

(No Model.)

R. A. McLELLAN.

CABLE GRIP.

No. 390,882.

Patented Oct. 9, 1888.

Fig. 1.

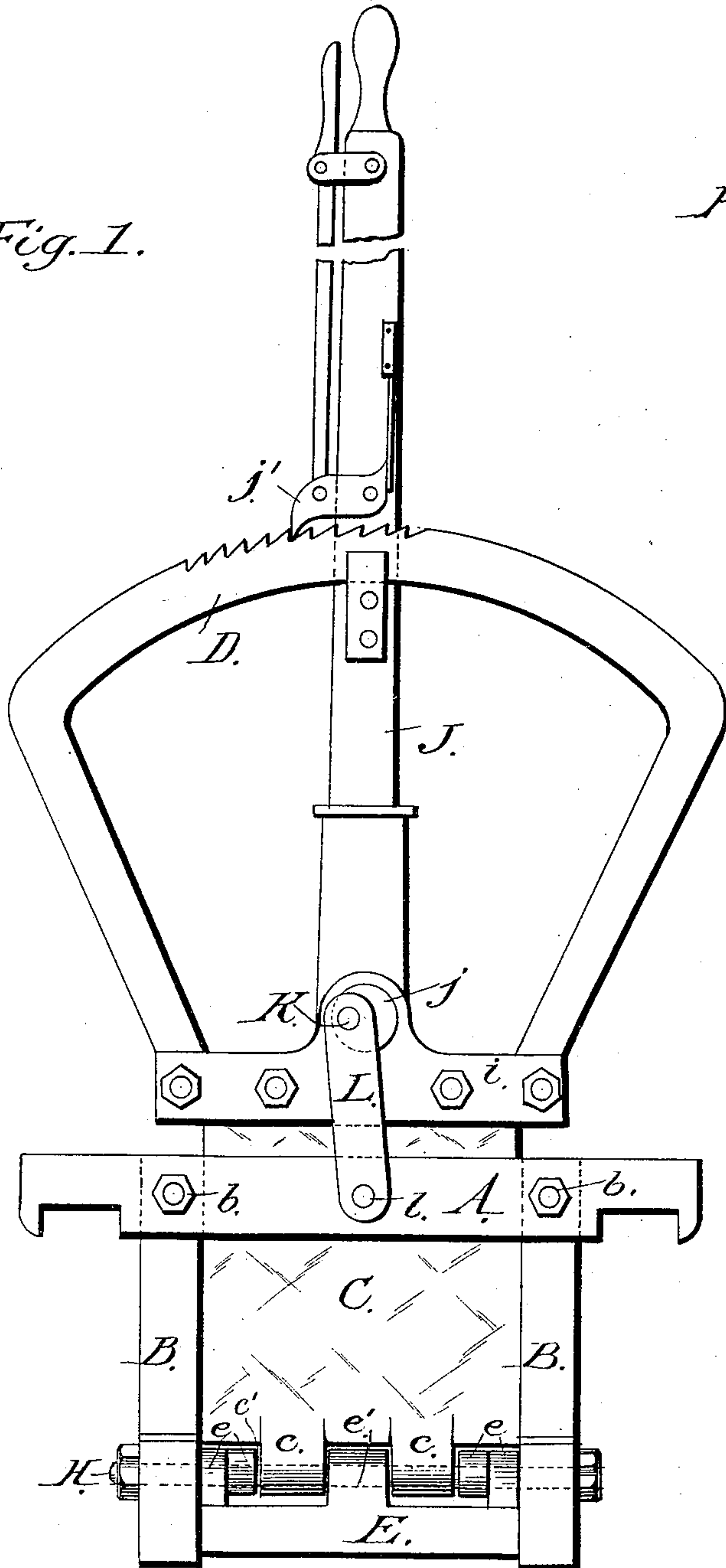
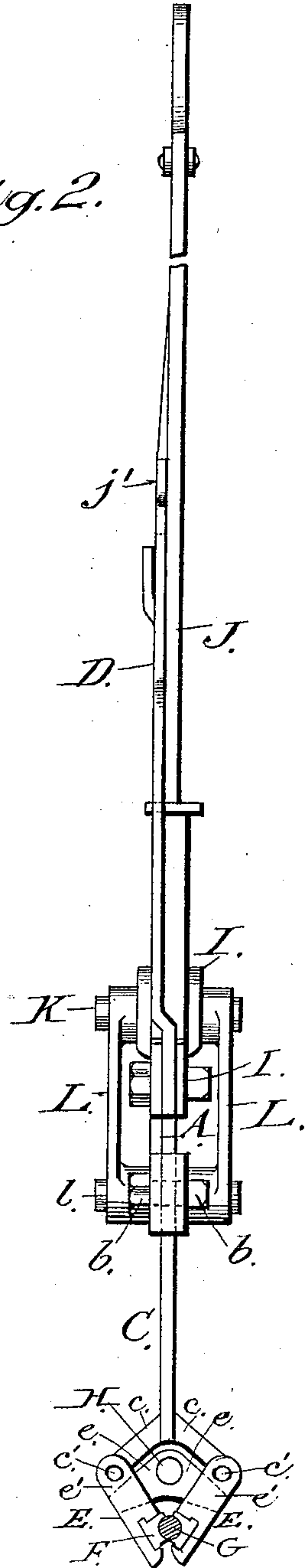


Fig. 2.



WITNESSES.

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CABLE-GRIP.

SPECIFICATION forming part of Letters Patent No. 390,882, dated October 9, 1888

Application filed May 23, 1888. Serial No. 274,864. (No model.)

To all whom it may concern:

Be it known that I, ROBERT A. McLELLAN, of the city and county of San Francisco, State of California, have invented an Improvement in Cable-Grips; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates, generally, to the class of grips for connecting a car with an endless traveling cable, and it relates particularly to that class of grips in which through the movement of a lever pivoted or hinged jaws are made to close upon or release the cable, such grips being commonly known as "center" or "bottom" grips, in that they hang directly over the cable.

My invention consists in a novel hinge-connection for the jaws and in a novel connection for the lever-foot, as I shall fully describe.

The general objects of these improvements are to simplify the grip and reduce the cost of manufacture and repairs. Particular objects are to avoid lost motion in the swinging of the jaws, to reduce the number of joints, and thereby have less liability to looseness and rattling, to avoid the use of an independent device for compensating for the wear of the dies, and to so connect the operating-lever that its power or leverage may be the same in any position.

Referring to the accompanying drawings, Figure 1 is a side elevation of my grip. Fig. 2 is an edge view of same, the outside or fixed plate, B, being omitted.

A is a bar, usually called the "beam," and forming part of the fixed hanging frame or mechanism by which the grip is carried. To this beam is firmly bolted at *b* the outside or guide plate, B, within which is fitted the vertically-movable inner plate, C, which carries at its top the quadrant D.

E E are the opposing jaws, having the usual dies, F F, for gripping the cable G, Fig. 2. These jaws are each provided near each end with lugs *e*, which incline upwardly and inwardly beside each other, and through them and through the outside fixed plate, B, passes the hinge-pintle H directly below and in the vertical plane of the inner or movable plate, C, Fig. 2. Each jaw is also provided with a central outwardly-inclined lug, *e'*. The bottom of the inner or movable plate, C, has con-

nected with it rigidly or formed integral with it, as here shown, the arms *c*, which project outwardly and downwardly from each face of the plate, two being on each side, and the lugs *e'* of the jaws fit between each pair of arms, Fig. 1. The lugs *e'* are hinged to the arms *c* by pins *c'*, Fig. 2.

It will be observed that the main pivotal center of the jaws, as represented by the pintle H, and the pivotal centers of the connections of the jaws with the inner or movable plate, C, as represented by the pins *c'*, are all in the same horizontal plane, and it is this construction which renders my grip operative in practice, notwithstanding the rigid connection or the integral formation of the arms *c* with the plate C, instead of having them jointed or pivoted thereto, as links would be. This will be seen from the operation, which is as follows: As the plate C moves up, the connection of its arms *c* with the lugs *e'* of the jaws separates said jaws about their hinge-pintle H, which is of course fixed, being seated in the outer fixed plate, B. As the plate C moves down, the jaws close together again. There are two reasons why this movement of the jaws is possible, though the arms *c* are rigidly connected with or form part of plate C. In the first place the movement is small and in the second place the movement of the connections at *c'* takes place at the extremities, so to speak, of the horizontal plane of the hinge-pintle, where said movement departs but little from a vertical plane, and this departure is permitted and provided for by the absence of mechanical accuracy in the practical construction of the joints at *c'*. To make the drawings illustrate an operative device, I have shown the holes for the pivot-pins *c'* slightly larger than said pins, so as to provide for a slight movement at these points. While it is desirable to show such a construction, yet in the actual construction of the device this enlargement would not be apparent, as the mechanical inaccuracy before mentioned would provide for the desired result. If these joints were above or below the horizontal plane of the hinge-pintle, their movement would be in an arc at so great an angle to a vertical plane that the arms *c* would have to be hinged to the movable plate in order to permit the movement, and in this class of grips this is the construction. By my con-

struction I simplify the grip, make it less costly, and there are fewer joints to loosen and rattle and less lost motion.

To the upper end of the movable plate C are 5 bolted the side plates, I, having a center bearing in which is pivoted the shaft *j* on the foot of the lever J. This lever is provided above with the usual pawl, *j'*, for engaging the quadrant D. Through the lever foot-shaft *j* is fitted 10 a pin, K, which is located off center of said shaft. Over the projecting ends of this pin are fitted the links L, the lower ends of which are pivoted at *l* to the fixed beam A. Now, it will be seen that by reason of the eccentric or crank 15 position of pin K with respect to the fulcrum center of the lever J the movement of the lever will raise or depress the movable plate C, acting through links L against the fixed beam, and the range of this movement is such that it can 20 be effected to open or close the jaws, no matter at what inclination the lever may be, and there is no necessity, therefore, to provide separate mechanism for compensating for the wear of the dies in the jaws.

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

1. In a cable-grip, opposing jaws and a 30 fixed pintle on which they are hinged, in combination with a vertically-movable plate above the pintle having an arm or arms projecting from each side and rigidly connected or formed with said plate, and a hinge or pivot connection between said arms and the jaws, said con- 35 nection being on each side of and in the same horizontal plane with the fixed pintle of the jaws, substantially as herein described.

2. In a cable-grip, opposing jaws having 40 upwardly-converging lugs and upwardly-diverging lugs and a fixed pintle passing through the converging lugs, whereby the jaws are hinged, in combination with a vertically-movable plate above the pintle having an out- 45 wardly-projecting arm or arms from each side and rigidly connected or formed with said

plate, and pins pivoting or hinging said arms to the diverging lugs of the jaws, said pins being on each side of and in the same horizontal plane with the fixed pintle, substantially as herein described. 50

3. In a cable-grip, a fixed plate, opposing 55 jaws having upwardly-converging lugs and upwardly-diverging lugs, and a pintle passing through the fixed plate and the converging lugs of the jaws, whereby said jaws are hinged, in combination with a vertically-movable plate 60 above the pintle having an outwardly-projecting arm or arms from each side and rigidly connected or formed with said plate, and pins pivoting or hinging said arms to the diverg- 65 ing lugs of the jaws, said pins being on each side of and in the same horizontal plane with the fixed pintle, substantially as herein described.

4. In a cable-grip, the fixed beam and plate 65 secured thereto and the vertically-movable jaw-operating plate, in combination with the lever having a pivot-shaft in its foot seated in the head of the movable plate, the pin carried by the shaft and located eccentrically therein, 70 and the links connecting the pin with the fixed beam, substantially as herein described.

5. In a cable-grip, the fixed beam and plate 75 secured thereto and the vertically-movable jaw-operating plate having a quadrant on its head, and side plates, in combination with the lever, with pawl for engaging the quadrant, said lever having a pivot-shaft in its foot seated in the side plates of the movable plate, the pin carried by the shaft and located eccentric- 80 ally therein, and the links connecting the pin with the fixed beam, substantially as herein described.

In witness whereof I have hereunto set my hand.

ROBERT A. McLELLAN.

Witnesses:

S. H. NOURSE,
J. H. BLOOD.