

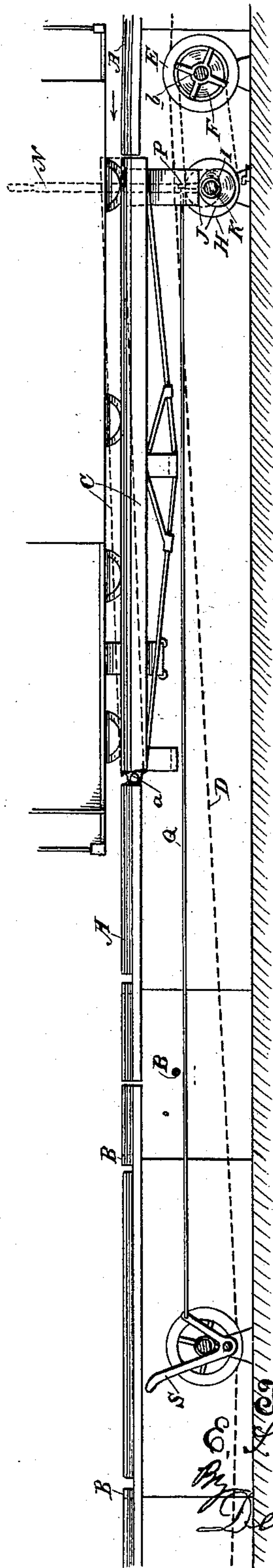
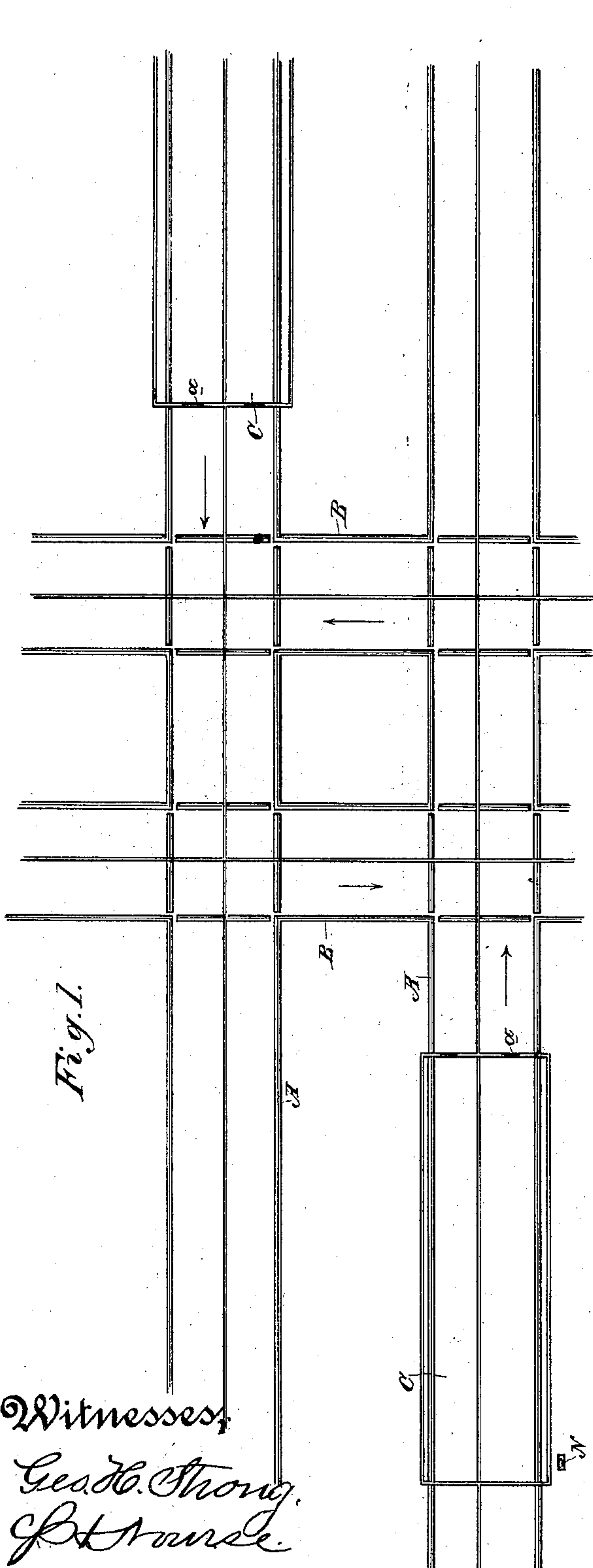
(No Model.)

2 Sheets—Sheet 1.

E. S. HOLDEN.  
CABLE RAILWAY CROSSING.

No. 376,153.

Patented Jan. 10, 1888.



Witnesses,  
Geo. H. Strong,  
J. H. Hourse.

Inventor,  
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# UNITED STATES PATENT OFFICE.

EDWARD S. HOLDEN, OF SAN FRANCISCO, CALIFORNIA.

## CABLE-RAILWAY CROSSING.

SPECIFICATION forming part of Letters Patent No. 376,153, dated January 10, 1888.

Application filed June 21, 1887. Serial No. 242,068. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD S. HOLDEN, of the city and county of San Francisco, State of California, have invented an Improvement in Cable-Railway Crossings; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a device by which cars traveling upon one line of cable railway may be impelled to cross another and transverse line of which the cables lie above those of the first-mentioned road.

It consists of a tilting table or platform, upon which the cars are received while it is in a horizontal position, which is afterward inclined so that they will acquire sufficient momentum in moving from the table to carry them across the other line of tracks.

For a more complete explanation of my invention I refer to the accompanying drawings, in which—

Figure 1 is a plan view showing the two crossing lines and the relative position of the tables on the two tracks. Fig. 2 is a vertical sectional elevation showing the table and its support in outline, also the line of the approaching and departing track, and showing the second position of the table in dotted lines. Fig. 3 is an enlarged transverse section of shaft, cam, and clutches. Fig. 4 is an enlarged perspective view of the cam.

A A are the rails of one road, and B B those of a crossing line, the cables of the latter line passing above the former. It will be necessary in order to pass the cars of the line A across the cables of the line B to let go of the cable of the line A, and by some other mechanism to move the car across the upper cables without interfering with them. In order to do this I employ a table or platform, C, which is of greater length than the wheel-base of the car or train which is to be transferred. This platform is suitably trussed and stiffened so as to support the car or train, and has a pivotal axis or fulcrum at one end, as shown at *a*, about which it may turn slightly, so as to stand at a small angle with its first position, as shown in dotted lines. The cars approach this platform upon the line of track shown at A, Fig. 2, and, the platform being in its normal position, the track upon the platform is in line with that

upon which the car approaches it, so that the car may run directly upon the platform and there remain.

The track over which the cars depart from the platform is on the same level as the platform when in its normal position, so that when the rear end of the latter is raised by suitable machinery the train will acquire sufficient momentum in passing down this grade to carry it over the line of track to be crossed, the grip having been detached from its own cable and elevated as soon as the car arrived upon its platform.

The cable D passes over a pulley, E, and a second pulley or pulleys, F, are mounted upon the same shaft, *b*. The pulleys F are connected by belts or other mechanical equivalent with pulleys H, which are fixed upon a shaft, K, and this has a long sleeve, I, turning loosely upon it, with cams or eccentrics J, secured to the sleeve and corresponding with projections beneath the table, upon which they act when rotated so as to lift the table or allow it to be depressed, and by this movement thus give the platform a sufficient inclination to allow the car to move by gravitation and acquire sufficient momentum to carry it across the line of tracks B to a sufficient distance, so that its grip may again take the cable and the car proceed.

In order to start and stop the mechanism which elevates the table, various devices may be employed. In the present case I have shown a clutch, M, which moves longitudinally upon the shaft K, sliding upon a feather which connects it with the shaft, and it is moved by a lever, N, conveniently placed so as to be operated by one of the train-men, or automatically, as desired. When caused to engage with that portion of the clutch upon the sleeve I, the latter will be caused to rotate, and with it the cams J, so as to raise this end of the table.

To illustrate clearly, I have shown an ordinary form of conical friction-clutch; but it may be found preferable to use some of the well-known forms of clutches, it being better that the starting of the heavy table be gradual.

In order to stop the table when it has risen to the proper height, a lug or spur, O, is so placed as to strike the lever or clutch, and thus



disengage the latter and stop the table, which will then be supported by the cams or eccentrics at their highest point.

After the car has passed off the table and 5 crossed the other line of tracks, the sleeve I and the cams or eccentrics may be rotated so as to again allow the table to be depressed to its normal position. This may be done in various ways, either by again engaging the clutch 10 and allowing the eccentrics to complete their revolution to the lowest point or by returning them to the same point by the shortest route.

In the present case I have shown an arm, P, attached to the cam or eccentric and connected 15 by a rod, Q, with one arm of a bell-crank lever, S. This lever is so fulcrumed that its other arm will stand in such a position that the grip or some portion of the car will strike it after leaving the table, and thus return the cam or 20 eccentric to its lowest position.

It will be manifest that various mechanical devices may be substituted to produce this result without essentially altering the invention.

Having thus described my invention, what I

claim as new, and desire to secure by Letters 25 Patent, is—

1. A tilting table lying between adjacent sections of railway-track so as to receive a car from one section and transfer it to the other, in combination with the eccentric or cams by 30 which one end of the table is elevated, and a clutch and pulleys whereby motion is transmitted from the main cable to rotate the cams and raise or depress the table, as herein described.

2. The rising-and-falling tilting table and the 35 cams or eccentrics by which it is actuated, in combination with a clutch and lever, through which motion is imparted to the cams from the main cable to raise the platform, and a lever and connecting-rod from the cam, by which it 40 is returned by the movement of the car as it leaves the table, substantially as herein described.

In witness whereof I hereunto set my hand.

EDWARD S. HOLDEN.

Witnesses:

S. H. NOURSE,

H. C. LEE.