



# UNITED STATES PATENT OFFICE.

WARREN DUNHAM, OF IGO, CALIFORNIA.

## CABLE-RAILWAY CHANNEL.

SPECIFICATION forming part of Letters Patent No. 375,480, dated December 27, 1887.

Application filed July 6, 1887. Serial No. 243,580. (No model.)

*To all whom it may concern:*

Be it known that I, WARREN DUNHAM, of Igo, county of Shasta, State of California, have invented an Improvement in Cable-Railway Channels; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of cable-railways, and especially to the conduits or channels thereof, in which the traveling cable is contained.

My invention consists in hinged flaps or lids covering the grip-slot of the channel-way and in their peculiar construction and arrangement.

My invention further consists in the construction of the channel or conduit and the braces for holding it, all of which I shall hereinafter fully describe.

The objects of my invention are to exclude snow, dirt, and other débris from the channel and to provide a simple and effective channel or conduit for the cables of cable railways.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view of my channel, showing a break in the road-bed to better illustrate it. Fig. 2 is a vertical cross-section of same. Fig. 3 is a detail of the bolt E and the socket and slit in the channel-plate *e'*.

A are the cross-ties of a roadway, and B B are the rails.

C is the channel or conduit for the wire rope, (unnecessary herein to show,) and D D are the flaps or lids which cover the slot *c* of the channel-way. These lids are hinged at their outer edges to the edges of the channel-way, and they swing through vertical arcs, their inner edges meeting when lying in a horizontal plane and separating when moving upwardly. When in a horizontal plane, they rest on the top of the channel-way, so that wagons may drive over them freely, and they cover the slot *c* effectually, preventing snow, dirt, and other foreign matter from getting in the channel-way. In order that the flaps or lids may move readily on their hinges, I construct their outer edges with rounded beads *d d*, forming bearings on which they turn, and I hinge them on hook-shaped straps *d' d'*, which pass through slots in the flaps and in the top of the channel, and have their outer ends secured to the chan-

nel-plates by means of bolts *d'* taking nuts *d''*. Though these flaps or lids are applicable to any form of channel-way, tube, tunnel, or conduit in which the cable travels, I have shown them in connection with a novel channel-way. It consists of two parallel irons or plates, *c' c'*, similar in cross-section to a T-rail with the inner flange of its foot and the outer flange of its top wanting. These plates are spiked down to the ties A, as usual, and are held to place by means of bolts E. These bolts have on their inner ends spaced collars *e* separated by a flattened portion, *e'*. The end collar passes through a hole, *e''*, and the flat portion *e'* drops down in a slit *e''* at the base of the hole, so that the bolt is firmly secured to the plate, being held by its two collars, one within and the other without. The other end of the bolt passes through the web of the rail B, and is secured by nuts *e''*, one on each side of the web. These bolts hold the channel-plates solidly, and by properly setting up the nuts *e''* said plates may be trued up when for any reason they get out of place.

Within the base of the channel-way, and serving as a bottom therefor, is a plate, F, which renders it easy to clean out any matter which may find its way in.

I need not herein describe the means I intend to employ to raise the flaps or lids D D for the passage of the grip, but that they may not appear inoperative I will say that they are raised as the grip approaches, so as to permit it to pass as it is carried along by the cable, and they are let down after it has passed, so that they do not impede the general operation of the road.

Having thus described my invention, what I desire to secure by Letters Patent is—

1. In combination with a channel-way or conduit having a slot in its top, flaps or lids hinged by the outer edges to the top of the channel-way, and having their meeting edges over the slot therein, whereby it is covered, substantially as described.

2. A channel-way composed of parallel spaced plates having inwardly-projecting top flanges forming a slot between them, in combination with flaps or lids having rounded or beaded outer edges on which they turn on the top flanges of the channel-plates, and hook-shaped straps secured to the channel-plates

and passing through slots in the flaps or lids, whereby the latter are hinged to the channel-plates and guided in their movements, substantially as herein described.

5 3. A channel-way or conduit composed of parallel spaced plates secured to the cross-ties having slits in their sides, and inwardly-projecting top flanges forming a slot, in combination with the rails B B, and the bolts E, passing through the channel-plates and rails, and  
10 provided with flat portions *e'* and collars *e*, whereby said bolts are secured to the plates, substantially as herein described.

4. The channel-plates *e' e'*, having holes with

slits in their sides, and the rails B B, in combination with the bolts E, having on one end fixed collars, by which they are secured to the channel-plates, and on the other end nuts, by which they are secured and may be adjusted in the web of the rail, substantially as herein  
20 described.

In witness whereof I have hereunto set my hand.

WARREN DUNHAM.

Witnesses:

C. D. COLE,

J. H. BLOOD.