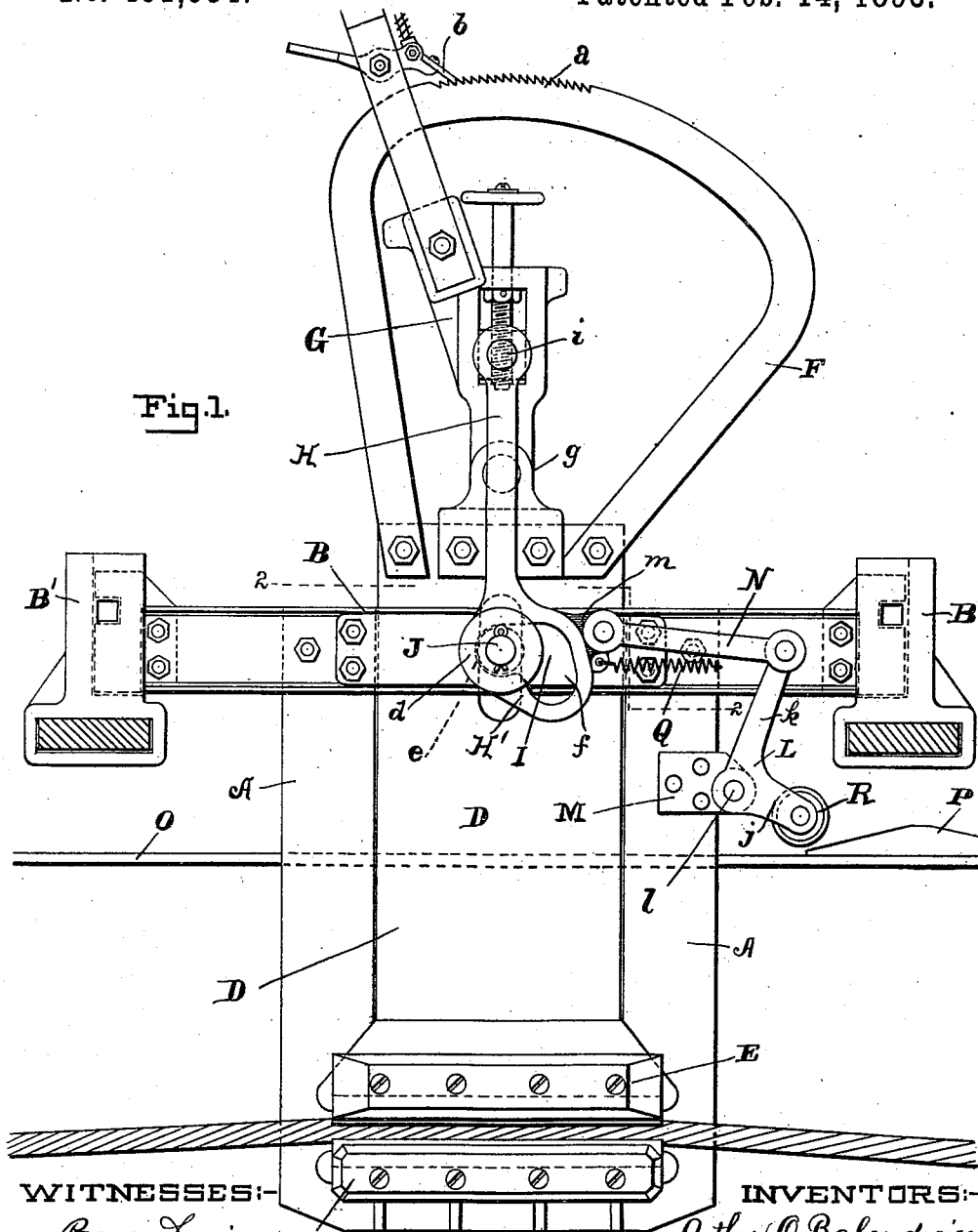


(No Model.)

A. O. BABENDREIER & F. P. DAVIS.
CABLE GRIP.

No. 491,934.

Patented Feb. 14, 1893.

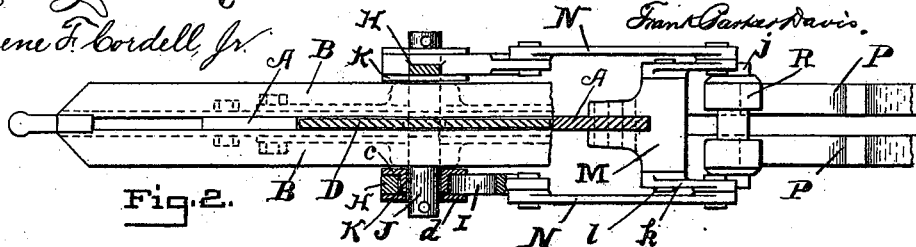


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UNITED STATES PATENT OFFICE.

ARTHUR O. BABENDREIER AND FRANK PARKER DAVIS, OF BALTIMORE,
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CABLE-GRIP.

SPECIFICATION forming part of Letters Patent No. 491,934, dated February 14, 1893.

Application filed December 20, 1892. Serial No. 455,812. (No model.)

To all whom it may concern:

Be it known that we, ARTHUR O. BABENDREIER and FRANK PARKER DAVIS, citizens of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Cable-Grips, of which the following is a specification.

The object of this invention is to provide practical means for automatically releasing a cable-grip at crossings and other places where it is necessary to drop the cable.

The invention is specially adapted to the well-known style of grip in which a plate slides between two rigid legs, the two jaws or grip-bars being carried by the said sliding plate and rigid legs, respectively; and our aim is to convert this style of grip into an automatically-releasing grip without making any radical change in the construction which would require rebuilding the grip; any grip of this style may be readily altered and made automatic by applying our invention thereto.

There are two forms of the style of grip above mentioned, in one of which the upper jaw is movable and the lower jaw stationary, and in the other of which the lower jaw is movable and the upper one rigid. Our invention is equally adapted to either form, and also to various other forms of grips.

In the accompanying drawings we have illustrated our invention applied to that style above-mentioned in which the upper jaw is the movable one.

Figure 1 shows a side view of the grip represented as in its full gripping position; Fig. 2 shows a top-view taken substantially on the section line 2—2 of Fig. 1,—the section being taken through the link-bearing on one side.

Referring to the construction here shown for carrying out our invention, the letter, A, designates two rigid legs which are connected at their upper ends by girders, B, and carry the under jaw or grip-bar, C, at their lower ends. A plate, D, is fitted to slide between the two legs, A, and this plate carries the upper jaw or grip-bar, E, at its lower end, and extends up between the two girders, B. A frame, F, is fastened rigidly to this sliding plate, and has a rack, a, along its top-bar, and a controlling-lever, G, is pivoted at the lower

end, g, to the said sliding plate, and has a pawl, b, to engage said rack.

The letter, B', designates supports on the car-truck, which hold the grip.

In carrying out our invention we substitute for the links which ordinarily connect the controlling lever and the girders joining the rigid legs, links, H, of special formation. These links are pivoted as usual to the lever at the point, i, but each is formed with an enlargement, H', at its lower end, to allow for an angle-slot, I, which receives a fulcrum-pin, J, extending transversely through the girders, B. A roller, K, is mounted on this pin to engage the sides of the slot and this roller has a back flange, c, fitting against the girder, and extending over the inner face of the link; a washer, d, fits on the pivot-pin on the outer side of the roller and extends over the outer face of the link. The angle-slot, I, above mentioned, has a substantially horizontal part, e, with a rounded end, which part forms an opening for the roller, K, to bear in during the ordinary working of the grip, and an angular downward extension, f, of the said opening, to permit an elongation of the connection for the purposes of the automatic release. It will now be obvious that with this construction it is only necessary to shift the link to a position where the roller, K, may occupy the angular extension, f, of the slot, in order to release the grip from the cable. The means here shown for accomplishing this purpose may be described as follows; An angle-lever, L, having a short arm, j, and a long arm, k, is pivoted at, l, to a bearing, M, which is bolted to one of the rigid legs, A, of the grip. The short arm, j, of this lever extends outward from the grip while the long arm, k, extends upward and a link, N, connects it with an ear, m, formed on the enlarged lower end of the main link, H, said connecting link being fulcrumed to the two parts which it joins. This construction is provided on both sides of the grip and the two angle-levers are both pivoted to the bearing, M, while a single roller, R, is carried between the short arms, j, of the said levers, and has position over the slot-rails, O, of the track. By this construction the two levers will move in unison. Where-

ever the cable is to be dropped a double-inclined rise, P, will be provided on each slot-rail, and will be of sufficient length to insure the action of the trip-levers.

5 The operation will be apparent and will be briefly stated as follows: The roller, R, rides up the inclined rise, P, and the consequent upward movement of the short arms *j*, of the trip-levers, moves the long arms *k*, of said
10 levers and shifts the main links, H, through the connecting links, N, to a position where the rollers on the pivot-pin, J, are over the angular extension of the slots in said main links, and the said main links are free to
15 move upward and remove the pressure from the cable, and the latter may easily leave the grip. Thus should the gripman neglect to throw the controlling lever to the release position the grip will release automatically, and
20 entirely independent of the controlling lever. The automatic trip is operative with the car moving in either direction, the roller riding up on one side or the other of the double-inclined track-rise. The pressure of the lower
25 sides of the horizontal parts of the slots against the rollers tends to maintain the normal relation, with the said rollers in the rounded ends of the said horizontal parts of the slots, as does also the tendency of the
30 links to assume a vertical position pendent from their pivotal points of attachment to the controlling lever, and the weight of the sliding plate and parts connected therewith. But to insure that the rollers remain in the
35 ends of the slots during the usual operation of the grip, springs, Q, connect the lower ends of the main links and the girders, and act to hold the parts in their normal relation. The gripman's lever is not in any way affected by
40 the automatic releasing devices and the grip will be operated the same as usual. If the gripman releases at the proper time, the links will be simply moved over by the trip-levers, and return again to the normal position with-
45 out moving upward, as the limit of movement is already reached by throwing the controlling lever to the full release position. It will be seen that a slight movement of the short arms of the trip-levers is multiplied in the
50 long arms, *k*, so that the required movement of the main links may be obtained by a comparatively slight movement of the short arms of the trip-levers, and hence the inclined rise in the track need not stand very high. The
55 roller, R, has two peripheral bearing surfaces one for each inclined rise, P, with a groove, *o*, between, to allow for wear of the said surfaces. The trip-levers are very slightly affected by the ordinary working of the grip,
60 as most of their motion is taken up by the links, N, which connect them with the said trip-levers.

It is obvious that other mechanism may be employed to shift the main links for the auto-
65 matic release.

Our automatic release construction as here

described is equally applicable to a grip in which the lower jaw is the movable one, and also to many other forms of grips.

The essential feature of the invention is the 70 opening with the angular extension; that is to say, a slot one part of which is farther from the fulcrum of the grip-member having such slot, than another part of the slot, whereby an automatic elongation of the connection will 75 be effected independently of the controlling lever. This angular slot may be in any member of the grip where it will serve its purpose, and may have various shapes.

Having thus described our invention, what 80 we claim as new, and desire to secure by Letters Patent, is—

1. In a cable-grip, the combination of a member thereof having an opening with an angular extension; and a member having a part 85 which engages said opening and may occupy the angular extension thereof to release the grip from the cable independently of the controlling member of the grip.

2. In a cable grip, the combination of a con- 90 trolling lever; a link connecting said lever with one member of the grip and provided with an opening receiving a fulcrum on said grip-member,—said opening having an angular extension; and an automatic trip for mov- 95 ing the link to a position where the said fulcrum may occupy the said extension of the opening, for the purpose set forth.

3. In a cable grip, the combination of a stationary member; a movable member; a con- 100 trolling lever pivoted to the movable member; a link fulcrumed to said lever and to the stationary member and having an opening receiving one fulcrum and provided with an angular extension; and an automatic trip for 105 moving the link to a position where the said fulcrum may occupy the angular extension of said opening, for the purpose described.

4. In a cable grip, the combination of a stationary member; a movable member; a con- 110 trolling lever pivoted to the movable member; a link fulcrumed to said lever and to the stationary member and having an opening receiving the fulcrum on the stationary part and provided with an angular extension; and 115 an automatic trip for moving the link to a position where the said fulcrum may occupy the angular extension of said opening, for the purpose described.

5. In a cable grip, the combination of a con- 120 trolling lever; a link connecting said lever with one member of the grip and provided with an opening receiving a fulcrum on said grip-member,—said opening having an angular extension; an angle-trip-lever arranged to 125 encounter a rise in the track; and a suitable connection between said lever and the link, whereby the latter may be moved to a position in which the said fulcrum may occupy the extension of the opening. 130

6. In a cable grip, the combination of a con-
trolling lever; a pair of links connecting said

5 lever and one member of the grip and each link having an opening which receives a fulcrum on said grip-member, and is provided with an angular extension; angle-trip-levers carrying a roller between them arranged to encounter a rise in the track; and suitable connections between the said trip-levers and the links whereby the latter may be moved to a position where the fulcrum may occupy

the extensions of the openings, for the purpose described.

In testimony whereof we affix our signatures in the presence of two witnesses.

ARTHUR O. BABENDREIER.
FRANK PARKER DAVIS.

Witnesses:

G. A. BOYDEN,
JNO. T. MADDOX.