Feb. 1, 1944. M. G. STOLLER 2,340,285

SIGNAL CONTROLLING FUSEE

Filed June 25, 1942

Fig. 1.

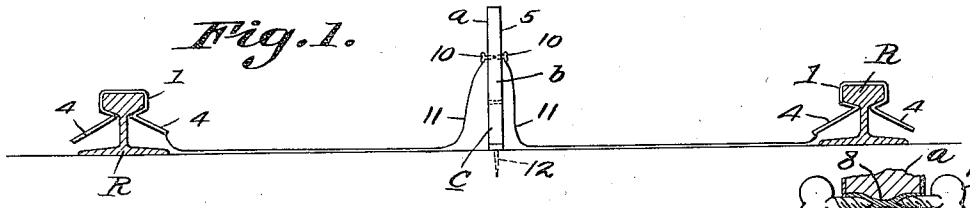


Fig. 2.

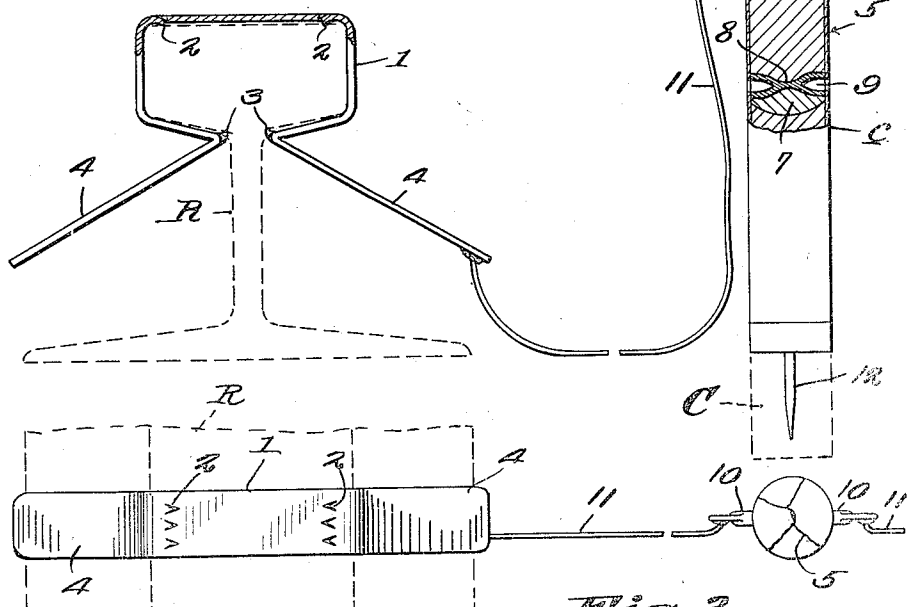


Fig. 3.

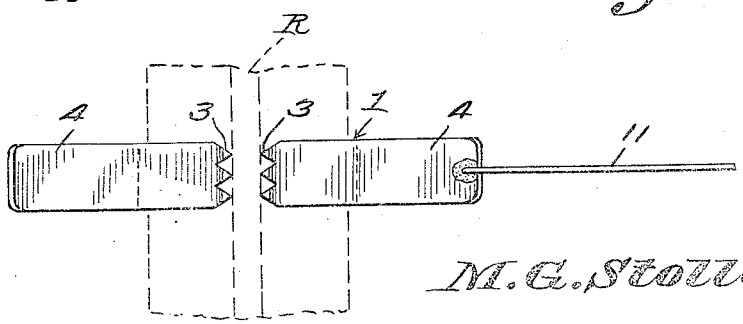


Fig. 4.

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SIGNAL CONTROLLING FUSEE

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2 Claims. (Cl. 246—34)

This invention relates to a fusee for use in controlling railway block signals.

It is the practice under certain conditions for railway trainmen to set up flares or fusees between the rails of a track for the purpose of signaling approaching trains and while these have been used effectively under certain conditions, there are other conditions under which they are not satisfactory. For example if a train is standing adjacent to the inlet end of one block of a signal system, the placing of a fusee or flare at the required distance back of the train, does not always afford sufficient notice to the engineer of an approaching train who would not receive a "Caution" signal from the block system until entering the block in which the fusee is set up.

An object of the present invention is to provide a fusee which, when set up in one block, will operate to close the signal circuit so that a "Caution" signal will be displayed at the entrance end of the block to the rear of said one block and the danger signal displayed at the entrance end of said one block. Thus should the train be stalled at the entrance to one block, ample warning would be given to the engineer of the approaching train.

It is a further object of the invention to provide a fusee which, in the event of a wreck which partly blocks the next adjoining track without operating the signal system on that track, will act to close the circuit of the signal system controlling the partially blocked track so that trains approaching the wreck on this other track will have ample warning and can slow down and come to a stop without danger of collision with the wreckage.

A further object is to provide a fusee of this character which can be carried readily, can be easily set up for use, and which can be timed to burn for different predetermined periods after which the circuit to the block signal system will be automatically broken and the signals reset to their normal positions.

Another object is to provide a device of this character which will not interfere with traffic along the track but will be cut off by the wheels of trains passing thereover and thus become automatically discarded.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

In the accompanying drawing the preferred form of the invention has been shown.

In said drawing:

Figure 1 is an elevation of the complete signal controlling fusee applied to the two rails of a track for the purpose of completing a circuit to the block signal system.

Figure 2 is an enlarged view partly in section and partly in elevation of a portion of the fusee, one of the rail clamps, and the electrical connection between these parts.

Figure 3 is a plan view of the fusee and one of its clamps and the connection therebetween.

Figure 4 is a bottom plan view of one of the clamps.

Referring to the figures by characters of reference, 1 designates duplicate clamps formed preferably of spring metal and shaped to straddle and tightly embrace the respective rails R of a track. Each of these clamps has prongs struck therefrom as shown at 2 for making a firm electrical contact with the engaged rail and additional prongs 3 are struck from each clamp for the purpose of pressing upwardly against the bottom surfaces of the head of the rail close to and at opposite sides of the web of the rail. These positions have been indicated primarily in Fig. 2. Oppositely extending arms 4 are formed with opposed portions of each clamp and constitute handles or grips so that when these are grasped in the two hands of the user, the clamp can be spread open a sufficient distance to permit its placement astride the head of a rail after which the clamp can be released to close against and bind upon the rail as shown in Fig. 2.

There is used in connection with these clamps a fusee of novel construction. This includes the usual tube 5 of paper or the like filled with a combustible material 6. In the present case this combustible material is divided into sections indicated at *a*, *b* and *c* and the upper end of each of these sections has the usual tip 7 of sulphur or the like to facilitate ignition of the fusee. Located on each of the tips 7 of the lower sections of the fusee are fuses 8 formed of soft metal which will readily melt, the ends of each fuse being recessed as at 9 so that thumb-screws 10 or similar devices can be wedged or otherwise secured in the respective ends of each fuse. One of these inserts 10 is connected by a wire 11 to the arm 4 of one of the clamps while another wire 11 connects the

other insert to one of the arms of the other clamp. The fusee is provided with the usual prong 12 at its lower end and, in order to prevent injury to the person handling the same, the prong can normally be seated in a removable cap C which can be of cork.

The complete article can be packaged readily with the inserts 10 separated from the fusee.

In setting up the device for use the clamps are placed in engagement with the respective rails at the point where the block signal circuit is to be closed. The fusee is then set up between the rails and one or more of the sections thereof are broken off if it is desired to shorten the period of combustion. For example each section could be constructed to burn for two or three minutes. Should the fusee be made up of three sections, as in the structure illustrated, and it should be desired to put in action the remote "caution" signal during one of those time intervals and thereafter have the fusee burn for two or those time intervals after the "caution" signal has been restored to normal position, the inserts 10 will be placed in the recesses in the uppermost fuse 8. The fusee would then be lighted at its upper end. As soon as the inserts 10 are placed in engagement with fuse 8, the circuit of the signal system is closed and the remote "caution" signal brought into action. The fusee would slowly burn down toward the fuse 8, melting that fuse to thereby break the circuit between the wires 11, and allow the signal of the block system to return to their normal positions. Thus any train which may have been slowed down because of the "caution" signal or brought to a stop by the succeeding "danger" signal of the system, could proceed but the lower sections *b* and *c* of the fusee would continue to burn so that this train would be held back until the desired time had elapsed to effect the desired spacing between the two trains. Obviously the time interval can be varied by placing the inserts in engagement with any of the fuses. Should it be desired to reduce the time during which the fusee is burning, one or more of the upper sections thereof could be broken off, leaving exposed the tip of the uppermost section remaining.

In view of the fact that the two clamps are formed of thin metal, any train passing over them would cut them off so that they would thus be automatically discarded and would create no hazard to traffic.

The casing 5 of the fusee can of course be weakened around the tips 7 where it might be desirable to break the fusee to shorten it.

What is claimed is:

1. In a signal controlling device including rail-clamping devices adapted to be secured to opposite rails included in a track circuit of a railway block signalling system, a fusee, a fuse extending through the fusee and adapted to be melted by the fusee while burning, and electrical connections connecting the fuse and the respective rail-clamping devices in series.

2. In signal controlling means the combination with a fusee for use as a railway signal device, of a fuse extending therethrough and formed of a material adapted to be melted when subjected to a predetermined temperature produced during burning of said fusee, separate rail-gripping devices adapted to be electrically connected to opposite rails included in a track circuit of a railway block signalling system, and electrical connections between said devices and the respective ends of the fuse forming a fusible electric circuit between said devices.

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