

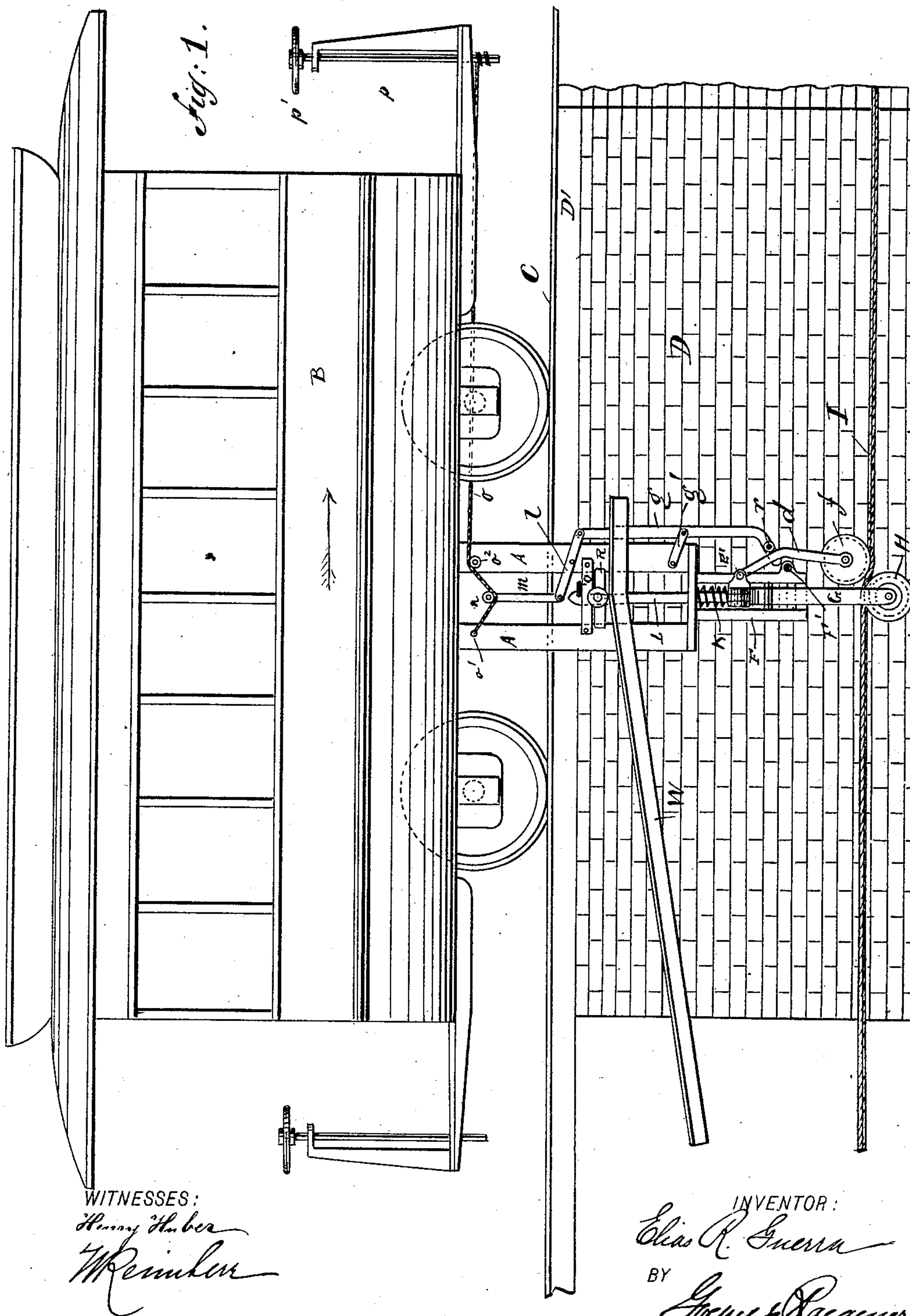
(No Model.)

3 Sheets—Sheet 1.

E. R. GUERRA.
CABLE GRIP.

No. 428,904.

Patented May 27, 1890.



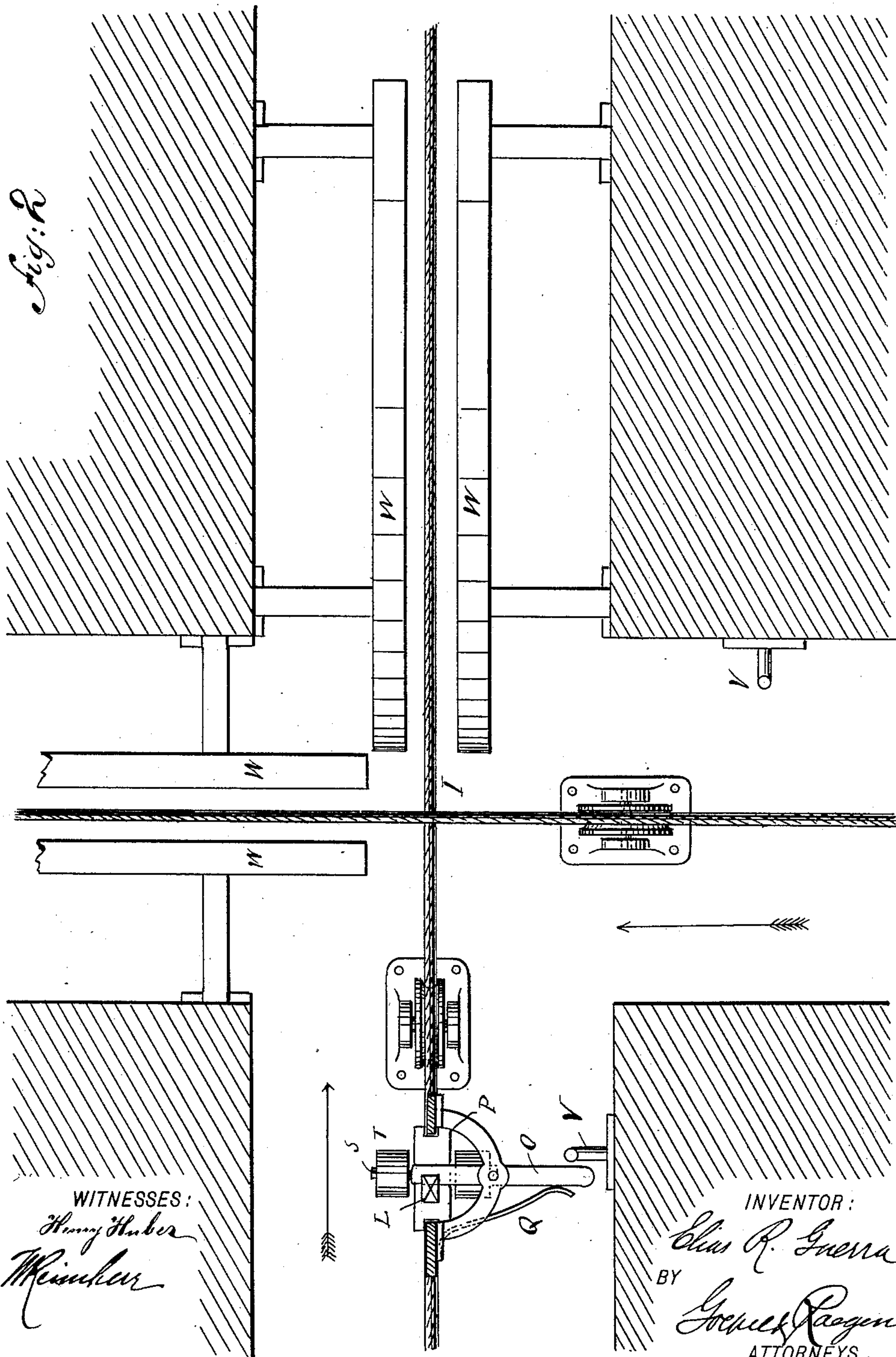
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3 Sheets—Sheet 2.

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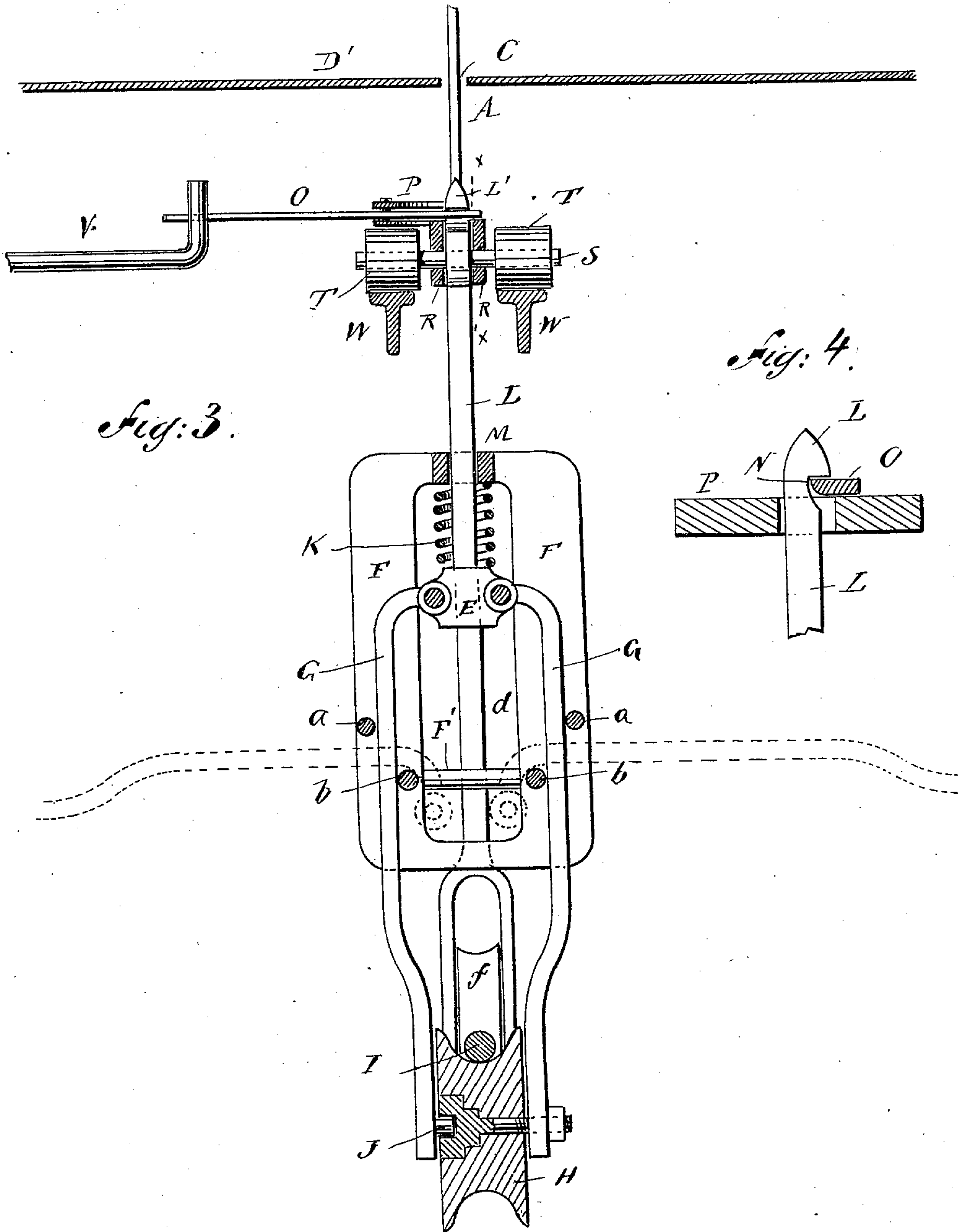
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3 Sheets—Sheet 3.

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No. 428,904.

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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. 428,904, dated May 27, 1890.

Application filed February 27, 1890. Serial No. 341,909. (No model.)

To all whom it may concern:

Be it known that I, ELIAS R. GUERRA; of Hacienda de San Matias, State of Jalisco, Mexico, a citizen of the Republic of Mexico, have 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 so constructed and arranged as to automatically release the cable when a crossing cable is encountered and to pass over said crossing cable and then to automatically grip the cable on which it was applied before the crossing was reached.

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

In the accompanying drawings, Figure 1 represents a side view of a car provided with my improved cable-grip, parts of the conduit being shown in longitudinal section, and the grip on the car being shown in side view. Fig. 2 is a plan view of two conduits at a crossing, parts being shown in horizontal sectional view. Fig. 3 is an enlarged cross-sectional view of a conduit and cross-sectional view of a grip in the same. Fig. 4 is a detail cross-sectional view on the line *x x*, Fig. 3.

Similar letters of reference indicate corresponding parts.

The grip-frame bars *A A* are secured to and project from the bottom of the car *B* through the longitudinal slot *C* in the top *D'* of the conduit *D*. A head *E* is mounted to slide vertically between the side bars *F* of the grip-frame, and to the said head *F* the two opposite gripping levers or jaws *G G* are pivoted at diametrically-opposite points, one of said arms *G* carrying on its lower end the circumferentially-grooved roller *H*, that supports the cable *I*, and the other arm *G* is provided on its end with a pin *J*, adapted to pass into a recess in the outer face of said roller *H*. The arms *G* pass down between the two pins *a a* and *b b* on the side bars *F*, the pins *a* being arranged above the pins *b*, and said pins *a* being arranged at the outer edges of the bars *F*, whereas the pins *b* are arranged at the inner edges. A powerful spiral spring *K* sur-

rounds a rod *L*, projecting upward from the head *E* and guided in the fixed collar *M* of the grip-frame, said rod *L* having its upper end *L* tapered or wedge-shaped and provided a short distance below the said tapered or wedge-shaped end with a notch *N*, into which a latch *O* can snap, the bottom edge of which is beveled, as shown in Fig. 4. Said latch is pivoted to bracket-arms *P*, secured to the grip-frame bars *A*, and a spring *Q*, pressing on the outer end of said latch, keeps its inner end within the notch *N* of the bar *L*.

To the upper end of the bar *L* two guide-bars *R* are fastened, that can slide between the grip-frame bars *A*. Through said upper end of the bar *L* and through the guide bars *R* a transverse shaft *S* passes, on which two rollers *T T* are mounted, that can run on rails *W*, arranged in the conduit in such a manner as to be inclined upward from the crossing, as shown in Fig. 2. On one side of the conduit a projecting arm *V* is arranged, against which the outer end of the latch *O* can strike, said projection *V* being arranged at that side of the crossing conduit reached by the car before arriving at said crossing conduit. The inclined rails *W* begin a short distance beyond the center of the crossing conduit and are arranged at one side of said crossing conduit only.

The operation is as follows: The spring *K* bears with one end on the fixed collar *M*, and the other bears downward on the head *E*, and has a tendency to force said head downward, but is prevented from doing so by the latch *O*, that engages the notch *N* in the upper end of the bar *L*. Before the grip arrives at a crossing the outer end of the latch *O* strikes against the projection *V*, whereby the inner end of the latch *O* is withdrawn from the notch *N*, permitting the spring *K* to force downward the head *E*. As said head is forced down the levers or jaws *G* are moved from each other by the action of the pins *a* and *b*, as indicated in dotted lines in Figs. 3 and 6, and thus the cable is released. After the grip has crossed the crossing conduit the rollers *T* run upon the lower ends of the inclined tracks *W* and run up the same, whereby the bar *L* is raised, the spring *K* is compressed, and the arms *G* swung from the position shown in dotted lines in Fig. 3 to the

position shown in full lines, the roller H passing under the cable and lifting the same. When the rollers T arrive at the horizontal portion the notch N in the bar L is in such a position that the latch O can snap into it, thereby locking the several parts of the grip in closed position. The grip is thus raised, automatically opened whenever a crossing is reached, the cable is released, and the parts of the grip are raised above the crossing cable. A lever *d* is pivoted to the head E and E', and carries at its lower end a gripping-roller *f*, which presses the cable against the roller H, and thus grips it. A transverse pin F' on the side bars F acts on said lever *d* when the head E is forced downward, thereby raising the lever *d* at a crossing. A presser-bar *g* is connected by a link *g'* with a bar A, and has its upper end pivoted to a lever *l*, pivoted on one of the bars A, which lever is also pivoted to a rod *m*, provided at its upper end with a roller *n*, running on a cable *o*, secured at *o'* to a bar A and running over a roller *o''* on the other bar A. Said chain or wire rope is secured and adapted to be wound on a vertical shaft *p* on one end of the car, which shaft is provided at its upper end with a hand-wheel *p'*. When the brake is to be applied, the chain or cable is wound on the shaft *p*, whereby the bar *g* is forced downward, causing the pin *r* on the lower end of the same to press on the lever *d*, whereby in turn the roller *f* is pressed against the cable and grips the cable between said rollers *f* and H. When the car is to be stopped, the chain or cable is released, so as to remove the pressure from the roller *f*.

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

1. The combination, with a cable car and conduit, of a grip mechanism on the car, a spring for opening the grip mechanism, and means for automatically releasing said spring, substantially as set forth.

2. The combination, with a grip-frame, of a vertically-sliding head guided in the frame, a spring for pressing said head downward, grip-

ping levers or jaws pivoted to the head, a bar projecting upward from the head, and a latch for engaging said bar, substantially as set forth.

3. The combination, with a grip-frame, of a head mounted to slide vertically in said frame, gripping jaws or levers pivoted to said head, a spring for pressing the head downward, a bar projecting upward from said head and provided with a notch, and a latch pivoted on a bracket on the grip-frame and adapted to engage the notch in said bar, substantially as set forth.

4. The combination, with a grip-frame, of a vertically-sliding head, a spring for pressing the head downward, gripping jaws or levers pivoted to the head, a bar projecting upward from the head, a transverse shaft in the upper part of said bar, rollers on said shaft, and a latch for engaging the upper end of the bar, as set forth.

5. The combination, with a grip-frame, of a vertically-sliding head, a spring for pressing said head downward, gripping levers or jaws pivoted to said head, guide-pins on the frame, between which pins the levers pass, a latch for locking said head, and a bar on the same in raised position, an additional gripping-lever pivoted to said head, and a cross-pin on the frame adapted to act on said additional lever, as set forth.

6. The combination, with a gripping-frame, of a sliding head, a spring for pressing said head downward, two gripping jaws or levers pivoted on said head, an additional gripping jaw or lever pivoted on said head, a pin on the frame adapted to act on said additional lever, a push-bar adapted to act on said additional lever, and means for operating said push-bar from the car, 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.