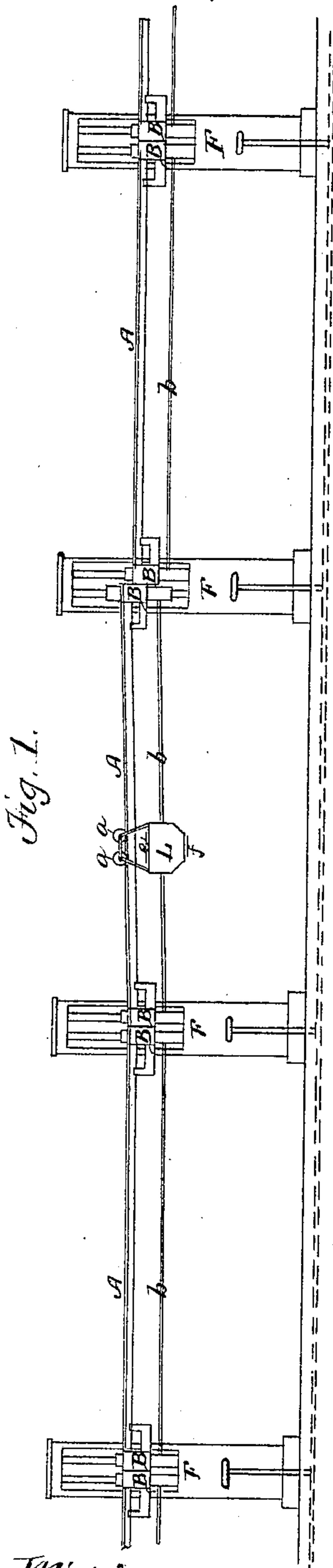


(No Model.)

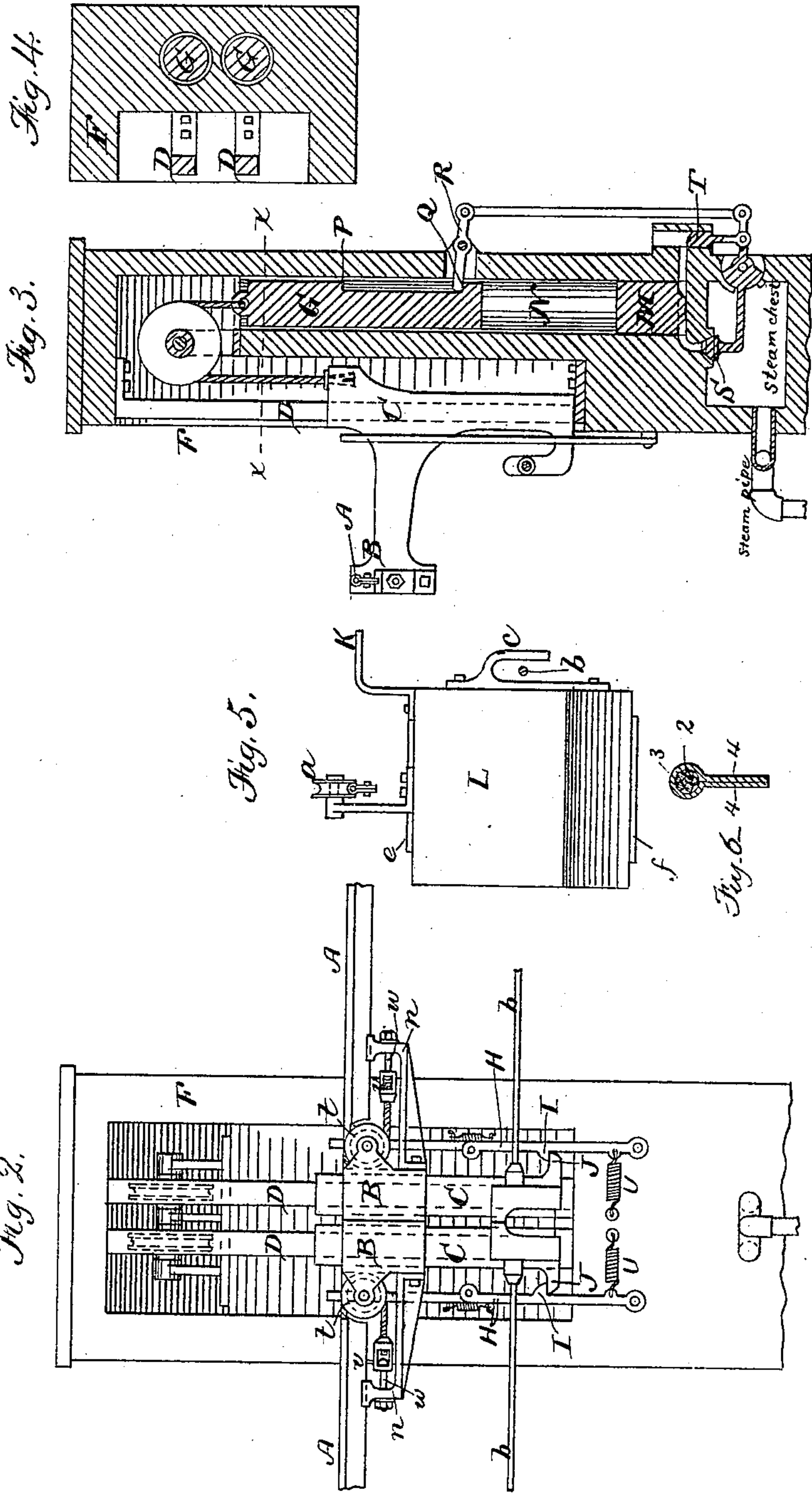
S. R. THOMPSON.
ELEVATED RAILROAD AND CAR.

No. 270,513.

Patented Jan. 9, 1883.



Witnesses.
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UNITED STATES PATENT OFFICE.

SAMUEL R. THOMPSON, OF BROOKLINE, MASSACHUSETTS.

ELEVATED RAILROAD AND CAR.

SPECIFICATION forming part of Letters Patent No. 270,513, dated January 9, 1883.

Application filed December 8, 1881. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL R. THOMPSON, of Brookline, in the county of Norfolk and State of Massachusetts, have invented certain
5 Improvements in Elevated Railroads and Cars therefor, of which the following is a specification.

This invention has for its object to provide
10 a railroad on which a car can be moved by the force of gravitation alone, so that no engine or other motive power will have to be supported by the track.

The invention consists, first, in an elevated railroad composed of a line of lengths or sections of track, each supported at both ends,
15 and adapted to be raised independently at one or at either end, so as to give it any desired inclination, and thereby cause a car thereon to move by gravitation.

The invention consists, secondly, in the combination of a railroad composed of a line of lengths or sections of track each supported at both ends, and adapted to be raised independently at one or at either end, and mechanism automatically put in operation by a
20 passing car to raise the end of the section onto which the car passes, and thereby incline said section.

The invention consists, thirdly, in the combination of a railroad composed of a line of lengths or sections of track, each supported at both ends, and adapted to be raised independently at one or at either end, mechanism automatically put in operation by a passing
30 car to raise the end of the section onto which the car passes, and thereby incline said section, and mechanism to automatically restore the section to its normal position.

The invention also consists in the construction of the track, all of which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of a railroad embodying my
45 invention. Fig. 2 represents an enlarged elevation of a portion of the same. Fig. 3 represents a transverse section of the portion shown in Fig. 2. Fig. 4 represents a section on line *xx*, Fig. 3. Fig. 5 represents an end view of car embodying my invention. Fig. 6
50 represents a section of one of the lengths of track.

The same letters of reference indicate the same parts in all the figures.

In carrying out my invention I construct a
55 railroad-track composed of a series of lengths or sections, A A A, each supported at both ends, and adapted to be raised independently at one or at either end, so as to give it a sufficient inclination to cause a car upon it to
60 move thereon by gravitation. The track may be composed of one series of lengths, or of two series, one series being shown in the present instance. Each length is preferably composed of wire rope or cable 2, inclosed in
65 a metal plate, 3, which is folded around the rope to incase it, and is provided with downwardly-projecting flanges 4 4, which are riveted together and serve to stiffen the track. Each section A is attached at its ends to supports B, which are arms or brackets formed
70 on slides C, adapted to move vertically on guides D on suitable towers or fixed structures F.

I prefer to provide mechanism set in operation by a car as it passes from one section onto the next, to raise the support of the section onto which the car passes and incline said section so that the movement of the car will be continued by gravitation, and to restore
75 the section to its level or normal position after the car has passed from it. This mechanism may be of any desired construction without departing from the spirit of my invention. In the present instance said mechanism is composed of, first, a weight, G, sufficiently heavy
80 to raise the end of a section and the car thereon, and connected to the slide C by a rope or chain; secondly, a lever, H, pivoted to the tower F, and projecting upwardly, so as to be struck by a projection, K, on the passing car
85 L, and having a projection, I, which engages with a projection, J, on the slide C and holds down said slide; thirdly, a piston, M, in a vertical cylinder, N, into which said weight descends; and, fourthly, an arrangement of valves and ports, hereinafter described, whereby steam is alternately admitted to and shut off and exhausted from the cylinder below the piston.
90 This mechanism operates as follows:

The sections A being in their normal positions, the slides C are depressed and held by the levers H. A car moving onto a section will strike the lever H, which holds the slide
100

of that section, and by tilting the lever will release the slide, so that the weight G will fall and raise the slide and the end of the section. The weight has two abutments, P Q, the former of which, when the weight nearly reaches the end of its descent, tilts a lever, R, and thereby causes a valve, S, connected with said lever to open and admit steam into the cylinder. The steam slowly raises the weight G, thus permitting the raised end of the track-section to gradually resume its normal position. When the weight is nearly raised its abutment Q tilts the lever R, so as to close the valve S and open an exhaust-valve, T, thus shutting off the incoming steam and allowing the piston to descend and be in readiness for the next operation. The lever H is caused by a spring, U, to automatically engage its projection I with the projection J of the slide and lock the latter in its normal position. Steam may be supplied to the cylinders of a number of towers by a single boiler or generator.

I do not limit myself to the described mechanism, nor to any specific form of mechanism for effecting the above-described results. A stationary engine may be placed at each tower, if desired, and set in operation by a passing car to raise the end of the section onto which the car passes. Said engine may be provided with an automatic reversing mechanism which will cause it to restore the section to its normal position after the car has passed to the next section. Nor do I limit myself to the employment of any automatic mechanism to raise the ends of the sections. In some cases, when the track is used for the transportation of light cars or objects, the ends of the sections may be raised by suitable devices operated by the muscular power of an attendant.

When the track is composed of a single series of lengths or sections the cars L will have a single series of wheels, *a a*, and a guide-rope, *b*, should be attached to the slides C in position to engage with a lug, *c*, on one side of the car and prevent the latter from swinging laterally.

In the cars which I employ the wheels *a* are arranged above the top or roof of the car, as shown in Figs. 1 and 5, the car being suspended below the track.

The sections A may be vertically movable at one end only, so that a car will be moved, as described, in one direction only, or at each

end, so that the car can be propelled in either direction. I have shown the sections movable at each end, and to prevent the levers H at the end of a section from which a car is passing from being operated when the car passes I provide each lever with a ratchet-joint capable of yielding in one direction only, so that it will be operated only by a car moving onto the section to which the lever belongs.

In Figs. 1 and 5 I have shown a form of car which I prefer to use for the transportation of grain, coal, &c., said car being hopper-shaped at the bottom, and having a door, *e*, in the top for the reception and a door, *f*, in the bottom for the discharge of freight. The wire rope of each track-section A is preferably passed around a pulley, *t*, on each of the supports of the section and attached to an arm or bracket, *u*, by means of a nut, *v*, and bolt *w*, said devices enabling the slack of the section to be taken up.

I claim—

1. The combination of a line of independent lengths or sections of track, placed end to end to form a continuous track, independent vertically-movable supports for the ends of each section, and mechanism for independently raising each support, and thereby inclining the section to which it belongs, as and for the purpose set forth.

2. The improved track material composed of wire cable or rope inclosed by a metal plate having downwardly-projecting flanges, riveted together to stiffen the track.

3. The combination of the independent track lengths or sections, the independent supports for the ends thereof, and track tightening devices attached to the supports for taking up the slack of the sections, said devices consisting of a pulley and an adjustable rod or bolt, *w*, as set forth.

4. The improved grain-car having a receiving-door in its top and a discharge-door in its bottom, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 6th day of December, A. D. 1881.

SAML. R. THOMPSON.

Witnesses:

C. F. BROWN,
A. L. WHITE.