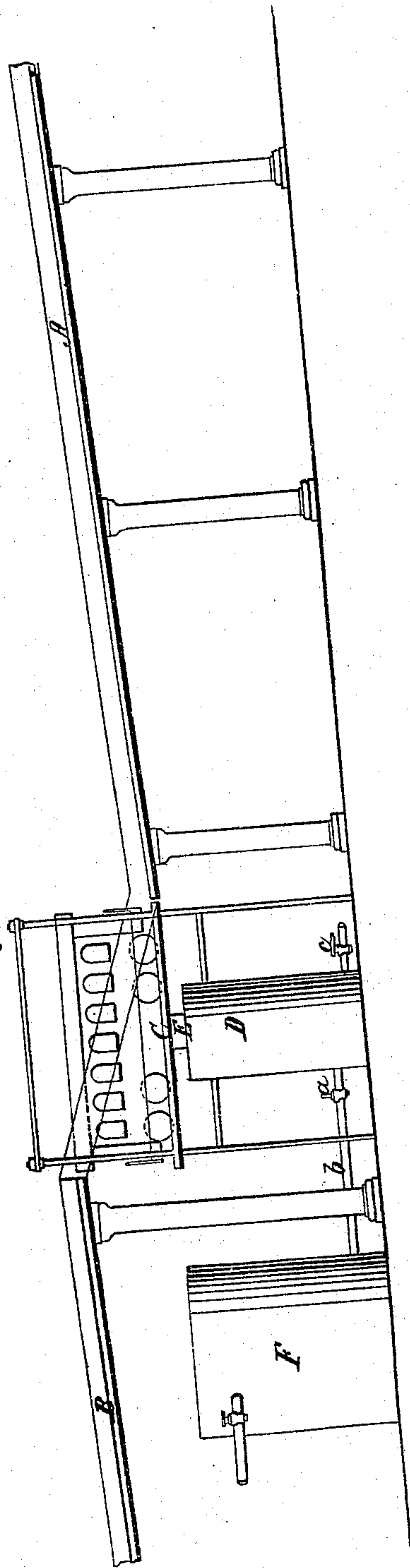


*R. A. Cheesbrough*

*Elevated Railway.*

*Patented Jul. 14, 1868.*

*Nº 79,952.*



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# UNITED STATES PATENT OFFICE.

ROBERT A. CHESEBROUGH, OF NEW YORK, N. Y.

## IMPROVEMENT IN ELEVATED RAILWAYS.

Specification forming part of Letters Patent No. 79,952, dated July 14, 1868.

*To all whom it may concern:*

Be it known that I, R. A. CHESEBROUGH, of the city, county, and State of New York, have invented a new and useful Improvement in Elevated Railroads, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and which represents a partly-sectional longitudinal elevation of a railroad constructed in accordance with my improvement, and showing, by red lines, a car in position to be raised from one section to another of the track, to establish continuous travel.

Railroads have before been specially constructed to form inclined planes, so that the gravity of the car in descending the plane should be sufficient to effect its propulsion—as, for instance, at coal-mines, and where the weight of the loaded car or truck in its descent has been made available, by means of an endless chain or rope, to draw in an opposite direction a corresponding but empty truck up a parallel line of rails having a reverse inclination to the line on which the descending car runs. Furthermore, such roads have also been constructed of a serrated character, and in some cases the car raised from one elevation to another up a steep connecting inclined plane by means of a chain or rope.

My improvement, however, essentially differs from all such previous methods of construction and operation, and is more specially designed for railways of an elevated character for use in cities or elsewhere; and said invention consists in a track composed of a series of inclined planes, with interposed elevating-platforms to raise the car from the foot of one inclined plane to the head of the next, the car descending the inclined planes by its gravity and being elevated, through the platform, as described, to pass it from one inclined plane to another, by stationary power—as, for instance, through a ram operated by compressed air drawn from a reservoir supplied by a steam or other engine, or by hydrostatic pressure as derived from the water in the street-mains of a city.

By this my improvement traction-ropes are dispensed with and a most convenient and economical means of transport established for city passenger and other like travel.

Having thus fully explained the character of this my invention and wherein it differs from previous methods of construction and operation, the following brief description, with reference to the accompanying drawing, will suffice to show how the same is or may be carried into effect.

In said drawing, A and B represent two sections in part, and of which there may be any number in succession, of a line of railway, for travel in one direction, said sections being sustained by suitable piers or supports and of such an inclination or grade as that the car will, by its gravity, descend the same. Though such proportions may be varied, it will answer for the purpose of illustration to suppose the continuous sections to be in half-mile lengths, with a grade of twenty feet to the mile, or thereabout. Such sections, that are of a step-like character, are connected at their junction—that is, the foot of one inclined plane with the head of the next—by an elevating-platform, C, which serves to lift the car from the section A to the section B. A corresponding arrangement or construction and combination of inclined planes with elevating-platforms is or may be applied to a parallel track, only with the grades reversed, for accommodating travel in an opposite direction.

Brakes may be used on the car for controlling its run down the inclines, and any other suitable means in addition, if requisite, or variation in grade of the track be adopted for checking its descent or arresting it at foot of the incline, while, to start the car after it has been raised from one section to another, the elevating-platform C may have a suitable inclination or set given it, or any other special means for the purpose be employed.

The platforms C, at the junction of the inclines, may be operated by any suitable mechanical means to give them, with the car resting thereon, the necessary lift, and for afterward lowering the same when relieved of the car by its transfer to the next section; but I prefer, as in many respects superior to other means, to use a cylinder, D, and piston or ram, E, supplied and acted upon, say, by compressed air, drawn as required by turning a tap, a, of a connecting-pipe, b, from a reservoir, F, to lift the platform, while by shutting the tap a and opening an air-escape tap or



cock, *c*, the platform is or may be lowered. To produce this action air may be pumped or forced into the reservoir *F* by a stationary steam-engine, or by hydrostatic pressure derived from water in the city mains or otherwise, or water under a sufficient head be applied direct to operate the rams of the elevating-platforms.

The inclined planes or sections composing a line of railroad may be of varied lengths, in order that the elevating-platforms may be located where it is most convenient or desirable to arrange the stations, whereby much delay will be avoided in working the line, as the necessary stoppages at the elevators to establish lift of the car may be availed of by the passengers to get in and out.

In this way or by other analogous means may an elevated railway for city passenger

traffic be constructed and worked most economically and advantageously, dispensing with all locomotive driving contrivances, ropes, (which are ever liable to break and expensive to work,) or other objectionable means of a tractional character.

What is here claimed, and desired to be secured by Letters Patent, is—

An elevated railway composed of inclined planes or sections, arranged substantially as described, in combination with elevating-platforms at the junctions of the sections, and operated by stationary motive power to establish continuity of the sections, as herein set forth.

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Witnesses:

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