(No Model.) 2 Sheets—Sheet 1.

D. W. COPELAND.

RAILWAY GATE.

No. 295,358. Patented Mar. 18, 1884.

Fig. 1.

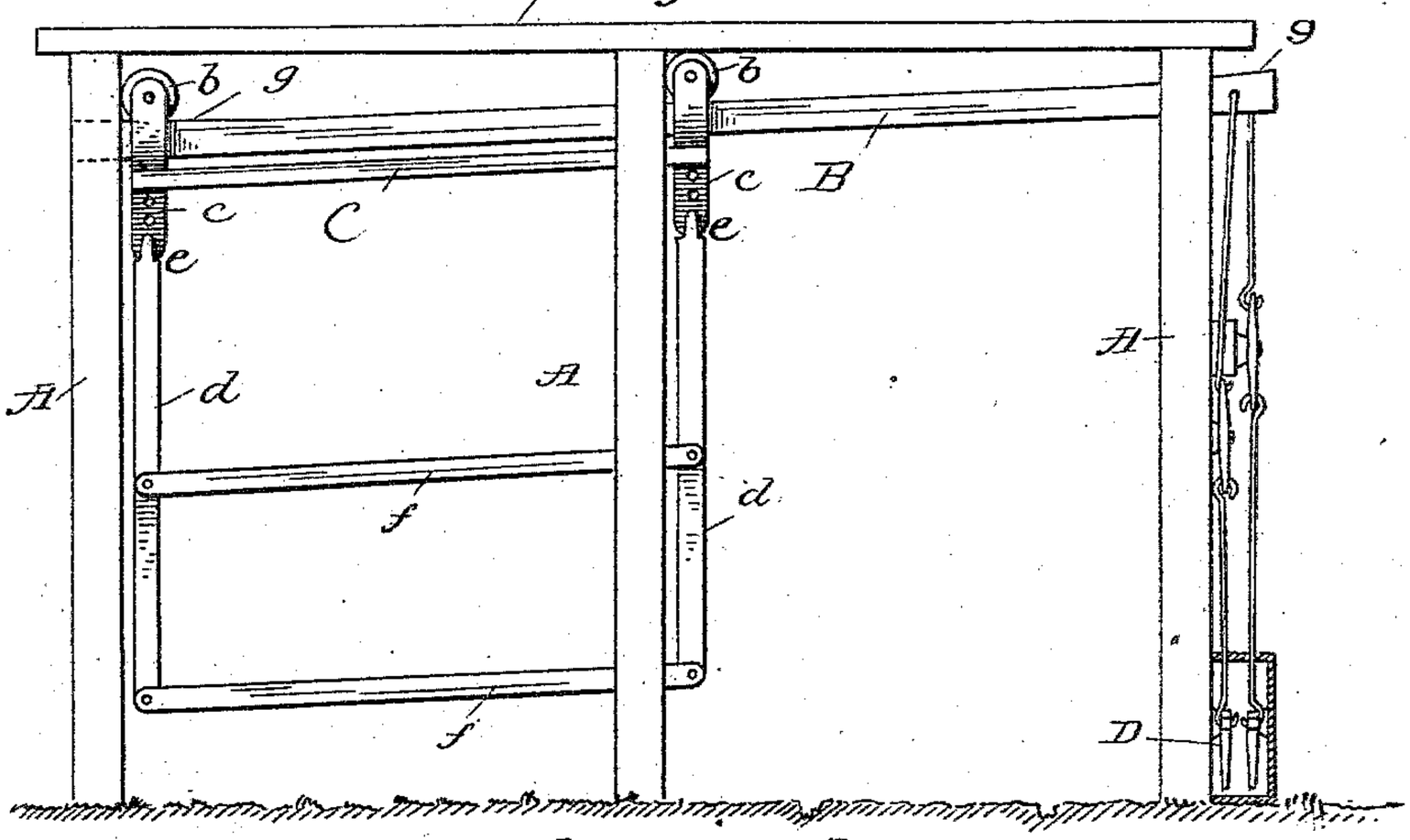


Fig. 2.

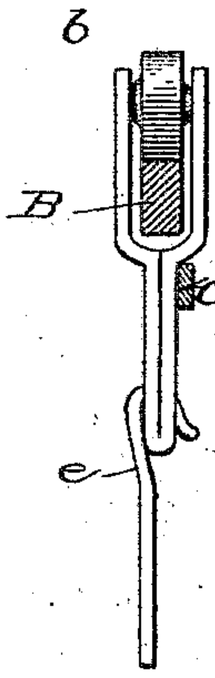
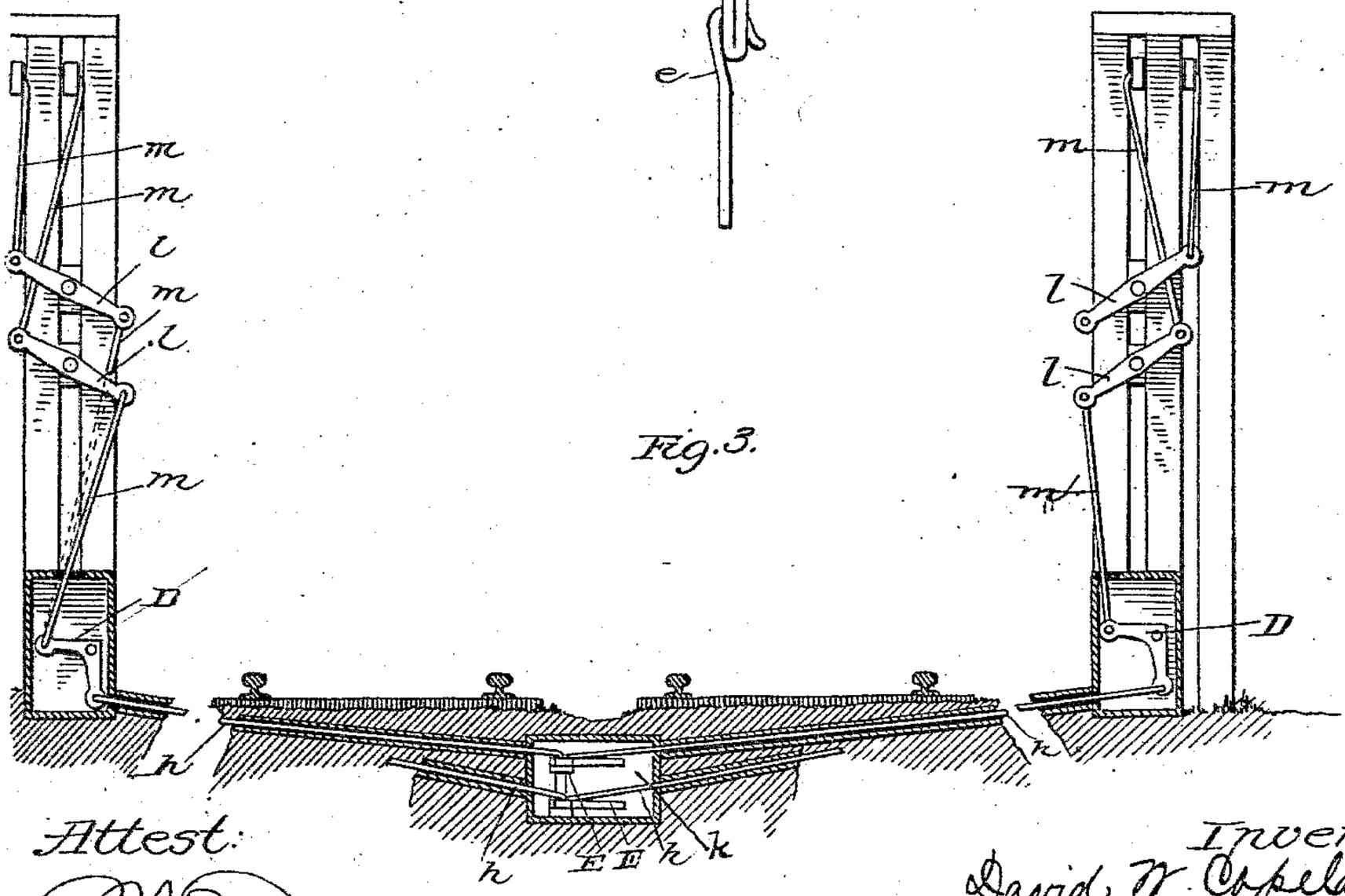


Fig. 3.



Attest:
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(No Model.)

2 Sheets—Sheet 2.

D. W. COPELAND.

RAILWAY GATE.

No. 295,358. Patented Mar. 18, 1884.

Fig. 4.

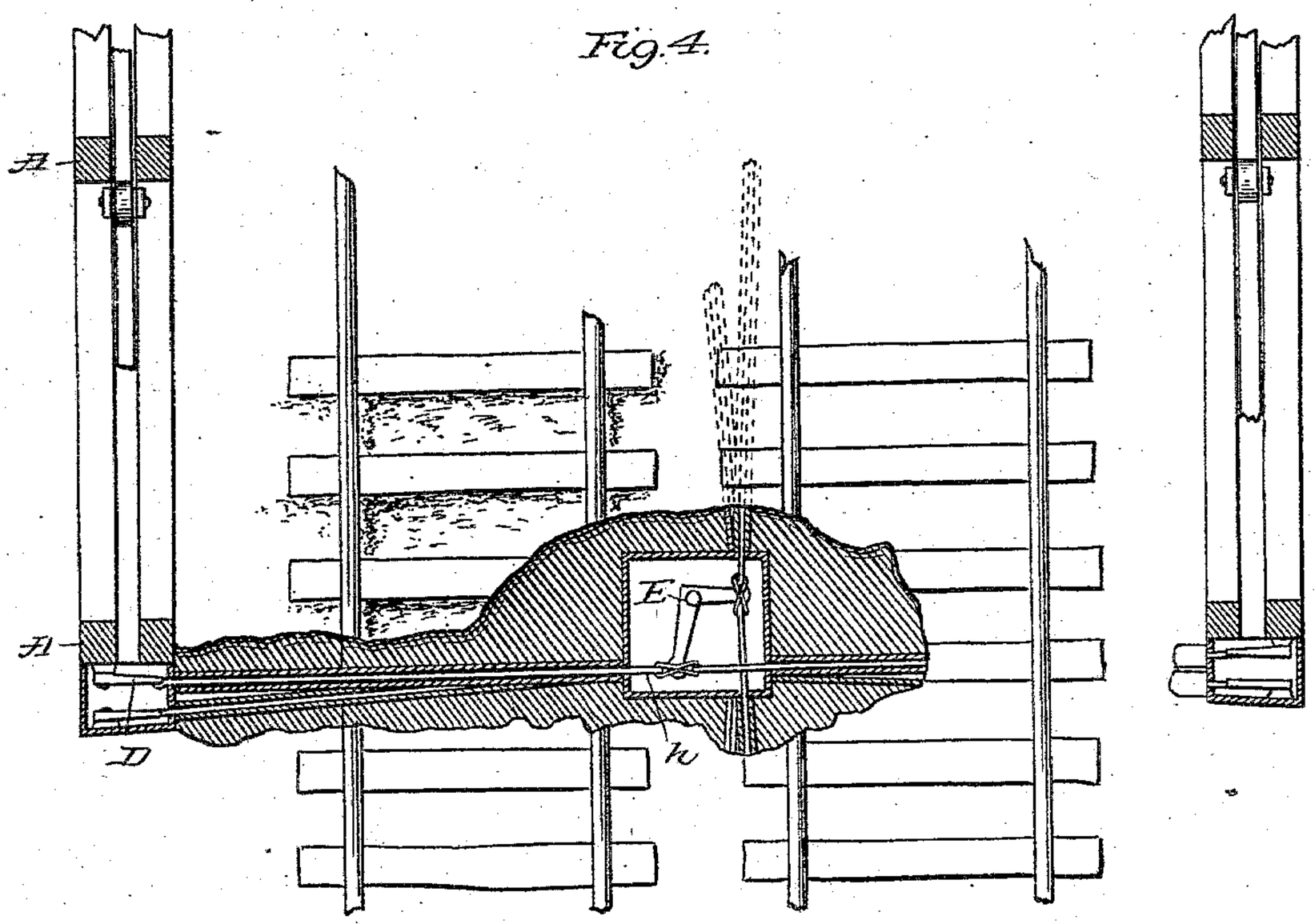


Fig. 5.

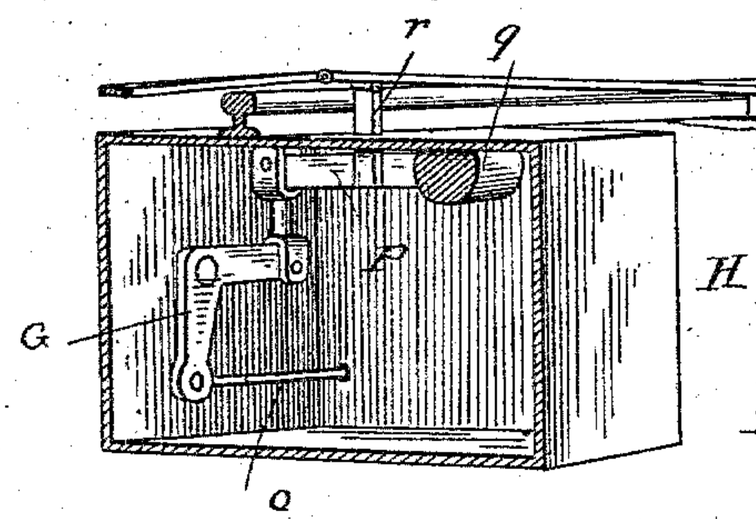
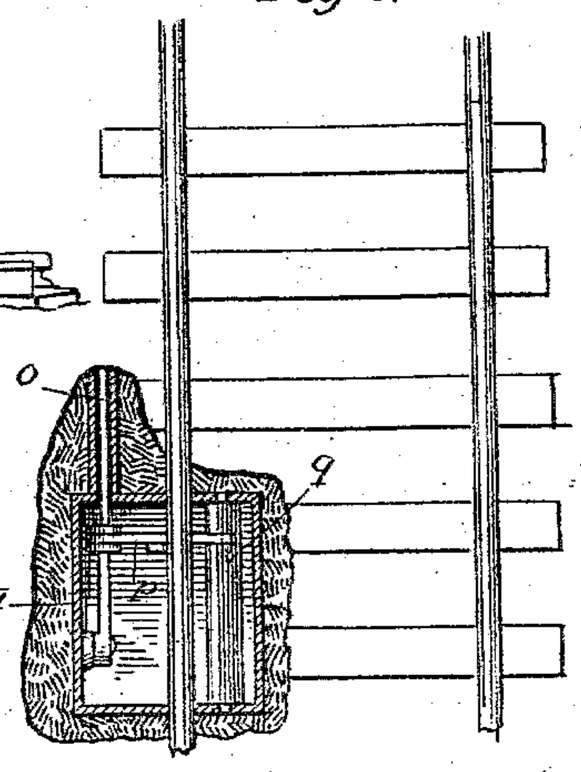


Fig. 6.



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UNITED STATES PATENT OFFICE.

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RAILWAY-GATE.

SPECIFICATION forming part of Letters Patent No. 295,358, dated March 18, 1884.

Application filed October 30, 1883. (No model.)

To all whom it may concern:

Be it known that I, DAVID W. COPELAND, of Lowville, in the county of Lewis and State of New York, have invented a new and useful Improvement in Railway-Gates; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to gates of that class in which the gate is automatically moved or slides by gravity on a way which is tilted by the passing vehicle, either to open or close. Its object is to simplify the details and to render the gate, under all circumstances, certain in its operation.

The invention consists in details of construction, all as hereinafter fully set forth, and shown in the accompanying drawings, in which—

Figure 1 represents the gate in side elevation. Fig. 2 shows a cross-section of the shifting track, with an end view of the carriage that supports the gate. Fig. 3 represents a cross-section of the track, with an end view of the gate-frames. Fig. 4 is a plan view of the track with connecting mechanism for the gate and moving parts exposed. Fig. 5 represents the movable tread and its connection with the working-levers of the mechanism which moves the gates. Fig. 6 is a plan of the lever-connections, with the top of the box removed.

In Fig. 1, A represents the posts of the gate-frame, which posts are connected by a cross-bar, *a*. On the central post is pivoted a tilting bar, B, which is the gate-track. It tips in vertical plane, and on it run wheels *b b*, from which are hung the gate by means of hangers *c c*. The hangers are connected by a rigid bar, C, and have a series of holes for adjusting the gate vertically. This practically constitutes a truck, upon which the gate hangs. The gate consists of vertical slats *d d*, connected to the hangers by hooks *e e* and to each other by pivoted cross-bars *f f*. The gate has some flexibility, and always hangs vertical. It may run from one end of the track to the other, and the ends of the track are inclined upon the track-surface, as shown at *g g*. This gives a horizontal surface for one roller to rest upon, as shown on the left of Fig. 1, and a greater incline when the end is raised, as shown in Fig. 1 on the right hand. The gate is moved by the tipping of its track. This is accomplished by connection with the motive parts at one end of the bar. These connections are shown in Figs. 1 and 2 as far as the transverse connections extend.

In a box at one end of the gate-frame is pivoted a bell-crank lever, D, which, by means of rod *h*, is connected to bell-crank lever E near the track, and in a chamber, *k*, beneath the surface. From this latter bell-crank lever rods extend to a box, H, hereinafter explained. The bell-crank lever D is connected to the gate-track through an intermediate lever, *l*, by means of rods *m m*. This is for the purpose of compensating for the contraction and expansion of the rods, due to atmospheric changes in temperature. The lever *l* is pivoted upon the post, and the track-bar is pushed up to throw the gate in one direction, and drawn down to throw it in the opposite direction. For double-track roads—such as that shown in Figs. 3 and 4—the gates and described connections are duplicated, as represented.

On a vertical shaft in the trunk or chamber is pivoted the bell-crank lever E, and to that arm of said lever which extends at right angles to the track is attached the longitudinal rod, chain, or rope *o*, which pulls the lever when the train passes over the inclined treadle. One of these ropes or rods runs in each direction. Each is connected to a bell-crank lever, G, at a distance from the gate of one-fourth of a mile, more or less. This bell-crank lever is pivoted in a box, H, to swing in vertical plane. The horizontal arm is connected, as shown in Fig. 5, to a lever, *p*, pivoted on a shaft, *q*. The spring-tread M is connected to this lever *p*, between its pivot and the bearing upon the bell-crank, by means of a post, *r*. Thus when the tread is depressed by the tread of the wheel, the lever *p* is caused to operate in the train of levers and rods, and forces the gate to open or close, as the case may be. One tread in the example shown closes the gates as the train approaches the crossing, and, after the train has passed, another, located on the same track an equal distance from the crossing, opens the gates.

It will be understood that there is a gate on

each side for a single track; or one alone may be used, if desired; and, as shown in the figures, two gates are provided for double tracks. The gates and their connections are duplicates. This prevents any liability of clashing by trains passing in opposite directions.

The rods or ropes may be laid in any suitable pipes. Between the lever E and the gate-track I use stiff rods, so that the bell-crank E, when it is drawn in one direction, may pull, and in the other may push upon the track-bar.

The post *r*, being between the fulcrum and weight, is adapted to multiply the motion of the spring-track.

The gate, moved in the manner described upon a track, runs gently, and there is no danger of collision with carriages which may happen to be in the way of the gate. The gate may be arrested by hand at any point, or may be opened and closed freely by hand.

In Fig. 3 two levers, E, are shown. To the upper of these the rods *h h* from one set of gates are attached, and to the lower the rods of another set of gates, as shown in this figure and in Fig. 4, these rods leading to one set of gates. From the transverse end of this lever rods or ropes run in two directions to the opening and closing mechanisms of one track.

The apparatus has been described as applied to a railway. The gate and its moving apparatus, with very little and obvious modification, is also applicable to ordinary wagon-roads.

I claim—

1. A gate suspended from wheels, in combination with a track-bar for the wheels, pivoted at or about its center, a rod at one end of the bar connecting it to a bell-crank lever, D, and means, substantially as described, for moving the said bell-crank, whereby the gate-track is either pushed or pulled and the gate caused to slide, as set forth.

2. In combination with the sliding gate, the track-bar B, having the inclines *g* at the ends, and means for shifting said bar, substantially as described.

3. In combination, the gates—one on each side of a track—adapted to slide on a pivoted track-bar, bell-crank levers D, and connections therefrom to the ends of the bars, rods *h h*, and bell-crank levers E, with rods or ropes, and means whereby the wheels of the car operate the mechanism, all substantially as described.

4. In the described relation to the gates and their connecting-rods and levers, and in combination, the bell-crank lever G, connected lever *p*, pivoted to *q*, post *r*, and spring-treadle, all substantially as described.

5. In the described gate, the combination of the wheels *b b*, hangers *c c*, perforated, as described, bar C, and the gate-frame proper suspended from hangers *c c*, and adapted to be adjusted vertically thereon, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

D. W. COPELAND.

Witnesses:

F. L. MIDDLETON,

L. W. SEELY.