A. S. HALLIDIE.

RAILWAY TUBES AND CARS.

No. 179,786. Patented July 11, 1876.

Fig. 1.

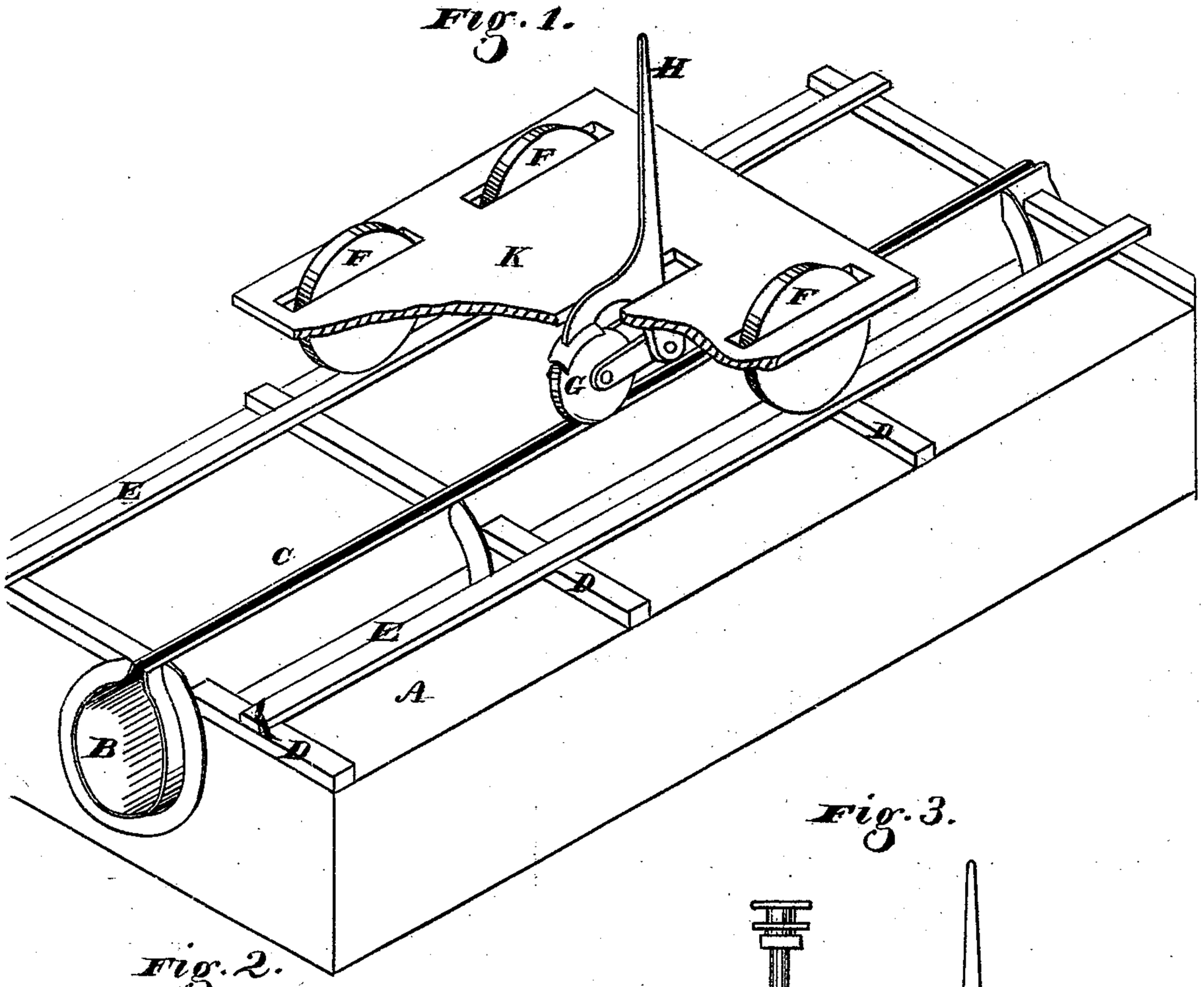


Fig. 2.

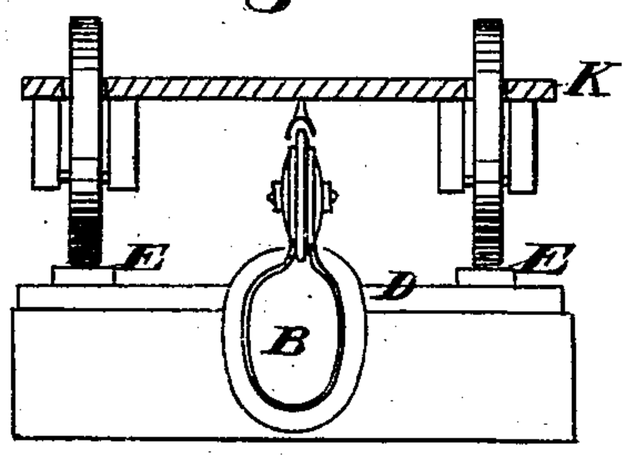
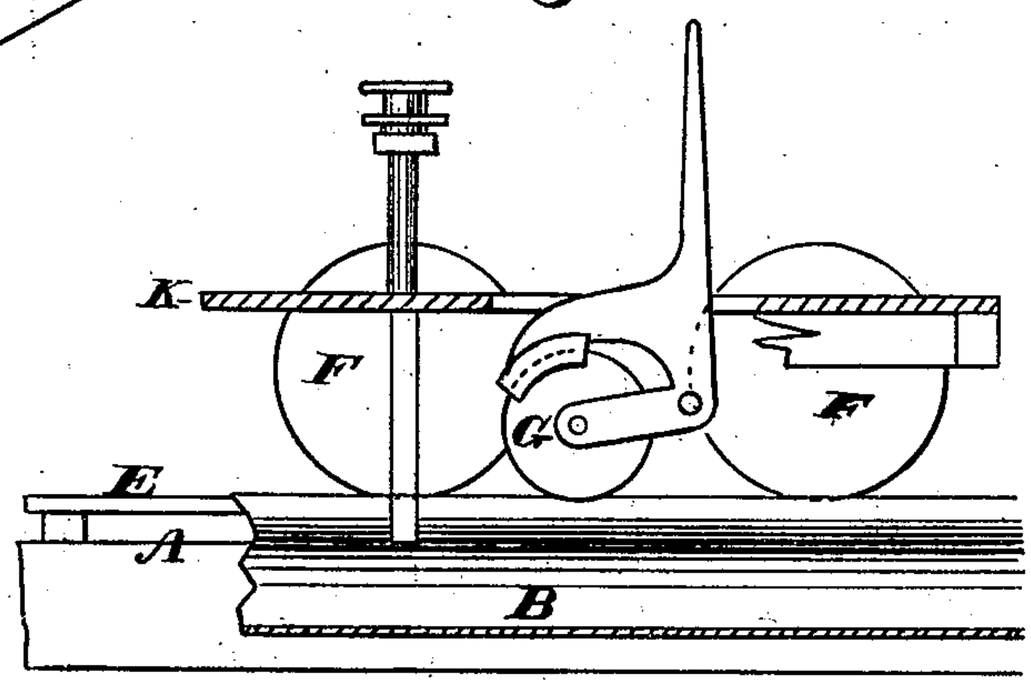


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

ANDREW S. HALLIDIE, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN RAILWAY TUBES AND CARS.

Specification forming part of Letters Patent No. **179,786**, dated July 11, 1876; application filed May 1, 1876.

To all whom it may concern:

Be it known that I, ANDREW S. HALLIDIE, of San Francisco city and county, State of California, have invented certain Improvements in Railway Tubes and Cars; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention without further invention or experiment.

My invention relates to that class of railways in which the cars are propelled by an endless cable moving in an underground tube below the level of the street, and in which the car is connected with the said cable by means of a griping device which passes down through a slot in the tube.

My improvement consists in guiding the said cars by means of one or more guide-wheels, which are arranged to move in the slot in the tube, thus enabling me to use flat tracks and plain-faced wheels for the cars to move upon.

Referring to the accompanying drawings, Figure 1 is a perspective view of a section of my railway tube and car. Fig. 2 is a transverse section. Fig. 3 is a longitudinal section.

Let A represent the street-surface. B is the tube in which the propelling-cable is arranged to travel by means of power applied at either end of the track. C is the longitudinal slot in the upper side of the tube, through which the shank of the griper passes, and in which it moves.

In the construction of this roadway I can either use the short ties D D and plain-faced tracks or rails E E, or I can properly construct the street-surface upon each side of the tube, so as to provide a smooth level bearing-track for the wheels of the cars to move upon.

The bearing-wheels F F of the cars K I construct with plain faces or treads, so that they can move upon the smooth surfaces or tracks E E. In order to guide the movements of the cars, I employ one or more guide wheels or plates, G, which are attached to the bottom of the car, so as to project down into the slot C in the cable-tube.

In practice, these guide plates or wheels will be so mounted that they can be raised out of, or lowered into, the slot by means of a lever, H, by a person standing on the platform or floor of the car, thus enabling me to release the car from its guides whenever or wherever desired, without hauling it to a special opening.

When plates are used as guides anti-friction rollers will be secured on each side of them to relieve the friction which would otherwise occur when the plates rubbed against the sides of the slot. If guiding-wheels are used they can be constructed with a middle guiding-flange, which will move in the slot, while the wheel will bear upon the top of the tube.

The particular construction of these guiding wheels or plates, however, is immaterial, as they can be variously constructed and applied to accomplish the object proposed.

The guide wheels or plates I also use as brakes for stopping the car and holding it in position when necessary. I can accomplish this by applying a brake to the wheel, if a wheel is used, so as to stop its rotation while it is pressed upon the tube; or, if a plate is used, I can provide it with a V-shaped edge, as represented, so that by pressing it into the slot it will serve as a wedge to gripe the sides of the slot and hold the car.

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

1. In combination with the slotted rope-carrying tube B and plain tracks E E, the car K, provided with plain-faced wheels F F and one or more guiding wheels or plates, G, which are arranged to move in the slot, substantially as and for the purpose described.

2. The combination, with a car, K, of one or more guiding wheels or plates, G, which are also arranged to serve as brakes, substantially as above specified.

ANDREW S. HALLIDIE.

Witnesses:
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