

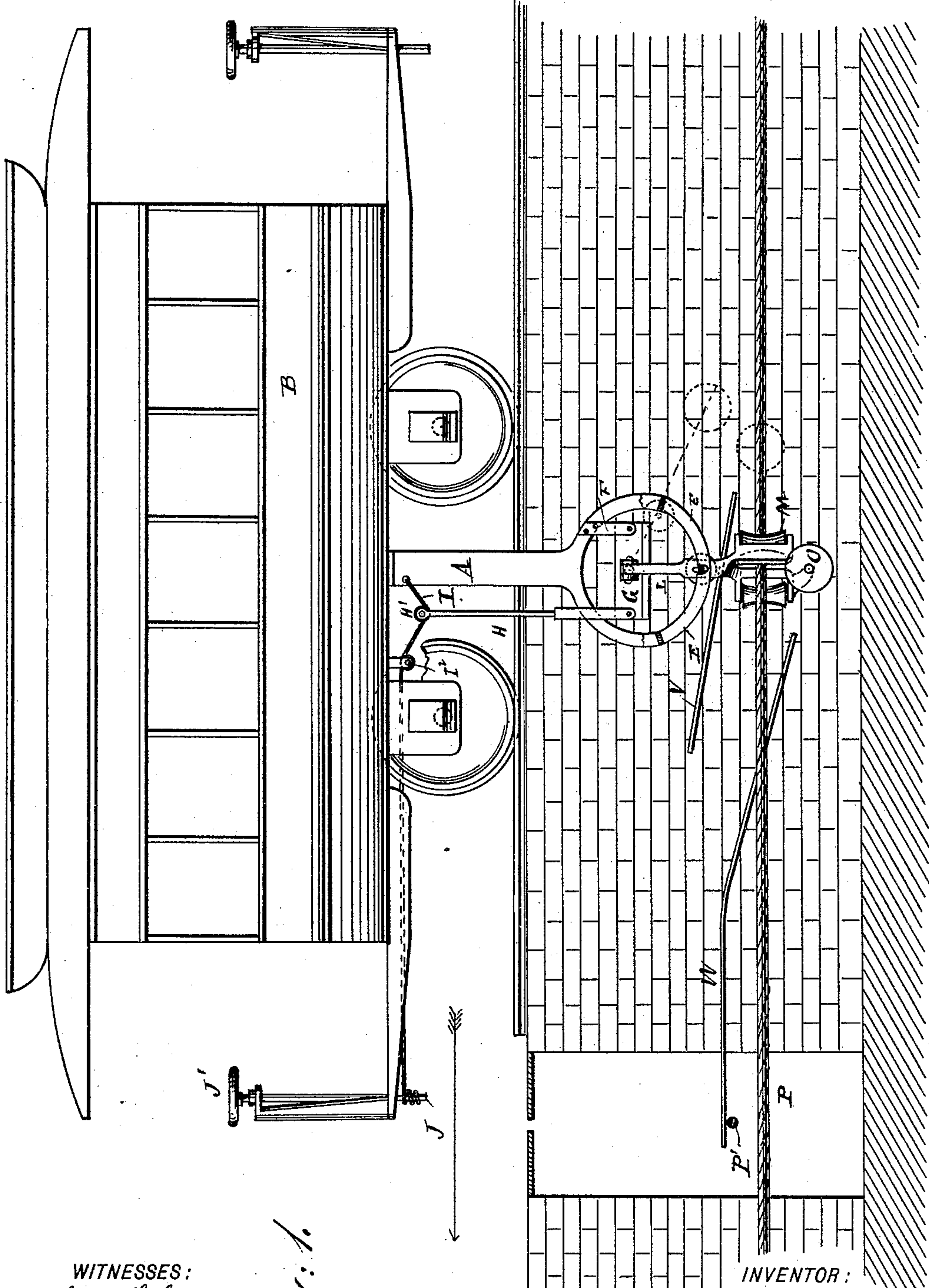
(No Model.)

3 Sheets—Sheet 1.

E. R. GUERRA.  
CABLE GRIP.

No. 429,790.

Patented June 10, 1890.



WITNESSES:  
*Henry Huber*  
*W. Reinher*

*Fig. 1.*

INVENTOR:

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BY *Joseph Regener*  
ATTORNEYS

(No Model.)

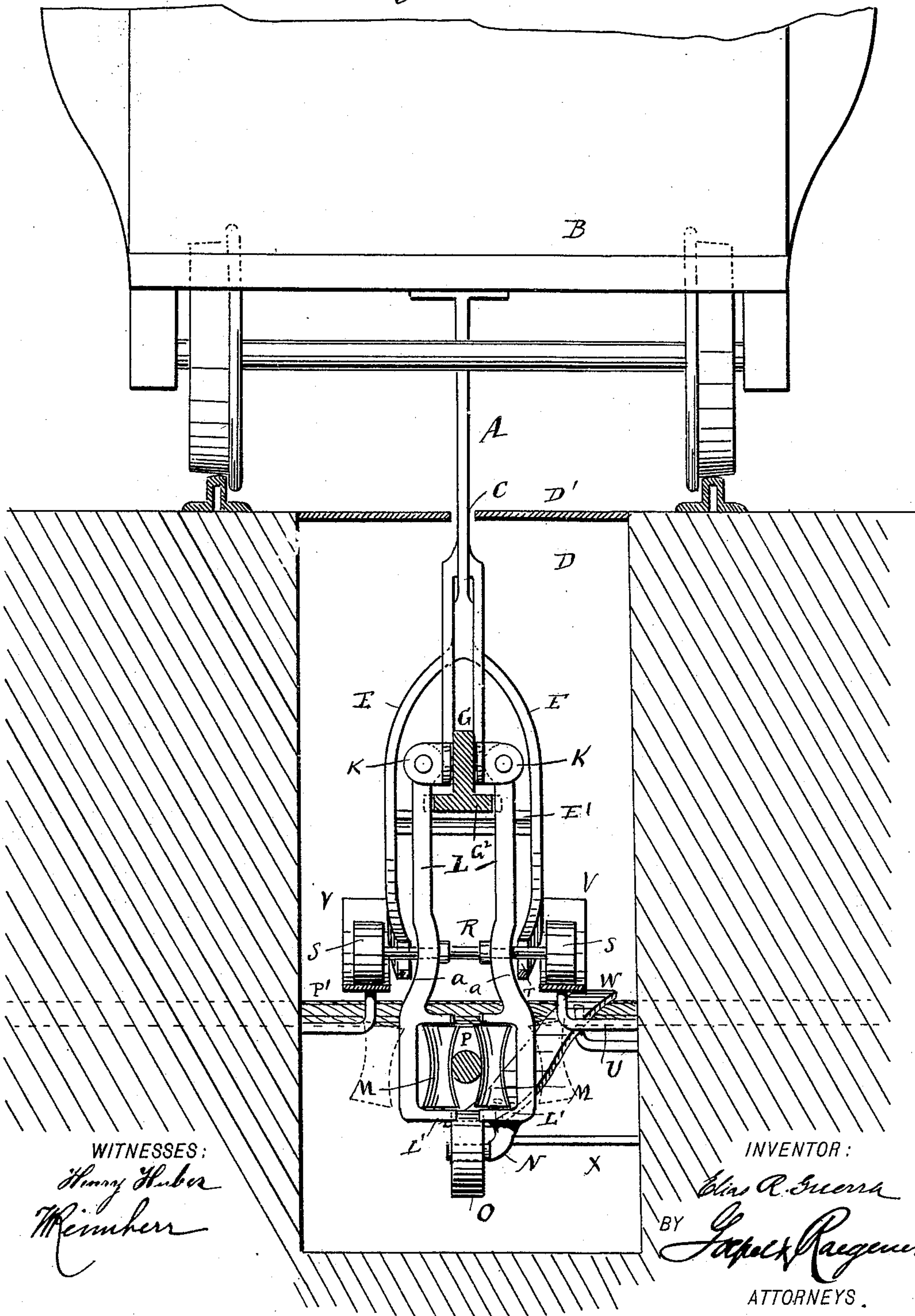
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*Fig. 2.*



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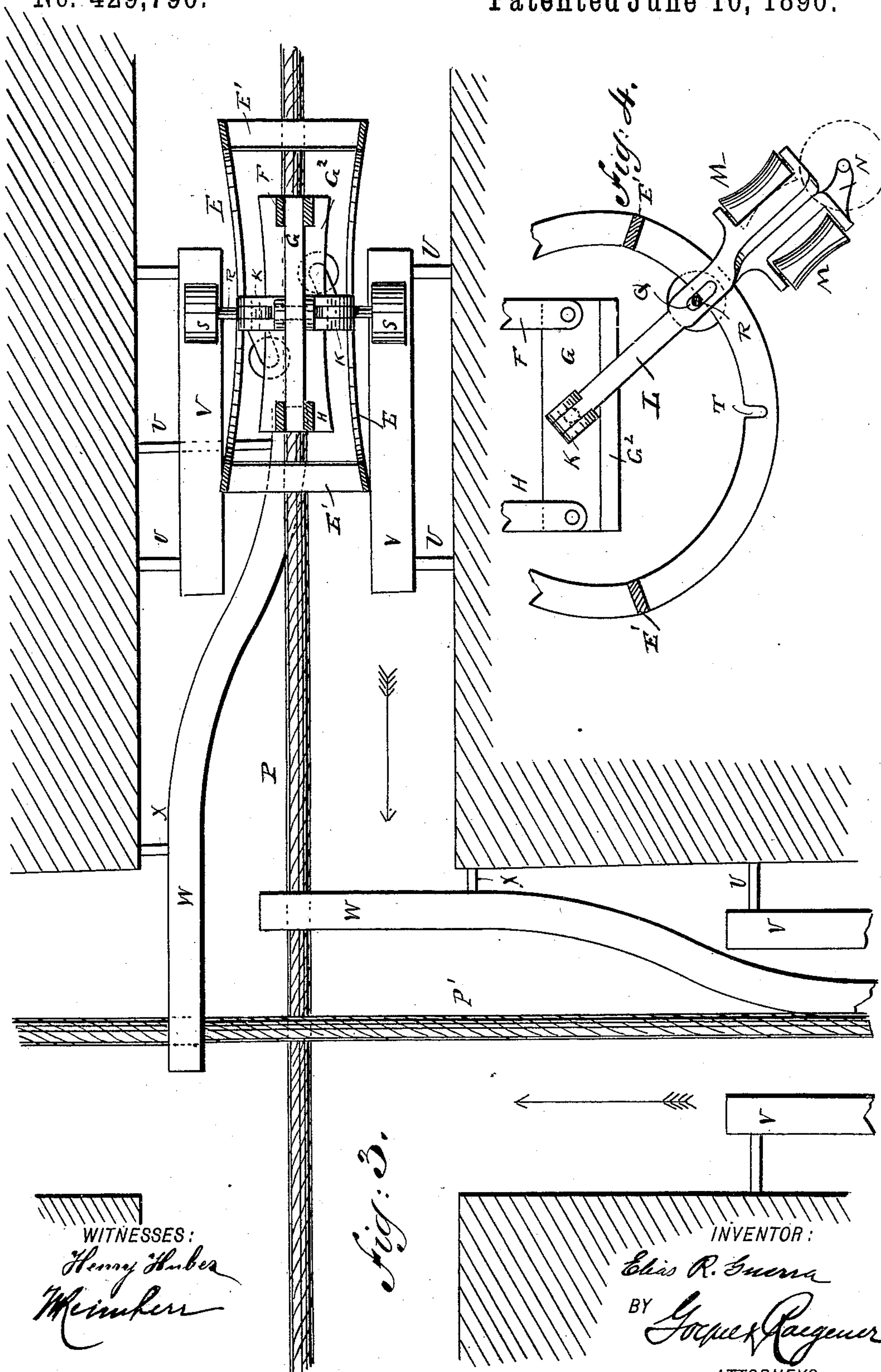
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WITNESSES:

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**INVENTOR:**

Elias R. Guerra

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# UNITED STATES PATENT OFFICE.

ELIAS R. GUERRA, OF HACIENDA DE SAN MATIAS, JALISCO, MEXICO.

## CABLE-GRIP.

SPECIFICATION forming part of Letters Patent No. 429,790, dated June 10, 1890.

Application filed March 5, 1890. Serial No. 342,717. (No model.)

*To all whom it may concern:*

Be it known that I, ELIAS R. GUERRA, of Hacienda de San Matias, State of Jalisco, Republic of Mexico, a citizen of Mexico, have  
5 invented certain new and useful Improvements in Cable-Grips, of which the following is a specification.

The object of my invention is to provide a new and improved cable-grip for cables running in underground conduits, which grip is  
10 so constructed as to automatically release the cable in the conduit before arriving at a crossing conduit and to automatically grip the cable after said crossing conduit has been  
15 passed, which grip can also be operated at any time desired from the car.

The invention consists in the construction and combination of parts and details, as will be fully described hereinafter, and finally  
20 pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side view of a car provided with my improved grip, shown in side elevation, and a vertical longitudinal sectional view of  
25 the conduit, parts being broken out and others in section. Fig. 2 is an enlarged vertical transverse sectional view through the conduit, showing a transverse sectional view of the grip and part of the car. Fig. 3 is a  
30 horizontal sectional view of the conduit at a crossing. Fig. 4 is a detail side view of the grip, showing the manner in which the same operates, parts being in section.

Similar letters of reference indicate corresponding parts.

From the bottom of the car B the bar A projects downward through the slot C in the top D' of the conduit D. To the bottom of  
40 the bar A the two approximately-circular frames E E are fastened, which frames are so arranged as to converge from their lowest point upward, as shown in Fig. 3, which frames E are suitably braced and stiffened by cross-bars E' connecting them. To arms F,  
45 projecting downward from the top parts of said frames E, the heavy bar G is pivoted, the opposite end of which is pivotally connected with a rod extending up through the slot C in the top of the conduit in front of  
50 the bar A. The upper end of said rod H carries a pulley H', that rests on a chain or wire rope I, secured to the bar A and passing

over a pulley I<sup>2</sup> on the under side of the car, the front end of said wire rope or chain being secured to the lower end of a vertical shaft  
55 J on the front platform, which shaft is provided with the hand-wheel J' for turning it.

On each side of the bar G a pair of lugs or ears K are swiveled, between each of which the upper end of a gripping-lever L is piv-  
60 oted, each lever being provided at its lower end with inwardly-projecting arms L', between which a vertical gripping-roller M is mounted. One of the levers is provided with a downwardly-projecting bracket-arm N, carrying a roller O, which is below the cable P.  
65 Each lever has a longitudinal slot Q, through which a shaft R is passed, on the ends of which the wheels S are mounted. Each curved frame E is provided in its top edge at the  
70 lowest point with a notch T, into which the shaft R can drop. The levers L are each provided on the outer edge with a downward and outward bevel *a* at those parts adjacent to the lower parts of the frames E. On suit-  
75 able arms U, projecting from the side of the conduit, two inclined rails V are arranged a short distance before the crossing is reached. An additional rail W is supported by the  
80 bracket-arms X from the side of the conduit, said rail W being inclined upward for part of its length and then running horizontally across the crossing cable P', and said rail is also inclined laterally throughout the up-  
85 wardly-inclined part. The upper parts of the rails V project over the lower part of the corresponding rail W, as shown in Fig. 3. Said rails V and W are arranged in each conduit at one side of the crossing.

The operation is as follows: Before a car  
90 arrives at a crossing the wheels S run up the inclined rails V, whereby the shaft R is moved upward and lifted out of the notches T in the frames E, and said shaft is also moved upward in relation to the levers L. By the time  
95 that the shaft R has been lifted out of the notches T the bottom roller O runs upon the bottom part of the inclined rail W, whereby the levers L are swung into the position shown in dotted lines in Fig. 1 and in full lines in  
100 Fig. 4—that is to say, their beveled parts *a* are moved to those parts of the frames E that are a greater distance from each other by the action of the side edges of the flanges G<sup>2</sup> of



the bar G on said levers, said side edges diverging from the center of the bar G toward the ends of the same. The levers L are thus free and do not exert any pressure 5 on the cable. As said levers swing from each other, the roller O runs up the inclined track W and passes over the crossing cable P'. When the grip has passed the crossing-cable, the roller O runs off the end of 10 the track W, permitting the arms L to swing down at the sides of the cable, which, by acting on the grip-rollers M, draws the levers L into the vertical position and forces them down between the lowest parts of the frames 15 E, which are close to each other. As the levers L are forced down between said lower parts of the frames E, they are pressed toward each other, causing the rollers M to grip the cable. When the levers L are in the vertical 20 position, the shaft R drops into the notches T, thus locking the parts of the grip in place. When it is desired to release the cable at any time for the purpose of stopping the car, the shaft J is turned by means of the wheel J' in 25 such a manner as to release the chain or wire rope I on said shaft J, whereby the bar H, carrying the levers L, is permitted to move downward, whereby the levers L are moved downward under the action of the weight of the 30 cable and their own weight. Such downward movement of the levers L is permissible, as the slots Q are provided for this purpose in the levers L. As the levers L move downward, they are not subjected to the wedge action of the curved bottom parts of the 35 frames E for the reason that the parts a of said levers L are inclined upward and toward each other. As soon as the wedge action of the bottom parts of the frame E ceases the 40 cable can run freely through between the grip-rollers M. When it is desired to tighten the grip again, all that is necessary is to wind the chain or wire rope I on the shaft J, whereby the bar H is swung upward and the levers L 45 are raised. The bevels a are pressed forcibly against the curved bottom parts of the frame E, and the same, acting as wedges, force the bottom parts of the levers L, carrying the rollers M, toward each other, causing said 50 rollers M to grip the cable.

My improved grip does not only automatically release the cable when it arrives at a crossing and automatically grasp and grip the cable after the crossing has been passed, but 55 it also permits of releasing and tightening the grip on the cable at any point and whenever desired.

The grip is very simple in construction, operates very rapidly, is strong and durable, 60 and requires very little manipulation.

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

1. In a cable-grip, the combination, with 65 two curved frames inclined toward each other toward their lowest point, of gripping-levers pivoted between said frames to swing toward

and from each other and to also swing in a longitudinal plane between the frames, substantially as set forth. 70

2. In a cable-grip, the combination, with two frames inclined downward and toward each other laterally, of a bar hinged to said frames and two cable-gripping levers swiveled to said bar between the frames, substantially as set forth. 75

3. In a cable-grip, the combination, with two frames inclined downward and toward each other, of a bar hinged to said frames, means for raising and lowering said bar, and 80 two cable-gripping levers swiveled to said bar between the frames, which cable-gripping levers have bevels on their outer edges, substantially as set forth.

4. In a cable-grip, the combination, with 85 two frames inclined downward and also inclined laterally toward each other, of a bar pivoted on said frame, two cable-gripping levers swiveled on said bar between the frames, a transverse shaft in the cable-gripping levers, rollers on said shaft, and inclined tracks 90 in the conduit and on which said rollers can run, the said frames being provided with notches for receiving said shaft, substantially as set forth. 95

5. The combination, with two frames inclined downward and inclined laterally toward each other, of a bar hinged to said frames, two cable-gripping levers swiveled to said bar between the frames, each lever being 100 provided with a longitudinal slot, a shaft passing through said slots, rollers on said shaft, and inclined tracks in the conduit on which said rollers can run, the said frames being provided with notches for receiving the 105 above-mentioned shaft in the cable-gripping levers, substantially as set forth.

6. The combination, with two downwardly-inclined frames, which are also inclined laterally toward each other, of a bar hinged to 110 said frames, two cable-gripping levers swiveled to said bar and provided with bevels on their outer edges and with longitudinal slots, a shaft passing through said longitudinal slots, rollers on the ends of said shaft, a roller 115 on the lower end of one of the levers, inclined tracks in the conduit, on which tracks the said rollers on the shaft can run, and an inclined track in the conduit on which the bottom roller can run, substantially as set 120 forth.

7. In a cable-grip, the combination, with two curved frames inclined downward and toward each other laterally, of a bar having side edges diverging from the center toward 125 the ends and gripping-levers swiveled to said bar, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

ELIAS R. GUERRA.

Witnesses.

OSCAR F. GUNZ,  
WILLIAM HAY.