

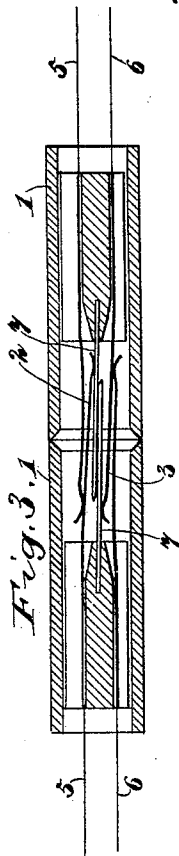
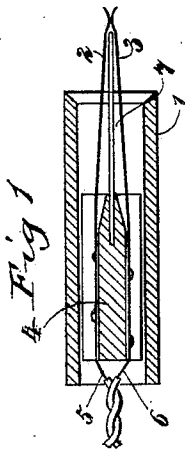
(No Model.)

G. F. & F. K. SINGER.

ELECTRIC SIGNAL OPERATING DEVICE FOR RAILWAY TRAINS.

No. 573,716.

Patented Dec. 22, 1896.



WITNESSES:

L. V. Legendre
C. R. Ferguson

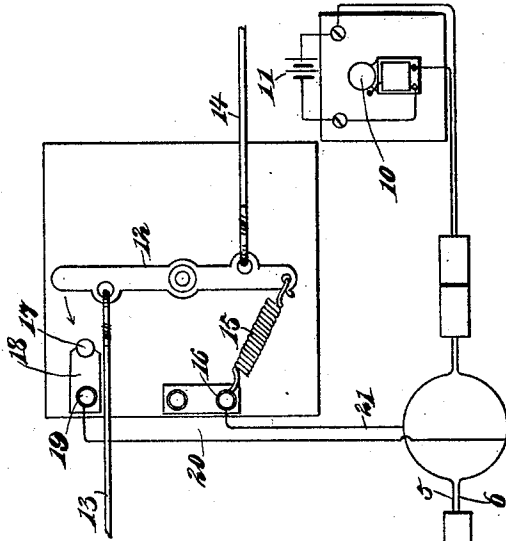
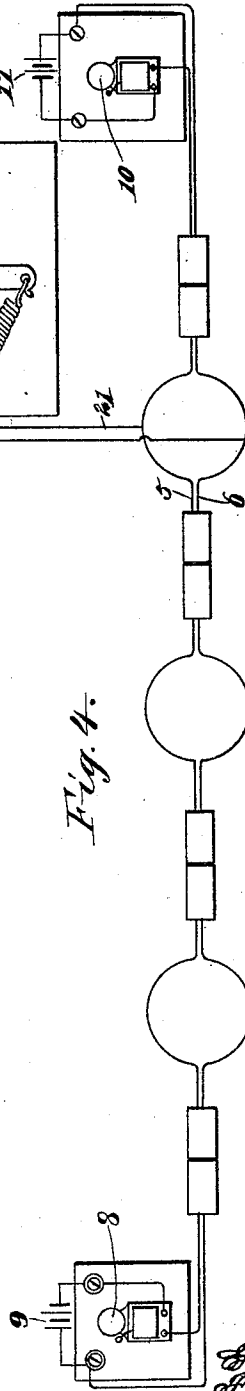


Fig. 4.



INVENTORS:

G. F. Singer
F. K. Singer

BY

Wm. H. K. 2
ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE FREDRIC SINGER AND FRANK KIRK SINGER, OF MINGO
JUNCTION, OHIO.

ELECTRIC SIGNAL-OPERATING DEVICE FOR RAILWAY-TRAINS.

SPECIFICATION forming part of Letters Patent No. 573,716, dated December 22, 1896.

Application filed May 22, 1896. Serial No. 592,585. (No model.)

To all whom it may concern:

Be it known that we, GEORGE FREDRIC SINGER and FRANK KIRK SINGER, of Mingo Junction, in the county of Jefferson and State of Ohio, have invented a new and Improved Electric Signal-Operating Device for Railway-Trains, of which the following is a full, clear, and exact description.

This invention relates to signaling devices designed to be carried by a railway-train; and the object is to provide such a signal in which the electric circuit will be automatically closed should a car or cars break loose from the other cars while the train is in motion, thus sounding the signal both on the engine and on a car or any desired number of cars, so that both the engineer and a conductor or other trainman on the car may be notified of the accident and take proper measures for bringing the two sections of the train again together, and, further, to provide means whereby the signals may be operated from either end of the train or from any car or engine.

We will describe a device embodying our invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a longitudinal section of a coupling device and automatic circuit-closer embodying our invention. Fig. 2 is an end view thereof. Fig. 3 is a sectional view showing two couplers as attached together, and Fig. 4 is a diagrammatic view of the system.

Each coupler comprises a casing 1, of suitable material, each having two resilient contact-fingers 2 3, respectively, held in the grooves *a* of non-conducting blocks 4. One block 4 is in each casing, and the grooves *a* are opposite and parallel to each other. The free ends of the contact-fingers 2 and 3 extend beyond the end of the casing. The contact-fingers are respectively in electrical engagement with the main line-wires 5 and 6. Secured to each block 4 and between the grooves *a* is a longitudinally-extending plate 7, of suitable material, such, for instance, as hard rubber or porcelain. These plates respec-

tively project between the fingers 2 and 3. It will be seen that this plate 7 terminates at a point rearward of the ends of the contact-fingers, and the end of each contact-finger is curved inward and outward, as plainly shown in Fig. 1.

The main wires 5 and 6 will of course extend through the entire length of the train, with the couplings between the cars, so that should one car be separated from another the couplings will be drawn apart, allowing the contacts 2 and 3 to engage together, as shown in Fig. 1, thus closing the circuit.

At a suitable place on the engine is placed an alarm, (here shown as a bell 8,) which is arranged in the circuit of the wires 5 and 6 and a battery 9. At the rear end of the train or in the rear car a similar alarm 10 is placed, this alarm being also in the circuit comprising the wires 5 and 6 and battery 11.

When the system is in operative position, two couplings will be placed together, as indicated in Fig. 3, in which it will be seen that the contact-plate 2 of one coupling-section rests upon the insulating-plate 7 of the other coupling-section and the contact 3 of said other coupling-section will rest upon the insulating-plate 7 of the first-named section. Therefore the ends of the contacts 2 and 3 of each section will be separated, but as the contact-plates of one section engage with the contact-plates of the other section a continuous line is formed through the wires 5 and 6. Should, however, one car separate from another, the fingers of the two separated coupling-sections will be closed and thus sound the alarms at each end of the train.

We may provide a circuit-closer that may be operated by a trainman to signal the engineer, or by the engineer to signal an attendant on the train. This circuit-closer as here shown comprises a lever 12, pivoted between its ends and having a rope 13 extended forward from one of its ends and a rope 14 extended rearward from the other of its ends. One end of this lever 12 has a spring connection 15 with a binding-screw 16, from which a wire 17 extends to a connection with the main wire 5. The opposite end of this lever 12 is adapted to be connected to the contact 17 on a plate 18, provided with a

binding-screw 19, from which a wire 20 extends to a connection with the main wire 6. Obviously by drawing or pulling upon either of the cords 13 or 14 the upper end of the lever 12 will be engaged with the contact 17, and therefore the circuit will be closed through said lever, causing the alarms to sound. Upon releasing the pull-rope the spring 15 will return the lever to its normal or open position. This circuit-closer, comprising the lever 12, may be placed on any one of the cars of a train; also, it will be placed in the rear car and the engine.

It will be seen that the wire 5 connects like poles of the two batteries, and that the wire 6 also connects like poles of the two batteries, and as these batteries are of the same voltage it is obvious that no current will pass through the wires until the circuit is closed by one of the circuit-closers described.

We are aware of the fact that an electric signal system can be made by a closed-circuit arrangement in which a current is always flowing, but this is not desirable, and our invention was designed to do away with its obvious objections.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A train-signal comprising a battery, and an alarm at each end of the train, circuit-wires in which the batteries and signals are located and a coupling for said wires comprising two casings, a block of insulating material in each casing, resilient contact-fingers

secured to opposite sides of the blocks, the free end of each contact-finger being curved inward and then outward, and a thin plate of insulating material extended from the block of each section, between and nearly to the end of the contact-fingers, whereby when the two coupling-sections are placed together the plate of one section will rest upon the plate of the other section, substantially as specified.

2. A coupling having two duplicate sections, each section consisting in a tube, a block held within the tube and having two oppositely-located and longitudinally-extending grooves in its sides, an insulating-plate projecting outwardly from one end of the block and extending beyond the tube the block being shorter than the tube and arranged so as to leave a space in one end of the tube through which space the insulating-plate passes, and two contact-plates, each plate having one end secured within the respective grooves of the block and the plates being projected through the said space in the tube and beyond the outer end of the insulating-plate, the contact-plates having tendencies to engage each other so that the circuit may be closed when the two sections of the coupling are disconnected, substantially as described.

GEORGE FREDRIC SINGER.

FRANK KIRK SINGER.

Witnesses:

C. E. FLANAGAN,

D. M. GRUBER.