

(No Model.)

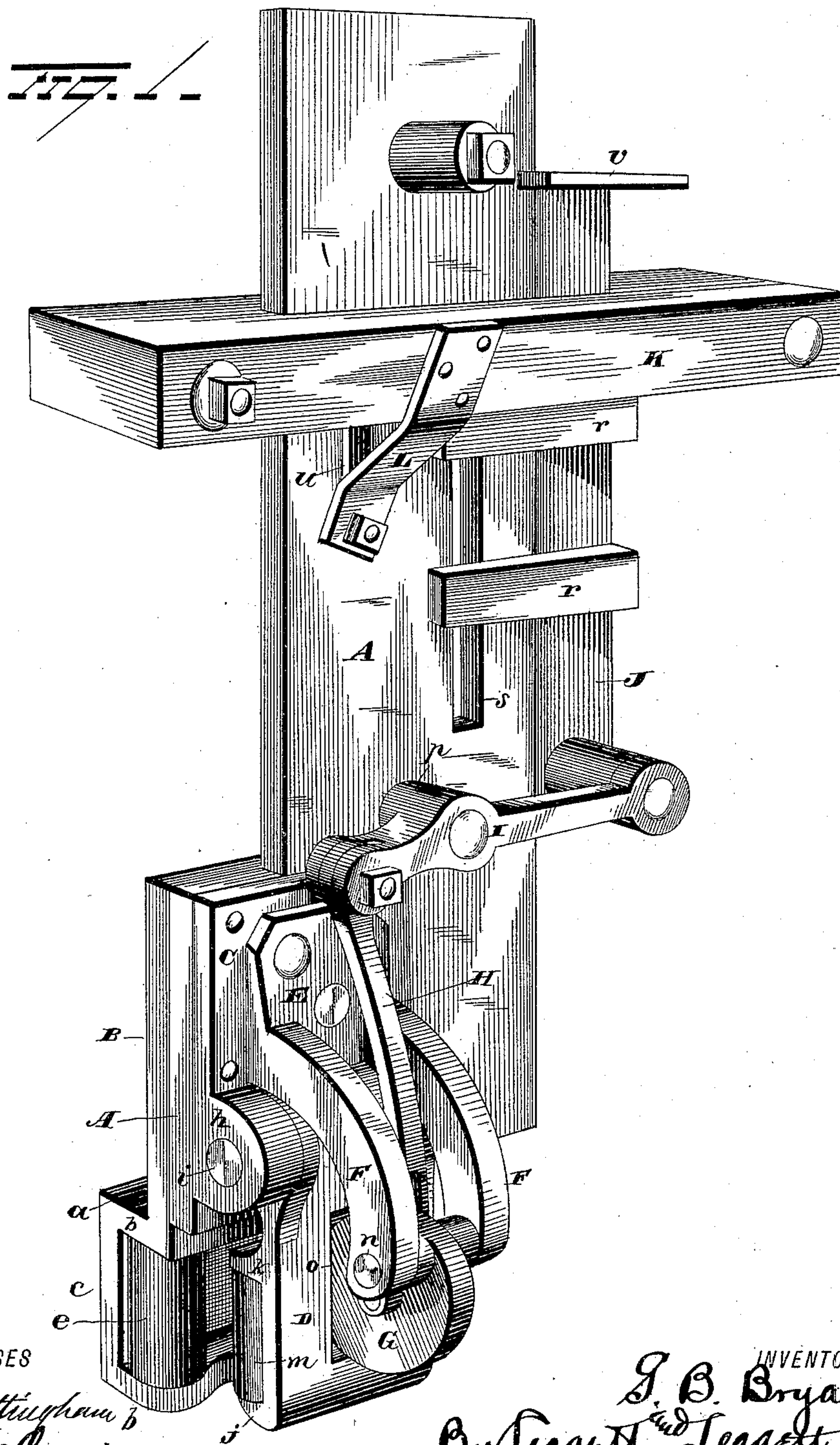
2 Sheets—Sheet 1.

G. B. BRYANT.

GRIPPER FOR CABLE RAILWAYS.

No. 317,967.

Patented May 19, 1885.



WITNESSES
E. J. Nottingham
Geo F. Downing.

INVENTOR
G. B. Bryant
By Leggett and Leggett
ATTORNEYS.

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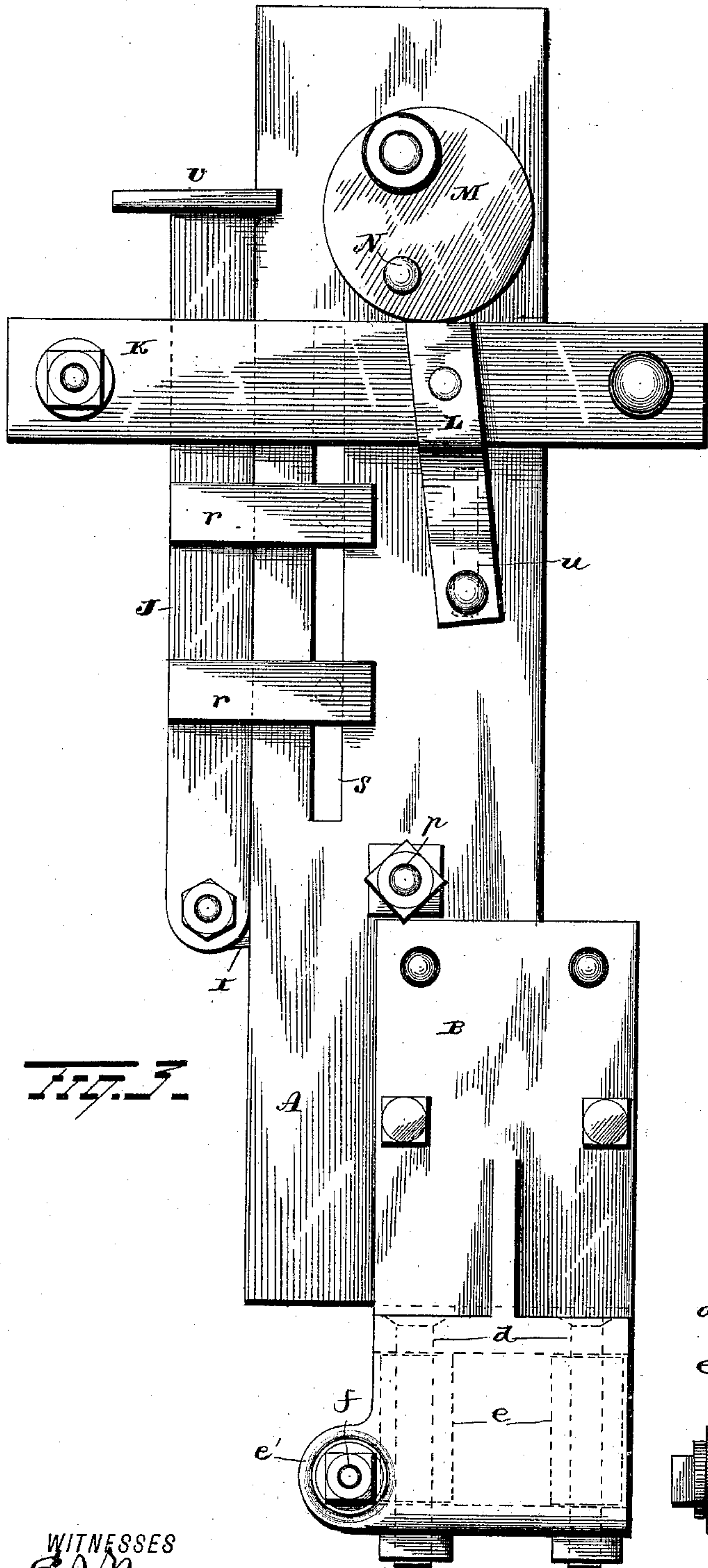


Fig. 3.

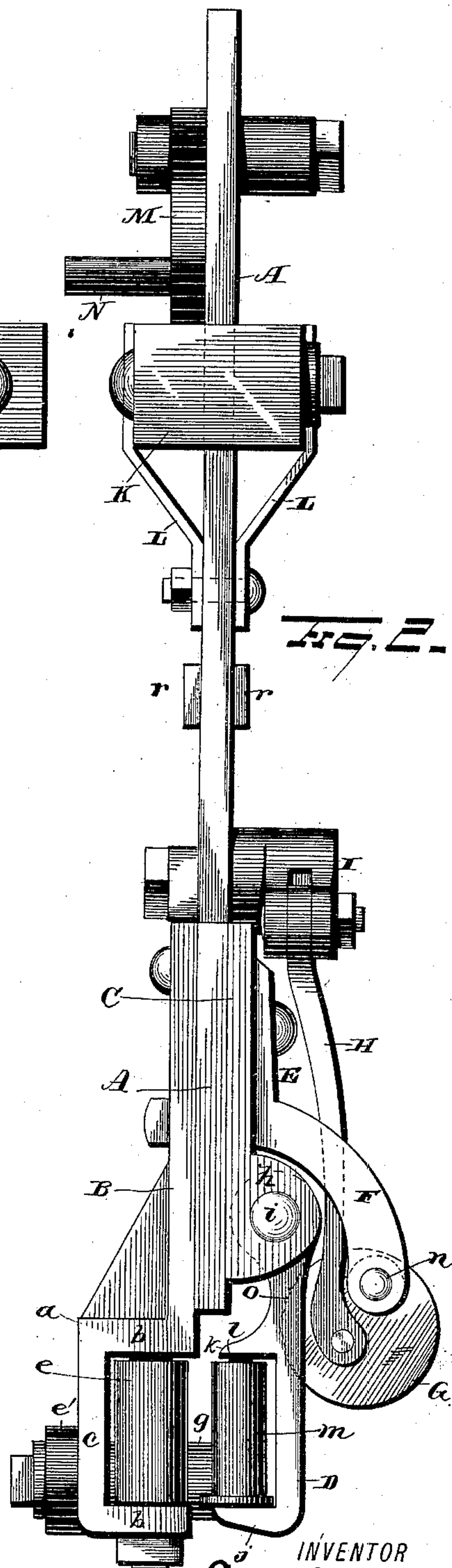


Fig. 2.

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UNITED STATES PATENT OFFICE.

GEORGE B. BRYANT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF
ONE-HALF TO EDWARD D. DOUGHERTY, OF SAME PLACE.

GRIPPER FOR CABLE RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 317,967, dated May 19, 1885.

Application filed August 16, 1884. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. BRYANT, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Grippers for Cable Railways; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in grippers, the object being to provide a device of this character which shall be simple and economical in construction, and at the same time durable and efficient in use.

A further object is to so construct the grip that when from any cause the cable becomes disengaged therefrom it may be easily and readily caught without the necessity of stopping the car or engine driving the cable; and with these ends in view my invention consists in certain novel features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of my improvement. Fig. 2 is a view in front elevation, and Fig. 3 is a view in rear elevation.

A represents a plate, preferably made of steel, the lower end of which is widened, and to the rear side of which lower end is secured the metal plate B, the lower end of the latter being bent, as shown at *a*, having the two horizontal sides *b b* and the vertical side *c*. In the horizontal sides *b* are secured the ends of bolts or spindles *d d*, carrying the pipes or rollers *e e*, against which is pressed the cable when the car is in motion. On one corner of the plate B is formed a perforated shoulder, *e'*, in which is secured one end of a spindle or bolt, *f*, at right angles to the spindles or bolts *d d*, on which spindle and bolt *f* is mounted a roller, *g*, the other end of the bolt or spindle being headed to prevent the roller slipping off.

To the front of the plate A and opposite the plate B is rigidly secured a metal plate, C, the lower end of which at each corner being provided with a perforated lug or projection, *h*, in which is secured the bolt or spindle, *i*. On this spindle or bolt is movably secured the depending jaw D, the lower end being bent around at right angles, as at *j*, and which is

provided with a shoulder or flange, *k*, in which latter and the lower bent end, *j*, are secured the ends of the vertical bolts or spindles *l*, carrying the pipes or rollers *m*, the said jaw D being of such length that the pipes or rollers *m* will hang opposite the pipes or rollers *e*.

To the upper portion of the plate C is securely fastened the metal plate E, on the lower end of which are formed the depending curved arms F, the ends of which are perforated and adapted to securely hold the ends of the bolt or spindle *n*, the said end extending down opposite the jaw D. Instead, however, of forming the plates A B C separate, they may be formed in one piece and the plate E secured thereto; or the plates C and E may be formed integral and rigidly secured to the plate A. I would, therefore, have it understood that I do not limit myself to the exact construction of these plates shown and described, but hold myself at liberty to vary their construction in accordance to the dictate of circumstances.

On the said spindle or bolt is mounted a cam-wheel, G, to which is secured the lower ends of the bifurcated-pitman H, the said cam adapted to bear on the jaw D. It will now be readily seen that by pushing down on the pitman H the cam which is secured near its periphery on the bolt or spindle *n* will be forced outwardly away from the jaw D, which latter, when the cam is in position, will by gravity hang in a vertical line and thus separate the pipes or rollers *m* and *e*, between which the cable passes, the roller or pipe *g* being adapted to keep the cable in position between the aforesaid rollers or pipes *m* and *e*, and prevent it from falling down out of reach of the grip. As before stated, when the pitman is pushed down, the cam is forced outwardly and allows the jaw to hang perpendicularly, and at the same time allows the cable to pass between the rollers or pipes and the grip to stand stationary, a groove, *o*, being formed in the jaw in which fits the cam, allowing the jaw to hang plumb. When, however, the pitman is moved in the opposite direction, the cam is forced inwardly against the swinging jaw D, which impinges the rope and locks it tightly between the pipes or rollers *m* and *e*. The upper end of the pitman is secured to one end of a lever, I, pivoted at *p* to the plate A, the opposite end of said lever being connected to the lower

end of the vertical rod J. This latter rod bears against one edge of the plate A and is retained in position by means of the horizontal arms *r*, formed integral with the rod and bearing. On opposite sides is formed a vertical elongated slot, *s*, in which fit the bolts or spindles connecting the ends of opposite arms. The plate A and rod J pass up through a slot in the floor of the car, the sides of the slot keeping the plate and rod in position.

When it is desired to start the car, the operator places his foot on the upper end of the bar or rod J, which is provided with a foot-piece, *v*, and presses down on the same, which lowers one end of the lever I and raises the outer end, which in turn raises the pitman H, thereby closing the jaw D on the cable, as before described. When the foot is removed from the piece *v*, the jaws open, the jaw D assuming a vertical position, which allows the cable to pass between the pipes or rollers without moving the grip.

To the floor K are secured the upper ends of the irons L, located on opposite sides of the plate A, and having their lower end bearing on opposite sides thereof, the said lower ends being connected by a bolt which passes through an elongated slot, *u*, formed in the plate, said bolts working in the slot being adapted to guide the plate in a straight line during its vertical movement.

To the plate A, near its upper end, is secured a cam-wheel, M, to which is secured or formed integral therewith near its periphery an outwardly-extending arm, N. When in its operating adjustment, the grip is held up in position by means of this cam, which bears on the car-floor, being thrown back against the piece *v* and prevented from turning thereby. When, however, from any cause the cable falls to the bottom of the tubing, the grip is let down by simply putting the foot on the arm N and pressing the cam-wheel around, the jaw being allowed to hang open. After the grip has been let down and cable inserted between the jaws, the latter are closed and the cam M turned around, raising the grip to its original position. Therefore, when from accident or wear on the cable a strand or strands thereof happened to break, the consequence was the "balling up" of the cable in the grip, and the cable thereby prevented from passing between the jaws. In such case it was impossible for the operator to detach the car from the cable, and, in other words, to stop the car. By means of my improved grip, if the cable should ball up, it would force the jaw D open and pass through without further damage.

My invention is exceedingly simple in construction, is of few parts, and can be applied to cars at a small initial cost.

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

1. The combination, with a plate provided at its lower end with a stationary jaw having rollers journaled therein, of a swinging jaw

provided with rollers, a cam, and devices for forcing the cam against the swinging jaw.

2. The combination, with a plate formed at its lower end with a jaw provided with rollers, of a swinging jaw attached to the plate, and also provided with rollers, a cam mounted on the lower ends of arms secured to the plate, and suitable means for forcing the cam against or away from the said swinging jaw, substantially as set forth.

3. The combination, with a plate formed at its lower end with a stationary jaw provided with rollers, of a swinging jaw secured to the plate, a cam mounted in depending curved arms secured to the plate, and a lever indirectly connected with the cam and adapted to force it against or away from the swinging jaw, substantially as set forth.

4. The combination, with a plate provided at its lower end with a jaw, of a swinging jaw secured to the plate, a cam mounted in arms secured to the plate, a pitman secured to the cam, the said pitman connected to a lever, the opposite end of said lever being connected with a vertical rod extending up through the car-floor, substantially as set forth.

5. The combination, with a plate formed at its lower end with a stationary jaw provided with rollers, of a swinging jaw secured to the plate, a cam, and a rod indirectly connected with said cam, the said rod being provided on each side with arms bearing on said plate, the inner ends of the arms being connected by bolts working in an elongated slot in the plate, substantially as set forth.

6. The combination, with a plate formed at its lower end with a stationary jaw provided with rollers, of a swinging jaw secured to the plate, and also provided with rollers, a bolt secured in the stationary jaw and provided with a roller at right angles to said former rollers, a cam, and means for forcing the latter against or away from the swinging jaw, substantially as set forth.

7. The combination, with a plate extending up through the car-floor, and provided at its lower end with a stationary jaw, of a cam-wheel secured to the plate and bearing on the car-floor, said cam being adapted to raise and lower the plate, a swinging jaw attached to the plate and means for forcing it against the stationary jaw, substantially as set forth.

8. The combination, with the plates A, B, and C, of the jaw D, cam G, pitman H, and levers I and J, all of the above parts combined and adapted to operate substantially as set forth.

9. The combination, with the plates A, B, and C, of the jaw D, cam G, pitman H, levers I, J, and cam M, the above parts combined and adapted to operate substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GEORGE B. BRYANT.

Witnesses:

GEORGE COOK,
S. G. NOTTINGHAM.