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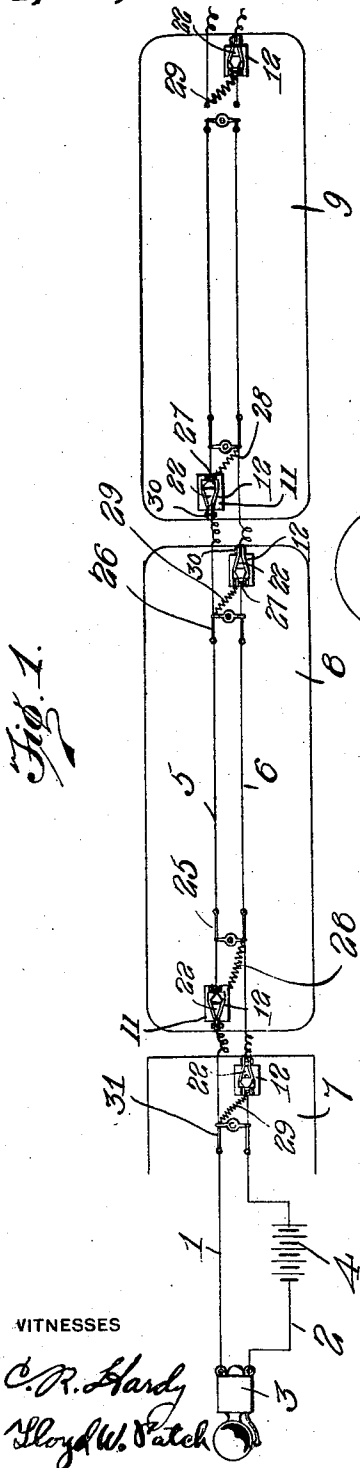


Fig. 1.

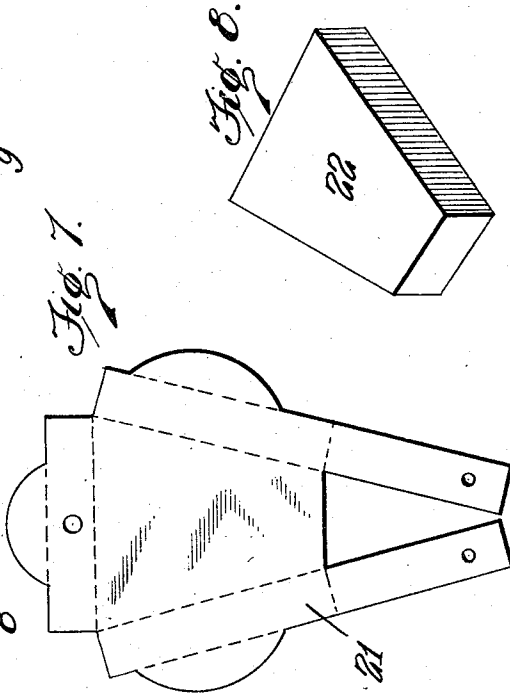


Fig. 7.

Fig. 8.

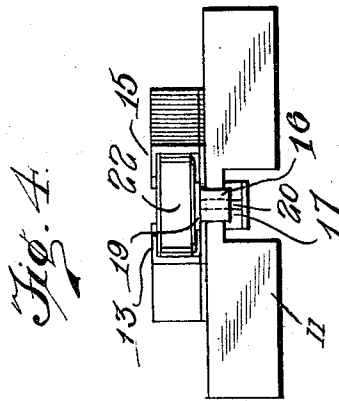


Fig. 4.

WITNESSES

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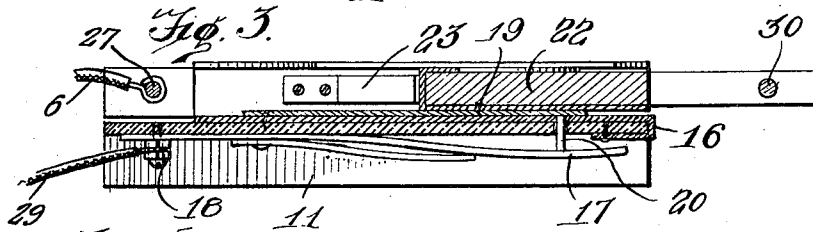
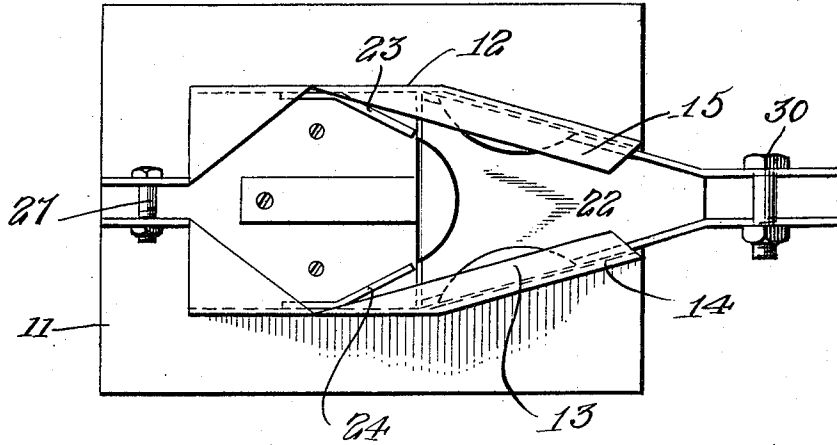
ATTORNEY

L. J. OSTROWSKI.  
 TRAIN ALARM SYSTEM.  
 APPLICATION FILED JAN. 26, 1916.

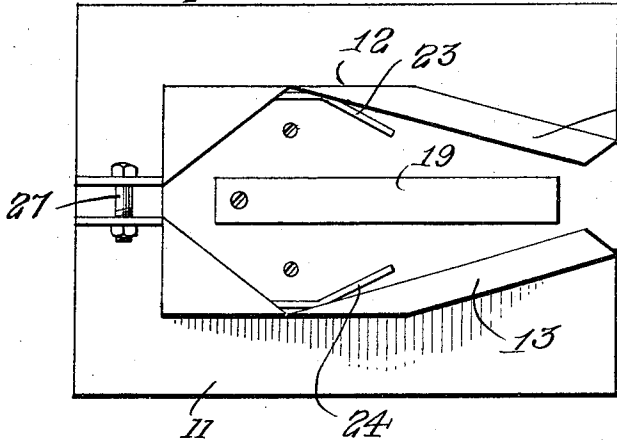
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Patented Dec. 3, 1918.  
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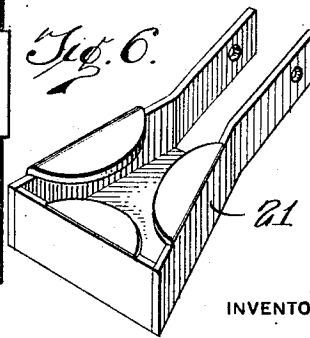
*Fig. 2.*



*Fig. 5.*



*Fig. 6.*



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# UNITED STATES PATENT OFFICE.

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## TRAIN-ALARM SYSTEM.

1,286,743.

Specification of Letters Patent.

Patented Dec. 3, 1918.

Application filed January 26, 1916. Serial No. 74,463.

*To all whom it may concern:*

Be it known that I, LEWIS J. OSTROWSKI, a citizen of the United States, residing at Duryea, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Train-Alarm Systems, of which the following is a specification.

An object of my invention is to provide a train alarm system which is so constructed that a bell or other audible or visible alarm device is mounted in the engine cab, and a circuit arrangement is continued from the engine to each of the cars in such a relation that as the cars of train are connected, the alarm is inoperative and when the cars are accidentally disconnected through the breaking of a coupler or through any other cause, the circuit is closed and the current flowing through this closed circuit will cause the alarm to be actuated to announce to the engineer the fact that a break has occurred at some point throughout the length of the train.

A further object is to so arrange the parts that the cars may be connected in a reverse position, to provide means by which the circuit of each car is held open by the connection with the next adjacent car and means by which the circuit may be opened.

With the above and other objects in view, my invention consists in certain novel features of construction and combinations of parts which will be hereinafter set forth in connection with the accompanying drawings, and then pointed out in the appended claim.

In the drawings:

Figure 1 is a diagrammatic view showing the arrangement of the parts carried by the engine or locomotive and by the cars coupled in the rear thereof.

Fig. 2 is a view in elevation of the switch and plug device.

Fig. 3 is a longitudinal vertical sectional view through the structure disclosed in Fig. 2.

Fig. 4 is a view in end elevation of the parts as illustrated in Fig. 2.

Fig. 5 is a view similar to Fig. 2 with the plug disconnected from the switch member.

Fig. 6 is a perspective view to show the metallic structure of the plug.

Fig. 7 is a view in elevation showing the sheet from which the plug is bent up.

Fig. 8 is a view in perspective of the filler block for the plug.

As is shown in Fig. 1, the circuit wires 1 and 2 have a bell 3 connected therein, these circuit wires and the bell being located on the locomotive and the bell being preferably positioned so that as it is actuated it will be audible to the engineer. A battery 4, or other suitable source of electrical energization is connected in one of the wires of the circuit and these circuit wires are continued in the extension wires 5 and 6 which are connected on each of the cars, the arrangement of two cars with respect to the locomotive indicated at 7, being indicated at 8 and 9, and it of course being understood that the parts arranged on each car are identical with those of every other car.

Automatic switches are connected in each of the circuit wires as they are extended on the cars, and these automatic switches are mounted at opposite ends of the cars in their connection with the circuit wires 5 and 6, it being a purpose to thus mount the parts to permit the reversal of the cars. These switches comprise the insulating blocks 11 having the plug receiving casings 12 mounted thereon through the medium of screws or any other fastening means. These plug receiving casings 12 have the side members thereof extended upwardly from the base and thence over to provide the top portion 13, the side members being separated or slit from the base at the open edges thereof and made convergent so that the tapered spring fingers 14 and 15 are provided, the top portion 13 being continued over these tapered fingers. The block 11 is cut or grooved out on its lower side and a tongue extension 16 is formed from one end of the base of the switch casing 12 and is folded to and secured under the block and within the cut out or grooved portion to form a contact extension from the main switch casing 12. A spring contact finger 17 is mounted by the binding post 18 within the grooved out portion of the block 11 and in consequence, is insulated from the switch casing 12. A tread spring 19 is mounted on the base of the casing 12 for disposal between the sides thereof and engages with a pin 20 formed of hard rubber or any other suitable insulating material. The pin passes through an opening provided in the block 11 and its ends contact with the tread spring 19 and

the spring contact finger 17. This pin 20 is of sufficient length so that when one of the members against which the end thereof abuts is brought to a position flat against the parts to which it is secured, the other contact member is raised. The spring contact finger 17 preferably has greater resiliency and a stronger action than the tread spring 19, in consequence of which, the spring contact member 17 will normally move the tread spring 19 to a flexed position. This contact finger 17 will engage with the contact 16 carried by the casing 12, in consequence of which adapts the casing and the spring contact finger 17 to be electrically connected.

A switch plug which comprises the sheet metal former 21 having the supporting block 22 mounted therein is made of a size to be received through the open part of the switch casing 12, and the spring fingers 14 and 15 are given sufficient resiliency that as endwise pressure or drawing strain is exerted upon this block, the same will be withdrawn from the position of insertion within the casing, and will be entirely removed therefrom through the tapered end by spreading movement of the spring fingers 14 and 15. The retaining springs 23 and 24 are mounted within the casing 12 to bear against the sides of the metallic structure 21 of the plug and as the plug has been given a certain degree of movement, these springs will be disengaged from the sides thereof and the ends will prevent back movement of the plug. The plug as an entirety is made of such a thickness that as it is placed in the casing 12 with the upper side thereof bearing against the flanged or lipped portion 13, the lower side will be brought to a bearing with the tread spring 19 and will cause this tread spring to bear against the pin 20 to raise the spring contact finger 17 from its engagement against the contact tongue 16 of the casing, thus breaking the electrical connection from the casing to this spring contact finger.

Referring now again more particularly to Fig. 1, the circuit wires 5 and 6 on the cars have the switches 25 and 26, which may be of the ordinary knife type, connected therein and the ends of these circuit wires are connected through the medium of binding posts 27 with the switch casing 12. A shunt wire 28 is connected with the binding screw 18 of the spring contact finger 17 of the switch member connected in the wire 5, and has its remaining end connected with the wire 6, and a shunt wire 29 is connected with the binding post 18 of the switch member connected in the circuit wire 6 and has its remaining end led to connect with the circuit wire 5. By arranging the shunt wires as hereinbefore set forth, it will be perceived that when the switch plug blocks

are removed from the casing and from the position from which they exert their pressure against the tread spring 19, the contact finger 17 will come to engage with the contact tongue 16 and in consequence the circuit will be completed from the wire 5 to the wire 6 or the reverse. The free ends of the circuit wires 5 and 6 are connected by the binding screws 30 with the several plugs and the wire is made sufficiently long that sufficient flexibility will be permitted between the cars to allow the train to take a curve without withdrawing the plugs from their mounting in the casing 12, although it will of course be understood that when there is a break in the train, the plug connected between the two cars which have broken apart will be removed from the casing and in consequence the circuit will be completed through the shunt wire of the forward car and the alarm will be sounded in the engineer's cab. The engagement of the metallic body structure 21 of the plug with the casing 12 will complete the circuit and make a continuous conductive line from the engine to the last car when the parts are connected throughout a train, and it is preferable that the first car following the engine be connected with the engine in the same manner as connection is established between the cars, the switch arrangement being connected on the engine to be joined with the circuit wire 2 thereof and a plug being carried by the circuit wire 1 to connect with the switch casing of the next adjacent car. A switch 31, which is here shown as of the usual knife type is connected in the circuit wires 1 and 2 of the engine so that when the alarm has been sounded to the engineer, he may open this switch to break the circuit and thus throw the alarm out of operation.

In the use of the device, the locomotive is equipped as has been hereinbefore set forth and each of the cars has the circuit wires 5 and 6 connected therewith and with the switch members and casings as set forth. The switch 31 of the engine and the switches 25 and 26 of the several cars are closed with the exception of the switches of the rear car, the plugs carried by the circuit wires are then inserted in the casings and in this way the circuit wires are made substantially continuous throughout the length of the train and the connection of the two line wires through the several shunt wires is prevented by reason of the fact that the plugs hold the spring tread member 19 in a relation to move the spring contact finger 17 out of engagement with the contact 16. Now, as there may be a break in the connection between two of the cars, or between the engine and the cars of the train, the plug will be drawn from the switch casing, and consequently the spring tension of the tread spring 19 will be overcome and the spring contact member 17

will come to bearing engagement with the contact tongue 16 which will complete the circuit through the shunt wire connected with the binding post 18, when the circuit to the alarm at 3 will be completed and through energization of this alarm, the engineer will be informed that there is a break in the train circuit and that some of the couplings of the train have been severed.

While I have herein shown and described only one specific form of the invention and only one arrangement of the circuit, it will be understood that various modifications might be resorted to in the form and arrangement of the switch casing, the block, and still other parts of the structure and hence I do not wish to be limited to the exact construction herein set forth but only to such features as may be pointed out in the claim.

I claim:

A coupling switch for electric circuits on cars, which comprises a grooved block formed of insulating material, a receiving member secured thereon and having a pair of converging flanged arms formed of resilient material to act as contacts and guides, a second pair of resilient arms serving as stops secured to and within the receiving member adjacent the inner ends of the

flanged arms, one end of the base portion of the receiving member being bent over and secured in a groove formed upon the under surface of the block to form a contact, a terminal at one end of the receiving member, a second terminal on the block, a movable pin formed of insulating material, said pin being adapted to extend through a hole in the block and the base portion of the receiving member, a resilient contact strip secured to the second terminal and having its free end terminating adjacent and capable of contacting with the bent over contact portion of the base portion, the other end of said pin normally engaging with the strip, a resilient element secured to the strip serving as an auxiliary spring, and a removable plug having a contact and adapted for insertion between the flanged arms, said plug including a terminal and acting to move the pin for causing a disengagement of the contact strip with the base contact portion of the receiving member.

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

LEWIS J. OSTROWSKI.

Witnesses:

LADISLAW WYWIORSKI.

JOHN OSTROWSKI.