(No Model.)

F. W. GREMMELS.

GRIP SLOT CLOSER.

No. 523,636. Patented July 24, 1894.

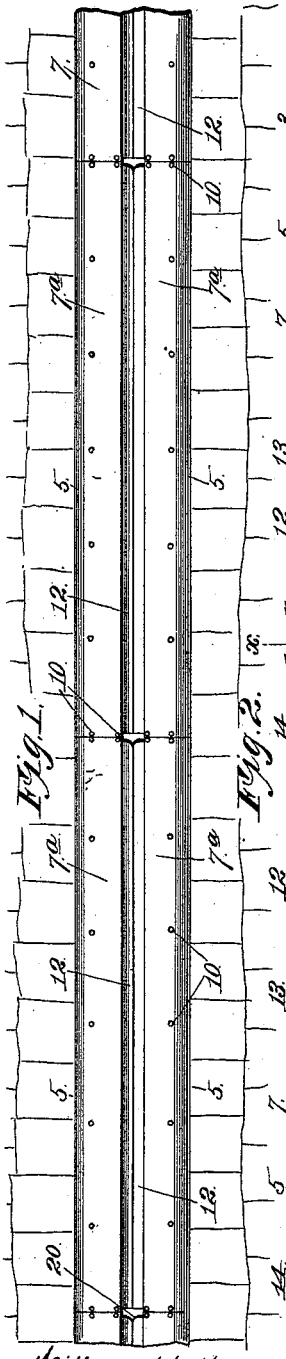

Fig. 1.

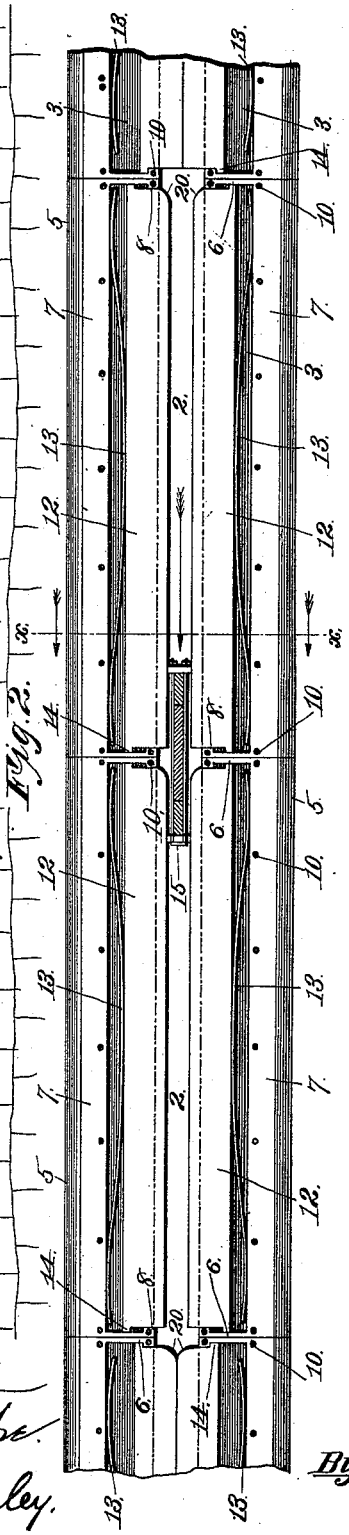

Fig. 2.

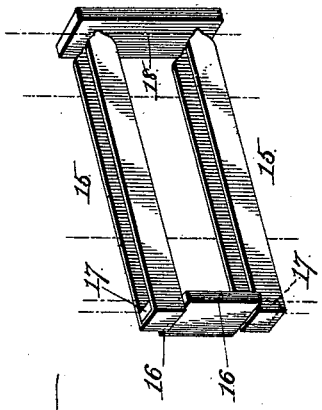

Fig. 4.

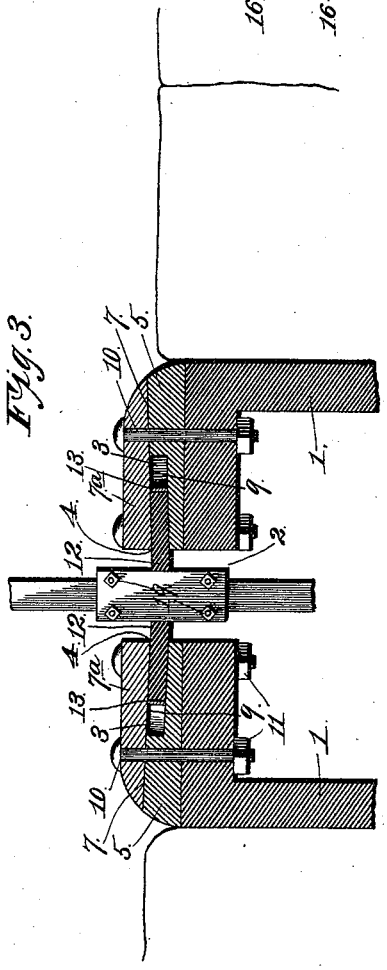

Fig. 3.

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UNITED STATES PATENT OFFICE.

FREDERICK W. GREMMELS, OF KANSAS CITY, MISSOURI, ASSIGNOR OF ONE-HALF TO ANDREW HAMILTON, OF SAME PLACE.

GRIP-SLOT CLOSER.

SPECIFICATION forming part of Letters Patent No. 523,636, dated July 24, 1894.

Application filed March 17, 1894. Serial No. 503,984. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. GREMMELS, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Grip-Slot-Closing Devices for Cable Railways, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to cable-railway construction, and particularly to means for closing the grip-slot at all points in advance and in rear of a car, and the object of the invention is to provide a slot-closer which is practical; which is simple, strong, durable, and inexpensive of construction; which will not easily get out of order, and which may be easily, cheaply and expeditiously repaired when necessary or desirable.

With these and other objects in view, as hereinafter appears, the invention consists in certain peculiar and novel features of construction and combinations of parts, as hereinafter described and claimed.

In order that the invention may be fully understood, reference is to be had to the accompanying drawings, in which—

Figure 1. represents in plan view, a grip-slot cover, constructed in accordance with my invention. Fig. 2. is a similar view enlarged, with the top or retaining plates removed, and showing certain of the cover-plates yielding to allow of the passage of the grip. Fig. 3. is a vertical sectional view taken on the line x—x of Fig. 2, and on an enlarged scale, and Fig. 4. is a detail perspective view, illustrating the grip-shank protectors or wear-plates in operative position.

The following difficulties have heretofore interfered with the practical and successful operation of devices of the character herein described, namely: the banking of snow and ice upon and in rear of the slot covers, and also the entrance of water and the freezing thereof between the covers and the grip-slot rails proper; also the injuring of the cover-plates by the passage thereover of heavily loaded vehicles, and with slots having a single cover, the snow and ice could easily bank in advance of the cover-plate. The single cover-plates have, also, an insurmountable objection in that the strain or pressure is not equally borne by the grip-shank at both sides at once, but is applied first to one side and then to the other, which would soon impair the efficiency of the grip. A serious objection to the double cover-plate devices heretofore constructed, is that said plates, being in continual contact with the grip-shank, would soon wear and weaken the same to such an extent that it would have to be replaced by a new one, or repaired at considerable expense.

The difficulties enumerated above, I avoid entirely, by mounting the cover-plates within a casing, and having said cover-plates inclining slightly downwardly and inwardly, to direct or deflect the water away from said casings, and providing the grip-shank with detachable protectors or wear-plates.

Referring to the drawings, where similar numerals refer to corresponding parts, 1 designates the grip-slot rails, which are oppositely disposed and secured in the usual manner to form the grip-slot 2, and mounted upon the upper side of said slot-rails are the casings, which are provided with the oppositely disposed chambers 3, which incline downwardly and inwardly, and have their open ends 4, vertically above the corresponding margins of the grip-slot. These casings comprise the base-plates 5, resting directly upon the slot-rails, and recessed in their upper sides to form the end flanges 6, and the rear or outer flange 7; said flanges projecting upwardly for a suitable distance, and the flanges 6, at their inner ends, are provided with the inwardly projecting shoulders 8, the object of which is hereinafter explained.

The top or retaining plates 7^a, corresponding in size and contour to the base-plates 5, rest upon the flanges 6 and 7, and overlapping the recesses, form the top walls of the chambers 3, and the lower side of the said top-walls inclines downwardly and inwardly, as shown at 9, and is parallel with the bottom of the recesses. Bolts 10, extend verti-

cally through apertures in the top-plates 7ª, the base-plates 5, and the slot-rails 1, and are retained in position by nuts 11, engaging their lower ends and bearing against the under side of the horizontal portion of the slot-rails. Mounted and fitting snugly within the oppositely disposed chambers 3, are the cover-plates 12, and mounted also in said chambers and interposed between the rear side of said cover-plates and the inner end of the chambers, are the springs 13, which exert their pressure against the said cover-plates, and hold them yieldingly together at their inner margins, so that the grip-slot will be effectually covered or closed.

In order to prevent the accidental displacement of the spring-actuated cover-plates from their respective chambers, they are provided at each end and at their rear corners with the longitudinally projecting lugs 14, which rest against the inner sides of the shoulders 8 when the cover-plates are in contact at their inner margins, as shown clearly in Fig. 2.

From the above description, it will be apparent that the springs 13, when not repressed by an overcoming force, always hold the cover-plates together at their inner margin. It will be apparent, also, from this construction, that the grip-shank will be subjected at all times to frictional contact with the spring-actuated plates unless a protection of some sort is provided for the grip, and as the grip-shanks are necessarily very thin, and would be weakened by perforations or bolt-holes, it is desirable that a protection be used, and carried by the grip-shank, without the necessity of altering the grip-shank in the slightest degree. To this end, I have provided a pair of clamping-plates 15, approximately U-shaped in plan view, which snugly embrace the opposite sides of the shank throughout its entire length, and are arranged a suitable distance apart, one above and the other below the spring-actuated cover-plates. At one end of the grip-shank, a wear-plate is provided, which is of size to project laterally beyond each side of the clamps 15, as shown at 16, and the upper and lower ends of this wear-plate are reduced laterally, as shown at 17, so as to be interposed between the ends of the clamps and the adjacent end or edge of the grip-shank. A plate 18, having its side or frictional margins occupying the same vertical plane as the sides or frictional margins of the wear-plate above described, is arranged at the opposite end of the grip-shank, and is provided with apertures through which project the reduced and threaded ends of the clamping-plates 15, and these threaded ends are engaged by clamping-nuts 19, which bear against the outer side of the plate 18, and clamp the plates 16 and 18 firmly against the opposite ends of the grip.

From this construction, it will be apparent that I have produced a protection for the grip-shank which relieves the same from all frictional contact with the cover-plates, and at the same time strengthens the grip-shank.

In operation, the grip-shank, depending through the grip-slot from the car and moving in the direction indicated by the arrow, Fig. 2, successively forces the cover-plates apart, and the frictional contact is received by the side margins of the wear-plates, and in order to insure that the cover-plates shall readily and easily open to the pressure of the grip, said plates at their receiving ends, or the ends against which the wear-plates contact, are curved or beveled, as shown at 20. As it is not necessary to bevel the delivering or discharge ends of the said cover-plates, it will be observed that a very small opening is provided between each set of the cover-plates, for the admittance of snow or water, and that the outer margins of the casings are beveled so as to offer as little obstruction as possible to the passage of vehicles.

From the above description, it will be seen that I have produced a grip-slot cover, which is simple, strong, durable, and inexpensive of construction, and which is positive and reliable in operation at all seasons of the year.

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

1. In a grip-slot cover, the combination with a casing located upon the grip-slot rails, and consisting of a base or bottom, end-flanges projecting upwardly from said base or bottom, a longitudinal flange projecting upwardly from the outer margin of the base or bottom and connecting the outer ends of the end flanges, and a top or retaining plate which rests upon said flanges, of a plate in said casing, and a spring also within said casing and interposed between the rear margin of said plate and the inner side of the longitudinal flange of the casing, substantially as set forth.

2. In a grip-slot cover, the combination with the grip rails, casings located upon the grip-slot rails, and having the inwardly and downwardly inclined chambers opening at their inner sides and above the grip-slot, cover-plates mounted in said chambers, and springs also mounted in said chambers and holding the cover-plates yieldingly together at their inner margins, substantially as set forth.

3. In a grip-slot cover, the combination with the grip-slot rails, casings mounted thereon and provided with inwardly and downwardly inclined chambers which open at their inner ends and vertically above the side margins of the grip-slot, and shoulders formed at each end of said casings, and at the inner ends of said chambers, of spring-actuated cover-plates mounted in said chambers, shoulders projecting from each end of said cover-plates, and bearing against the shoulders of the casings, so as to limit the inward movement of the cover-plates, substantially as set forth.

4. In a grip-slot cover, the combination with a pair of casings located upon the grip-slot rails, cover-plates mounted within said casings, and having their grip-receiving ends beveled, and springs holding said cover-plates yieldingly together at their inner margins, of a grip, clamps embracing said grip, and wear-plates carried by said clamp-plates and at each end of the grip-shank, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK W. GREMMELS.

Witnesses:
G. Y. THORPE,
M. R. REMLEY.