J. B. TIBBITS.

APPARATUS FOR PROPELLING CARS.

No. 192,952. Patented July 10, 1877.

Fig. 1.

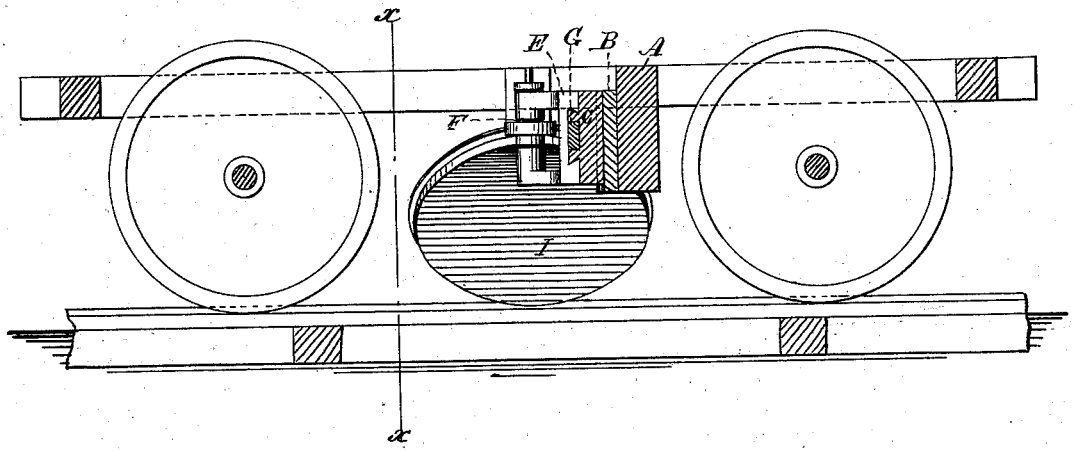
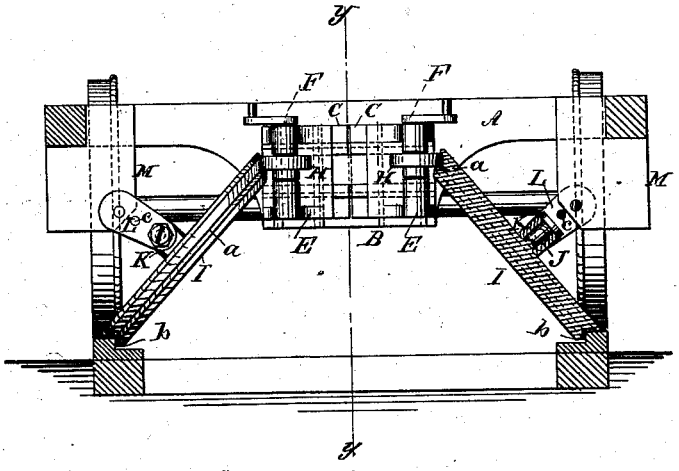


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN B. TIBBITS, OF HOOSICK, NEW YORK.

IMPROVEMENT IN APPARATUS FOR PROPELLING CARS.

Specification forming part of Letters Patent No. **192,952**, dated July 10, 1877; application filed April 30, 1877.

To all whom it may concern:

Be it known that I, JOHN B. TIBBITS, of Hoosick, in the county of Rensselaer and State of New York, have invented a new and Improved Apparatus for Propelling Cars, of which the following is a specification:

Figure 1 is a side elevation in section on line *x x* in Fig. 2. Fig. 2 is a transverse section on line *y y* in Fig. 1.

Similar letters of reference indicate corresponding parts.

My invention relates to apparatus for propelling street and railway cars by means of steam-engines or other similar motors; and it consists of a frame suspended centrally from the car-frame, and carrying two shafts, upon which friction-wheels are secured. The supports for the said shafts are capable of both vertical and lateral motion.

My invention further consists in the arrangement of two wheels revolving on inclined axes in contact with the track, and with the friction-wheels before mentioned. The axles of the said wheels are journaled in pivoted boxes that are supported by swinging arms pivoted to a stud that projects downward from the car-frame.

In the drawing, A is a cross-timber attached to the frame of the car for supporting the vertical dovetail ways B B. To these ways the slides C are fitted, which are also provided with transverse dovetail ways D, upon which are placed the supports E for the vertical shafts F. The ways D are chambered out to receive a spring, G, which in the present case is made of rubber, but it may consist of steel or other suitable material. The ends of the spring G rest against lugs formed on the back of the supports E, and tend to force the said supports apart.

H H are wheels secured to the vertical shafts F, and I I are wheels having right-angled grooves *a*, which are lined with rubber or other elastic material, and are fitted to the elevated portion of the track, and to the friction-wheels H. The wheels I are also provided with the beveled surface *b*, which runs in contact with or near the lower portion of the rail.

J J are the axles of the wheels I, which run in boxes K, that are pivoted between the arms L, which are rigidly secured together by a cross-bar, *c*. The arms L are pivoted to the studs M that project downward from the frame of the car.

It will be seen that the downward pressure of the shafts F tend to thrust the inclined wheels against the track diagonally with considerable force. The increase of downward and lateral force increases the bite of the wheels I upon the track, and also increases the friction between the wheels H I.

Any convenient power may be employed to drive the shafts F, and they may be forced apart laterally by means of a spring, as described, or by a suitable arrangement of air or steam pressure cylinders.

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

1. The horizontal wheels H, connected with the vertical track-wheels by inclined wheels I, having angular groove *a* and bevel *b*, as and for the purpose specified.

2. The inclined wheels I, supported by arms L, and driven by friction-wheels H, substantially as shown and described.

3. The combination of the ways B, slides C, ways D, supports E, spring G, and shafts F, substantially as shown and described.

J. B. TIBBITS.

Witnesses:

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