

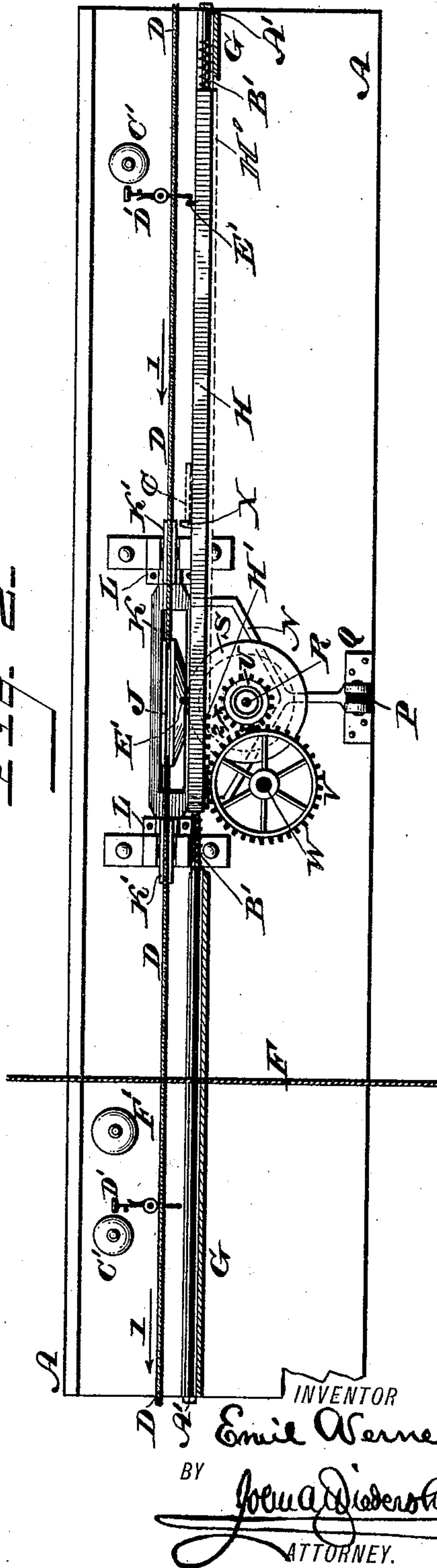
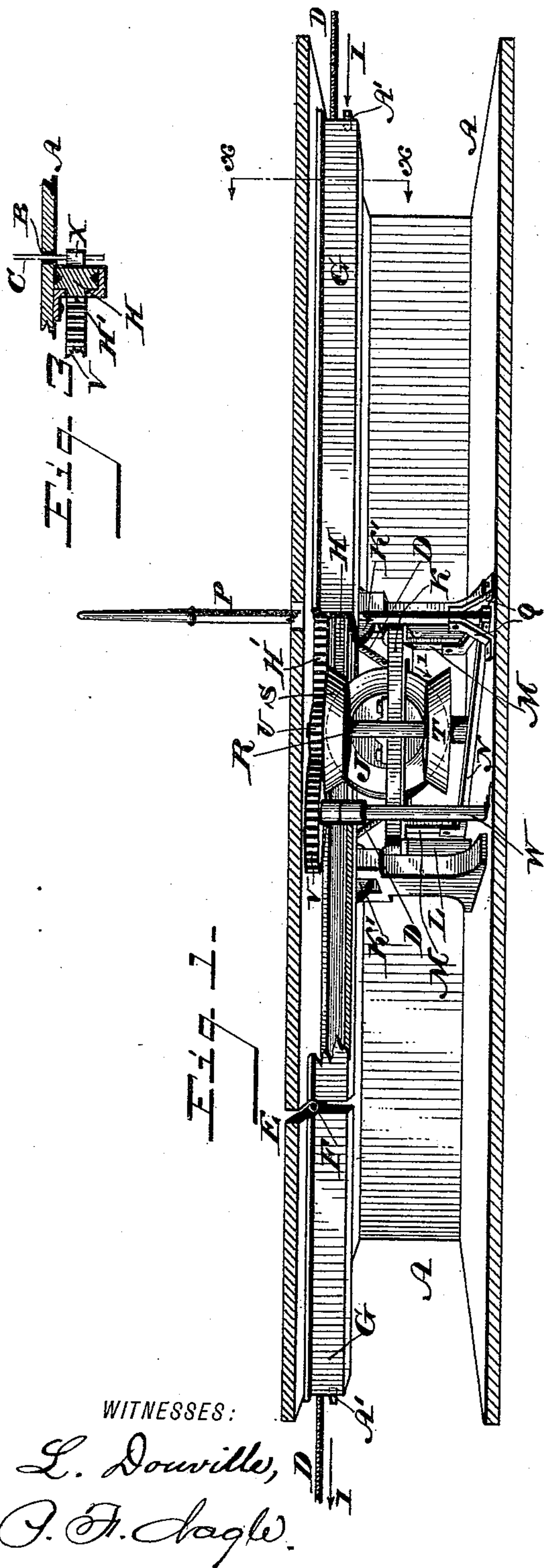
(No Model.)

2 Sheets—Sheet 1.

E. WERNER.
APPARATUS FOR CABLE CROSSINGS.

No. 449,985.

Patented Apr. 7, 1891.



WITNESSES:

L. Douville,
J. H. Chagler.

INVENTOR

Emil Werner

BY

Joseph Diederichsen
ATTORNEY.

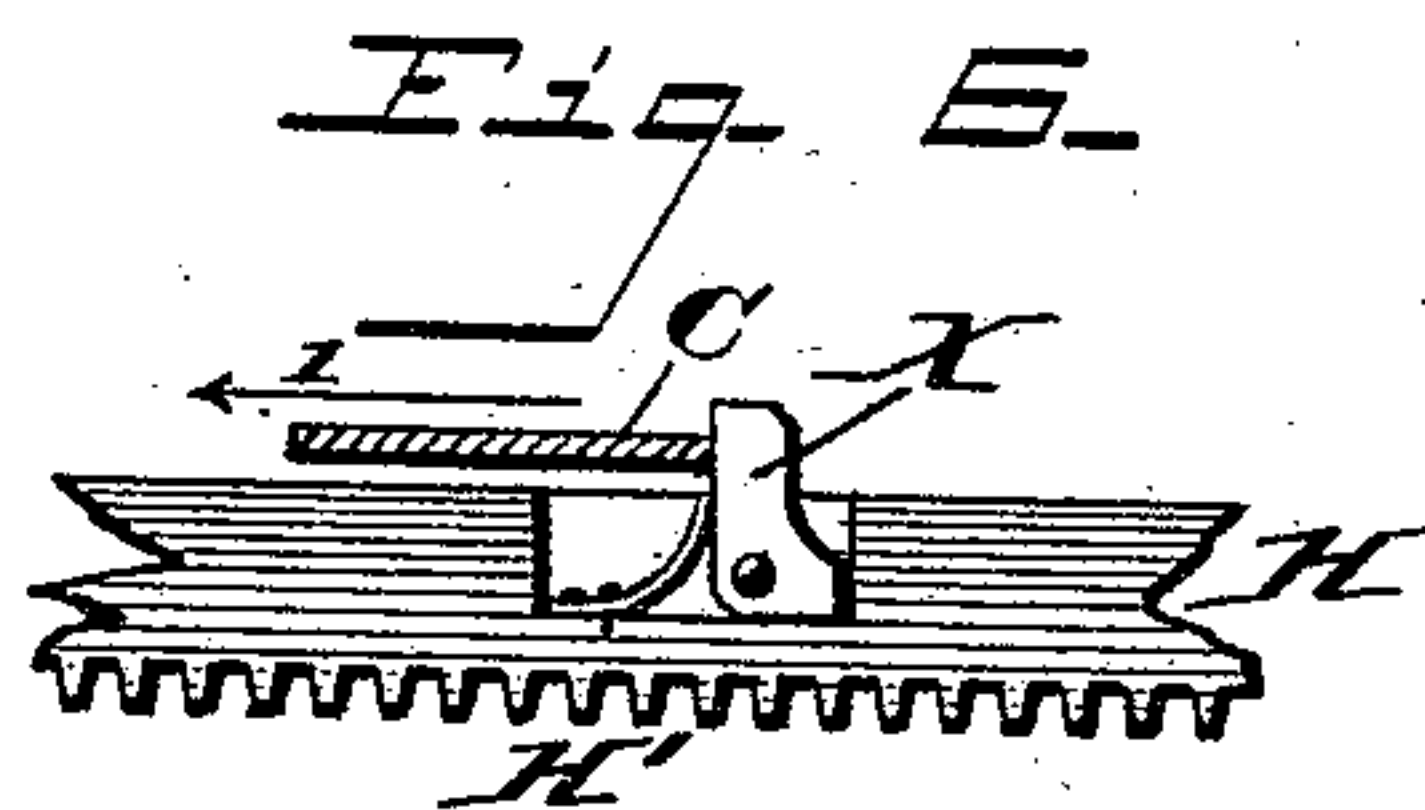
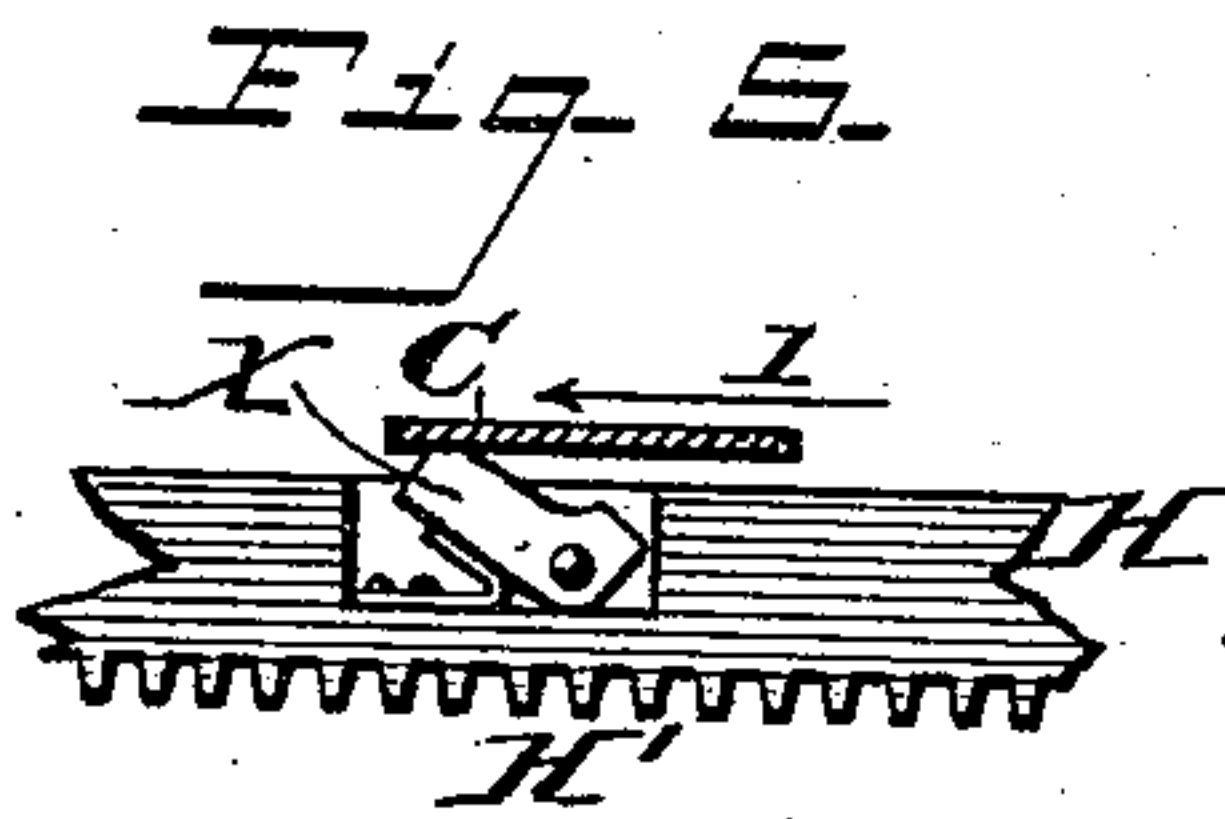
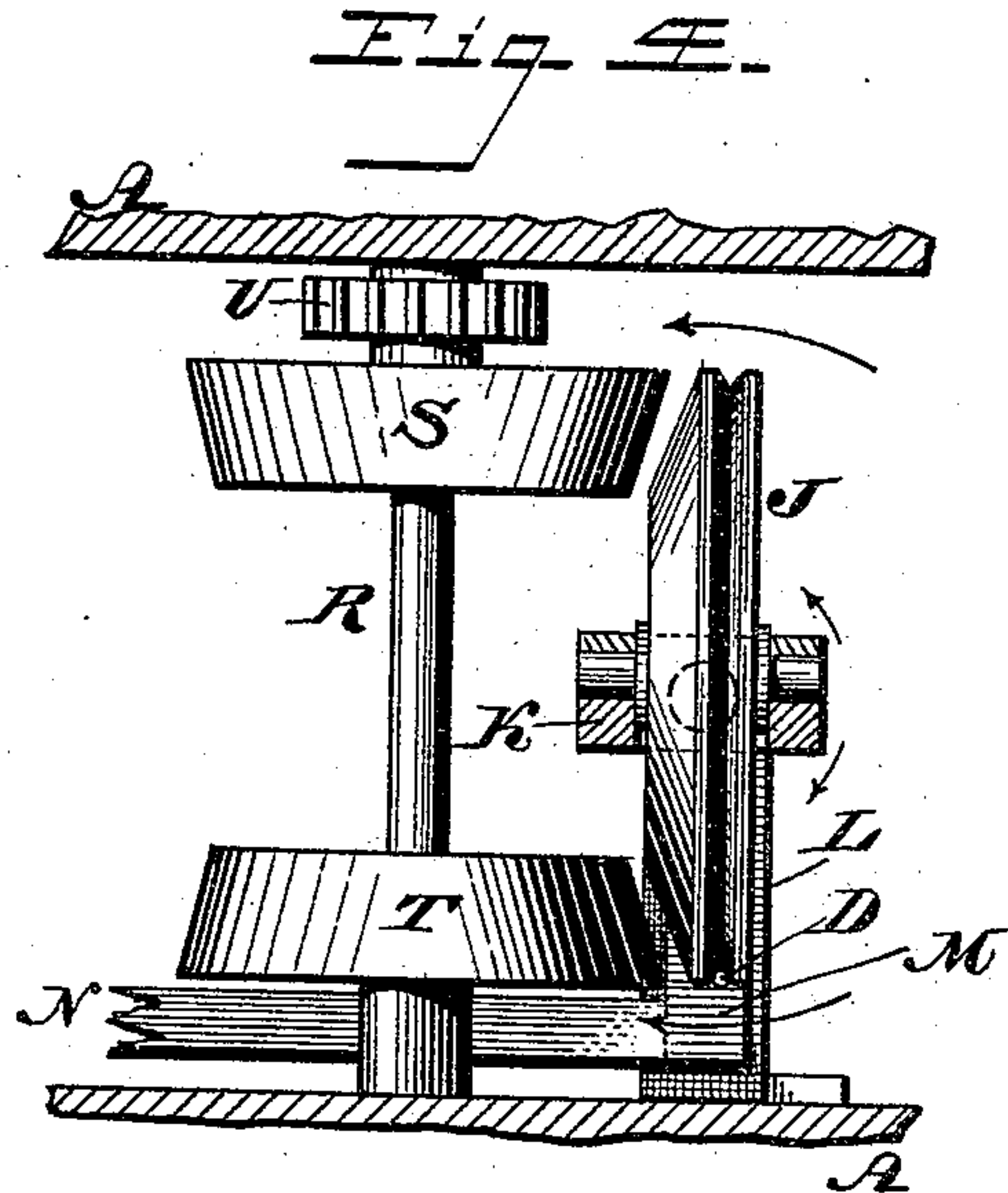
(No Model.)

2 Sheets—Sheet 2.

E. WERNER.
APPARATUS FOR CABLE CROSSINGS.

No. 449,985.

Patented Apr. 7, 1891.



WITNESSES:

L. Douville,
P. H. Hagle

INVENTOR
Emil Werner.

BY

John A. Diederheim

ATTORNEY.

UNITED STATES PATENT OFFICE.

EMIL WERNER, OF PHILADELPHIA, PENNSYLVANIA.

APPARATUS FOR CABLE-CROSSINGS.

SPECIFICATION forming part of Letters Patent No. 449,985, dated April 7, 1891.

Application filed December 16, 1890. Serial No. 374,925. (No model.)

To all whom it may concern:

Be it known that I, EMIL WERNER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Cable-Crossings, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to improvements in cable-crossings; and it consists, first, of a carriage or traveling bar operated by the movement of one of the crossing cables, and provided with a rack and a spring-arm, the latter for engaging the grip-arm of the car.

It further consists of mechanism, substantially as hereinafter described, for utilizing the movement of one of the crossing cables for returning the said carriage.

It further consists of the combination of parts hereinafter described.

Figure 1 represents a perspective view of a cable-crossing embodying my invention. Fig. 2 represents a plan view of the same, the top or covering of the casing being removed. Fig. 3 represents a vertical section on line *xx*, Fig. 1. Fig. 4 represents a detail view of the friction-pulleys for operating the carriage. Figs. 5 and 6 represent horizontal longitudinal views of the spring-arm of the carriage, showing, respectively, the grip-arm as passing the same and as engaged thereby.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates a suitable casing or conduit having a slot B in its top wall for the passage of a grip-arm C, attached to a car traveling in the direction of the movement of the cable D, and E designates a slot for the grip-arm, which connects with the crossing cable F. Within a casing or guideway G, connected with the wall of the casing A, is a reciprocating bar or carriage H, having a rack H' connected therewith and extending until within a short distance from the ends of the said bar.

To operate the carriage H so that it may be reciprocated or moved in opposite directions by the movement of the cable D, which moves continuously in the direction of the arrows 1, Figs. 1 and 2, the following mechanism is employed.

The cable D is passed under a grooved friction cone-pulley J and over the rollers K', the former being journaled in a slotted bar or frame K and the latter in suitable supports attached to the base of the casing. The said bar K has journal-bearings at its ends in the standards or supports L, secured to the base of the casing A, and has the depending arms M, to the lower ends of which is connected the bifurcated or forked lever N, pivoted to the lower end of the lever P, the latter pivoted to the standard Q, and having a handle at its upper end for convenience in operating the same. R designates a vertical shaft journaled in the upper and lower walls of the casing A, or suitable connections thereof, and having secured thereon, so as to rotate therewith, the cone or friction pulleys S and T. The latter are so arranged that the pulley J, which when in a vertical position is not in contact with either of said pulleys S and T, is when inclined in one direction in contact with one of the said pulleys, and when inclined in the opposite direction in contact with the other pulley, so that the continuous movement in the same direction of the pulley J will rotate the shaft R in either direction, according to which pulley thereon contacts with the said pulley J. On the shaft R is a pinion U, which meshes with a gear-wheel V on a shaft W, the latter being parallel with the shaft R. The said gear-wheel V meshes with the rack H' of the bar H, so as to move the said bar. On the said bar H is a projecting spring-arm X, consisting of a pivoted arm adapted to be depressed or pushed toward the bar H by the contact of the grip-arm C of the car, so as to allow the said grip-arm to pass the same, and a spring connected with said arm and bar and adapted to raise the arm, so that it will bear against the grip-arm, and thereby advance the car when the bar is moved. The said arm may be pivoted in a recess of the bar and formed with a heel bearing against the bar, so as to aid in keeping the arm from moving backward when in contact with the said grip-bar.

Stops A', consisting of pins or studs, are located at suitable places in the casing A to

limit the travel of the bar H, and the bar is provided at its ends with the springs B', adapted to keep the bar, with the rack H', in such position at the end of the travel of the bar in either direction that it will be engaged by the gear-wheel V on its reverse movement. To indicate the position of the bar, or, rather, to announce when the said bar is near or at the end of its travel in either direction, gongs C' are placed on the casing A and are rung by contact of the hammer-arms D' with the studs E' on the bar. A larger gong F' is placed near the crossing of the cables, adapted to be rung when the bar on its backward movement is free or across the crossing-slot.

The manner of operating the apparatus is as follows: The bar H being in position shown in Fig. 2 and the pulley J being vertical, the grip-bar of an approaching car will engage the arm X and, depressing the same, pass it. The grip having been previously released from the cable, the lever P is then operated, so as to incline the wheel or pulley J and cause it to contact with the pulley S, and thereby rotate the shaft R, with the pinion U, in the direction of the arrow 2, Fig. 2, and thereby the gear-wheel V, so as to advance the bar H in the direction of and across the slot E. The advance movement of the bar causes its arm X to bear against the grip-arm of the car, whereby the latter is moved across the crossing until its grip-arm is enabled to reach or grasp the cable D beyond the cross-cable F. As the carriage reaches one end of its travel, a gong C' is rung, as hereinbefore described, so that the operator of the lever P may be notified to reverse the lever, and thereby the connections of the pulleys, so as to change the direction of rotation of the gear-wheel V. Owing to the spring B' bearing against a stop and the bar, the rack H' of the bar is prevented from becoming separated or free from the wheel V, for while the continuous rotation of the wheel tends to free it the spring continually forces it back into engagement.

When the lever P is reversed, so as to bring the pulley J in engagement with the pulley T, the direction of the gear-wheel V is changed, so that it now moves the carriage or bar H back to its first or normal place on the other side of the crossing, where it may await the approach of another car. As the bar about finishes its passage across the crossing cable, the heavy or large gong F' is rung by contact with the hammer-arm thereof of a pin or arm on the said bar.

It will be seen that the device herein described is simple in character, easily operated, and not liable to readily get out of condition.

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

1. A device for the purpose named, having

a sliding bar with a rack and a spring-arm, and a rotary gear-wheel engaging said rack, said parts being combined substantially as described.

2. The combination of a sliding bar having a spring-arm projecting therefrom and provided with a rack, a rotary gear-wheel meshing with said rack, and mechanism, substantially as described, for reversing the motion of said gear-wheel, substantially as and for the purpose set forth.

3. A sliding bar with a rack, a cone or friction pulley rotated by the contact of a running cable, a shaft carrying two cones or friction-pulleys adapted to rotate the shaft in either direction, a pinion on said shaft, a shaft with a gear-wheel meshing with said pinion and said rack, and mechanism, substantially as described, for shifting said first cone-pulley into engagement with either of the two cone-pulleys on the one shaft, said parts being combined substantially as described.

4. A device for the purpose described, consisting of a sliding bar with a rack thereon and provided with arms adapted to fold or be depressed in one direction, a rotary gear-wheel meshing with said rack, a cable adapted to operate in one direction, and mechanism, substantially as described, including a pulley operated by the motion of said cable, for rotating said gear-wheel in opposite directions, said parts being combined substantially as described.

5. A device for the purpose described, consisting of a bar movable in a guide, mechanism, substantially as described, and operated by a running cable for reciprocating said bar, and springs adapted to bear between said stops and bar, pins secured to the casing limiting the travel of said bar, said parts being combined substantially as described.

6. A device for the purpose described, consisting of a bar movable in a guide and provided with a rack, a shaft with gear-wheel meshing with said rack, a shaft with pinion engaging said gear-wheel and having cone-pulleys, as described, thereon, a rotary cone-pulley having mechanism for either freeing it from engagement with said first-named cone-pulleys or engaging it with either of them, stops for said bar, and springs at the ends of said bar and adapted to bear against said bar and stop, said parts being combined substantially as described.

7. A device for the purpose described, having a bar provided with a projecting spring-arm adapted to engage the grip-arm of a car, substantially as described, mechanism for moving said bar in opposite directions, and gongs for sounding an alarm at the end of the travel in either direction of said bar, said parts being combined substantially as described.

8. A bar with rack, mechanism adapted to be operated by a running cable for moving said bar in either of two opposite directions, pins or studs for limiting the length of travel in either direction of said bar, and means for keeping said bar in engagement with said operating mechanism therefor, said parts being combined substantially as described.

EMIL WERNER.

Witnesses:

JOHN A. WIEDERSHEIM,
WM. C. WIEDERSHEIM.