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TRAIN-ROBBER ALARM.

SPECIFICATION forming part of Letters Patent No. 525,082, dated August 28, 1894.

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To all whom it may concern:

Be it known that I, MAX Z. LEVY, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Train-Robber Alarms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to devices for notifying the express messenger, the passengers, and the train-men not occupying the cab of the engine and the tender of the train, of the presence of train-robbers, and it consists in the peculiar construction and combination of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1. represents a side elevation of a train, provided with a device constructed in accordance with my invention. Fig. 2. is a diagrammatic view of the same. Fig. 3. represents a vertical longitudinal sectional view of a casing located beneath the floor of the cab, and containing a battery and switch mechanism. Fig. 4. is an inverted plan view of the removable platform and the contact-plate thereof, carried by the switch mechanism, and showing the casing in section. Fig. 5. is a vertical section of the front end of a car, a box and the signal apparatus carried thereby, and the apparatus for controlling the door of said box. Fig. 6. is a vertical sectional view of the conduit for the electrical conductor. Fig. 7. is a longitudinal sectional view of the floor of the engine-cab and the casing therebeneath, and showing a modified form of switch-mechanism, and Fig. 8. is a vertical sectional view showing a still further modification for making and breaking the circuit.

Previous to my invention, there has been no means whereby the express messenger, passengers and train-men not occupying the cab of the engine and the tender, might be instantly notified of the presence of train-robbers by the engineer or fireman of the train, so as to prepare for defense, secrete valuables, &c., and it is obvious that such an invention is of incalculable value in districts frequented by train-robbers.

The object of my invention is to provide means of communication for this purpose,

which is positive and reliable in operation; which is simple, durable, and inexpensive of construction, and which cannot get out of order. That my invention provides such means of communication, will be apparent upon the perusal of the following detailed description, taken in connection with the drawings before alluded to.

Referring to said drawings, 1 designates the engine, 2 the tender, and 3 the coaches of a train, which may be for the conveyance of passengers or freight.

4 designates a pair of pipes or conduits, which are secured longitudinally of and to the under side of said coaches and tender, and extending through and insulated from said conduits, are electric conductors or wires 5 and 6. These conduits, of course, may be located upon or in any other suitable part of the car, or, if found desirable, they may be entirely dispensed with, and wires insulated in the ordinary manner used in lieu thereof.

7 designates a box or casing, which is secured to the under side of the floor of the engine-cab, and the upper side of this box or casing is open, and surrounds an opening on the floor of the cab. An electric battery 8 is located within said casing, and the front end of the conductor 6 leads to the negative pole thereof.

9 designates a platform, which fits snugly within the opening in the floor of the cab, and this platform is supported by vertically arranged springs 10, which are supported, in turn, by brackets 11, secured to the casing in any suitable manner. To prevent the springs 10, which exert an upward pressure, from forcing the platform above the level of the floor of the cab, the corresponding margins of said platform and opening in which it fits, are stepped, as shown at 9^a. Secured to the under side and center of this platform, is a metallic plate 12, to which is connected the front end of conductor 5. Arranged a slight distance from, and vertically beneath the metallic plate 12, is a similar plate 13, which is supported by and insulated from the brackets 11, and this plate 13 is connected through the medium of the wire 5^a with the positive pole of the battery. Secured to the rear side of the casing 7, and also to the opposite ends of the pipes or conduits 4 of each car, is a

casting provided with a spherical head 14, and each of these spherical heads is detachably clasped by a flexible tube 15, and certain of these flexible tubes carry spring-clasps 16, which are provided or formed with recesses 17, which engage or clasp the correspondingly-shaped heads of the links 18, which are carried by the adjacent ends of the flexible tubes 15 of the next or adjacent car, and at the rear end of the last car a metallic strip 19 connects the conductors or wires 5 and 6. This strip 19 is, of course, detachable, so as to allow for a greater or less number of cars in the train. By this construction, it will be apparent that should the train part for any reason, the spring-clasp 16 will yield and allow the correspondingly-shaped heads 18, engaging the recesses 17, to be withdrawn; thus breaking the circuit without injuring or destroying the electric conductors 5 and 6, because when the separated portions of the train are again brought together the heads 18 can be resecured in position, and the electric conductors will then be in operative position, and ready for action.

From the construction just described, it will be apparent that by depressing the platform 9 sufficiently to cause contact between the plates 12 and 13, the electric circuit will be completed, and in order that the completion of this circuit may be utilized to notify the passengers and employes on the train of the presence of train-robbers, I have provided the following construction. A box 20 is secured vertically in any conspicuous position at the front end of each coach and the express car, preferably above the door, and normally closing the upper and open end of said box, and adapted to open upward by reason of the pressure of springs 21, bearing against its under side, is the hinged-door 22; said springs being secured to the box in any suitable or preferred manner. The door, near its lower and front margin, is provided with a depending metallic loop 23, which is engaged when the door is closed by the bolt or arm 24 of an armature-lever 25; said armature being held yieldingly away from the poles of the electro-magnet 26, by the spring 27, which is secured at its opposite end to the box, as shown, and this spring, when the circuit is broken, is prevented from moving the armature lever beyond the influence of the magnet by the standard or stop 28. Secured in the box, is an electro-magnet 29, and held yieldingly away from the poles of said magnet by the spring 30, is the armature 31, which is limited in its outward movement by the metallic standards 32 and 33. The wire or conductor 6, extending rearward from the battery, is electrically connected to the magnet 26, and from said magnet leads to the metallic post 32; thence, when the circuit is completed, the current passes through the armature 31 and the post 33, to the electro-magnet 29, and from said magnet the wire extends rearwardly, as clearly shown in Figs.

2 and 5. Carried by the armature 31, is a bell-clapper 34, which is adapted, by contact with the bell 35, to sound the alarm simultaneously with the opening of the trap-doors. The door of each box has printed upon its under side, in bold characters so as to be readily observed, such words as "train robbers," "robbers in train" or their equivalent, and these words, when the doors are elevated to their vertical position, as shown in dotted lines, Fig. 5, are presented toward the passengers.

From the foregoing, it will be apparent that immediately the platform 9 is depressed, and contact made between the plates 12 and 13, the circuit will be completed to energize the electro-magnets 25 and 31, respectively, the attraction of the armatures 25 will withdraw the bolts 24 from the loops 23, and allow the springs 21 to force the doors 22 to the position shown in dotted lines, Fig. 5, and the energization of the magnets 29, attracting their armatures 31, breaks the circuit, and causes the clapper to come in contact with the bell and sound the alarm. Immediately the armatures 31 are attracted by the electro-magnets 29, the circuit is broken, because the armatures form a part of the conductor 6, and immediately this takes place the springs 30 retract the armatures, and pull the clapper from the bell until said armatures again contact with the posts 32 and 33. Immediately this takes place, the circuit is again completed, the armatures attracted and the bell sounded. It will be observed, from this operation, that as long as the platform 9 is depressed, the alternate making and breaking of the circuit by the vibration of the armature 31 will cause a continuous alarm, so that the attention of the passengers will be attracted immediately to the front end of the car, and they will thereby be notified of the presence of train-robbers in time to prepare for defense or secrete their valuables.

In order to prevent the accidental completion of the circuit, which would cause endless annoyance and trouble to the passengers by sounding the alarm and opening the doors 22, I provide devices the preferred one of which I will now proceed to describe. A metallic frame comprises the approximately U-shaped portion 36; the transversely extending portion 37, which connects the front ends of the arms of the U-shaped portion, and projects laterally beyond said arms; the longitudinally extending and parallel bolts 38, at the opposite ends of the portion 37; the longitudinal arm 39, projecting forwardly from the middle of the transverse portion 37; and the longitudinally extending arm 40, projecting rearwardly from the middle of the bridge of the U-shaped portion 36. This frame is arranged against the under side of the platform 9, and the bolts 38 extend through the guide-loops 41, depending from the under side of said platform. A pair of bolts 42 are pivotally connected to the under side of the platform

9, and, extending transversely thereof, have their slotted inner ends pivotally mounted on the pin or bolt 44, carried at the rear end of the arm 40, and these pivotal bolts, outward of their pivotal point 43, are bent rearwardly at right angles, as shown at 45, and have their free ends engaging and resting upon the clips or catches 46, secured to the bottom of the cab, and adjacent to the rear margin of the platform 9. When these plates are engaged with the clips or catches 46, the forward ends of the bolts 38 of the frame engage the loops or catches 47, depending from the inner side of the floor of the cab adjacent to the front margin of said platform. The forward end of the arm 39 of said frame is pivotally mounted upon a bolt or pin 48, which passes through the longitudinal slot 49 of a lever 50, projecting upwardly through a slot in the floor of the cab, and adapted to operate in a vertical plane. This lever is pivotally mounted at its lower end at 51, upon a bracket 52, carried by the casing 7. From this construction, it will be apparent that when the bolts 38 and 42 engage and rest upon the catches 47, and the clips or catches 46, respectively, the engineer or fireman may step or stand upon the platform 9, without any possibility of completing the circuit and alarming the passengers, but by operating the lever 50 in the direction indicated by the arrow, Fig. 3, the frame is moved bodily to the position shown in dotted lines, Fig. 4, and withdraws its bolts 38 from engagement with the catches 47. The movement of the frame also, and simultaneously, causes the pivotal operation of the bolts 42, to the position shown in dotted lines in the same figure, so that they shall be disengaged from the clips or catches 46, and so that the springs 10, alone, shall support the frame 9, in its elevated position. By now stepping on and depressing the platform 9, it will be apparent that the plate 12 will contact with the plate 13 and complete the circuit, which causes the elevation of the doors 22, and the sounding of the alarm to attract the attention of the passengers and messenger to the elevated doors.

Referring now to the modification shown in Fig. 7, 53 designates a pivoted switch-plate, which is electrically connected at all times through the wire 5^a, with the positive pole of the battery, and this switch-plate is adapted to be thrown into or out of contact with that portion of the conductor 5^a which leads directly to the lower contact-plate 13. When the switch is not in contact with said portion of the wire, the platform 9, which in this instance is supported entirely by the springs 10, may be depressed at pleasure without completing the circuit, so that the engineer and fireman are free at all times to move about in the cab without any possibility of falsely alarming the passengers by the completion of the circuit. This is the normal position of the switch. When the engineer and fireman desire to be prepared to notify the passengers

instantly of the presence of train-robbers, they move the switch 53 to the position shown in Fig. 7, so that by the depression of the platform the circuit will be completed and the passengers notified.

In Fig. 9, I show a still further modification. In this instance I dispense entirely with the movable platform 9, and substitute therefor a bell-crank lever 54, which is pivotally mounted at 55, upon a bracket depending from the bottom of the cab, and the lower arm of this lever pivotally carries the upper contact-plate 12. It will be apparent that by operating the lever in the direction of the arrow, Fig. 8, the upper plate 12 will be moved downwardly and contact with the plate 13, so as to complete the circuit and notify the messenger and passengers of the presence of train-robbers.

The operation is as follows: The engineer or fireman, when the train starts on a run, locks the platform 9 in its elevated position, or, as the case may be, throws the switch out of contact with that portion of the wire 5^a, leading to the plate 13, as it is not desirable that the circuit be accidentally completed. Should the engineer, in the course of the run, have reason to believe that the train would be held up at any moment, such reason, for instance, as the flagging or blocking of the train at an out-of-the-way spot, he manipulates the lever 50, so as to unlock the platform 9, or throws the switch 53 in circuit with that portion of the wire 5^a leading to the plate 13, so as to be prepared at a moment's notice to warn the passengers, express messenger, &c. Should the flagging or blockage be a *bona fide* warning or obstruction, respectively, he then relocks the platform or throws the switch again out of circuit, but should the flagging or blockage of the train be a deliberate act on the part of persons desirous of robbing the express messenger and passengers, the moment the engineer or fireman is assured of the fact by the presentation at his head of a revolver or equivalent weapon, and the command "Throw up your hands," he apparently instinctively, while complying with said order, steps upon and depresses said platform; thereby completing the circuit and warning the express messenger and passengers, and as long as he remains upon the platform, the alarm in each car will continue to sound. Immediately he steps from the platform the springs elevate the same, and the circuit is broken. The trap-doors are afterward depressed by manual power, and are automatically engaged and locked by the spring-actuated bolts; the springs 27 yielding sufficiently to allow the loops 23 to pass the beveled and hook-end of the levers 25. While this description refers to the boxes at the front end of the car, and the drawing so illustrates them, it will be apparent that the location of these boxes or their equivalent in any other part of the car, so that they occupy a conspicuous position,

and also that slight changes of construction and arrangement, will not be a departure from the spirit and scope of my invention.

Referring to Fig. 8, it will be apparent that the proper manipulation of the lever 54, alone, is necessary to complete the circuit; there being no preliminary operation to be gone through previous to the throw of the lever.

From the above description, it will be seen that I have produced a train-robber alarm, which is positive and reliable in operation, and which is simple, durable, and inexpensive of construction.

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

1. In a train robber alarm, the combination with a vertically movable platform in the engine cab, catches depending from the floor of the cab, and a sliding frame carried by and normally supporting the movable platform in its raised position by engaging the said catches, of spring-pressed doors, and bells, located in the various cars, electro-magnets adjacent to said doors and bells, electrical conductors, and means to operate the sliding frame and disengaging the same from said catches, allow said platform to move downward, and thereby cause the completion of an electrical circuit to energize the electro-magnets to allow the doors to operate, and to sound the alarm, substantially as set forth.

2. In a train-robber alarm, the combination of an electrical circuit, a plate, a vertically movable platform located in the floor of the engine-cab, and carrying a second plate above the first-mentioned plate; said plates being located in the electrical circuit, with springs supporting said platform so that said plates shall be out of contact, clips or catches depending from and carried by the floor of the cab adjacent to the margin of the opening in which the movable platform fits, a slidable frame carried at the lower side of said plat-

form, and having bolt-portions, suitably guided, engaging the catches depending from the floor of the cab at one end of the opening, angle-bolts pivotally carried at the under side of the movable platform and engaging the clips or catches at the opposite end of said opening, and pivotally connected at their opposite ends to the rear end of the slidable frame, and means to move said frame bodily rearward so as to unlock the platform, substantially as set forth.

3. In a train-robber alarm, the combination of an electrical circuit, a plate, a vertically movable platform located in the floor of the engine-cab, and carrying a second plate above the first-mentioned plate; said plates being located in the electrical circuit, with springs supporting said platform so that said plates shall be out of contact, clips or catches depending from and carried by the floor of the cab adjacent to the margin of the opening in which the movable platform fits, a slidable frame carried at the lower side of said platform, and having bolt-portions, suitably guided, engaging the catches depending from the floor of the cab at one end of the opening, angle-bolts pivotally carried at the underside of the movable platform and engaging the clips or catches at the opposite end of said opening, and pivotally connected at their opposite ends to the rear end of the slidable frame, a bracket, a lever projecting vertically through an opening in the floor of the cab and carried by said bracket, and an arm projecting from the front end of the slidable frame and pivotally connected to said lever above its fulcrum point, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

MAX Z. LEVY.

Witnesses:

G. Y. THORPE,
M. R. REMLEY.