

give continuous perforation as long as a train is in the block, a polarized relay is used.

Signalling Means.—A new type of cab signal has been developed which, by means of inexpensive intermittent third rails, gives as complete signal information as can be accomplished by a continuous third (signal) rail. The underlying principle of the cab signal is that if a third rail is electrically energized, a train in passing will receive a clear signal; if the third rail is de-energized a danger signal is displayed. Furthermore, a clear signal received in entering a new block will continue to show clear throughout the block, and a danger signal once displayed will continue at danger until it is automatically cleared when a train is passing an energized third rail. Either a clear or a danger signal is always in evidence every foot of the way. The cab signal circuit is shown in Fig. 6, and Fig. 5 shows motorman in cab with position of red and green lights. The third rail has inclined approaches at each end. When the contact shoe approaches the third rail the shoe is raised and the arm of the contact shoe separates from the front stop.

If so desired a bell can be inserted into the danger circuit so that both visible and audible danger signals will be given. This bell gives one tap each time a third rail is passed, thus calling the attention of the engineer to a possible change of signals, as well as being a positive signal that the cab equipment is in perfect operating condition.

When a third rail is energized a clear signal is displayed; when de-energized, a danger signal is displayed. Since the dispatcher's switch controlling the signals at siding is closed, it is evident that the third rails at siding are energized, and therefore set for a clear signal. To display a danger or stop signal at siding the dispatcher simply

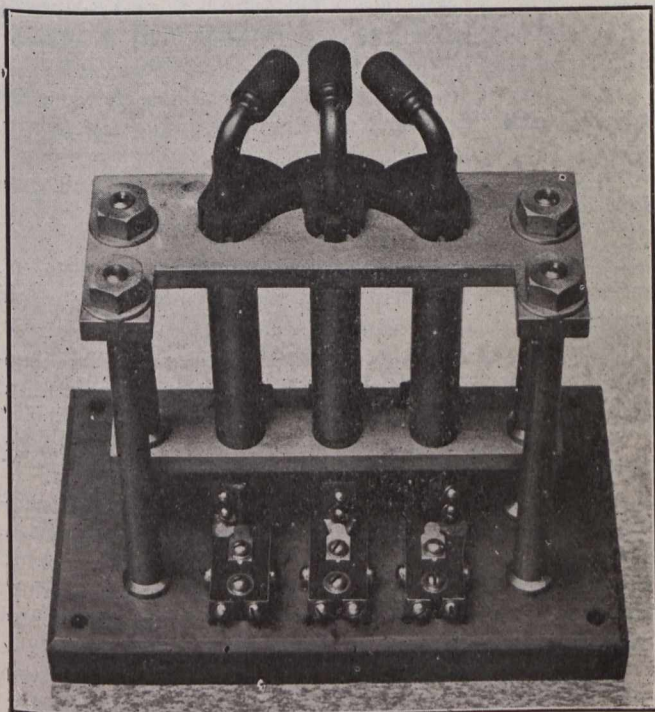


Fig. 7.—Unit of Three Switches.

opens switch, thus depriving the third rails of electrical energy from the storage battery.

Interlocking arrangements on the dispatcher's switch-board prevent the dispatcher from giving a clear signal to an eastbound train entering a block until the signal for the westbound train at the opposite end of the block is set to danger.

Only the broad essentials of the circuits and their functions have been described. Various modifications and combinations with the present signalling methods are possible, by which any special traffic requirements can be met. Telephone communications are established over the same circuit as is used for signalling, the telephone apparatus being placed in shunt with the same and provided with condensers. Fig. 7 is a photograph of a unit of three switches.

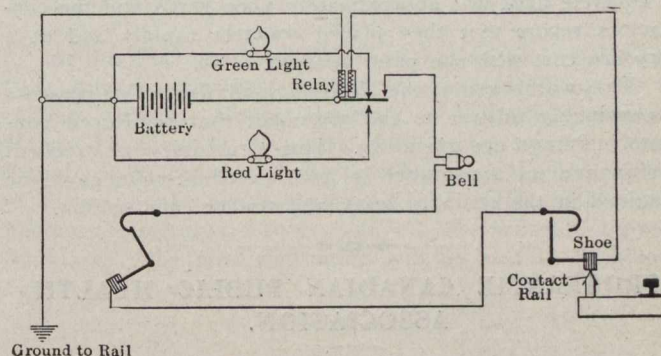


Fig. 6.—Diagram of Car Circuit.

The Simmen automatic stop provides for the automatic application of air brakes under the following conditions:—

- (a) Where danger signals have been given but not obeyed.
- (b) Where proper speeds at curves, grades, yard limits, or grade crossings are not observed.
- (c) Where reduced speed for permissive or backward movements are not observed.

NEW WAREHOUSES OF THE NEW ENGLAND WASTE COMPANY.

The warehouse and waste plant of the New England Waste Co., at Revere, Mass., is an unusually attractive reinforced concrete building. The architects and engineers, Lockwood, Greene & Co., of Boston, specified the use of brick curtain walls, which make an effective and pleasing contrast with the concrete. The building is located adjacent to the tracks of the Boston & Maine Railroad, rendering excellent facilities for shipping.

This structure is 180 by 56 feet, four stories high with basement, and has a projecting tower on the front enclosing stairs, laboratories, and boiler for heating. As is usual with concrete, maximum window area has been obtained. The building is equipped with automatic whip hoist trolley conveyors and baling presses.

The floors of this building were designed to carry a live load of 150 lbs. per square foot. The column spacing is 20 by 18 feet, and the height of stories is 14 feet. It is interesting to note in this connection that although the floors were designed for 150 lbs. live load they were only slightly damaged by the accidental falling of a 4,000 lb. weight. On the second floor was located a baling press with plunger running through the third floor and counterbalanced by a 4,000 lb. weight made up of pieces of cast iron. The weight was suspended from the fourth floor by a through bolt with hook and pulley attached. The rope parted and the 4,000 lb. weight fell to the floor through a distance of 8½ feet. The only damage done to the concrete was a flaking of a space of about 20 inches in diameter on the under side of the floor.

The building was erected by the New England Concrete Construction Co., of Boston, and the methods employed by them in handling the materials and concrete are of unusual