

(No Model.)

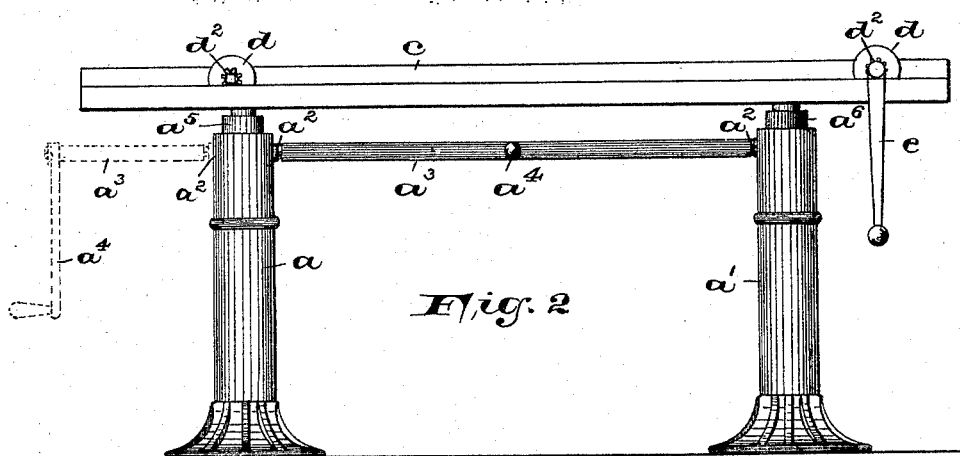
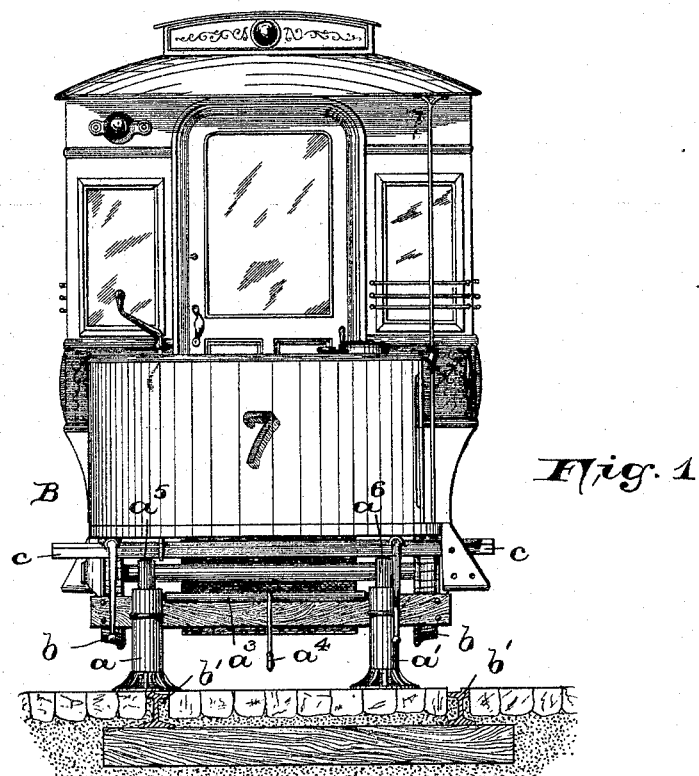
2 Sheets—Sheet 1.

W. J. KNIGHT.

MEANS FOR REPLACING DERAILED CARS.

No. 526,715.

Patented Oct. 2, 1894.



WITNESSES:

Wm. H. Campfield, Jr.
B. Mortimer Trusdell

INVENTOR:

Walter, J. Knight,

BY *Fred C. Gaentzel*, ATT'Y.

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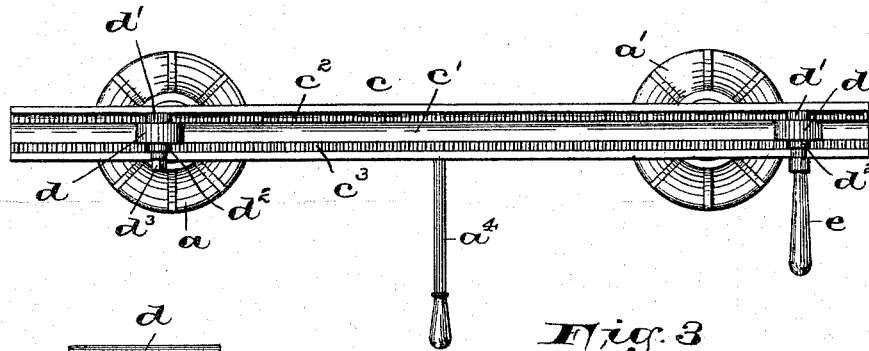


Fig. 3

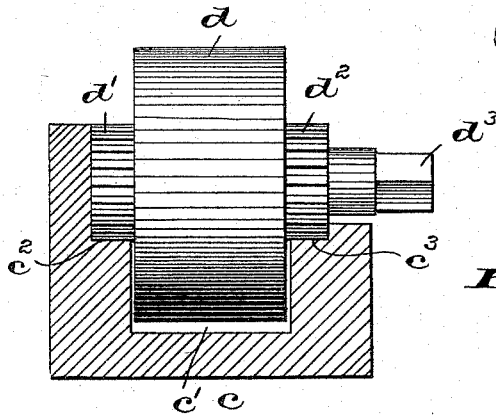


Fig. 4

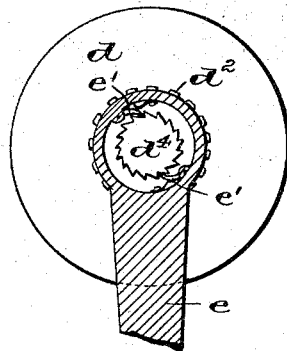


Fig. 5

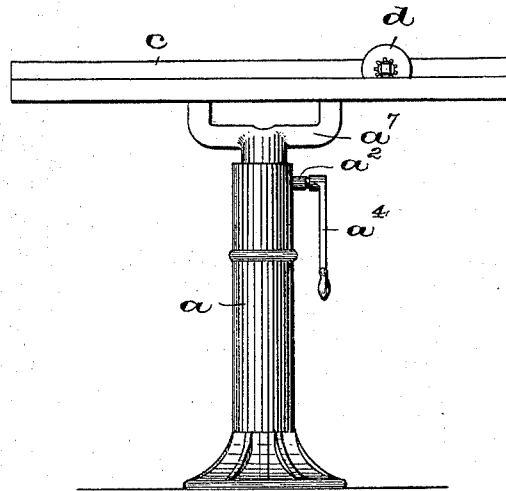


Fig. 6

WITNESSES:

Wm. H. Canfield, Jr.
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INVENTOR:

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UNITED STATES PATENT OFFICE.

WALTER J. KNIGHT, OF NEWARK, NEW JERSEY.

MEANS FOR REPLACING DERAILED CARS.

SPECIFICATION forming part of Letters Patent No. 526,715, dated October 2, 1894.

Application filed May 24, 1894. Serial No. 512,269. (No model.)

To all whom it may concern:

Be it known that I, WALTER J. KNIGHT, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Means for Replacing Derailed 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention has reference to improvements in means for raising derailed cars, to replace the wheels of the truck upon the rail, and has for its object to provide a means for this purpose, which can be placed under the body or truck of a derailed car, and whereby the car can be raised and moved laterally until the wheels are above the rails, when the apparatus can be lowered and the car wheels brought down upon the rails.

The invention is illustrated in the accompanying sheets of drawings, in which similar letters of reference are employed to indicate corresponding parts in each of the several views.

In said drawings, Figure 1 is an end view of a car and my novel form of car-raising and replacing apparatus in position under the car-body, ready for operation, to move the car-body laterally and bring the wheels over the rails. Fig. 2 is a front view of said lifting and replacing device, on an enlarged scale. Fig. 3 is a top view of the device, and Fig. 4 is a detail view of a rack and pinion employed, being a cross section taken on line *x* in said Fig. 3. Fig. 5 is a detail view of a winch employed in connection with the device. Fig. 6 is a front view of a lifting and replacing device, of a slightly modified form of construction.

In said drawings, B indicates a car. *b* are the car wheels and *b'* the rails.

My novel form of car-lifting and replacing device consists essentially of two lifting jacks *a* and *a'*, which are preferably hydraulic jacks of the well known form and construction. Each cylinder is provided with a stud *a²*, and connecting said studs *a²* is a suitable rod or

bar *a³*, by which the piston of each force pump is worked, provided with an operating bar or lever *a⁴*, which may be arranged on said rod or bar *a³*, between the two jacks *a* and *a'*, or to one side of one of said jacks, as *a*, as indicated in dotted outline in said Fig. 2.

As to the construction and the inner arrangement of the valves and hydraulic connections, any well known form of construction of hydraulic jack, such as for instance, the hydraulic jack devised by Mr. R. Dudgeon, illustrated in *Appleton's Cyclopædia of Applied Mechanics*, Vol. II, page 206, may be used. The same is therefore not particularly described or illustrated herein, said illustrations being deemed sufficient to a clear understanding of the valve construction and inner hydraulic connections to those skilled in the art to which it appertains.

Connected with each inner cylinder *a⁵* and *a⁶* of the jacks *a* and *a'* respectively, is a suitable rack *c*, which may be detachably arranged on the top of each cylinder, or may be permanently secured thereto, as will be evident. Said rack *c* is preferably constructed, as illustrated in Fig. 4, being provided with a groove *c'* extending along its entire length, and with teeth *c²* and *c³* on the opposite sides of said grooves, as will be clearly seen from Fig. 3. In said groove *c'*, I arrange one or more rollers or wheels *d* provided with toothed portions *d'* and *d²*, which fit into and mesh with said teeth *c²* and *c³* on the rack *c*. Extending from one of said toothed portions, as *d²*, is a stud *d³* which can be operated or turned by means of any suitable winch *e*. Said winch may be made, as illustrated more especially in Fig. 5, being provided with spring-actuated pawls or dogs *e'*, which engage with a ratchet wheel *d⁴* on the said toothed portion *d²*, and which permits of a backward and forward movement of said handle or lever *e²*, as will be clearly understood.

The operation of the device will be clearly understood from an inspection of the drawings.

When a car has jumped the track, the device illustrated more particularly in Fig. 2 is placed under the car-body or the car wheel truck, and by operating the lever *a⁴*, both of the hydraulic jacks *a* and *a'* are operated simultaneously. The cylinders *a⁵* and *a⁶* are

thus raised and bring the roller or rollers d in supporting contact with the bottom of the car-body or with the car wheel truck. When the car and its derailed wheels have been sufficiently raised, then the winch e is operated, causing the roller d , or rollers, when two are employed, to traverse along the rack c until the car wheels are brought directly above the rails b' . The cylinders in the jacks a and a' are then lowered and the car wheels are again brought down to rest upon the rails.

By the arrangements and combinations of parts herein shown and described, it will be seen, that a simple and effectively working device for replacing a derailed car upon the track has been devised, and one that can be worked by the labor of one man only.

The lifting and replacing device is especially adapted for the replacing of heavy cars, such as electric and ordinary railway cars, on the tracks.

In place of the two lifting jacks a and a' , illustrated in Figs. 1 and 2, I may use but one jack, as will be seen from Fig. 6, in which case the rack c is carried by a forked support a'' on the inner cylinder, as shown. I prefer to use two jacks, however, since thereby all danger of upsetting the car is clearly avoided.

Having thus described my invention, what I claim is—

1. In a means for replacing derailed cars, the combination, of a lifting jack, with a rack on said jack adapted to be raised by said jack, said rack having a groove c' and teeth c^2 and c^3 on opposite sides of said groove, a roller d

provided with toothed portions d' and d^2 on said rack, and a winch for operating said roller, whereby the car can be moved laterally, substantially as and for the purposes set forth.

2. In a means for replacing derailed cars, in combination, a pair of lifting jacks, means for raising the cylinders of said jacks simultaneously, consisting essentially of a connecting rod or bar a^3 and an operating lever a^4 connected therewith, a rack on said cylinder adapted to be raised thereby, and means on said rack adapted to be moved laterally on said rack and thereby move the car in the same direction, substantially as and for the purposes set forth.

3. In a means for replacing derailed cars, in combination, a pair of lifting jacks, means for raising the cylinders of said jacks simultaneously, consisting essentially of a connecting rod or bar a^3 and an operating lever a^4 connected therewith, a rack on said cylinders adapted to be raised thereby, said rack having a groove c' and teeth c^2 and c^3 on the opposite sides of said groove, a roller d , provided with toothed portions d' and d^2 on said rack, and a winch for operating said roller, whereby the car can be moved laterally, substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 10th day of May, 1894.

WALTER J. KNIGHT.

Witnesses:

FREDK. C. FRAENTZEL,
WM. H. CAMFIELD, Jr.