

(No Model.)

2 Sheets—Sheet 1.

A. E. ADLARD.
TRAM RAIL AND CHAIR.

No. 301,317.

Patented July 1, 1884.

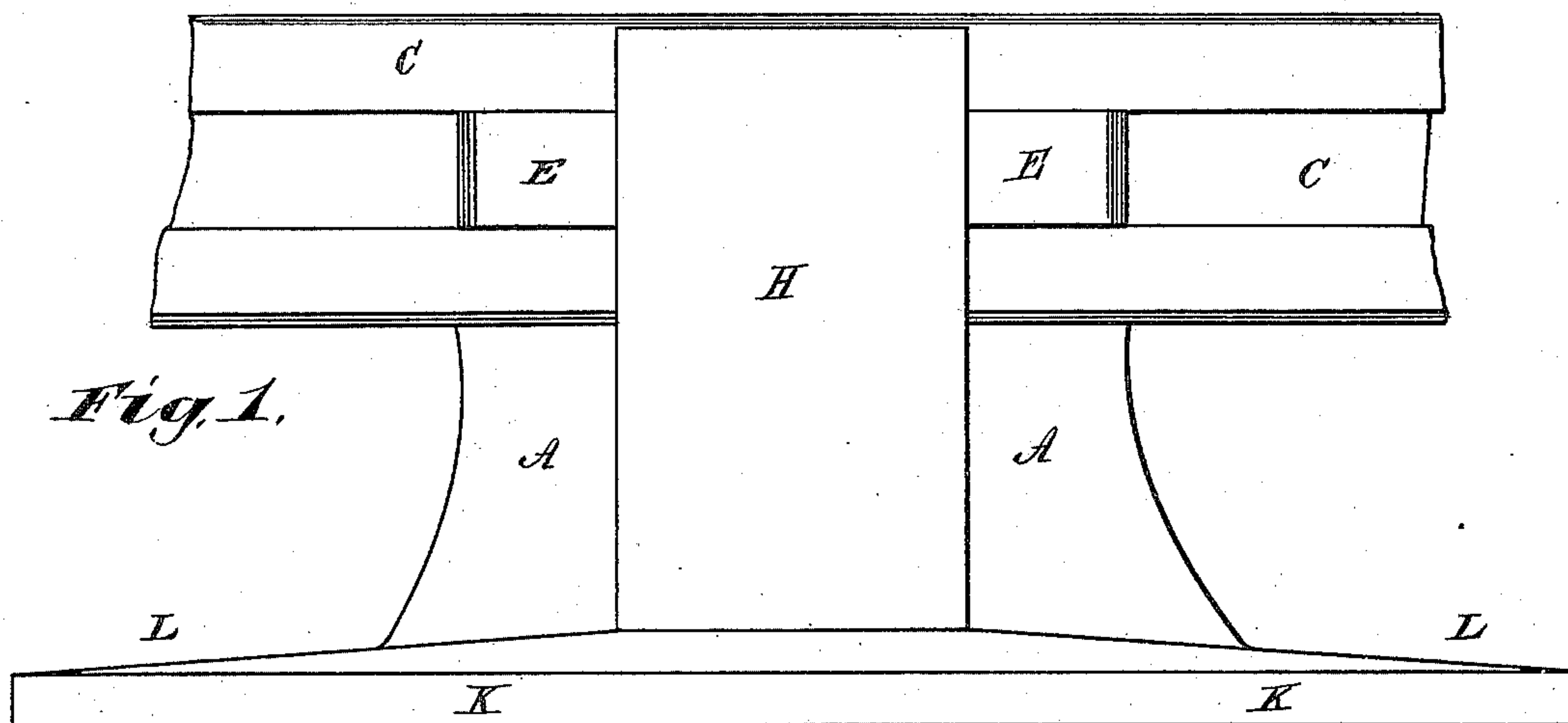
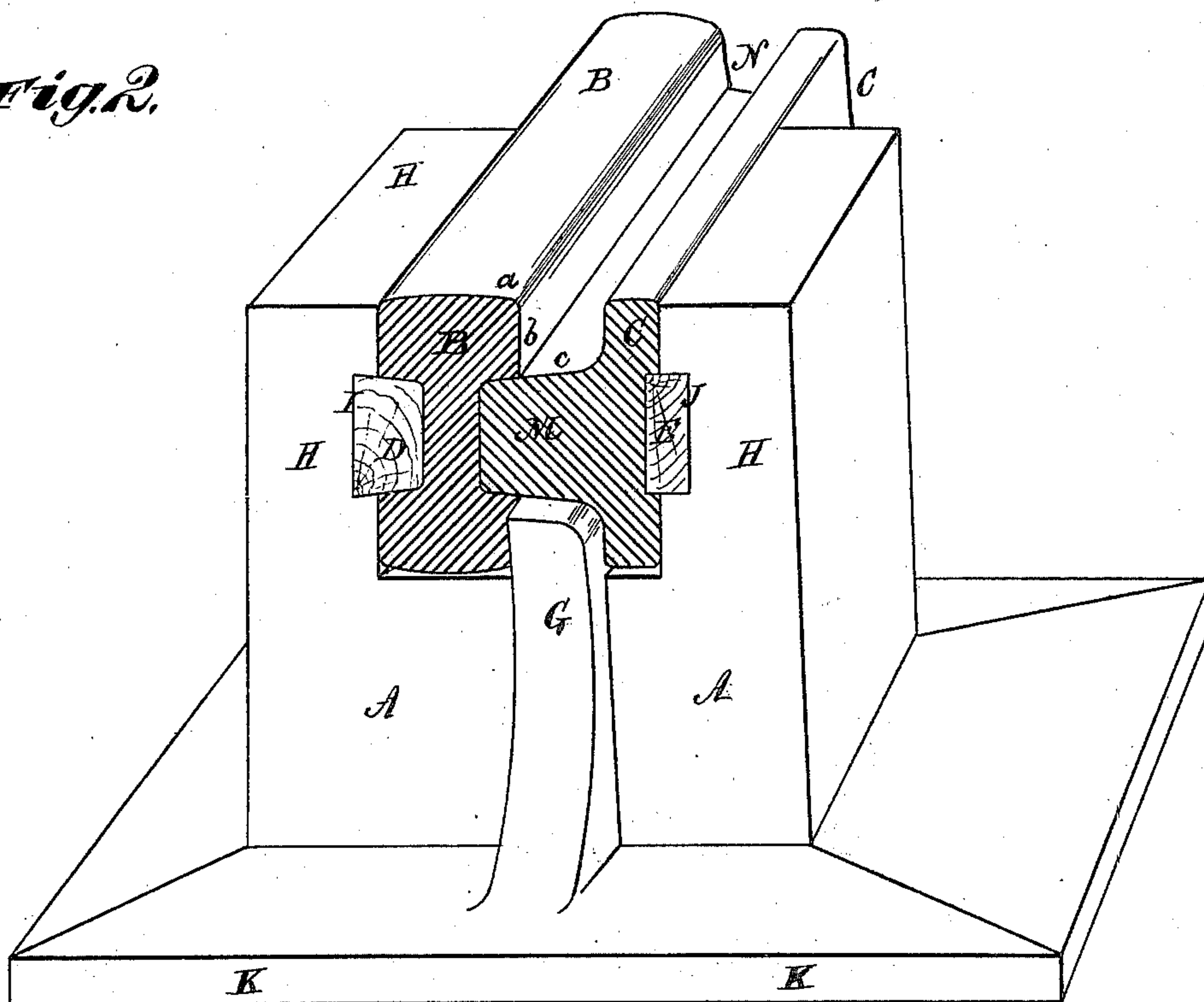


Fig. 2.



Witnesses,
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Robert Conitt

Inventor,
Albert E. Adlard,
By *James L. Norris*, Atty.

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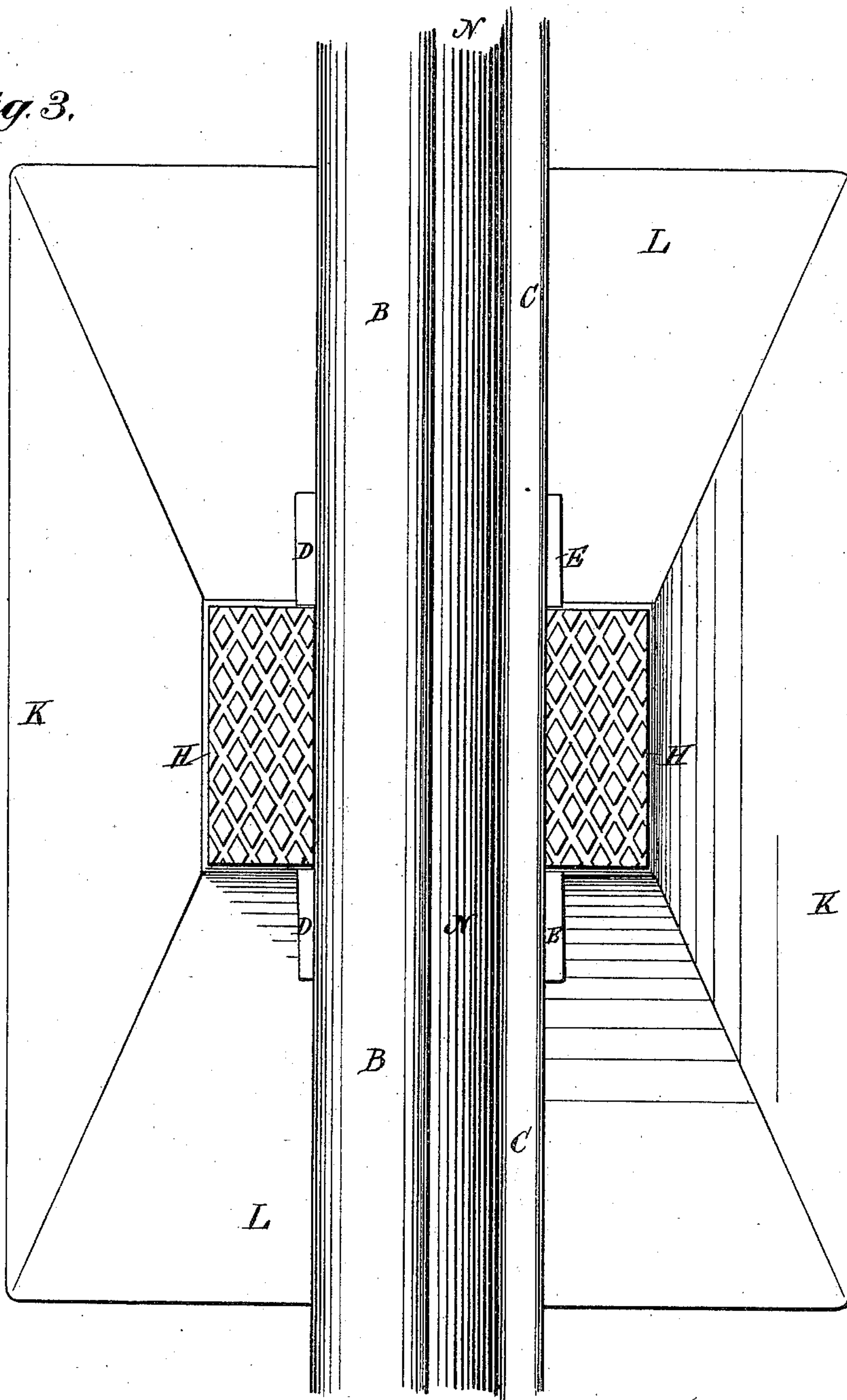
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Fig. 3.



Witnesses,
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UNITED STATES PATENT OFFICE.

ALBERT EVAN ADLARD, OF LONDON, ENGLAND.

TRAM-RAIL AND CHAIR.

SPECIFICATION forming part of Letters Patent No. 301,317, dated July 1, 1884.

Application filed November 13, 1883. (No model.) Patented in England April 17, 1883, No. 1,934.

To all whom it may concern:

Be it known that I, ALBERT EVAN ADLARD, a subject of the Queen of Great Britain, residing in London, England, have invented certain new and useful Improvements in Tram-Rails and Chairs, of which the following is a specification.

The object of this invention is a novel construction of tram-rail and chair or support to be used in combination; by which the first cost of production is lessened, the road is improved, the facilities of renewal much increased, dog spikes and bolts rendered unnecessary, and solidity of structure with less vibration of metals and of outside row of stones secured.

According to my invention I roll bar-iron with a groove longitudinally on each side and mid-distance from the top and bottom faces, said grooves having tapered sides. The parts having the top and bottom faces are alike, and enable the rail to be turned end for end and upside down, and firmly secured in the chairs by keys driven partly into the groove on one side and partly into a notch in the cheek of the chair on that side of the rail. The groove on the other side of the rail receives a feather or wing of the guard-rail, the wing forming also the distance-piece, to determine the width of the channel in which the flange of the car-wheels can run. The guard-rail is continuous and parallel with the rail proper, and is provided with lips of equal depth, so that it can be turned end for end and upside down, as occasions require, such as when one lip is worn away. The back of the guard-rail is grooved to correspond to a notch in the other cheek of the chair for the reception of a key which binds the guard-rail in position. The chair or support has a rib (or a series of projections) in the base of the opening between the two cheeks, on which the feather of the guard-rail rests, and it serves as a support, in conjunction with the key in one cheek, for sustaining the weight and for preventing oscillation of the rail during the motion of the car. The chair or support has a base or foot, and the cheeks which form stiffeners thereto terminate level with the top of the rail when fitted in position, and where they serve as stops to any sliding or action of the stones next the rails, and consequent looseness of said stones, which invariably happens, from

the fact that the car-traffic on a line of rails always moves in the same direction.

My invention is clearly shown in the annexed drawings.

Figure 1 is a side view, and Fig. 2 an end view, and Fig. 3 a plan, of a chair, A, with the rails B C locked in position by the keys D E, the rail C resting on the rib G, as before mentioned.

H H are the two cheeks of the chair A, with notches I J, for the reception of the keys D E, which also engage into the groove of the rails B and C, respectively, to hold the rails firmly thereto. It will be seen that the rails at the bottoms are clear of contact with the chair; but a wooden, felt, or other cushion can be arranged therein.

K is the base or foot of the chair, to "set" on the wood, concrete, or other foundation. The chairs are laid at fixed distances apart and support the rails at intervals; but where a continuous bearing is desired for the rail I shape the ends of timbers to fit onto the ends L L of the chairs, and keep the top surface level with the under side of the rails which rest thereon.

M is the continuous feather of the rail C, and the edge of it fits into the opposite groove of the rail B. Its under surface is in direct contact with the rib G of the chair, and serves to resist, in conjunction with the key D, the downward pressure of passing weights, the head of the rail B, which is undermost, being relieved from compression, and consequent injury therefrom. This feather M determines the distance the two rails B C shall be apart, and the space N above it serves as the channel or groove in which the flange of the car-wheels shall run. The weight of car-traffic, which tends to centralize itself on the inner tread of the rail, and the rolling friction of the wheel-flange against the side, coupled with the cutting action of the edge of the wheel-flange into the bottom of the channel, according to present constructions of rails, are very disastrous to the duration or working life of a rail, the channeled part of the rail having no support directly under it to prevent spring or buckling. Now, by my invention these inconveniences and disadvantages are completely overcome, the weight of the car being concentrated and borne by the inner edge, a, of the tread directly on the

feather located upon the lip G of the chair A, great solidity and stiffness is produced, the rolling friction against the side *b* is reduced, and the bottom *c* of the channel N the better
5 able to resist the cutting action of the edge of the wheel-flanges.

Other advantages are derived by the use of this invention. The rail has four working or tread surfaces, and it is readily removed by
10 driving out the two keys D E, to enable any tread to be utilized. The rail C can be turned over on end when one side, *c*, of the feather M is worn, the whole being as readily replaced and locked in position without delaying or in-
15 terfering with ordinary traffic.

I claim as my invention—

1. The combination of the chair, the supporting-rib, the rail provided with the distancing-feather resting on the supporting-rib,
20 and the rail provided with the groove into which said feather fits, substantially as described.

2. The combination of the chair, the rail provided with grooves on opposite sides, the
25 key supported in the chair and entering one

groove of the rail, and the feather supported within the chair and entering the other groove of the rail, substantially as described.

3. The combination of the chair, the supporting-rib, the rail provided with the feather
30 and the groove, and resting on the said rib, the key entering the groove of said rail, and a grooved rail to receive the said feather, substantially as described.

4. The combination of the chair, the rail
35 provided with grooves in opposite sides, the rail provided with a groove in one side, and a feather on the opposite side entering the groove in the adjacent rail, and the keys fitting into the grooves in the outer sides of the
40 two rails, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ALBERT EVAN ADLARD.

Witnesses:

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Both of 166 Fleet Street, London.