

(No Model.)

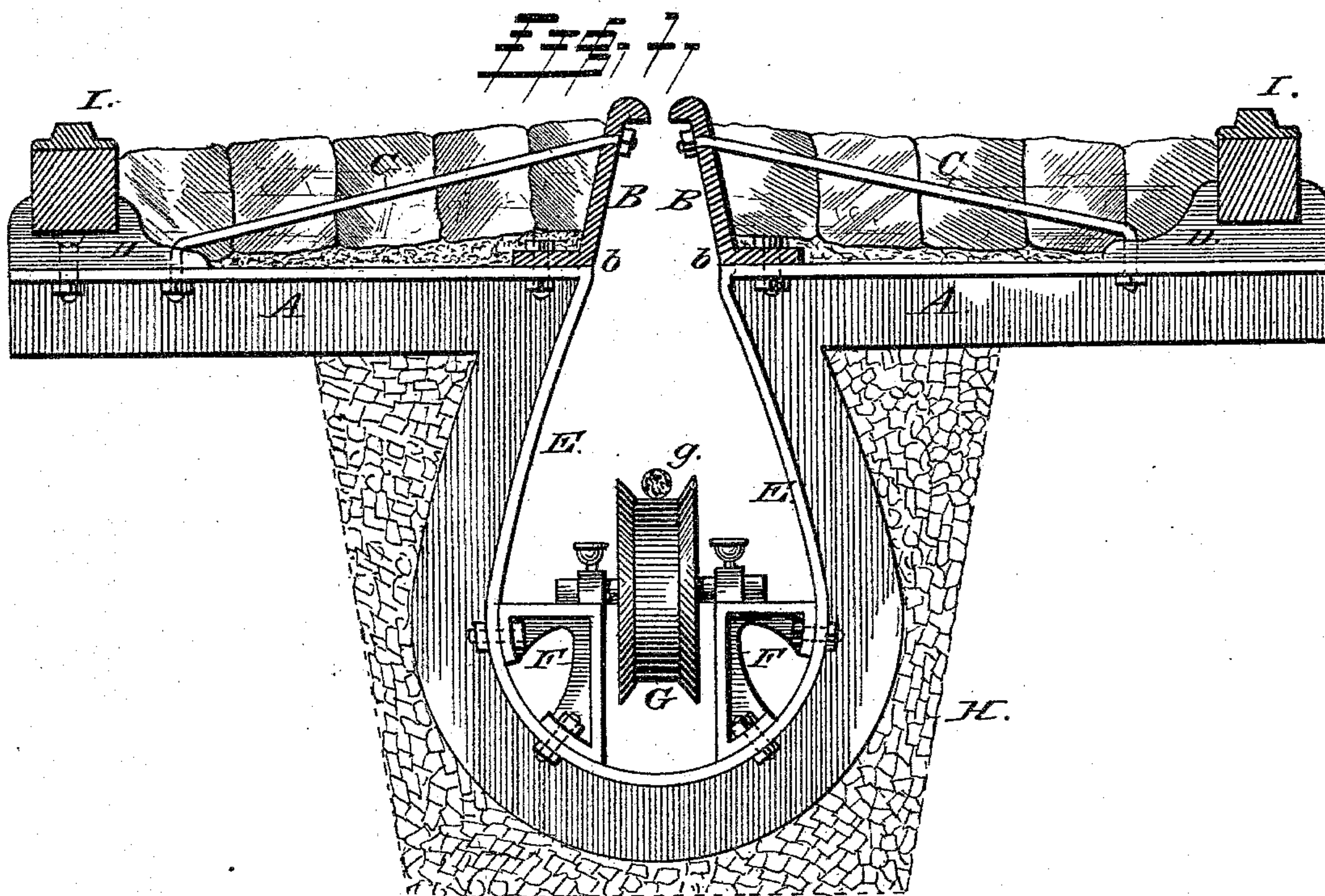
2 Sheets—Sheet 1.

Z. P. BOYER.

CONDUIT FOR TRACTION ROPE RAILWAYS.

No. 296,667.

Patented Apr. 8, 1884.



WITNESSES:

*Frederick S. Dieterich*  
*W. I. King*

INVENTOR.

*Maxwell Hall Boyer*,  
By *Wm. H. Moore*,  
ATTORNEY.



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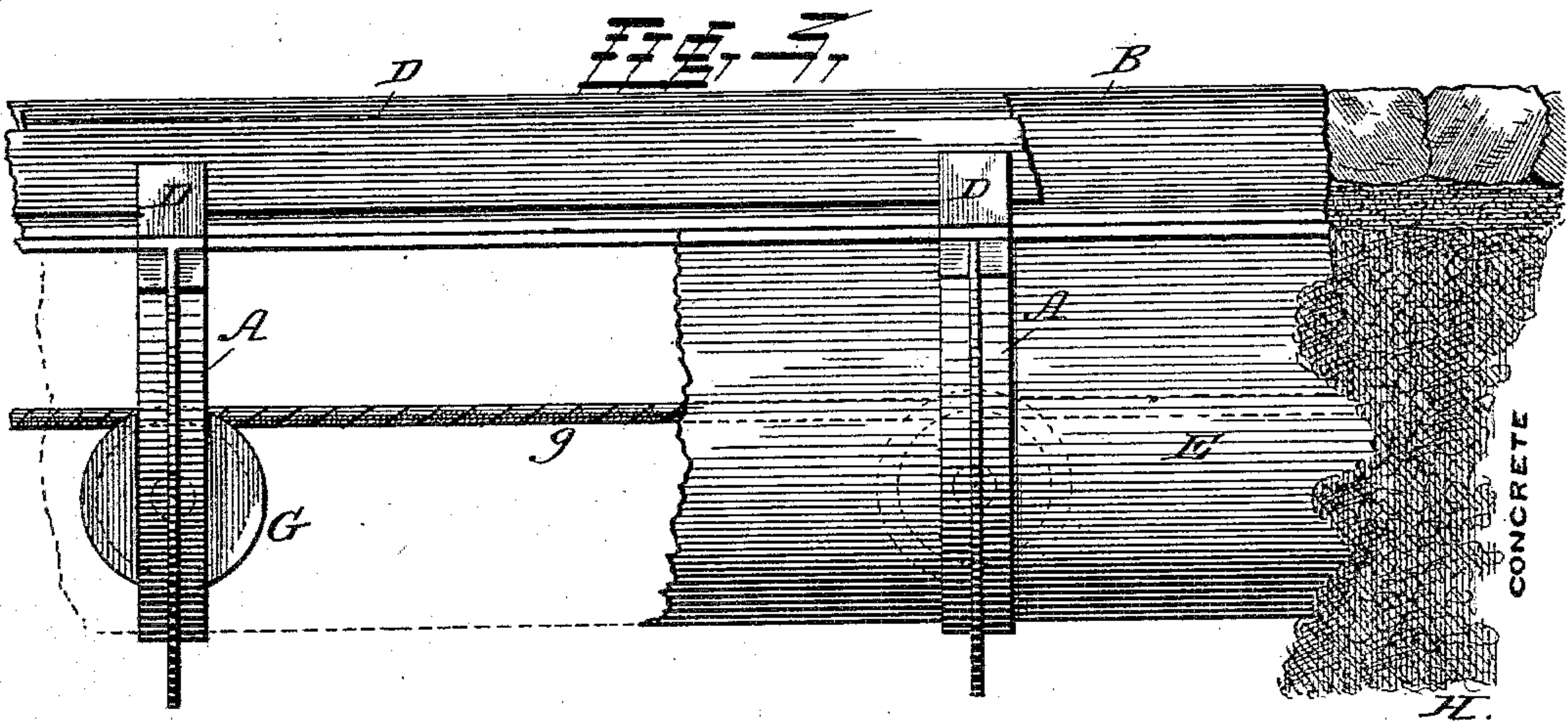
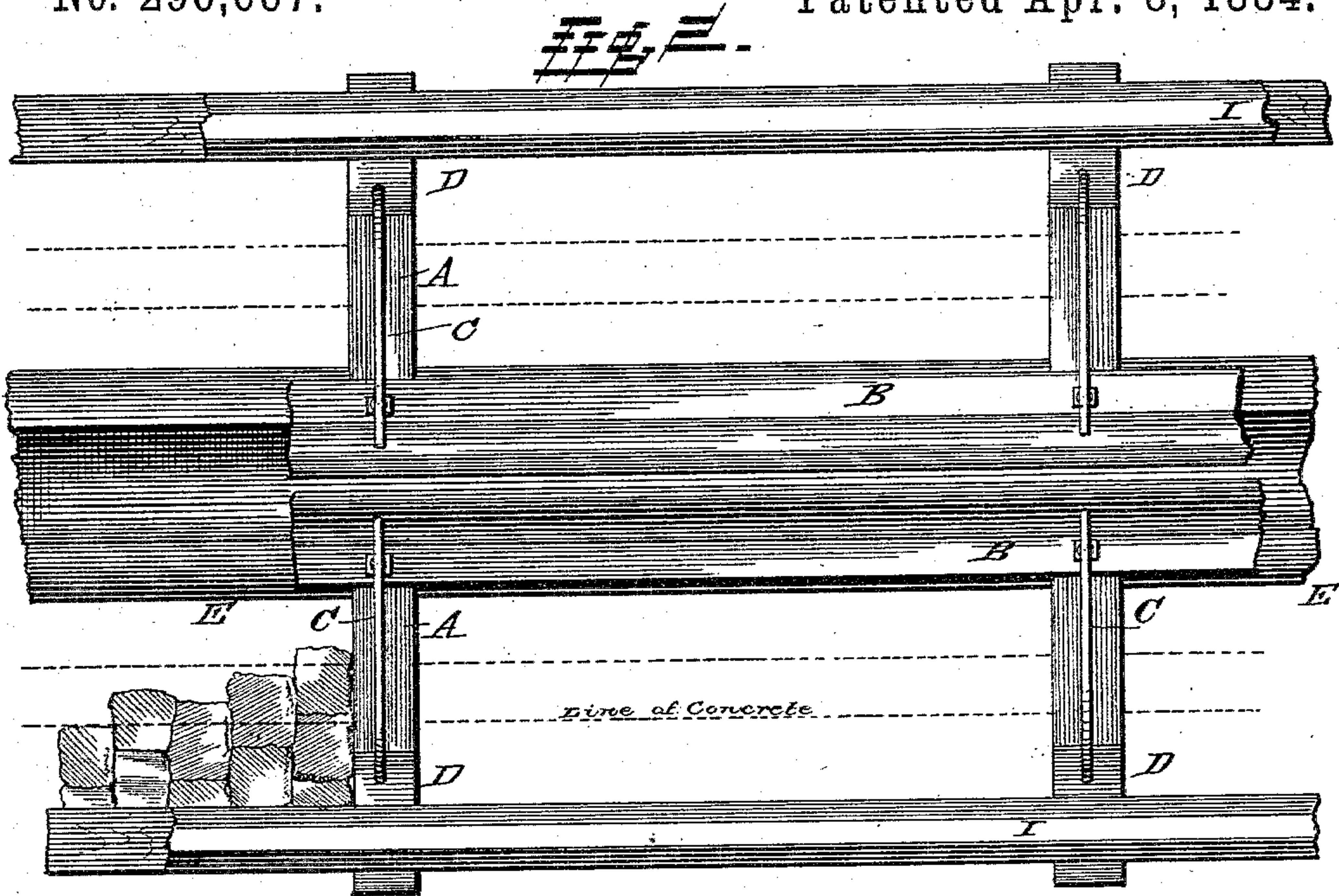
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# UNITED STATES PATENT OFFICE.

ZACCUR PRALL BOYER, OF PHILADELPHIA, PA., ASSIGNOR TO THE UNITED STATES CABLE MOTOR CONSTRUCTION COMPANY, OF NEW JERSEY.

## CONDUIT FOR TRACTION-ROPE RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 296,667, dated April 8, 1884.

Application filed February 25, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, ZACCUR PRALL BOYER, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Conduits for Traction-Rope Railways; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

Heretofore in systems of conduits or tubes used for the purpose of traction-rope or endless-cable railways there have been certain objections—viz., the vast expense of placing the same in the ground in working order; the difficulty of maintaining the sides so rigidly in position as to check the tendency to collapse, and thus narrow the slot or continuous opening through which passes the rod connecting the car with the cable; the liability of the rails to spread for lack of being sufficiently braced; the tendency of the conduit to become depressed in places where the foundation was not quite firm, and the liability of horses' shoes to get caught in the sharp angled slotted opening.

The objects of my invention are, by means of a comparatively cheap method of construction of the conduits and their appurtenances and the employment of a system of rigid braces, to obviate all such objections and overcome all lateral strains. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical cross-section at the point of contact of two sections of a conduit or tubing. Fig. 2 is a plan view. Fig. 3 is a longitudinal vertical section of the same, showing the tubing externally, and, where the same is broken away, the construction and operation of the rolling apparatus.

Similar letters refer to similar parts throughout the several views.

A is a rolled girder, of heavy iron or steel, preferably constructed of a T-rail bent into a form approaching that of a horseshoe, with wings extending horizontally therefrom nearly at a right angle, and to and beneath the chairs D, on which rest the sills of track I, said wings

being the support of other parts of the superstructure.

B B are continuous rolled iron or steel beams bolted and screwed or otherwise fastened by commonly-known means and rigidly secured to the upper flange of the yoke A, as shown at the angle *b*, and the said beams being constructed, as shown and placed at such a uniform distance apart that the rod or arm of the grip connecting the car with the endless wire cable may glide along through the slotted opening without difficulty.

C C are iron or steel rods penetrating beams B B, and connecting them to the chairs D D, which chairs are bolted to the yoke, as well as at the other end, and thus serve to rigidly secure the track sills and rails to the yoke.

E E represent a tubing formed of wrought-iron or steel plates of any desired thickness, or of vitrified clay, of brick, or other materials suitable for the protection of a traction-cable system.

F F are cast-iron supports or brackets for the sheaves of pulleys on which the cable runs, which supports are bolted and secured to the yoke A, being made to conform to the curvature of the yoke A at the points where secured.

G represents the pulley, and *g* the cable running thereon. It will readily be understood that the journals of the pulleys shall be kept lubricated by means of oil-cups, as commonly used.

H H represent a bed of concrete in which the whole structure is firmly set to the under surface of the upper flange of the yoke A, and on the concrete is placed a layer of sand of sufficient thickness to receive the paving of the roadway.

I I are the rails on which roll the wheels of the cars. At suitable distances apart there may be man-holes, as in other systems.

Having sufficiently described my improvements, what I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In a conduit for a traction-rope or endless-cable railway, the iron or steel yoke A, of the form approximately of a horseshoe, and having wings extending horizontally therefrom at nearly a right angle, forming level



bearings, as at *b*, adapted to receive and support the metallic beams B B, said yoke being rigidly held in position by means of concrete, H, all constructed substantially as set forth 5 and described.

2. In conduits for traction-rope or endless-cable railways, yoke A, formed of a single T-rail, or any single rail of iron or steel of the shape shown, bent into the form described, for 10 the purpose of encompassing the walls or sides of the conduit or tubing, and also to serve for rigidly holding in position beams B B, chairs D D, and supports F F, constructed and arranged substantially as specified.

3. In a conduit for a traction-rope or endless 15 railway, the combination and arrangement of yoke A, constructed of wrought metal, as described, with wings extending horizontally therefrom at nearly a right angle, and forming bearings *b*, beams B B, connecting-rods C 20 C, and chairs D D, all operating substantially as set forth and described.

ZACCUR PRALL BOYER.

Witnesses:

JOHN LOCKHART,  
ROBERT W. DAVIS.