

J. B. WICKERSHAM.  
Car-Track Clearer.

No. 16,762.

Patented Mar. 3, 1857.

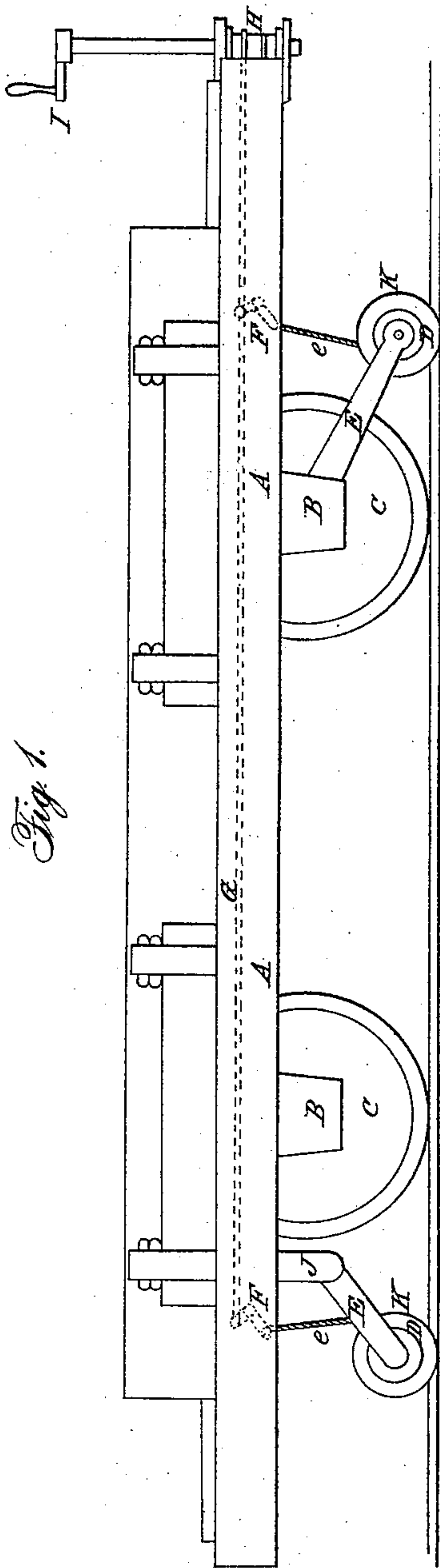


Fig. 1.

Fig. 3.

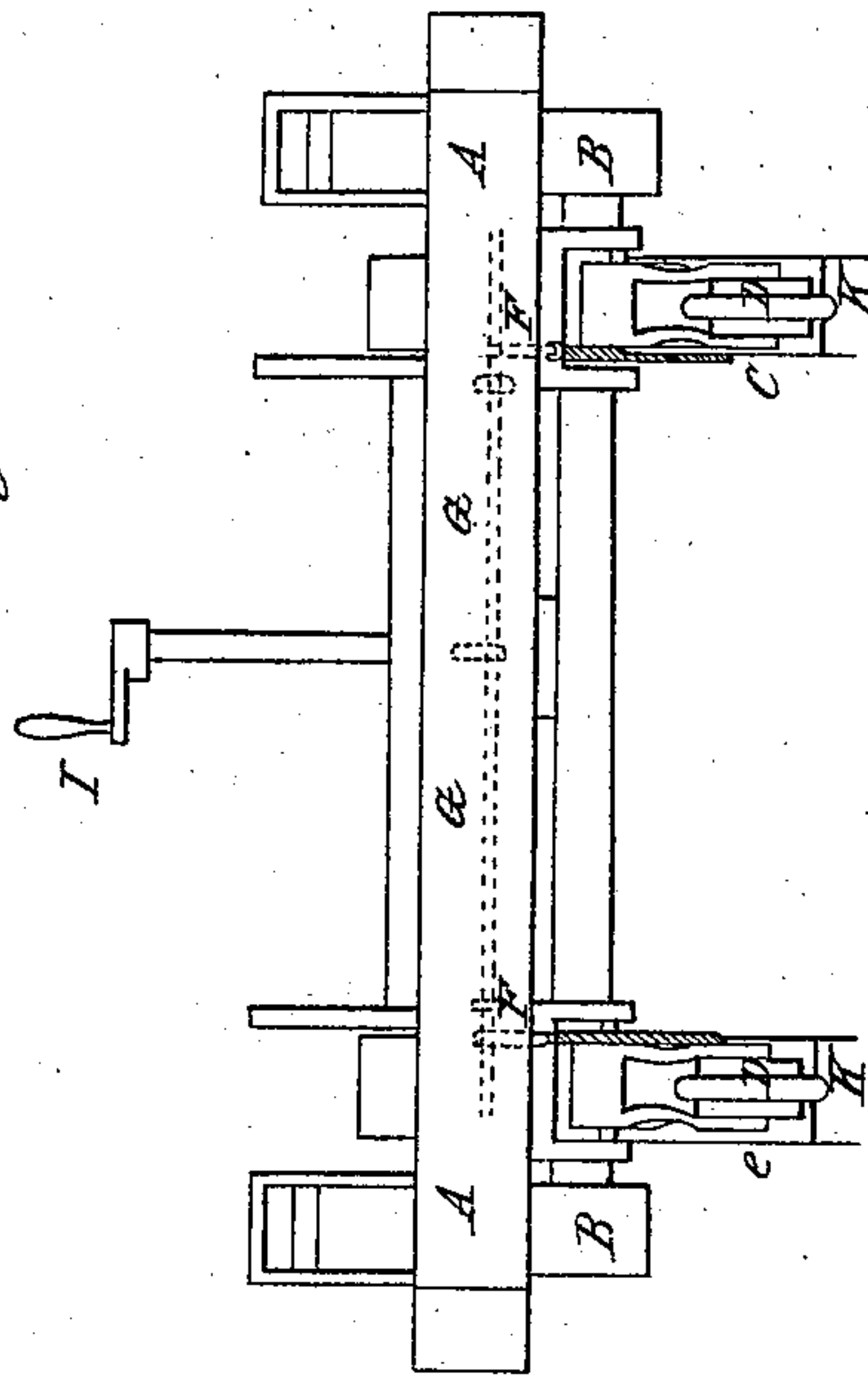
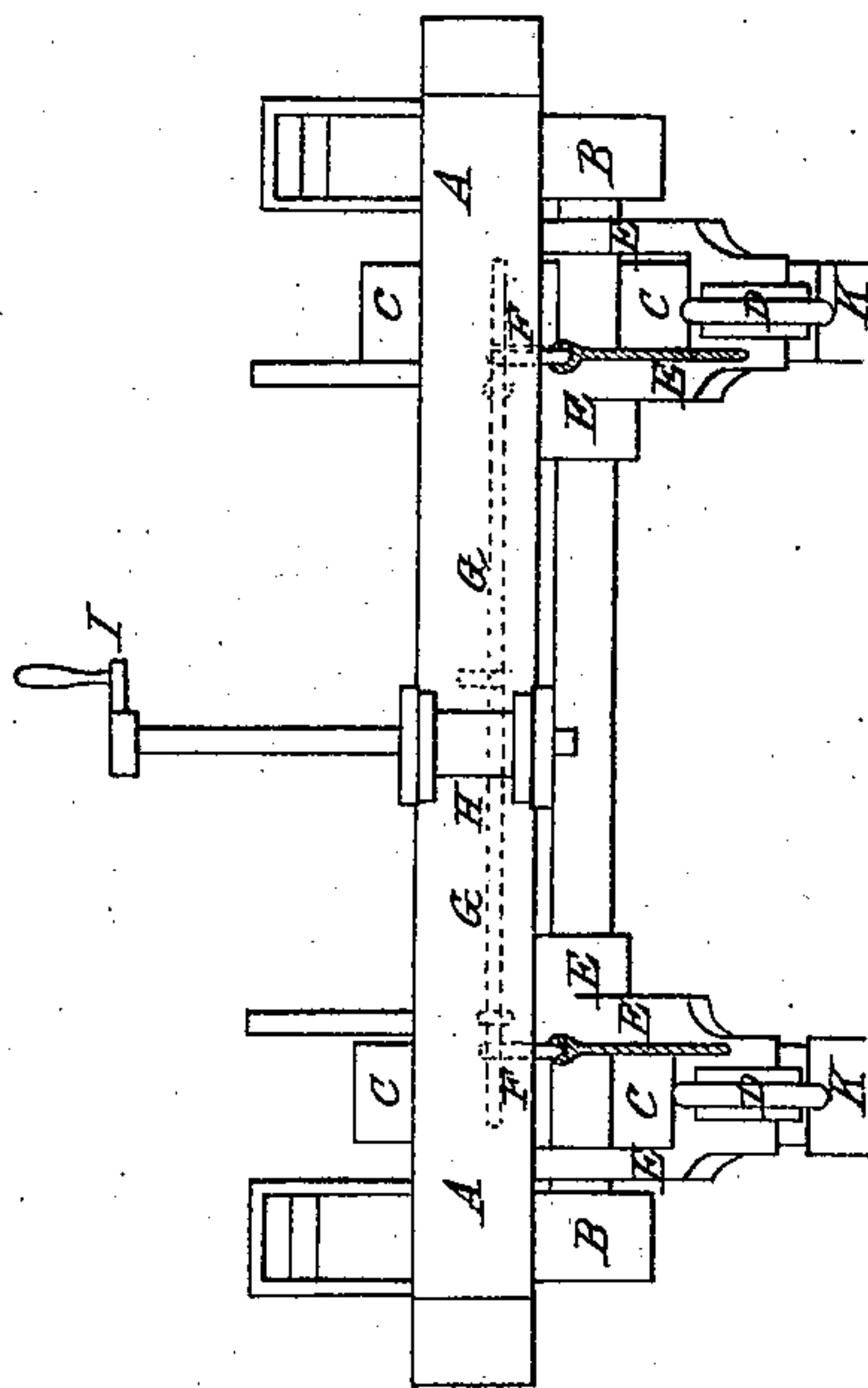


Fig. 2.



Witnesses:

John D. Fairbank  
Henry C. Blum

Inventor:

John B. Wickersham

# UNITED STATES PATENT OFFICE.

JOHN B. WICKERSHAM, OF NEW YORK, N. Y.

## GUIDE-WHEELS FOR RAILROAD-CARS.

Specification of Letters Patent No. 16,762, dated March 3, 1857.

*To all whom it may concern:*

Be it known that I, JOHN B. WICKERSHAM, of the city, county, and State of New York, have invented certain new and useful Improvements in Railroad-Cars Adapted to Use in Cities on a Grooved Rail, of which the following description, illustrated by the accompanying drawings and references, is sufficiently clear and comprehensive to enable persons of competent skill to make and use my invention.

In adapting cars to use on city railroads, it becomes important that each car be fitted so that it will run with precision on the rails provided, but that in case of local obstruction said car can be driven off the rails and over the pavement past said obstruction, and then back again onto the track. To accomplish this purpose it becomes necessary to use plain or blind wheels without flanges, and it has heretofore been sought to use such wheels in connection with guide wheels or rollers running against the inner sides of the track, but this is objectionable from the fact that if one of these guide wheels overrides an obstruction and gets on the top of the rail there is nothing to prevent the opposite wheel leaving the side of its rail and the car running off the track. Another requisite for a city railroad is that the ordinary vehicles in traversing or crossing the track should meet with no obstruction. The nature of my invention consists in the use of four guide wheels running in a narrow groove in the upper surface of the rails, which groove is too narrow to admit the tires of vehicles, but at the same time said guide wheels being sustained on each side prevent the car running off the track unless at least two or three of said guide wheels be simultaneously thrown out of their respective grooves; and said guide wheels are to be fitted so as to rise and fall independently of each other in passing any obstruction and are also allowed a small amount of sidewise play to accommodate inequalities in the width of the track and are fitted so that they can be all simultaneously raised by the conductor or driver when it becomes necessary to pass onto the pavement to avoid any obstruction.

Figure 1 is a side elevation of the car and of the adjustable or variable guide wheels or leaders D, D. Figs. 2 and 3 are end views representing more fully the position

of the leaders or guide wheels D, &c., and the mode of governing them.

A is the body of the car placed upon the bearings or boxes B, B, in which the wheels C, C, turn in the usual manner. These wheels C, C, all have a broad smooth horizontal face as represented by the end views, Figs. 1 and 2, and consequently have a wide flat bearing upon the tracks. They are prevented from running off the rails by the guide wheels D, D, which are hung in the arms E, E, and may be raised and lowered together or independently of each other by means of the cords *e, e*, attached to the crank or elbows F, F, which are connected by the cord or rods G and operated by a windlass similar to the brake windlass in ordinary use. This windlass H may also be attached to the ordinary brake, but in this case it must be a double windlass having a double drum and one shaft within another each with a crank or hand-wheel upon the top as at I. The arms which support the extra wheel D, D, may be hung on the shaft or axle of the main wheels C, C, or hung upon a shaft provided for the purpose attached to the main frame as seen at J, Fig. 1. The track or rail is formed with a wide smooth flat face but having a deep narrow groove or channel in the center which receives the central guiding flange K upon the guide or lead wheels D, D. The groove into which this flange enters may be of various shapes. I prefer however the U shape or that which nearly corresponds to it, and for ordinary use upon city railroads the grooves may be about five eighths of an inch wide and from one to two inches deep. The width of this groove will thus be less than the width of the tires of the omnibuses and other vehicles upon the street. They may therefore run upon the rail without entering the groove which entering the groove is now so great a cause of complaint and damage by its tendency to break wheels and axles of carriages. It is also well understood by R. R. companies that a great portion of the wear and injury to the R. R. track is caused by running ordinary vehicles and carriages promiscuously into and from the grooves of the rails as well as along the track in the ordinary street travel when the track is laid. This arrangement will also remedy the inconvenience of ruts upon each side of the track occasioned by the axles of vehicles be-



ing wider or narrower than the present track. A great loss to railroad companies is now incurred in consequence of the wear and tear of the rail by the lateral motion of the heavy vehicles which guide the car, and said lateral motion is allowed for in my car by leaving a small amount of play in the bearings of the arms E E, or by making said arms slightly flexible or by allowing a lateral motion to the roller on its shaft.

In my new method I here propose to lay the top of the rails flush with the top of the street pavement and thus allowing vehicles to cross and recross the rails freely. In constructing the guide wheels already referred to I make the flange upon the periphery which enters the groove of steel slightly tapering from the hub to its circumference, the whole diameter of the wheel and flange being about one foot. The guide wheels being placed both before and after the main wheels as represented and the necessary apparatus to operate these wheels as desired being appended as above described, these wheels may be raised from the track and the car run off or on as circumstances may require.

An arrangement of a fifth wheel can be applied to the axles of the car wheels, secured rigidly while on a straight track and be made flexible when necessary to turn curves, by the means of the drawing of bolts at the time of lifting the guide wheels. When the guide wheels drop the bolts drop and secure one or both of the axles at right angles with the length of the car. These guide wheels may be applied to omnibuses,

carriages, &c., and operated in any convenient manner. Should any difficulty arise in turning curves with the car constructed as above specified a flange may project above the rail the outer rail to have the flange on the outer side and the inner rail to have the flange on the inner side to operate upon the main wheels, the guide wheels not being used. To prevent dirt from filling the guide channel and clogging the guide wheels, I provide scrapers or shovels, which pass either before or after the wheels to clean the groove; it is however not represented as essential to the operation of my machine.

I do not claim guide wheels as these have before been used against the inner sides of the track, but I am not aware that said guide wheels have ever before been used in connection with a grooved rail, thereby lessening the liability for the car to run off the track as set forth, when said guide wheels are each provided with separate attachments for allowing of their rise and fall independently of each other to pass any obstructions as specified.

What I claim and desire to secure by Letters Patent is—

The guide wheels D, D, at the front and rear ends of the car when combined with the grooved rail, and attached to the car in the manner and substantially as and for the purposes specified.

JOHN B. WICKERSHAM.

Witnesses:

JOHN B. FAIRBANK,  
HENRY C. BANKS.