(No Model.) 2 Sheets—Sheet 1.

E. R. GUERRA.

CABLE GRIP.

No. 473,221. Patented Apr. 19, 1892.

Fig: 1.

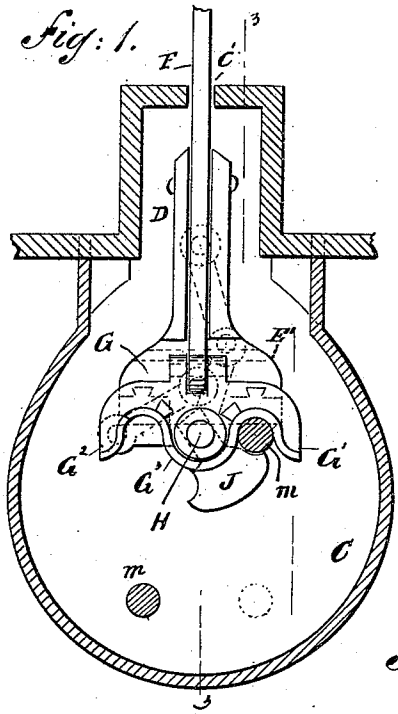


Fig: 2.

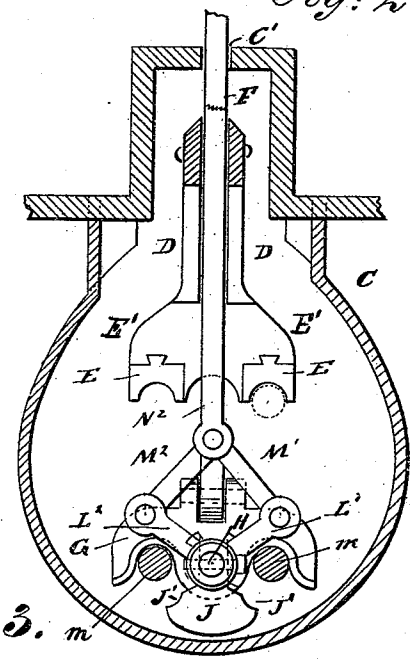
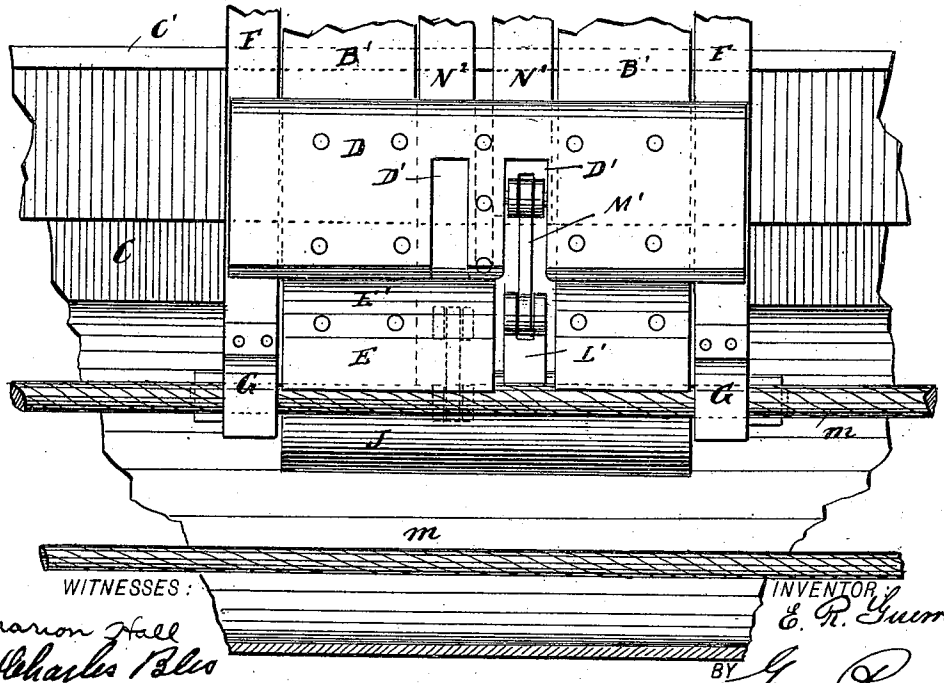


Fig: 3.



WITNESSES:
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Charles Bliss

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BY Goepel & Raegener
ATTORNEYS.

(No Model.) 2 Sheets—Sheet 2.

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Fig: 4.

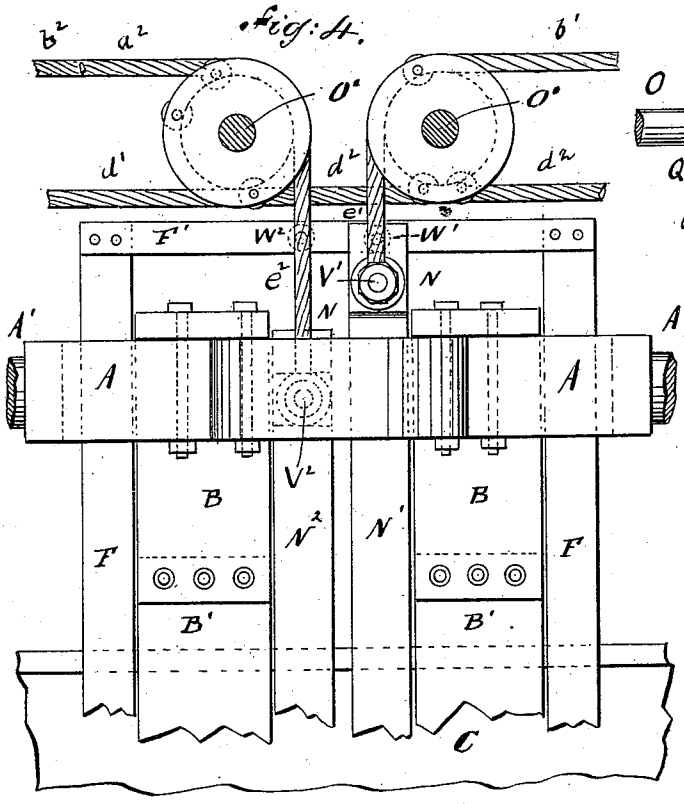
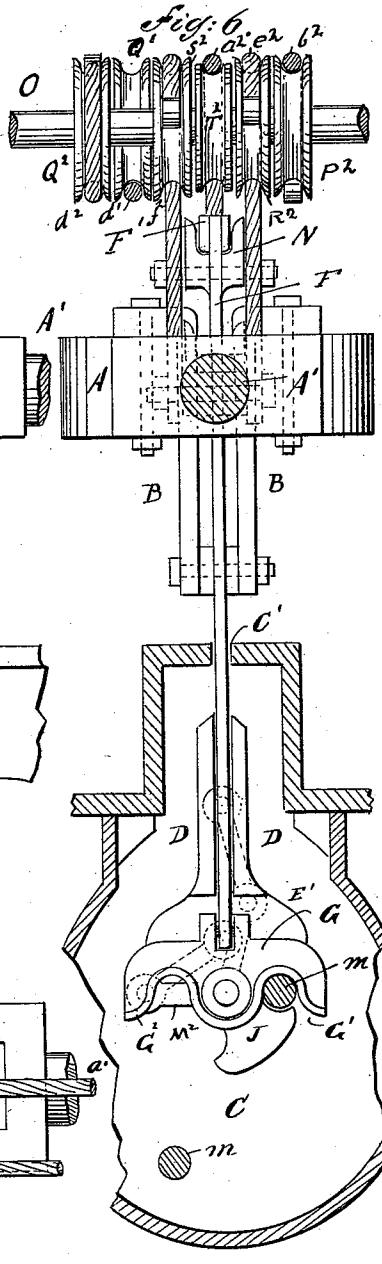
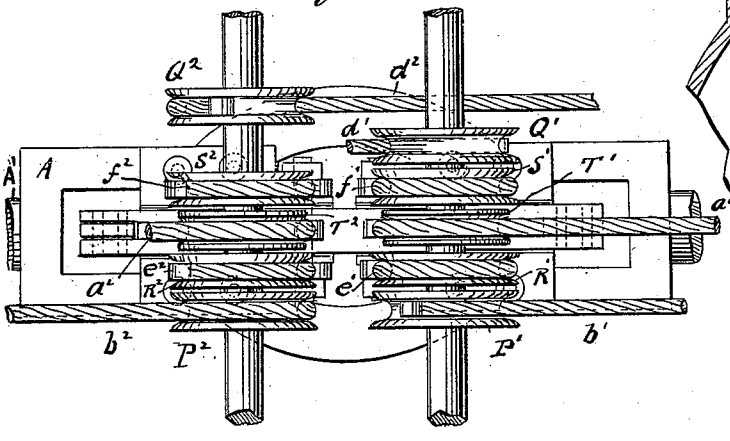


Fig: 6.



O' Fig: 5. O'



WITNESSES:

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UNITED STATES PATENT OFFICE.

ELIAS R. GUERRA, OF HOBOKEN, NEW JERSEY.

CABLE-GRIP.

SPECIFICATION forming part of Letters Patent No. 473,221, dated April 19, 1892.

Application filed January 15, 1892. Serial No. 418,173. (No model.)

To all whom it may concern:

Be it known that I, ELIAS R. GUERRA, a citizen of Mexico, and a resident of Hoboken, in the county of Hudson, State of New Jersey, have invented certain new and useful Improvements in Cable-Grips, of which the following is a specification.

This invention relates to improvements in cable-grips; and the object of my invention is to provide a new and improved cable-grip which is strong and durable, simple in construction and operation, and which can be used on either one of two cables in a conduit, and by means of which grip the cables can be lifted whenever desired from the bottom of the conduit.

In the accompanying drawings, Figure 1 is a vertical transverse sectional view of a cable-conduit containing my improved grip, the grip being shown in raised position and gripping one cable, parts being omitted. Fig. 2 is a similar view showing the grip in lowered position, both cables being released. Fig. 3 is a side view of the lower part of the grip in the conduit, the grip being raised and the conduit shown in section on the line 3 3 of Fig. 1. Fig. 4 is a side view of the upper part of the grip, parts being broken out. Fig. 5 is a plan view of a grip, showing the arrangement of the pulleys for operating the same; and Fig. 6 is a vertical transverse sectional view through the upper part of the grip and through the conduit.

Similar letters of reference indicate corresponding parts.

The entire grip is suspended from a frame A, which is held horizontally below the car-bottom, and is preferably provided on the ends with pivots A′ to permit it to swing, so as to prevent binding at the slot of the conduit when a car moves unevenly. To said frame A two pairs of downwardly-projecting plates B are bolted, and to the lower ends of said plates B the downwardly-projecting plates B′ are bolted, which pass through the slot C′ in the top of the conduit C. To the lower ends of the plates B′ two plates D are bolted or riveted, which extend parallel with the length of the conduit and are each provided with two recesses D′ at the middle. Said plates D are flared outward at their lower ends E′, to which lower ends E′ the gripping-shoes E are fastened, against which the cables are pressed. The frame A and the plates B, B′, and D are fixed to the car and form the body-frame of the grip and are not capable of any vertical adjustment. The ends of the plates D overlap the outer side edges of the two plates B′ and form guides for two flat end bars F, which are united at their upper ends by two bars F′, running parallel with the length of the conduit and form a vertically-movable frame, and on the lower end of each bar F a head G is bolted or riveted, which head is provided with two downwardly-projecting forks G′ and G^2, adapted to receive the cables, and a lug G^3 is formed between said forks. In said lugs G^3 the ends of a shaft H are mounted to rock, which shaft is provided with a downwardly-projecting gripping-jaw J, rigidly connected with said shaft, said jaw having a longitudinal recess J′ in each side. Said jaw J extends the entire space between the inner sides of the heads G as shown in Fig. 3. From said shaft H two arms L′ L^2, rigidly connected therewith, project upward and outward and are arranged at an angle of about one hundred degrees to each other, more or less, said arms L being arranged at or near the center of the rocking shaft H. The arms L′ L^2 are connected by the pivoted links M′ M^2 with two bars N′ N^2, mounted to slide along the inner edges of the plates B B B′ B′ and adjacent to the same and pass through the slot C′, so that the two end bars F F, the plates B′ B′, and the sliding bars N′ N^2 are all in line. The bars N′ N^2 are each provided at the upper end with a fork N, adapted to receive the cross-bars F′, connecting the upper ends of the bars F.

In a suitable frame on the car (not shown) two shafts O′ O′ are journaled and carry the pulleys P′ Q′ R′ S′ and P^2 Q^2 R^2 S^2, respectively, which pulleys are fixed on said shafts, and in addition thereto the shafts O′ O′ carry the pulleys T′ and T^2, respectively, mounted loosely on said shafts. A cable a' extends from one end of the car to the loose pulley T′, and passing over the same has its lower end secured to the cross-pieces F′, uniting the bars F, as shown at W′, Fig. 4. A cable a^2, passing over the loose pulley T^2, has its end

secured to the bars F′, as shown at W², Fig. 4, and passes to the other end of the car. By means of said cable the sliding frame, composed of the bars F F′ and the parts connected therewith, can be raised whenever this becomes necessary, and when said cables are released the grip-frame can descend under the action of its own weight. The two cables or chains *b′* and *d′* extend from opposite ends of the car to the two pulleys P′ and Q′ and are passed around said pulleys in the reverse direction and their ends are fastened to said pulleys, so that by pulling either of said cables the shaft O′ and the pulleys fixed thereon will always be rotated in the same direction.

To the pulleys R′ S′ two cables or chains *e′* and *f′* are fastened, the lower ends of which cables are fastened to a transverse bolt V′ in the forked upper end of the bar N′. In a like manner two cables *e²* and *f²* are fastened to the pulleys R² S² and their lower ends are secured by a bolt V², passing through the fork on the upper end of the bar N², so that by pulling the cables *b′* or *d′*—that is, by rotating the shaft O′ from either end of the car—the bar N′ will be lifted, and by releasing either of said cables *b′* or *d′* the bar N′ can be lowered. Chains or cables *b²* *d²* are arranged in like manner for the pulleys P² and Q². With this arrangement the entire grip-frame can be raised or lowered from either end of the car and either bar N′ or N² can be raised or lowered from either end of the car. There are two traction-cables *m* in the conduit C.

The operation is as follows: The supporting-frame, composed of the bars F F′ N′ N², and the parts connected therewith are in a lowered condition. The swinging jaw J is in the position shown in Fig. 2 and the forks G′ G² are over the two cables, as shown in Fig. 2. If the right-hand traction-cable *m* is to be gripped, the bar N′ is pulled upward from either end of the car by means of the cables *b′* or *d′*, and thereby, by means of the arm L′ and line M′, the double gripping-jaw J is swung to the right, and the cable is held between the fork G′ and the jaw J. As the bar N′ is pulled upward its forked upper end encounters the bars F′ and pulls the same upward. The bar N can be pulled upward until the traction-cable *m* rests against the right-hand shoe E′ on the plates D, the jaw J serving to press said traction-cable *m* against the under side of said shoe. The car is now pulled along by the traction-cable as long as the parts are in the position shown in Fig. 1. As soon as the corresponding cable *b′* or *d′* at either end of the car is released the bar N′ descends, and thereby the jaw J is swung back into the position shown in Fig. 2, and the cable is released. By means of this grip it is possible at any time to pick the cable from the bottom of the conduit and bring it up against a gripping-shoe E. In a like manner, when the other cable is to be gripped, the bar N² is raised by pulling either the cable *d²* or *b²*. The forked pieces E only serve with the swinging jaw J to hold the cable during the time that it is being raised up to the gripping-shoes E, and the cable is held against said gripping-shoes by the swinging jaw. As shown in dotted lines in Fig. 1, the bar N² must be moved downward in relation to the bar N′ when the latter is moved upward in order to permit the arm L² to swing in horizontal position when the arm L′ is pulled upward by its link M′. This downward movement of the bar N′ can take place as the upper ends of the cables *e²* and *f²* are slack, for the reason that the entire gripping-frame has been raised.

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

1. In a cable-grip, the combination, with the body-frame and a gripping-shoe thereon, of a swinging jaw, bars mounted to slide on the body-frame and supporting said swinging jaw, and additional bars mounted to slide on the body-frame and connected by links with said swinging jaw, substantially as set forth.

2. In a cable-grip, the combination, with the body-frame, of a vertically-movable swinging jaw, bars mounted to slide on the body-frame and supporting said swinging jaw, arms on said swinging jaw, links connected with said arms, and additional vertically-sliding bars on the body-frame connected with said links, substantially as set forth.

3. In a cable-grip, the combination, with a body-frame having a gripping-shoe, of vertically-sliding bars on the body-frame, forks on said bars, a swinging jaw mounted on said forks, arms on said jaw, links connected with said arms, and additional vertically-sliding bars on the body-frame connected with said links, substantially as set forth.

4. In a cable-grip, the combination, with a body-frame, of sliding end bars on the same, double-forked head-pieces on the lower ends of said end bars, a rocking shaft mounted in said head-pieces and provided with a jaw having double faces, two opposite arms on said rocking shaft, two independent sliding bars on the body-frame, links connecting said sliding bars with the arms on the rocking shaft, and gripping-shoes on the body-frame, substantially as set forth.

5. In a cable-grip, the combination, with a body-frame, of sliding end bars, cross-bars uniting the upper ends of the end bars, double-forked heads on the ends of the end bars, a rocking gripping-jaw mounted in said heads, arms on the gripping-jaw, links connected with said arms, sliding bars connected with the links, which sliding bars are provided at their upper ends with forks, and cables or chains connected with said sliding link-operating bars, substantially as set forth.

6. In a cable-grip, the combination, with a body-frame, of a vertically-sliding frame on the same, a gripping-jaw mounted to swing in said vertically-sliding frame, and sliding bars for operating the swinging jaw, the top of said

sliding frame being mounted in the path of the upper ends of the sliding jaw-operating bars, substantially as set forth.

7. In a cable-grip, the combination, with the body-frame, of a sliding frame carrying a swinging gripping-jaw, cables or chains for raising said sliding frame, sliding bars on the body-frame for operating the swinging jaw, and cables for raising or lowering said sliding bars, substantially as set forth.

8. In a cable-grip, the combination, with a body-frame, of a vertically-sliding frame, a swinging gripping-jaw on the sliding frame, sliding bars for operating the gripping-jaw, cables connected with the sliding bars, pulleys to which said cables are secured, and cables for rotating said pulleys, substantially as set forth.

9. In a cable-grip, the combination, with a body-frame, of a vertically-sliding frame, a swinging gripping-jaw on the sliding frame, means for operating said jaw, and cables or chains for raising or lowering the sliding frame, 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,
CHARLES SCHROEDER.