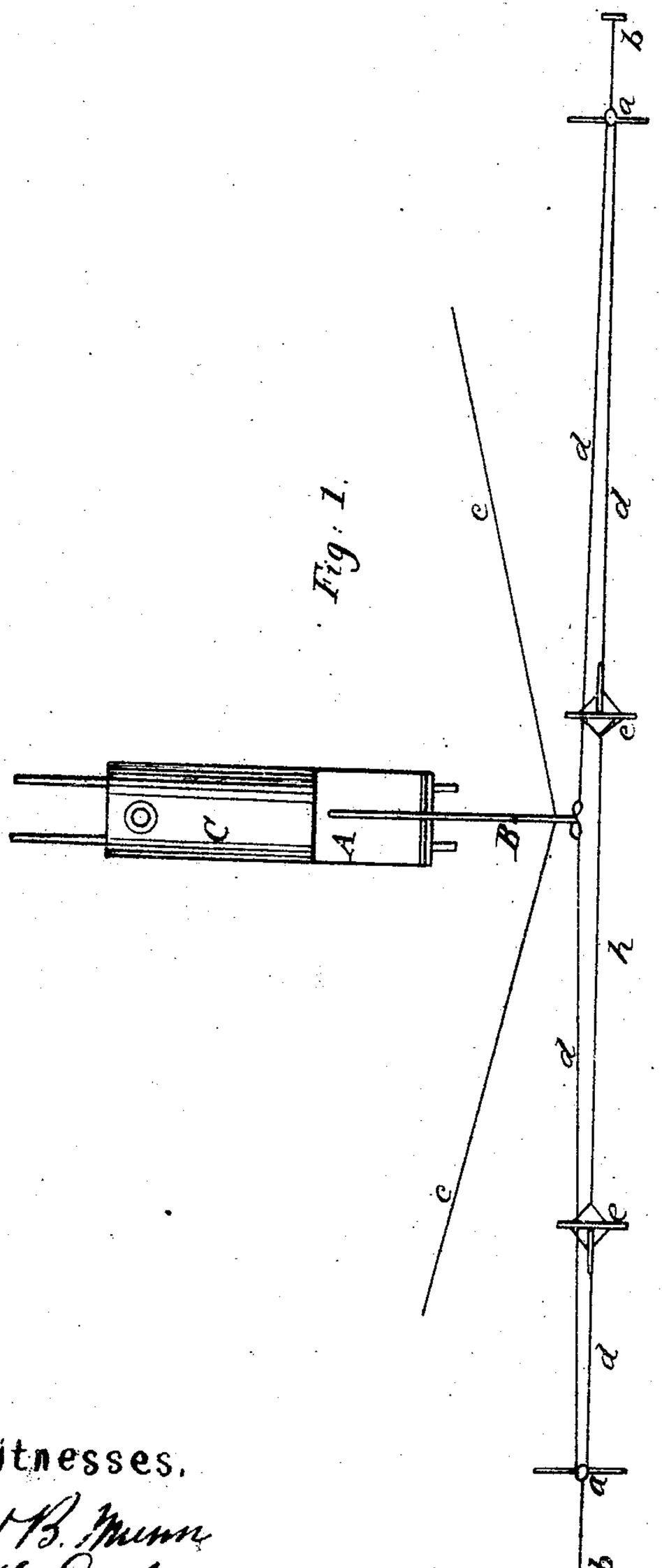
Sheet 1 3 Sheets.

E. Thompson.

Constructing Railroads.

No 71553 Patented Nov. 26, 1867.

Fig. 1.



Witnesses.

H. B. Munn
W. Dodge

Inventor.

Edward Thompson

Sheet 2. 3 Sheets.

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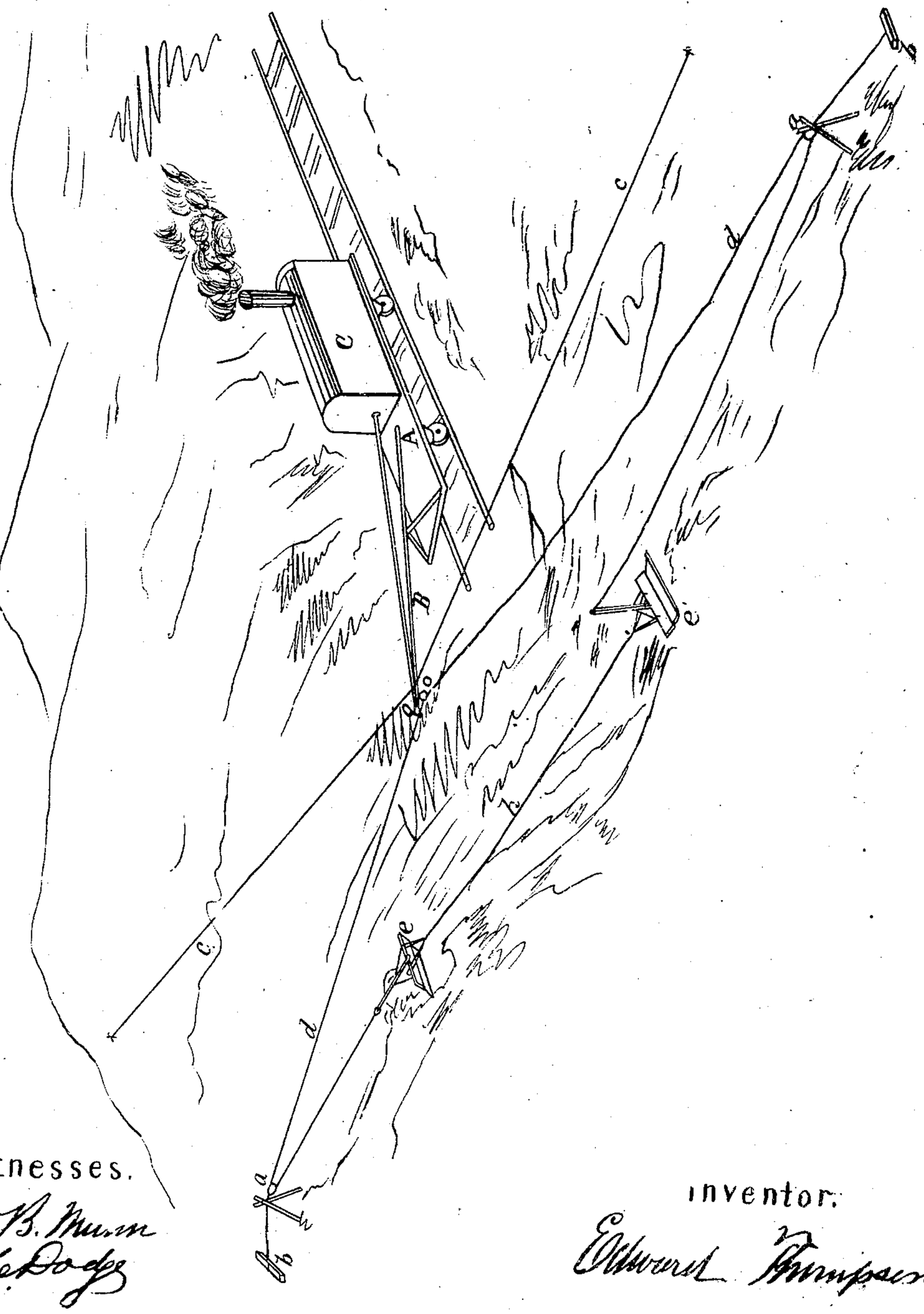

Fig. 2.

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Sheet 3 3 sheets

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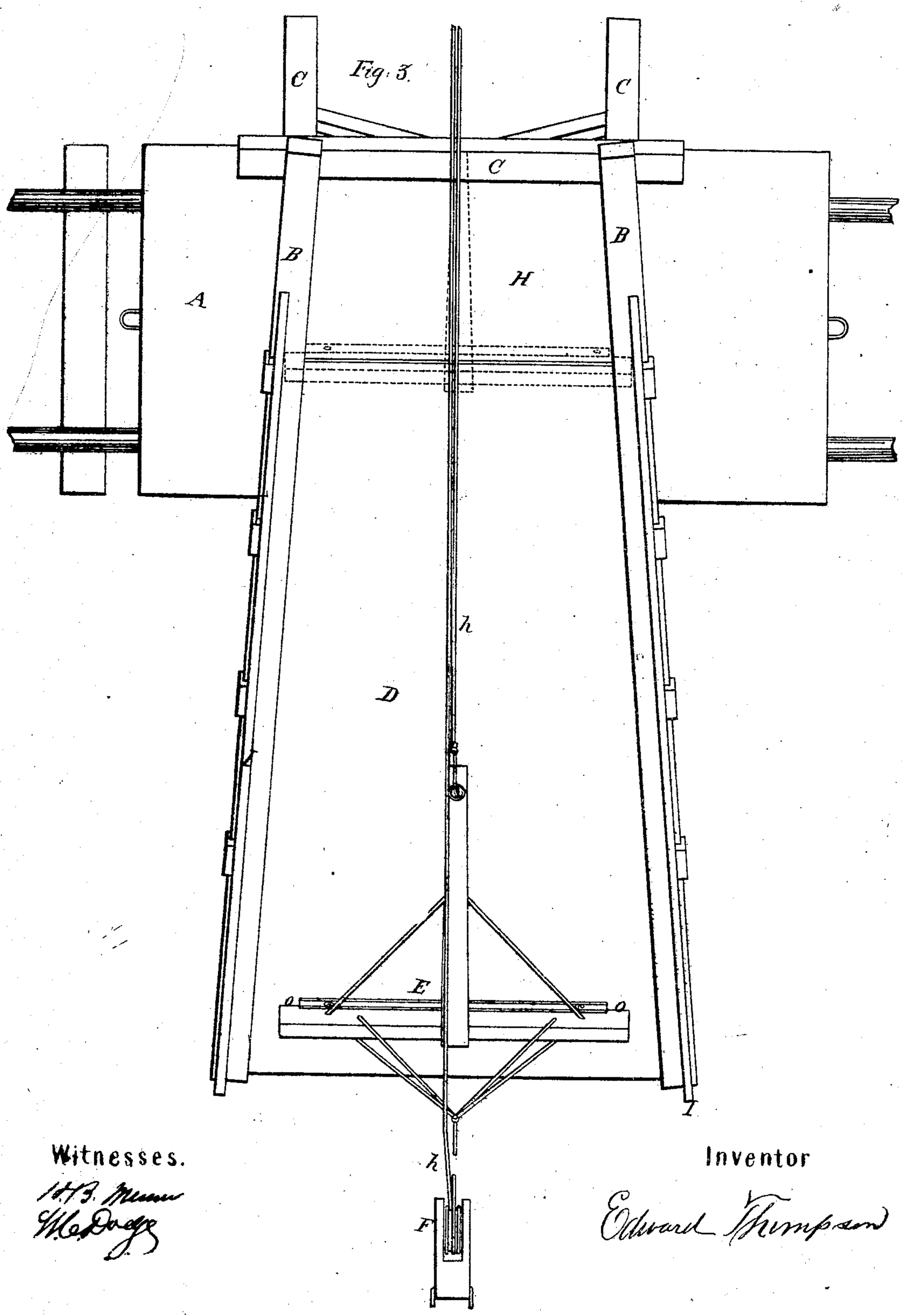
Fig. 3.



Witnesses.

H. B. Munn

W. C. Dodge

Inventor

Edward Thompson

United States Patent Office.

EDWARD THOMPSON, OF HOKAH, MINNESOTA.

Letters Patent No. 71,553, *dated November* 26, 1867.

IMPROVEMENT IN APPARATUS FOR CONSTRUCTING RAILROADS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, EDWARD THOMPSON, of Hokah, in the county of Houston, and State of Minnesota, have invented certain new and useful Improvements in the Preparation of Road-Beds for Railways, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

My invention consists in a novel method of removing or filling in earth to prepare the road-beds for railways, &c.; and also in loading cars with earth or gravel for the same or similar purposes.

Figure 1 is a plan view, and

Figure 2 a perspective view of my plan of making excavations and fillings.

Figure 3 is a plan view of my improvements applied to the loading of cars.

It is well known that in grading or preparing the road-bed of railways for the reception of the track, the elevations must be lowered or dug away, and the hollows filled up. This has usually been done by means of carts and barrows, into which the earth is shovelled by hand, or by simply shovelling the material into and out of place, as desired, to produce the requisite grade. My invention has for its object the accomplishment of this work by a more expeditious and speedy means, wherein steam or other power may be substituted for manual labor, and the work be thus accomplished at less expense, and in less time.

In figs. 1 and 2, A represents a car mounted on a track, which is supposed to be laid as the work of grading progresses. Upon this car I mount a steam-engine or other suitable motor, which, if desired, may be enclosed in a cabin, C, built on the car. To the front end of the car I secure a boom or timber, B, having its front end projecting some distance in advance of the car and track, over the point where the earth is to be moved, either out of the way of the track, or where it is to be moved in from the sides to fill up a hollow for the track, this boom being securely held in position by means of the guy-lines *c*, or other suitable means, and having a pulley, *o*, secured on each side, at its extreme front end. I then provide two scrapers, *e*, and, after fastening them together by means of a cable, *h*, as shown in fig. 2, I attach to each of them a line, *d*, which is carried to a suitable distance from the track, at any desired angle therefrom, and then pass it through a block, which is securely anchored to a stake, *b*, or other fastening, from whence it is passed through another block, *o*, at the end of the boom B, and from thence to a windlass operated by the engine on the car A, the arrangement being the same on each side of the track. Now, by alternately winding and unwinding the lines *d* on the windlass, it will be seen that the scrapers *e* will be drawn back and forth across the ground where the track is to be, in front of the car, and that when they are arranged as represented in fig. 2, each of the scrapers, as they are drawn outward from the centre, will carry with it a load of earth, thus alternately digging away the earth and removing it to the right and left of the track. The scrapers will be placed at such a distance apart, that, when one shall have moved its load of earth to the required distance, the other will be brought back to the proper position to take another load from the bed to the other side, the scrapers and the lines being, of course, adjusted as may be necessary to suit the locality where they are to operate. By this means, excavations may be made with great rapidity, where the nature of the ground will permit.

To fill in a hollow from the sides, or to raise the road-bed by excavating at the sides and filling in on the track, it is only necessary to reverse the position of the scrapers *e*, and place their fronts instead of their backs toward each other, and so arrange the lines as to cause them to move the proper distance and stop, so as to deposit the earth at the required point. It will, of course, be understood that the scrapers will be so constructed and attached, that, when drawn forward, they will assume the proper position to take hold upon and move the earth with them, and, when moving backward, shall simply be dragged over the surface without materially disturbing the earth, as represented in fig. 2.

It is obvious that, where the nature of the surface is such as to necessitate the removal of the earth to or from one side of the road only, as, for instance, on a side hill, in which case the earth will be taken from above, to raise the bed, and will be moved from the bed to the lower side, to lower it there, but a single scraper may be used, the lines for moving it to and fro being arranged as before described. In some cases it may be

necessary to have an attendant to manipulate the scrapers; but, even in such cases, the great bulk of the labor will be performed by the engine. When the road-bed has been thus prepared, as far as the scrapers can be made to operate, the car will be moved forward, the lines and anchors changed to correspond, and the process continued, a temporary track sufficing to support and move the car upon, if not ready to lay the permanent track; in which case the track may be constructed in sections, so that, as far as the car is moved forward, the sections in the rear may be taken up and relaid in front of the car.

It is obvious that this method of making excavations may also be used for other purposes, such as digging canals, preparing basins, and all similar purposes.

Fig. 3 represents my method applied to the loading of cars with earth or gravel from a bed or bank by the side of the track. In this case, the car A stands upon the track, and a platform or slide is used, upon which the material is drawn up by a scraper and deposited on the car. This platform consists of two timbers, B, resting at one end on the ground, and supported at their opposite end upon a frame, C, which is such a height as to raise the platform high enough to permit the car, when loaded, to pass under it. This platform is provided with a bottom, D, which extends from its lower end up to a point just over the car, where it terminates, thus leaving an open space, H, at its upper end, directly over the body of the car. A scraper, E, is then provided, of such a width as to enter readily at the lower end of the platform or slide, between the side boards I, the platform being made wider at its lower end, as shown, to facilitate the entry of the scraper with its load, and having projecting shoulders, *o*, which, when the scraper is drawn up over the open space H, will rest upon the timbers B, and thus prevent the scraper from dropping through the open space, as indicated in red in fig. 3. To the rear side of the scraper E a line, *h*, is attached, said line being passed through a block, F, securely anchored in rear of the spot from whence the material is to be taken, and passing from said block F over the platform and car to and around a windlass located on the opposite side of the track, and from thence back to the front end of the scraper, as shown in fig. 3. It will thus be seen that by rotating the windlass in one direction, the scraper will be drawn from the bed or bank, with its load of material, up the platform, until it arrives at the opening H, when the material will fall through the opening upon the car; and then, by reversing the windlass, the scraper will be drawn back again, ready for another load, and that, by continuing the process, a car may be loaded in a very short time, and with the aid of but one or two men. As each car is loaded, it will be drawn forward, and another placed in its stead, and thus an entire train may be very speedily loaded.

The position of the rear end of the platform will, of course, be adjusted to suit the height or depth of the bank or pit, and may be extended to any desired distance from the track, thus saving the necessity of moving the track, as is usually done, to bring the cars nearer to the bank or bed, as the latter is dug away.

The scraper may be operated by a steam-engine or other suitable power; and it is obvious that this plan of loading cars may be used in all cases where the nature of the material is such that it can be readily moved by means of a scraper, it being especially adapted to the loading of cars with gravel for gravelling the road-bed, and for loading them with earth to be conveyed to other points and used for filling in, either on railways or where filling is to be used for any purpose.

By this method of moving the material on to and from the road-bed, and also on to cars, in connection with my improved process of unloading similar material from cars, described in another specification, of even date herewith, the labor of preparing road-beds for railways, and similar operations, is greatly lessened, and the work much expedited.

Having thus described my invention, what I claim is—

1. Operating the scrapers by means of lines and blocks, substantially as described, for the purpose of moving earth, gravel, and similar material, as described.

2. I claim the platform, constructed and arranged to operate in connection with scrapers, as and for the purposes set forth.

EDWARD THOMPSON.

Witnesses:

W. C. DODGE,

H. B. MUNN.