M. WATERS.

Car-Replacers.

No. 198,326. Patented Dec. 18, 1877.

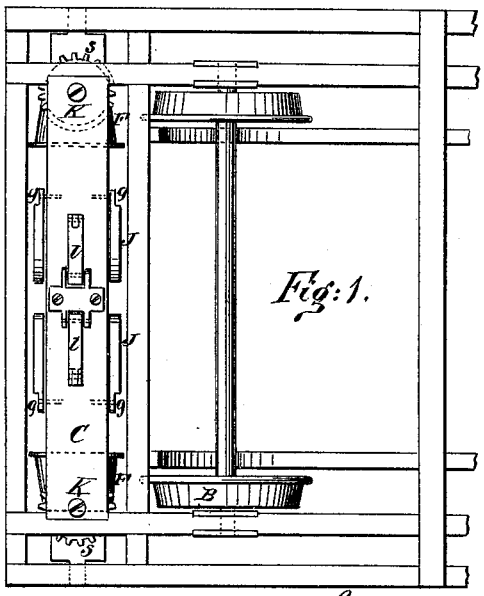

Fig: 1.

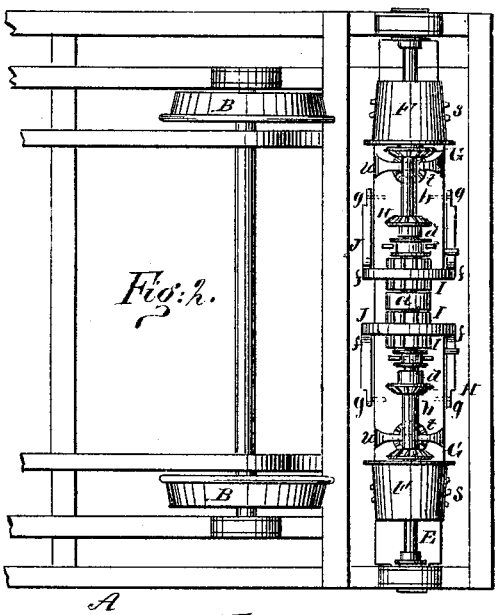

Fig: 2.

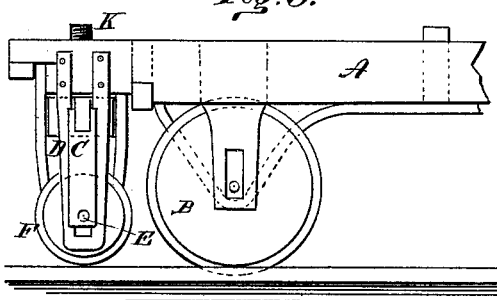

Fig: 3.

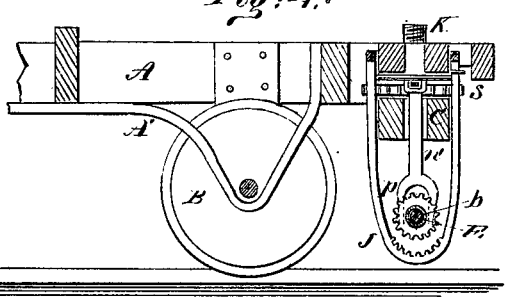

Fig: 4.

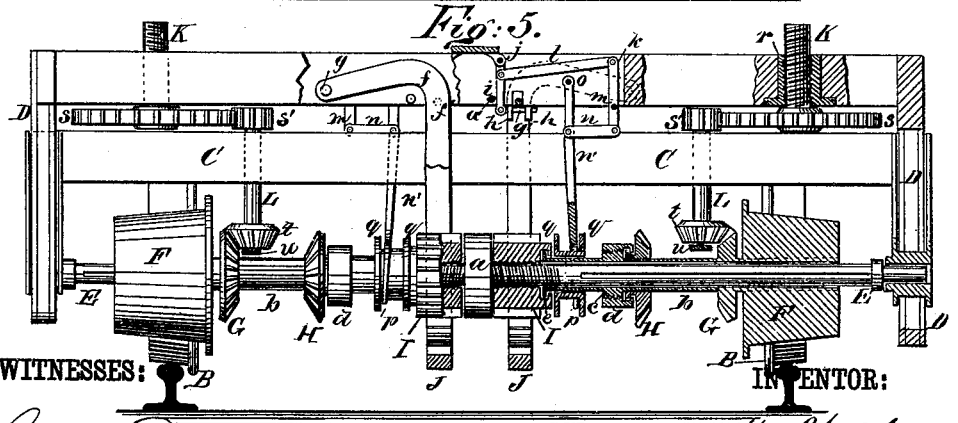

Fig: 5.

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MICHEAL WATERS, OF NEW YORK, N. Y.

IMPROVEMENT IN CAR-REPLACERS.

Specification forming part of Letters Patent No. **198,326**, dated December 18, 1877; application filed July 23, 1877.

To all whom it may concern:

Be it known that I, MICHEAL WATERS, of the city, county, and State of New York, have invented a new and Improved Car-Replacer, of which the following is a specification:

Figure 1 is a partial plan view. Fig. 2 is an inverted plan view. Fig. 3 is a side elevation of a part of a car-truck. Fig. 4 is a vertical section. Fig. 5 is an end elevation in part section.

Similar letters of reference indicate corresponding parts.

My invention relates to apparatus for replacing cars that leave the track while they are still in motion; and it consists of an arrangement of wheels and gearing, hereinafter more fully described.

Referring to the drawing, A is a truck-frame, supported by car-wheels B in the usual way, and having at each end a movable frame, C, that is placed in vertical guides D, attached to the frame A. In the frame C a shaft, E, is journaled, which is provided with a fixed collar, *a*, at its center, and is slotted longitudinally. Upon each end of the shaft E a sleeve, *b*, is placed, to which the flanged wheel F and miter-wheel G are secured. The sleeve *b* is also provided with a threaded collar, *c*, upon which an internally-threaded sleeve, *d*, is placed. This sleeve is grooved internally, to receive a flange on the boss of a miter-wheel, H, placed on the sleeve *b*.

The sleeve *b* is capable of moving longitudinally on the shaft E, but is prevented from turning thereon by a spline fitted to the slot in the shaft. The bevel-wheel H may be moved lengthwise on the sleeve *b*, but is prevented from turning thereon by a spline in the wheel and a slot in the sleeve.

I is an internally-threaded pinion placed on the shaft E, against the fixed collar *a*, and grooved internally to receive the flange *e*, formed on the inner end of the sleeve *b*. The shaft E is threaded, on one side of the fixed collar *a*, with a right-hand thread, and on the other side with a left-hand thread.

J is a strap that is bent at *f*, and pivoted at *g* to the frame A, and extends downward below the pinion I, partly encircling it. The inner surface of the lower portion of the strap is provided with teeth of the same pitch as those of the pinions. A rod, *f'*, connects the two branches of the strap, and is supported by a bolt, *g'*, which passes through eyes *h*, that project downward from the frame A. A lever, *i*, pivoted at *j*, is jointed to the bolt *g'*, and connected with the lever *k* by a rod, *l*. The lever *k* is pivoted at *m*, and is connected by a link, *n*, with a longer lever, *n'*, pivoted at *o*, and provided with a forked end, *p*, which straddles the sleeve. When the lever *n'* is disconnected from the lever *m* a pin, *a'*, is placed behind the lever *i*, to hold the bolt *g'* in place.

A screw, K, is journaled in the frame C, and extends upward through a nut, *r*, in the frame A. Upon this screw a spur-wheel, *s*, is secured, which meshes into a pinion, *s'*, on the upper end of the shaft L, which is journaled in the frame C, and to which a bevel-wheel, *t*, is secured. The lower end of the shaft L is supported by a hanger, *u*, attached to the frame C.

The bevel-wheel *t* may be engaged by either of the wheels G H. The parts of the device on both sides of the fixed collar *a* are similar, except that they are made right or left hand, according to their position on the truck. The apparatus is also alike at the front and rear of the truck.

Safety-straps A' may be attached to the truck-frame A, for receiving and supporting the axle in case it breaks.

The operation of my device is as follows: When the car jumps the track, the wheels F take the track. The continued forward motion of the car causes the wheels to rotate. The sleeves *b* and bevel-wheels G H being carried by the wheels F, motion is imparted to the screws K through the bevel-wheel *t*, shaft L, spur-pinion *s'*, and spur-wheel *s*.

The turning of the screws K raises the truck until the straps J are brought into engagement with the internally-threaded pinions I, which are thus prevented from revolving. The rotation of the threaded portion of the shaft causes the pinions to traverse the shaft E toward its ends, carrying with them the sleeves *b* and wheels F, throwing the bevel-wheels G *t* out of gear, and carrying the wheels

F outward until they are of the same gage as the truck-wheels. The car is thus brought over the center of the track. The inner flanges *q* on the sleeves *b* at this instant strike the levers *n'*, which, acting through the links *n*, levers *m*, rods *o*, and levers *i*, draw the bolts *g'*, and permit the straps J to drop. The outward movement of the wheels F is stopped, and the bevel-wheel H having been previously drawn back by turning the sleeve *d*, so that it cannot engage with the wheel *t*, the car continues to run on the wheels F. When it is desired to let the car down upon the wheels B, the wheels H are thrown out, so that they may engage with the wheels *t*, when the wheels F are thrust out as far as may be required. The link *n* is disconnected from the lever *n'*. When the wheel H engages the wheel *t* the motion of the screw K is reversed, and the car is lowered to its place, with its wheels B on the track.

When this is done the straps J are thrown out of engagement with the pinions I, and the several parts of the replacer cease to act.

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

1. The shaft E having the central fixed collar *a*, the sleeve *b*, the internally-threaded pinions I, wheels F, screws K, and wheels G H *t s s'*, in combination, substantially as shown and described.

2. The strap J, pivoted at *g*, and provided with internal teeth, in combination with the pinions I, substantially as shown.

3. The combination of the internally-threaded sleeve *d*, threaded hub *c*, and the wheel H, substantially as shown and described.

4. The combination of the flanges *q*, levers *n' m l*, rod *o*, link *n*, bolt *g'*, and straps J, substantially as specified.

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Witnesses:
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