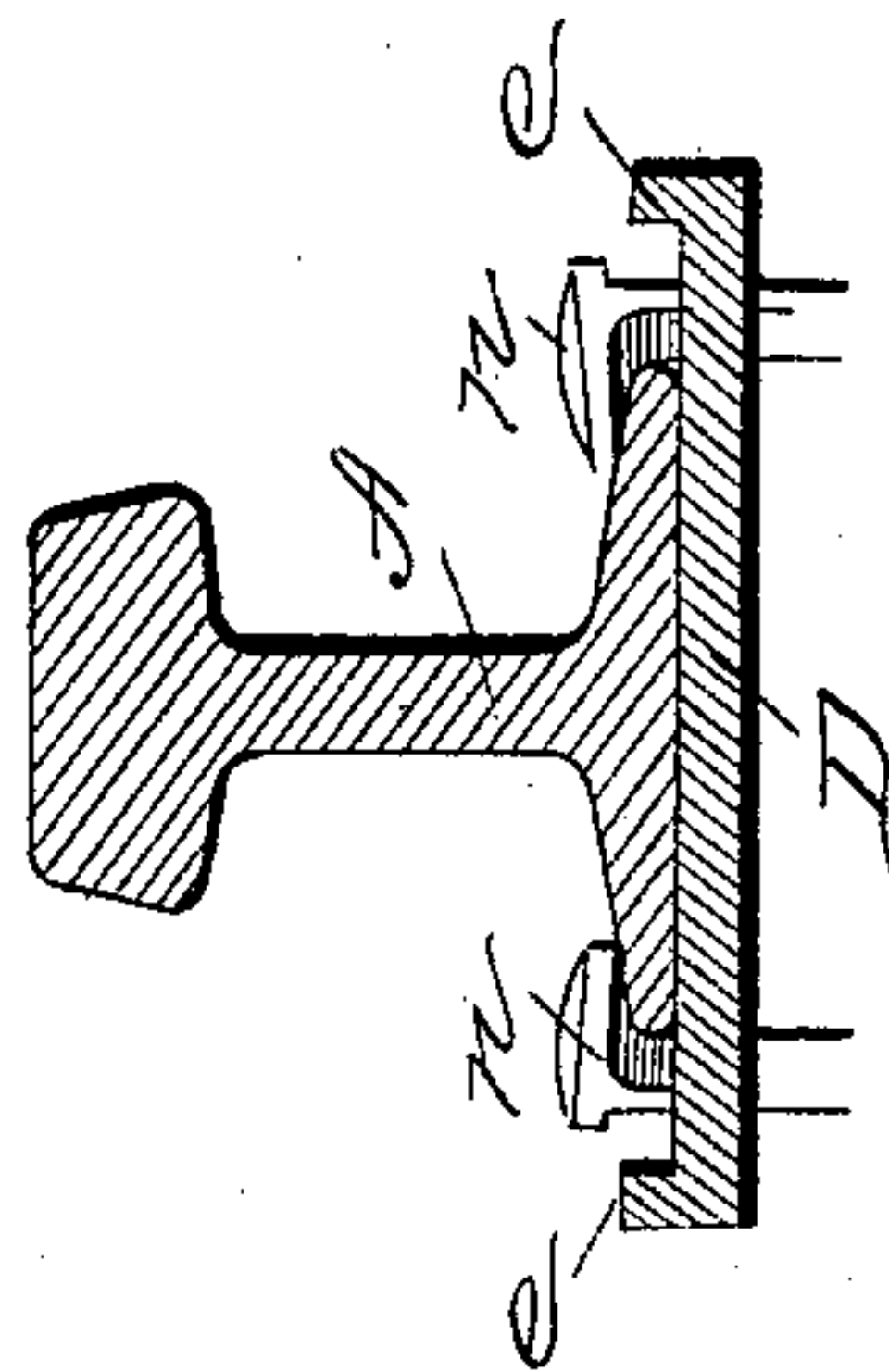
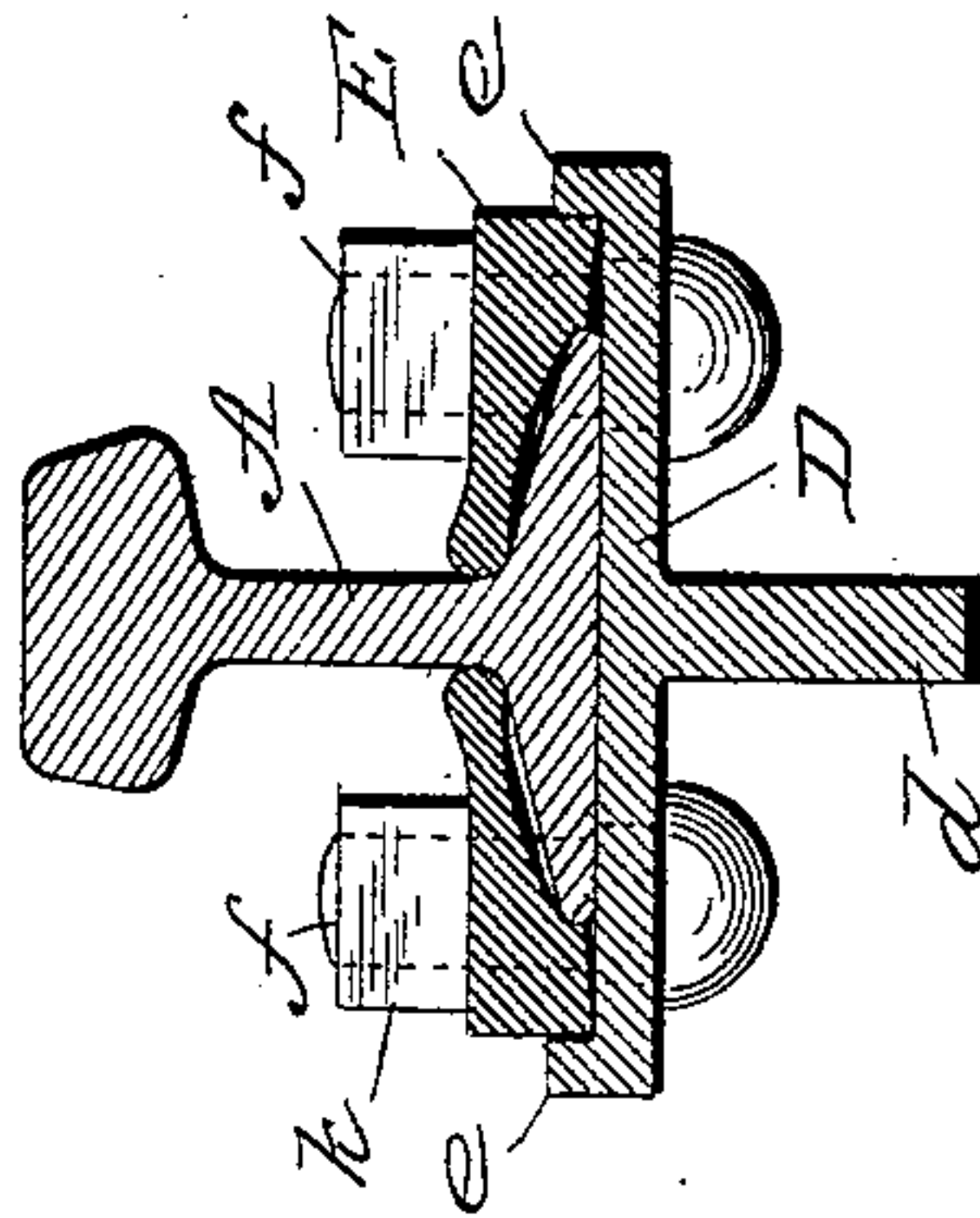


Fig. 2.



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UNITED STATES PATENT OFFICE.

GUSTAVE A. CHRIST, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR OF ONE-HALF TO CHARLES H. PELTON, OF SAME PLACE.

RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 434,766, dated August 19, 1890.

Application filed March 24, 1890. Serial No. 345,118. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVE A. CHRIST, of Grand Rapids, in the county of Kent and State of Michigan, have invented a new and useful Improvement in Rail-Joints; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to railway-rail joints; and my object in this invention is to provide a simple and cheap construction, which also shall be sufficiently firm, elastic, and durable under the strain and wear to which such joints are subjected.

The invention is shown in the accompanying drawings, in which—

Figure 1 shows it in side elevation; Fig. 2, in section on line *a b* of Fig. 1, and Fig. 3 shows a section on line *c d* of Fig. 1.

In the drawings, *A A* represent the rail ends of the ordinary form.

The ties are shown at *B*.

The plate or bar *D* has plain ends, flat both on the under and upper surfaces, excepting that it has vertical flanges *e* on the upper edges. These ends are of sufficient extent longitudinally to bear upon the ties. Between the ends underneath, and preferably in the center, is a vertical flange *d*, integral with the bar and preferably about twelve inches in length—in any case enough to extend substantially from tie to tie. The depth and thickness may vary, but must be sufficient to bear the strains, as hereinafter explained. Preferably the ends of the bar *D* are slightly bent downward in that part which rests on the ties to give a camber to the bar. The rails are laid, as shown, with the meeting ends in the center of the plate midway between the adjacent ties. The edges of the rail-flange are notched on each side for three bolts—one *f* at the center, where the rails meet, and one at each end, or near each end, of the flange *d*—so that the end bolts shall be within the space between the ties. The bar *D* is provided with holes arranged to register with these notches, the notches and holes being alike on both sides.

Upon the rail-flanges are clips *E*, about as long as the flange *d*, and arranged to bear against the inner faces of the vertical flange *e*. These clips have plain upper surfaces adapted to form bearings for the nuts *k*. The under surfaces are formed as shown, and have a bearing on the outer edge near

the flange *e* and upon the rail near the edge of the flange and also at the inner edge of the clip at or near the rail-web. The clips have bolt-holes, and the whole is held together by bolts *f*—three on each side. The rails are spiked on the ties through the bar, as shown at *n*. The rail ends over the flange *d* bear evenly upon the bar, but do not touch the surface of the bar at the ends when not under the load, the camber affording some spring movement. Under the strains of a passing train the flange *d* acts both as a tension and compression member alternately, and by reason of the extension of the bar or plate, of which it is a part, over the adjacent ties it acts in relation to the ties and modifies or compensates for the action of said ties. If one of the ties *B* should yield under the load, the weight would be borne by the tie next outside and by the other tie *B*, and the strain on the flange *d* would be tensile, while the inclination of the bar end on the tie would permit the necessary spring of the rail. If the tie next outside of the tie *B* should yield, the leverage would be over tie *B* as a fulcrum. Then the long bearing afforded by the bolt next to the tie *B* would prevent any breaking, as is the tendency where there is only a central bolt, and, further, the upward thrust is taken up by the flange *d* as a compression member.

The bar is made by rolling of any length. It is then cut into proper length and the flange *d* sawed out under the ends, as shown in full, or inclined, as shown in dotted lines.

I claim as my invention—

1. In combination with the bar *D*, having the ends formed with flat under surfaces and the intermediate flange *d* and with the flanges *e*, the clips, and the bolts, said bolts being arranged at the center and at or near the ends of the flange *d*, all substantially as described.

2. In combination, the bar having the flat ends and the intermediate flange *d*, said ends being bent downward, the clips and the bolts all arranged substantially as described.

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

GUSTAVE A. CHRIST.

Witnesses:

L. E. CARROLL,
WM. CALLAGHAN.