

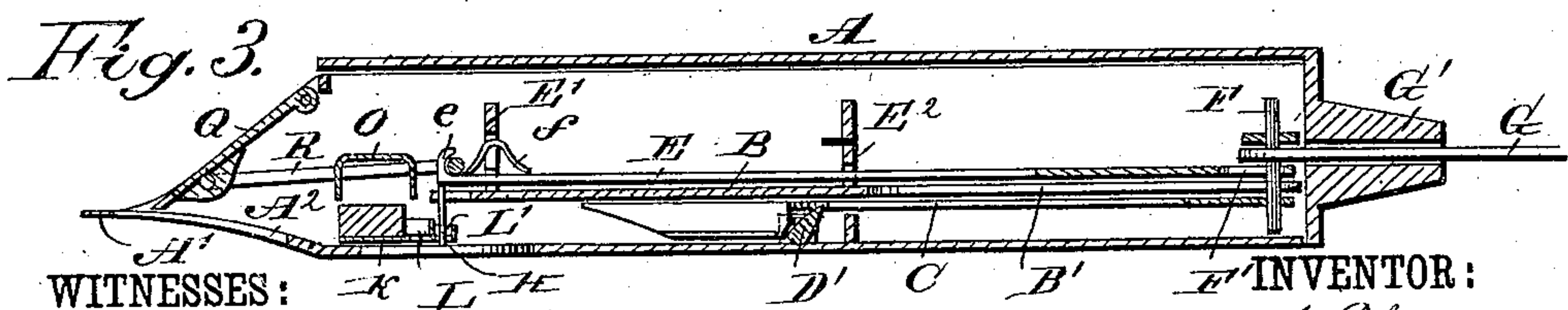
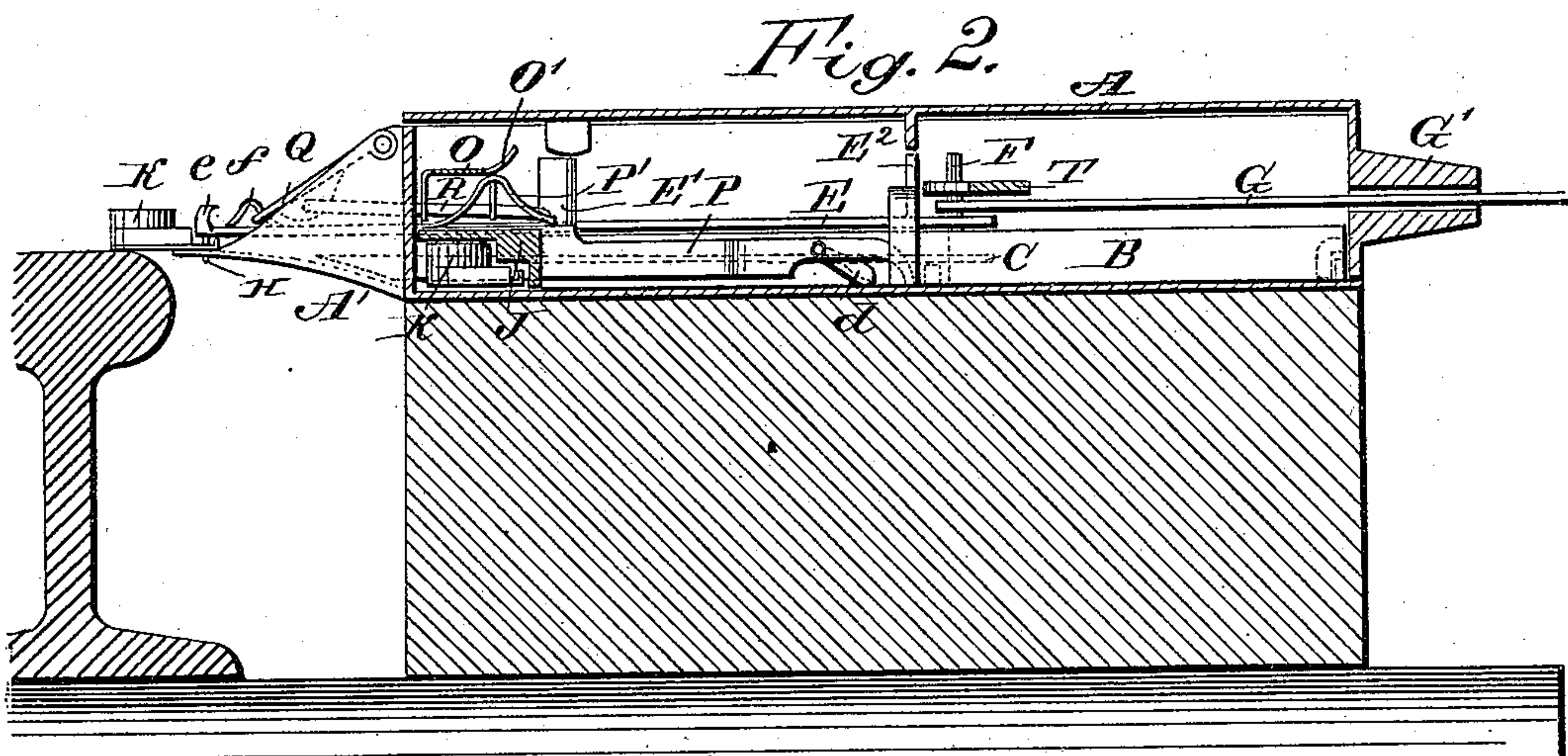
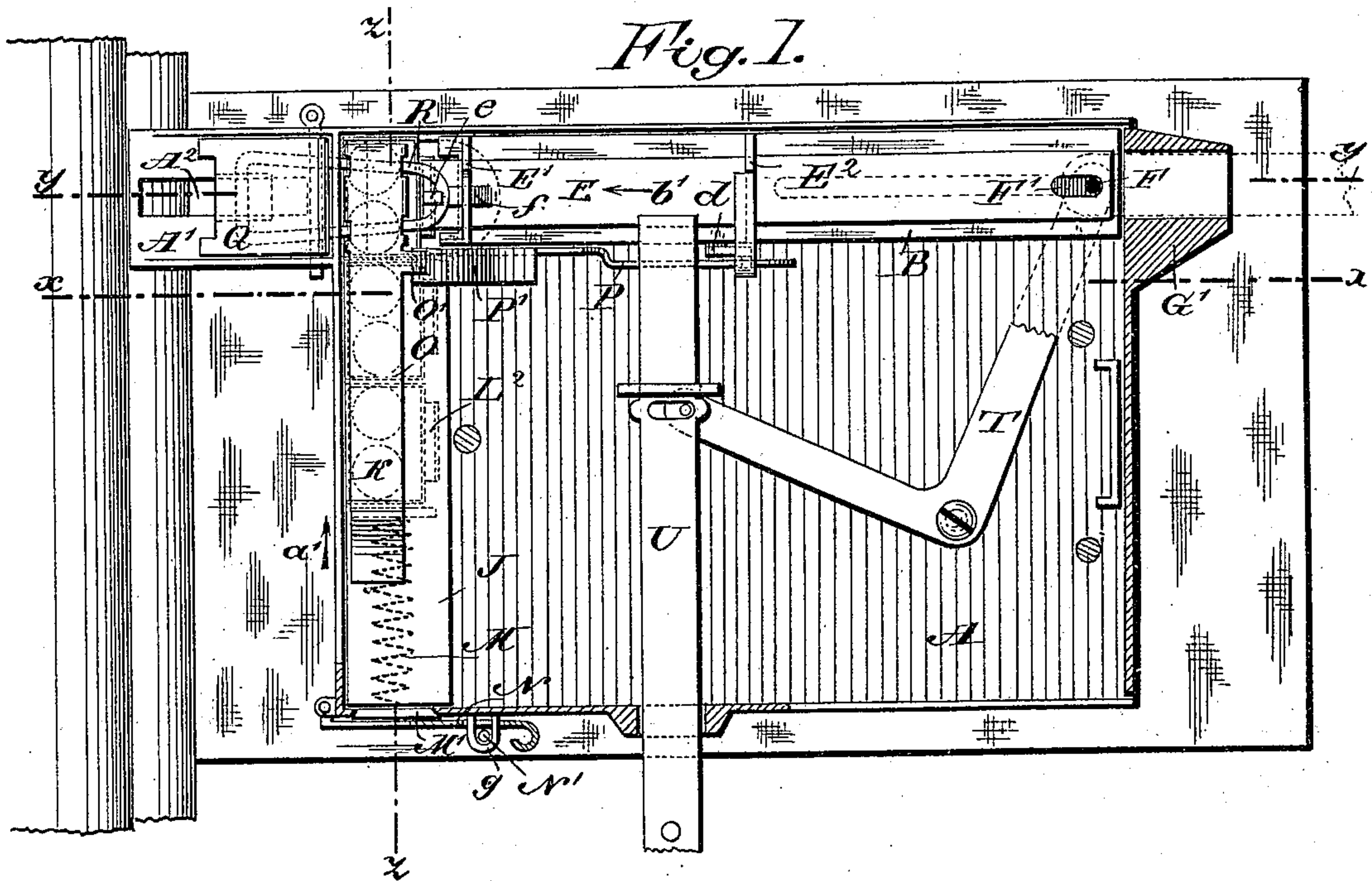
(No Model.)

2 Sheets—Sheet 1.

W. S. PHELPS.
FOG SIGNAL FOR RAILWAYS.

No. 287,157.

Patented Oct. 23, 1883..



WITNESSES:

Chas. Beyer
L. Bedgwick

INVENTOR:

W. S. Phelps

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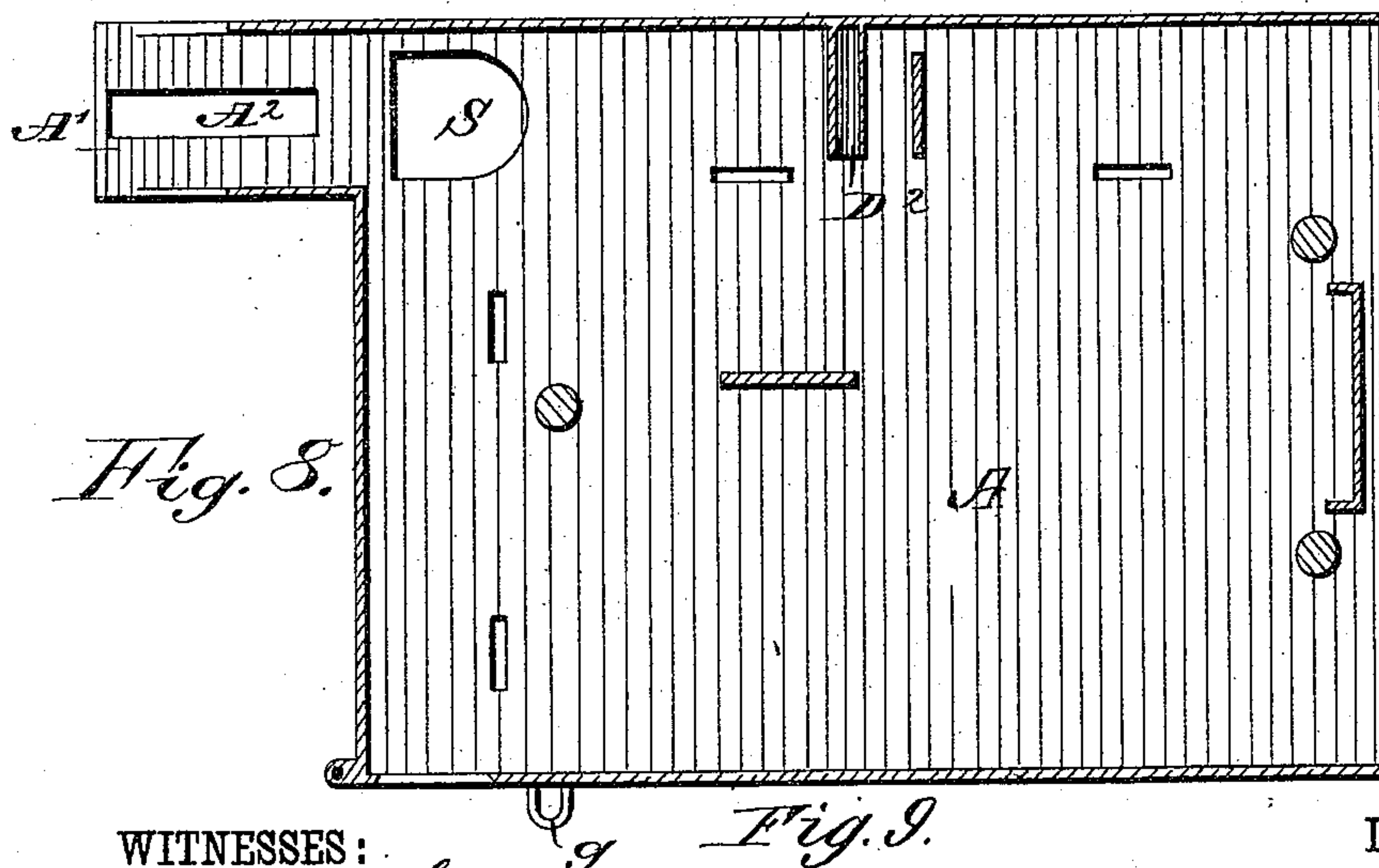
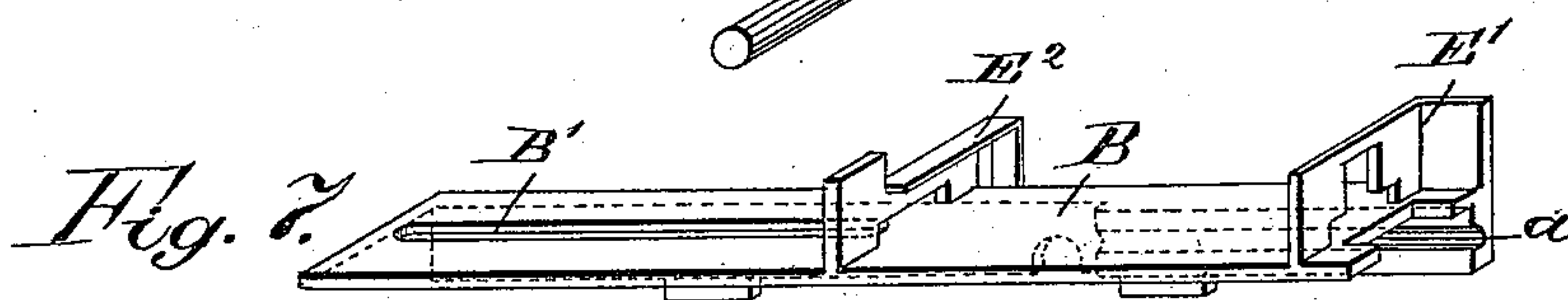
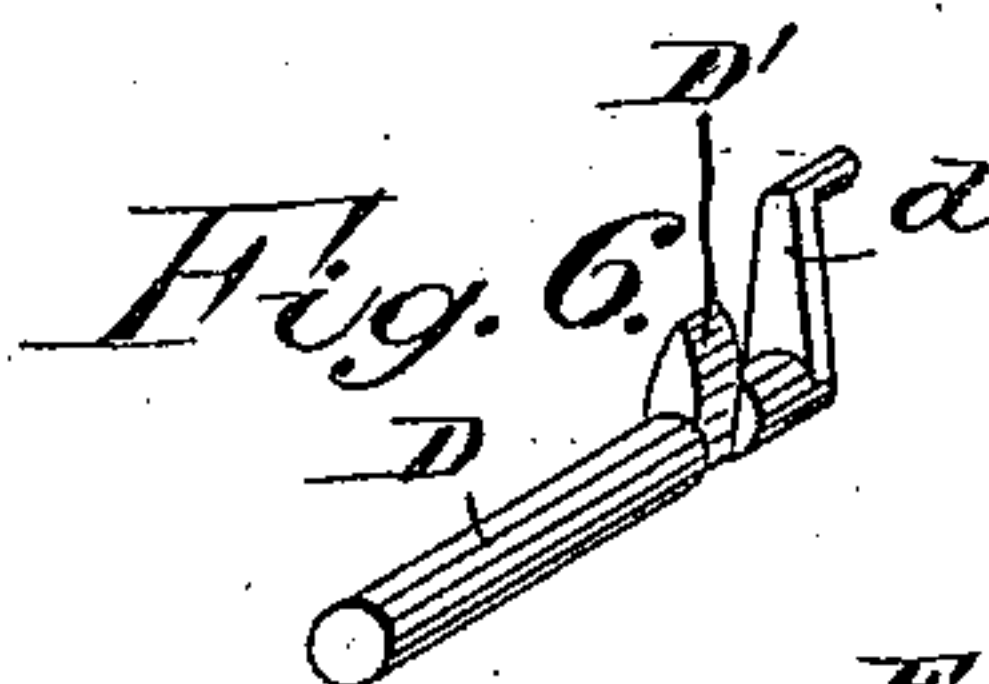
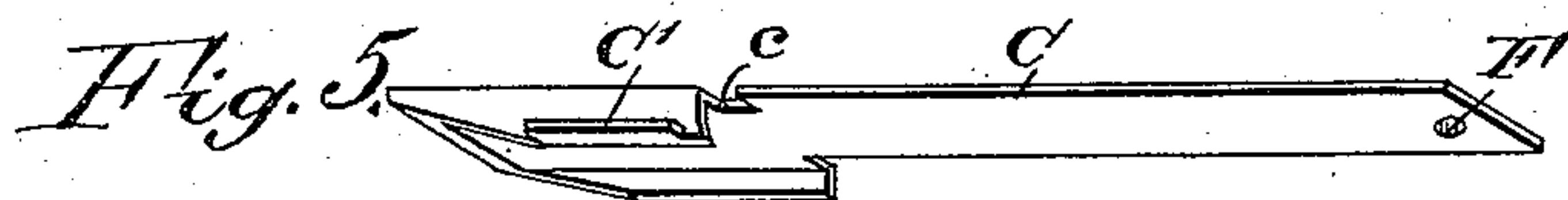
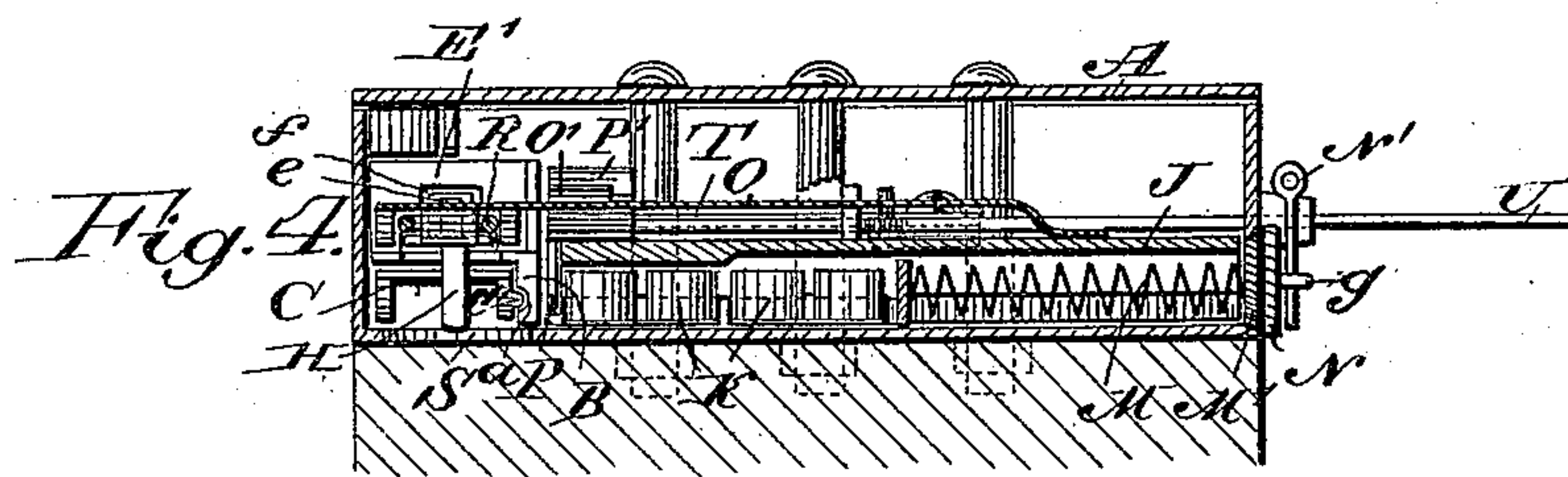
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2 Sheets—Sheet 2.

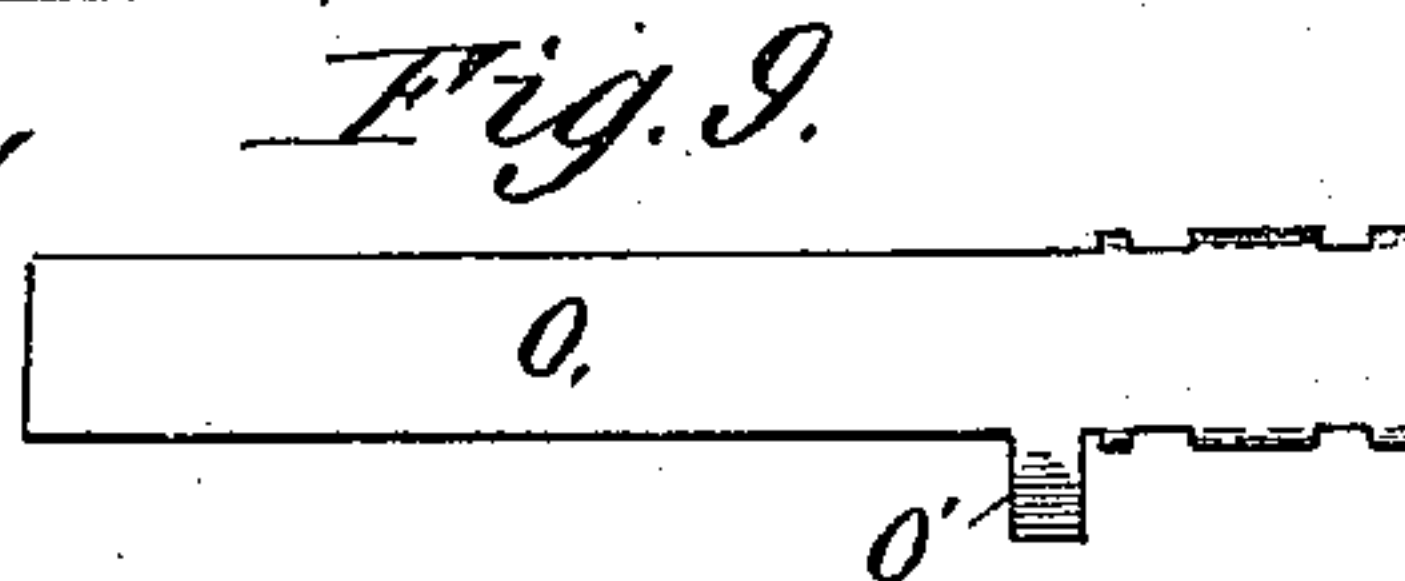
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WITNESSES:
W. S. Phelps
C. Sedgwick



INVENTOR:
W. S. Phelps
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UNITED STATES PATENT OFFICE.

WALTER S. PHELPS, OF WORTENDYKE, NEW JERSEY.

FOG-SIGNAL FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 287,157, dated October 23, 1883.

Application filed December 28, 1882. (No model.)

To all whom it may concern:

Be it known that I, WALTER S. PHELPS, of Wortendyke, in the county of Bergen and State of New Jersey, have invented certain
5 new and useful Improvements in Fog-Signals for Railways, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved device for placing torpedoes on the tracks of railways in case trains
10 are to be signaled and stopped during foggy weather or at night.

The invention consists in a box adapted to contain a series of torpedoes, and provided
15 with a sliding bar which grasps the torpedoes and carries them out of the box and holds them on the rail, to be exploded by the wheels of a passing train, to which bar torpedoes are fed automatically by a spring contained in the
20 above-mentioned box. The torpedoes are fed through a spout on the end of the box toward the rails, which spout is provided with a hinged gate, which is automatically locked in position when no torpedo is held on the rail.

25 The invention also consists in various details and parts of construction, as will be fully described and set forth hereinafter.

Reference is to be had to the accompanying drawings, forming a part of this specification,
30 in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of my improved railway fog-signal, showing the same in position in relation to the rail, the top plate being removed. Fig. 2 is a longitudinal sectional elevation of the same on line $x x$, Fig. 1. Fig. 3
35 is a longitudinal sectional elevation of the same on line $y y$, Fig. 1. Fig. 4 is a cross-sectional elevation on line $z z$, Fig. 1. Fig. 5 is a perspective view of the bottom sliding plate. Fig. 6 is a perspective view of a pin for operating the device for raising the spring-latch. Fig. 7 is a perspective view of the casing in which the plates slide. Fig. 8 is a horizontal
40 sectional view of the casing, showing the mechanism removed. Fig. 9 is a detail view of the holding-spring.

A flat box or casing, A, is provided at one end with an upwardly-inclined spout, A', the
50 outer end of which is horizontal, and the box A is secured on a suitable support or frame at the side of the track in such a manner that the

outer edge of the spout A' will be on a level with and adjoining to the top of one rail, the said box A being located at the outer side of
55 the rail.

At one of the longitudinal edges of the box A, a guide-casing, B, is held on the floor of the box, which guide-casing is provided on the inner surface of one of its sides with a longitudinal groove, a , for receiving a lateral
60 flange, C', projecting from a sliding plate, C, resting on the floor of the casing A, under the guide B. The plate C has its outer end beveled, as shown in Fig. 5, so that it will fit
65 against the inclined bottom of the spout A. In one edge of the plate C is provided a notch, c , into which a nib, D', passes, which is made integral with a short small shaft, D, which is
70 located below the plate C, in a groove, D², in the bottom of the casing A, so that the plate C can slide over the shaft D. At one end the shaft D is provided with a crank-arm, d . Two transverse guides, E' and E², are provided on
75 top of the guide B, and in the same a flat spring-bar, E, slides, which bar E rests on the guide-casing B.

The guide-casing B is provided with a longitudinal slot, B', through which a pintle, F, passes, which is secured on the rear end of the
80 sliding plate C. The said pintle also passes through a short longitudinal slot, F', in the rear or inner end of the flat bar E. The pintle F also passes through one end of a connecting-bar, G, which is guided in a slotted pro-
85 jection, G', at the rear end of the casing A, which bar G is connected by wires, ropes, rods, or other suitable devices with mechanism for operating the same or moving it in the direction of its length.

At its outer or front end, the bar E is provided on its upper surface with a hook, e , and directly behind the same with a beveled nib, f , and at the same end it is provided on its
90 lower surface with a downwardly-projecting prong, H. The spout A' is so located in relation to the sliding bar E and the sliding bar B that the outer end of the bar E can pass over the said spout, which is provided with a longitudinal slot, A², through which the prong
100 H can pass. At the end toward the rail the box A is provided with a transverse guide-casing, J, for receiving the torpedoes K, which are attached in pairs to a plate, L, provided

at the end toward the inner part of the casing with a ridge, L' , forming a groove, in which is a slot, L^2 , for receiving the end of the prong H.

5 The guide-casing J has a cross-section conforming to the end elevation or cross-section of the torpedoes, as shown in Fig. 2. A spiral spring, M, attached to an end plate, M' , is inserted in the guide-casing J, and presses the
10 torpedoes toward the guide-casing B. The said plate M' is held in place by a latch, N, which is locked by a pin, N' , passed through a staple, g , which passes through a slot in the latch N; or the end plate, M' , can be locked in
15 place by means of any other suitable device. On the guide-casing J a spring, O, is secured, the free end of which is directly behind the inner end opening of the spout A' .

The spring O is provided with a bent lug, O' , under which a beveled plate or projection, P' , is adapted to pass, which beveled projection is attached to a sliding bar, P, held on the side of the guide-casing B. The bent end of the crank-arm d is journaled in the said
25 sliding bar P. A gate, Q, is pivoted in the upper inner ends of the sides of the spout A' , and to its under side a bail, R, is pivoted, which projects through the inner opening of the spout into the casing. The free end of the
30 spring O is notched or recessed to fit closely over the said bail. Ordinarily the free end of the spring O is lowered to prevent the bar E from being moved in the direction of the arrow b' , and for that reason the free end of the
35 spring O must be raised before the bar E can be moved in the direction of the arrow b' . The bottom of the casing is provided with an aperture, S, directly behind the inner opening of the spout A' , for a purpose which will
40 be described hereinafter.

A bell-crank or elbow lever, T, pivoted on the bottom of the casing A, has one end connected with the pintle F and the other with a transverse sliding bar, U, which is connect-
45 ed with another apparatus of the kind described above, or with some other device for moving the said bar U in the direction of its length.

The operation is as follows: The guide-casing J is filled with cartridges or torpedoes K, united in pairs, as described above, and the spring M presses the same in the direction of the arrow a' , so that one double torpedo will always be behind the spout A' . As the double
50 torpedoes are pressed in the direction of the arrow a' the prong H passes into the grooves formed by the ridges L' , which grooves are open at the ends, and then the prong drops into the slot or hole L^2 in the bottom of the said groove,
60 whereby the double torpedo will be held on the end of the sliding bar E. The apparatus is now ready for action. If the sliding bar E and the plate C are moved in the direction of the arrow b' , either by means of the connecting-bar
65 G or by means of the bar U and the lever T, the plate C will be moved a short distance in the direction of the arrow b' before the bar E

is moved, as the pintle F moves through the slot F' in the bar E without acting on the said bar E. By the movement of the bar C in the
70 direction of the arrow b' the edges of the notch c , acting on the rib D' , turns the small shaft D and throws the arm d in the direction toward the spout, thereby moving the sliding bar P in the direction of the arrow b' . By
75 the movement of the bar P in the direction of the arrow b' , the beveled projection P' passes under the upwardly-projecting lug O' of the spring O, and thus raises the free end of the spring O. If the bar E is moved in the di-
80 rection of the arrow b' , the plate C will be moved forward across the mouth of the torpedo-casing, and thereby prevent another torpedo from being forced out of its casing, and the double torpedo held by the prong H on
85 the end of the same slides up the inclined bottom of the spout A' till it rests on the rail, as shown in Fig. 2. The prong H passes through the slot A^2 in the bottom of the spout. As the torpedo moves upward the prong H will
90 be forced through the slot L^2 until the under side of the bar E rests on the upper edges of the ridge L' , and at the same time the bottom surface of the double torpedo will be pressed firmly against the bottom of the spout A' .
95 The torpedo will thus be held very firmly and cannot be withdrawn or removed from the bar E. If a train passes, it will explode the torpedo and give the desired signal. If the torpedo is to be removed from the rail, the bar
100 E is withdrawn in the reverse direction of the arrow b' , and thereby the double torpedo will be drawn into the casing A again, in which it remains until it is to be used, when it can be projected from the casing by moving the bar
105 E in the direction of the arrow b' . If the torpedoes have been exploded by the wheel of a passing train, the bar E is withdrawn in the reverse direction of the arrow b' , and the empty
110 torpedo-casing drops through the opening S in the bottom of the box A, and the spring M presses a fresh torpedo under the end of the bar E, which fresh torpedo will be held by the same. If the bar E is withdrawn in the
115 reverse direction of the arrow b' , the plate C will move with it, and the notch c in the said plate C will swing the shaft D and the arm d of the same toward the rear of the casing, whereby the bent lug O' of the spring O will be permitted to move downward and to press
120 the bail R on the bar E, so that the hook e passes into the bail R, and thus prevents opening the hinged cover Q from the outside. The hinged cover or gate Q is opened automatically by the double torpedo as the same moves
125 out of the spout. The beveled projection f on the sliding bar E is used to assist in raising the door Q upon the withdrawal of the bar E, and when the said bar is in its normal position the bail of the door is held between the
130 hook e and the said incline f .

The apparatus is very reliable. The torpedoes are fed to the mechanism for placing them on the rail automatically. They are held

very firmly. There is no waste of torpedoes, for in case a torpedo is not used it is returned into the casing, and the apparatus cannot be tampered with. It can be operated by the same wires or rods that operate gates, danger-signals, semaphores, &c.

I do not limit myself to any particular kind of a box or motion, as it can be equally well operated by a vertical movement or other mechanism within the box.

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

1. In a safety fog-signal for railways, a box for containing torpedoes, provided with a spout having a slotted bottom, in combination with a sliding bar provided with a downwardly-projecting prong, substantially as herein shown and described.

2. In a safety fog-signal for railways, a box for containing torpedoes, provided with a spout having a slotted bottom, and a gate for closing said spout, in combination with a sliding bar provided with a downwardly-projecting prong, and means for automatically locking the gate, substantially as herein shown and described.

3. In a safety fog-signal for railways, the combination, with a box for containing torpedoes, of a bar for carrying the torpedoes out of the box and holding them on the rail, a spring in front of the end of the said bar, and of devices for automatically raising the said spring before the bar is projected out of the box, substantially as herein shown and described, and for the purpose set forth.

4. In a safety fog-signal for railways, the combination, with the box A, of the sliding bar E, for carrying the torpedoes out of the box and holding them on the rail, the gate Q, the bail R, pivoted to the same, and the hook *e* on the end of the bar E, substantially as herein shown and described, and for the purpose set forth.

5. In a safety fog-signal for railways, the combination, with the box A, of the guide-casing J, for receiving the torpedoes, the spring M, and the sliding bar E, for grasping the torpedoes, carrying them out of the box, and holding them on the rail, substantially as herein shown and described, and for the purpose set forth.

6. In a safety fog-signal for railways, the combination, with the box A, of the bar E, for carrying the torpedoes out of the box and holding them on the rail, of the spring O, and the sliding bar P, for raising the spring O be-

fore the bar E is moved out of the box, substantially as herein shown and described, and for the purpose set forth.

7. In a safety fog-signal for railways, the combination, with the box A, of the bar E, for carrying the torpedoes out of the box and holding them on the rail, of the sliding plate C, the shaft D, provided with the nib D' and the crank-arm *d*, the spring O, and the sliding plate P', connected with the arm *d*, substantially as herein shown and described, and for the purpose set forth.

8. In a safety fog-signal for railways, the combination, with the box A, of the bar E, the plate C, provided with a guide-flange, C', and with a notch, *c*, the shaft D, provided with a nib, D', and a crank-arm, *d*, the spring O, and the sliding plate P', substantially as herein shown and described, and for the purpose set forth.

9. In a safety fog-signal for railways, the combination, with the box A, of the guide-casing B, provided with guide cross-pieces E' E'', and a guide-groove, *a*, of the shaft D, provided with a nib, D', and a crank-arm, *d*, the sliding bar E, the plate P', and the spring O, substantially as herein shown and described, and for the purpose set forth.

10. In a safety fog-signal for railways, the combination, with the box A, of the guide-casing B, the plate C, the sliding bar E, for carrying the torpedoes out of the box and holding them on the rail, of the pintle F, and the connecting-bar G, substantially as herein shown and described, and for the purpose set forth.

11. In a safety fog-signal for railways, the combination, with the box A, of the guide-casing B, the plate C, the sliding bar E, for carrying the torpedoes out of the box and holding them on the rail, of the pintle F, the connecting-bar G, and the bell-crank lever T, and the transverse connecting-bar U, substantially as herein shown and described, and for the purpose set forth.

12. In a safety fog-signal for railways, the combination, with the box A, having the spout A', of the gate Q, the bail R, the sliding bar E, for carrying the torpedoes out of the box and holding them on the rail, the hook *e*, and the beveled projection *f*, substantially as herein shown and described, and for the purpose set forth.

WALTER SCOTT PHELPS.

Witnesses:

WILLIAM STEWART,
JAMES HENRY STOTT.