

S. Nicholson,
Railroad Rail,
No 21,899, *Patented Oct. 26, 1858.*

Fig. 1.

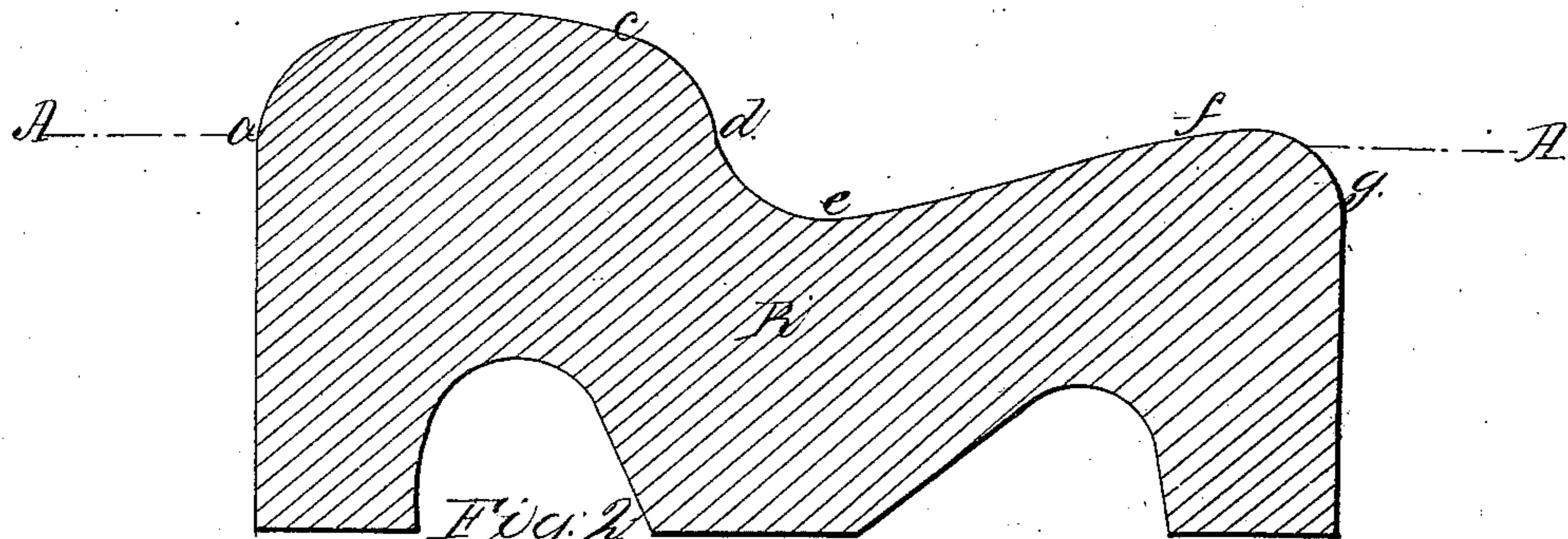


Fig. 2.

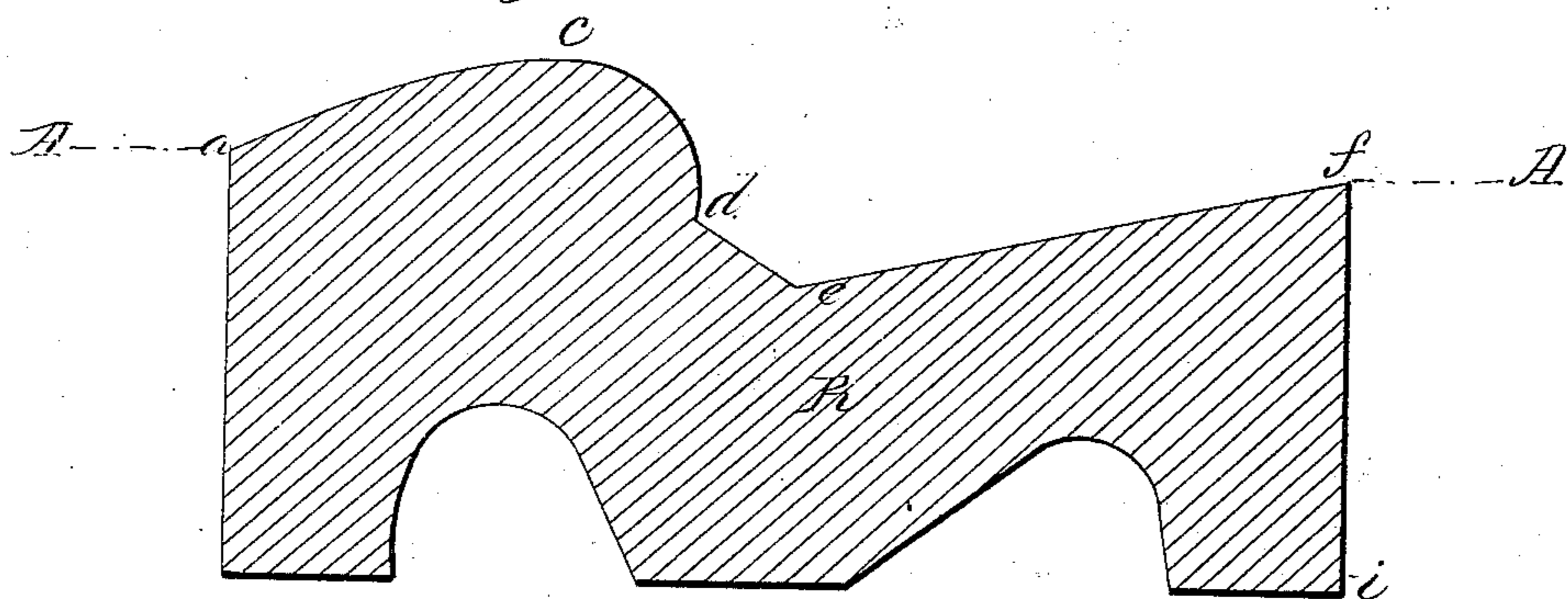
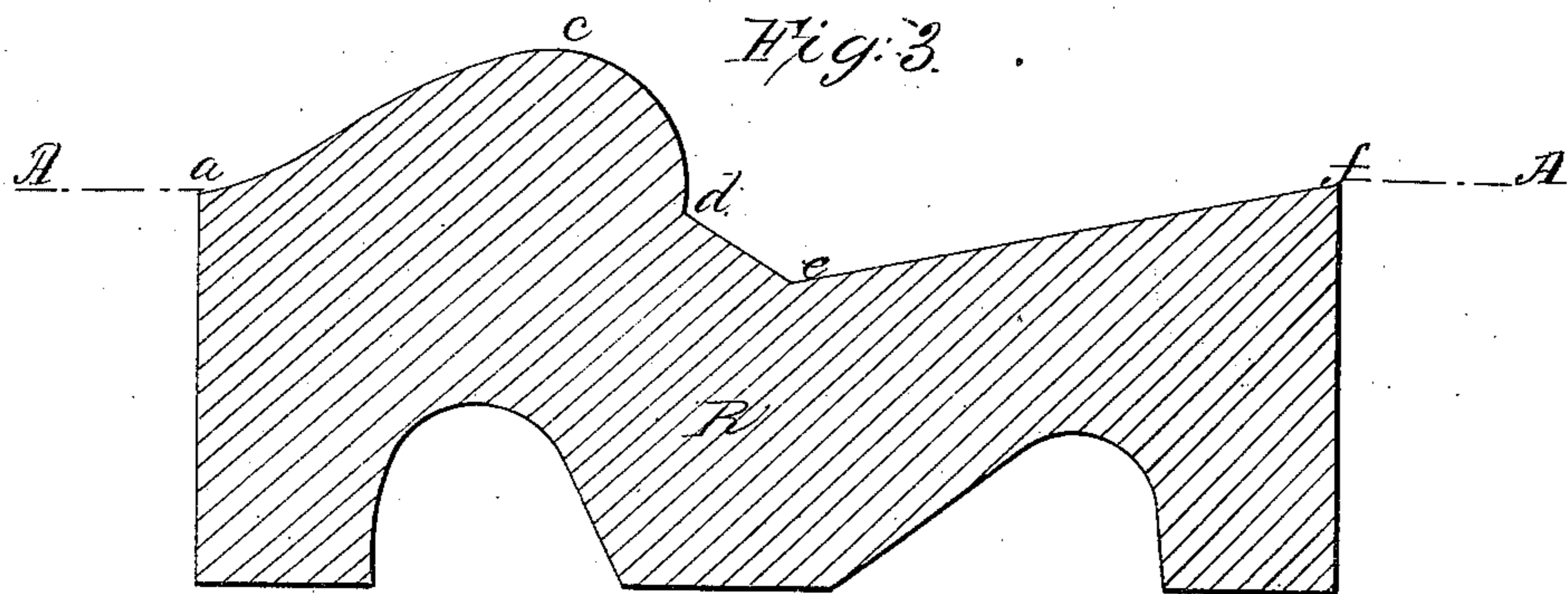


Fig. 3.



UNITED STATES PATENT OFFICE.

SAMUEL NICOLSON, OF BOSTON, MASSACHUSETTS.

RAIL FOR STREET-RAILWAYS.

Specification of Letters Patent No. 21,899, dated October 26, 1858.

To all whom it may concern:

Be it known that I, SAMUEL NICOLSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Rail for Street-Railways; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, of which—

Figure 1, exhibits a transverse section of the rail in ordinary use. Figs. 2 and 3, are transverse sections of my improved rail.

The wheel tread bearing surface of the rail as commonly constructed is made flat, level or slightly curved, as seen at *b, c*, in Fig. 1, the same terminating in rounded corners, which take the shape of quadrantal arcs as seen in said figures. Besides the railway carriage wheel bearing surface, the said rail is formed with a flange groove, *d, e, f*, the part *e, f*, inclining up toward the surface *A, A*, of the street, and with such a gentle slope as to enable any common carriage or vehicle to radially pass out of the groove.

Owing to the tapering or frusto conical form of a railway carriage wheel, the bearing thereof on the rail is generally tangential to the point *c*, (see Fig. 1.) or thereabout; the curved part *a, b, c*, being of very little service, if any, in supporting the wheel while it is resting upon the rail. The portion *a, b*, rising from the top surface, *A, A*, of the road at or about a right angle thereto, presents a serious obstruction to a street vehicle when an attempt is made to drive diagonally across the track. Furthermore, in consequence of its abrupt rise above the road bed, the wheels of street carriages are brought more or less in contact with it, whereby deep ruts are often caused to be made close to the rail. Instead of forming the rail with the abrupt curved surface *a, b, c*, I construct it with a gentle rise from the road bed surface level *A*, up to the part *a, c*, as shown in Figs. 2 and 3, the curve *a, c*, falling into the road bed level at a very obtuse angle, instead of a right angle. By means of the inclined plain or surface *a, c*, the wheel of a carriage will meet with little or no obstruction in crossing the rail, the danger of twisting the axle or injuring the vehicle is little or nothing in

comparison to what exists when the rail is constructed as shown at *a, b, c*, in Fig. 1. Furthermore instead of forming the flange groove with the quadrantal arc *d, e*, as shown in Fig. 1, I construct it with a straight inclined plane *d, e*, as shown in Figs. 2 and 3, the same serving to operate to better advantage in keeping the felly of a wheel from contact with the part *e, d*, than is the case when the part *d, e*, is curved as shown in Fig. 1. Instead of rounding the corner of the flange groove as shown at *f, g*, in Fig. 1, I arrange the slope *e, f*, at an acute angle with the inner surface *f', i*, of the rail. Where the rail abuts against the horse track, I form it in section as shown at *e, f, i*. When the inner edge of the rail is rounded as shown at *f, g*, in Fig. 1, it causes the wheels of carriages to disturb the pavement of the horse track so as to form ruts close to the rail; whereas by giving to the rail or that part of it next the horse track, the angular corner *f*, such difficulty is nearly, if not entirely obviated.

I do not claim making the railway car wheel bearing surface of the rail, with a flat or slightly curved top, having its corners rounded down to quadrantal arcs, such being the common way of forming the said rail, but

What I claim is—

1. Making the rail with the straight or slightly curved inclined surface or plane *a, c*, arranged with respect to the surface of the street as shown in Figs. 2 and 3, and for the purpose as specified.

I do not claim a concave curved guard *d, e*, for the flange guard, but

What I do claim as an improvement in the guard is—

2. Making it a flat plane arranged as shown at *d, e*, in Figs. 2 and 3.

3. I also claim making the inside corner of the rail angular with reference to the upper surface of the horse tread as shown at *f* in Figs. 2 and 3.

SAMUEL NICOLSON.

Witnesses:

R. H. EDDY,
L. LYONS.