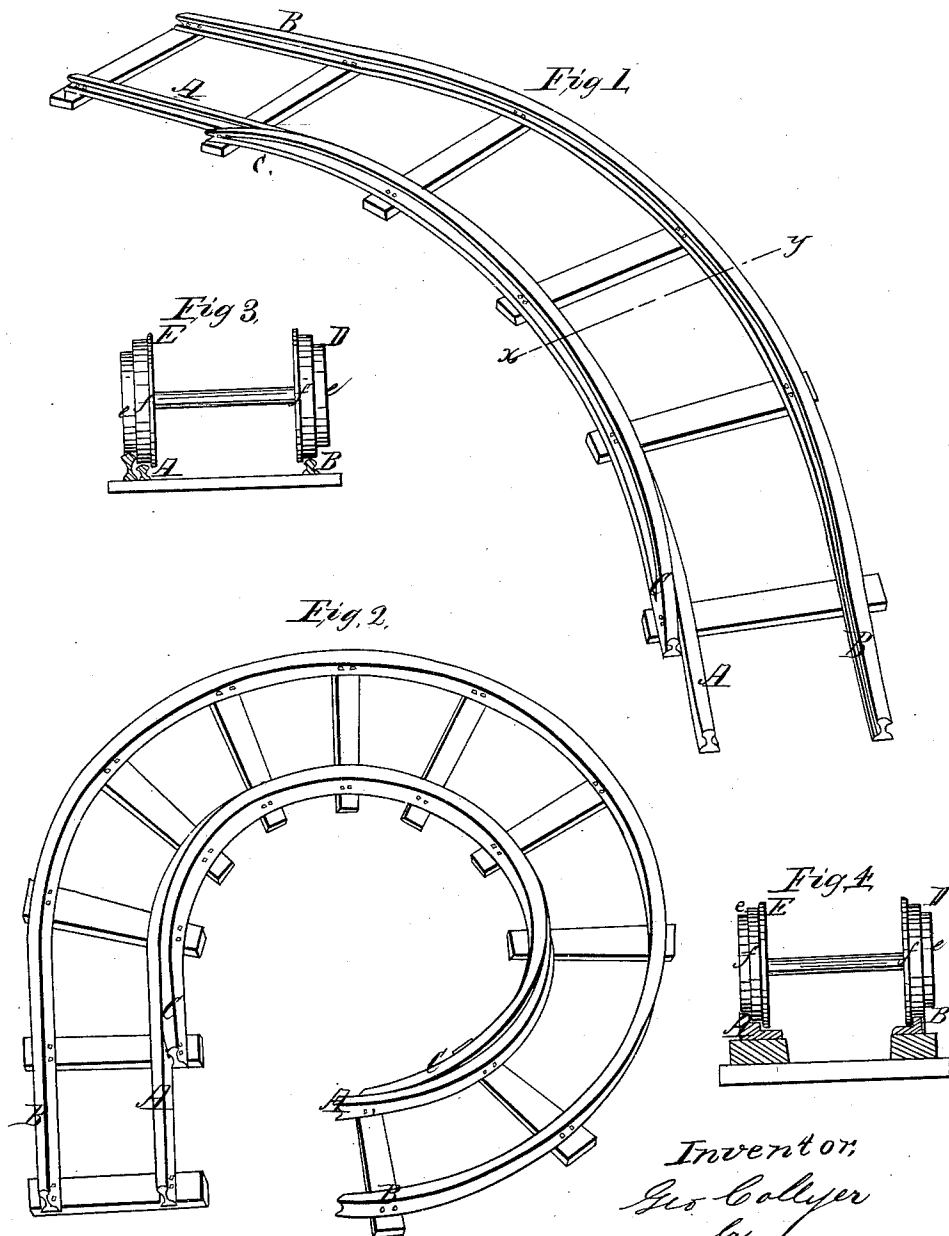


G. COLLYER.  
TURNING CURVES OF RAILROADS.

No. 65,544.

Patented June 11, 1867.



Witnesses  
H. M. Cheyney  
Geo. E. Buckley

Inventor:  
Geo. Collyer  
by  
J. E. Shaw  
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# United States Patent Office.

GEORGE COLLYER, OF PHILADELPHIA, PENNSYLVANIA.

*Letters Patent No. 65,544, dated June 11, 1867.*

## IMPROVEMENT IN TURNING CURVES OF RAILROADS.

The Schedule referred to in these Letters Patent and making part of the same.

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, GEORGE COLLYER, of the city of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Means for Turning Railroad Curves; and I do hereby declare that the following is a full and exact description of the same, reference being had to the annexed drawings forming part hereof, and the letters of reference marked thereon, in which drawings—

Figure 1 is a perspective view of a railroad track partly straight and partly curved, showing the auxiliary rail which I employ.

Figure 2, a similar view, in which the curve is prolonged almost to a circle.

Figure 3 is a transverse section of the track and auxiliary rail on the line  $xy$  of fig. 1, and also of a pair of car-wheels in place as they are when passing around a curve.

Figure 4 is a transverse section of rails, such as are generally used for street railways, showing the application of my invention thereto, a single rail, A, being so formed as to answer the purpose of both rails A and C in figs. 1 and 2.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and mode of operation.

A and B are the two rails of a common railroad track. C is an auxiliary rail placed alongside of and parallel to the rail A at the curve in the track on the inside, that is to say, on the side nearer the centre of the circle of which the track is a segment. It extends beyond the curve along the main rail where the latter is straight, and it is sloped down at each end in order that the change (presently to be described) of the wheels from the main rail to the auxiliary rail may be gradual. D and E, figs. 3 and 4, are two car-wheels such as I employ. Each wheel has two treads,  $e$  and  $f$ , the radius of the tread  $e$  being less than that of tread  $f$ . In fig. 3 the wheels D and E are shown on the rails as when passing around a curve. The wheel E traverses the rail A which forms the inside of the curve, and presents its tread, of smaller diameter,  $e$ , to and runs on the auxiliary rail C, its thread  $f$  being kept above and out of contact with the rail A. At the same time the wheel D (traversing the rail which forms the outside of the curve) makes no change, but continues to run with its tread, of larger diameter,  $f$ , on the rail B. By thus causing the wheel that runs on the outside rail of the curve to continue on said rail, and the wheel which, but for my arrangement, would run on the inside main rail of the curve, to present its tread of smaller diameter to an auxiliary rail such as I employ, cars are enabled to pass safely around curves of smaller radius than hitherto have been found practicable without excessive wear or friction.

It is to be understood that in order for my invention to be put into operation the several wheels of a car must each have a double tread such as I have described.

Having thus described my invention, I claim, and desire to secure by Letters Patent—

The main rails A and B and the auxiliary rail C, when used in combination with car-wheels, each having two treads,  $e$  and  $f$ , the whole arranged and operating substantially as set forth.

GEO. COLLYER.

Witnesses:

GEO. E. BUCKLEY.

WALDRON J. CHEYNEY,