No. 684,381. Patented Oct. 8, 1901.

E. ROBINSON.

RAILWAY RAIL, CHAIR, AND RAIL JOINT.

(Application filed June 4, 1901.)

(No Model.)

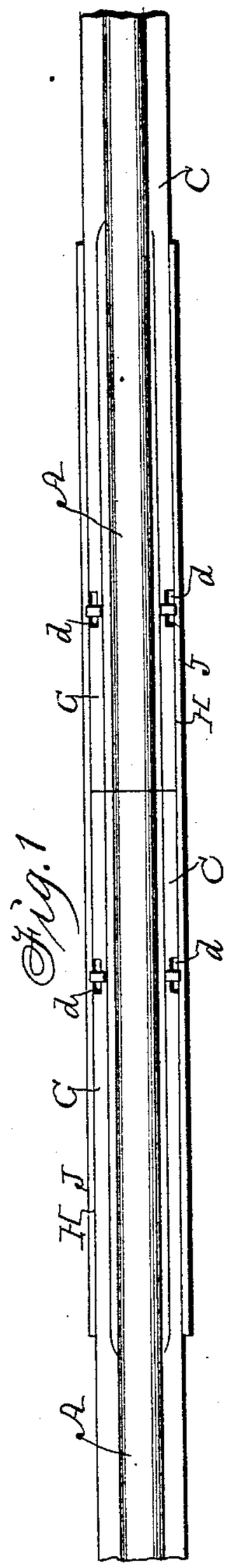

Fig. 1

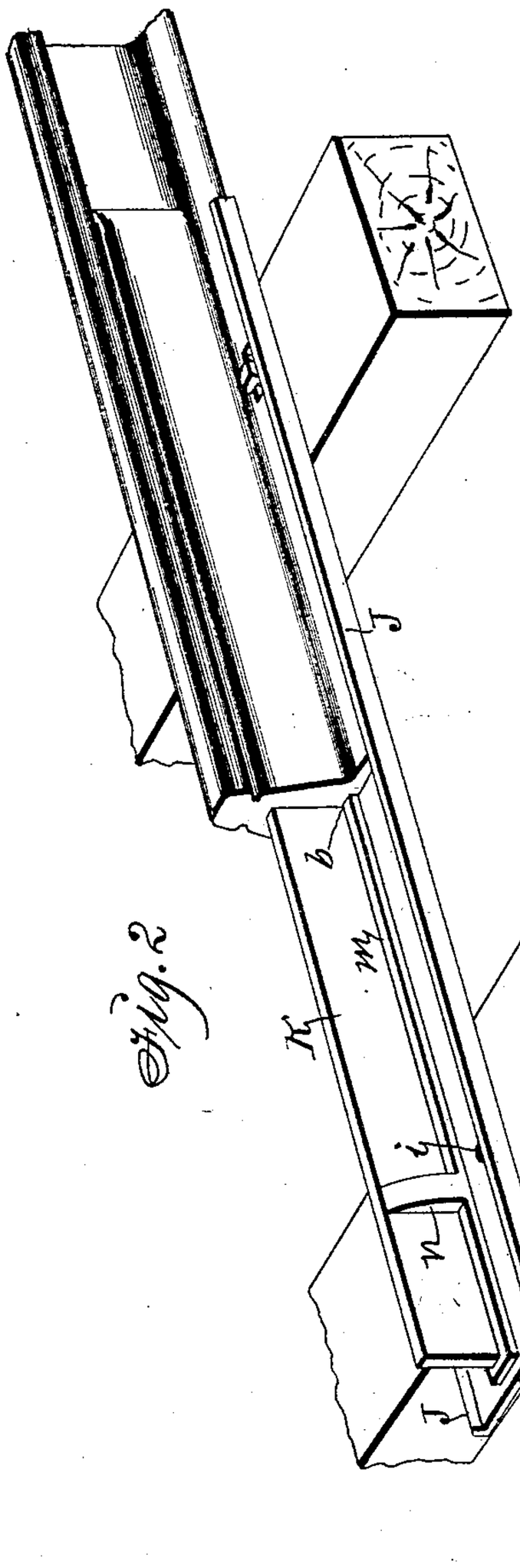

Fig. 2

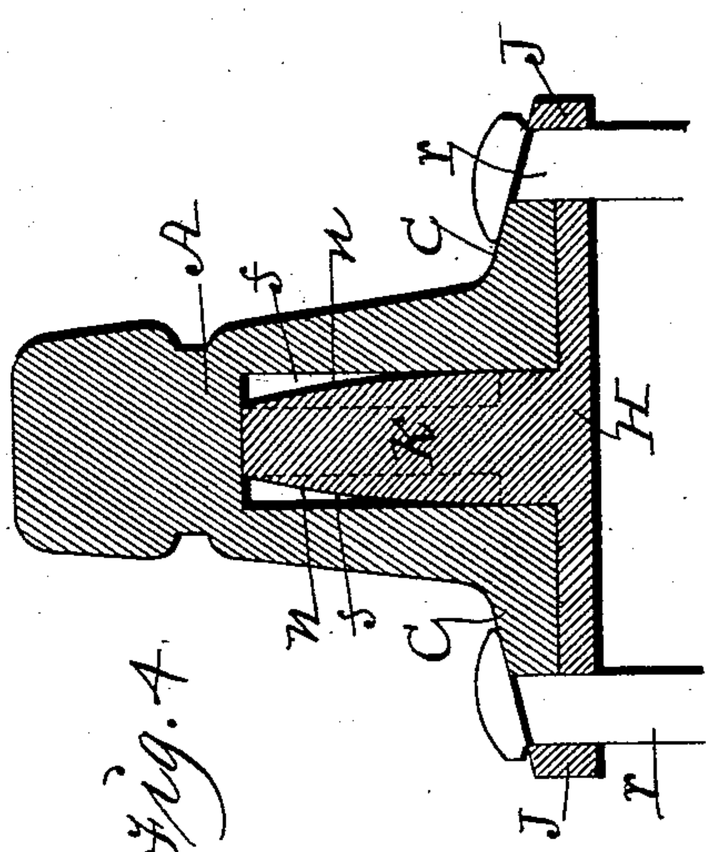

Fig. 4

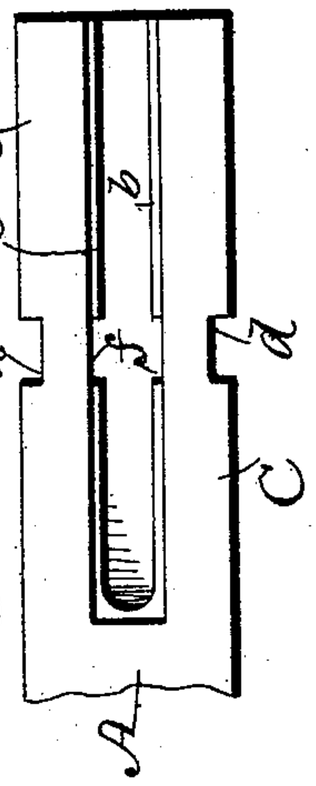

Fig. 3

Witnesses:
R. G. Orwig.
R. H. Orwig.

Inventor: Ellsworth Robinson,
By Thomas G. Orwig, Attorney.

UNITED STATES PATENT OFFICE.

ELLSWORTH ROBINSON, OF NEWTON, IOWA.

RAILWAY RAIL, CHAIR, AND RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 684,381, dated October 8, 1901.

Application filed June 4, 1901. Serial No. 63,122. (No model.)

To all whom it may concern:

Be it known that I, ELLSWORTH ROBINSON, a citizen of the United States, residing at Newton, in the county of Jasper and State of Iowa, have invented a new and useful Railway Rail, Chair, and Rail-Joint, of which the following is a specification.

Heretofore the webs and flanges and heads of railway-rails have been of the same size and configuration from end to end and the abutting ends of the rails in a track first worn and damaged and the track impaired by the oft-repeated tread of the wheels of trains that passed over the track and the joints and caused up and down movements of the ends of the rails as the wheels passed from the end of one rail to the contiguous end of an adjoining rail. The ends of rails connected by means of plates bolted to the sides of the webs of the abutting ends of rails, as required to produce a joint, have also been subjected to lateral movements under the pressure of the wheels and weight of trains to cause impairment of the joints in a track. Transverse apertures in the webs for the reception of bolts have weakened the ends of the rails and the lateral motions of the ends of the rails have loosened the bolts extended through the side plates and the webs of the rails and contributed to the impairment of the rails and joints and disasters occasioned by loose bolts and damaged rails and joints in tracks.

My object is to construct the ends of rails and a chair in such a manner that the webs of the ends of the rails will be divided to admit a vertical extension of the chair to enter the divided webs and the flanges at the bottoms of the divided webs to rest upon the flat portion of the chair and the heads of the ends of the rails to rest upon the vertical extension of the chair to prevent up and down motions and to produce rail-joints in which transverse apertures in the webs, side plates, and transverse bolts are not required and all the parts retained securely connected by means of their interlocking and spikes or bolts used for fastening the chairs to ties and the rails to the chairs.

My invention consists in the construction, arrangement, and combination of parts as hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a top view of a section of a track, showing the ends of two rails connected with a chair, as required for practical use. Fig. 2 is a perspective view showing one end of the chair and the end of a rail fitted to the other end of the chair, as required in forming a rail-joint in a track. Fig. 3 shows an end portion of the rail inverted and discloses an elongated central cavity adapted to admit a corresponding vertical extension on the end of a chair. It also shows recesses adapted to admit ribs on the vertical extension of the chair and notches in the edges of the flanges to admit the passage of spikes. Fig. 4 is an enlarged transverse sectional view of that end part of a chair that has recesses and notches and that end portion of a rail that is fitted and fixed to the chair and a cross-tie by means of spikes.

The letter A designates a rail that is of common form, excepting that at its end portions the web is divided to produce an elongated open chamber directly under the center of its head, so that the top of the chamber is closed and the head of the rail solid and adapted to rest direct upon a portion of the chair fitted in the chamber, a continuous enlargement at the parallel sides and inner end of the chamber produces a shoulder *b*, adapted to admit a corresponding flange integral with the chair. The mating and separated parts of the web have integral flanges C at their bottoms and elongated slots *d* in the flanges to admit the passage of spikes, as clearly shown in Figs. 1 and 4, and recesses *f* in their inside faces to admit enlargements on the side faces of the vertical extensions of the chair.

The chair consists of a flat plate H, adapted to overlie wooden cross-ties. It has continuous flanges J at its sides and apertures *i* contiguous to the flanges to admit the passage of spikes. It also has an integral central vertical extension K, adapted to enter the chambers in the divided end portions of the webs of the rails, as shown in Figs. 2 and 4, and a continuous flange *m* at the base of the said rib or extension adapted to engage the shoulders *b* in the inside faces of the

mating portions of the webs of the rails, as shown in Fig. 2. The end portions of the extension K are provided with enlargements at their side faces to produce shoulders adapted to enter the recesses *f* in the inside faces of the mating parts C of the webs of the end portions of the rails in such a manner that the longitudinal motions of the rails that occur by contraction and expansion will be restricted. By simply placing the ends of rails on the chair in the manner illustrated and driving spikes *r* through the slots *d* and the coinciding apertures *i* a complete railway-rail joint is produced and transverse bolt-holes, fish or side plates, and bolts and nuts are dispensed with.

Having thus described my purpose and the construction, arrangement, and combination of the overlying parts, the practical operation and utility of my invention will be readily understood by persons familiar with the art to which it pertains.

What I claim as new, and desire to secure by Letters Patent, is—

1. A railway-track rail having the end portions of its web divided to produce a chamber under the solid head of the rail and the bottom of the chamber widened to produce shoulders to admit a railway-chair adapted in shape to enter the chamber and to engage said shoulders at the bottom of the chamber, for the purposes stated.

2. A railway-rail having a divided web at its end portion to produce an elongated chamber to admit a rib or vertical extension and a railway-chair and provided with an enlargement at the base of the chamber to produce shoulders at the inside faces to admit flanges at the sides of the base of a rib or vertical extension of a chair, for the purposes stated.

3. A railway-rail having a divided web at its end portion to produce an elongated chamber, to admit a rib or vertical extension on a railway-chair and provided with an enlargement at the base of the chamber to produce shoulders at the inside faces to admit flanges at the sides of the base of a rib or vertical extension of a chair and recesses in the inside faces of the mating parts of the divided web for the purposes stated.

4. A railway-rail having a divided web at its end portion to produce an elongated chamber to admit a rib or vertical extension on a railway-chair and provided with an enlargement at the base of the chamber to produce shoulders at the inside faces to admit flanges at the sides of the base of a rib or vertical extension of a chair and recesses in the inside faces of the mating parts of the divided web, and elongated notches in the edges of the flanges extending outward from the bottoms of the parallel parts of the divided webs for the purposes stated.

5. A railway-chair consisting of a flat plate having vertical flanges at its sides to engage the flanges of rails, apertures inside of said flanges to admit spikes and a central rib or vertical extension provided with shoulders at its base adapted to enter chambers in the ends of rails as shown and described, for the purposes stated.

6. A railway-chair consisting of a flat plate having vertical flanges at its sides to engage the flanges of rails, apertures inside of said flanges to admit spikes and a central rib or vertical extension adapted to enter chambers in the ends of rails, and flanges at the base of said rib or vertical extension, for the purposes stated.

7. A railway-chair consisting of a flat plate having vertical flanges at its sides to engage the flanges of rails, apertures inside of said flanges to admit spikes and a central rib or vertical extension adapted to enter chambers in the ends of rails, flanges at the base of said rib or vertical extension and enlargements at the side faces of said rib or extension, for the purposes stated.

8. A railway joint and track comprising a chair consisting of a flat plate provided with vertical flanges at its parallel sides, apertures inside of said flanges, a rib or vertical extension at the center of the plate, shoulders at the base of said rib or extension, enlargements on the sides extending upward from the said flanges and rails having divided webs and chambers to admit the rib or vertical extension of the chair, enlargements of the chambers to produce shoulders on the inside faces of the divided portion of the webs, recesses in the inside faces of the webs of the parallel webs on the side faces of the rib or vertical extension of the chair, arranged and combined to operate in the manner set forth for the purposes stated.

ELLSWORTH ROBINSON.

Witnesses:
PEARL REEVER,
F. H. BERGMAN.