

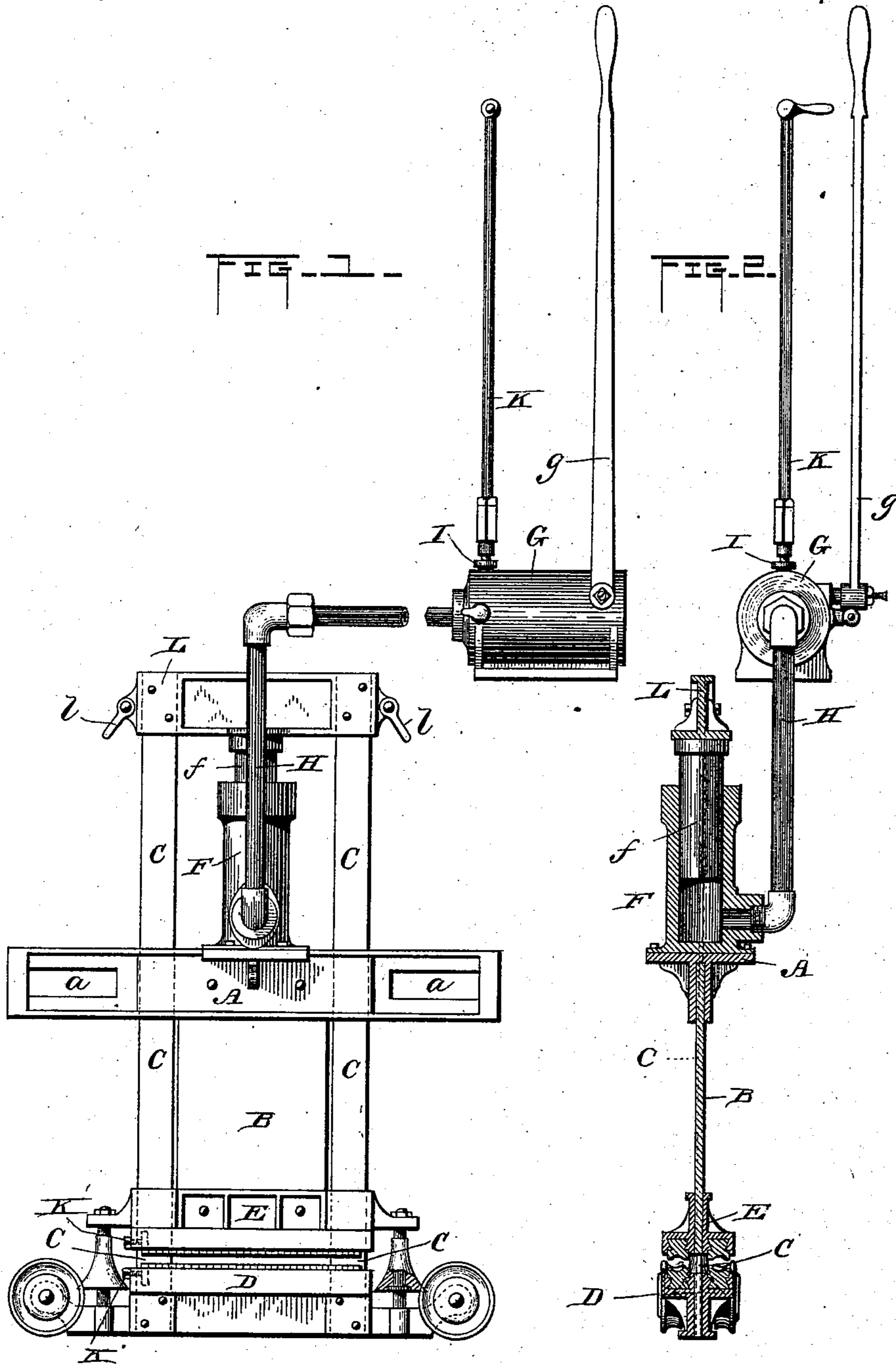
(No Model.)

C. L. SNYDER.

GRIPPER ACTUATED BY HYDRAULIC PRESSURE FOR CABLE RAILWAY CARS.

No. 380,224.

Patented Mar. 27, 1888.



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES L. SNYDER, OF KANSAS CITY, MISSOURI, ASSIGNOR OF ONE-HALF
TO ISAAC M. RIDGE, OF SAME PLACE.

GRIPPER ACTUATED BY HYDRAULIC PRESSURE FOR CABLE-RAILWAY CARS.

SPECIFICATION forming part of Letters Patent No. 380,224, dated March 27, 1888.

Application filed January 31, 1888. Serial No. 262,542. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. SNYDER, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Grippers Actuated by Hydraulic Pressure for Cable-Railway Cars; 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 for railway-cars, and more particularly to grippers actuated by hydraulic pressure.

The object is to provide an efficient gripper consisting of few parts and adapted to general use in connection with existing constructions of conduits and cars, and one which shall be capable of being operated by means of a liquid—water, for example.

With these ends in view my invention consists in certain features of construction and combinations of parts, as will hereinafter be described, and pointed out in the claims.

In the accompanying drawings, Figure 1 represents the gripper and its operating mechanism in side elevation; and Fig. 2 represents the same in vertical transverse section, the section being taken centrally through the gripper.

A represents a supporting-bar disposed horizontally along the floor of the car or above or below the floor, as may be found desirable, above the narrow opening between the slot-irons of the road-bed. (Not shown.) The bar A is preferably provided with mortises *a* near its ends, for convenience in securing it in the desired position, and at its central portion is secured the upper end of the flat depending plate B, calculated to extend through and travel freely in the opening between the slot-irons hereinbefore referred to. To the lower end of the plate B the upper grip-jaw, E, is secured, and held by the plate and the supporting-bar A in stationary adjustment.

D represents the lower gripping-jaw. It is supported to be moved toward and away from the jaw E by means of a pair of flat standards

or bars, C, which extend through vertical sockets in the bar A, and their upper ends are firmly connected by the cross-head L.

A vertical cylinder, F, is supported on the bar A centrally between the sliding standards, and a plunger, *f*, is adapted to slide up and down within the cylinder. The cross-head L is supported centrally on the head of the plunger, and thus the lower movable grip-jaw, D, is supported in its position and capable of being moved toward and away from the jaw E by the movements of the plunger *f* within the cylinder F.

The particular construction of the jaws E and D, their wearing-faces removably secured thereto in dovetail recesses, the location and mounting of the loose pulleys for carrying the cable, and the location and construction of the spools for throwing the cable off the loose pulleys are quite similar to the corresponding parts illustrated and fully described by me in another application filed of even date herewith, and hence are not recited at length herein.

The plunger *f* is operated as follows: A liquid-conducting pipe H communicates with the cylinder F at a point below the lower end of the plunger *f*, and also at its opposite end communicates with a hydraulic pump, G. The location of the pump G is immaterial, so that it be in a position to be conveniently operated by the person running the car.

The pump is conveniently operated by means of the vertical lever *g*, by which, when worked back and forth, the water or other liquid employed will be forced through the conducting-pipe H beneath the plunger *f*, causing the latter to rise, and with it the lower jaw, D, to be drawn up toward the upper jaw, E, into contact with the cable. When it is desired to release the cable, the water will be allowed to escape from beneath the plunger *f* by the vent I in communication with the compression-chamber of the pump G. As a convenient means for opening and closing the said vent, a handle, K, is provided, with a square socket in its lower end which fits over the squared head of the turn-plug to open and close the vent.

As a matter of economy in the employment

of a liquid, it will be observed that the liquid supply for furnishing the pump G might be so located as to receive the overflow from the vent I, and thus the same body of liquid be employed over and over again in operating the plunger *f*, subject only to be replenished from time to time to make up what small quantity might be lost by leakage. The particular construction of the pump is immaterial, so long as it be any one of the simple and effective well-known force-pump styles, and the precise construction of the turn-plug for opening and closing the vent is also immaterial, the essential feature being that the water or other liquid shall be allowed to escape freely from beneath the plunger whenever it is desired to release the grip. This arrangement, while exceedingly simple, is found to be eminently effective, and affords ready means of manipulating the jaws, and also furnishes a more or less elastic cushioning of the jaws in their engagements with the cable, and yet is not sufficiently yielding to render the grip ineffective. It is evident, however, that the cylinder F might be placed on the floor of the car, or on a suitable support above the car-floor, instead of on the bar A, or it might be located below the car-floor, the supporting-bar A being supported at sufficient distance below the floor to give the plunger the necessary movements to open or close the jaws, as may be desired. For convenience in handling, the cross-head L is provided with handles *l* at its ends.

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

1. The combination, with a sliding jaw, a cylinder, and a plunger adapted to work within the cylinder and supporting the sliding jaw, of a force-pump, a pipe connecting the force-pump directly with the cylinder at a point below the plunger, and a vent to the cylinder, substantially as set forth.

2. The combination, with a sliding jaw, a cylinder, and a plunger adapted to work within the cylinder and supporting a sliding jaw, of a force-pump, a pipe connecting the force-pump directly with the cylinder at a point below the plunger, and a vent to the cylinder located at the pump end of the pipe leading to the cylinder, substantially as set forth.

3. The combination, with the upper stationary gripping jaw and the lower movable gripping-jaw, of standards or bars extending from the lower jaw upwardly through sockets in the upper jaw and rigidly connected at the upper ends by a cross-head, a cylinder located centrally between the vertical standards or bars, a plunger located centrally beneath the said cross-head and adapted to work in the cylinder, a force-pump for forcing liquid into the cylinder beneath the plunger, and a vent for permitting the escape of the liquid from the cylinder, substantially as set forth.

4. The combination, with the stationary upper jaw and the movable lower jaw having supporting-standards extending upwardly from it through the ends of the stationary jaw, of vertical bolts secured to the ends of the stationary jaw and extending downwardly through the sockets in the lower movable jaw, and spools having flaring faces secured on the bolts, whereby the cable is guided out of and into position between the gripping-jaws as the lower jaw is lowered or raised, substantially as set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

CHARLES L. SNYDER.

Witnesses:

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