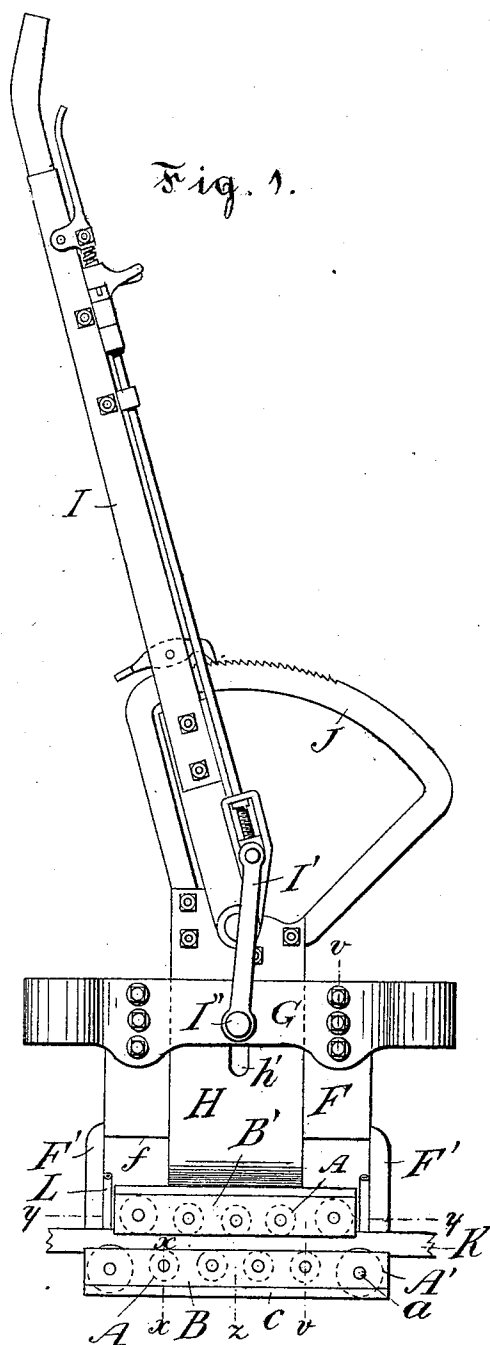


W. H. RUSSELL.
GRIP FOR CABLE CARS.

No. 513,283.

Patented Jan. 23, 1894.



Witnesses:

Shas. Caley.
W. C. H. Noffke.

Wm. H. Russell
Inventor

by A. Harvey
his attorney

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Fig. 2.

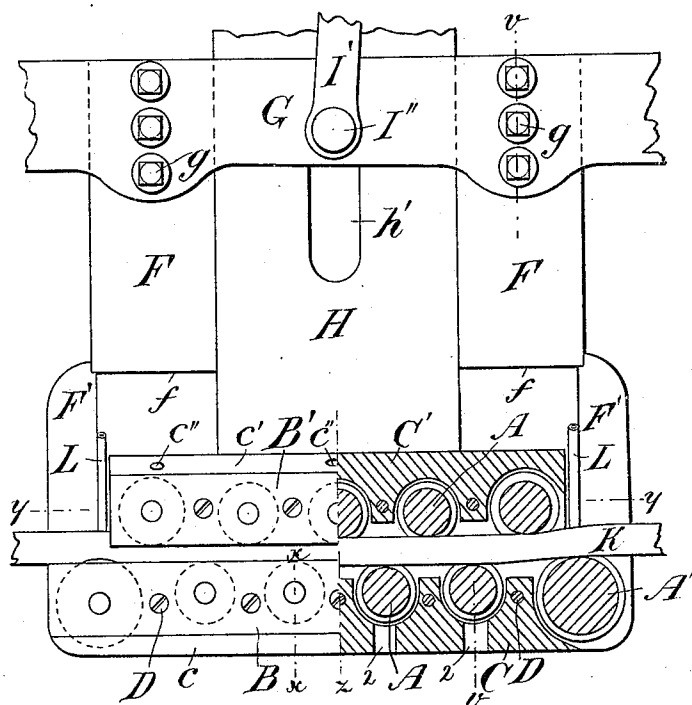
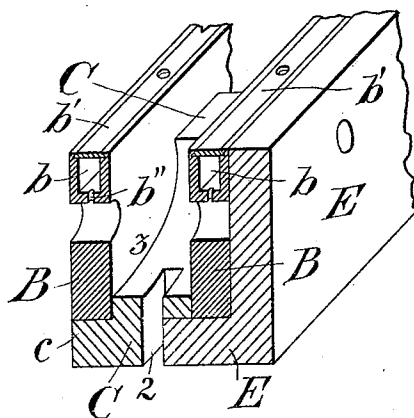


Fig. 3.



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Fig. 4.

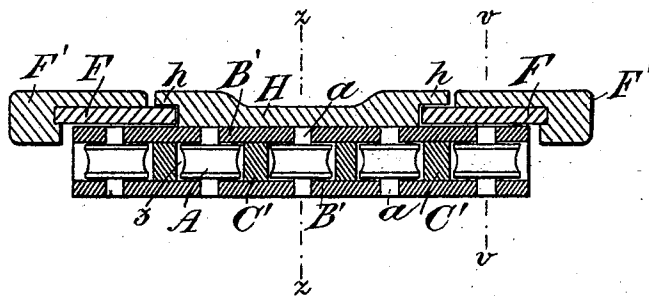


Fig. 5.

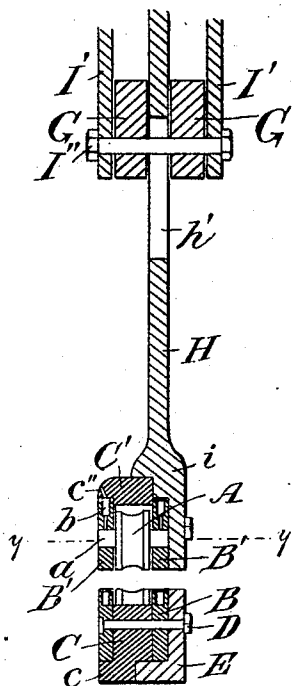
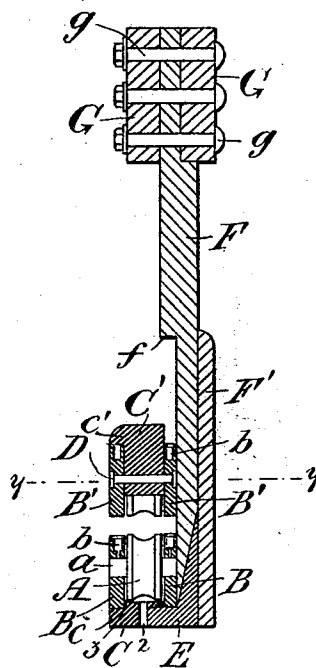


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM H. RUSSELL, OF VANCOUVER, CANADA.

GRIP FOR CABLE-CARS.

SPECIFICATION forming part of Letters Patent No. 513,283, dated January 23, 1894.

Application filed September 23, 1893. Serial No. 486,351. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. RUSSELL, of Vancouver, in the Province of British Columbia and Dominion of Canada, have invented certain new and useful Improvements in Cable-Car Grips; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part hereof.

My invention, which will be hereinafter fully set forth and claimed, relates to devices for gripping the steel cables of cable car railroads.

The object of my invention is a grip that will start the car without a jerk, will not wear the cable near as much as the grips now in use and that can be operated by any ordinary lever now in use.

Figure 1 is an elevation of my improved grip with operating lever attached. Fig. 2 is an elevation of the grip on a larger scale, partly in section, the lever being omitted. Fig. 3 is a transverse section of the lower jaw on line *x x* Figs. 1 and 2 on a larger scale, showing the oil ducts, with the parts in the rear in perspective. Fig. 4 is a horizontal section of the grip on line *y y* Figs. 1, 2, 5 and 6, being through the upper jaw. Fig. 5 is a vertical transverse section of the grip on line *z z* Figs. 1, 2 and 4. Fig. 6 is a vertical transverse section of the grip on line *v v*, Figs. 1, 2 and 4.

Two jaws, one rigidly and one movably supported, have each journaled in them a series of grooved pulleys or friction rollers *A A'* placed hit and miss one above the other and about one and a half to two diameters apart from center to center, the end pulleys in the lower jaw being of a little larger diameter than the intermediate ones and placed so that their bearing surfaces are slightly higher than the intermediates. Said pulleys or rollers *A* and *A'* are made with reduced axles *a*, formed integrally or otherwise, so as to form proper antifriction rollers. Said axles *a* are journaled in journal plates *B B* and *B' B'* each provided at its upper edge with a deep groove *b*, covered with a slide *b'*, and from which holes, *b''*, are drilled through the journal bearing. Said grooves are the oil reservoirs

and serve to lubricate the axle bearings of the friction rollers *A* and *A'*. Each pair of journal plates is connected by a blocking piece *C* and *C'* respectively (Figs. 2, 3, 4, 5 and 6) extending high up between the plates and shaped out to allow room for each pulley *A* or *A'* and through which the bolts *D* pass, which hold them together. Each filling piece projects respectively below the lower and upper edges of the plates *B* and *B'*, the lower one *C* being rabbeted at its lower rear edge, flush with the lower edge of the rear plate, to sit upon and fit the horizontal limb of a heavy angle iron *E* through the upper or vertical limb of which the bolts *D* pass, and having a projecting ledge *c* at the front, forming a rabbeted seat for the lower front edge of the plate *B*; the upper one, *C'*, also projecting over the top edge of the upper front plate *B'* by a ledge *c'*, forming a rabbeted seat for the upper edge of the upper front plate *B'*. The ledge *c'* of the filling piece *C'* thus covers up the oil groove *b* and holes *c''* are made in it (Fig. 5) to facilitate the filling with a lubricant. The lower one, *C*, has also a perforation, 2, (Figs. 2, 3 and 6) under each pulley to prevent the recess, 3, being clogged up. The lower jaw thus composed of the journal bars *B* with its rollers *A* and *A'*, filling piece *C* and angle iron *E* held together by the bolts *D*, is secured to two upright yoke plates *F*, one at each end, flush at the rear with the angle iron, to which they are spliced and riveted, (see Figs. 5 and 6) and lashed by an angle and buffer plate *F'* which surrounds the outer edge and extends part of the way up. The upper part *f* is set over to accommodate the jaws in the groove of the subway and the upper end is secured between the two frame bars *G*, which are attached to the car, as shown in Figs. 1, 2 and 6, being held by the bolts *g*. The upper jaw, composed of the journal bars *B'* with its rollers *A* and *A'* and the filling piece *C'*, is secured to the central plate *H* which slides between the edges of the plates *F* and passes between the two frame bars *G* and to the upper part of which the operating lever *I* is pivoted and the quadrant *J* secured. The back of the claw *i*, of the plate *H* to which the journal plate is attached, is flush with the angle iron *E* and the upper part is set over to be

in line with the upper part of the yoke plates F and to pass between the bars G so as to slide freely in them. The edges preferably overlap the yoke plates F, forming a rabbeted guide-way *h*. The lever I is connected with the frame bars G by a pair of links I', one on each side, being secured by a bolt or pin I'' passing through the slot *h'* in the plate H to allow free up and down movement to the latter. In Figs. 1 and 2 a cable K is shown in position between the two jaws. Oil tubes, L, are also shown in Fig. 2 to facilitate filling the oil groove in the lower rear journal plate B.

It is essential that each pulley or roller A or A' be approximately central between two pulleys or rollers journaled in the jaw above or below and that they are not placed too far apart to allow the pulley or roller opposite a space to press the cable too far into the intermediate space and thus bend it too much. I find in practice that the bending or kinking of the cable necessary to effective traction is hardly appreciable and it is in this that the greatly increased life of the cable is presumably to be found.

I claim as my invention—

1. The combination of two journal plates or bars B having their upper edges recessed and provided with a cover to form a reservoir for lubricants, the filling or blocking piece C shaped open at the top to allow room for pulleys and to receive one of the bars B on one side and the edge of an angle iron on the other, an angle iron E receiving and carrying one of the journal plates B and the blocking piece C, bolts D passing through said journal plates filling piece and angle iron and a series of grooved pulleys or rollers A and A' having a reduced journal bearing or axle *a* jour-

naled in said journal plates comparatively close together, substantially as set forth.

2. The combination of two journal plates or bars B' having their upper edges recessed to form a reservoir for lubricants, a blocking or filling piece C' shaped open at the bottom to allow room for pulleys, bolts D connecting the journal plates and blocking piece and a series of grooved pulleys or rollers A and A' having a reduced bearing or axle *a* journaled in said journal plates comparatively close together and the series containing one less than the mate with which it is to work, substantially as set forth.

3. The combination of frame bars G attached to a car, yoke plates F rigidly secured to said frame and having a set-back *f*, an angle iron E secured to the lower end of said yoke plates and a jaw open at the top and having a series of friction pulleys A and A' journaled in it secured to said angle iron, a plate H adapted to move vertically between the yoke plates and pass between the frame bars G, an operating lever pivoted to said plate, links pivoted to said frame bars G and connected with said lever, a jaw open at the bottom and having a series of friction pulleys A and A' journaled in it so as to be central between two of them in the jaw below and said jaw secured to plate H, substantially as set forth.

In testimony whereof I have signed my name in the presence of the undersigned witnesses.

WILLIAM H. RUSSELL.

Witnesses:

F. R. MCD. RUSSELL,
JOHN RUSSELL.