

(No Model.)

2 Sheets—Sheet 1.

W. P. PHELPS.  
ELECTRICAL TRAIN STOPPING AND SIGNALING APPARATUS  
FOR LAND SLIDES.

No. 288,480.

Patented Nov. 13, 1883.

Fig. 1.

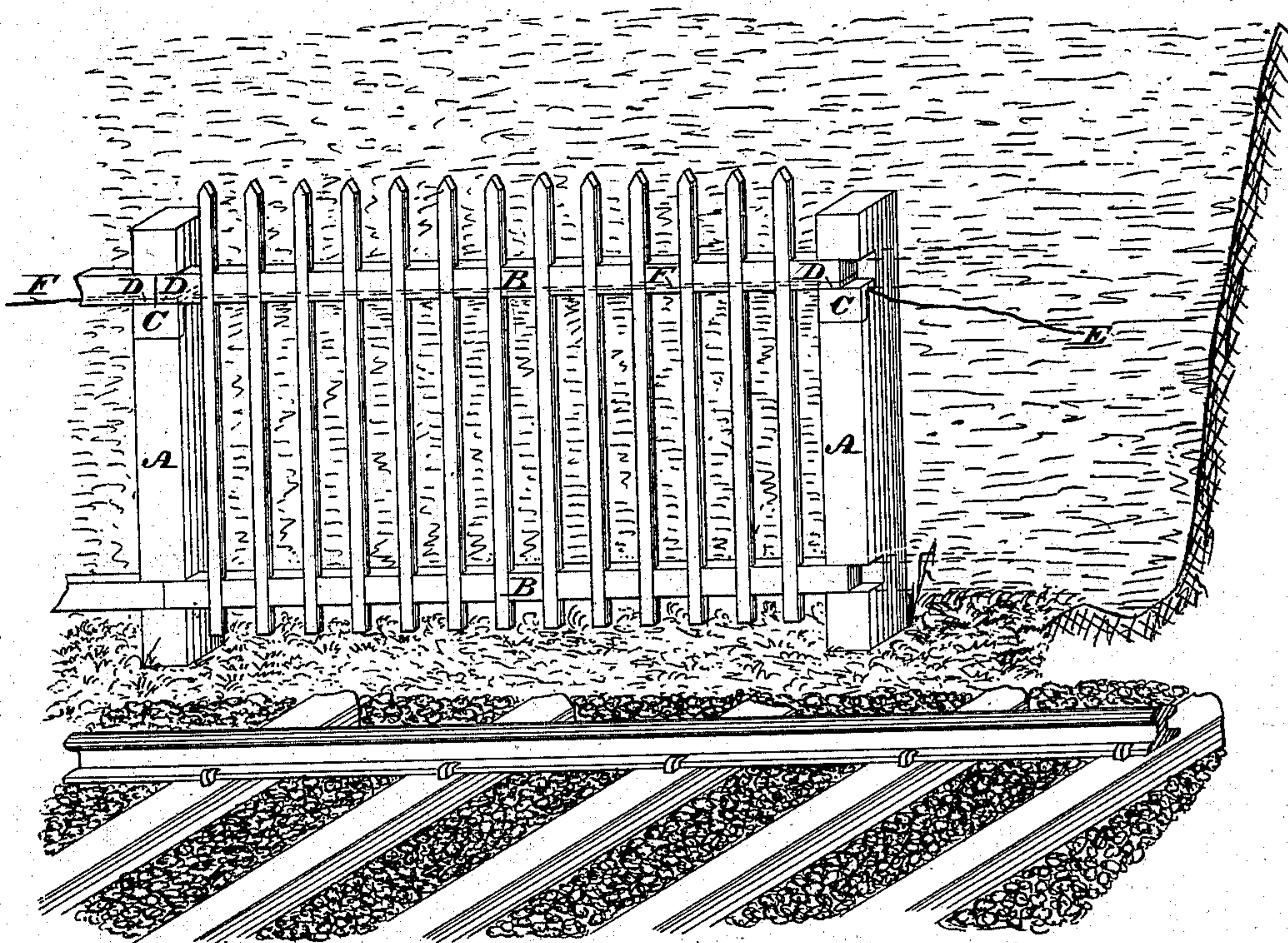
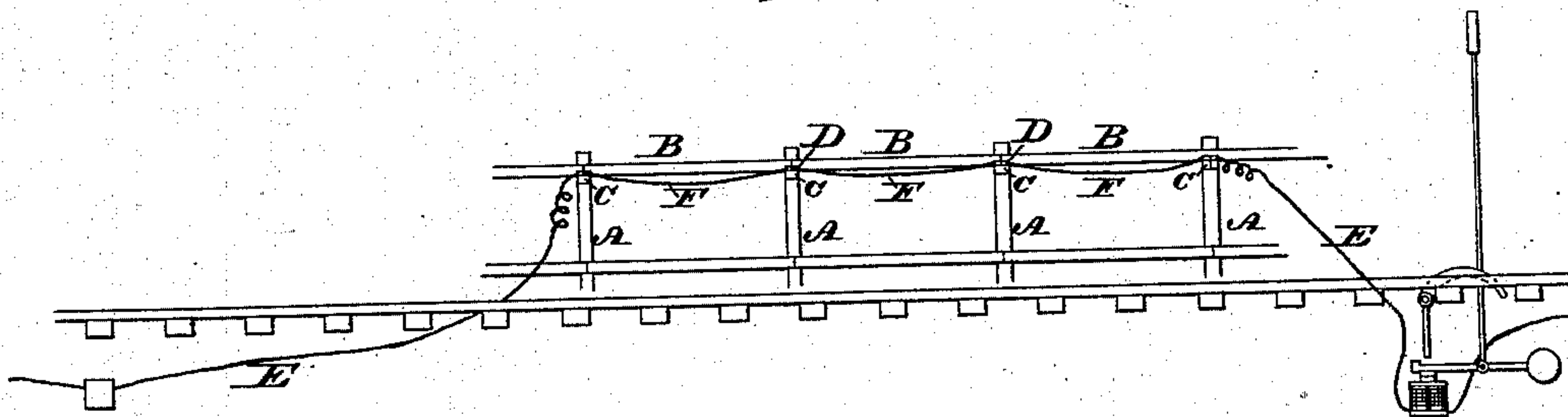


Fig. 2.



WITNESSES:

A. P. Grant,  
W. F. Kucher

INVENTOR:

Wm P. Phelps,  
BY John A. Diederheim ATTORNEY.



(No Model.)

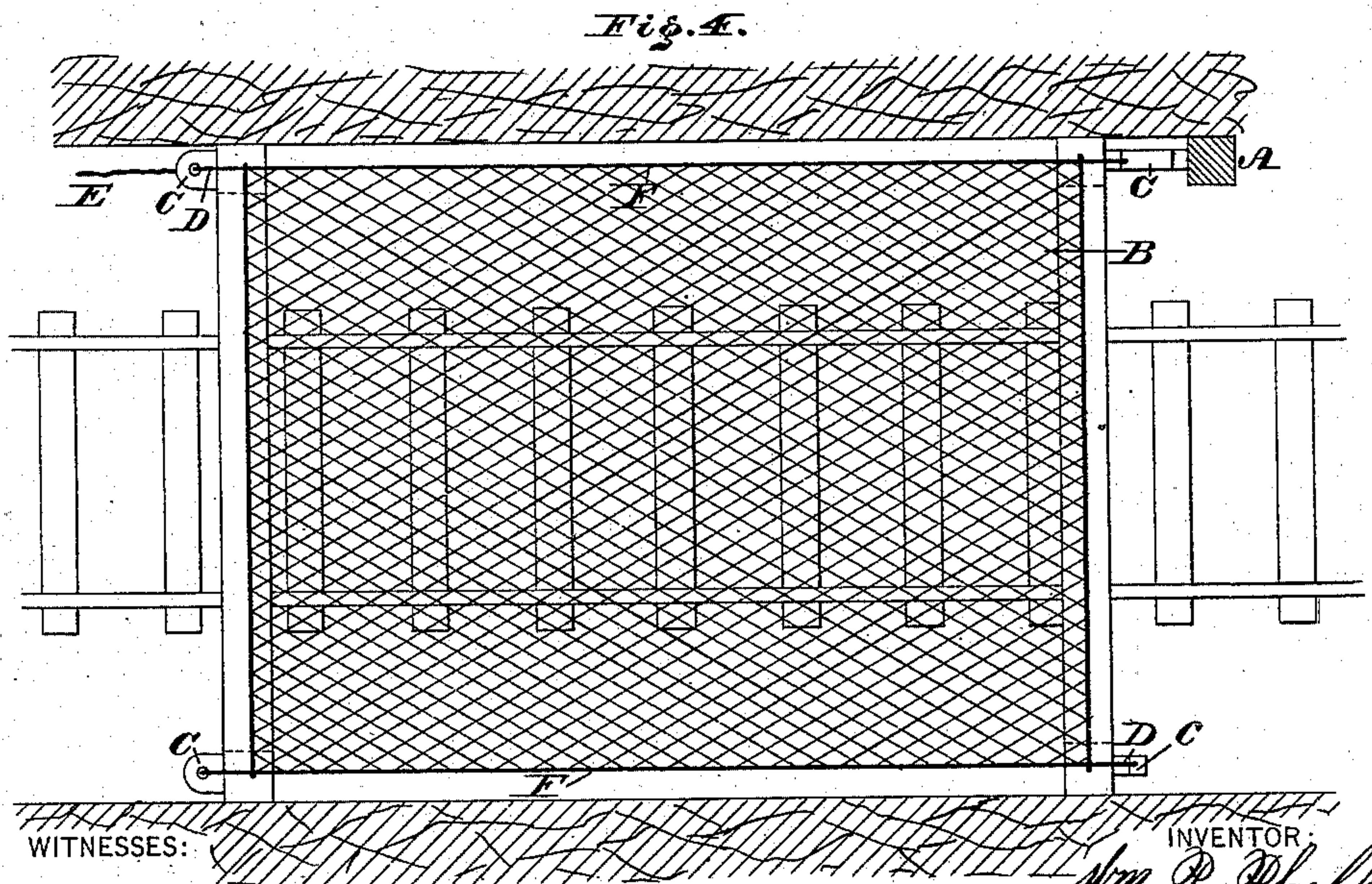
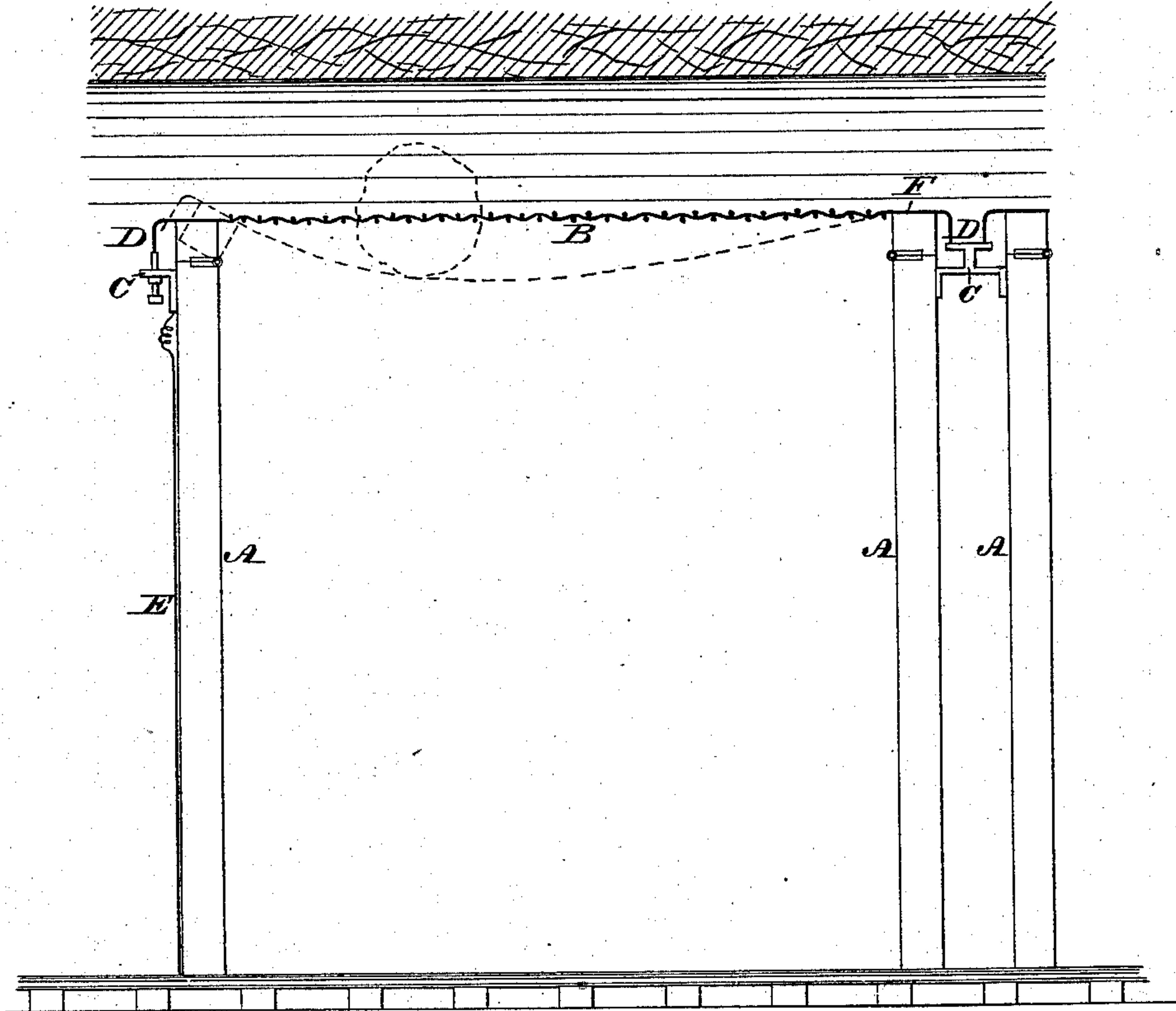
2 Sheets—Sheet 2.

W. P. PHELPS.

ELECTRICAL TRAIN STOPPING AND SIGNALING APPARATUS  
FOR LAND SLIDES.

No. 288,480.

*Fig. 3.* Patented Nov. 13, 1883.



WITNESSES:  
*Jo. P. Grant,*  
*H. F. Kitcher*

INVENTOR:  
*Wm. P. Phelps.*  
BY *John A. Diederichsen* ATTORNEY.



# UNITED STATES PATENT OFFICE.

WILLIAM P. PHELPS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE  
RAILROAD SAFETY LOCK AND SIGNAL COMPANY, OF NEW JERSEY.

ELECTRICAL TRAIN-STOPPING AND SIGNALING APPARATUS FOR LAND-SLIDES.

SPECIFICATION forming part of Letters Patent No. 288,450, dated November 13, 1883.

Application filed July 21, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM P. PHELPS, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Electric Train-Stopping and Signaling Apparatus for Land-Slides, Caving-in Tunnels, &c., which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a perspective view of apparatus embodying my invention as employed in the case of land-slides. Fig. 2 is a side elevation thereof. Fig. 3 is a side elevation of apparatus embodying my invention as employed in the case of caving-in tunnels. Fig. 4 is a top view thereof.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists in automatically stopping a train of cars and displaying signals in case of obstructions on railroads, occasioned by land-slides, falling rocks, &c. For this purpose I employ an electric circuit, a movable guard, and automatic train-stopping and signaling apparatus, said guard being moved by the pressure or weight of the land, rocks, &c., whereby the circuit will be broken and the train stopped and the signal displayed.

Referring to the drawings, A represents posts, which are properly sustained at places along the line of a railroad where land-slides are liable to occur, and B represents a guard, consisting of a frame or panel of an upright fence, which is removably connected with the posts A. The posts A have secured to them at proper places metallic plates C, which are suitably insulated, and the panel B has secured to its ends at proper places plates D, which are insulated, a plate of each end of the panel being in contact with a plate of the respective post. Attached to the plates C of the post of each section of panels is a wire, E, which leads to a box containing a magnet and armature, with which latter is connected mechanism for operating an automatic train-stopping and signaling device, a form of which is illustrated in Fig. 2, which may be similar to that shown in the Letters Patent granted to William C.

Shaffer, No. 250,173, on the 29th day of November, A. D. 1881, so that danger may be announced and the train automatically stopped. The plates D of each panel are connected by a wire, F, and the plates D of the several sections of panels rest on the plates C, so that there is an electrical communication of the several sections of panels by means of the plates C D and wires F. (See Fig. 2.) When the panels are in their normal positions, the plates C D are in contact and the electric circuit is closed, whereby the train-stopping and signaling device is not operated, the shoe of said device swinging freely, as explained in the Letters Patent hereinbefore referred to. Should, however, there be a land-slide or falling rocks, whereby the road may be obstructed, the land or rocks press against the panels and force them from the posts, thus separating the contact-plates C D and causing the breaking of the circuit, whereby the train-stopping and signaling apparatus is operated, the danger being thereby indicated and provision made for automatically stopping the train before reaching the obstruction occasioned by the land-slide, &c.

Figs. 3 and 4 illustrate means employed for indicating obstructions on the road in tunnels, occasioned by the caving in of the same. In this case for the upright panel is substituted a horizontal guard of the form of a screen, frame, or panel, which is supported on pieces which may be hinged or pivoted to the tops of posts or standards, the ends of said guard having plates, which, in their normal positions, are in contact with plates fixed to the posts or standards. Wires are provided, as in Fig. 1, and the plates of the posts are in contact, thus forming a continuous circuit. Should the roof of the tunnel cave in, the rocks, &c., therefrom fall on the guard, thus depressing the body of the guard and raising the connected end plates, which, being separated from the plates on the posts, occasion an opening of the circuit and the operation of the train-stopping and signaling apparatus, as previously described.

The shoe shown in Fig. 2 is loose under ordinary circumstances, and the train rides freely



over it. In the event of accidents the shoe is automatically locked, and so raises an arm or lever, or operates other devices on the engine, the same being connected with the brake mechanism, whistle, and steam-supply.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An electric apparatus for indicating land-slides, the caving in of tunnels, and similar accidents, consisting of an electric circuit, signaling devices connected therewith, and a movable guard forming part of said circuit and arranged to be struck by the moving soil or rocks, substantially as described.

2. An electric apparatus for indicating land-slides or the caving in of tunnels, consisting of an electric circuit, a movable guard, and contact-plates forming part of said circuit, and suitable supports for said plates and guard, said guard being arranged to be struck by the moving soil or rocks, whereby the circuit is broken and signaling mechanism allowed to operate, substantially as set forth.

WM. P. PHELPS.

Witnesses:

JOHN A. WIEDERSHEIM,  
W. F. KIRCHER.