

(No Model.)

H. MORRIS.
RAILWAY SIGNAL.

No. 255,001.

Patented Mar. 14, 1882.

Fig. 2.

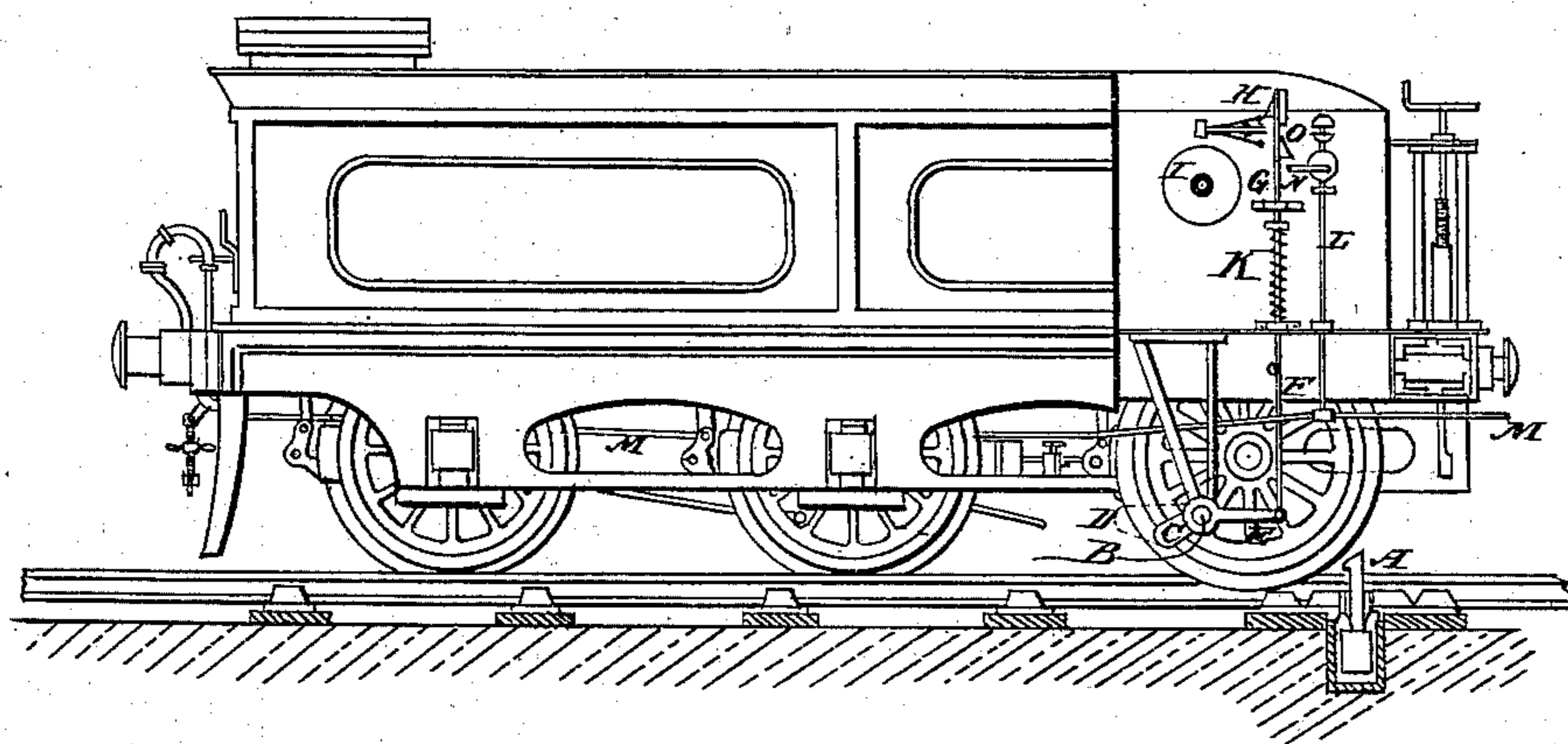


Fig. 2

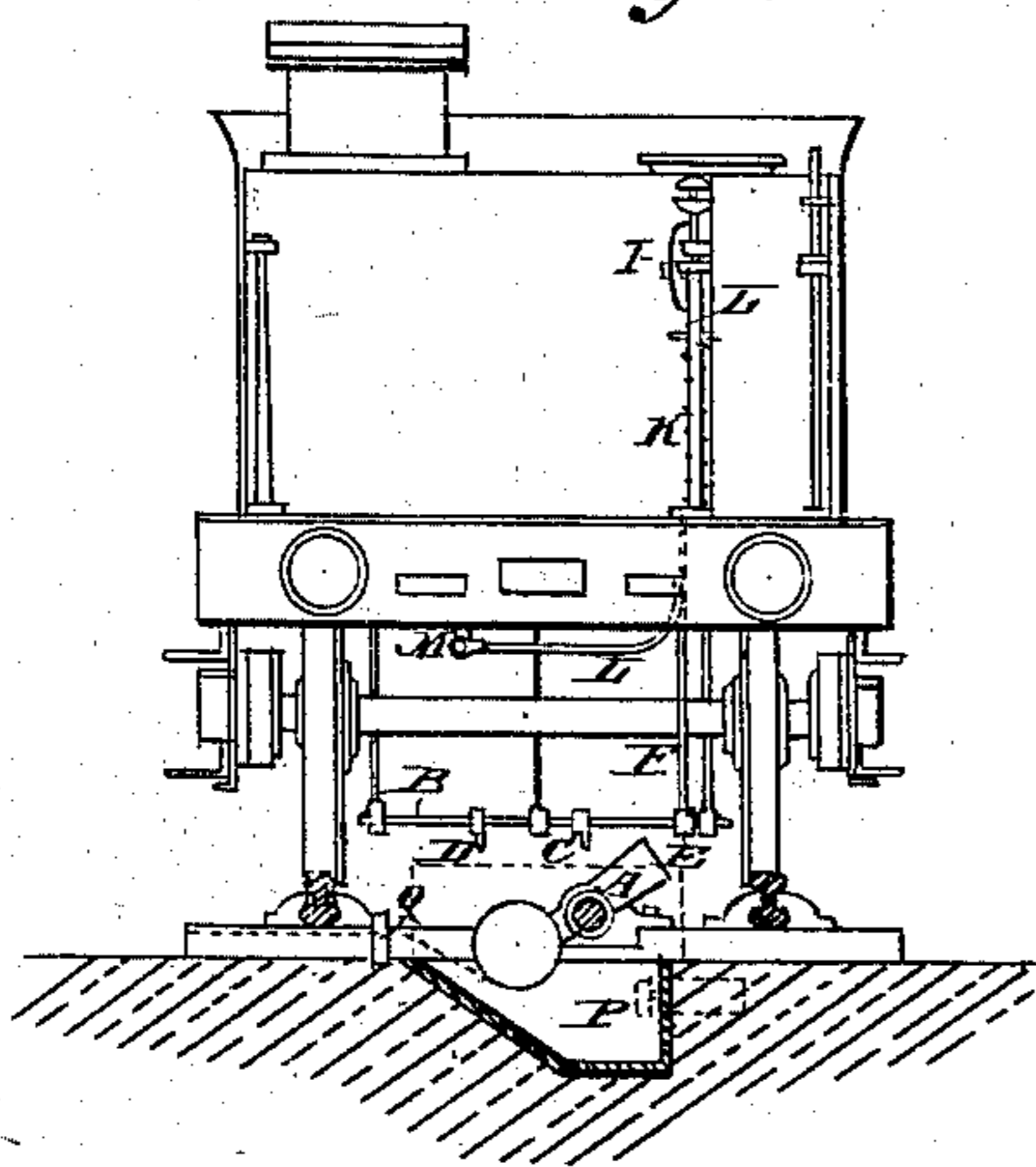


Fig. 2^a

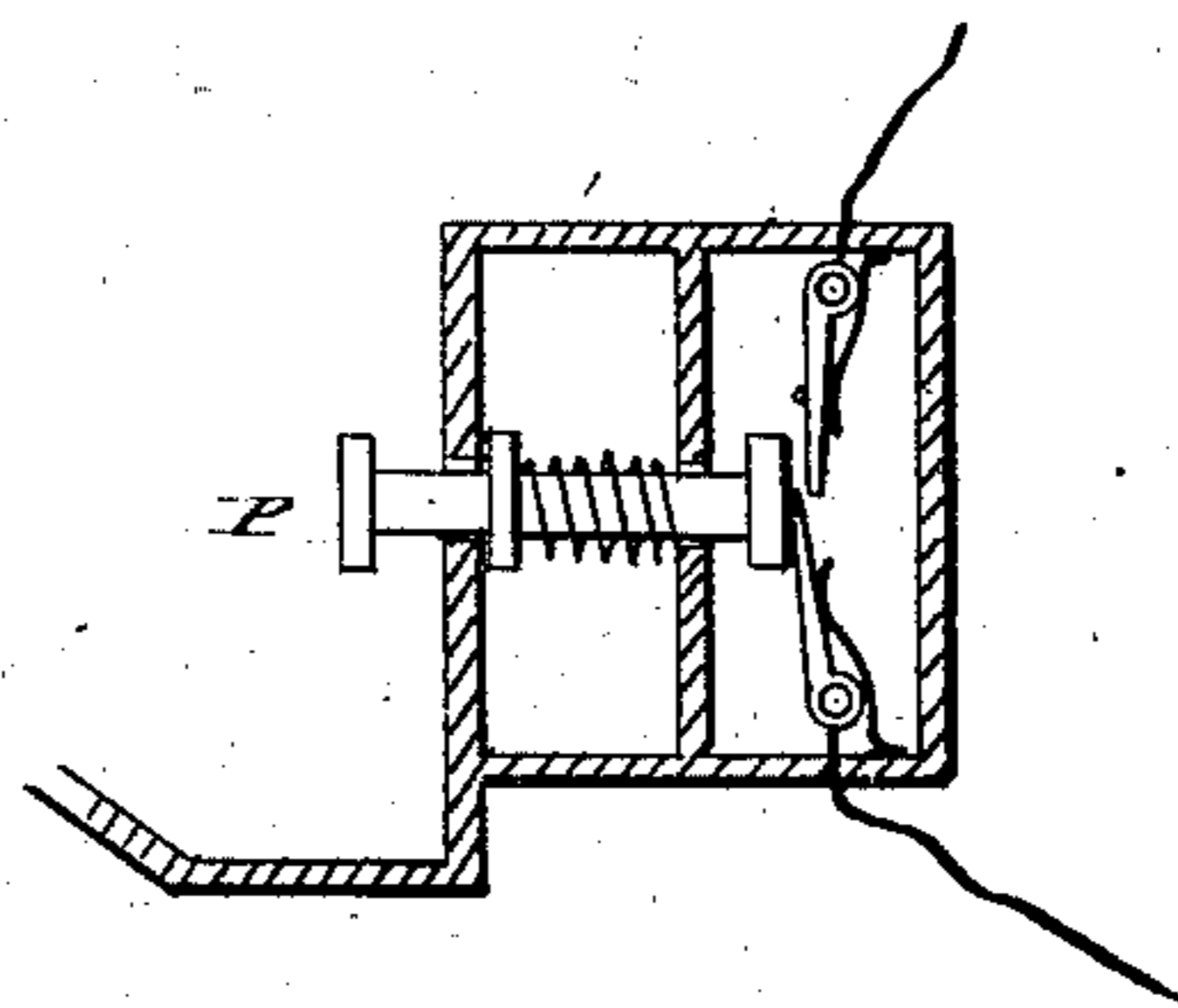


Fig. 3.

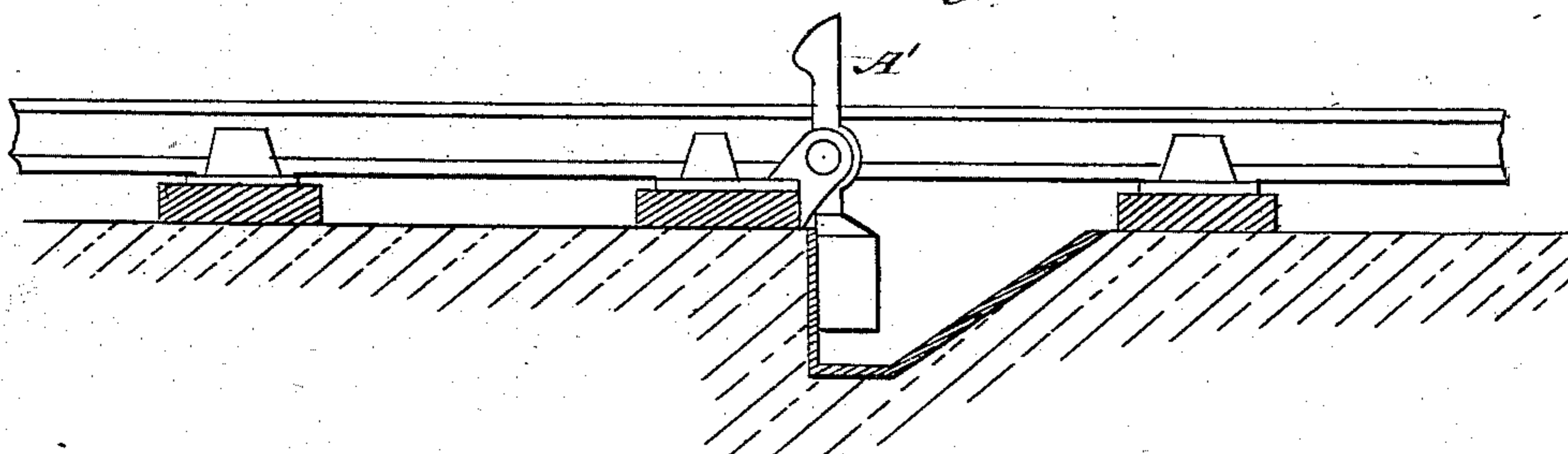
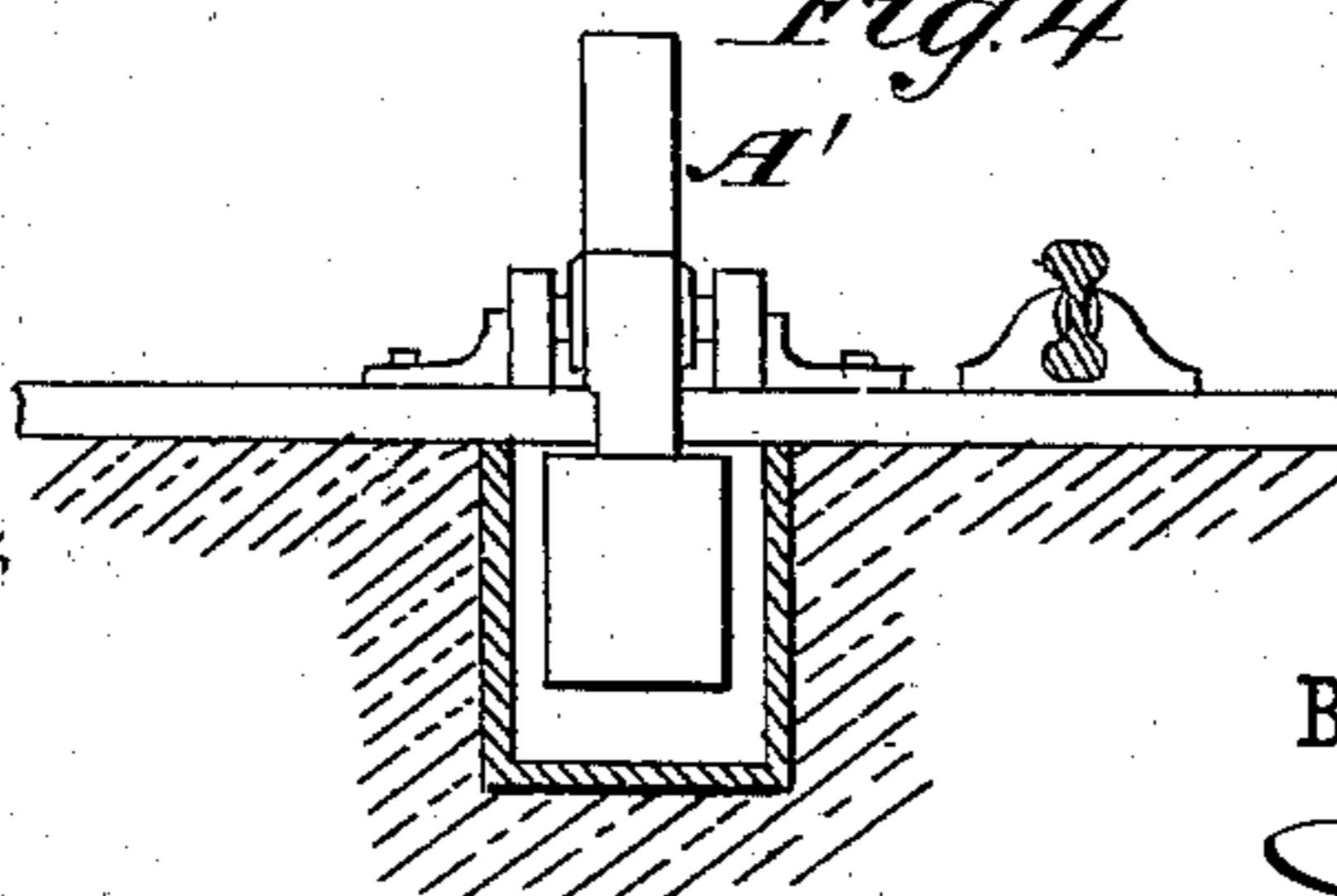


Fig. 4



WITNESSES :

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UNITED STATES PATENT OFFICE.

HENRY MORRIS, OF MANCHESTER, COUNTY OF LANCASTER, ENGLAND.

RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 255,001, dated March 14, 1882.

Application filed November 28, 1881. (No model.) Patented in England April 26, 1881.

To all whom it may concern:

Be it known that I, HENRY MORRIS, of Manchester, in the county of Lancaster, England, gentleman, have invented a new and useful Improvement in and connected with Railway-Signaling, (for which I have obtained a patent in Great Britain, No. 1,796, bearing date April 26, 1881,) of which the following is a specification.

10 The objects of my invention are to give a simple and efficient means of signaling between the signalman and the engine-driver by the use of a bell or gong with or without an air-whistle conjointly with the application
15 of the brake when air-brakes are used, whether pressure or vacuum, or when electric brakes are applied, whereby the use of fog-signals in foggy weather may be rendered unnecessary, the cost of them, and also the cost of plate-layers' wages for laying them, with all the attendant inconveniences, may be saved; and
20 further, the use of the distance-signal and cost of maintenance may in many cases be dispensed with; also, to test automatically the bell or gong apparatus and the brake, and to indicate to the man in the signal-cabin if his apparatus and connections are in order. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

30 Figure 1 is an elevation, partly in section, and Fig. 2 is an end view, of a tender to which my invention is applied. In Fig. 1 the swinging arm is shown in the position it would occupy when at "danger" or "stop," and on Fig.
35 2 it is shown at "clear." Figs. 3 and 4 are views of a swinging arm mounted so as to swing parallel to the rails.

40 A is the swinging arm. This arm, which is placed out of the center to avoid contact with any loose couplings, is connected with the signal-wire by means of a chain fastened to its counterpoise, as shown on Fig. 2, passing over the guide-pulley Q and under the rail to the side of the line, and is worked by a lever in
45 the signal-box in the ordinary way.

On the shaft B under the tender the tappet C is fixed at such an angle as to glide over the inclined surface at the top of the arm A when it is in a vertical position, by which movement

the crank E, also fixed on the shaft B, is depressed, and by means of the connecting-rod
50 F the rod G is pulled down, so that the spring-catch H, in clearing the handle of the hammer, causes a sharp blow to be struck on the gong I. Immediately the tappet C has cleared the
55 arm A the rod G, by the action of the spring K and the weight of the tappet, resumes its position with the spring-catch above the handle of the gong-hammer.

The arrangement for the application of the
60 pressure or vacuum brake is as follows: The pipe L is connected with the brake-pipe M under the tender, and in this pipe there is a valve opened or shut by the handle N. A second catch, O, on the rod G, depresses the handle
65 of the valve N when the gong is struck, and opens the valve and puts on the brake. When the handle N is pulled down by the catch on the rod G the valve remains open
70 until the driver or stoker lifts up the handle N, and until this has been done the whistle at the top of the pipe L is blown.

The size of the valve may be so arranged as to cause a gradual application of the brake; and if the brake is not wanted at the distance-
75 signal, the valve may be instantly closed after imparting to the driver the knowledge whether his brake is in order or the reverse. The air valve and whistle and the gong or bell may be placed in any convenient position, and, if de-
80 sired, the apparatus might be adapted to sound the steam-whistle.

In the case of electric brakes it is evident that the action of the rod G may be used in the simplest manner in forming or breaking
85 the circuit, a small lever being made to act upon the conducting-wires in place of the valve-handle N, and the bell or gong may be sounded by electricity.

As an automatic test of both the gong ap-
90 paratus and the brake, I propose to place on the departure side of every terminus and even at the locomotive-sheds an arm, A', (see Figs. 3 and 4,) which swings parallel with the rails, and to which no wire is attached. This arm,
95 which has a light counterpoise, always remains in a vertical position, except in the case of shunting, when it allows the engine to back

up to the train; but in leaving the station the gong is struck and the brake applied. It is therefore necessary that the stoker should have his hand on the handle of the valve N, which he immediately closes as the gong is struck.

If preferred, the arms for signal purposes may also be made to swing parallel with the rails, as in Figs. 3 and 4, instead of at right angles, as shown in Figs. 1 and 2, and may even be placed outside the rails with a corresponding arrangement on the tender.

The arms may be boxed over, as shown by the dotted lines on Fig. 2, the box having a slot in the top to allow of the free action of the arm.

A second tappet, D, is placed on the shaft B, to provide for cases in which the tender goes before the engine.

As an additional security an electric repeater may be used by having an indicator placed over the lever in the signal-cabin, which shows a red disk when the line is blocked and white when the line is clear. The dotted lines at P, (see Fig. 2,) and full lines, Fig. 2^a, show the position of a box containing a stud which serves to break or form the contact in an electric circuit between the signal-arms and the signal-cabin. When the road is "clear" the stud, by means of a spring, is made to project slightly into the open space in which the counterpoise swings, and in so doing severs the contact. When the arm is in a vertical posi-

tion the weight of the counterpoise presses on the stud, and so again forms the contact, and at once shows the red disk in the signal-cabin.

By the use of my invention a great saving of time and money is effected, and the employment of the swinging arms at every terminus and at the locomotive-sheds almost entirely obviates the danger of the brakes being out of order without the knowledge of the driver.

I claim as my invention—

1. The combination, with the swinging arm A, having an inclined surface on top and connected with a lever in the signal-box, of the shaft B, having a tappet, C, and crank E, the rods F G, the spring-catch H, and the spring K, all arranged substantially as and for the purpose specified.

2. The combination, with the rod G, having a catch, O, and arranged in a signal mechanism, substantially as described, of the connected pipes L M and a valve having the handle N, whereby the brake may be operated as described.

3. The combination, with a railroad-track and a signal and brake mechanism on a locomotive, of a swinging arm, A', arranged on the departure side of a terminus and parallel with the rails, as and for the purpose specified.

HENRY MORRIS.

Witnesses:

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