

(No Model.)

J. L. PEARSON.

GRIPPER FOR CABLE RAILWAYS.

No. 315,329.

Patented Apr. 7, 1885.

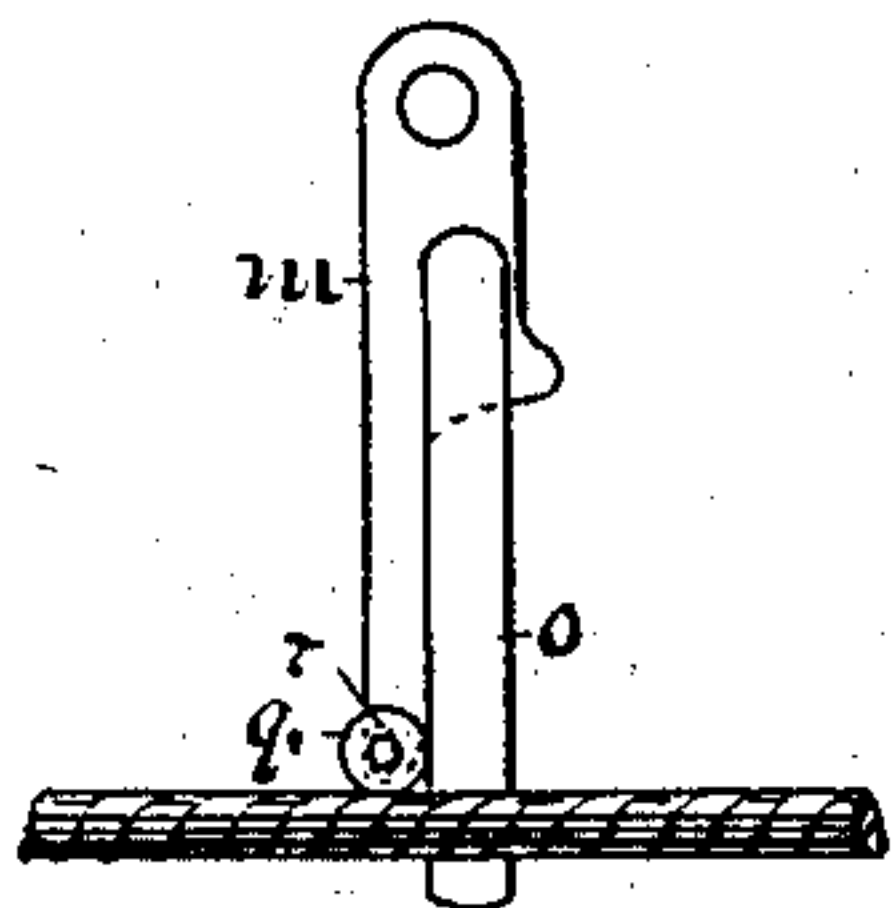


Fig. 3.

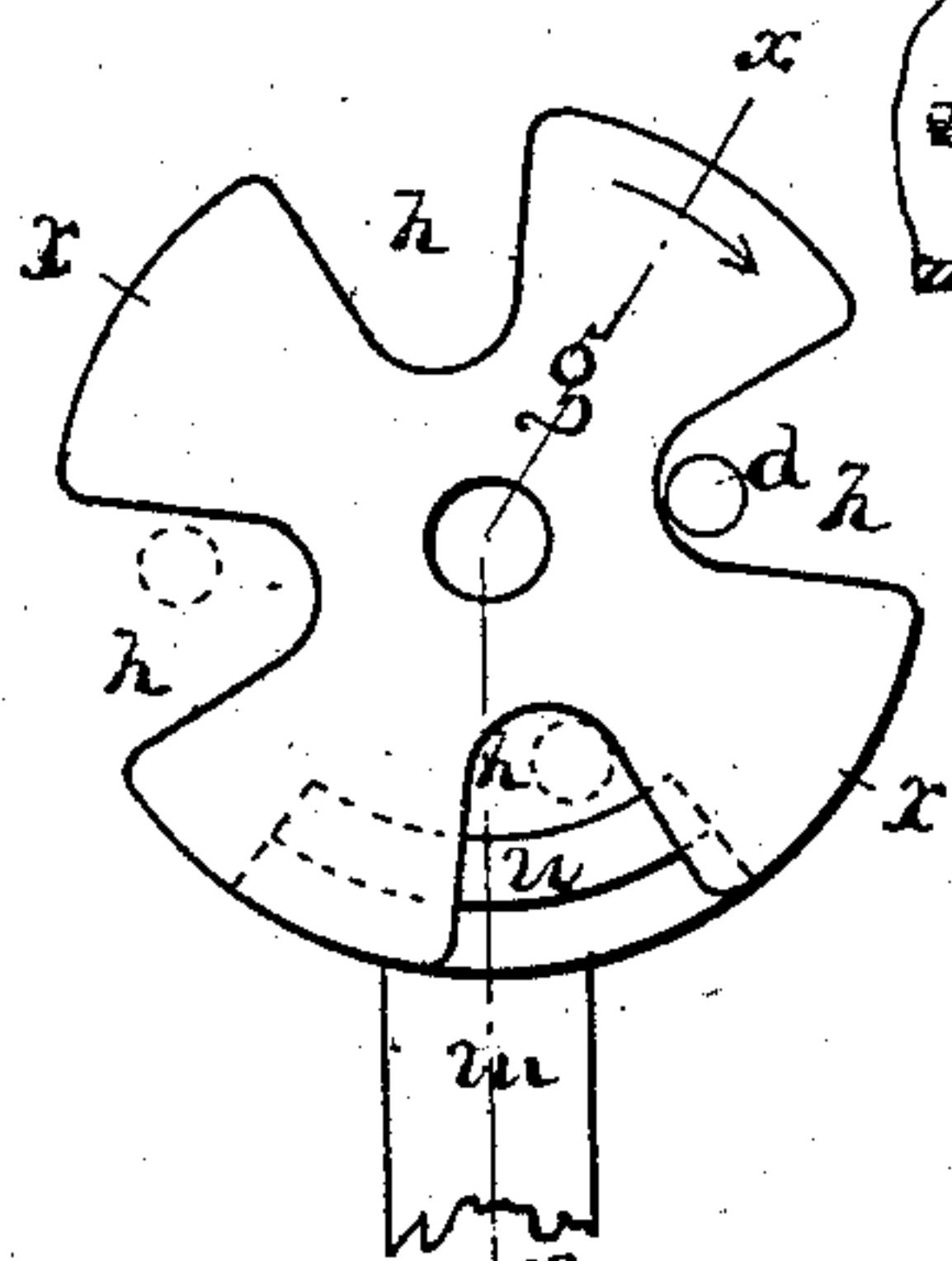


Fig. 4.

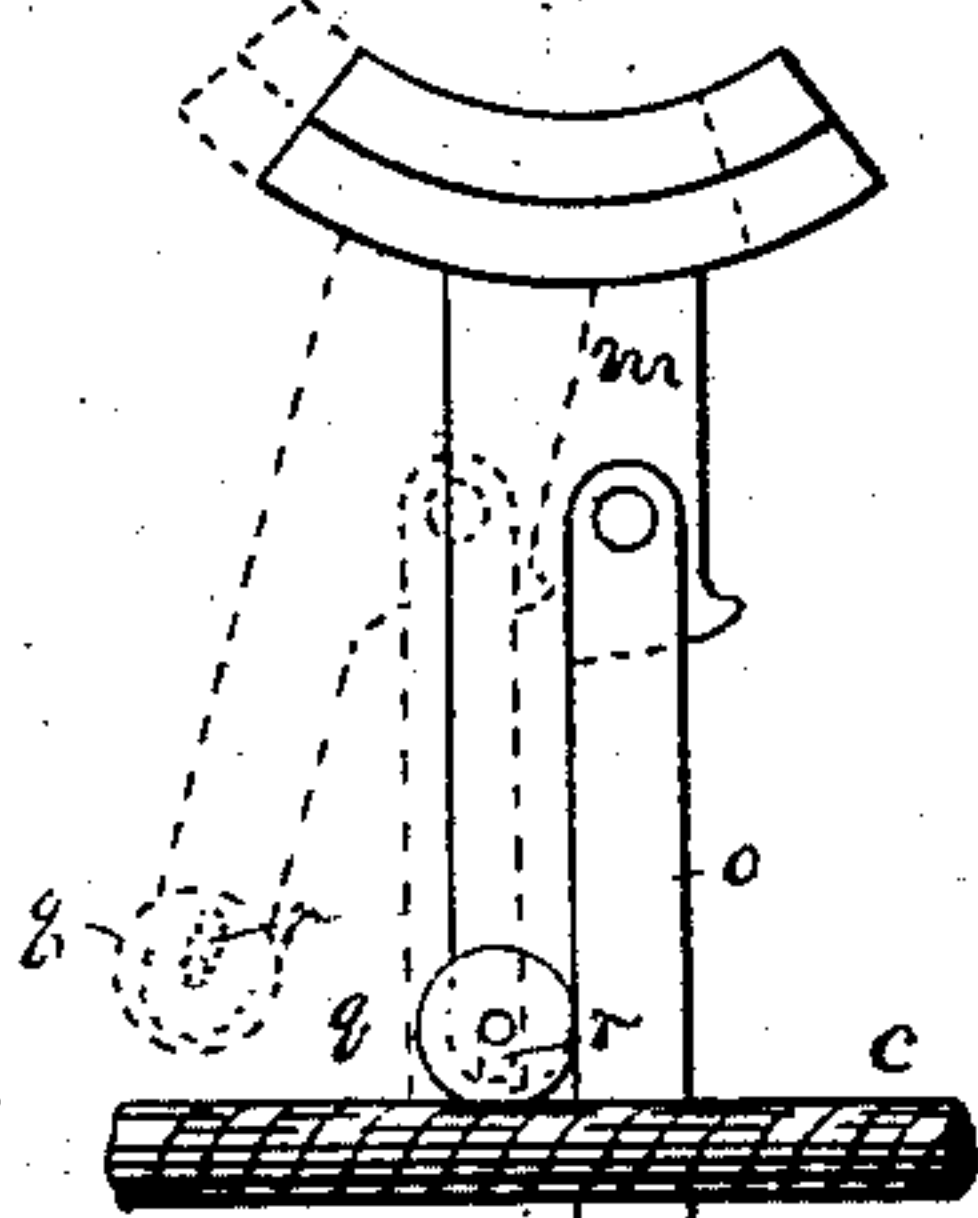


Fig. 6.

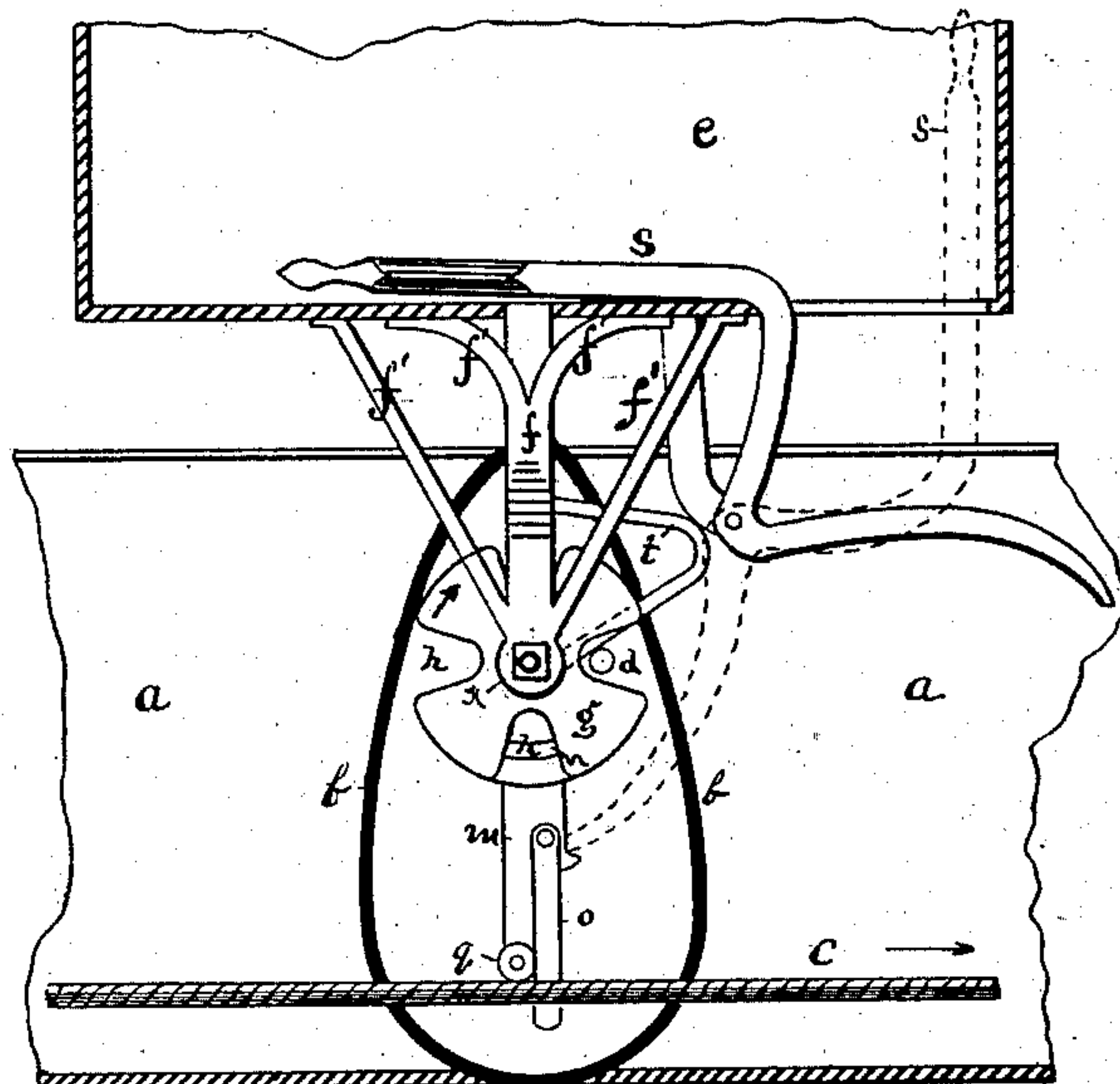


Fig. 1.

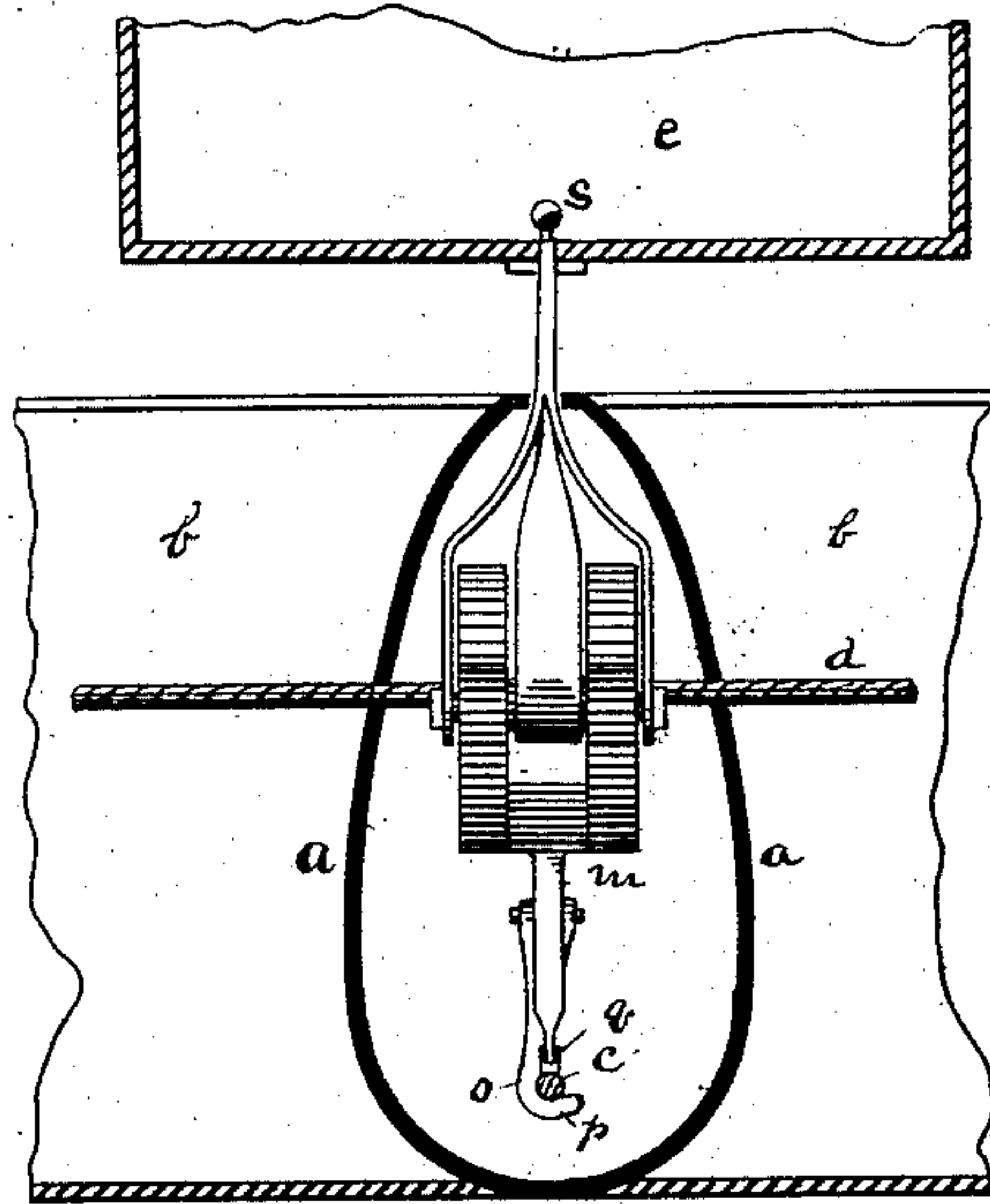


Fig. 2.

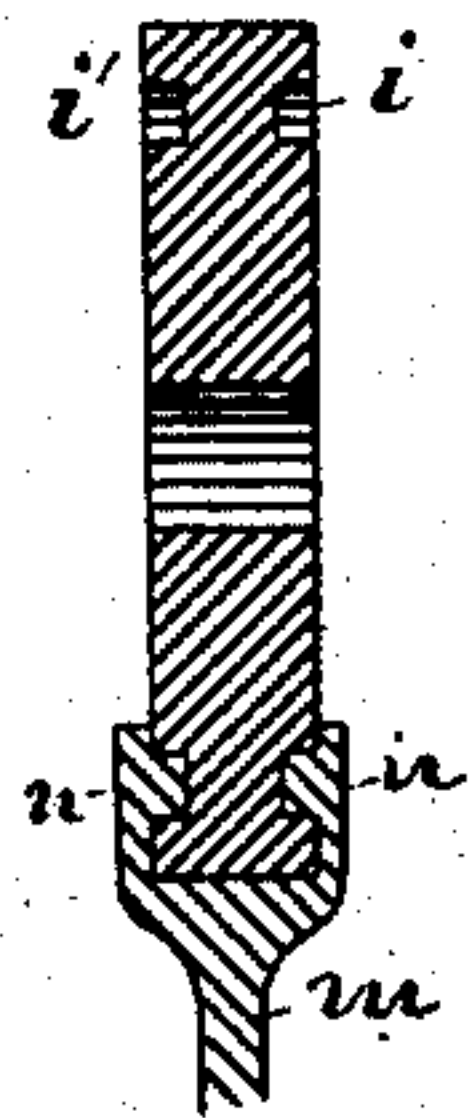


Fig. 9.

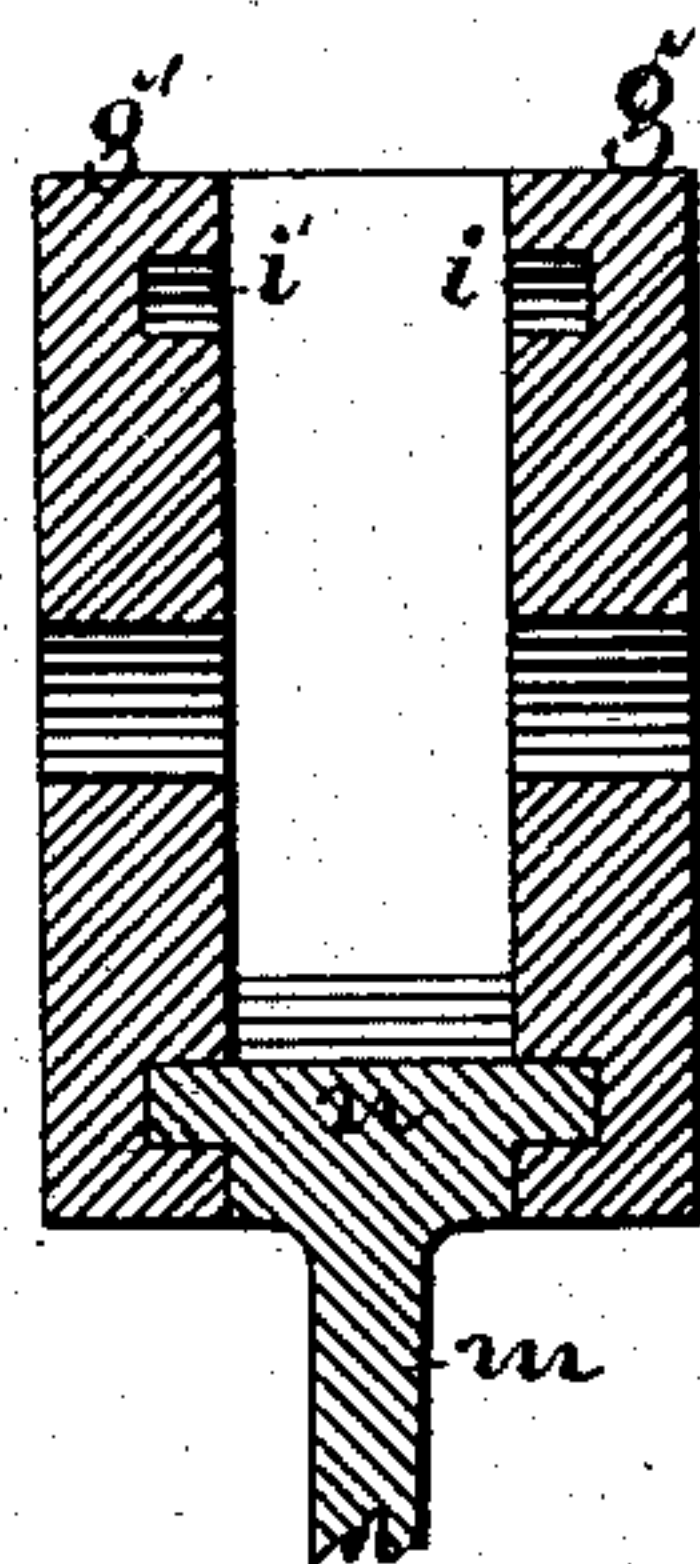


Fig. 5.



Fig. 7.



Fig. 8.

WITNESSES:

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GRIPPER FOR CABLE RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 315,329, dated April 7, 1885.

Application filed November 10, 1884. (No model.)

To all whom it may concern:

Be it known that I, JACOB L. PEARSON, a citizen of the United States, residing at Philadelphia, in the State of Pennsylvania, have invented a new and useful Improvement in Grippers for Cable Railways, of which invention the following is a specification.

The principal object in view in my invention is the construction of a gripper which, when working in connection with its own cable, (referred to below as the main cable,) shall be able to pass the transverse cable of an intersecting railway without letting go of or relaxing its hold on the main cable.

In the annexed drawings, Figure 1 is a sectional elevation of two intersecting conduits with their respective cables, showing in side elevation my gripper and its attachments in position as supported from the platform (in section) of a railway-car, the gripper proper being shown in holding contact with the main cable and in the act of passing the transverse cable of the intersecting conduit; and Fig. 2, a like view showing the same parts in side elevation, the gripper having passed the transverse cable. Figs. 3, 4, 5, 6, 7, and 8 represent details on an enlarged scale detached, Fig. 3 being a front elevation of the lower arm and the bar pivoted therein, forming the gripper proper holding its cable. Fig. 4 is a front elevation of the notched and grooved double wheel, showing the segmental traveler and a portion of the lower arm to which it is attached; and Fig. 5 is a cross-section of the same on the line $x x$ of Fig. 4. Fig. 6 is a front elevation of the segmental traveler and of the lower arm gripping its cable. Fig. 7 is a side elevation of the sleeve and shaft of the double wheel, and Fig. 8 is an end elevation of the same. Fig. 9 represents a modification of said wheel and lower arm, showing in vertical section a single wheel grooved on each face, the upper end of the lower arm being divided into two parts, which embrace the periphery of the wheel and form travelers sliding in the respective grooves.

a represents a conduit with the customary slot at its top. b is an intersecting conduit. c is an endless cable running on sheaves in the usual manner. d is the cable of the intersecting conduit. e is the platform of a rail-

way-car. f is a hanger attached to the platform e by bolts or in any other secure manner, and stayed by side supports, f' , all these parts being made, with a view to strength, of broad flat bars arranged in one line or plane to correspond with the slot in the conduit.

$g g'$ is the double wheel, provided with several corresponding notches, h , and with grooves marked, respectively, i and i' on the inner faces of the respective sections of said double wheel, as indicated in Fig. 5. The grooves $i i'$ describe circles in the inner faces of the respective sections of the double wheel $g g'$ concentric with the respective sections. The sections of wheel $g g'$ are fastened on a sleeve, j , Figs. 7 and 8, in which turns a shaft, k , to which said sections are keyed.

m is the lower arm or gripper proper, which forms a part of or is rigidly attached to a segmental traveler, n , which slides in the grooves i and i' when the double wheel $g g'$ revolves.

o is a bar pivoted to the arm m . It has a foot, p , Fig. 2, which supports the cable c . The arm m is provided with a friction-wheel, q , which is supported by a shaft passing through the slot r , the purpose of this arrangement being to enable the arm m to release without bending the cable.

s is a lever for controlling the lower arm or gripper proper, m .

t , Fig. 1, is a guard projecting from the hanger f . It serves, in case the transverse cable d strike the peripheries of the sections $g g'$ of the double wheel at any point above their centers, to throw the cable down into the neighboring notches.

It is to be understood that the two cables c and d of the main and transverse lines, respectively, are at each crossing to be arranged at different levels, as shown, the transverse cable being in every instance above the main cable, and being arranged to strike the wheel $g g'$ preferably a little below its center for the purpose of revolving this wheel in a forward direction. (Indicated by the arrows in Fig. 1.) Whenever this occurs, the transverse cable drops into the neighboring notches of the double wheel, causing the wheel to revolve, the traveler n and arm m , attached to it, remaining stationary relative thereto, thus allowing the transverse cable to pass through the wheel to

the rear of the gripper without interference with the hold of the latter on the main cable.

The gripping action of the arm *m* and bar *o* on the cable *c* is automatic, and it will be seen that from the forms and relative arrangement of these parts the harder the draft of the cable the firmer is the hold of the gripper upon it. The gripper is caused to release the cable by means of the lever *s*, which an operator on the platform *e* lifts, causing it to assume the position indicated by dotted lines in Fig. 1, its lower end pressing against the arm *m* with the force required to free the gripper from its holding contact with the cable *c*, thus allowing the cable to run loosely through the foot *p* of bar *o*. This action continues as long as the lever *s* remains in contact with arm *m*; but as soon as this contact is broken the moving cable, by its friction on the wheel *g*, causes the bar *o* to assume a vertical position and take a gripping hold of the cable.

For use in connection with cables which are not crossed by other cables, the gripping devices may be simplified by omitting the double wheel *g g'* and traveler *n*, the upper end of the arm *m* being in such case provided with a shaft-hole, and a simple bolt, instead of the sleeve *j* and shaft *k*, passed through the same, serves to journal said arm in the hanger *f*.

The respective sections of the double wheel *g g'*, constructed on the scale shown in Fig. 4, have four notches. It is to be understood, however, that the number of the notches is to be increased as the diameters of said sections are increased, the intention being to have as many notches in the respective sections as the size of the latter will permit, leaving enough of the body of the wheel solid to form a basis for the grooves *i i'*, and to support therein the traveler *n*. The sleeve *j* may form a part of either section of the double wheel *g g'* and be cast therewith, if desired.

The hanger *f* is described as being attached to the platform of the car; but it may be attached at any place where the lever *s* will be accessible and can be worked.

The single wheel represented in Fig. 9 is intended to be used as a substitute for the double wheel *g g'*. Each face of this single wheel is provided with a circular groove, which is concentric with the wheel, the upper extremity of the gripper proper, *m*, being constructed so as to straddle the periphery of the wheel and

form a traveler in each groove, as indicated. This wheel is notched in the same manner as the double wheel. I prefer, however, the use of the double wheel first described.

Either the single or double wheel, notched and grooved as above described, can be used in connection with any horizontally-working gripper by applying such wheels to each lever used for controlling such gripper.

A notched and grooved wheel, made either double or single, as above described, provided with hangers or equivalent means for its support, and with a traveler arranged to slide in its grooves, is susceptible of use in many different situations. Thus the wheel with its hangers and traveler may constitute a cross-brace to stay the opposite sides of the conduit and protect the conduit-slot against the effect of contraction and expansion.

I claim—

1. The hanger *f*, attached to the body of a car, a wheel provided with the notches *h* and grooves *i i'*, the arm *m*, with its traveler *n*, and the bar *o*, pivoted in said arm, in combination constituting a cable-gripper for passing a transverse cable without letting go of or relaxing its hold on the main cable, substantially as set forth.

2. The hanger *f*, arm *m*, journaled therein, and bar *o*, pivoted in said arm, in combination constituting a cable-gripper for use where no transverse cable is to be passed, substantially as set forth.

3. The lever *s*, in combination with the arm *m* and bar *o*, constituting the gripper proper, supported from a railway-car for the purpose of causing the gripper to relax its hold on the main cable, substantially as set forth.

4. A notched and grooved wheel in combination with a cable-gripper, substantially as and for the purposes set forth.

5. The double wheel *g g'*, arranged in the connections of a gripper with its car for passing a transverse cable, substantially as set forth.

6. A notched and grooved wheel provided with means for its support, and with a traveler arranged to slide in its grooves, in the manner and for the purposes substantially as set forth.

J. L. PEARSON.

Witnesses:

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