E. FRERE.
RAILWAY.

No. 192,981. Patented July 10, 1877.

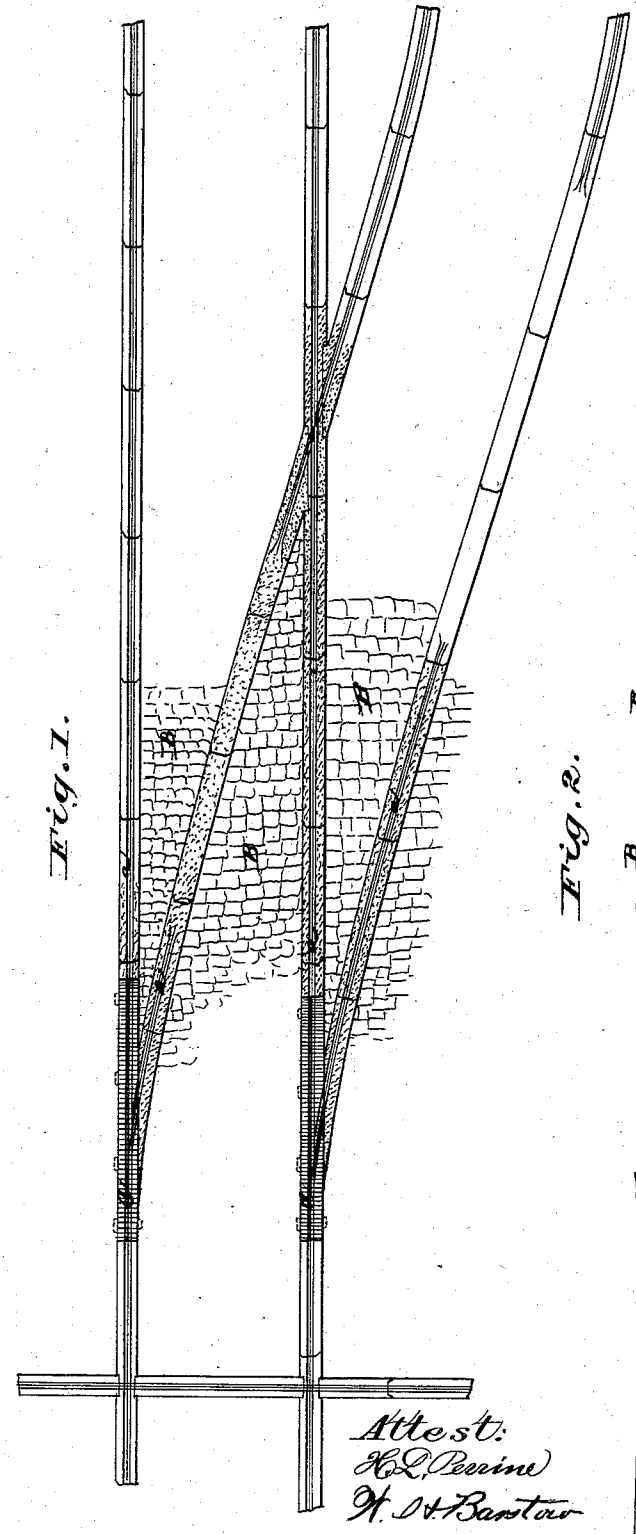


Fig. 1.

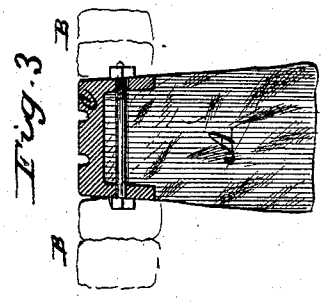


Fig. 3.

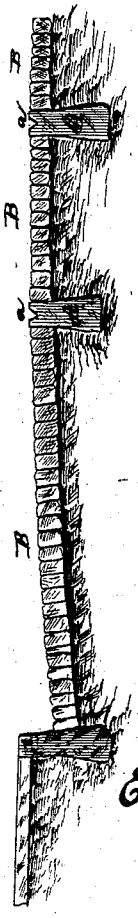


Fig. 2.

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EDOUARD FRERE, OF ANTWERP, BELGIUM.

IMPROVEMENT IN RAILWAYS.

Specification forming part of Letters Patent No. **192,981**, dated July 10, 1877; application filed October 6, 1876.

To all whom it may concern:

Be it known that I, EDOUARD FRERE, of Antwerp, Belgium, have invented an Improvement in Railways; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of my invention, showing a view of my railroad-track as laid in the pavement. Fig. 2 is a sectional view, showing the relation of my track to the pavement. Fig. 3 is a modification of my track, and Fig. 4 is a sectional view of one of my track-blocks capped with metal.

The object of my invention is to improve such railways as substitute hard stone blocks for the wooden ties and iron rails, either for the use of horse or steam cars; and it consists in embedding in the street heavy blocks of hard stone, uniform in length, and which may be dovetailed together, the blocks to be wider at the bottom than at the top, the top having a groove running longitudinally through the center of the surface for the admission of the flange of the car-wheel. The stone blocks, at points where the track switches off from the main track, are capped with iron plates, made with a surface similar to the surface of the stone blocks. The size of the stones and the depth to which they are embedded are, of course, regulated by the nature of the ground and the weight they must bear.

In the drawings, A represents a hard stone block embedded in the ground, having its top surface level or flush with the pavement B of the street. In many of the blocks A a groove, *a*, passes through the center of the surface, of about the same size and depth as to correspond with the flanges of the car-wheel that is to run on the track. On the outside track of every curve the groove *a* is omitted from the block, as shown in Fig. 1, so that the car-wheel may pass over the surface of the block running on the flange. These blocks are embedded so as to be on the same level as the blocks that are grooved, so that when the flange rises out of the groove *a* to the surface of the stones the cars will be raised on that side, which is the outside track of a curve, and will compensate for the centrifugal force in turning the curve. The groove, where it commences and ends, and where the flange of the wheel enters and leaves it, is made funnel-shaped, and of a gradual declivity, so that there may be no jar in the motion of the car when rising to or descending from the plain blocks to a grooved one.

The blocks A are embedded in the ground much deeper than the pavement, and the part of the stone in the ground may be much larger than the top surface would indicate, the size and depth being indicated by the weight the track is expected to support.

The stone blocks at the junction of the side tracks, where they switch off from the main track, are covered with metal caps C, fitting the top portion of the stone, and bolted thereto. These capped blocks are flush with the uncapped blocks, the object of the metal capping being to prevent the great wear at the point where the wheel is urged to leave the main track and enter the groove in the side track.

The surface of the stone block, as well as the metal-capped blocks is roughened in uniformity with the surrounding pavement, so that no obstacle will present itself to ordinary vehicles in streets where my improved railroad-track is laid.

The advantages arising from the use of my invention are that, the iron wheels adhering less to the stone track than to iron, the draft will be easier for the horses. Again, the repairing and even laying the track, in the first instance, is more easily performed. All that is necessary in any case, where a block is not entirely worn out, is to raise it to a level with the street. Then, again, my track will never need rebuilding, as the necessary repairing will be sufficient, while in the ordinary track new ties throughout often become necessary. My track offers no obstacle to ordinary vehicles in paved streets, and tends to keep the pavement in streets in better repair. My blocks, when no longer fit for the track, by being worn down and then raised, are still of value for other purposes, while the ties and sills of the ordinary roads are worthless.

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

A railroad-track consisting of consecutive blocks of stone embedded in the ground with the top surfaces of the straight and inside tracks of the curves grooved with longitudinal grooves, and the outside tracks of the curves level, and the blocks at the junction of every switch capped with metal, substantially as described.

EDOUARD FRERE.

In presence of—

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