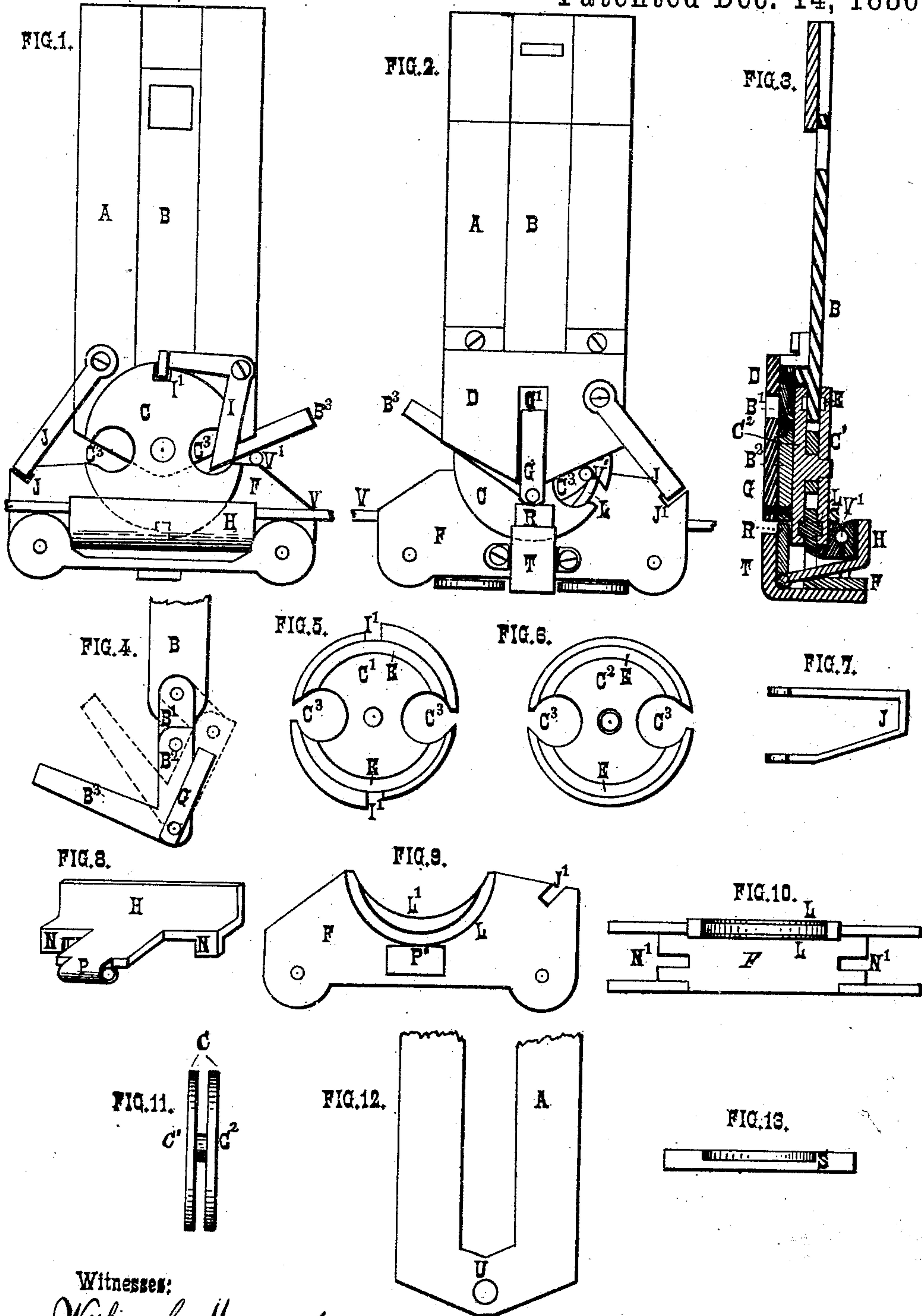


(No Model.)

J. S. LAKE.
GRIP FOR TRACTION CARS.

No. 354,479.

Patented Dec. 14, 1886.



Witnesses:

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JESSE S. LAKE, OF PLEASANTVILLE, NEW JERSEY.

GRIP FOR TRACTION-CARS.

SPECIFICATION forming part of Letters Patent No. 354,479, dated December 14, 1886.

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To all whom it may concern:

Be it known that I, JESSE S. LAKE, a citizen of the United States, residing at Pleasantville, in the county of Atlantic and State of New Jersey, have invented a new and useful Grip for Traction-Cars, of which the following is a specification.

The object of my invention is to produce a grip for the under cable (where there are cross-cables) of traction-cars that will safely pass upper cross-cables without taking the lower cable out of the grip, as heretofore, and yet said grip to occupy no more space than the grips now in use, said grip to pass cross-cables without any attention from the operator. All mechanism required for passing said upper cross-cables is attached to the grip and car.

My invention consists in the peculiar construction and combination of parts, as hereinafter set forth, having reference particularly to the following points: first, the providing of a way through the grip-stem, above the grip, for the passage of the upper cross-cable, substantially in the manner hereinafter more fully described; second, the providing a grip-piston that will automatically open and let cross-cables pass, as hereinafter more fully described; third, the providing a clevis that will hold the grip in proper relation to the grip-stem, and yet automatically give way for the passage of the upper cross-cable; fourth, the providing an automatic tilting hooked pawl that will hold the openings hereinafter described in proper position to receive the cross-cables and automatically release said openings at the proper time; fifth, to the arrangement of a ratchet or notched wheel, so that the pawl will not pass its proper notch; sixth, to the providing a grip for traction-cars that will automatically pass upper cross-cables that cross the under cable at an angle of forty-five degrees, or any other angle between that and a right angle; seventh, to automatically throwing off the grip as the upper cross-cable is passing through the stem, so as to loosen all of the parts, and thus prevent strain on the cross-cable; eighth, to certain details of construction, hereinafter fully set forth. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation showing the side

facing the under cable. Fig. 2 is a side elevation showing the opposite side. Fig. 3 is a vertical section (cut through its center) of the machine looking to the front. Fig. 4 is a side elevation of the grip-closer. Fig. 5 is a side elevation showing the inside of notched plate C'. Fig. 6 is a side elevation showing the inside of plate C'. Fig. 7 is a plan view of the edge of clevis J. Fig. 8 is a perspective view of the gripping-jaw H. Fig. 9 is a side elevation of the grip-support F. Fig. 10 is a plan view of the same. Fig. 11 is an elevated edge view of the wheel C. Fig. 12 is a side elevation of a section of the stem A. Fig. 13 is a plan view of the wearing-piece S.

Similar letters refer to similar parts throughout the several views.

A A is the stem.

C is a wheel formed by two circular plates, C' C', firmly fastened on a hub, and is pivoted to the lower part of the stem A by passing its hub through the hole U, thus securing the lower point of the stem A between the plates C' C'. Said plates C' C' have two recesses interiorly enlarged, C³ C³, (shown in Figs. 1, 2, 5, and 6,) cut in each of their peripheries, exactly opposite each other, thus forming two recesses in the wheel C, and are a little larger across at the periphery of said wheel C than the diameter of the cable V', and widen out internally for the purpose of passing a cross-cable at other than right angles. The plate C' has two notches, I' I', about half-way between the recesses C³ C³.

The plates C' C' have grooves E E on their inner faces near their peripheries, in which the flanges L L of the grip-support F fit, and around which the wheel C freely slides. Said flanges L L are long enough to reach from one recess C³ to the other, thus forming nearly a half-circle, thus making said flanges much less liable to bind in the grooves E E, when the wheel C is being revolved by the cross-cable V', than the short flanges, were wheel C provided with more than two cable-recesses, and thus lessening the danger of injuring said cross-cable. The said grooves E E and flanges L L securely link or secure the grip-support F to the grip-stem A.

The upper edge of the grip-support F is concaved enough to make a passage-way between it and the lower or rounded point of stem A

and broad enough to allow the cross-cable V' to pass through when it is in either of the recesses C³. When the cross-cable V' passes through the above-described passage-way it cannot get out of the rear recess C³ until it revolves the wheel C far enough to bring the front recess C³ in proper position to receive the next cross-cable, as shown in Fig. 1, for the said wheel C has to revolve far enough for said cable V' to rise and pass over the rear ends of the flanges L L, which brings the front recess C³ in proper position, as shown in Fig. 1, to receive the cross-cable V'. The upper edge, L', of said grip-support F is not concaved or cut down to the flanges L L only at their ends, for the said flanges form so near a half-circle it would put too heavy a strain on the cable V' to force it to slide up their circles to get out of the rear recess C³; but by cutting the upper edge of said grip-support F as shown in Fig. 9 the slideway is much easier to and over the rear ends of the flanges L L, being drawn by the cable V.

The wheel C is held in proper position to receive the cross-cables into the recesses C³ by the hooked pawl I and the notches I' I'. (Shown in Fig. 4.) To prevent the pawl I from passing the notch I' without dropping into it in case the wheel C was revolved very quick, (as would be the case if the car passed a cross-cable at full speed,) the back or rear part of the notch I' is made higher, so as to hit the end of the pawl I, and thus stop its rotating motion, when the point of the pawl I will drop into the notch I' and keep said wheel C from moving either way, thus positively holding one or the other of the recesses C³ in proper position to receive the next cross-cable, which is a very important feature in my invention.

J is a kind of link or clevis, one end of which is pivoted to the lower part of the rear edge of the stem A. The other drops into the notch J', either by its own weight or by spring force, as may be desired, and holds or keeps the grip-support in proper relation to stem A, which is very important.

H is the gripping-jaw, and has two projections, N N, dropping downward. Said projections N N hook into notches N' N' of grip-support F, and the tilting lever P passes through the hole P' and has the piece R hinged to it. (Shown in Fig. 3.)

The wearing-piece S is fastened to the vertical part of grip-support F, and laps a little over the plate C', but does not bind on it, but fits so near said plate C' that it helps to hold the flange L in the groove E of plate C', which is of great advantage.

V is the under cable.

T is a guide-piece that keeps the hinged piece R in position while being operated.

B B' B² and piece R form a grip-closer. Said grip-closer may be operated by the same mechanism that the Philadelphia Traction Car Company now operate their grip-closer with. The upper end of the piece B' is pivoted to the lower end of piece B a little above the

plate C'. The lower end of said piece B' is toggle-jointed to the upper end of piece B². The lower end of piece B² is pivoted to the lower end of slide-piece G. (Shown in Figs. 2, 3, and 4.) Said piece G guides the lower end of the piece B² onto the piece R. By pressing down on the grip-closer the piece B² is forced down onto the piece R, forcing said piece R and the tilting lever P down, which causes the jaw H to grip the cable V. Remove the pressure and the grip opens by its own weight, or by spring force, as shown in Fig. 3. The piece B² has an arm or lever, B³, that stands out in front of said arm B³, and acts also as a weight to force the pieces B' and B² in line as soon as the grip-closer is raised.

G' is a slideway for the piece G, cut in the piece D. (Shown in Fig. 2.)

The front end of the grip-support F forms a guideway for the lower side of the cross-cable V', and the lever B³ forms the guideway for the upper side of the said cable V'. Said guideways guide the said cable V' into the front recess C³. (Shown in Fig. 1.)

Operation: Move the car by gripping the cable V. The upper cross-cable, V', slides up the inclined plane of the grip-support F into the recess C³, and in its way it hits and trips the arm B³, which throws the pieces B' B² out of line, and they assume the position shown by dotted lines in Fig. 4, which allows the cable V' to pass under it, and the grip is also loosened, which leaves all the parts loose, the pawl I being tilted out of the notch I'. At the same time the wheel C is free to revolve around its axle and around the flanges L L, and as the cable V' passes around in the space between the concaved portion of the grip-support F and the rounded point of the stem A it carries the wheel C with it until it gets to the rear of the stem A, where it slips out of the recess C³ and throws the clevis J out of its way, and is free, and the wheel C is in position for the next cable. The operator loosens his grip enough to allow the pieces B' B² to fall in line again, then tightens the grip, and the operation is over.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a cable-grip wherein a cross-cable is passed without raising the grip or depressing said cross-cable, the combination of a supporting main stem, a grip-support, a fixed and a movable grip-jaw, a notched rotating disk or wheel, and tripping mechanism operated by the cross-cable to unlock the disk or wheel, and also to release the grip from the drawing-cable during the passage of the cross-cable through the grip, all substantially as shown and described.

2. The grip-support F, in combination with the stem A, wheel C, and clevis J, whereby said grip-support will be held at a right angle to the stem A, or on a line with the cable V, substantially as described.

3. The grip-closer composed of pieces B B' B² and piece R, in combination with the lever

B³, or its equivalent, and cable V', substantially as described, and for the purpose set forth.

4. The pawl I, in combination with the cross-cable V' and the notch I', substantially as described, and for the purpose set forth.

5. The link or clevis J, in combination with the stem A and the grip-support F, substantially as described, and for the purpose set forth.

6. The combination of the support F, having nearly half-circular flanges L L, with the wheel C, having grooves E E, the internally-enlarged recesses C³ C³, and notches I' I', substantially as described.

7. The wheel C, with two interior enlarged recesses, C³ C³, notches I' I', pawl I, grip-support F, and arm B³, in combination with the cable V', for the purpose of guiding the said cable V' into the front recess C³, and also for the purpose (as said cable V' passes through the grip-closer and stem A) of its carrying with it the said recess C³ to the rear, and positively carrying the former rear recess C³ to the front, ready for the next cross-cable, and holding it (the said recess C³) in position by the pawl I and notches I' I', substantially as described.

8. The combination, with a movable grip-jaw, a grip-support, and a notched wheel connecting said support and the main frame, of

the sliding grip-operating mechanism separable from said movable grip-jaw, substantially as shown and described.

9. The pieces B B' B² and the arm B³, in combination with the guide-piece G, substantially as described, and for the purpose set forth.

10. The piece S, in combination with the grip-support F and wheel C, substantially as described, and for the purpose set forth.

11. The support F, having the inclined front edge, in combination with the recessed wheel C and the tipping-lever B³, substantially as described.

12. The combination of the grip-opening mechanism, consisting of the device B, B', B², and B³ and slide G, with piece R, jaw H, and cross-cable V', all substantially as shown and described.

13. In a cable-grip, the support F, having the flanges L L, and the upper curved edge, L', on a different radius or curve from the said flanges, in combination with a crossing cable and a recessed connecting-wheel.

In testimony that I claim the foregoing I have hereunto set my hand this 11th day of October, 1885.

JESSE S. LAKE.

Witnesses:

JAMES TILTON,

WESLEY MEGRONIGLE.