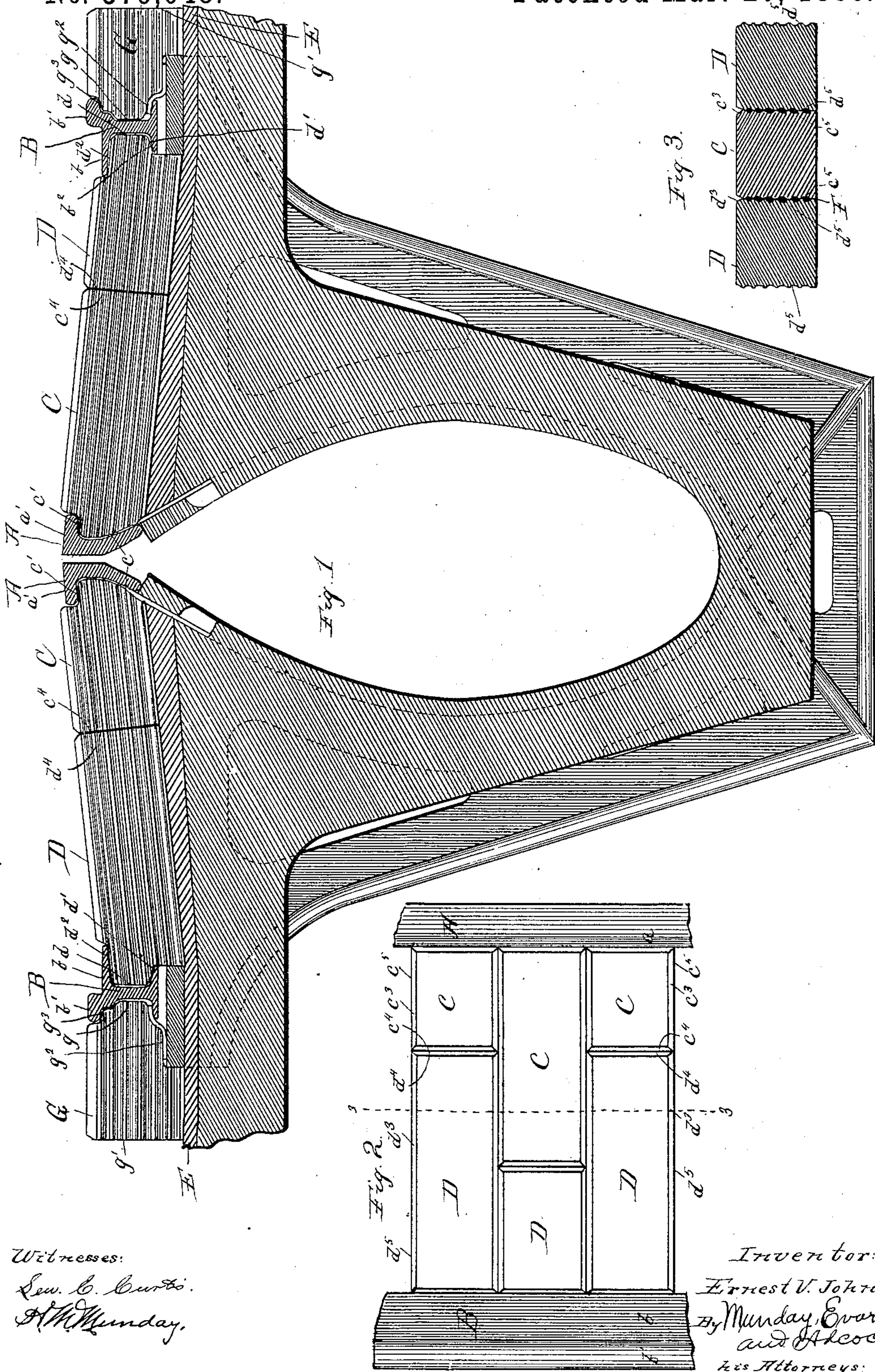


(No Model.)

E. V. JOHNSON.
CABLE RAILWAY.

No. 379,648.

Patented Mar. 20, 1888.



Witnesses:
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UNITED STATES PATENT OFFICE.

ERNEST V. JOHNSON, OF CHICAGO, ILLINOIS.

CABLE RAILWAY.

SPECIFICATION forming part of Letters Patent No. 379,648, dated March 20, 1888.

Application filed September 29, 1887. Serial No. 251,068. (No model.)

To all whom it may concern:

Be it known that I, ERNEST V. JOHNSON, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Cable Railways, of which the following is a specification.

My invention relates to cable railways, and more particularly to the pavement between the rails by which in part the rails are supported or braced, and the groove-rails and the wheel or track rails kept in proper relation to each other.

In cable railways great difficulty has heretofore been experienced in properly supporting and keeping the two groove-rails in position in respect to each other, and also in keeping the paving-blocks between the groove-rails and track-rails in place. Owing to the narrowness of the space between the track-rails and the groove-rails there is not sufficient room to give requisite lateral strength and body to the pavement to keep the blocks tight and prevent their becoming loose and being kicked up; and the track-rail and groove-rail are both ordinarily provided with flat or horizontal overhanging flanges, against the edges of which flanges the paving-blocks have their lateral bearing, while a vacant space is left beneath the flange of the rail, so that little or no support is given to the rails by the paving-blocks. This vacant space or cavity beneath the flange of the rail also affords room for the tamping or filling material between the paving-blocks to get into, and thus tends to loosen the blocks. Attempts have been made to fill in this cavity beneath the flange of the rail with cement, concrete, or wet sand, and thus give a somewhat better lateral bearing to the paving-blocks; but it is not satisfactory, and often falls out even before the blocks can be put down. Sometimes, also, hard wood strips have been bolted to the rails.

It is the object of my invention to provide a cable railway of a simple, cheap, durable, and efficient construction, which will obviate these difficulties and give a firm support to the track and groove rails.

To this end my invention consists in the novel devices and novel combinations of de-

vices herein shown and described, and more particularly pointed out in the claims.

In the accompanying drawings, which form a part of this specification, and in which similar letters of reference indicate like parts, Figure 1 is a vertical cross-section of a cable railway embodying my invention. Fig. 2 is a top or plan view of a short portion of the way, and Fig. 3 is a vertical section on line 3 3 of Fig. 2.

In said drawings, A A represent the groove-rails; B, the track-rails; $a' a'$, the flanges of the groove-rails, and $b b'$ the flanges of the track-rails upon which the wheels run.

C C are paving-blocks, preferably made of vitrified burnt clay, having inclined ends c to fit the vertically-inclined portion of the groove-rails, and channels c' to fit the flange a' of the groove-rail. D D are similar paving-blocks, having a vertical end, d , to fit the vertical web of the rail B, a cut-away or channeled under corner, d' , to fit the bottom or base flange b^2 of said rail, and an upper grooved or cut-away corner, d^2 , to fit the upper flange, b , of said rail B.

E is the usual bed, of sand or like material, upon which the paving-blocks directly rest. The upper side corners, $c^3 d^3$, are beveled or cut away to form holding-grooves for the horses' feet. The blocks C D have vertical ends $c^4 d^4$ which fit together. The usual packing or filling material, of gravel and tar or other substance, is forced between the blocks at their ends to spread them slightly apart at their adjoining ends and cause the molded rail-fitting ends to bear snugly against the rails A B. The blocks C C are made alternately short and long blocks, the short blocks being ordinarily about nine inches long, while the longer ones are thirteen inches in length; and the blocks D D are likewise divided alternately into short and long ones, so that the meeting ends of the blocks C D will break joints. If desired, the blocks may be made still shorter and more than two employed to reach between the rails. I prefer, however, to make them long enough, so that two blocks will reach the whole distance.

In building the railway the rails A B are of course both secured in place before the pav-

ing-blocks are put down, and the paving-blocks are put in place, with their projecting ends c d fitting under the flanges of the rails, by slipping the blocks, one at a time, lengthwise of the rail into place.

The outer flange, b' , of the rail B is or may be likewise supported by a paving-block, G, the end g of which is molded to fit the cross-section of the rail, the same having a vertical end, g' , cut away under corner, g^2 , and channeled upper corner, g^3 .

By means of the paving-blocks C and D, having their outer ends molded to fit the cross-section of the rails A B, the flanges of the rails are supported, and the paving-blocks themselves are securely locked in place, so that there is no possibility of their being kicked up or loosened.

I ordinarily make the blocks of vitrified clay, because the clay may be readily molded to fit the cross-sections of the rails. They may, however, be made of asphalt or cement, or other suitable material.

The sides c^5 d^5 of the molded blocks C C and D D are scoriated, roughened, or corrugated so that the hot or molten filling material F will, when it hardens, serve to secure the blocks more thoroughly together and cause them to mutually support each other.

I claim—

1. The combination, in a cable railway, of groove-rails A, having flanges a' , with track-rails B, having flanges b , burnt-clay blocks C, having inclined ends c , to fit the inclined portion of said rail A, and channel c' , to fit the flange of said rail, and burnt-clay paving-

block D, having end d , to fit the vertical web of said rail, channeled lower corner, d' , to fit the base-flange of said rail, and a channeled upper corner, d^2 , to fit the upper flange, b , of said rail, substantially as specified.

2. The combination, in a cable railway, of groove-rails A, having flanges a' , with track-rails B, having flanges b , burnt-clay blocks C, having inclined ends c , to fit the inclined portion of said rail A, and channel c' , to fit the flange of said rail, and burnt-clay joining-block D, having end d , to fit the vertical web of said rail, channeled lower corner, d' , to fit the base-flange of said rail, and a channeled upper corner, d^2 , to fit the upper flange, b , of said rail, and burnt-clay paving-block G, having molded end g , to fit the vertical web of said rail B, channeled lower corner, g' , to fit the base-flange of said rail, and channeled upper corner, g^2 , to fit the upper flange, b' , of said rail, substantially as specified.

3. The combination, in a cable railway, of groove-rails A, with track-rails B, having flanges b , burnt-clay paving-blocks C, having inclined ends c , to fit the inclined portion of said groove-rail A, and burnt-clay paving-blocks D, having end d , to fit the vertical web of said track-rail, channeled lower corner, d' , to fit the base-flange of said rail, and a channeled upper corner, d^2 , to fit the upper flange, b , of said rail, substantially as specified.

ERNEST V. JOHNSON.

Witnesses:

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