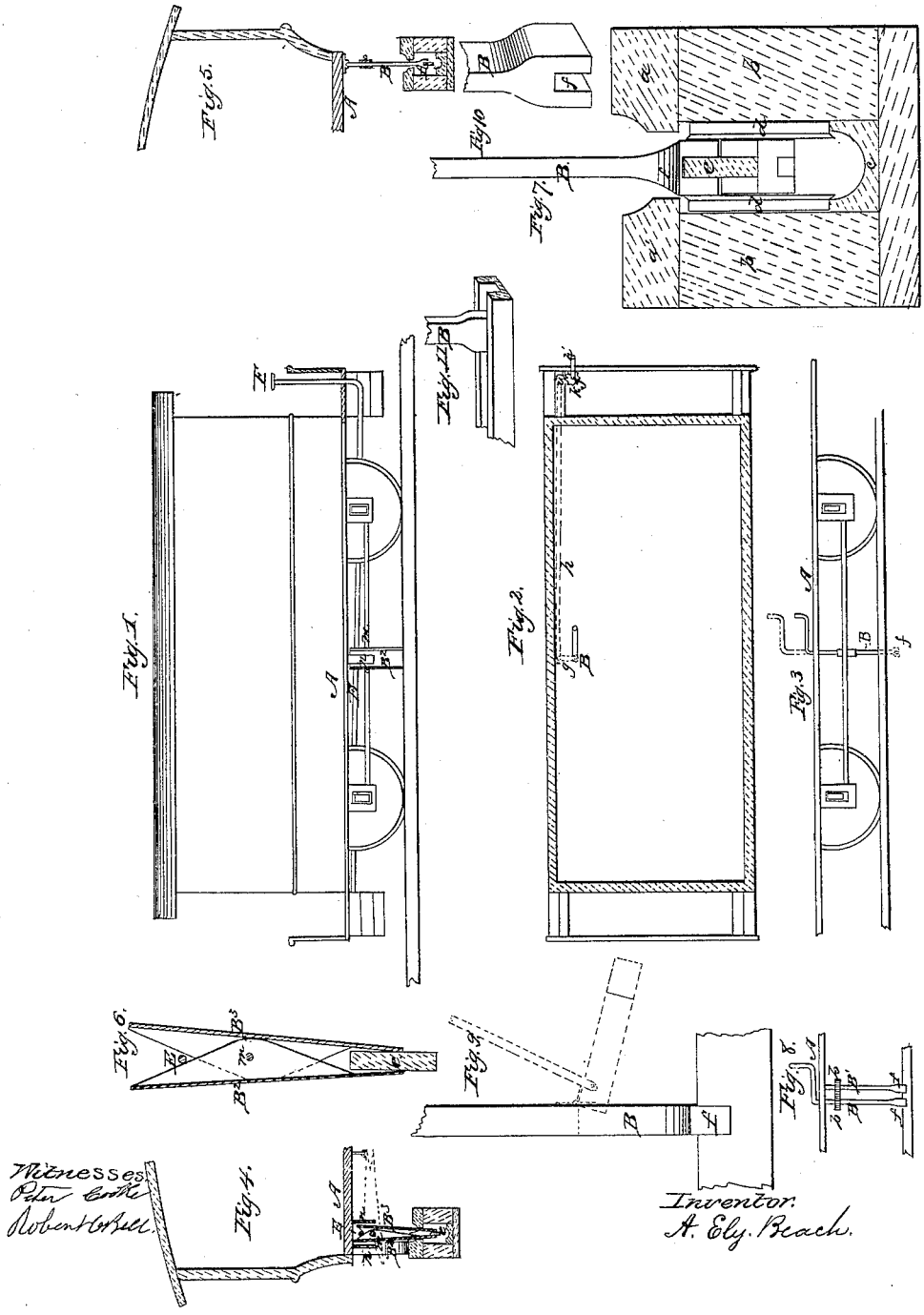
A. E. BEACH.

DRAFT CABLE FOR RAILROADS.

No. 49,695. Patented Sept. 5, 1865.



UNITED STATES PATENT OFFICE.

A. ELY BEACH, OF STRATFORD, CONNECTICUT.

IMPROVEMENT IN RAILROAD-CARS.

Specification forming part of Letters Patent No. **49,695**, dated September 5, 1865.

To all whom it may concern:

Be it known that I, A. ELY BEACH, of Stratford, Fairfield county, and State of Connecticut, have invented certain new and useful Improvements in Railroad Cars or Vehicles; and I do hereby declare that the following is a full and exact description of my invention, which will enable any person skilled in the art to make and use the same.

Reference is to be had to the accompanying drawings, forming part of this specification, in which the same letters indicate similar parts in all of the figures.

Figure 1 is a side elevation of a car having my improvements attached. Fig. 2 is a plan view of the same. Fig. 3 is another side elevation of the same. Figs. 4 and 5 are cross-sectional elevations or end views of the car, illustrating the operation of my improvements. Figs. 6 and 7 are enlarged sectional views of parts of my improvement. Figs. 8, 9, 11 are similar views, illustrative of modifications of my improvements.

My improvements are chiefly designed for use in connection with railroad-cars that are to be propelled by means of a traction or draft cable which moves along upon or below the surface of the ground or in channels therein, the said cable being arranged to move under the car.

My invention consists in the combination, with some part of the running-gear or floor or platform or bottom frame of the car, of a device by which a moving cable passing along below the car can either be instantly grasped or seized or released at the will of the operator, thus enabling the operator to connect the car to the cable or to disconnect the car at pleasure.

My improvement is so constructed that the operator may regulate at will the pressure or grasp of the connecting device upon the cable, and thus facilitate the gradual or easy starting of the car, with a gradual increase in its velocity until the car has attained the same speed as the cable, when the connecting device may be locked and the car and cable held in connection with each other as long as desired.

A represents the bottom floor of a city passenger-car of the ordinary construction. The car-body above is indicated in red. The cable by which the car is propelled is intended to move along in a channel, tube, or groove in the ground, or in the track upon which the car runs, the said cable being under the car.

The examples of my improvements here given are arranged for use in connection with draft or traction cables that move in a groove in the track or rails upon which the car runs. The general position of the cable in respect to the car will be understood by reference to Fig. 7, in which *a a'* are the rails of one side of a city railroad-track; *b*, sleepers for supporting the rails. The two rails *a a'* are usually made in one piece, with a central depression or groove.

In carrying out my improvement I slot or divide the central part of the rail, so as to make a narrow opening, and I separate the sleepers *b*, so as to form a channel, and at the bottom of the channel I place a U-shaped rail, *c*. The friction-wheels *d* of a jointed draft-cable, *e*, run on the edges of the rail *c*, as shown. The upper part of the cable *e* rises toward the space between the rails *a a'*, and the said upper part of the cable forms a continuous comb, back, or bar, upon which portion my improvements are intended to act in the manner now to be described.

The connecting device consists of a simple rod or iron, B, having its lower end forked or slotted, so as to fit upon the comb or back *c* of the cable, as shown in Figs. 5 and 7. When the device B is in such a position that its fork or slot *f* stands in line with the line of the cable-back *c*, then the said device B will exert no pressure or grasp upon the cable; but when the said device B is slightly turned or horizontally revolved the inner surfaces of the fork *f* will press against or grasp the sides of the cable *e*, and the tightness of the grasp of the fork upon the cable will be measured by the degree of force applied to turn the device B. The device or arm B is suspended in suitable bearings, so that it can revolve, and is located at any suitable place upon or in connection with the running-gear or under part of the car, the location and hanging of the arm B being such that the rise and fall of the car-body upon its springs will not affect or interrupt the proper action of the arm B. The arm B is of such a length as to extend down from the car into the groove or channel in which the cable runs, so as to reach the cable, as shown

in Fig. 7. The upper part of the arm B is to be provided with a crank or other device for giving it rotation.

Suitable rods or shafts may extend from the head of the arm B to the platforms or other parts of the car, by which rods or shafts the operator may work or turn the arm B at will and cause it to operate upon the cable, as desired.

In Fig. 2, *g'* indicates a crank on the arm B, with which crank a rod, *h*, connects and extends to the front end of the car-platform, where it connects with a crank, *i*, on the lower end of a vertical shaft, *j*, the upper part of which is provided with a hand-crank, *h'*, the rod *j* and crank *h'* being similar to the brake-rod and crank commonly used upon the city railroad-cars. The rod or shaft *j* is provided with a ratchet-wheel, *k*, and spring, so that the rod *j* may be turned and locked in any desired position. If the rod *j* is so turned as to cause the arm B to grasp the cable *e* tightly, the said rod and arm B may be locked and held in that position by means of the ratchet-wheel and spring at pleasure, and the car and cable will thus be connected together, and both will move with equal velocity.

The arm B may be arranged to pass from the car-platform directly down into the cable-groove; or it may be arranged at any other desired point under the car, with suitable connecting devices for convenient operation. For ordinary use it will be desirable to connect the arm B with the brake-rod now commonly employed upon city passenger-cars, the connection being made in such a manner that whenever the brake-rod is turned so as to actuate the brakes the said movement of the brake-rod will also actuate the arm B and cause it to release its grasp upon the cable, and when the brake-rod is so turned as to loosen the brakes the same movement will cause the arm B to seize the cable. The intelligent mechanic will know how to arrange the connections between the arm B and the brake-rod so as to accomplish the purpose here pointed out without any further description.

The starting of the car from a state of rest to the desired velocity must be done gradually, not suddenly; otherwise injury to passengers and property might ensue. My improvements permit this gradual starting of the car. The grasp or pressure of the fork of the arm B upon the cable *e* will be in the direct ratio to the power or force applied to the arm B to turn the same. When the force applied is sufficient to overcome the resistance of the car-wheels, then the car will begin to move slowly, the cable slipping through the fork of the arm B. By the gradual application of force to the arm B the speed of the car may be gradually increased until the velocity of the car and cable are alike, when they may be locked together in the manner before described.

When no connection is wanted between car and cable, or whenever it becomes necessary to remove the arm B from the track-groove, it may be raised vertically, as indicated by red lines, Fig. 3. The same end may be accomplished by jointing the arm B so as to permit it to be turned up, as shown in Fig. 9; or a toggle-joint and levers extending to the car-platform, so as to be under the immediate control of the operator, may be employed, as shown in Fig. 9, in which one of said levers is shown in red.

A modification of my arm B, as indicated in Fig. 8, may be employed when desired, in which two arms, B B', are geared together by means of cogged wheels *l* or other connection, so that the two arms will operate simultaneously upon the cable in opposite directions, preventing any twisting of the cable from its proper line or course.

Another modification of my improvement consists in having the arm or device by which the cable is grasped made in two parts, pivoted together like clips, and properly suspended in any suitable position under the car, in such a manner that the lower extremities of the pivoted parts will enter the cable-groove and be made to grasp the cable or release it at the will of the operator, the pressure upon the cable being more or less strong, as desired.

B^2 B^3 are the pivoted arms, swinging on a pivot at *m*. The arms B^2 B^3 are made to spread at their upper ends, and thereby to close and press the cable between their lower ends, by means of a rising and falling rod or bar, E, which extends longitudinally under the car, one end thereof being fastened, while the other end is left free, and is bent up so as to form a vertical hand-rod, F, on the car-platform, as shown. By pressing down the rod F the bar E will also descend between the arms B^2 B^3, causing them to spread at their tops and close at their bottoms, and thus to grasp the cable *e*, as shown in the various positions, Figs. 1, 4, 6.

The degree of force with which the arms B^2 B^3 will grasp the cable is governed by the amount of force applied to press down the rod F by the operator. By the gradual application of force to rod F the car may be gradually started, in manner hereinbefore described. By wholly releasing the pressure upon rod F the bar E, which operates as a spring, will rise, and the pressure upon the cable *e* by the lower ends of the arms B^2 B^3 will be removed and the car will stop.

The pivot *m* consists of a bar extending between the axle-boxes of the car. The arms are prevented from unduly spreading at the top by means of the pendent ears *n n* extending from the bottom of the car, as shown. When the arms B^2 B^3 are to be removed from the cable-groove they may be moved along on the rod *m* away from the ears *n n*, and turned or hooked up under the car, as indicated by dotted and red lines, Fig. 4.

Instead of the bar E for operating the arms B^2 B^3, any other suitable device may be employed.

Instead of having the lower part of the arm

B made in the form of a fork, as in Fig. 10, it may be made in the form of a flat blade, as shown in Fig. 11, the said blade being made to slip into a groove or separation extending along the upper part of the cable. In other words, the cable will be made forked or double, as shown at *p* in Fig. 11. When the arm B and cable are thus made the operation of the blade within or between the cable will be similar to the operation of the arm B, as shown in Fig. 7—that is to say, a slight turn of the blade of the arm B will be sufficient to cause the edges of the blade to bind or press against the inner sides of the double or grooved cable, Fig. 11.

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

The employment of a cable-seizing device constructed and operating substantially as herein shown and described.

A. ELY BEACH.

Witnesses:
PETER COOKE,
OCTAVIUS KNIGHT.