W. CRANDELL.

Improvement in Railroad-Rails.

No. 129,535. Patented July 16, 1872.

FIG. I

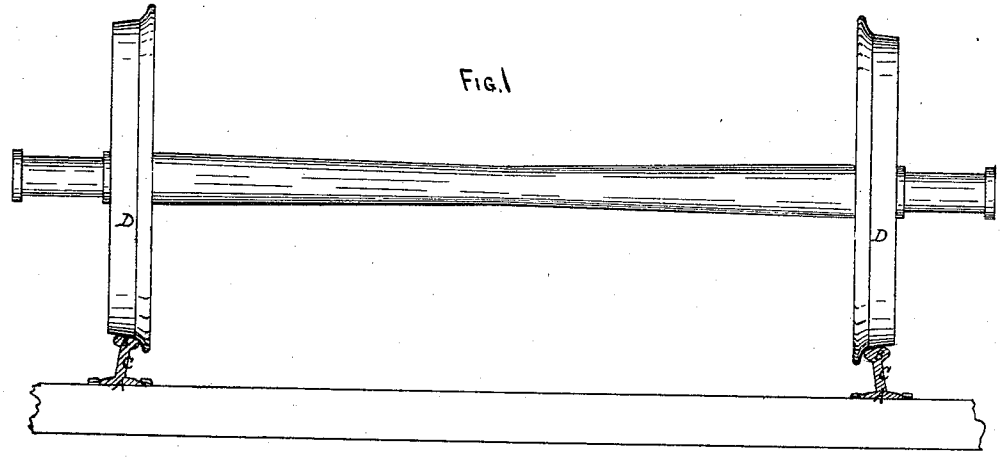
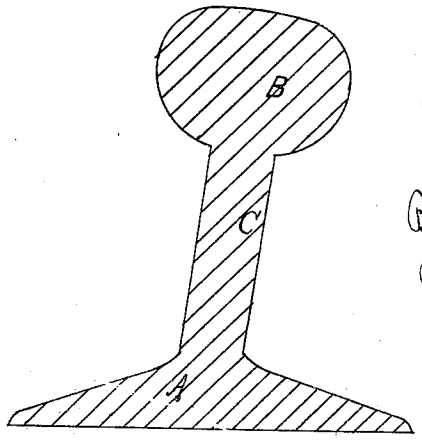


FIG. II



WITNESSES.

T. R. Drake.

C. N. Woodward.

William Crandell.

INVENTOR, BY

Burke Fraser & Osgood

attys.

A.M. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

WILLIAM CRANDELL, OF WESTFIELD, NEW YORK.

IMPROVEMENT IN RAILROAD RAILS.

Specification forming part of Letters Patent No. 129,535, dated July 16, 1872.

Specification describing a new and useful Improvement in Railroad Rails, invented by WILLIAM CRANDELL, of Westfield, in the county of Chautauqua and State of New York.

Nature of the Invention.

My invention consists in a railroad rail so constructed that its web and head are inclined relatively to the base, which sits horizontally upon the sleeper, the effect being that when the track is laid with the two rails inclined inwardly or toward each other their bearing-surfaces converge toward a common center, midway between them, and form planes coincident, or nearly so, with the cones of the wheel; the object and purpose being to give increased surface or tread, greater strength to resist lateral strains, and cause the moving cars to gravitate inwardly instead of swaying outwardly, especially on curves, thereby overcoming centrifugal force and the tendency to fly the track tangentially.

In the drawing, Figure 1 is a view, in transverse section, of a railroad track formed of my improved rails, with car-wheels mounted thereon. Fig. 2 is a cross-section of one of my improved rails.

As represented, A is the base or horizontal bottom of the rail, formed in the ordinary way. B is the top or bearing-surface, and C the web. The web is inclined relatively to the horizontal base, and the plane of the surface B, being at right angles to the web, is not parallel with the base, like the rails hitherto used, but inclined thereto. These rails, when laid to form a track, are reversed, their inclined webs and surfaces being placed toward each other, thus producing the converging track shown in Fig. 1. The inclination of the web to the base is preferably such as to conform, or nearly so, to the conical portion or tread of the wheel, by which means the surface on which the wheel acts is very considerably increased, giving greater adhesion, and consequently more efficient draft, to the locomotives, and reducing the wear upon the rails of the car-wheels. This conformation of the surface of the track has the effect to cause the train or cars to gravitate to the center of the track, and thereby diminishes the tendency to leave the track laterally, and consequently relieves the rails in a corresponding degree from the lateral strains and wear due to the vibrations and side motion of the locomotive and cars. But one of the most important offices of the inwardly-inclined web is to resist the lateral strains or thrust which prove so injurious to railways—not merely by wear upon the inner edges of the rails, but by loosening the spikes and other fastenings of the rails to the sleepers or ties on which they are laid. This resistance is effected by the inclined position of the web, which, being set at an angle in the direction from which the disturbing-force proceeds, receives it endwise, like a brace. In rails as ordinarily made the perpendicular web is acted upon by the side thrust as a lever, the tendency being to draw the spikes which hold the inner side and overturn the rails. Such effect is obviated by the bracing of the inclined web, and the base or foot remains firmly planted on the sleepers, requiring less expense for spikes, chairs, and fish-plates, producing greater security of the track, and increasing the durability of the rails.

These rails are manufactured without increase of cost over ordinary rails of the same weight.

I do not claim a rail with an inclined face or bearing-surface merely, as such, I am aware, is not new; but

What I claim as my invention is—

A railroad rail formed with its web and bearing-surface at right angles, when they are inclined relatively to the horizontal plane of the base, substantially as and for the purpose set forth.

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

WILLIAM CRANDELL.

Witnesses:
J. R. DRAKE,
C. N. WOODWARD.