

(No Model.)

J. D. STANWOOD.
SWITCH OPERATING MECHANISM.

No. 298,036.

Patented May 6, 1884.

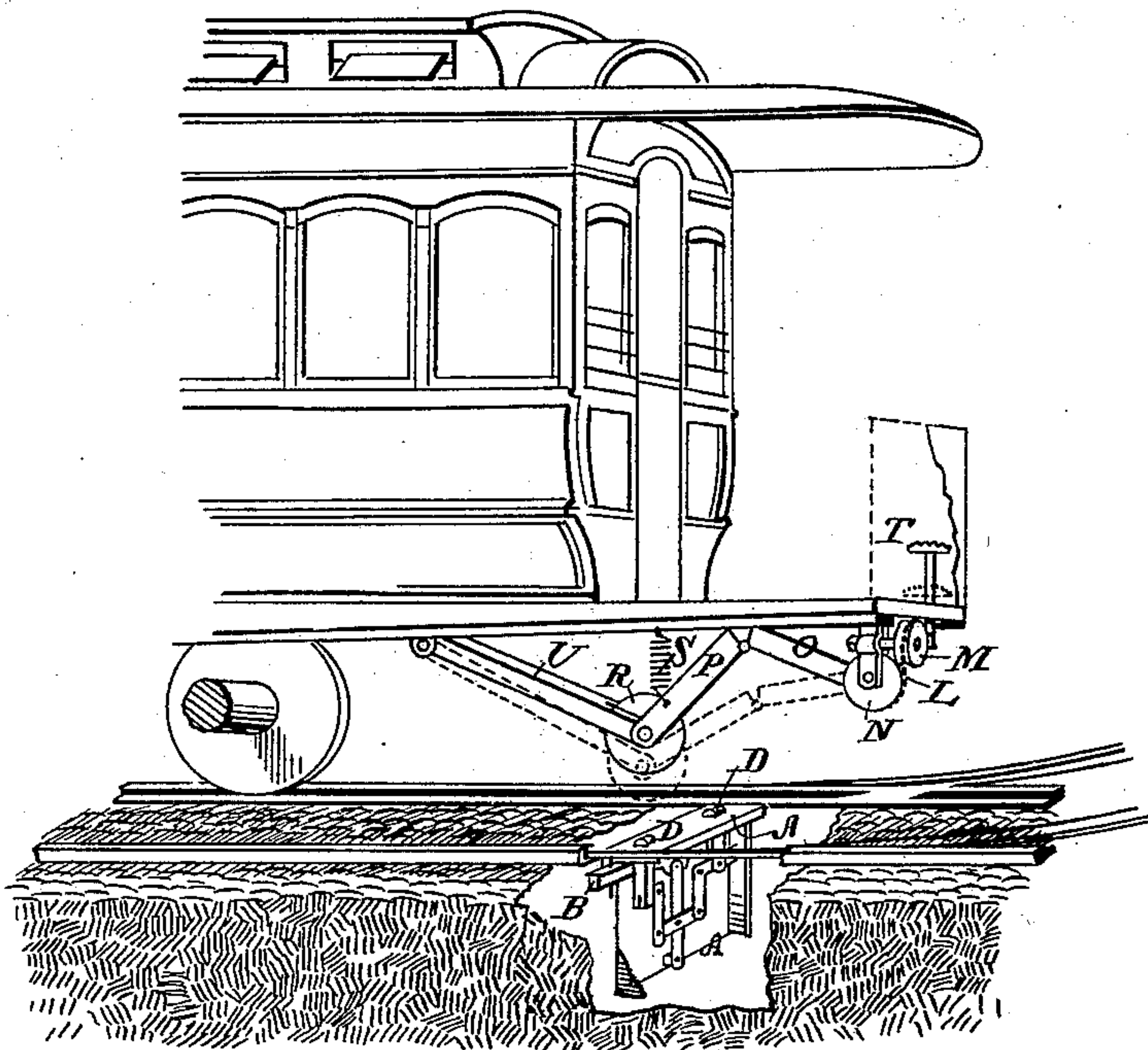


Fig. 1.

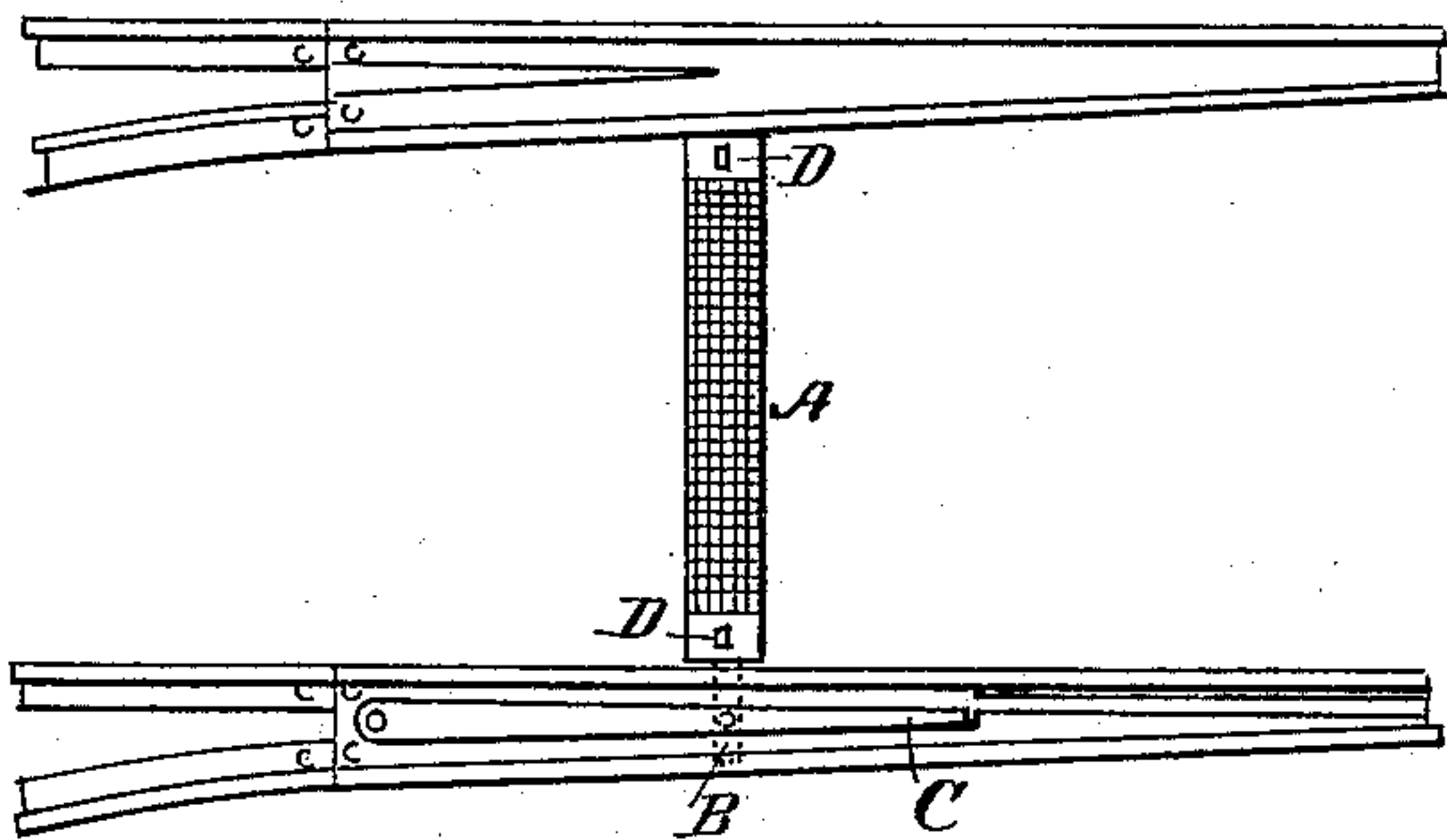


Fig. 2.

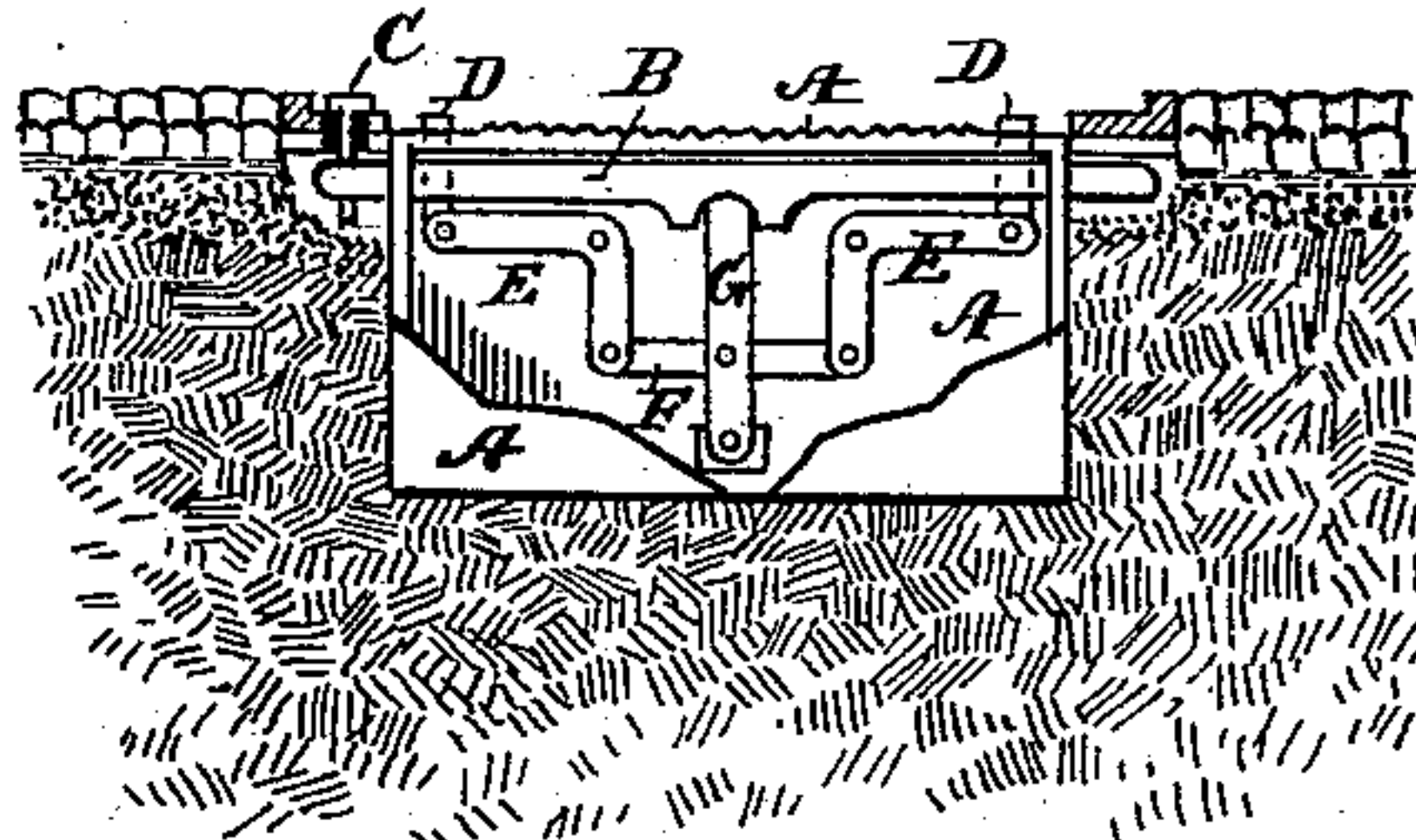


Fig. 3.

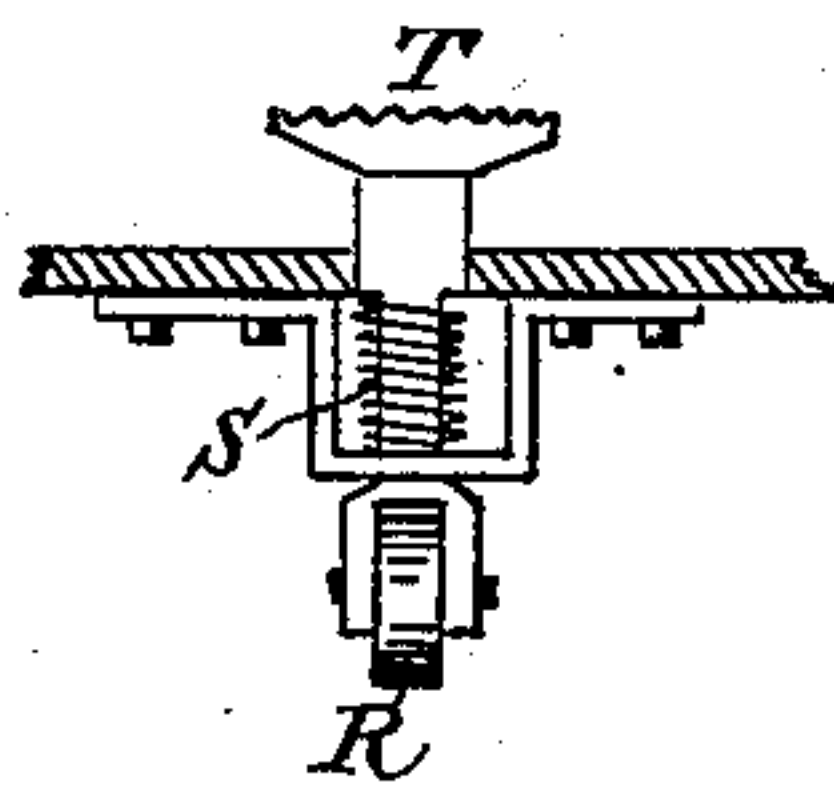


Fig. 4.

Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES D. STANWOOD, OF BOSTON, MASSACHUSETTS.

SWITCH-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 298,036, dated May 6, 1884.

Application filed April 28, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES D. STANWOOD, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Switch-Operating Mechanism; and I do hereby declare that the same are fully described in the following specification and illustrated in the accompanying drawings.

10 The object of this invention is to provide for shifting the switch point or tongue of a railroad-track by means of devices at and below the surface operated from the platform of the approaching car.

15 My invention embraces a horizontally-sliding bar placed beneath the surface transverse to the track, and connected to the switch-tongue, in combination with vertically-sliding pins connected to said bar, so as to actuate it and the switch-tongue, when either of said vertical pins is depressed. This mechanism is worked by the driver depressing a treadle, which carries a wheel arranged to strike the upper end of one of the vertical pins before 25 the car-wheels reach the switch.

My invention consists in the devices and combinations of devices set forth in the appended claims.

30 In the drawings, Figure 1 is a perspective view of one end of a street-car with treadle and roller or truck connected to its platform, showing also the devices located at the switch, and serving to actuate the switch-tongue when said roller is depressed. Fig. 2 is a plan of the track, showing the location of the parts in use. Fig. 3 shows an elevation of the shifting-levers, with part of the casing broken away; and Fig. 4 is a modification of the treadle.

40 I provide a case, A, arranged crosswise of and between the tracks, at the point where the switch is located. This case, placed with its upper surface level with the ground, and forming a part of the road-bed, contains the apparatus by which the switch-tongue is vibrated to right or left when the driver of the approaching car depresses the roller which actuates it. This case is open at the bottom, to permit water and dirt to escape, but its ends, sides, and top prevent injury to the le- 50 vers from outward pressure or the passing of

vehicles, and the top forms a part of the pavement or road bed, thus rendering it unnecessary to dig out, wall up, and cover over a large cavity for the switch mechanism, as is necessary with the tilting platform heretofore 55 used. These cases lie between the tracks, and are of no greater width than a single row of paving-blocks. They will be of uniform size, and thus interchangeable; and when repairs are necessary a case containing all the parts 60 required to operate the switch-tongue can be substituted for the imperfect one in a minute or two without removing any tracks or delaying travel. Being of so small area and open at the bottom, they are far cheaper than former 65 devices, and do not, like them, become clogged by accumulations of mud and water, nor constitute a trap by necessitating a large cavity beneath the roadway, bridged by a broad metal plate liable to be broken through in frosty 70 weather.

At one end of the case A projects a bar, B, having a limited endwise movement by means to be described. This bar connects at its end with the pivoted switch-tongue C, so as to 75 swing the free end of the tongue horizontally as far as it is needful to connect it with the straight and the divergent tracks, that it may direct a car upon either one as desired.

The bar B and switch-tongue C are moved 80 horizontally by the vertical movement of two pins, D D, which project through and slightly above the top of the case A in the path of a roller carried beneath the car-platform, as will be described. These pins are the only 85 movable parts of my apparatus for shifting the switch which are exposed in the street; and as they move freely downward out of the way when struck by a wheel or foot, they form no obstruction in the highway, and are 90 not liable to injure vehicles or to get out of order. When most depressed, they are flush with the top of the case A, and at other times are raised above it; and hence water does not tend to enter through the apertures in which 95 the pins move. The location of these apertures in the casing and between the tracks also tends to exclude water, as compared with some former machanism beneath the tracks with apertures in the line of the tracks. 100

Figs. 1 and 3 will make clear the arrangement of levers which I have devised to communicate the movement of the pins D D to the bar B and switch-tongue C. The pins D D pass loosely through the firm top plate of the case A, and are loosely pivoted at their lower ends, each to the outer end of an elbow-lever, E, pivoted at its center to the casing. The inner ends of the lever E are connected by pivots to a horizontal bar, F, which is pivoted to a vertical bar, G, at their crossing-point. The bar G is pivoted at its lower end to the case A, and its upper end carries with it, when vibrated, the horizontal bar B, to give to the tongue C the slight lateral movement desired, so as to direct the car to the right when the right-hand treadle is depressed, or vice versa. Omitting a pivot and inserting the top of the bar G in a recess between two shoulders of the horizontal bar B prevents lifting the switch-tongue, or binding or cramping in the operation of the device.

The pins D D are depressed by apparatus attached to the car and operated by the driver; and in order that the switch may be thrown either to right or left, so as to turn the car on to a side or branch track, or continue it on the main track, as desired, there is placed at each side of the driver's stand a treadle, T, adapted to depress a roller, R, so that it shall roll over one of the pins D and move it downward through the top plate of its casing A, to actuate the switch-tongue, as already described. The simplest method of mounting such roller and treadle is shown in Fig. 4, in which the roller-bearings are in a direct prolongation of the stem of the treadle, which is supported by a bracket and kept in true position by a square shank. The roller is raised by a spring, S, when the foot is removed from the treadle.

In order to give more elasticity to the treadle apparatus, I have devised the mechanism shown in Fig. 1. A chain or rope, L, secured to the lower end of the treadle-rod passes over a grooved wheel, M, and around a similar wheel, N, to which its end is made fast. An arm, O, projecting rigidly from the wheel N forms one member of a toggle-joint, the other member, Q, carrying it at its extremity the roller R, supported for use by the pivoted bar U and retracted by the spring S. These wheels and levers are mounted in suitable

brackets. When the treadle is depressed, the wheel N is partially rotated, and the roller R is forced down to the position shown in dotted lines, where it is in readiness to easily and quietly move the switch-tongue when reached. This roller rides over the pavement readily without injury, if depressed before the switch is reached, and no shock or jar is felt in the car at such times or when acting on the pins D D.

I am aware that tilting platforms operated by the weight of the horses have heretofore been used to shift the switch-point, and that spring-switches and others operated by the supporting-wheels of the car have been described; also, that pivoted levers placed cross-wise of a long bed-plate lying parallel to the track have been proposed, with a treadle-pin from the car to strike said levers sidewise, and a long exposed bar parallel to the track to operate the switch-point. These I do not claim; but

I claim as my invention—

1. The narrow casing A, extending transversely from track to track, made open at the bottom for the escape of dirt and water, and having a top plate forming between the tracks a fixed part of the roadway, in combination with vertical pins D D, protruding through and above such top plate, to be alternately depressed by the treadles, and with a horizontally-sliding bar actuated by said pins and extending from the end of said casing to engage with and shift the switch-tongue, substantially as set forth.

2. The elbow-levers E E, pivoted centrally to the case, at their outer ends to the vertical pins D D, and at their inner ends to the horizontal lever F, in combination with the vertical bar G, pivoted centrally to the lever F, and at its lower end to the case, and connected with the bar B by insertion between shoulders thereon, so as without binding to shift the switch to the right or to the left, according as the right or the left hand treadle is depressed, substantially as set forth.

In testimony whereof I hereto affix my signature in presence of two witnesses.

JAMES D. STANWOOD.

Witnesses:

A. H. SPENCER,
E. A. PHELPS.