

C. E. WILLIS.

Car Brake.

No. 44,574.

Patented Oct. 4, 1864.

Fig. 3.

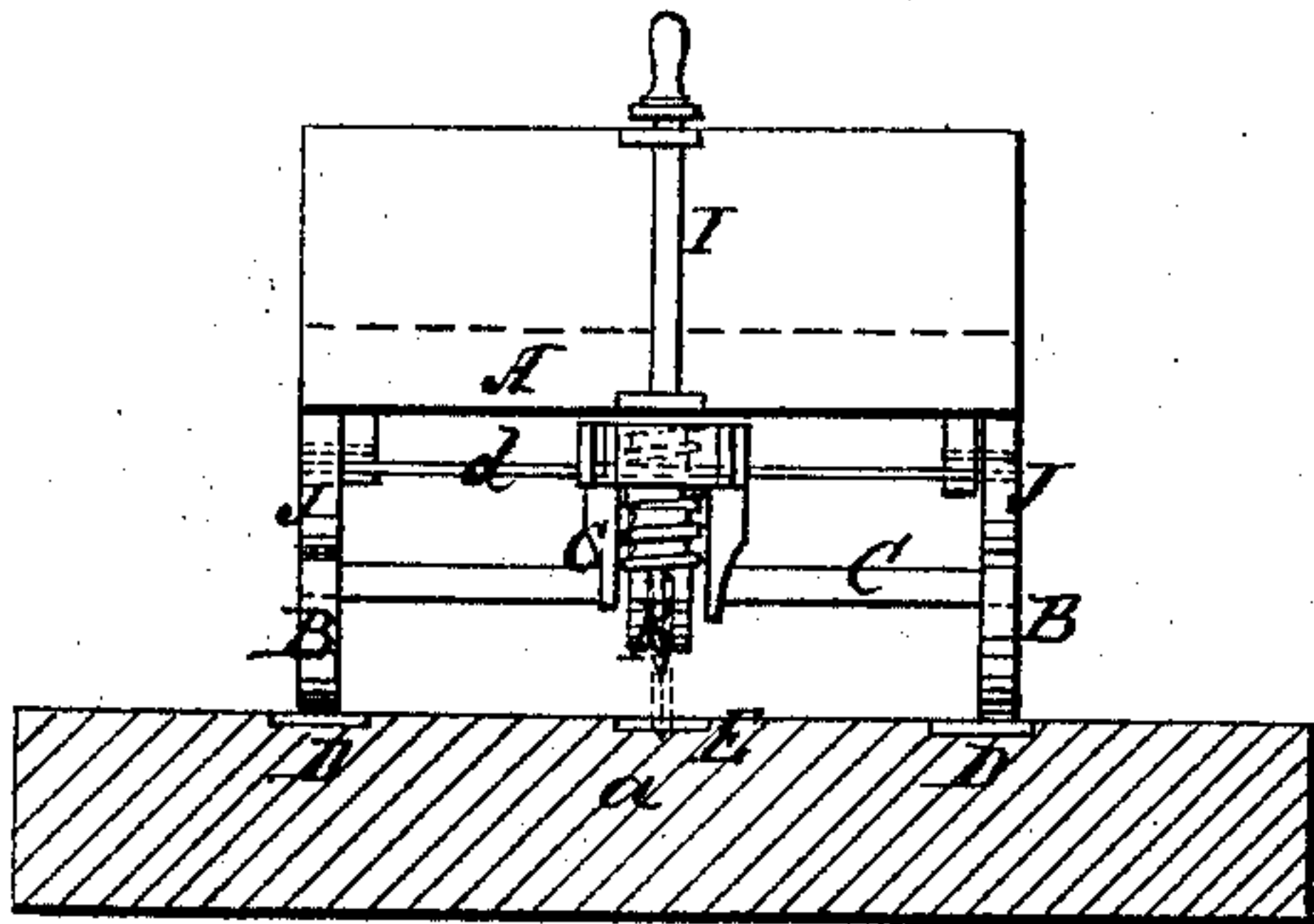


Fig. 4.

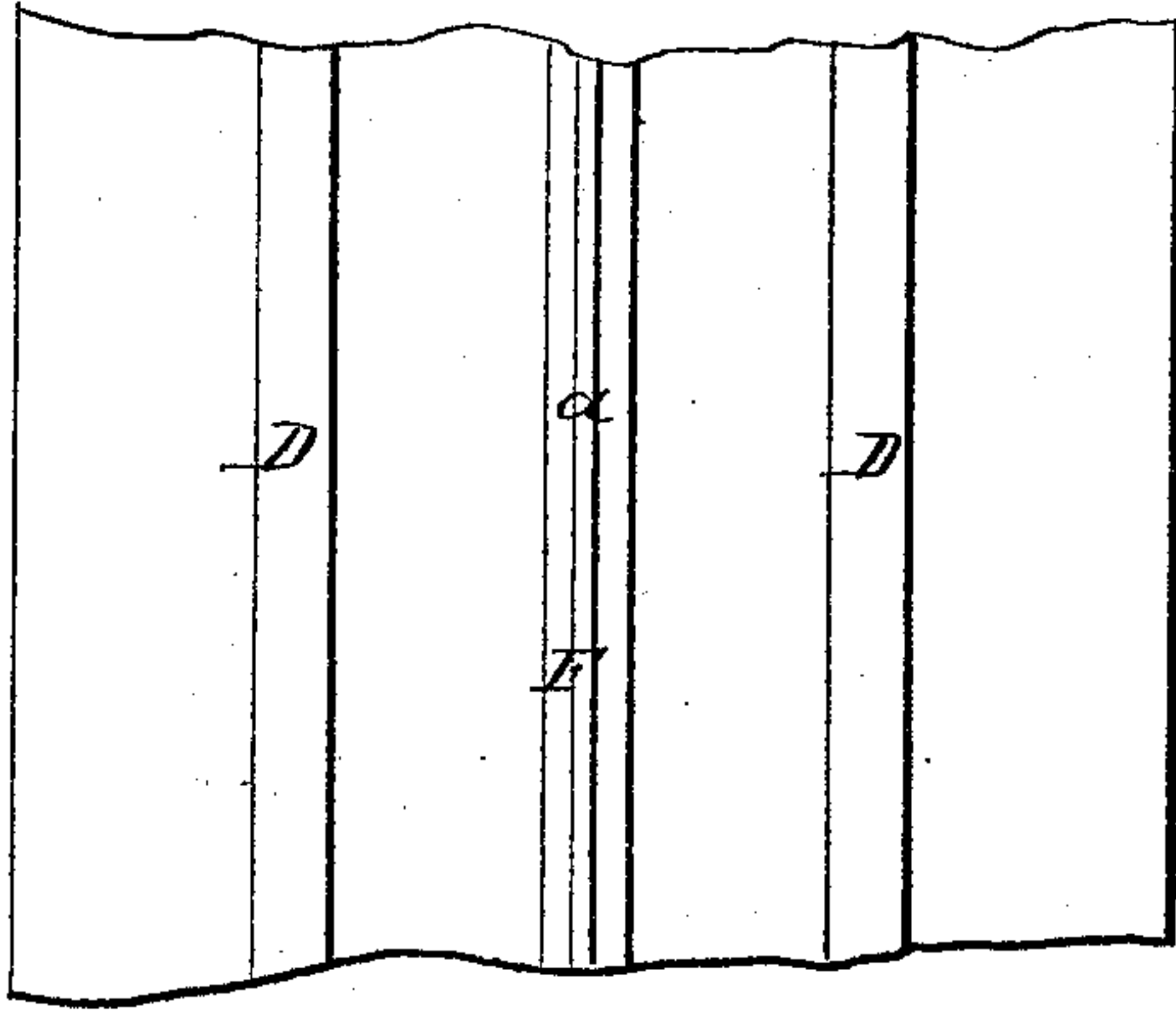


Fig. 1.

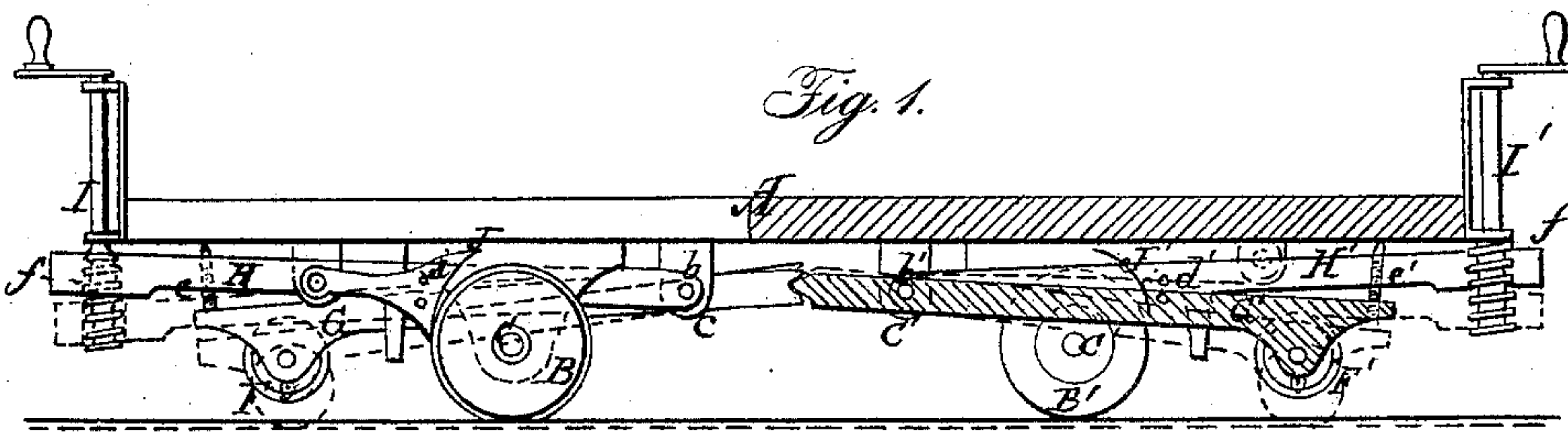
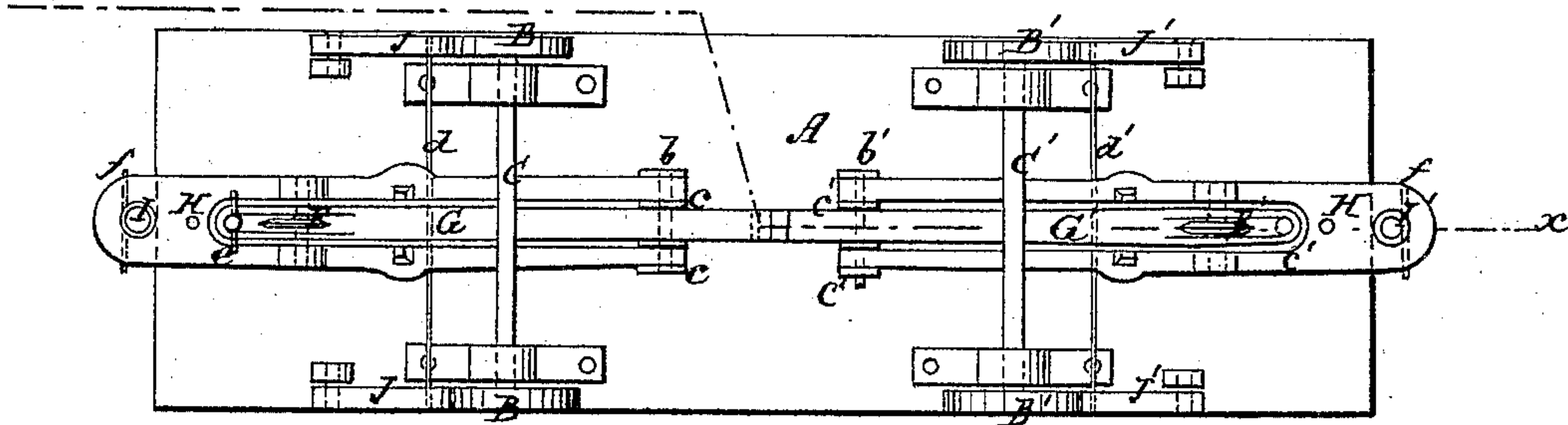


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES E. WILLIS, OF NEW YORK, N. Y.

IMPROVEMENT IN MODE OF OPERATING RAILROAD-CARS.

Specification forming part of Letters Patent No. 44,574, dated October 4, 1864.

To all whom it may concern :

Be it known that I, CHARLES E. WILLIS, of No. 27 Nassau street, in the city, county, and State of New York, have invented a new and useful Improvement in Operating Street-Cars; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a sectional side elevation of this invention, the line *x x*, Fig. 2, indicating the plane of section. Fig. 2 is an inverted plan of a car constructed according to this invention. Fig. 3 is an end elevation of the same. Fig. 4 is a plan of the track.

Similar letters of reference indicate like parts.

The object of this invention is to construct a street-car so that it will run on a track which is flush with the surface of the street and does not interfere with the travel of ordinary vehicles. The track best suited for this purpose consists of two flat plain side rails and a central rail, with a narrow groove to receive the guide-wheels, which are hinged to the under surface of the platform of the car, and connected with a suitable lever and hand-screw, or any other equivalent device, in such a manner that the same can be readily depressed into or raised from the central guide-groove. The two levers which form the bearings for the axles of the guide-wheels are hinged to the brake-levers, the outer ends of which form the nuts for the hand-screws, and said brake-levers are connected with each other or each with the opposite guide-wheel lever, or the two guide-wheel levers may be connected to each other by a suitable joint, so that both are compelled to work simultaneously, and the driver at one end of the car is enabled to apply or take off both brakes or to raise and lower both guide-wheels without leaving his stand and by the action of one and the same hand-screw or other equivalent device.

A represents the platform of a street car, which is supported by four wheels, B B', secured to axles C C'. The wheels B B' have a flat face, without a projecting flange, and they run on two flat strips, D, of iron, which

are flush with the surface of the street, as clearly shown in Fig. 3 of the drawings.

In order to keep the wheels on the track, a flat strip, E, of iron, is secured in the middle between the side rails, D, and this strip is provided with a narrow groove, *a*, to receive the guide-wheels F F'. These wheels have their bearings in levers G G', which are hinged to the under surface of the platform A. The pins *b b'*, which form the fulcrum of said guide-wheel levers, are secured in lugs *c c'*, as clearly shown in Fig. 2 of the drawings, and they also form the fulcrum of the brake-levers H H'. These levers extend beyond the ends of the platform, and their loose ends form the nuts for hand-screws I I', which serve to operate the brakes and the guide-wheels, as will be presently explained. Said brake-levers are slotted and made to straddle the guide-wheel levers, and they connect, by means of cross-bars *d d'*, with the brake-shoes J J', which are hinged to the under side of the platform A in such a position that by depressing the loose ends of the brake-levers the brakes are applied and by raising said loose ends the brakes are taken off.

The guide-wheel levers are connected to the brake-levers by means of T-shaped screws *e e'* or in any other suitable manner, so that the same have a certain amount of play up and down, and that when the brake-levers are depressed the guide-wheels descend into the grooved central rails before the brakes are applied, and if the brakes have been applied they can be taken off without raising the guide-wheels out of the grooves in the center rails, if desired.

The nuts which are formed in the loose ends of the brake-levers are not like common nuts, but they consist of holes large enough to let the screws I I' pass freely, and pins *f*, passing transversely through said holes and through between two adjoining threads of the screws, which cause the levers to follow the motions of the screws. By withdrawing the corresponding pin each of the brake-levers can be instantly disengaged from its screw.

The inner ends of the guide-wheel levers G G' are connected by a loose joint in such a manner that if one of said guide-wheels is raised out of its groove the other is compelled to rise also, and if one is lowered the other

descends also. In the same manner the brake-levers will be connected, so that the driver is enabled to operate both brake-levers and both guide-wheels from either end of the car without leaving his stand.

If screws are used for the purpose of operating the brake-levers and guide wheel levers, that lever at the rear end of the car has to be disengaged from its screw, so that the driver at the front end, by turning the hand-screw at that end, can operate both brakes and guide-wheels, and whenever he changes his position from one end of the car to the other he has to uncouple that screw previously used and couple the other. This purpose can be effected with great ease simply by withdrawing the pin *f* at one of the brake-levers and inserting in the other.

Instead of the pin *f* passing transversely through the brake-levers, two permanent pins may be used, one opposite the other.

It must be remarked, however, that the brake levers can be operated by other means besides the screws, and they can be easily so arranged that no change is required in order to be able to operate the brakes and the guide-wheels from either end of the car.

I claim as new and desire to secure by Letters Patent—

1. The brake-levers *H H'*, arranged in combination with each other and with the hinged shoes *J J'* and screws *I I'*, in the manner and for the purpose substantially as described.

2. The combination of the brake-levers and guide-wheel levers with each other and with the screws *I I'*, or their equivalents, constructed and operating substantially as and for the purpose specified.

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Witnesses:

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