

(No Model.)

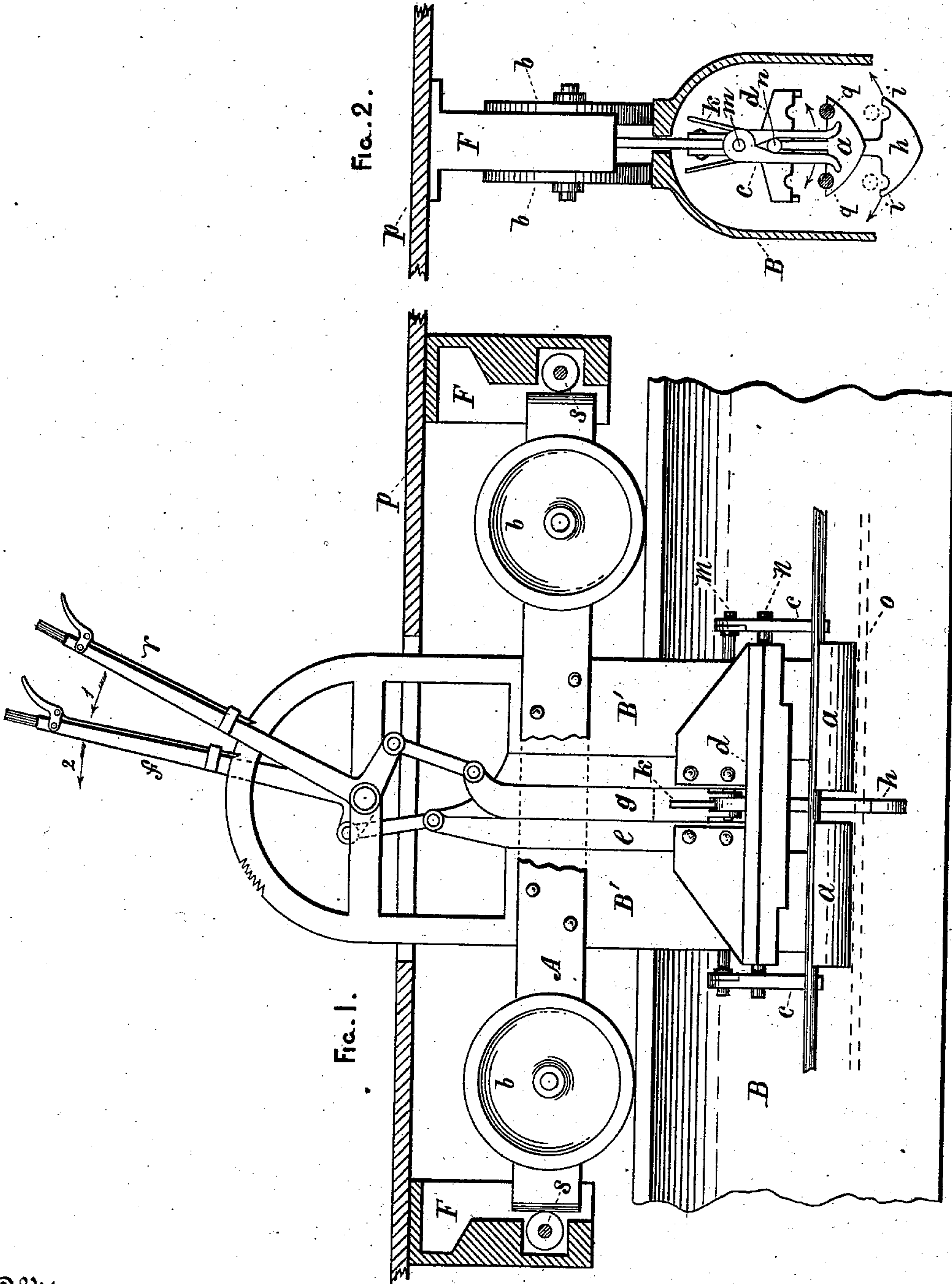
2 Sheets—Sheet 1.

A. A. SHOBE & W. EMBLEY.

GRIPPING DEVICE FOR CABLE RAILWAYS.

No. 379,994.

Patented Mar. 27, 1888.



Witnesses.
A. W. Newton.
R. L. Vandenburg.

Inventors.
Abraham A. Shobe.
William Embley.
By their Attorney F. S. Davenport.

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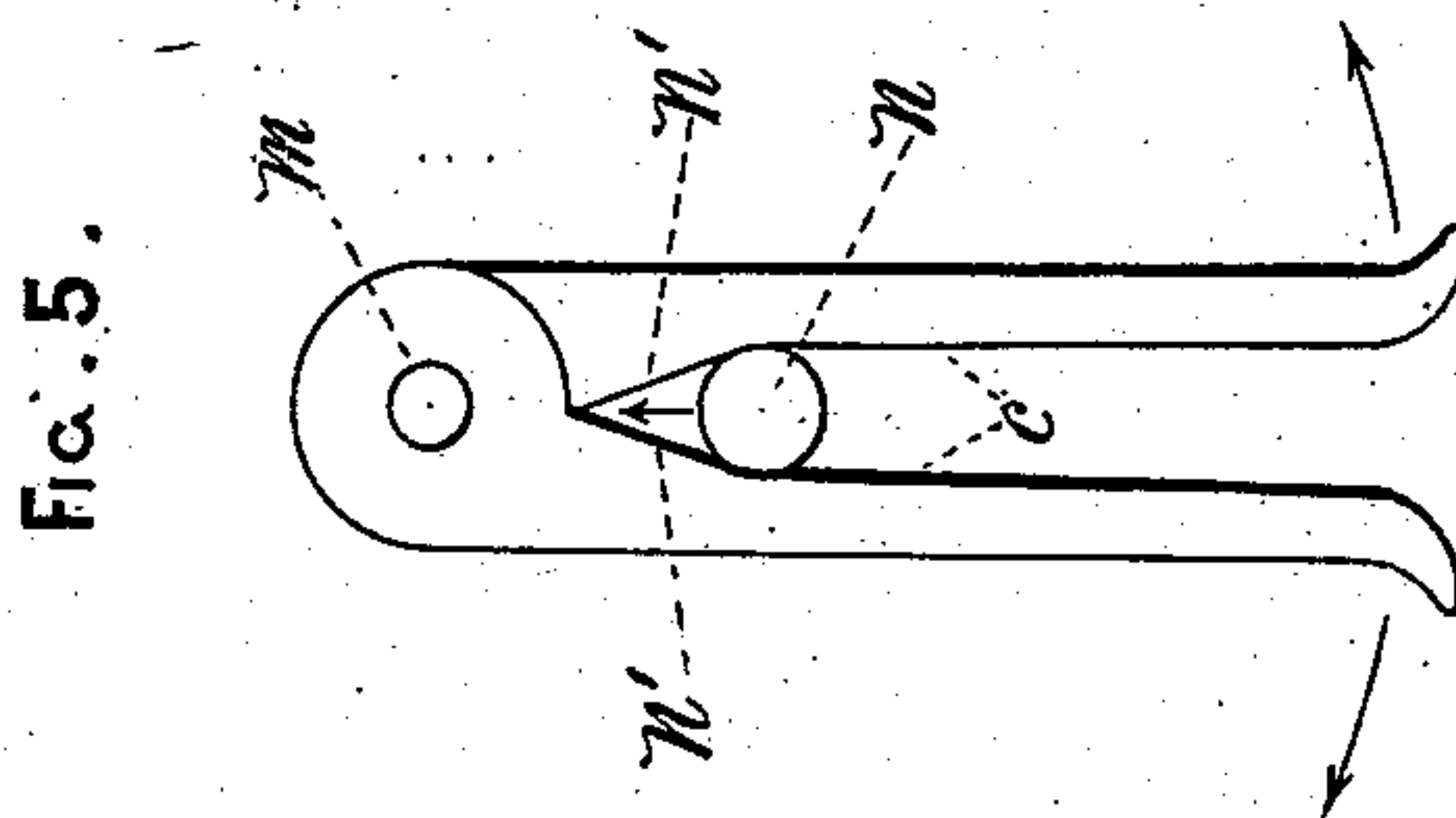
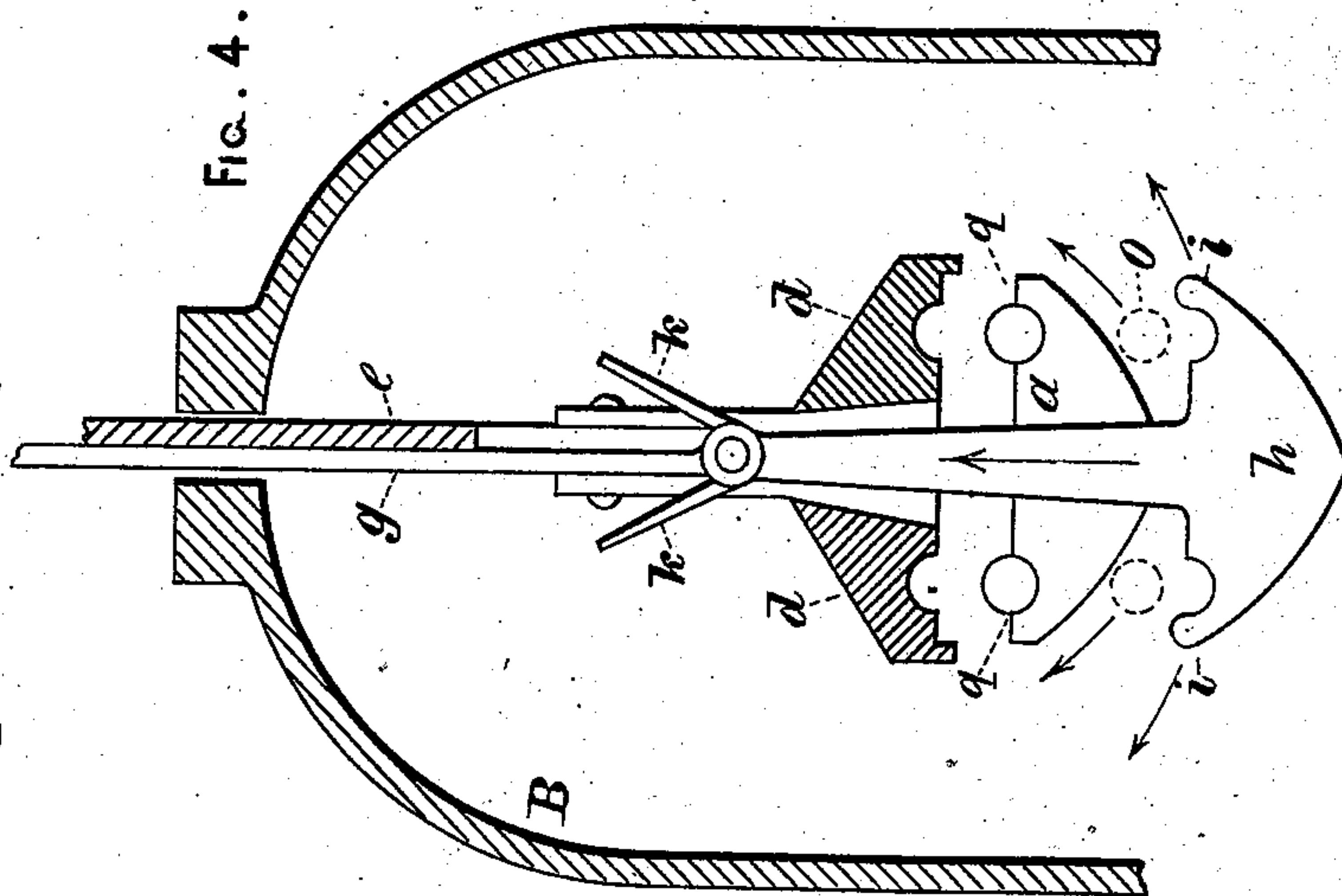
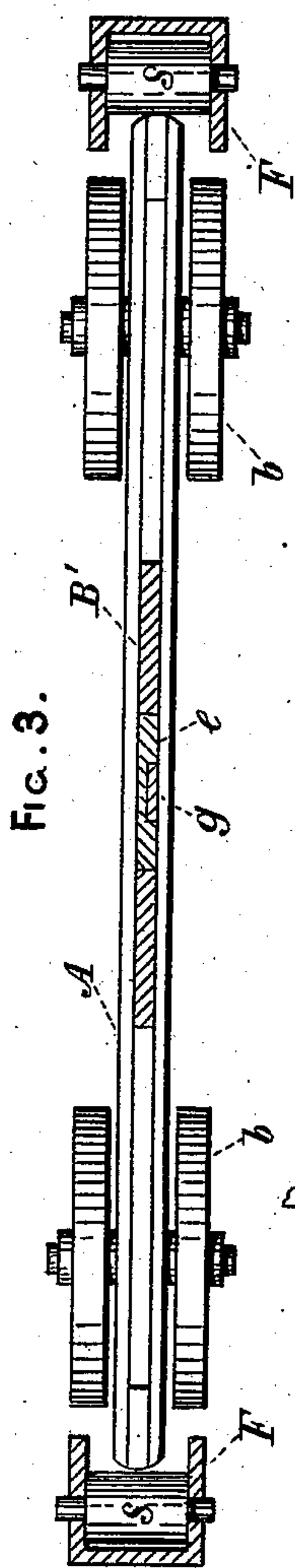
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UNITED STATES PATENT OFFICE.

ABRAHAM A. SHOBE AND WILLIAM EMBLEY, OF JERSEYVILLE, ILLINOIS.

GRIPPING DEVICE FOR CABLE RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 379,994, dated March 27, 1888.

Application filed December 10, 1887. Serial No. 257,558. (No model.)

To all whom it may concern:

Be it known that we, ABRAHAM A. SHOBE and WILLIAM EMBLEY, of Jerseyville, in the county of Jersey and State of Illinois, have invented a new and Improved Gripping Device for Cable Railways; and we do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Our invention relates to an improved gripping device for connecting the cars of cable railways with the propelling-cable.

The object of our invention is, first, to provide improved mechanism for lifting the cable from the carrier-wheels to the top of the lower fixed clamping-jaw; second, to provide improved means for ejecting the cable from the channel in said jaw, so that the cable may be picked up and clamped, released, and cast off by the simple operation of two independent levers located inside the car; third, means for supporting the gripping mechanism upon the cable-tube instead of upon the car, so that said gripping mechanism shall always travel in the same part of the tube, or at the same distance from the top thereof, notwithstanding any variation in the height of the car, owing to weight of load or other cause.

With these ends in view our invention consists in certain details of construction and combinations of parts described in the following specification and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the device, and Fig. 2 is an end elevation of the same. Fig. 3 is a plan view of the gripper-truck. Fig. 4 is an enlarged transverse sectional view of the gripper, taken in the line $x x$, Fig. 1. Fig. 5 is an enlarged end view of the mechanism for ejecting the cable from the lower grip-jaw.

In the drawings, A represents the frame of a truck supported upon wheels b , adapted to travel upon the top of the cable-tube B, or upon rails secured thereon. Depending from the central part of said truck and reaching downward to the interior of the cable-tube are two flat bars, $B' B'$, to the lower ends of which are secured the fixed grip-jaws a , provided on each side with the usual channels for the reception

of the cable, the under side of said jaws being of the cross-sectional form shown at a in Fig. 4—that is, with the under side inclined from the center laterally upward.

Between the bars $B' B'$ (see Fig. 1) slides vertically a flat bar, e , connected at the upper end by a link, as shown in Fig. 1, with a hand-lever, f , the latter secured in position by a quadrant and any suitable ordinary latch mechanism. To the lower end of said bar is secured the upper or movable grip-jaw, d , adapted to slide vertically upon the bars $B' B'$. In the side of the bar e is a longitudinal groove, in which slides a bar, g , connected like the bar e , with a hand-lever, r , and adapted to slide vertically independent of the bar e .

Depending from the lower end of the bar g , and adapted to vibrate laterally, is a grapnel, h , the lateral vibration of which is limited by ears k , which impinge, when the grapnel swings, upon the sides of the bars e and g . (See Fig. 2.) The lower end of said grapnel is formed with flukes $i i$, the under sides of which are inclined, for a purpose pointed out in the description of the operation of the device.

By reference to Fig. 1 it will be observed that the hand-levers f and r , and also a portion of the quadrant-frame, project upward through an opening in the floor p of the car; that from said floor depend two guides, F , provided with anti-friction rollers s , against which the ends of the frame A of the grip-truck abut, the grooves in which said ends of the frame slide being sufficiently wide to allow ample lateral play, as shown in the drawings.

For the purpose of ejecting the cable from the channels in the lower jaws when the upper one is lifted, there is pivoted upon a stud, m , in each of the outer edges of the bars B' a pair of arms, c , as shown in Figs. 1 and 2, said arms being adapted to straddle a large stud, n , in each end of the movable jaw d , the upper part of the inner edges of the arms c being provided with inclined edges n' and the lower ends curved outward, as shown in Fig. 5.

The several parts of our device being constructed and combined as above described, its operation is as follows: To lift the cable from the position shown at o , Fig. 1, the lever r is moved in the direction indicated by the arrow 1. This lifts the grapnel, and with it the cable,

which is thus brought into contact with the curved and inclined underside of the fixed grip-jaws, which, as the grapnel is lifted still farther, causes the cable to sweep round the bottom 5 and over the outer edges of the lower jaws, and thence by the tensile strain upon it into the channels *g*, provided for its reception. To grip the cable, the lever *f* is moved in the direction indicated by arrow 2, which forces 10 down upon the cable the movable jaw *d*. To liberate the cable and eject it from the lower jaw, the lever *f* is moved in the opposite direction to that indicated by the arrow 2, the effect of which is to lift the movable jaw from 15 the cable and at the same time bring the studs *n* on the ends of the movable jaw in contact with the inclined edges *n'* of the arms *c*, and thus move them outwardly, as indicated by the arrows in Fig. 5. This, as will be readily 20 seen, lifts the cable out of the channel and over the edges of the lower grip-jaws, whence it falls to a position within reach of the grapnel.

It is generally preferable, in order to avoid possible obstructions in the cable-tube, to carry 25 the grapnel drawn up. Therefore the underside thereof is purposely shaped like the underside of the lower grip-jaws, so that as it is lowered it will by the contact of its underside with the cable be thrust aside until the end 30 of the fluke has passed below the cable, when it will instantly fall into a vertical position, so as to pick up the cable.

It will be observed that, the gripper being supported upon an independent truck traveling upon the cable-tube, the gripping mechanism is always at the same altitude in the 35 tube, and is also free from the vibratory motion of the car.

Having fully described our invention, what we claim, and desire to secure by Letters Patent, is— 40

1. In a gripping device for cable railways, the combination of a vertically-sliding bar actuated by a link and hand-lever, a grapnel 45 hinged to the lower extremity of said vertically-sliding bar, and the inclined underside faces of the lower grip-jaw, all of said parts constructed and adapted for co-operative action, substantially as and for the purpose set forth. 50

2. In a gripping device for cable railways, the combination of the pendulous arms *c*, provided with inclined inner edges, *n'*, and the studs *n* upon the ends of the movable jaw, all constructed and adapted to operate substantially as and for the purpose set forth. 55

3. The guides *F*, secured to and depending from the floor of the car, said guides being provided with grooves for the reception and vertical play of the ends of the frame of the 60 grip-truck, and anti-friction rollers located in said grooves, adapted to impinge upon the ends of the truck-frame, all combined, constructed, and adapted to operate substantially as and for the purpose set forth. 65

In testimony that we claim the foregoing we have hereunto set our hands this 29th day of September, 1887.

ABRAHAM A. SHOBE.
WILLIAM EMBLEY.

Witnesses:

R. L. VANDENBURG,
W. S. PITTMAN.