(No Model.)

3 Sheets—Sheet 1.

R. F. BRIDEWELL.

CABLE RAILWAY.

No. 343,981. Patented June 22, 1886.

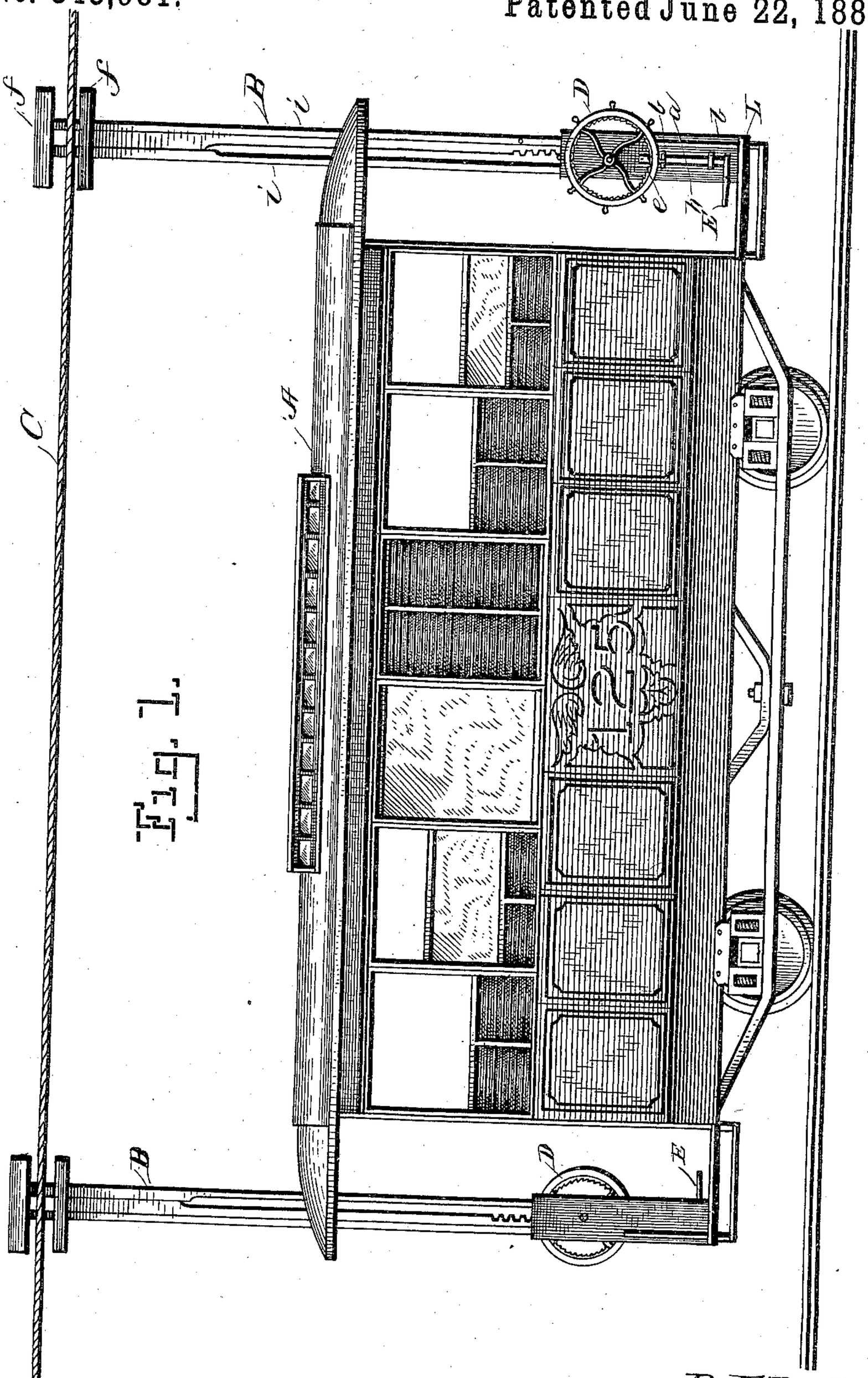

FIG. 1.

WITNESSES.
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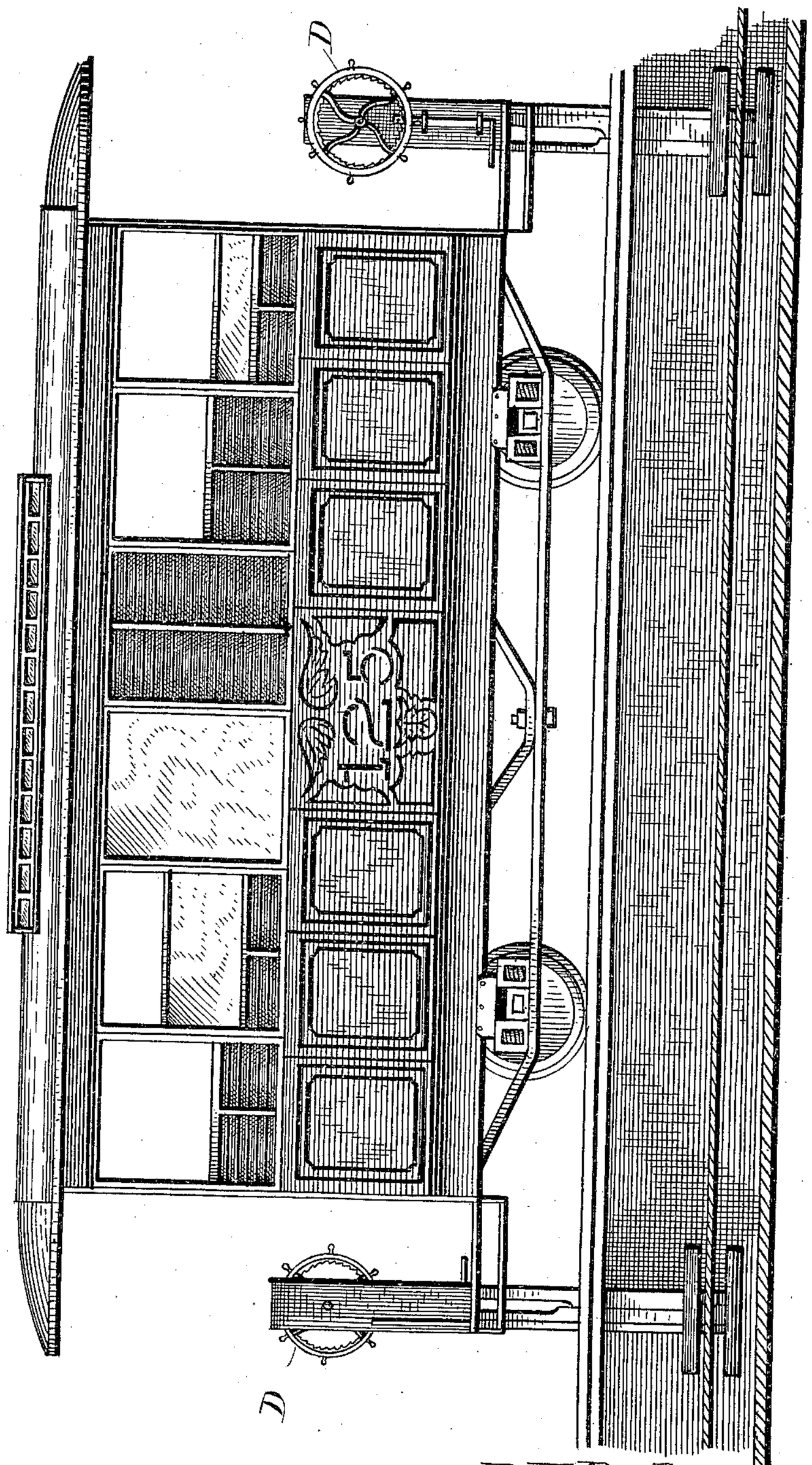

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3 Sheets—Sheet 3.

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Fig. 3.

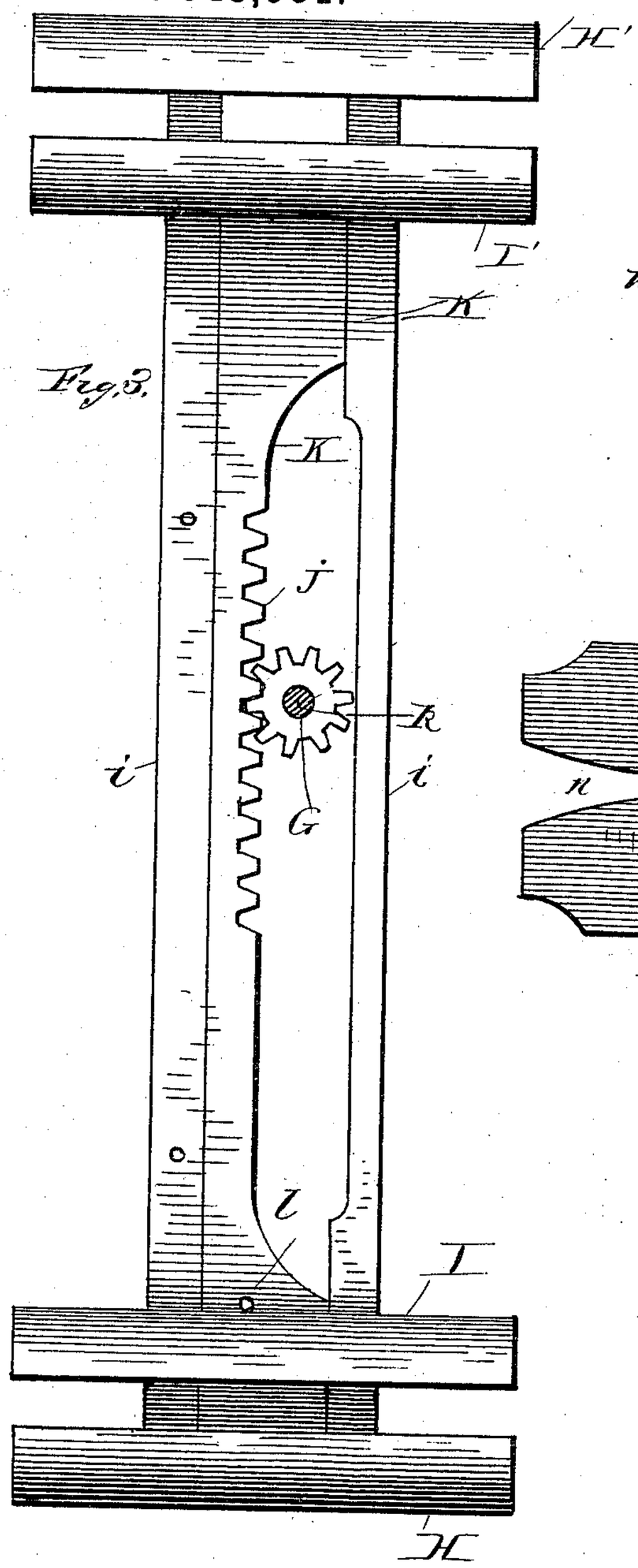


Fig. 4.

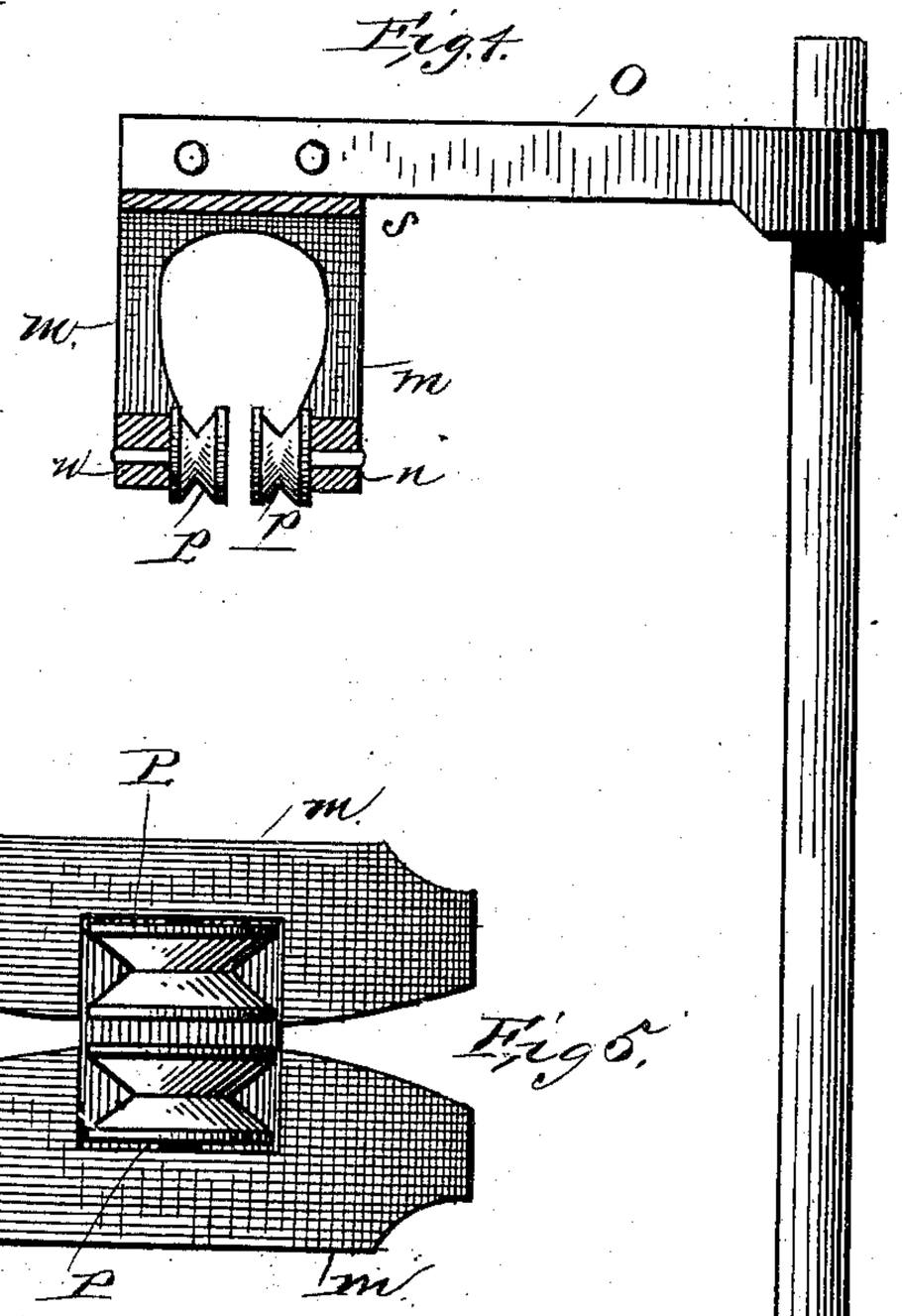
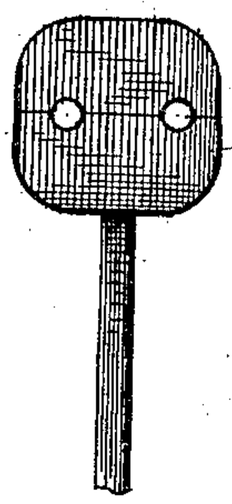


Fig. 5.

Fig 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

RICHARD F. BRIDEWELL, OF SAN FRANCISCO, CALIFORNIA.

CABLE RAILWAY.

SPECIFICATION forming part of Letters Patent No. 343,981, dated June 22, 1886.

Application filed August 26, 1885. Serial No. 175,401. (No model.)

To all whom it may concern:

Be it known that I, RICHARD F. BRIDEWELL, of San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Cable Railways; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to the construction of an improved cable railway, and is designed to operate both elevated or underground, as may be desired.

The object of my invention is to provide a cable road underground in a town or corporation, and to extend it farther when it reaches the limits thereof by posts or beams overground, so as to obviate the necessity of grading the streets. It can be used for either a single track with turn-outs or for a double track, as desired. The cable may be elevated or lowered to any suitable height or depth above or below the street, and is designed to run through an improved pulley attached to the posts, as clearly indicated in the accompanying illustration. The car is operated by a grip or clutch, which is elevated or lowered, in the same manner as a raising-jack, by a hand-wheel situated at the front or rear platform of the car, and which will be more fully explained hereinafter.

Referring to the drawings, Figure 1 is a side elevation showing the car, the mechanism on the platform thereof for operating the grip, the grip, and the cable which it is designed to clutch. Fig. 2 is a side elevation of the car and the mechanism for lowering the grip into an underground tube. Figs. 3 and 6 are detail views of the grip. Figs. 4 and 5 are detail views of the improved pulley.

Like letters of reference indicate corresponding parts in all the figures.

A represents the car, B the grip, and C the cable.

D is the hand-wheel, having the teeth upon its inside circular surface.

L is a treadle, which is used to operate the dog *e*, which engages the teeth of the hand-wheel. The treadle is composed of the horizontal bar E and the vertical bar *h*, said bar being held in a groove on the boxing of the mechanism by the brackets or strips *b b*, so as to guide and hold the bar while operated.

The grip proper is composed of two opposite faces or jaws, H I, said jaws having two longitudinal grooves running along their inside surface, and are governed in the distance which they shall open by the pin or projection *l*. The two vertical bars *i i* have their lower ends fastened in the inner lower jaw, I, of the grip, and the upper ends thereof are secured in the outside face, H′, of said grip. Between the two parallel bars *i i* is situated the parallel sliding plate K, which fits easily between said bars at their immediate extremities, but is partly cut away in its central portion and provided with serrations or teeth *j*, which engage a small pinion, G, journaled on the shaft *k* of the hand-wheel D. This grip is designed to be used with a double-cable road, one of which cables passes through each one of the pulleys *p p*, respectively. The lower outer jaw is recessed in two places, directly opposite to the ends of the parallel bars *i i*, so that the ends of the said bars which extend through the inside faces will enter therein when the jaws are closed. The upper inner jaw is similarly recessed to allow the bars to slide therethrough, they being rigidly fixed in the upper outside jaw. The small pinion G is rigidly attached to the shaft of the hand-wheel, and meshes into the serrations *j* of the center piece. The pulley-supports which are attached to the posts by the arms O are composed of two plates, *m m*, which are held apart at their top by a longitudinal plate, *s*, and the said plates are cut or hollowed out in the shape of a horseshoe, and their lower ends are secured in the boxes *n*, which form bearings for the shafts of the spools or rollers *p p*.

When the pulleys and the hereinbefore-described mechanism are used for a double track, the posts are provided with two arms, in order to carry the cable for each track.

The operation of my invention may be briefly stated as follows: The road having been built and provided with posts at certain intervals apart, and the cable run through the pulleys fixed thereon, the car is then provided

with the mechanism hereinbefore described, and is ready for operation whenever the cable is started by any desired motive power. When it is desired to start the car, the operator turns the brake or hand wheel D, which elevates the grip by the small pinion that engages the teeth or rack *j* until the upper jaw of said grip pushes out of the way and passes beyond the cable. Then he reverses the wheel, thereby causing the upper jaw to close tightly against the cable which rests on the lower jaw. When it is desired to stop said car, the conductor operates the treadle L, thus removing the dog *e* from the teeth of the hand-wheel, and opens the jaws of the grip, and the cable is released from the clutch, as heretofore described.

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

1. The combination of the hand-wheel, the dog, the pinion, the rack and center piece, and the grip having the pin or projection *l*, for the purpose set forth.

2. The combination of the grip-jaw, the rack and central plate, the pin or projection thereon, the pulleys, the cable, and the mechanism for operating the grip, as described.

3. The combination of the grip-jaw, the central plate and rack, the pin or projection, the pulleys, pulley-supports, and the mechanism for operating the grip, as described.

4. The mechanism for operating the grip-jaws, which consists of the hand-wheel and treadles, the teeth on said wheel, the dog engaging the teeth, the pinion, the plate and rack, the bars *i i*, and the pin or projection on said plate, as set forth.

5. The pulley-supports composed of the longitudinal plate *s*, the plates *m m*, and the boxes *n n*, which form bearing for the pulleys *p p*, in combination with the pulleys and the grip, as set forth.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

RICHARD F. BRIDEWELL.

Witnesses:

JAMES L. KING,

O. E. DUFFY.