

(No Model.)

J. B. LOW & A. K. GRIM.

CABLE RAILWAY.

No. 313,602.

Patented Mar. 10, 1885.

Fig. 1.

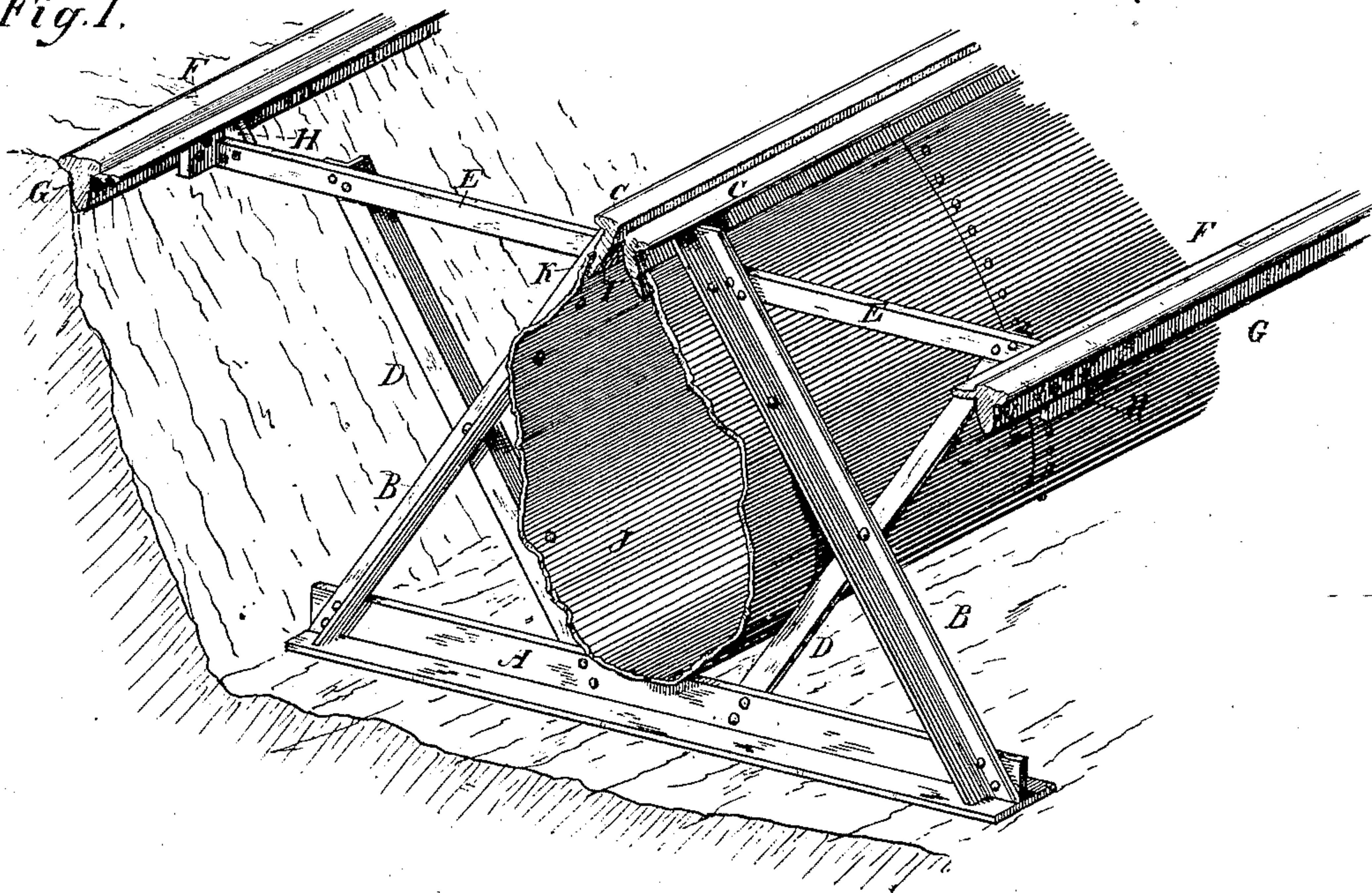
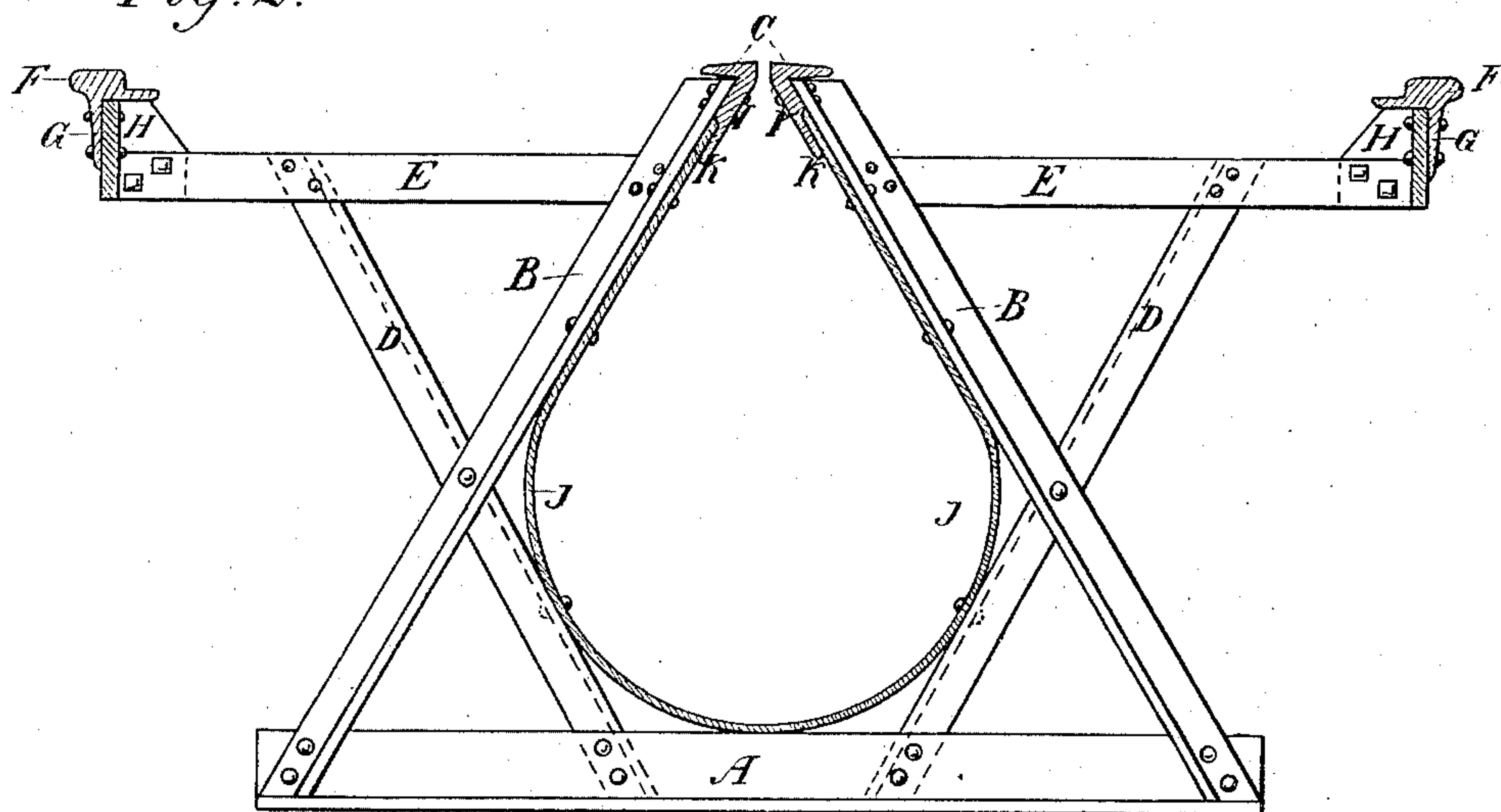


Fig. 2.



Witnesses,
Geo. H. Strong.
J. T. House.

Inventors,
Joel B. Low.
A. K. Grim
By Dewey & Co.
attorneys

UNITED STATES PATENT OFFICE.

JOEL B. LOW AND ABRAHAM K. GRIM, OF SAN FRANCISCO, CALIFORNIA.

CABLE RAILWAY.

SPECIFICATION forming part of Letters Patent No. 313,602, dated March 10, 1885.

Application filed December 13, 1884. (No model.)

To all whom it may concern:

Be it known that we, JOEL B. LOW and ABRAHAM K. GRIM, of the city and county of San Francisco, State of California, have invented an Improvement in Cable Railways; and we hereby declare the following to be a full, clear, and exact description of the same.

Our invention relates to certain improvements in cable railways; and it consists in novel frame-work sections, by which the tube, track, and slot-irons are supported, the sections being in turn united and bound together by the track, slot-irons, and tube in such manner as to prevent the slot from opening or closing.

Referring to the accompanying drawings for a more complete explanation of our invention, Figure 1 is a perspective view of a section of our device. Fig. 2 is a side elevation of one of the frames and a transverse section of the tubes, rails, and slot-irons.

In the construction of cable railways it is important that the rails, the slot-irons through which the grip-shank passes, and the tube should be supported so that it is impossible for one to settle more than the other, this being necessary in order to hold the grip depending from the car at all times in the same relative position to the cable.

In order to provide such a construction and support and unite these parts firmly together we make the following construction:

A is a base, which may be made of flat angle-iron or T-iron, and B are similar irons, the lower ends of which are bolted or riveted near the outer ends of the base-plates A. The irons B incline toward each other at the top and approach sufficiently near to allow the slot-irons C to be fastened to them and when in place to leave a slot between them of sufficient width for the passage of the grip-shank. These irons B are sufficiently separated at the bottom to admit a tube between them of suitable capacity to receive the cable-supporting sheaves and other portions of the apparatus of a cable railway which it is necessary to place within the tube.

D D are other iron bars which cross the bars B, so as to form with them the letter X, the lower ends of the bars D being fastened to the base-plate A near each other and diverging as

they extend upward and outward to a point not quite as high as the upper ends of the bars B.

E E are bars which are bolted or riveted horizontally across the upper ends of the bars D, with their inner ends bolted or riveted to the sides of the bars B a short distance below the top. The outer ends of the horizontal bars E are so constructed as to receive the rails F, upon which the cars are to run.

When the rails are of the ordinary construction, the bars B may be made of flat or angle iron and the flanges of the rails bolted directly upon the tops of the bars E. In the present case we have shown the rails F made with a flange, G, projecting downward, so as to be bolted or riveted to the angle-plates H, which are in turn bolted to the ends of the bars B. The slot-irons C are made of angular extensions I, which project downward into the tube, diverging so as to lie parallel with the inner faces of the bars B, to the flanges of which they are fastened, as shown.

It will be seen that the bars A, B, D, and E may be made of either flat, angle, or T iron, so as to have sufficient strength and rigidity for the purpose for which they are to be used. These frames are set upon suitable foundations at distances of three or four feet apart, standing transversely to the direction of the road, and thus supporting the rails and slot-irons, which are secured to them, as before described. The tube itself may be either made of sheet metal bent around in a segment of a cylinder, as shown at J, and bolted or riveted to the bars B and D where it comes in contact with them, or it may be formed of boards or planks extending from section to section of the frame-work and riveted or bolted to the flanges of the bars B and D; or the tube may be made of any other suitable material.

When made of iron, as shown in the present case, the edges of the plates extend upward in the channels K, which are formed beneath the lower edges of the slot-irons, thus serving to form a neat finish for the whole.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a cable railway, a horizontal transverse base with parallel horizontal bars, upon

which the rails are supported, and inclined bracing-bars bolted to the base and the rail-supports, said bars crossing and being bolted or riveted to each other, substantially as herein described.

2. In a cable railway, transverse frames composed of a base-plate having upright bars secured to it upon each side of the tube-opening, said bars crossing each other, and having horizontal bars secured to their upper ends parallel with the base, in combination with longitudinal rails bolted to the outer ends of the bars to form a roadway for the cars, substantially as herein described.

3. In a cable railway, transverse supporting-frames composed of a horizontal base plate or bar, upright bars riveted to said base-plate, crossing each other, so as to form the tube outline, the upper ends of the inwardly-converging bars approaching each other and having the longitudinal slot-irons secured to them, substantially as herein described.

4. In a cable railway, transverse supporting-frames composed of upright bars having their lower ends bolted or riveted to a base plate or bar, the said upright bars crossing each other diagonally, so as to form the tube outline between them, and having the horizontal rail-supporting bars fastened at or near their upper ends, in combination with rails fastened to the outer ends of these upper bars, and slot-irons fastened to the upper ends of the inwardly-converging arms, so as to form a

continuous frame-work and road-bed, substantially as herein described.

5. In a cable railway, transverse frames composed of horizontal base plates or bars and upright bars crossing each other diagonally, fastened together, so as to form a tube outline between them, in combination with a metal, wooden, or other suitable lining extending longitudinally between the frames and bolted or otherwise secured thereto, substantially as herein described.

6. In a cable railway, transverse supporting-frames composed of horizontal base plates or bars and parallel horizontal rail-supporting bars united to the base-plates and supported by diagonal bars crossing each other and bolted or riveted to the horizontal bars, in combination with angle-plates H, riveted to the outer ends of the bars E, and the rails F, with flanges G, substantially as herein described.

7. The slot-irons C, having the diverging flanges, and secured to the converging upright bars of the transverse frames, said flanges having the offsets or channels in their lower ends to receive the upper edges of the tube, substantially as herein described.

In witness whereof we have hereunto set our hands.

JOEL B. LOW.

ABRAHAM K. GRIM.

Witnesses:

I. M. LIVINGSTON,

J. GLASSMAN.