

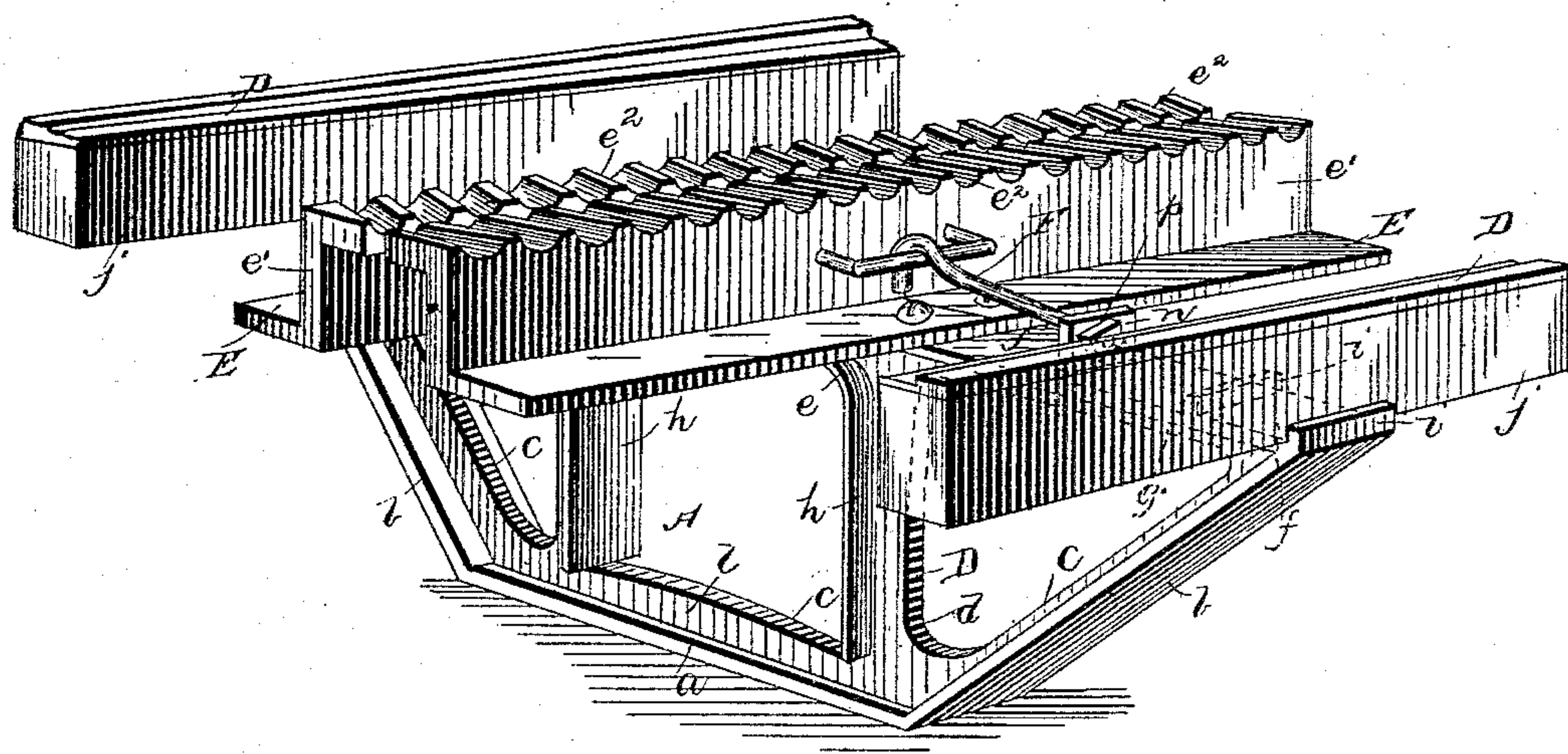
(No Model.)

G. B. BRYANT & E. D. DOUGHERTY.

CABLE RAILWAY.

No. 318,950.

Patented June 2, 1885.



WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE B. BRYANT AND EDWARD D. DOUGHERTY, OF PHILADELPHIA, PA.

CABLE RAILWAY.

SPECIFICATION forming part of Letters Patent No. 318,950, dated June 2, 1885.

Application filed August 28, 1884. (No model.)

To all whom it may concern:

Be it known that we, GEORGE B. BRYANT and EDWARD D. DOUGHERTY, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Cable Railways; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to an improvement in cable railways, the object being to so construct the angle-irons between which the gripper travels that all danger of horses slipping thereon will be obviated; and with this end in view our invention consists in certain novel features of construction and combinations of parts, as will be hereinafter fully described, and pointed out in the claims.

The accompanying drawing represents a view in perspective of our improvement.

A represents one of the brackets, said bracket consisting of a base, *a*, from the ends of which extend the inclined supports *b*, the said base and inclined supports being centrally provided with a flange, *c*, to increase the strength thereof. This flange *c* is extended upwardly from the base and formed into vertical supports *d*, the upper ends of which are arched, as shown at *e*.

From the upper ends of the supports *b* extend the horizontal pieces *f*, which are also centrally provided with a flange, *g*, and are connected with the upper curved ends of the supports *d*, which latter are provided with flanges *h* on either side thereof, to which are bolted the sections of tubing. (Not shown.)

On the upper horizontal pieces *f*, and at the outer ends thereof, are formed the upwardly-extending flanges *i*, between which are located the beams *j*, to which latter are bolted the rails *D*, of any desired construction, the bolts securing the rails to the beams passing through the latter, and also the horizontal pieces *f*, thereby securely holding the beams in their proper positions. Brackets of this construction are very strong and stiff, and calculated to withstand the pressure of the earth against them, which has a tendency to close together the upper ends of the inner supports, and also the angle-irons secured to the supports.

By constructing the bracket as above described, the inclined supports *b* resist all inward pressure of the earth, the tendency of the weight, in this case, on the supports and on the rails being to force apart the upper ends of the supports *b*, a great portion of the strain coming on the center of the base. In order to prevent breakage at this point, we have thickened the metal, as shown at *l*, thereby greatly adding to the strength of the bracket at this point. These brackets are preferably made of cast-iron, and are formed in one piece, thereby adding to its strength, and materially lessening the cost and trouble in manufacturing the same.

To the inner ends of the horizontal pieces *f* are bolted the angle-irons *E*, flanges *m* being formed on said inner ends of the pieces *f*, against which fit the angle-irons, the flanges serving to assist in keeping the irons in position. These irons are so arranged that the ends of the irons on opposite sides meet on different brackets, in order that a smooth track will always be opposite a joint in the opposite iron and prevent the gripper from getting caught between the irons. These irons *E* are preferably chilled, thereby adapting them to withstand the constant wear caused by the frictional contact of the gripper passing between them. The upper flange or top *e'* of each of the irons is corrugated, as shown at *e'*, the corrugations being formed at an angle with the edge of the iron, and so formed that the corrugations of the two rails will be at an angle with each other. By thus corrugating the tops of the rails the broad smooth surface is not presented, and thus the danger of horses slipping thereon is overcome.

In order to allow dirt or ice or snow to be easily and readily forced out of the corrugations, the latter are formed U-shaped, they in this instance more readily allowing foreign substances to escape.

On the horizontal pieces *f* are formed the upwardly-extending lugs *n*, provided with holes, through which pass the outer ends of the rods *F*, provided on their ends with nuts *p*, the inner ends of the rods being secured to the irons. By means of these rods the irons may be pulled apart or forced toward each other, as desired. When the ends of two irons are brought together, they are yoked together, and the end of the rod *F* secured to

the yoke, thereby permitting the rod to pull both rails simultaneously. By securing the ends of the rods on the horizontal pieces *f*, they are easily reached, and avoid the necessity of tearing up the ground to manipulate the rods.

We would have it understood that we lay no broad claim on the construction of the bracket as described in this application, as it forms the subject-matter of a separate application filed by the aforesaid George B. Bryant July 31, 1884.

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

1. In a cable railway, angle-irons forming a groove for the travel of the gripper, and having their upper surface provided with slanting corrugations, substantially as set forth.

2. In a cable-railway, angle irons forming a groove for the travel of the gripper, and having their upper surfaces provided with U-shaped corrugations.

3. In a cable railway, the combination, with suitable bracket or support, of angle-irons secured thereto and forming a groove for the travel of the gripper, said irons having their upper surfaces provided with slanting U-shaped corrugations, substantially as set forth.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

GEORGE B. BRYANT.

EDWARD D. DOUGHERTY.

Witnesses:

CHAS. MATHEWS, Jr.,

ELI HESS.