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PATENTED MAR. 27, 1906.

H. CRAMER.

RAILWAY RAIL JOINT.

APPLICATION FILED APR. 14, 1905.

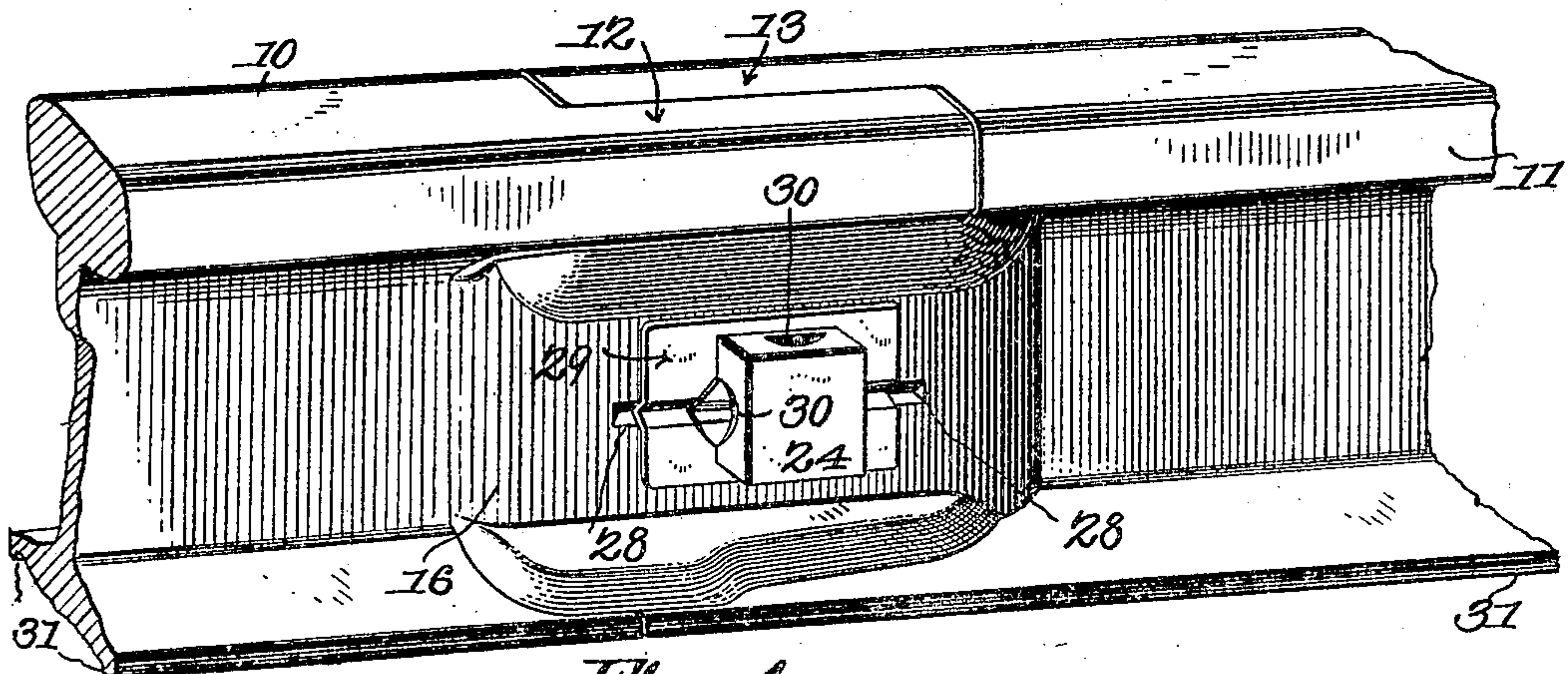


Fig. 1.

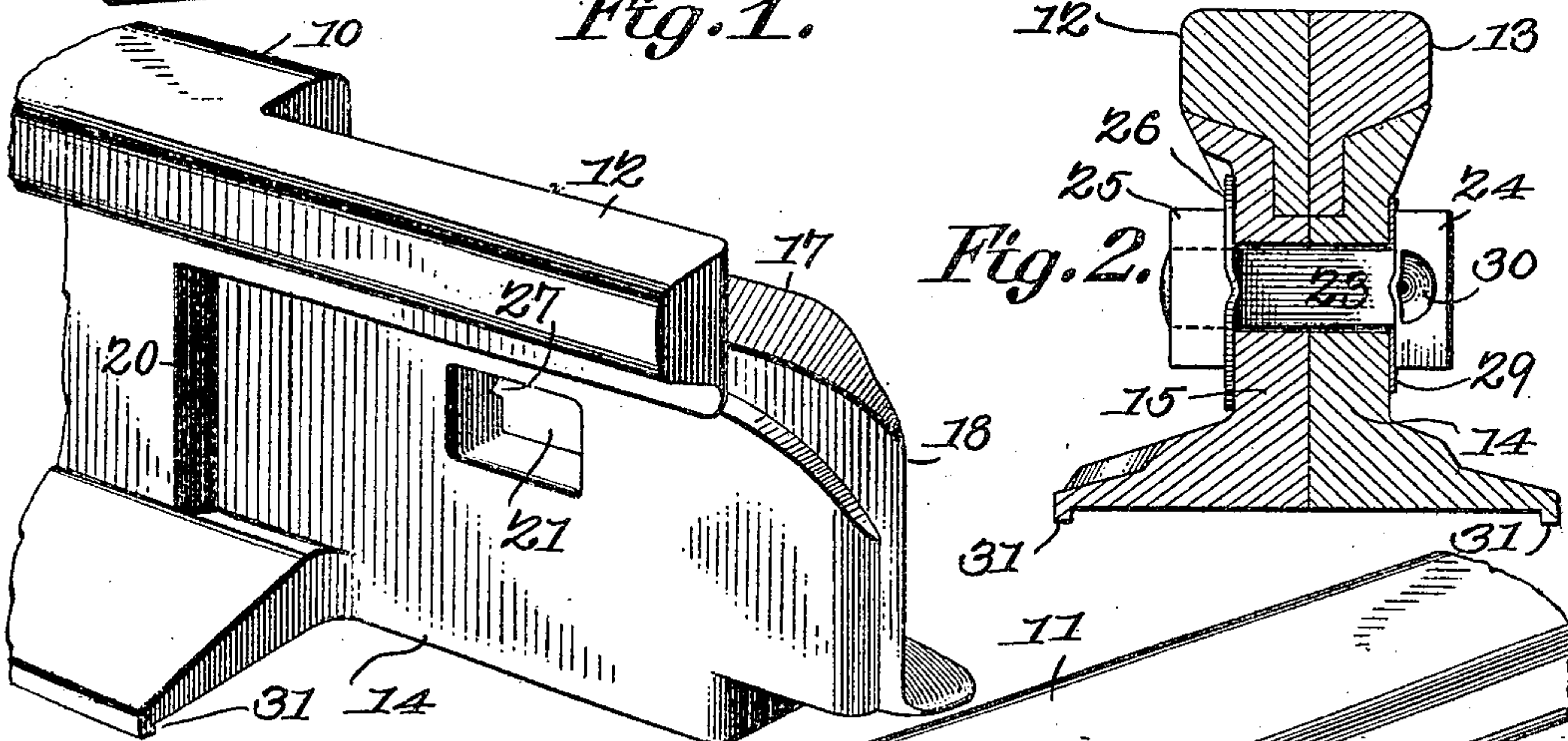


Fig. 2.

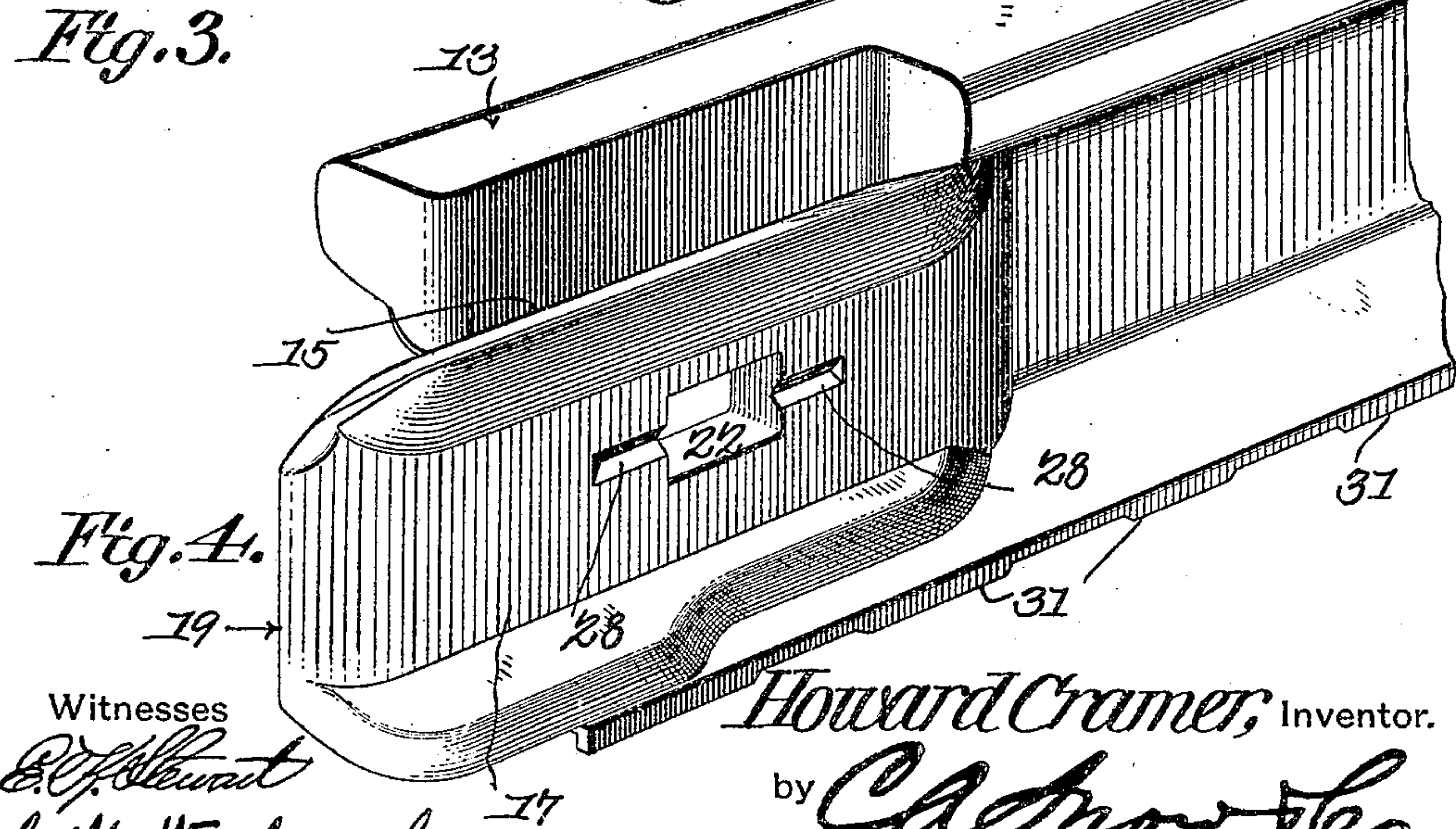


Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

HOWARD CRAMER, OF NEWBERRY, PENNSYLVANIA, ASSIGNOR OF ONE-FOURTH TO CHARLES H. KNAPP AND ONE-FOURTH TO NAPOLEON B. WRIGHT, OF WILLIAMSPORT, PENNSYLVANIA.

RAILWAY-RAIL JOINT.

No. 816,533.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed April 14, 1905. Serial No. 255,557.

To all whom it may concern:

Be it known that I, HOWARD CRAMER, a citizen of the United States, residing at Newberry, in the county of Lycoming and State of Pennsylvania, have invented a new and useful Railway-Rail Joint, of which the following is a specification.

This invention relates to railway-rail joints, and has for its object to improve the construction and increase the strength and efficiency of devices of this character.

With these and other objects in view, which will appear as the nature of the invention is better understood, the same consists in certain novel features of construction, as hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which corresponding parts are denoted by like designating characters, is illustrated the preferred form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the invention is not necessarily limited thereto, as various changes in the shape, proportions, and general assemblage of the parts may be resorted to without departing from the principle of the invention or sacrificing any of its advantages.

In the drawings, Figure 1 is a perspective view of the improved joint. Fig. 2 is a transverse section of the same. Figs. 3 and 4 are perspective views of the ends of the respective rails detached.

The improved joint herein shown and described is produced by forming longitudinally-disposed recesses in the head portions of the respective rails 10 11 on one side and in the vertical webs and tie-flange portions on the other side, whereby overlapping tongue-like members 12 13 are formed in the head portions, and overlapping tongue-like members 14 15 are formed in the vertical web and tie-flange portions, as represented.

The portions of the vertical webs and of the tie-flanges opposite the tongue-like portions 14 15 are extended laterally, as at 16 17, to increase the strength of the structure, and the free ends of the laterally-enlarged portions are also extended longitudinally, as at 18 19, and overlapping the adjacent portions of the vertical web portions of the rails.

The side faces of the vertical web portions 14 15 enter recesses in the adjacent faces of

the other rail member, one of which is represented at 20 in Fig. 3, to increase the stability of the joint. The vertical web portions 14 15 are also provided with transverse apertures (represented at 21 22) for receiving the clamp-bolts. By this simple arrangement it will be obvious that both ends of the rails are precisely alike, so that the various recesses, tongues, and apertures can be produced by one single set of dies or other compressing machinery.

With a joint thus constructed and assembled a very rigid and firm joint is produced which will effectually resist all lateral as well as vertical strains and prevent displacement under the severe strains to which devices of this class are subjected and obviating the necessity for employing the cumbersome and expensive clamp or "fish" plates.

The various recesses, cavities, tongues, and the like can be very quickly and inexpensively formed in the ends of the rails when they are being manufactured and while they are still at a rolling-heat, so that no necessity exists for reheating the rails to form the improved ends.

The outer lower edges of the tie-flange portions of the rails 10 11 extend downwardly in the form of spaced rib-sections 31 for entering the ties, and thereby materially increasing the "grip" upon the ties and effectually preventing any tendency of the rails to "creep" under the jarring strains of the passing trains or to spread laterally from the same cause.

The clamp-bolt employed to unite the parts is represented at 23 for fitting through the apertures 21 22 and with a head 24 on one end and a nut 25 on the other end, the nut with an integral washer 26. Recesses 27 are formed in the face of the lateral projection 17, and similar recesses 28 are formed in the face of the extension 16 and communicating, respectively, with the apertures 21 22. A relatively large washer 29 is disposed upon the bolt 23 between the head 24 and the body of the joint and with ribs bent therein to engage the recesses 28. The head 24 of the bolt 23 is provided with recesses 30 in its side faces, and after the bolt is in position the metal of the head between the same and the body of the bolt is compressed by a properly-formed implement into the channels in the

washer produced by compressing the latter into the recesses 28, as represented in Figs. 1 and 2. After the nut 25 is set "home" by the wrench the protruding portion of the washer 26 is depressed into the recesses 27 to form an effectual "lock" to prevent the nut rotating backwardly upon the bolt. The bolt 23 is square and fits the apertures 21 22 sufficiently close to prevent rotation therein, while the apertures are elongated to provide for the requisite expansion and contraction of the joint. By this arrangement it is obvious that a continuous rail is produced, whereby the objections to the ordinary "butt-joint" coupling is overcome.

In the improved joint herein disclosed open joints can never be produced by the shrinking of the rails in cold weather, as in the ordinary coupling. Consequently the "brooming" of the ends of the rails caused by the pounding of the wheels will be obviated.

Another advantage of this improved joint is that the objectionable jarring produced by passing over gaps between the rail ends is entirely avoided, as no such gaps can occur no matter how great the shrinkage may be. Then, again, all tendency of the rails to creep, caused by the wheels striking the ends of the rails at the joints, is entirely avoided, as will be obvious.

It will be noted that the depending flange portions 31 on the bases of the rails present a

greater surface to the holding-spikes. Hence there is less wear on the latter than with the ordinary form of rail having the thin and relatively sharp outer edges on the tie-flanges.

Having thus described the invention, what is claimed is—

1. In a rail-joint, the rail ends having the head portions compressed to form a scarf-joint longitudinally on one side and the vertical web and tie-flange portions compressed laterally to form a scarf-joint longitudinally on the other side, said laterally-compressed portion of the vertical webs extended laterally and bearing beneath the head portions of the rails.

2. In a rail-joint, the rail ends having the head portions compressed to form a scarf-joint longitudinally on one side and the vertical web and tie-flange portions compressed to form a scarf-joint longitudinally on the opposite side, and with the outer edges of the tie-flanges turned downwardly and provided with spaced rib-sections for embedding in the ties.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HOWARD CRAMER.

Witnesses:

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A. T. TAYLOR