

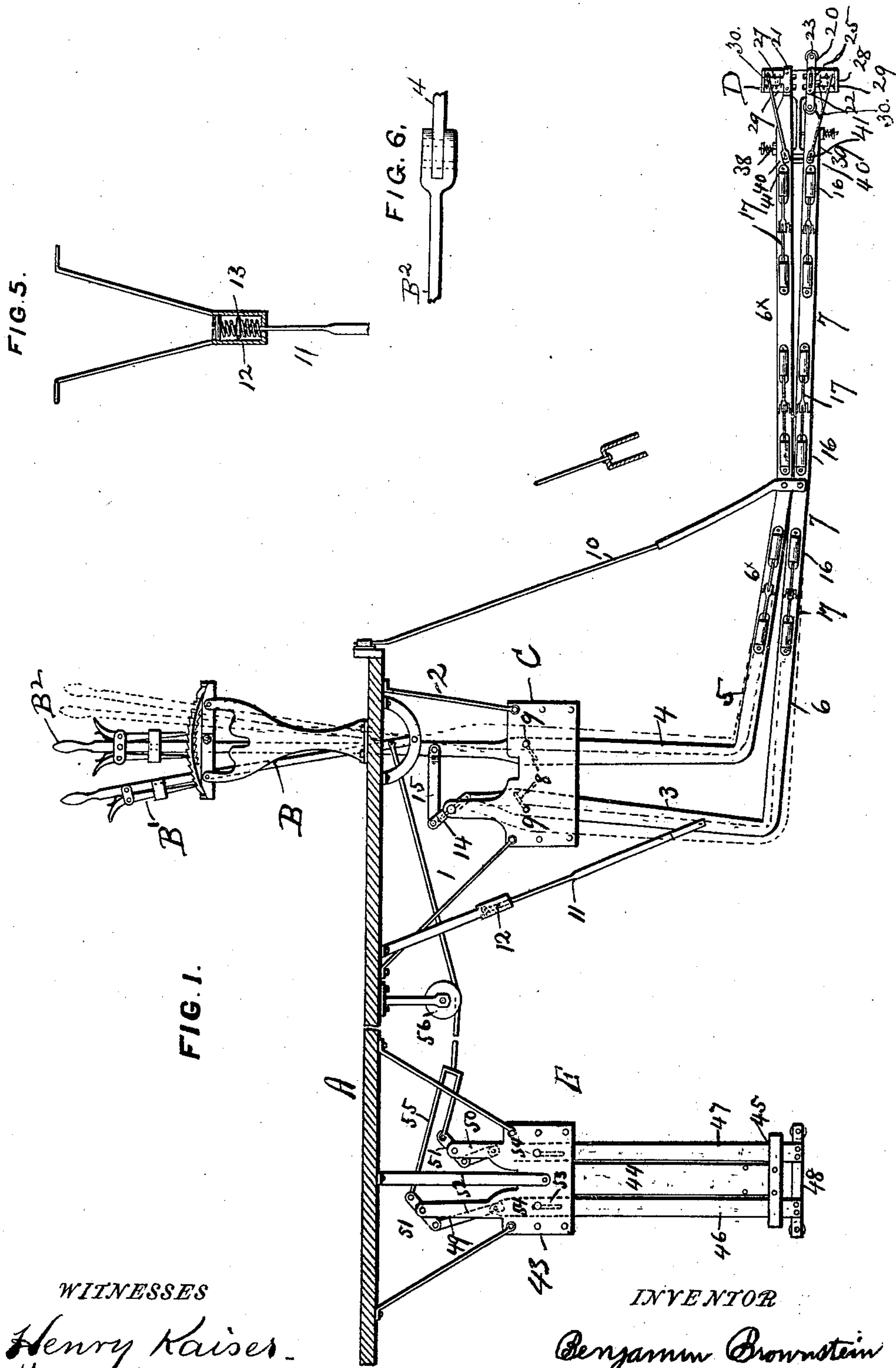
(No Model.)

2 Sheets—Sheet 1.

B. BROWNSTEIN.
GRIPPER FOR CABLE RAILWAYS.

No. 528,359.

Patented Oct. 30. 1894.



WITNESSES

J. Henry Kaisers.
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2 Sheets—Sheet 2.

No. 528,359.

Patented Oct. 30, 1894.



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UNITED STATES PATENT OFFICE.

BENJAMIN BROWNSTEIN, OF PHILADELPHIA, PENNSYLVANIA.

GRIPPER FOR CABLE RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 528,359, dated October 30, 1894.

Application filed June 19, 1894. Serial No. 515,079. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN BROWNSTEIN, a citizen of the United States of America, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Grippers for Cable Railways; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has relation to improvements in grippers for cable railways; and the object is to provide a gripper adapted to automatically adjust itself to lateral curves of the cable, and also suited for the purpose of releasing and regripping the cable at crossings.

I have fully and clearly illustrated my invention in the accompanying drawings, wherein—

Figure 1, is a side elevation of the invention secured to a car or support in operative position. Fig. 2, is a detail side view, on a larger scale than that of Fig. 1, showing the gripper end of the gripper, and having the spring-cushion cylinders in section to show the springs. Fig. 3, is an elevation of the gripper-end of the auxiliary gripper to grasp the cable at the crossings. Fig. 4, is a plan view of the gripper showing the joints, the lateral deflections being shown in dotted lines. Fig. 5, is a detail of the spring-bar or hanger for the under jaw of the gripper. Fig. 6 is a detail view of the connection of the upper jaw and lever.

A, designates the floor or support on which is supported and secured the grip-lever stand B, and to the under side are secured all the appliances constituting the gripper-mechanism. The levers B', B², are fulcrumed in the lever stand, and have connection to the respective grippers.

C, designates a housing consisting of a rectangular casing to receive the stems of the grippers. This housing is sustained in position by means of suitable brace-rods 1, 2, having the upper ends fastened to the under side of the floor A, as shown in Fig. 1. Arranged in this housing C, are the vertical stems 3, 4, of the grippers 5, 6. The gripper stems have the lower portions turned at substantially

right angles thereto, and to the end thereof are jointed, in succession, any desired number of jaw-sections 6^x, 7, substantially as shown in the drawings. These jointed sections are held on their pivotal supports to turn laterally.

The stems of the grippers are each provided with a diagonally arranged slot 8, engaged by a pin 9, on which the stems ride when operated by the levers. These inclined slots 8, in connection with the pins 9, operate to permit the gripper-stems to be lifted and closed or opened, and the grippers to be correspondingly actuated. The lever B², serves to move the stem 4, by rocking it on the angle-point of the bent-up jointed section, and through the connection 15 and short lever 14 connected to the stem 3, the jaws are operated.

A supporting rod 10, is provided having the upper end suitably secured to a support, and the lower end secured to the respective gripper-jaws as shown in Fig. 1, of the drawings. The jaw-section to which this support 10, is secured is bent upward from the middle toward each end and rocks on the under angle of the bend to open the grippers.

The stem of the lower gripper has a support 11, which is in two parts connected by a sleeve 12, in which the lower part has a limited movement; the end of this lower part being formed with a head 13, which bears against cushion-springs on both sides, to hold the gripper-jaw in normal position with a slight resiliency at all times.

In the upper end of the housing C, is fulcrumed a short lever 14, having one end connected to the upper end of the stem of the lower gripper, and having the other end connected to a connecting-rod 15, by means of which connections the gripper-jaws are operated in unison. This connection of the members of the gripper, through the instrumentality of the grip-levers, causes the members of the gripper to open and close the gripping-jaws, according to the movements of the levers.

The upper end of the stem of the upper jaw of the gripper is rigidly connected by any suitable means to the lever.

To automatically restore the gripper-jaws

to direct alignment with the pull after lateral deflection, I secure on the opposite sides of the jointed sections, suitable cylinders or barrels 16, in which are the ends of jointed-
5 rods 17, having heads 18, which bear on springs 19, substantially as shown in Fig. 2, of the drawings.

At the ends of the jointed sections are carried and secured, the gripping-jaws 20,
10 21, between which the cable is grasped and retained. The gripping-jaws 20, 21, are mounted on the side of the grippers, to reach laterally a suitable distance to hold the cableway from and out of contact with the
15 jointed sections; and the jointed sections are, in practice, arranged to rest far enough apart, as indicated in Fig. 2, to allow the cable to travel in the space between them, or so as not to interfere with either the sections of
20 the gripper-jaws or with the means for registering them to alignment. The lower gripper 20, consists of a bracket 22, formed as usual with a lengthwise groove in its upper face, and carrying sheaves 23, 24, in the ends.
25 A wheel 25, is mounted on this bracket which is intended to hold the jaws away from the wheels in the conduit at the curves, and on the opposite side is another wheel 26, intended to serve the same purpose on opposite curves.
30 The upper gripping-jaw 21, is preferably shorter than the lower one, and is grooved as usual on the under face to take the cable.

On the ends of the jointed-sections is mounted a housing D, having its sides turned
35 down at right angles to the face thereof, and provided with cylinders 27, 28, each of which contains a spring 29, and from the jaw project stems 30, which bear with their ends on the cushions or springs in the cylinders; the purpose being to assist in holding the
40 members of the grippers and jaws together. The housing D, is formed with a stem 31, to the end of which are oppositely arranged pins 32, 33 which pass through guides 34, and have spring-cushions on them as shown,
45 to hold the stem centrally. The housing D, is slotted at 35, and at 36, in which headed pins 37, engage, as shown in Fig. 2, of the drawings, to permit the jaws to move as desired.
50 The housing D, is provided with brace-rods 38, 39, having slotted-ends 40, which slide on headed supports 41, so that the jaws will open evenly.

E, designates the auxiliary gripper, and
55 consists of the following described parts:— From the car body or floor is supported a housing 43, from which rigidly depends a bar 44, carrying the upper gripping-jaw 45, formed with guides through it to take the arms or
60 stems 46, 47 of the lower gripping-jaw 48. The housing has vertically projecting arms or supports 49, 50, in which are fulcrumed levers 51, which connect to the upper ends of the grip-

stems, by means of connecting-rods or bars 52, as shown in Fig. 1 of the drawings. 65

The grip-stems 46, 47, are held from dropping down too far by means of slots 53 and pins 54. The upper ends of the levers 51, are connected to a pull-rod 55, bearing under a sheave 56, and connected to the lever B'. 70

It will be perceived that I have provided a gripper which can accommodate itself to the contour or direction of curves, and which will readily right itself when the curve has been passed. 75

The operation of the gripper is as follows: The cable is moved in the direction of the arrow shown in Fig. 1 of the drawings and pulls the car in the direction of its travel. The gripman to close the gripper throws the
80 lever over, and the grip is effected, and, of course, a contrary throw of the lever releases the grip.

When the car approaches the cross cables the gripman opens the main-gripper and the
85 car is carried forward by the rear gripper. The released cable is now carried away from and out of the gripper by the usual deflection in the track-slot. Both the intersecting cables are depressed at the crossings by well known
90 means, so that the grippers are carried over them without interference; and when over, the track-slot pushes the gripper back in line with the cable and between the jaws and then by operating the levers the cable is again
95 gripped. At the proper time the rear gripper is released, and the same operation ensues as in case of the main-gripper, by which time the main grip is clear over the cross-cable and again in shape or condition for be-
100 ing gripped, and when the rear grip is over the crossing, that may be re-engaged with the cable.

By having the two grippers arranged as indicated in the drawings, the car is held
105 against the rocking and jolting motions attributable to a single gripper.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is— 110

1. In a gripper for cable-cars, the combination of grippers consisting of sections jointed together to move laterally, oppositely arranged spring-actuated jointed rods on the sections to restore them to alignment, and a
115 lever to operate the jaws.

2. The combination with the forward or main gripper, composed of sections hinged together, of a lever to open and close the jaws, an auxiliary gripper arranged to the rear of
120 the main gripper, and a lever to operate the auxiliary gripper.

3. In a gripper for cable-cars, the combination of the lower gripper-jaw consisting of a stem having its lower portion bent at substantially right angles to the stem, sections
125

hinged to the stem, an upper member consisting of an angular stem, a sectional piece hinged thereto and bent to rock on the lower member, additional sections hinged to the
5 rocking section, gripping-jaws on the ends of the respective members of the grippers, and a lever to open and close the gripper and jaws.

4. The combination of the housing the angular gripping stems in the housing, jointed
10 sections on the stems, gripping-jaws on the

end of the last pair of jointed sections, a support secured to the jointed-sections, and a lever to operate the jaws.

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

BENJAMIN BROWNSTEIN.

Witnesses:

MORRIS FELDMAN,
LOUIS ROSENFELD.