

(No Model.)

O. H. JADWIN.
TRACTION CABLE RAILWAY.

No. 284,020.

Patented Aug. 28, 1883.

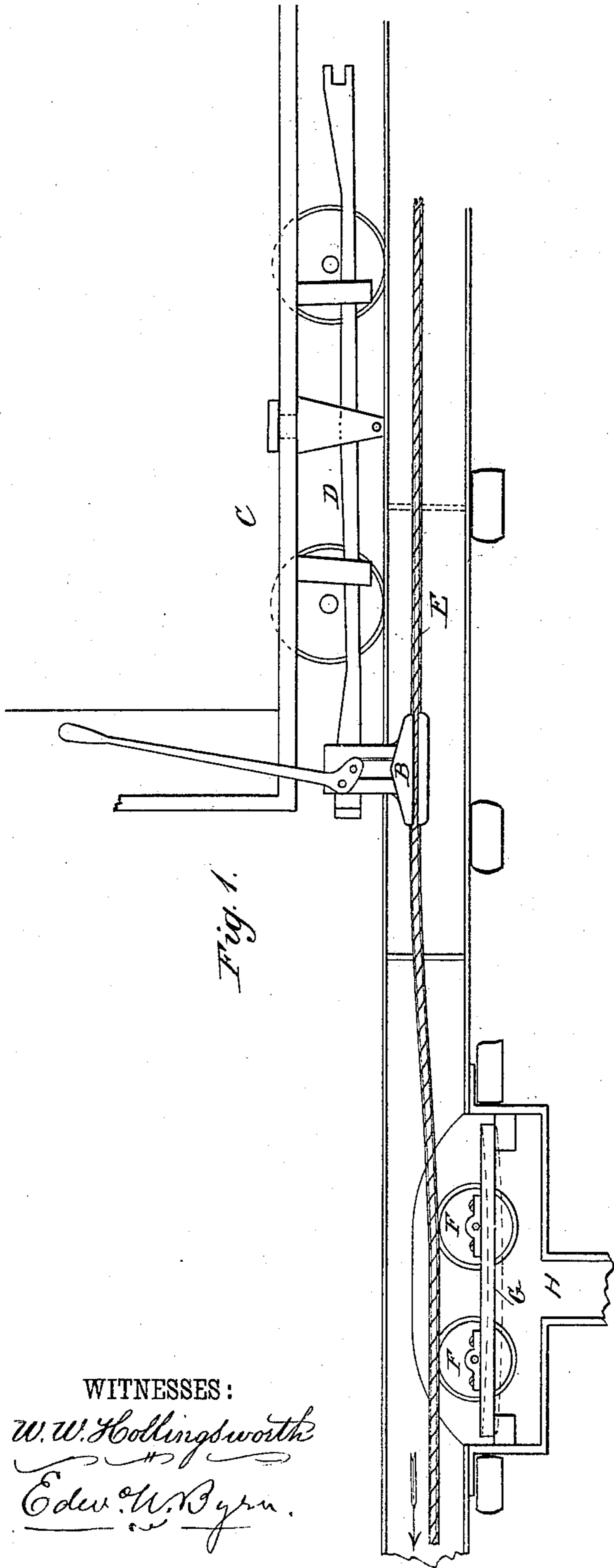


Fig. 1.

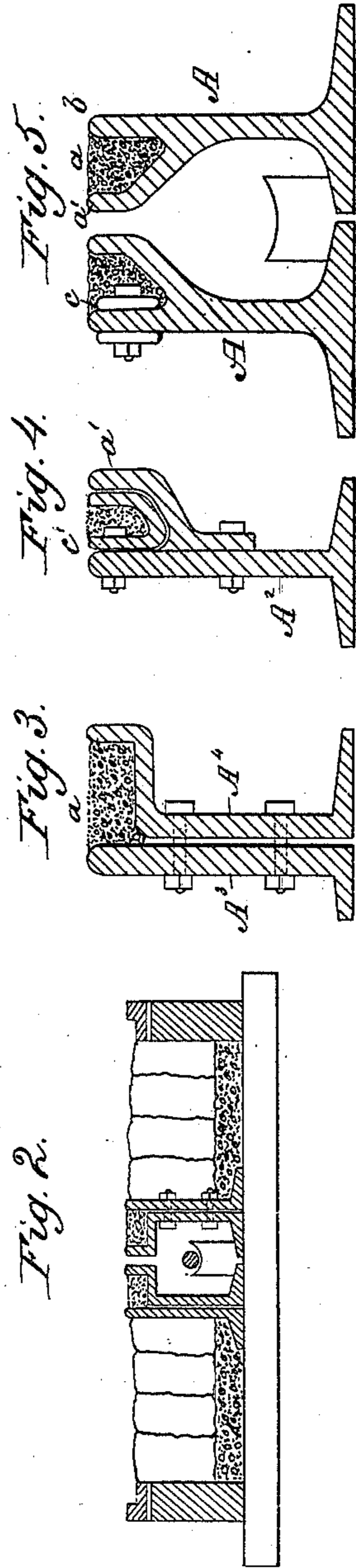


Fig. 5.

Fig. 4.

Fig. 3.

Fig. 2.

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TRACTION-CABLE RAILWAY.

SPECIFICATION forming part of Letters Patent No. 284,020, dated August 28, 1883.

-Application filed March 31, 1883. (No model.)

To all whom it may concern:

Be it known that I, ORLANDO H. JADWIN, of New York, in the county of New York and State of New York, have invented a new and useful Improvement in Traction-Cable Railways; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of a traction-cable tunnel with the near rail removed. Fig. 2 is a cross-section of the tunnel, wheel-rails, and stone filling between the rails. Figs. 3, 4, and 5 are cross-sections of different forms of rails for constituting the cable-tunnel.

My invention relates to certain improvements in traction-cable railways; and it consists, first, in the arrangement of guide-pulleys for sustaining the cable; and, secondly, in the construction of rails forming the tunnel in which the cable travels, as hereinafter fully described.

In the drawings, D is the draft-bar of a car, C, and B is the gripper fastened thereto and adapted to clutch the cable E. This cable travels in a tunnel in the street, formed by iron rails, as hereinafter described, and is supported as it travels upon twin guide-pulleys F F. These pulleys are grooved to receive the cable, and they are arranged in twin pairs, being mounted upon spring-boards G in the pits or wells H. This spring-board is sustained at its ends, and it has, in connection with the arrangement of the pulleys in pairs, the following advantages: first, that it makes a better bearing for the cable and reduces strain on the latter, the inequalities of one pulley serving to compensate, in a measure, for the inequalities of the other, and the cable is not displaced or whipped about by passage over the pulleys; and, secondly, the spring-seated mountings of the pulleys compensate for any eccentricity of the pulley axis or projection on the cable, and insures smooth running, reducing wear and tear. These pulleys may be arranged in vertical planes, as shown, for supporting the cable, or they may be arranged in a horizontal or other plane, as may be necessitated by the curve or

inclination of the track. They may also be mounted upon elevated posts, instead of being placed in a tunnel under ground.

In the patent granted me September 26, 1882, I showed and described a rail for forming the tunnel, which rail had a basic flange on both sides of a central vertical web and a flange on one side at the top, and two of which rails, when placed together to form the tunnel for the reception of a traction-cable, left a narrow slit between them at the top for the passage of the clutch or gripping device on the car. With such form of rail the two inturned flanges at the top gave a broad metal surface in the middle of the track, which involves an objection, in consequence of the slipping and hammering of the horses' feet thereupon.

One feature of my present invention consists in constructing the overhanging flange or top part of the rail with a trough or cavity filled with asphalt, cement, or some other substance than metal, the said rail being made either in one piece in cross-section or in two pieces, as desired. Thus A represents the simplest form of my improved rail, in which there is formed at its upper edge a cavity, *a*, which is inclosed by obliquely offsetting flange *a'* and the straight continuations *b* of the web portion. At A' is shown the means for connecting this form of rail in continuous length by fish-plates and bolts *c*. At A² is shown the cavity formed by a flange, *a'*, made separately and bolted on, the fish-plate in this instance being made in U shape, as at *c'*. At A³ A⁴, Fig. 3, is shown the rail made in two sections of equal height, one having a straight web portion and the other having its web portion offset at the top, so as to form the trough for the asphaltum or cement. The two sections A³ and A⁴ may be arranged with lap-joints, so as to avoid entirely the necessity of fish-plates. This form of the rail is well adapted to laying cross-tracks, as the upper end of the part A³ may be cut away, in which case the bend at the upper part of A⁴ forms an excellent rest or shoulder for a cross-section of rail or cover for pulley-wells. In all of these cases provision is made for avoiding a large exposure of metal at the surface, and yet ample room is left for fish-plates without inter-

fering with the small central space between the rails at the top through which the gripping devices pass.

In defining my invention with greater clear-
5 ness with respect to the double or paired ar-
rangement of the pulleys I would state that I
am aware that a spring-seated pulley is not
new, and that the pulleys have been arranged
in pairs upon the opposite sides of the fulcrum
10 of a rocking frame, as shown in my prior Pat-
ents Nos. 195,509 and 223,592. When thus ar-
ranged in pairs upon a rocking frame, both pul-
leys must of a necessity find an equal bearing
against the cable. I have found, however, that
15 when the pulleys are not located on a rocking
frame the pairing of them has an important re-
sult, for here, although there can be no com-
pensating movement of the rocking frame to
make them both bear equally, still an impor-
20 tant result is attained as follows: Guide or sup-
porting pulleys, no matter how carefully ad-
justed, will scarcely ever be exactly hung in
the center, but will be more or less eccentric,
and as they wear they become still more ec-
25 centric, which, when the pulleys are not in
pairs, causes the cable to be whipped about.
Now, by placing the pulleys in pairs on a non-
rocking support, or a support which does not
give a reversed movement of the pulleys, the
30 eccentricity or greater projection on one side
of its axis of one pulley will never, or scarcely

ever, coincide or be on the same side of the axis
as the eccentricity of the other pulley, and the
result is that the cable will, by their conjoint
and alternate support, be steadily sustained in 35
its travel.

Having thus described my invention, what I
claim as new is—

1. The combination, with a traction-cable,
of guide or supporting pulleys arranged in 40
pairs upon a non-rocking support, whereby
the whipping of the cable from irregularities
in the supporting-pulleys is avoided.

2. The combination, with a traction-cable,
of a pair of guide or support pulleys mounted 45
upon a spring-board, substantially as shown
and described.

3. A rail for a cable-tunnel, having an over-
hanging upper edge, with a cavity between its
outer edges filled with asphaltum, cement, or 50
other non-metallic substance, as and for the
purpose set forth.

4. A rail for a cable-tunnel, made in two
parts, A³ A⁴, bolted together, one of said sec-
tions being bent or offset at its upper edge to 55
form a cavity between them, and a non-metal-
lic filling placed therein, as and for the pur-
pose set forth.

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Witnesses:

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