

2 Sheets—Sheet 1.

CABLE GRIP.

Patented May 13, 1890.



Attest;  
E. J. O'Brien  
J. B. Merrill

***Inventors:***

William J. Egan  
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(No Model.)

2 Sheets—Sheet 2.

W. J. EGAN & J. J. O'BRIEN.  
CABLE GRIP.

No. 427,756.

Patented May 13, 1890.

Fig. 4,

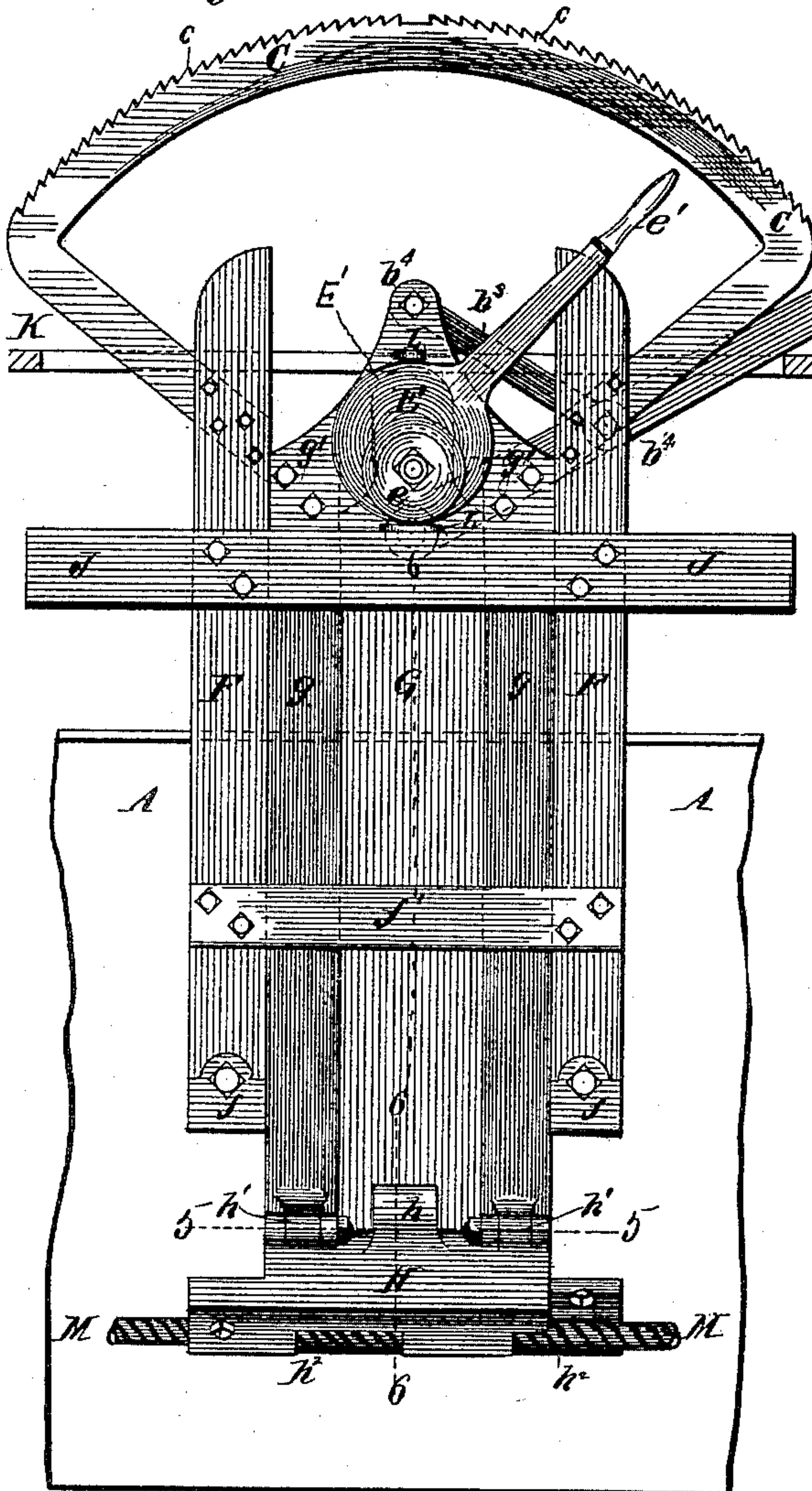


Fig. 5,

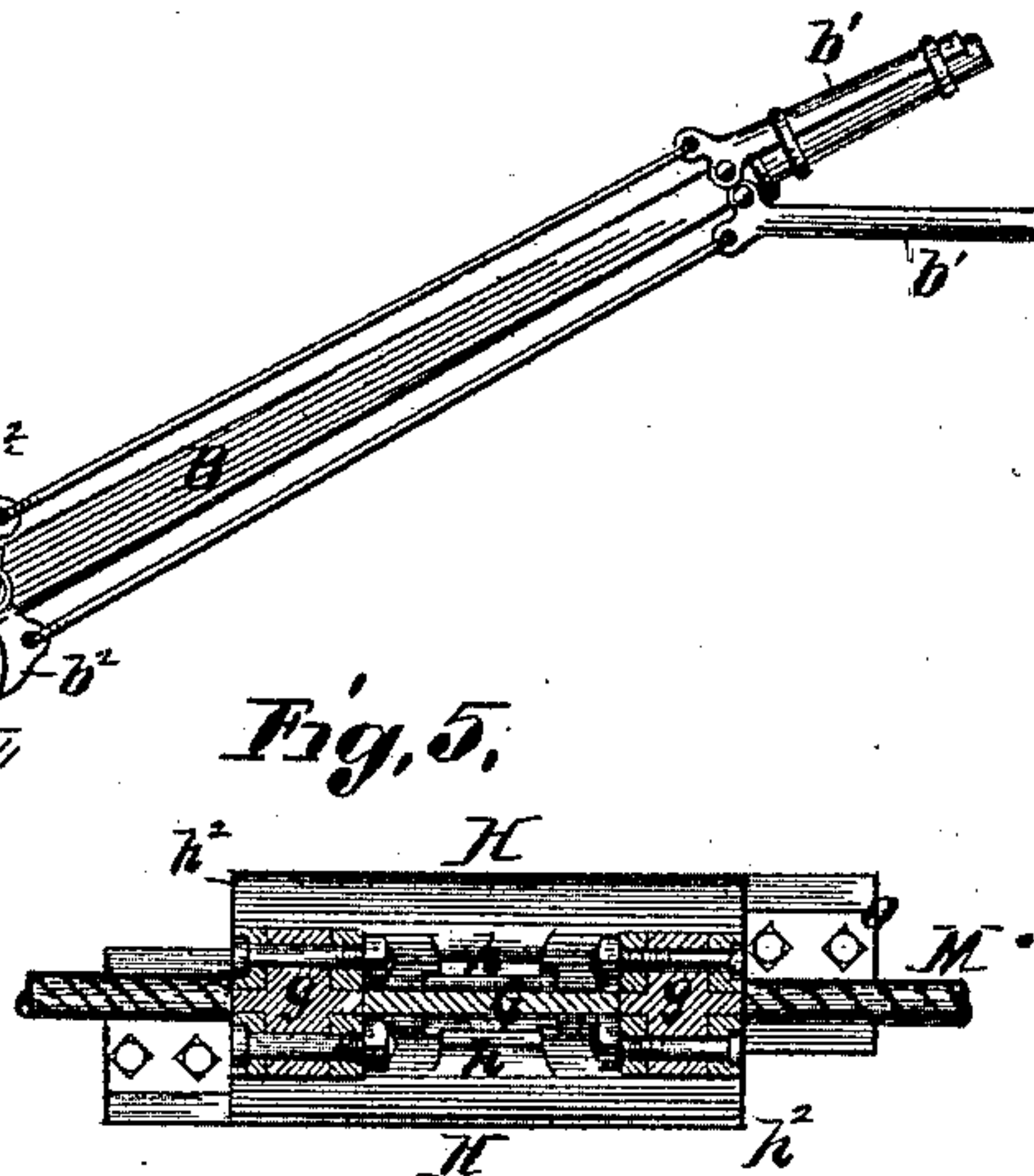


Fig. 6,

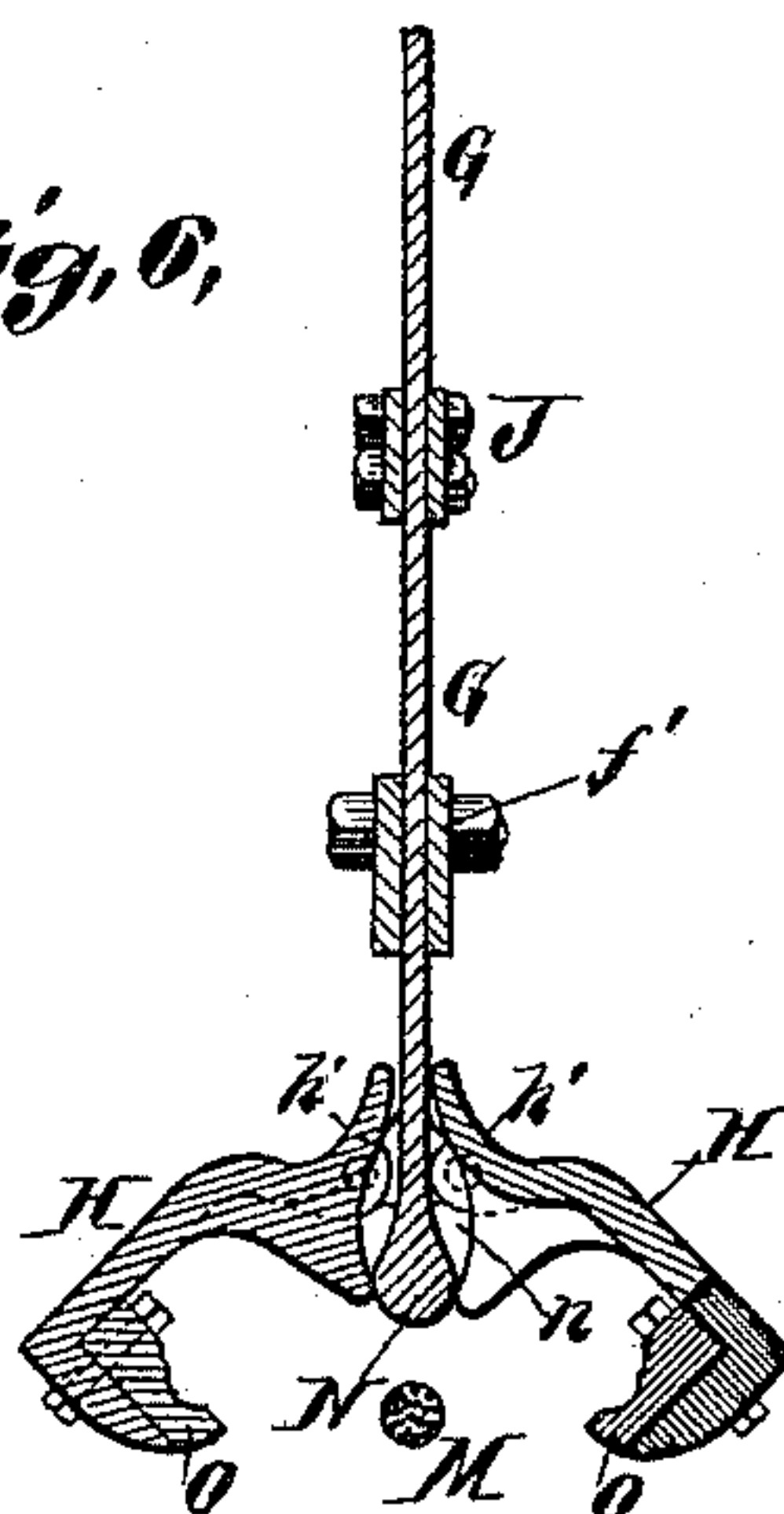
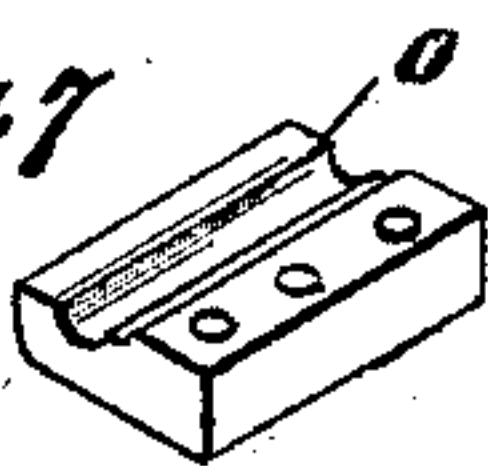


Fig. 7



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# UNITED STATES PATENT OFFICE.

WILLIAM J. EGAN AND JOHN J. O'BRIEN, OF ST. LOUIS, MISSOURI.

## CABLE-GRIP.

SPECIFICATION forming part of Letters Patent No. 427,756, dated May 13, 1890.

Application filed April 6, 1889. Serial No. 306,231. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM J. EGAN and JOHN J. O'BRIEN, both citizens of the United States, residing at the city of St. Louis, State of Missouri, have jointly invented certain new and useful Improvements in Cable-Grips for Railways, of which the following is a specification.

Our invention relates to that class of railways wherein the cars or coaches receive their motion from an endless cable which passes from a power-house through a tunnel or conduit located below the road-bed or railway-track, such motion being imparted to the cars by means of a gripping-machine located on the grip-car. In operating such cable railways it frequently becomes necessary to make crossings where one road intersects or crosses another, the cable of each respective road passing at such points above or below each other, thus making it desirable to have the grip of the road operating the lower cable at any such point of intersection or crossing made so that it will be capable of wholly releasing the lower cable, and at the same time be allowed to pass wholly over the upper one and at a safe distance from both, and, when the crossing is effected by the momentum of the car previous to releasing the cable, be susceptible of again being lowered, so as to grasp and manipulate the cable to continue travel; and the object of our invention is, first, to provide a cable-grip that will accomplish said ends; second, to dispense with the necessity for using "gypsies," so called, or other auxiliary machines or devices at such crossings to enable a car to resume its journey by regripping the cable; third, to provide means whereby the cable-grips may be wholly raised over the cable or cables while running and conveniently dropped into a position for again gripping and operating it. We attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of our improved cable-grip, showing the same in position upon the grip-car and having its jaws fastened upon the cable in the conduit. Fig. 2 is an end view of the same. Fig. 3 is a view in cross-section on line 3 3, Fig. 1; Fig. 4, a side elevation showing the upper jaws in position to receive the lower jaws and cable after a cross-

ing has been effected. Fig. 5 is a top sectional view of lower jaws on line 5 5, Fig. 4. Fig. 6 is a view in cross-section on line 6 6, Fig. 4; and Fig. 7 is a view of the lower die-plate.

A represents the cable-conduit; B, the main lever; C, a flat segmental bar provided at its upper periphery with a toothed rack having the teeth running in opposite directions from sides to center, which enables the operator to work from either side.

D is a cross-head, preferably in the form of a flat steel top bar, connecting the perpendicular bars *g g*, and which works in the slot formed by the inner vertical surfaces of the fixed bars F F.

E is a cam or eccentric centered at *e* for operating the middle upright G and lower gripping parts O O between the fulcrums or lugs L L by the lever arm or handle *e'*. The lugs L L are stationary on the cross-head D, and the cam or eccentric E has lateral and perpendicular motion in the slot, as shown in dotted lines at E', Figs. 1 and 4, where it is fitted on bolt and washer connection, for the purpose of operating the parts G *g g* and lower jaws H. The bar G is provided at its lower end with an egg-shaped plunger N, which operates in the socket *n*, formed by the two insides of the projections *h* of the lower gripping-jaws H, which are adapted to receive it and which open and close said jaws upon the cable by the up-and-down movement of the bar G and plunger N. The main lever B is pivoted on the lateral connecting-bar J in the middle of the grip, and is provided with a link *b<sup>3</sup>*, pivoted to the lever B and cross-piece D at points *b<sup>4</sup> b<sup>4</sup>*. (See Fig. 4.)

To the lower end of the bars *g g* are hinged the lower jaws H by the hinge-and-bolt connections *h' h'*.

O O are the lower die-plates, which are seated in the jaws H and secured by bolts and nuts. The jaws H are made so as to overlap one another, as shown at *h<sup>2</sup>*, Fig. 2, thus forming a continuous bearing for the cable M to run in. The uprights F F at their lower ends carry the upper gripping-jaws *f f*, the latter being grooved at their lower ends to receive the cable.

*f'* is a flat bar connecting the lower part of the uprights F F.

K K represent the floor of the grip-car.



The cable being released from the gripping-jaws, as shown in Figs. 4 and 6, when the grip-car is approaching a crossing or intersecting line of cable the plunger-bar G is first  
 5 lowered by slightly moving handle *e'* of cam or eccentric E to force open the hinged jaws H H, as shown in Figs. 4 and 6. The main lever B is then disengaged from the segment *c* and thrown forward to release the grip from the  
 10 cable, and the cam-lever E is then moved by a downward motion of its bar *e'* to raise the parts *g g* and G, with the open jaws H H, sufficiently high to allow the entire grip to safely  
 15 pass over the intersecting cables in the conduit at the crossings. When this is accomplished, the lever *e* of cam E is thrown upward to position shown in Fig. 4 to close the jaws H H fully, and the lever B is then moved into  
 20 the position shown in Fig. 1 to cause said jaws H H to engage the cable with the upper jaws *f f* on the bars F F.

What we claim is—

1. In a cable-gripping device, the combination of a stationary frame having jaws *f f*, a  
 25 cross-head D, having the bar G and bars *g g*, with hinged or pivoted jaws H H at their lower

ends, and the plunger N, engaging with the upper ends of said jaws H H, and actuating devices for said plunger, and separate actuating devices for said cross-head and bars *g g*, 30 substantially as shown and described.

2. In a cable-grip, the combination of the plunger N, the hinged jaws H H, having a socket *n*, actuating devices for said plunger, whereby the jaws H H are opened and closed, 35 and separate actuating devices for raising and lowering said jaws, substantially as shown and described.

3. In a cable-gripping device, the combination of a movable yoke having hinged grip- 40 ping-jaws, a fixed frame having stationary jaws, a slot in the upper end of said fixed frame in which said yoke moves, and actuating devices for opening and closing the movable jaws and for raising and lowering them, 45 all substantially as shown and described.

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Witnesses:

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