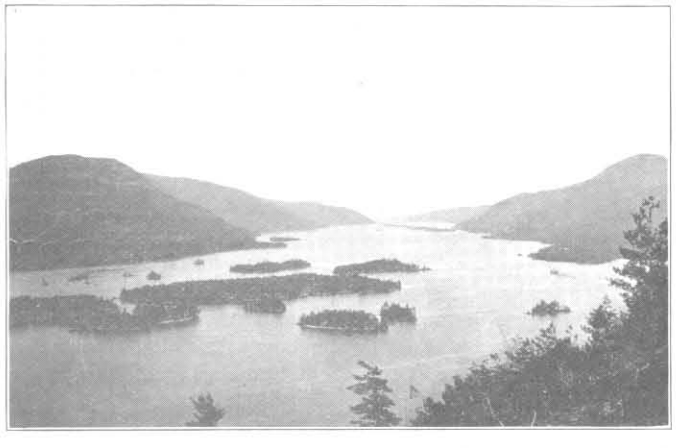
convention, possessing the ground in common, may be the very descendants of those who fought so bitterly to hold it.

The Hotel Champlain is situated on the summit of Bluff Point—to the east lies the lake on a line with the distant shores of Vermont and the Green Mountains, to the west is the beautiful Saranac Valley and the Adirondacks. On the east front of the hotel is a broad terrace bordered with flowers and shrubbery from which stairways and walks descend to the lake shores through a forest of evergreens, and directly below the hotel lies the "beach of the singing sands," where a professional swimming

Lake Champlain, Looking East from the Hotel.

teacher is in attendance during bathing hours. Here is a commodious bathhouse and between sessions, the R. S. A. visitors may refresh themselves with a dip in the lake. Or for those who prefer other recreation, there is a new eighteen-hole golf course, tennis courts and a capacious clubhouse equipped with lockers, shower baths, etc. Fine roads lead in all directions from the hotel and automobile trips to many points of beauty and interest may be arranged.

An excursion by special train from Bluff Point to Baldwin, and by boat through Lake George, arriving at Fort William



Lake George, Looking North from Shelving Rock.

Henry Hotel in time for dinner, has been planned for Friday, September 25.

The trip along the lakeside to the hotel of the historic name has been called the most beautiful one day's journey in the world. From the deck of the steamer on Lake George, the panorama of forest, islands, mountains and blue water is the same as in the days when painted warriors alone beheld its beauty, for the mountains on either hand are so steep as to prohibit extensive agriculture and the forest crowds the water's edge, making these surroundings pre-eminently a vacation land. The few summer residences that line the shores are temporary camps and vacation hotels.

The Hotel Champlain and grounds have been chartered for the exclusive use of the members of the Association during the convention. A more delightful, as well as "homey," place could not have been selected. It is hoped that all who find it possible to avail themselves of this trip will come.

TAKE SIDING SIGNAL

The Train Dispatcher's Selector System is being successfully utilized to control "take-siding" signals located at the outlying switches of passing tracks to indicate to an approaching train whether it may proceed on the main line or whether it must take the siding.

This arrangement affords practically all the facilities of a train-order station, without the expense of the operators' salaries, in that the dispatcher can cause the display of a "take-siding" signal at any siding on his division so equipped, and can issue

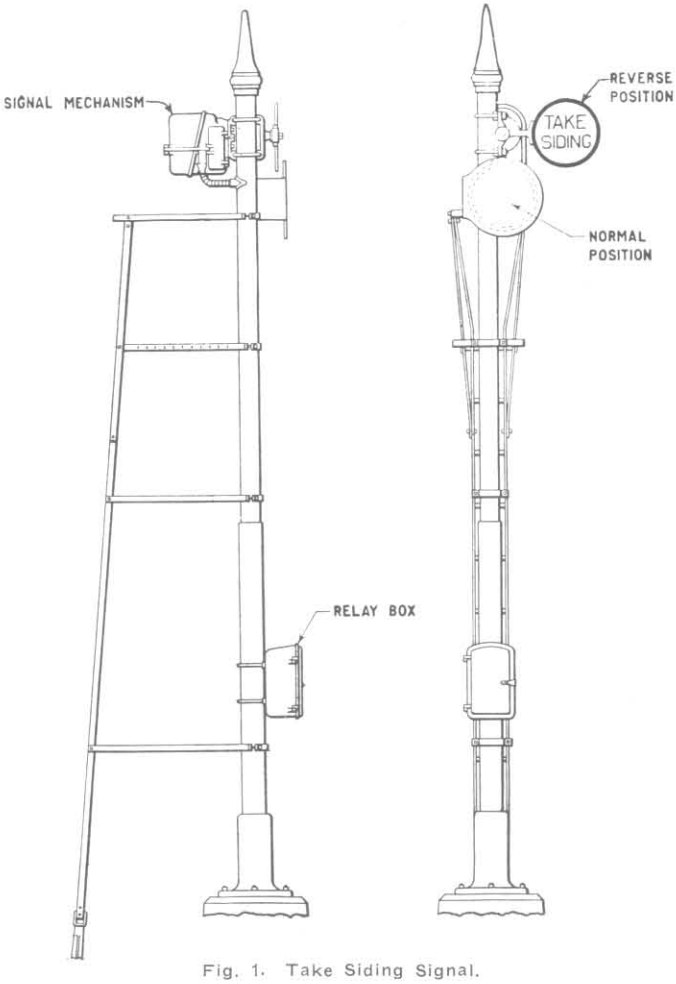


Fig. 1. Take Siding Signal.

orders or other instructions to trainmen when they call up to report that their train is in the clear.

In the system devised by the General Railway Signal Company of Rochester, N. Y., the "take-siding" signal may be a semaphore, a disc, a light or any prescribed aspect and is controlled by means of a key in the dispatcher's office; the two-line wires of the selector and telephone circuit, and a selector mounted on or near each "take-siding" signal. A local battery of potash cells supplies energy to operate the signal mechanism.

The operation of the signal from the normal to the reverse position, or from the reverse to the normal position, causes the operation of a special "answer-back" device, which produces an audible indication, informing the dispatcher that the signal has operated and that the proper indication is displayed.

The usual station train-order signals may be arranged in a

similar manner to indicate, for example, "Stop, call up dispatcher for instructions."

When installed in automatic block signal territory there is no sacrifice of safety as the automatic signals provide against the possibility of any danger that might result from misunderstanding or negligence.

The cost of installing a "take-siding" signal in connection with a selector system is small and depends principally upon the type of signal used. In addition to the signal the only equipment required is two keys in the dispatcher's key cabinet, a selector, an "answer-back" device, a relay with its housing, a battery of potash cells with its housing and a short length of insulated wire.

The operation of the "take-siding" signal may be divided into three parts: First, the selective control of the respective signal; second, the operation of the signal from local energy, and third, the audible "answer-back" or indication. The selective control of the signal is accomplished by means of the dispatcher's keys, line battery, line relay and selector of the selector system; the operation of the signal from local energy is controlled through the front contacts of a stick relay located at or near the signal, and the audible "answer-back" is produced by a special device which is controlled through a circuit controller or commutator on the signal mechanism and operates in connection with an induction coil.

The signal operating mechanism is Model 2A and is directly connected to the shaft on which the semaphore revolves. The circuit controller S is one of the units comprising the signal mechanism, and is so connected to the mechanism that a movement of the semaphore produces a corresponding movement of the circuit controller. As the circuit controller contacts are adjustable, circuits can be closed or opened at any position of the semaphore.

The "answer-back" mechanism is operated from signal battery J and is controlled through circuit controller S. The primary winding P of the induction coil takes current from signal battery J through contact N, which is closed by the engagement of contact T and projections on ring M when the "answer-back" mechanism is operating. The "answer-back" impulses which flow through primary winding P induce in the secondary winding similar impulses which are transmitted over the line to the dispatcher.

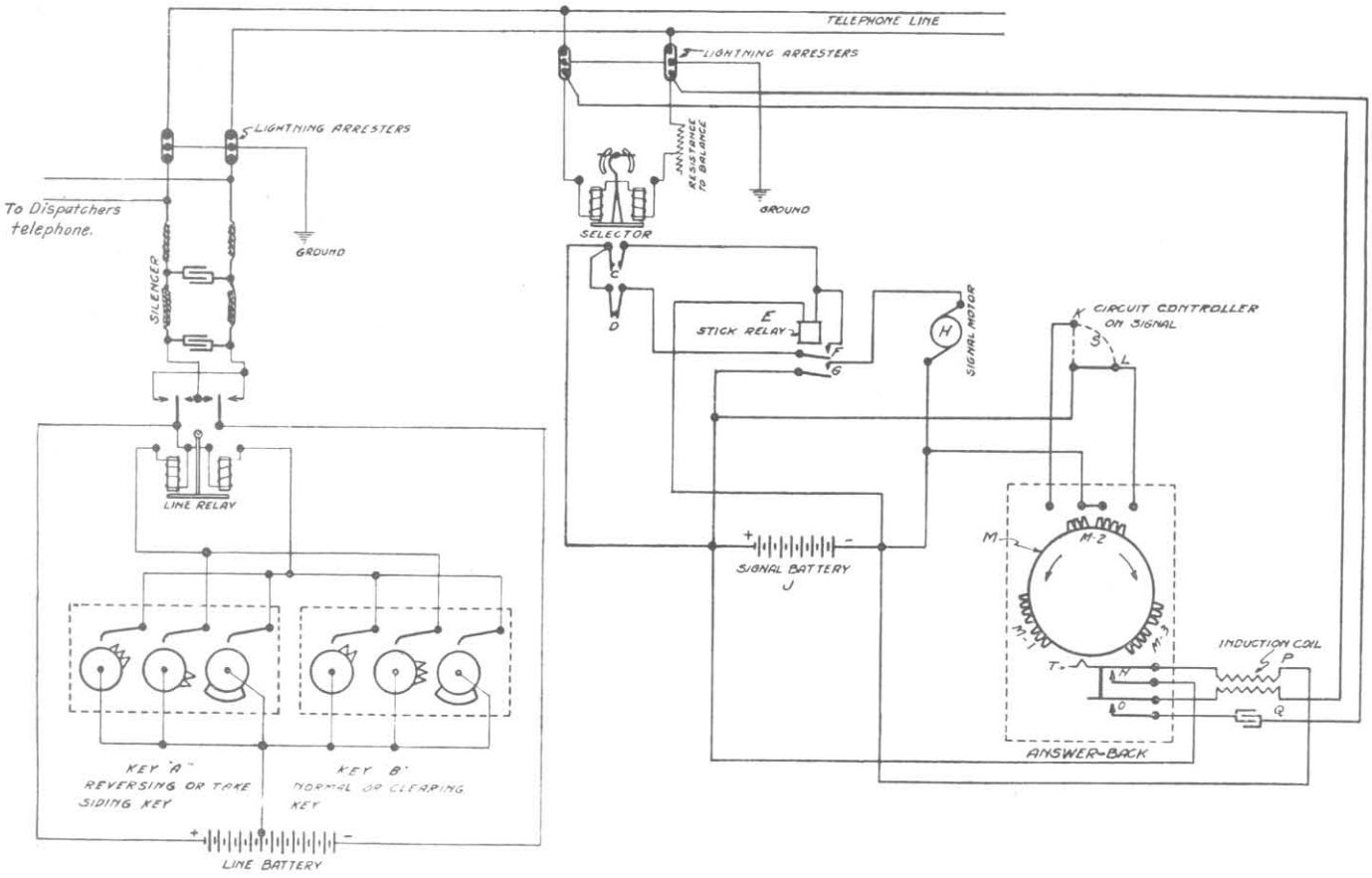


Fig. 2. Wiring Diagram for the "Take-Siding" Signal and Selector Circuit.

A typical wiring diagram for the "take-siding" signal and selector circuit is shown in Fig. 2. The selector circuit is practically the same as ordinarily arranged for the selective calling of stations with the exception that there are two keys in the dispatcher's key cabinet for each "take-siding" signal; the selector is equipped with a normally closed contact D (shown in Fig. 2) in addition to the normally open contact C ordinarily furnished, and the signal mechanism relay, etc., take the place of the call bell.

The stick relay is energized by signal battery J through selector contacts C and D, and controls the flow of current from battery J to signal motor H through front contact G.

The "take-siding" signal operates in two positions: Normal or clear position, in which the semaphore arm is inclined downward, and the words "take siding" are obscured behind a metal disk, and reverse or "take-siding" position, in which the semaphore arm is horizontal, displaying the "take-siding" indication. In the circuit diagram, Fig. 2, all mechanisms are shown in the normal position.

To display a "take-siding" indication at a certain signal, the dispatcher turns designated key—represented in the diagram by key A—which operates as described in connection with the selector system, and the proper selector responds to its respective combination—three-two in this case, which closes selector contact C for an interval of about two seconds. The closing of contact C completes a circuit from battery J through stick relay E, which becomes energized and its armature picks up, closing contacts F and G. When contact C opens and breaks the "pick-up" circuit of the stick relay, battery current flows through the "hold-up" circuit, passing through normally closed selector contact D and relay contact F, so that the relay remains energized.

Front contact G of stick relay E when "pick-up" closes a circuit from battery J through signal motor H, which operates the mechanism and moves the semaphore arm from normal to reverse position displaying the "take-siding" indication. As semaphore arm reaches the "take-siding" position, another set of contacts on circuit controller S (not shown in diagram) opens the battery circuit through operating field windings of signal motor H and close a circuit from battery through a high resistance retaining mechanism which holds the semaphore arm in the "take-siding" position. As the holding current is approximately 0.018 amperes (with 10-volt motor), and as the operation of semaphore from normal to reverse position requires approximately 2.2 amperes for 10 seconds, a 400-ampere-hour signal battery would be effective for a long period, even where the signal was operated frequently.

The operation of the signal mechanism revolves the commutator on circuit controller S, which opens contact L (closed in the normal position of signal) and closes contact K as the signal reaches its full reverse position.

The closing of contact K completes a circuit from battery J through the "answer-back" mechanism which begins to operate. Ring M makes one complete counter-clockwise revolution causing successive engagements of projecting teeth M-1, M-2 and M-3 with contact T, which makes and breaks contacts N and O. Each projection, M-1, M-2 and M-3, is composed of a combination of three and four teeth which causes like combinations of electrical impulses to flow from battery J through contact N and primary winding P of insulation coil as contact T makes and breaks. These electrical impulses flowing through primary coil P induce in the secondary coil like impulses which are transmitted to the line and to dispatcher, when the circuit is completed through contact O, producing a distinctive audible "answer-back" or indication that the signal has responded and that the proper indication is displayed.

To restore the signal to normal position the dispatcher turns designated key—represented in the diagram by key B—which sends out the combination two-three. This combination operates the selector and opens normally closed contact D, which breaks the "hold-up" circuit of the stick relay and its armature drops breaking contacts F and G and opening battery circuit through the signal motor. The semaphore arm falls to the normal position by gravity which opens circuit controller contact K and, when the signal has reached its full normal position, closes contact L, completing battery circuit through the "answer-back" mechanism.

Current from battery J operates the "answer-back" mechanism in a direction opposite to that in the reverse or "take-siding" position so that ring M operates and makes a complete clockwise revolution. Projections M-1, M-2 and M-3 engage with contact T, as in the reverse position, but, owing to the clockwise revolution of ring M, the teeth of projections M-1, M-2 and M-3 engage contact T in the order four-three so that the electrical impulses, flowing through contact N and induction coil to the line and to dispatcher are sent out in the combinations four-three which is distinctive of the normal position of this signal.

The "answer-back" mechanism checks the operation of the signal in its normal and reverse positions, and, as each indication is given three times, it affords a means whereby the dispatcher can check himself as well.

If a dispatcher turned one of the keys to operate a certain signal from normal to reverse position, or from reverse to normal position, and later were in doubt as to whether he had done so, it would only be necessary to turn the respective key again in order to get another normal or reverse indication as the case may be.

Any abnormal or improper operation of the signal caused by broken or detached wires, or otherwise, affecting the control circuits would cause the "answer-back" mechanism to operate and indicate the position to which the signal had been operated, so that the dispatcher would immediately know that something was wrong.

DUSTLESS BATTERY BOXES.

BY J. L. S.

In automatic signaling where concrete battery boxes with hinged wood tops, tinned, are used along the track for storage batteries, it is found that a great deal of dust accumulates in these boxes, and this dust, especially if coal-dust or cinders, is injurious to the acid solution of the batteries Now, if a strip of rubber, 1/8 inch thick and 1½ inch wide is tacked around the framing of the top so that it rests on the concrete when the top is closed, this will greatly lessen the accumulation of dust, thus permitting the keeping of a neat, clean box and help preserve the acid, thus increasing the life of the battery. Sufficient ventilation for the acid gases is had through the joint of the top.

FOR INSPECTING COTTER PINS.

BY W. A. R.

Take an ordinary mirror 2 in. in diameter, with a handle made of wood or iron, about 3/8 in. x 12 in., with a 3/16-in. hole in one end. Make a jaw of the same material about 2 in. long with a slot sawed in about 3/16 in. wide and 1 in. deep, with a 3/16 in. hole in the end. Connect this to the handle with a 3/16 in. rivet or bolt. Slip the mirror in the slot. This can be moved in any angle for inspecting cotter pins in cranks, compensators, or in and around the machine. By using a piece of No. 9 copper wire and bending it to retain the mirror, the same result can be obtained. Where there are many pipes in a line, the mirror can be slipped down between the pipes under the compensators and the cotter pins can be seen without reaching in under the pipes, which at times is very difficult.

STORAGE BATTERY CHARGING REPORT.

BY R. W. D. H.

Some roads may not have made it a point to obtain a monthly specific gravity report, or perhaps any report at all, of their storage batteries. Since the specific gravity test is of prime importance in the proper care and maintenance of the storage battery, both in a charged and discharged condition, a simple method to ascertain such readings is worth the while considering. The method that utilizes the least of the maintainer's time in obtaining the readings and making a report in a vivid manner naturally is the most advisable one to use. Details of such a method are herewith outlined and can be worked out for any installation with slight alterations.

Allow the maintainer to divide his section into two parts, and subdivide each set of battery into two parts, calling them: A set, part 1; A set, part 2; B set, part 1, and B set, part 2. The specific gravity readings and temperature of electrolyte of A set, part 1, in a charged condition to be taken at the beginning of one week. Any cell that does not read 1.210 (corrected for temperature) will be noted and recorded. All other cells to be marked O. K.

Before B set, part 1, is to be thrown on discharge the specific gravity of the charged condition of this set should be taken and at the same time the discharged condition of A set, part 1. Any of the cells of A set, part 1, that show a reading less than 1.170 (corrected for temperature) to be noted and recorded. This will suffice for the data for one report. The readings of the charged condition of B set, part 1, should be kept and report made when the discharged condition is taken. The sheet then for the maintainer to send in necessitates a very small amount of work.

F. P. PATENALL, signal engineer of the Baltimore & Ohio, is the author of an article on "The Evolution of Signaling on the Baltimore & Ohio," published in the June issue of that company's employees' magazine. In addition to the matter indicated by the title, the article covers the present operation of the signal system.