(No Model.)

W. M. PEASE.

RAILWAY ALARM MECHANISM.

No. 313,614. Patented Mar. 10, 1885.

Fig. 2.

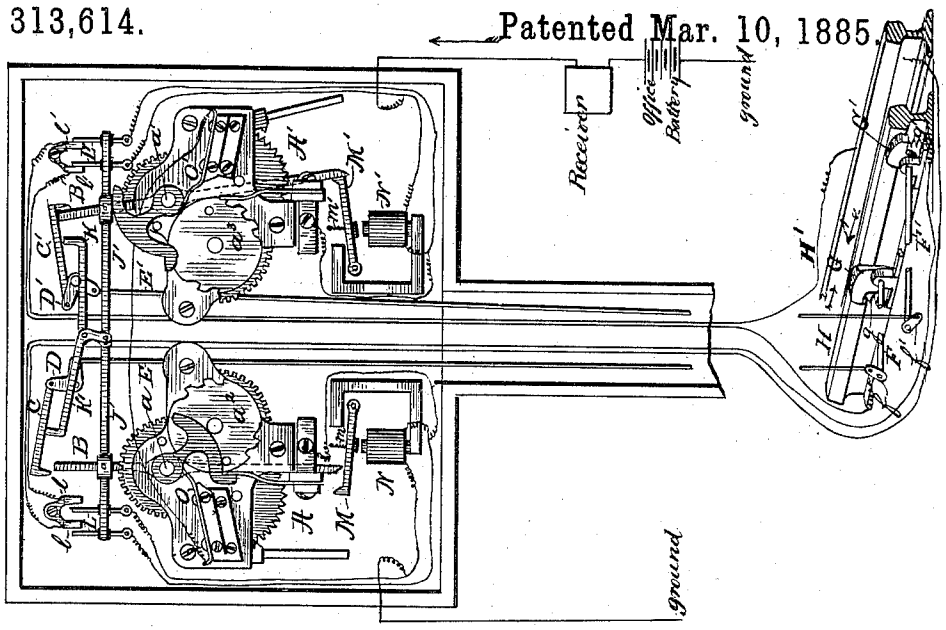
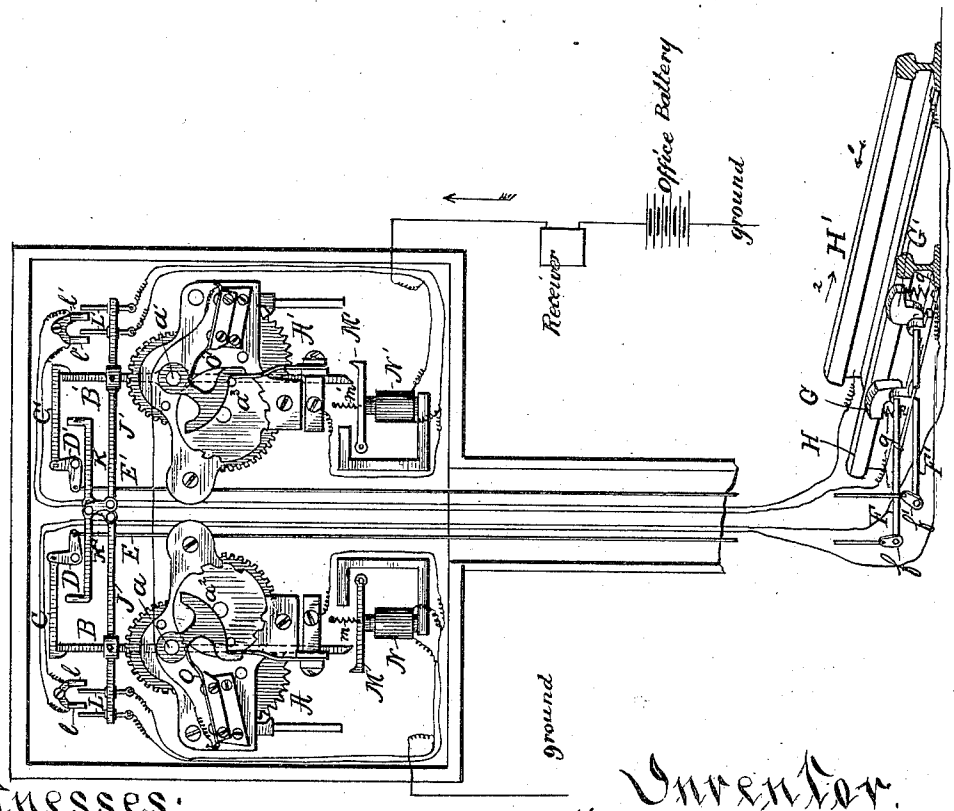


Fig. 1.



Witnesses:
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WILLIAM M. PEASE, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO LENOX SIMPSON, OF SAME PLACE.

RAILWAY-ALARM MECHANISM.

SPECIFICATION forming part of Letters Patent No. 313,614, dated March 10, 1885.

Application filed April 24, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. PEASE, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful improvements in devices for working the alarm mechanism in a system of automatic railroad-train reporting, described in a contemporaneous application for patent filed by me, of which the following is a full, clear, and exact description.

The object of my invention is to provide means whereby the action of a car or train in passing over an insulated section of railroad-track may, first, wind up an alarm mechanism; second, lock the mechanism for as long a period as the train may remain upon said section of track; third, throw out of action a second alarm mechanism adapted to be operated by a train passing in an opposite direction; and, fourth, release said alarm mechanism when the train has passed beyond said section of track.

The invention consists in the hereinafter-described means for attaining said object.

Figure 1 represents my improvement while in a state of rest, shown partly in section, partly in front elevation, and partly in perspective; and Fig. 2, a like view while in operation.

Similar letters of reference indicate corresponding parts in the different views.

A A′ are two alarm mechanisms, which, so far as the systems of clock-work are concerned, are substantially similar to those in general use for fire-alarm purposes. *a a′* are the winding or main shafts of said mechanisms, and a^2 a^3 are the serrated disks by which the breaks are made in the circuit.

In this invention the alarm mechanisms are actuated from and said disks revolve in opposite directions, and the serrations in the two disks are adapted to deliver oppositely-reading reports. Thus disk a^2 reports the number 23, and disk a^3 the number 32, and so on. The object of this will be hereinafter obvious.

Secured to shafts *a a′* are the levers B B′, and over the upper extremities of the latter hooks C C′ are adapted to catch. The inner extremities of said hooks are pivoted to bell-crank levers D D′, whose free ends are attached to vertical rods E E′. Said vertical rods extend downwardly to the earth, and are there connected with cranks *f f′*, carried by the rods F F′. The free extremities of said rods F F′ have bearings in or adjacent to the sides of the rail H, and carry angle-levers G G′. The upper outer extremities of the latter extend normally a short distance above the top of the rail, and are provided with springs *g g′* of such strength as to prevent said levers from being depressed by the weight of a hand-car passing over the track. With the foregoing construction it will be seen that when a train strikes one of the levers G G′ the corresponding rod, F or F′, will be partially revolved, and by means of crank *f* or *f′* draw downward one of the rods E or E′. Said rod acting through the medium of bell-crank lever D or D′ will draw inward one of the hooks C or C′, carrying with it the proper lever B or B′, and thereby wind up the appropriate alarm mechanism.

Pivoted to each of the levers B B′ are transverse bars J J′. The inner extremities of said bars are pivoted to the lower ends of crank-levers K K′. The latter are fulcrumed above their points of joinder with said transverse bars, and the free extremity of lever K extends outwardly and upwardly until its end rests a short distance beneath hook C′, while the extremity of lever K′ rests in like manner beneath the hook C. The object of this construction is that at the same time that lever B is actuated and its attached clock-work wound up, the hook C′, by means of transverse bar J and lever K, may be thrown upward out of its line of interference with lever B′, and the latter be cut off from operation.

To the outer ends of the transverse bars J J′ are attached insulated switch-levers L L′, and situated above and inwardly from said switch-levers are insulated fixed contact-points *l l′*. When either one of the transverse bars is moved inwardly, the switch-levers thereto attached are brought in contact with the points. The lower ends of the levers B B′ extend somewhat below the bottom of the clock-work mechanism, and situated beneath said lower ends are armatures M M′. The latter are hinged or pivoted at their inner extremities, and so situ-

ated that when the levers are operated in the manner described and the armatures are raised said levers will be locked in place until the descent of said armatures. Beneath the armatures are electro-magnets N N′, and above said armatures and connected therewith are springs *m m′*, whose function it is to elevate the armatures when released by the magnets. The coil of each magnet is connected upon one hand with the line-wire and one of the switch-levers, and on the other hand with the remaining switch-lever and the clock mechanism. A wire connects the two insulated tongues O O′, which work upon the circuit-breaking disks a^2 a^3. Wires also connect the two insulated rails H H′ of the track with the points *l* and *l′*, respectively. It may be added that the rails H H′, forming the insulated section of track hereinbefore referred to, are cut off from electrical connection with the rest of the track by separating their extremities from the juxtaposed ends of the adjoining rails, and using chairs for the support of each of said extremities instead of securing them with the ordinary fish-plate. The normal path of the electric current is from the office-battery to the receiving-instrument, thence to the magnet N′, thence to the metal frame of the mechanism A′, thence to disk a^3, thence to tongue *o′*, thence to tongue *o*, thence to disk a^2, thence to metal frame of mechanism A, thence to magnet N, and thence to the ground or next alarm-box, as the case may be. When a train passing in the direction of the arrow 1 depresses the lever G′, a double effect is obtained, viz: First, the alarm mechanism is wound up and the switch-levers L′ and points *l′* forced in contact; second, the electric current is diverted from its normal path through the magnet N′, and passes instead from the line-wire to one of the switch-levers L′, thence to one of the points *l′*, thence to rail H′, thence through the car wheels and axles to rail H, thence to the other point *l′*, thence to the other switch-lever L′, thence to the metal frame of the mechanism A′, and thence on as before. The effect of this change in the path of the current is to liberate the armature M′, which thereupon flies upward and prevents the return of the lever B′ to its normal position, thus locking the mechanism A′. As long as a single pair of wheels remains upon the insulated rails H H′, the magnet N′ continues short-circuited and the mechanism A′ remains locked; but when the last pair of wheels has left the insulated rails, connection between rails H H′ is broken, and the current has to seek its normal path—*i. e.*, from the line to magnet N′, and thence to the frame of mechanism A′, and so on, as heretofore described. The effect of this is to energize magnet N′, which draws down armature M′ and releases lever B′. The alarm mechanism A′ is thus freed and allowed to operate. By said mechanism the disk a^3 is revolved, and the breaks in the circuit corresponding to the number 32 are made. Simultaneously with the winding up of the before-mentioned mechanism A′ the lever C is lifted and the alarm mechanism A thereby disconnected from the lever G until the train has passed beyond rails H H′. In the same manner, when the train passes in the direction of the arrow 2, the mechanism A is wound up and locked until the train has passed beyond the insulated rails, when said mechanism is released and its disk a^2 causes breaks in the current corresponding to the number 23. During the operation of mechanism A the mechanism A′ remains disconnected from the lever G′, in the manner already described.

Having thus described my invention, what I claim is—

1. The combination, with the alarm mechanisms A A′, provided with levers B B′, and the hooks C C′, adapted to be operated as described, of the transverse bars J J′ and crank-levers K K′, as and for the purposes set forth.

2. The combination of the alarm mechanism A, provided with lever B, insulated rails provided with lever G, mechanism connecting said levers B G, the magnet N, having armature M, the switch-lever L, attached to said lever B, the contact-points *l*, a circuit, and electrical connections, substantially as described, whereby said alarm mechanism is wound up, locked, and released, in the manner set forth.

3. The combination of the alarm mechanisms A A′, provided with levers B B′, the hooks C C′, bell-cranks D D′, rods E E′, cranks *f f′*, rods F F′, levers G G′, bars J J′, levers K K′, switch-levers L L′, points *l l′*, magnets N N′, armature M M′, the circuit, and its connections, substantially as and for the purposes described.

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