

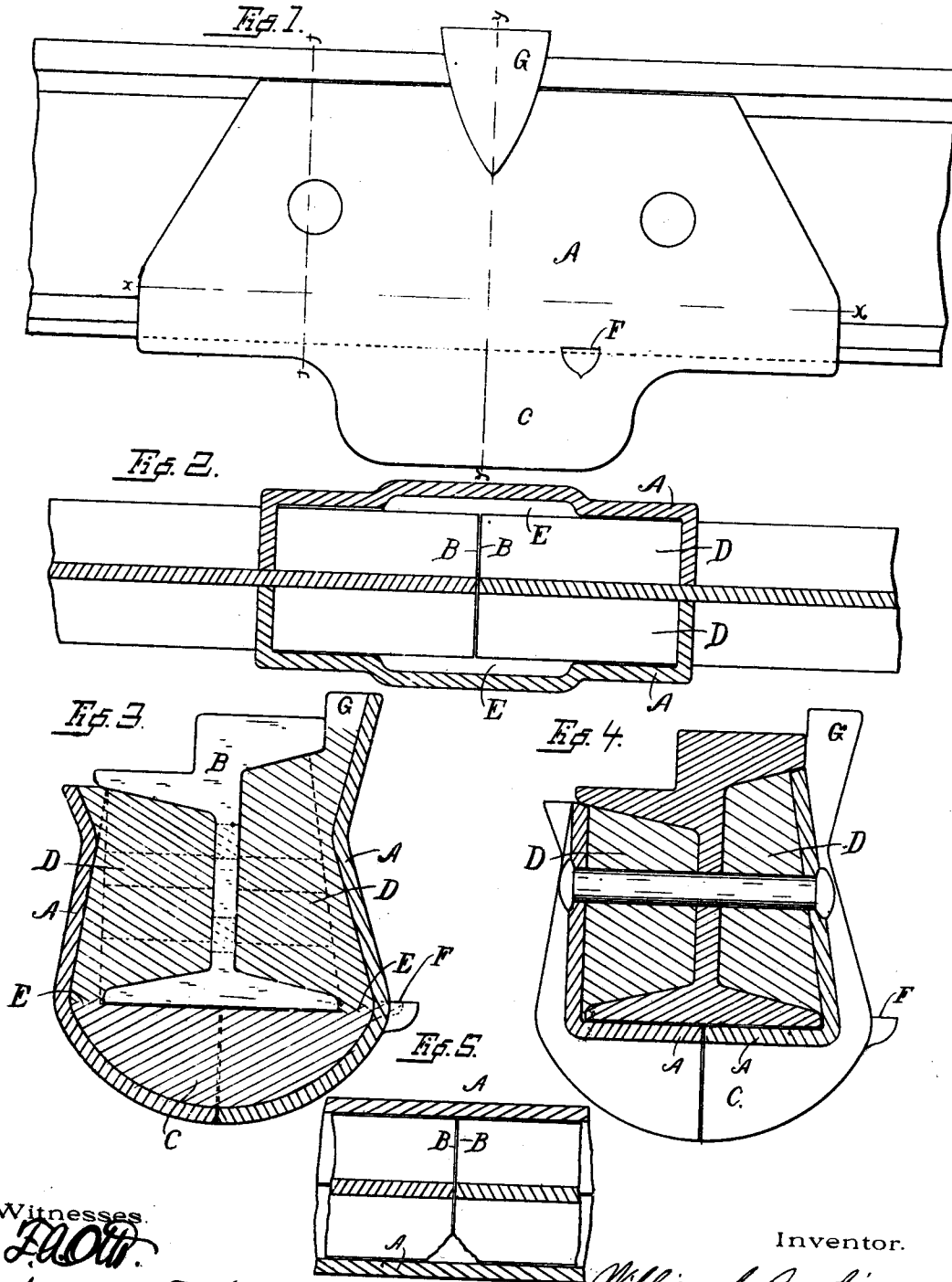
No. 675,868.

Patented June 4, 1901.

W. J. AUSTIN.
METHOD OF FORMING RAIL JOINTS.

(Application filed Nov. 26, 1898.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM J. AUSTIN, OF MILWAUKEE, WISCONSIN.

METHOD OF FORMING RAIL-JOINTS.

SPECIFICATION forming part of Letters Patent No. 675,868, dated June 4, 1901.

Application filed November 28, 1898. Serial No. 697,490. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. AUSTIN, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Methods of Forming Rail-Joints, of which the following is a specification.

My invention relates to improvements in methods of forming rail-joints, and pertains especially to the formation of that class of joints described and claimed in a divisional application executed by me on the 29th day of October, 1900, for Letters Patent of the United States for improvements in rail-joints.

The objects of my invention are, first, to provide means for adequately heating and drying the sleeve and rail ends preparatory to the fusion of the parts, and, second, to provide a firm support underneath the ends of the rails, the method of construction being such that the heating of the rail ends and jacket and the provision of the support result from the same action or step in the process of forming the joint.

In the following description reference is had to the accompanying drawings, in which—

Figure 1 is a side view of my invention. Fig. 2 is a horizontal section drawn on line *x x* of Fig. 1. Figs. 3 and 4 are cross-section views drawn, respectively, on lines *y y* and *t t* of Fig. 1. Fig. 5 is a sectional view drawn on the same line as Fig. 2, but showing a slightly-modified form of construction.

Like parts are identified by the same reference-letters throughout the several views.

The sleeve or coupling member A is formed either integrally or in sections and its interior surface is of such shape that when adjusted to the abutting ends B B of the rails it forms a chamber or cavity C underneath the ends of the rails and chambers or cavities D at the sides between the webs of the rails, their heads and base-flanges, and the walls of the sleeve. The sleeve is also preferably so formed as to leave an opening E, Figs. 2 and 3, between the edges of the base-flanges and the interior walls of the sleeve for the passage of the molten metal into the chamber below, although, if desired, this may be accomplished by providing holes through the base-flanges of the rails or be-

tween the rail ends. Such openings may easily be formed by breaking off one corner of the base-flange of the rails, Fig. 5. A small opening F is also provided in the wall of the sleeve at or near the top of the base-cavity C, through which the molten metal may flow, and thus indicate when such cavity is filled.

The method of forming the joint is as follows: The rail ends are thoroughly cleaned and the sleeve or coupling member adjusted thereon, the parts of the sleeve being secured together by suitable bolts where the sleeve is formed in sections. Molten metal is then poured into the interior of the sleeve through a sprue-hole G until the base-cavity C is filled, as indicated by the metal appearing in the opening F. The pouring is then stopped for a short interval until the rail ends and sleeve are thoroughly dried and heated, and the pouring is then recommenced to fill the side cavities D, suitable openings being preferably made in the webs of the rails for the passage of the metal, so that both of the side cavities may be filled through a single sprue-hole. The rail ends and sleeve or coupling are sufficiently heated by radiation from the metal filling the base-cavity C, so that the metal subsequently poured into the side cavities D readily fuses, both with the rail-surfaces and with the interior surfaces of the sleeve or coupling, thus integrally uniting the parts. The metal filling the base-cavity C also forms an exceedingly strong and firm support for the ends of the rails. If it is desired to cause the filling of this cavity to also fuse to the surfaces with which it comes in contact, this may of course be accomplished by a preliminary heating or in any other manner known to the art.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The method of forming rail-joints, consisting first, in adjusting a metal sleeve or coupling about the meeting ends of two rails, so as to form a cavity at each side of the webs and underneath the base-flanges, adapted to the reception of molten metal; second, pouring molten metal into the base-cavity and permitting the same to stand for a sufficient time to prepare the rails and the coupling

member for fusion, and third, filling the remaining cavity-space with molten metal.

2. The method of forming rail-joints, consisting first, in forming a cavity at each side of the webs, and underneath the base-flanges at the meeting ends of the rails; second, pouring molten metal into the base-cavity and permitting the same to stand for a sufficient time to prepare the walls of the side cavities for fusion, and third, filling the remaining cavity-space with molten metal.

3. The method of forming rail-joints, consisting first, in forming a cavity at each side of the webs and underneath the base-flanges at the meeting ends of the rails; second, filling the base-cavity with molten metal and permitting the same to stand for an interval; third, filling the side cavities with molten metal.

4. The method of forming rail-joints consisting, first, in forming cavities along the webs and base-flanges at the meeting ends of the rails; second, in pouring molten metal into one of said cavities and permitting the same to stand for an interval sufficient to heat the walls of the other cavities, and third, in filling the remaining cavity-space with molten metal.

5. The method of forming rail-joints, consisting first, in adjusting a metal sleeve or coupling about the meeting ends of the rails so as to form cavities at the sides of the webs and underneath the base-flanges; second, filling one of said cavities with molten metal and permitting the same to stand for an interval, and third, filling the remaining cavity-space.

6. The method of forming rail-joints, consisting first, in adjusting a metal sleeve or

coupling about the meeting ends of the rails so as to form cavities at the sides of the webs and underneath the base-flanges; second, pouring molten metal into one of the cavities to prepare the rails and coupling for fusion, and third, filling the remaining cavity-space with molten metal.

7. The method of forming rail-joints, consisting first, in adjusting a metal sleeve or coupling about the ends of the rails so as to form cavities at the sides and under the base-flanges, and second, in filling said cavities with molten metal and fusing the same to the walls of one or more of said cavities.

8. The method of forming rail-joints, consisting first, in adjusting a sleeve or coupling about the ends of the rails so as to form cavities at the sides and under the base-flanges; second, in filling one of said cavities with a heating material, and third, in filling the remaining cavity-space with material fusible to the walls thereof.

9. The method of forming rail-joints, consisting first, in forming cavities along the surfaces of the meeting ends of the rails; second, in pouring molten metal into one of said cavities, and permitting the same to stand for a sufficient time to heat the walls of the other cavities and prepare the same for the fusion of their interior surfaces, and third, in filling the remaining cavity-space with molten metal.

In witness whereof I have hereunto set my hand this 22d day of November, 1898.

WILLIAM J. AUSTIN.

Witnesses:

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JAS. B. ERWIN.