

(No Model.)

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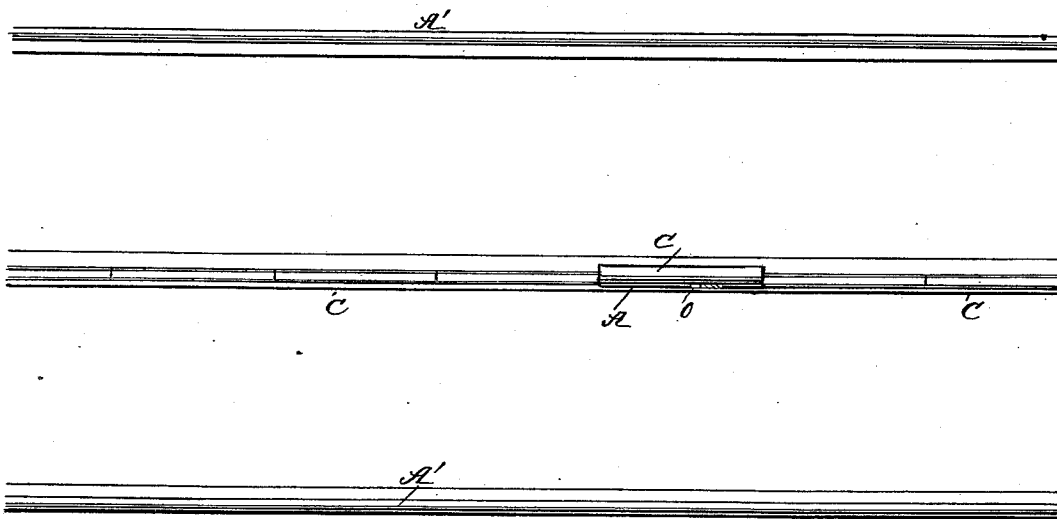
G. W. HIGGINS.

AUTOMATIC COVER FOR CABLE RAILWAY SLOTS.

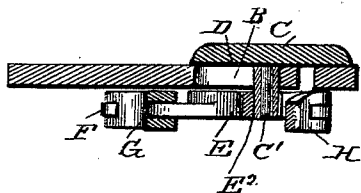
No. 420,233.

Patented Jan. 28, 1890.

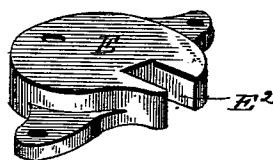
*Fig. 1.*



*Fig. 4.*



*Fig. 5.*



WITNESSES:

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(No Model.)

2 Sheets—Sheet 2.

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AUTOMATIC COVER FOR CABLE RAILWAY SLOTS.

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Fig. 2.

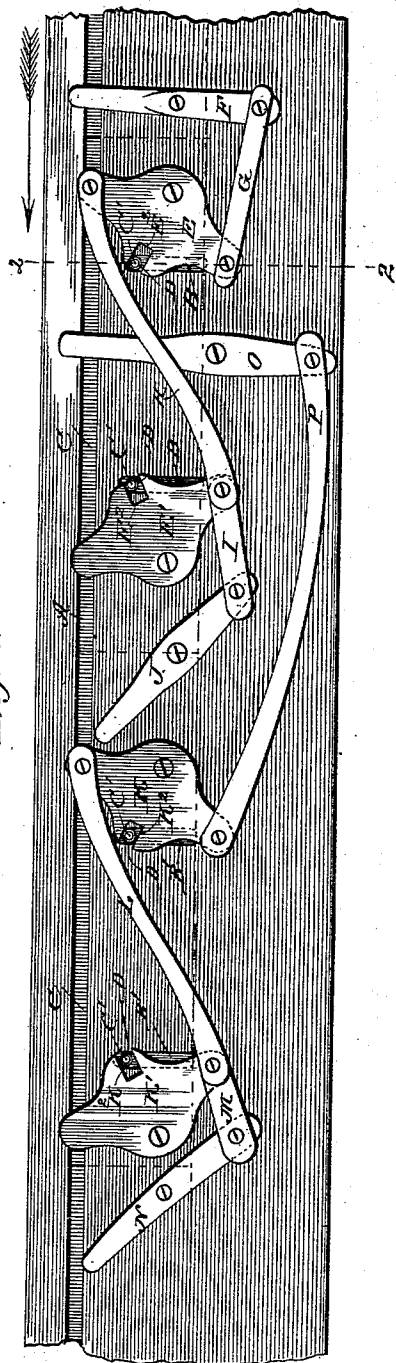
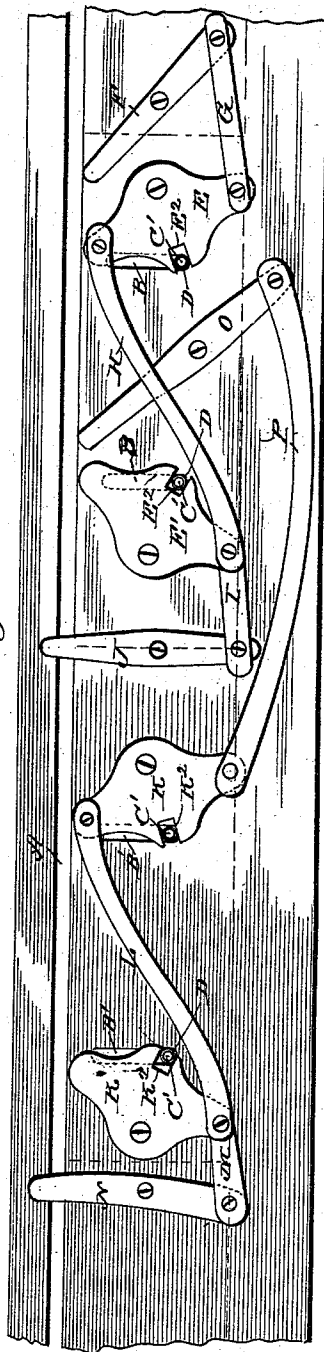


Fig. 3.



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# UNITED STATES PATENT OFFICE.

GEORGE W. HIGGINS, OF BUNKER HILL, KANSAS.

## AUTOMATIC COVER FOR CABLE-RAILWAY SLOTS.

SPECIFICATION forming part of Letters Patent No. 420,233, dated January 28, 1890.

Application filed June 10, 1889. Serial No. 313,766. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. HIGGINS, of Bunker Hill, in the county of Russell and State of Kansas, have invented a new and useful Improvement in Automatic Covers for Cable-Railway Slots, of which the following is a specification.

My invention consists in a new and improved automatic cover for cable-railway slots, which will be hereinafter fully described and claimed.

Referring to the accompanying drawings, Figure 1 is a top plan view. Fig. 2 is a bottom plan view of the cover-actuating devices. Fig. 3 is a similar view showing the slot open. Fig. 4 is a section on the line 2 2, Fig. 2. Fig. 5 is a detail view.

The same letters of reference indicate corresponding parts in all the figures.

My invention consists more particularly in an automatic cover for the slot of a cable railway through which the grip-shank passes, which will keep the slot covered along the entire length of track, except immediately at the point where a car is passing. By thus automatically keeping the slot covered I prevent accidents from carriage-wheels dropping into the slot or of horses catching their shoes in the slot, &c., and also cover and protect the slot from being choked with ice, snow, &c., and prevent stones or other obstructions from lodging in and blocking the slot, tube, or tunnel below, thereby preventing serious accidents to the cable cars themselves, which have heretofore occurred from this source, and also the expense of cleaning.

Referring to the several parts by letter, A indicates the slot in the center of a cable railway, through which the gripper-arm from a car passes to grip the moving cable below in the well-known manner. The cars travel along the rails A' A' in the direction indicated by the arrow. At one side of the central slot A are formed the transverse slots B B' B'. The cover for the slot A is made in sections C, which are provided with the downwardly-projecting pivot-pins C', which pass down through the transverse slots B and have sleeves D upon them which serve to reduce friction.

Beneath and a little to one side of the first pair of slots B B in the drawings are pivoted

the cams E E', which are pivoted at one side, and are formed at the opposite side each with a slot E<sup>2</sup>, which extends immediately beneath the slot B, the lower ends of the pins C' of that cover-section C fitting in said cam-slots.

In advance of the first cam E is centrally pivoted a lever F, the rear end of which is pivotally connected by a link G with the rear end of the cam E, while the front end of cam E is pivotally connected by a lever H with the rear end of the second cam E', and the rear end of this cam is pivotally connected by a link I with the rear end of a lever J, which is centrally pivoted back of the second cam E'. These levers and connecting-links are of such length and so arranged that when the first cover-section is slid over the slot A the free end of the first centrally-pivoted lever F will extend completely across the under side of the slot A, while the rear lever J will be turned until its free end is clear of the slot A, the movement of the covers, sections, and levers being limited by the pins C' coming in contact with the ends of the slots B. It will be seen that as a car, moving in the direction indicated by the arrow, arrives at the first cover-section in the drawings the grip-shank, coming in contact with the free end of lever F, will push the said end to one side clear of the slot, thus, through the connecting-links and lever, turning the pivoted cams so as to draw the cover-section to one side by its downwardly-projecting pins C' clear of the slot A, at the same time turning the free end of the lever J across the slot A. As the grip-shank reaches the rear end of the cover-section, it touches and pushes aside the free end of lever J, turning the cams back to their first position and sliding the cover-section back over the slot.

Beneath the second pair of transverse slots B' B' are pivoted cams K K', having slot K<sup>2</sup>, the front end of cam K being pivotally connected by a lever L with the rear end of cam K', and the rear end of this cam K' is pivotally connected by a link M with the rear end of a centrally-pivoted lever N.

The above-described parts are exactly similar to the cams, links, and levers before described for automatically operating the first cover-section.

The lever O for the mechanism of the sec-

ond cover-section is centrally pivoted between the cams E and E', as shown, and its rear end is pivotally connected by a lever P with the rear end of the cam K.

5 In operation, the cover-sections being over the slots, the grip-shank of an approaching car first pushes back the lever F, thus sliding the first section to one side clear of the slot and turning the free end of the rear lever J across the slot A. The grip-shank then comes in contact with the free end of lever O, pushing it to one side and turning the pivoted cams K and K', through their levers and connecting-rods, so as to slide the second cover-section to one side clear of the slot A, as will be readily understood, at the same time turning the free end of lever N across the slot A. As the grip-shank reaches the rear end of the first cover-section it touches and pushes 20 to one side the free end of the centrally-pivoted lever J, which, through the connecting-links and levers, slides the first cover-section back over the slot A, turning the end of lever F across the slot, ready for the next car. 25 When the grip-shank reaches the rear end of the second cover-section C, it comes in contact with the free end of lever N, pushing it back clear of the slot and, through the connecting-links and levers and cams, sliding the second cover-section back over the slot A, at the same time turning the free end of lever O between the cams E E' across the slot A, as before.

35 From the foregoing description, taken in connection with the accompanying drawings, the construction, operation, and advantages of my invention will be readily understood.

It will be seen that my automatic cover is

simple and strong in construction and exceedingly efficient in its operation. All the 40 movements are positive, there being no springs, &c. It will also be seen that the entire slot of a road of any length can be covered by my automatic cover-sections, the first centrally-pivoted lever of each section 45 being pivoted between the cams of the preceding section, and the entire slot will be kept covered, except where a car is passing, the device working entirely automatic and requiring no attention from the trainmen and 50 others.

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

1. An automatic cover for cable-railway 55 slots, consisting of the cover-sections having pins projecting downward through transverse slots, the pivoted slotted cams, the links, and the pivoted levers, substantially as set forth.

2. The combination, with a cable-railway 60 slot, of the transverse slots, the cover-sections having the downwardly-extending pins, the pivoted slotted cams, the connecting-links, and the pivoted levers, substantially as set forth. 65

3. The combination, with a cable-railway slot, of the transverse slots, the cover-sections provided with the downwardly-extending pins having the sleeves mounted on them, the pivoted slotted cams, the connecting-links, and 70 the pivoted levers, substantially as set forth.

GEORGE W. HIGGINS.

Witnesses:

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