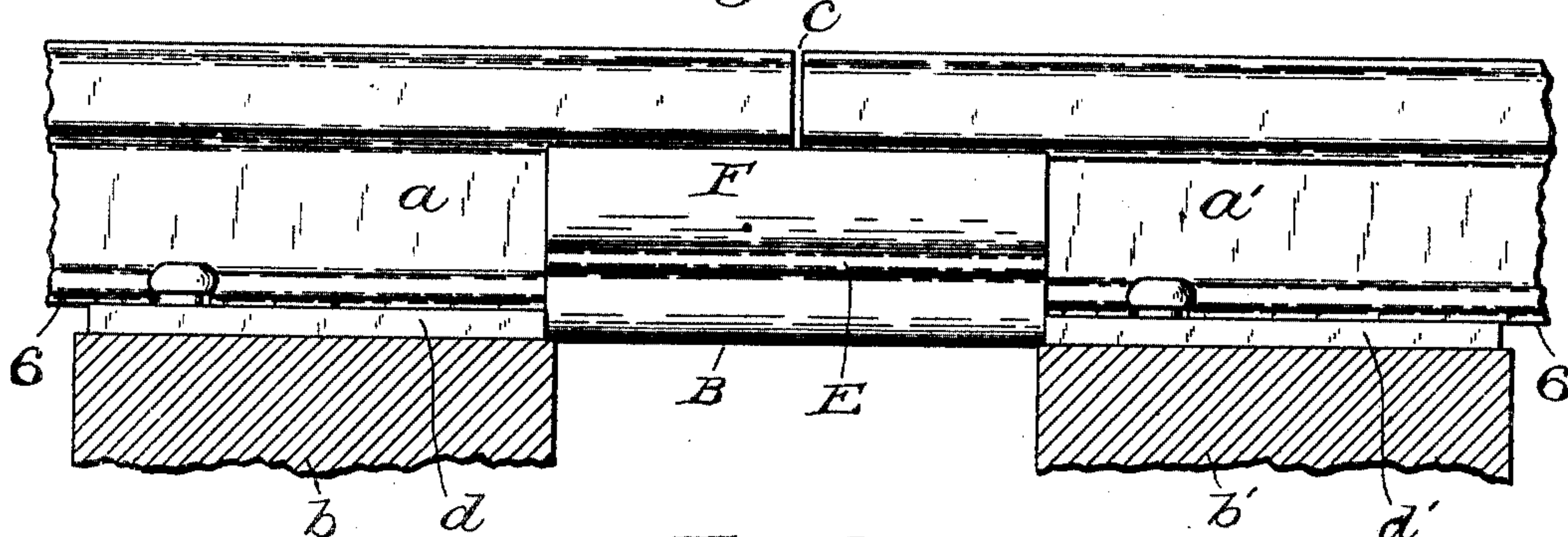
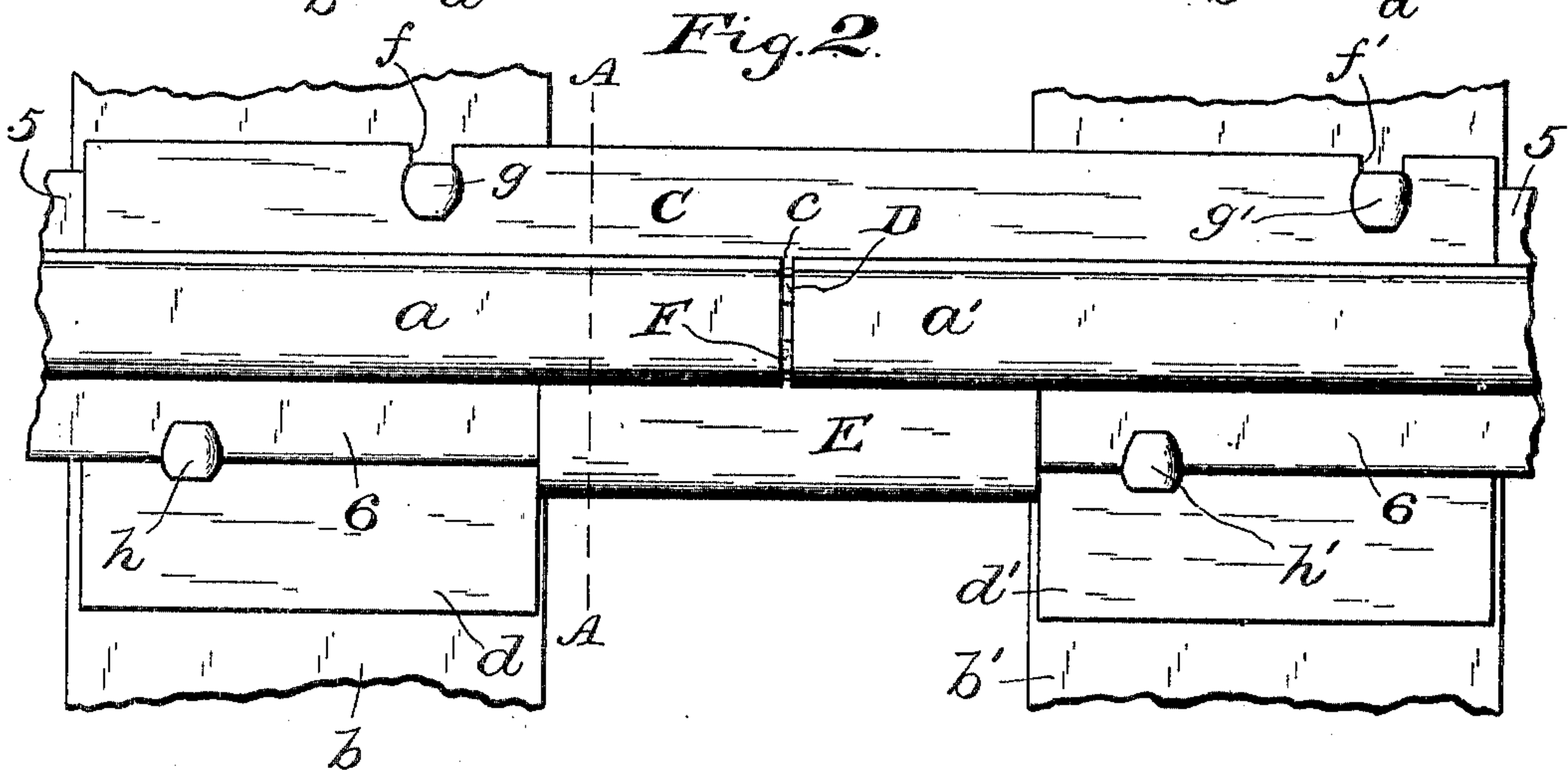
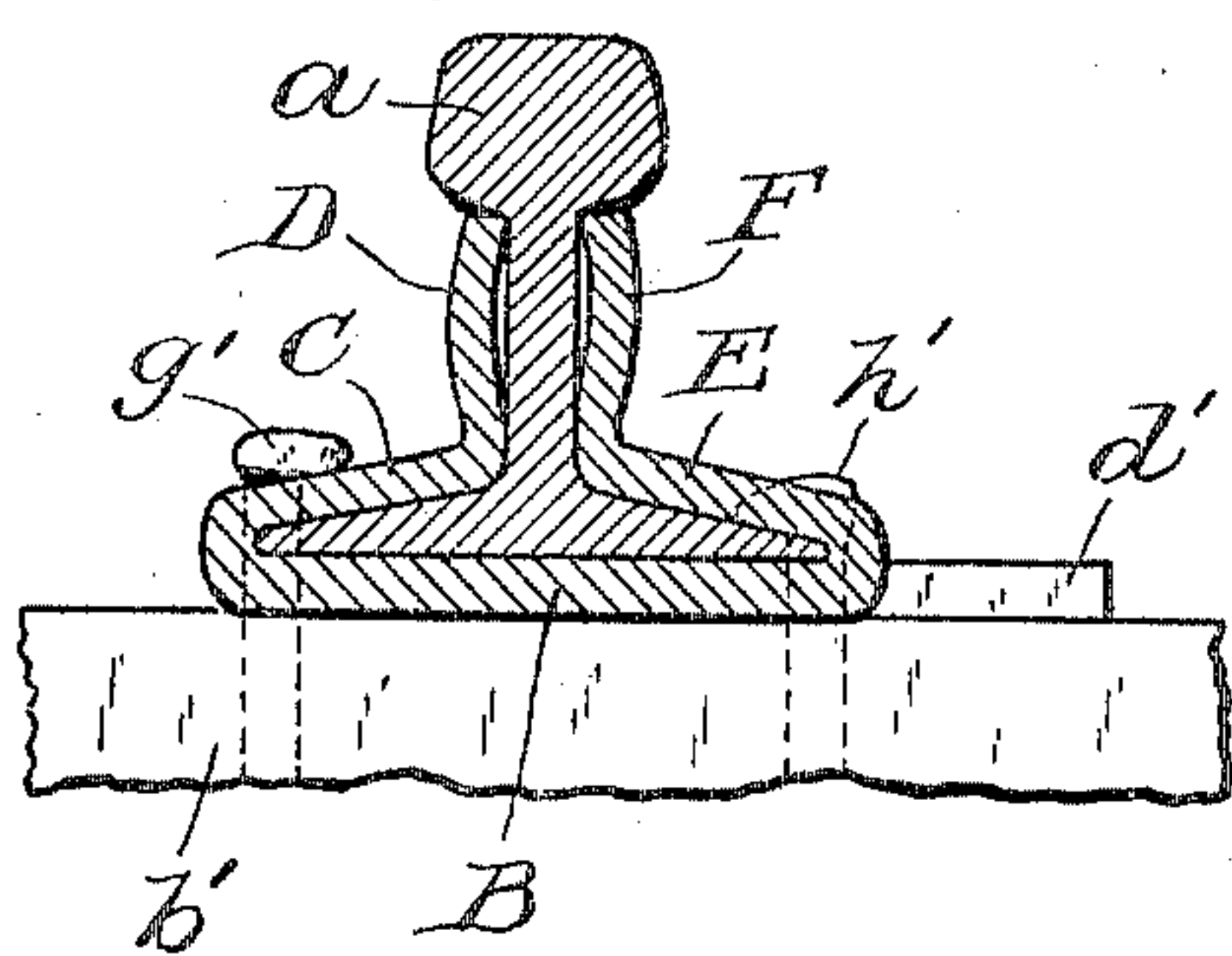
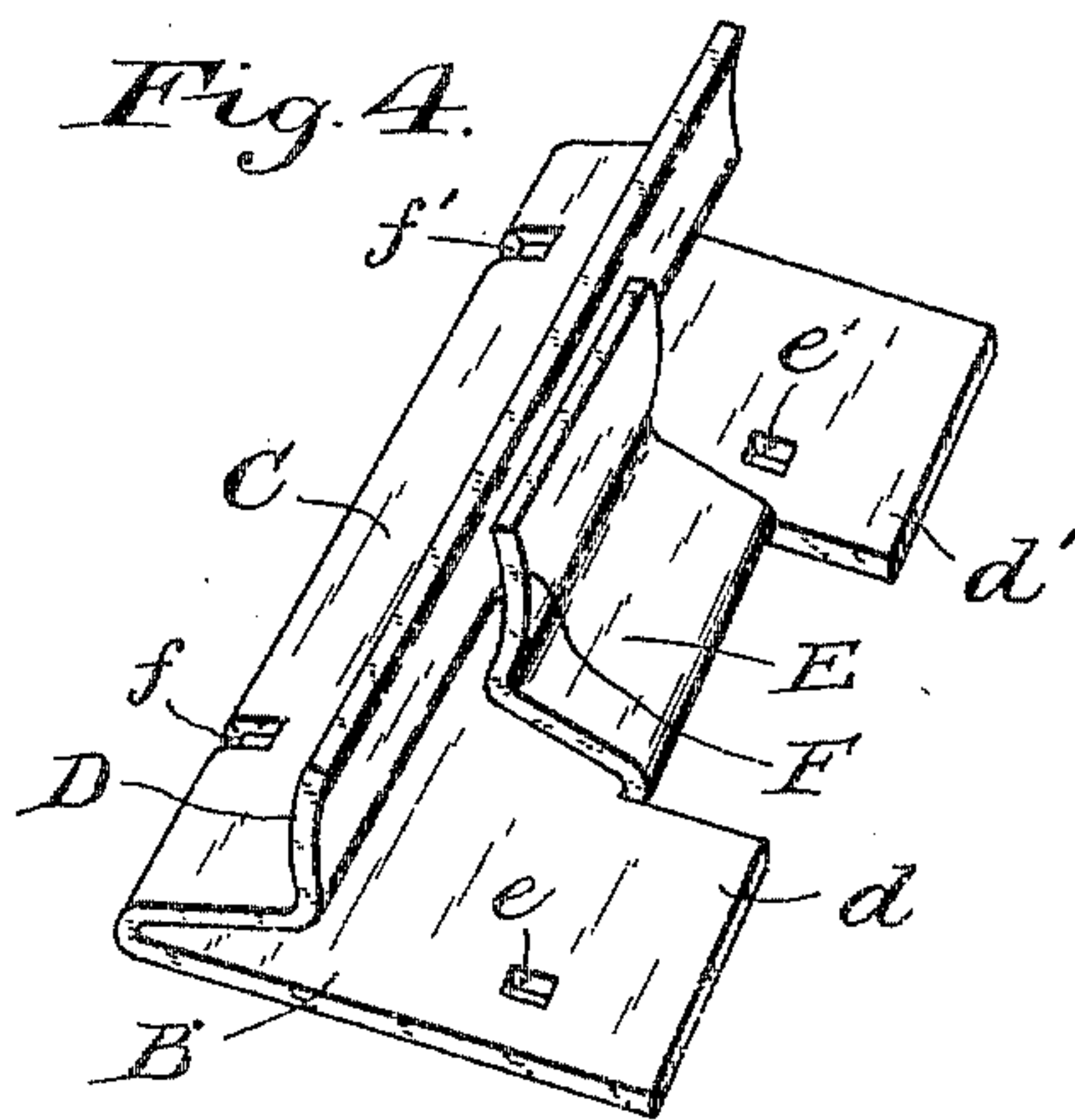


M. HESTER.

RAIL JOINT.

APPLICATION FILED SEPT. 2, 1905.

*Fig. 1.**Fig. 2.**Fig. 3.**Fig. 4.*

Inventor:

Witnesses:

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# UNITED STATES PATENT OFFICE.

MICHAEL HESTER, OF RICHMOND, INDIANA.

## RAIL-JOINT.

No. 804,535.

Specification of Letters Patent.

Patented Nov. 14, 1905.

Application filed September 2, 1905. Serial No. 276,778.

*To all whom it may concern:*

Be it known that I, MICHAEL HESTER, a citizen of the United States, residing at Richmond, in the county of Wayne and State of Indiana, have invented new and useful Improvements in Rail-Joints; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to devices for connecting the ends of railway-rails together to form joints, and the invention refers particularly to couplers that cooperate with the railway-ties and the rails in joining the rails and holding the rails in alinement.

Objects of the invention are to provide simple and relatively inexpensive boltless rail-joints that will be durable and economical in use, to provide couplers for rails that will directly support the ends of the rails both vertically and laterally, and that will prevent the rail ends from wearing away the ties.

With the above-mentioned and minor objects in view the invention consists in a coupler for railway-rails comprising in a single piece a joint-bridge, a brace for the outer sides of the rails, means for holding the rail ends in alinement, and means for holding the rails approximately close together at the joints; and the invention consists, further, in the novel parts and in the combinations and arrangements of parts, as hereinafter particularly described and claimed.

Referring to the drawings, Figure 1 is an inside elevation of a rail-joint constructed in accordance with the invention, the ties being in fragmentary transverse section; Fig. 2, a top plan thereof; Fig. 3, a transverse sectional view on the line A A in Fig. 2, and Fig. 4 a perspective view of the coupler.

Similar reference characters in the drawings designate corresponding elements or features.

For the purpose of illustrating the invention the well-known form of T-rail is shown in the drawings, and it will be understood that with slight modifications the coupler may be adapted to be used in connection with street-railway rails. The rails *a* and *a'* have base-flanges 5 and 6, and in the drawings 5 designates the flange at the outer side and 6 the flange at the inner side of the rail. As is well known, it is customary to punch notches in the edges of the base-flanges, in which the spikes are placed and driven into the cross-ties for preventing

the rails from creeping longitudinally, and there may be any number of such notches. This feature of rails being well known is not shown specifically. In carrying out the present invention the notches will be located and spaced to correspond to the requirements of various sizes of couplers, as will be obvious. The ties *b* and *b'* are composed of wood and arranged near the ends of the rails, so that the actual joints *c* will be arranged as suspension-joints or between two ties.

Each rail-joint is formed by means of a single coupler, each coupler comprising a bridge-plate B, that extends from one tie to another and across the tops thereof, or nearly so, the bridge-plate being turned over and upwardly at one side thereof and the turned-over portion forming an inclined outer binding-plate C and the upwardly-turned portion forming a vertical outer binding-plate D, so that the adjacent ends of two rails may be supported on the bridge-plate B, with the outer base-flange fitting closely under the binding-plate C and the web and head of the rail supported laterally by the binding-plate D, the latter also serving to support the rail-head vertically. The central portion of the bridge-plate is turned over and upwardly at the opposite side thereof and forms an inclined binding-plate E and an upwardly-turned inner binding-plate F, opposing the binding-plate D for holding the rail-heads in alinement laterally, the binding-plate E bearing upon the top of the inner base-flange 6 and preventing the rail from tipping over outwardly. The end portions of the bridge-plate extend horizontally beyond the outer end of the binding-plate E, so as to form broad flat projecting bearings *d* and *d'* on the ties beyond the inner base-flange 6 to prevent the rails from cutting into the ties and also to assist in preventing spreading of the rails at the joints, the projecting bearings having spike-holes *e* and *e'* punched therein to receive rail-spikes. The outer edges of the binding-plate C and the bridge-plate B have notches *f* and *f'* punched therein to receive rail-spikes, there being two spikes, as *g* and *g'*, used at the outer sides of the rail ends and two spikes, as *h* and *h'* used at the inner sides of the rail ends to complete a rail-joint, the rails being notched to correspond to the spike-holes above mentioned. It will be apparent that the spikes at the inner sides of the rails that extend through the holes *e* and *e'* will resist the tendency of the wheel-flanges of cars to force the rails outwardly, thus partially relieving the



strains on the spikes at the outer sides of the rails.

The coupler is composed of a single piece of relatively thick metal, so as to afford ample bracing strength without the use of expensive and troublesome bolts and nuts at the rail-joints.

In order to complete a rail-joint practically, the coupler is to be driven endwise onto the end of a rail and then the connecting-rail is to be placed in alinement with the other rail, after which the coupler is to be driven back onto the end of the connecting-rail until the coupler is equally divided on the two rail ends and the notches in the rails register with the notches and holes in the coupler. Then the spikes are to be driven into the ties, whereby to secure the coupler to the ties and the rails to the coupler.

In practical use the inherent strength of the coupler will hold the rails in alinement both vertically and laterally, and the spikes in connection with the coupler will prevent creeping of the rails, provision, however, being made, as usual, for expansion and contraction of the rails when punching the spike notches and holes.

Having thus described the invention, what is claimed as new is—

1. A rail-joint including a coupler comprising a bridge-plate, an outer inclined binding-plate, an outer upwardly-extending binding-plate, an inner relatively short inclined binding-plate, an inner relatively short upwardly-extending binding-plate, and projecting broad bearing-plates extending from the inner side of the bridge-plate beyond the relatively short inclined binding-plates, all formed integral.

2. A rail-joint including a coupler comprising a bridge-plate, an inclined outer binding-plate extending the full length of the bridge-

plate and joined integrally thereto, there being spike-notches in the bridge-plate and the binding-plate at their junctions, an upturned outer binding-plate attached integrally to the inclined binding-plate, a relatively short inclined inner binding-plate formed integrally with the bridge-plate at the middle portion of the side thereof opposite to the outer inclined binding-plate, a relatively short upright binding-plate attached integrally to the outer inclined binding-plate and extending the full length thereof, and broad bearing-plates projecting integrally from the end portions of the bridge-plate beyond the inner inclined binding-plate, the bearing-plates having spike-holes therein.

3. A rail-joint comprising a pair of cross-ties, two abutting rail ends with notches in the base-flanges thereof, a one-piece coupler extending upon the cross-ties under the rail ends and having relatively long binding-plates engaging the outer sides of the rail ends with notches in the coupler to receive rail-spikes, the coupler having also relatively short binding-plates engaging the inner sides of the rail ends opposite to the middle portions of the relatively long binding-plates, and broad bearing-plates extending laterally at the ends of the short binding-plates beyond the edges of the inner rail-end base-flanges, the bearing-plates having spike-holes therein, and spikes extending through the spike-holes and the spike-notches into the cross-ties in engagement with the base-flanges of the rail ends.

In testimony whereof I affix my signature in presence of two witnesses.

MICHAEL HESTER.

Witnesses:

M. J. EAGEN,  
WM. H. KELLEY.