No. 651,895. Patented June 19, 1900.

J. W. STEVENS.

RAILWAY RAIL JOINT.

(Application filed Dec. 5, 1898.)

(No Model.)

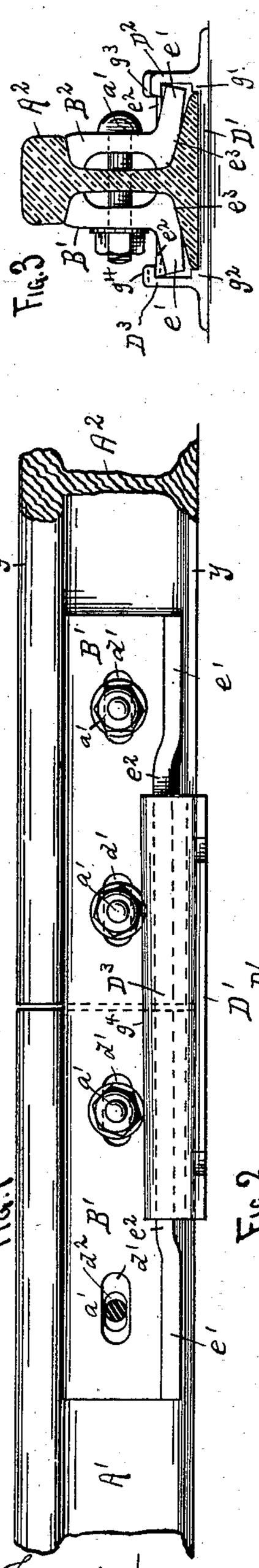

FIG. 3.

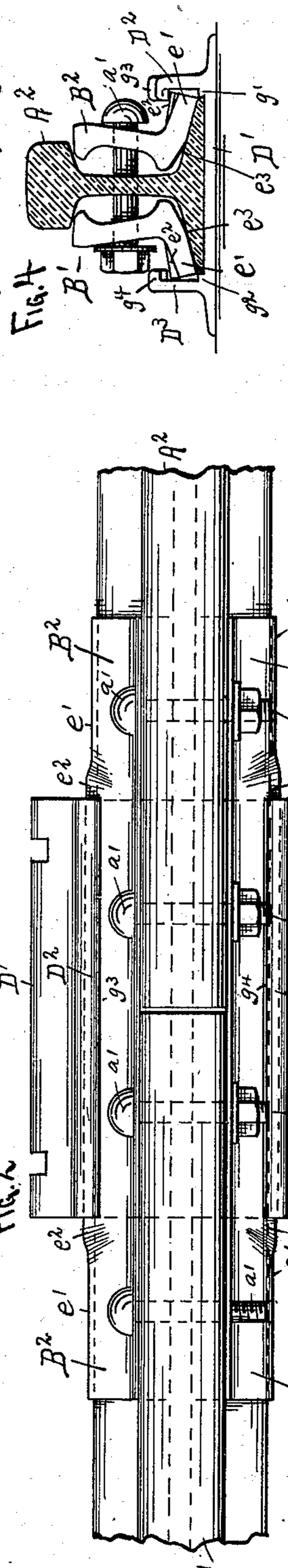

FIG. 4.

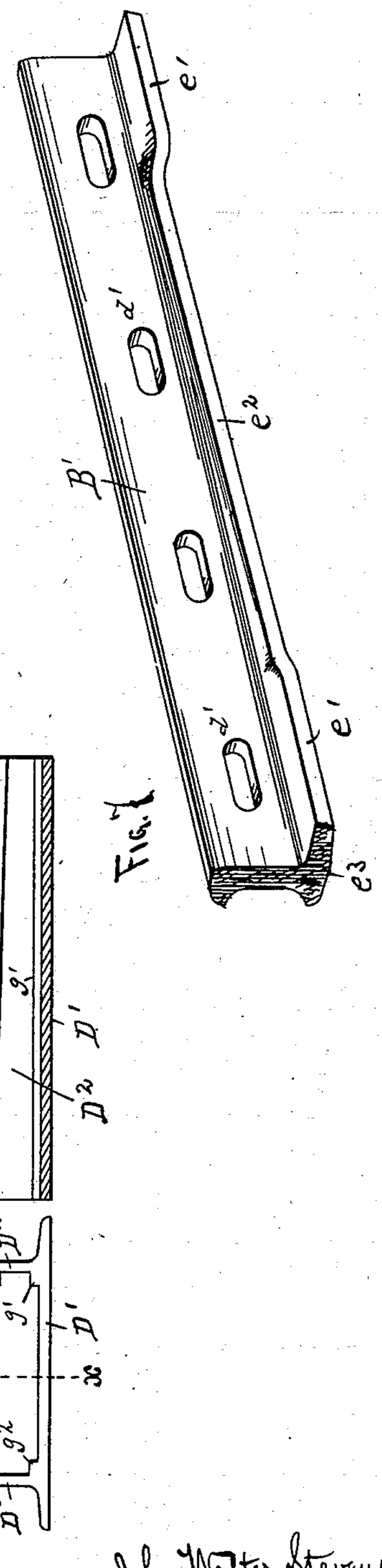

FIG. 7.

FIG. 1.

FIG. 2.

FIG. 6.

FIG. 5.

Witnesses.
Frank Warner
W E Baker

John Walter Stevens,
Inventor,
By Charles N. Woodward
Atty.

UNITED STATES PATENT OFFICE.

JOHN WALTER STEVENS, OF ST. PAUL, MINNESOTA.

RAILWAY-RAIL JOINT.

SPECIFICATION forming part of Letters Patent No. 651,895, dated June 19, 1900.

Application filed December 5, 1898. Serial No. 698,291. (No model.)

To all whom it may concern:

Be it known that I, JOHN WALTER STEVENS, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have made certain new and useful Improvements in Railway-Rail Joints, of which the following is a specification.

This invention relates to railway-rail joints; and it consists in the construction, combination, and arrangement of parts, as hereinafter shown and described, and specifically pointed out in the claim.

In the drawings, Figure 1 is a side elevation, and Fig. 2 is a plan view, of one of the joints complete and attached to sections of railway-rails. Fig. 3 is a cross-section showing all the parts united as in use, and Fig. 4 is a similar view partially distended or separated. Fig. 5 is an end view of the tie-plate detached, and Fig. 6 is a longitudinal section of the tie-plate on the line $x\,x$ of Fig. 5. Fig. 7 is a perspective view of one of the angle-bars detached.

A′ A² represent sections of the adjacent ends of two railway-rails abutting in the ordinary manner.

B′ B² are two angle plates or bars embracing the opposite sides of the webs of the rails and secured to the rails by the usual bolts a', the perforations for the bolts being elongated longitudinally in both the angle-bars and in the rails, as shown at d' d^2, so that both the rails and angle-bars will be capable of longitudinal adjustment, as hereinafter explained. The lower outer edges e' are formed thinner than the rear or "heel" portion, as shown more clearly in Figs. 3, 4, and 7, the lower surface of the angle-plate thus being "convex," the object to be hereinafter explained.

Beneath the adjacent ends of the rails A′ A² is a tie-plate D′, having shoulders g' g^2, embracing the outer edges of the lower flanges of the rails, and with flanges D² D³ rising from the side edges of the tie-plate, the flanges having inwardly-trending ribs g^3 g^4, preferably inclined, as shown.

The "toes" e' of the angle-bars B′ B² project beneath the inwardly-turned ribs g^3 g^4 of the tie-plate flanges D² D³, as shown in Figs. 3 and 4.

The toes e' of the angle-bars B′ B² are "upset" in long inclines or wedges e^2, corresponding to the inclines of the ribs g^3 g^4, so that as the angle-bars are moved endwise they will "wedge" beneath the ribs and "bind" all the parts together.

In setting up the "joint" the parts are loosely united, as shown. The angle-bars B′ B² will all be precisely alike, so that when placed in position the wedge-shaped portions e^2 will lie in reversed positions—that is to say, with the low point of one wedge opposite the high point on the opposite angle-bar. The ribs g^3 g^4 will therefore be likewise inclined in the reverse order, the low end of one rib coming opposite the high end of the other rib. When the parts are first assembled, the angle-bars will be so adjusted that the wedge portions will fit closely beneath the ribs g^3 g^4 and with the upper edges of the angle-bars outward away from the webs of the rails A′ A², as in Fig. 4. Then when the bolts a' are drawn up the angle-bars will "roll" upon the heel portions e^3, elevating the toe portions e' and pressing them upward closely beneath the ribs g^3 g^4, and thereby firmly clamping all the parts together and not only clamping the angle-bars to the webs of the rails A′ A², but also firmly clamping the rails and angle-bars down upon the tie-plate D′. This clamping force may be still further greatly increased by driving the angle-bars endwise in opposite directions, thus bringing the reversely-inclined wedges and ribs into coactive relations. The elongation of the holes in the angle-bars and rails provides for this wedge-like action. By this simple arrangement a very firm joint is produced, which not only clamps and supports the ends of the rails, but which provides for the tightening of the joint when it becomes loosened by driving the wedge-like angle-bars edgewise to wedge them more firmly into the tie-plate.

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

In a railway-rail joint, a base-plate having perpendicular side flanges, each with an inwardly-projecting rib, the under surfaces of said ribs being longitudinally inclined at an angle to the surface of said base-plate and laterally horizontal, rails supported by their adjacent ends upon said base-plate, angle-bars embracing the webs and lower flanges of said rails and projecting, by their outer

edges, beneath said inclined ribs, the outer edges of said angle-bars being formed with upset portions; the upper surfaces of said upset portions being parallel to the under surface of and fitting beneath the lower surfaces of said projecting ribs, and bolts clamping said angle-bars and rails together, whereby said base-plate rails and angle-bars may be clamped together and tightened by forcing said angle-bars endwise, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN WALTER STEVENS.

In presence of—

LEWIS D. MANN,

C. N. WOODWARD.