

Right—yard clerk stands near passing cars, and he speaks into the transmitter to give the initial and the number of each of the cars as it passes



Left—At yard office two miles away the car initials and numbers are recorded on disks so that later the yard clerk can play it back when sorting bills

# Car Numbers "Grabbed" By Voice Recorder

**New Haven inaugurates practice at Cedar Hill yard to save time and to increase the accuracy in preparing the out-bound train consists**

The New Haven has developed and installed at Cedar Hill yard in New Haven, Conn., a system for telephone transmission of car numbers and initials from a "grabber" at the entrance of the departure yard to a voice-recording machine in the general yard office. Previously the practice was for a clerk, known as a "number grabber" to stand at the yard entrance with a pad of paper forms on which he wrote in pencil the information as the cars passed. These lists were transmitted to the

yard office by messenger or by pneumatic tube. In the new system the "grabber" has a telephone set in his hand. As each drag of cars approaches, he pushes a button on the handset and then he speaks into the transmitter to give the initial and number of each car. This transmitter is connected by a circuit in cable to a desk-type voice-recording machine, known as a Soundscriber, located in the yard office two miles away. Thus a voice record is made of the cars as they are arranged in a passing train or drag of cars being moved to the departure yard to be dispatched on the road.

The Soundscriber machine in the yard office uses plastic disk records 7 in. in diameter having a capacity on each side for 15 min. recording time. This machine does not run

continuously—it starts when the grabber presses his push-to-talk button, and stops when he releases it. Generally, one side of each disk is used to record each train, but it can be used for two or more trains, depending on the length of each train. The machine has two turntables with a disk on each. When the disk on the first turntable is completely filled, operation of the second turntable with its disk is automatically started. Thus, the recording procedure is continued without any interruption whatsoever.

### Play Back Record

A separate Soundscriber transcriber is provided so that the clerk in the general yard office can "play back" each record to reproduce the

voice recording in his earphones. As applying to a train being made up for departure, he arranges the way-bills and cards used in the teletype system for transmitting the out-bound consist in train-check order in accordance with the recording. The transcriber has a foot-pedal control which permits the clerk to stop the "play back" or to reset the transcriber to repeat, either a portion or all of, the disk.

### Numerous Advantages

One of the principal advantages of the new voice-recording system is that the yard clerk's check is thus available at terminal headquarters as soon as the last car of the drag has passed the grabber. This eliminates the time formerly required to send the check by tube or messenger to terminal headquarters. According to the New Haven, this minimizes one of the sources of delay to outbound trains.

Another advantage of the new practice is the increased accuracy. With the previous handwritten method, time was available to write down only the car number, not the initial, and legibility of the writing, particularly during rainy or cold weather, was impaired. With the voice-recording system, time is available to give the initial as well as the number, and, furthermore, it is now practicable to thus make a record of main-line trains moving at yard speed via the loop track directly to the departure yard. These checks are thus available in the office before the train arrives in the departure yard.

In order to allow the clerk an opportunity to remove disks from the Soundseriber and install new ones, the "number grabber" signals the office when the last car of a train or drag has passed. This signaling is accomplished by the "number grabber" turning a crank on a 20-cycle ringer, the output of which is connected to the line circuit. At the office, this energizes a relay which causes a buzzer to sound continuously to attract the attention of the clerks in the office. Then new disks are placed on the Soundseriber recorder for succeeding recordings. After the recording on one side of a disk has been played back to serve the immediate purpose, that same disk is returned to the Soundseriber to use the other side, and when both sides are "filled", the disk is retained as a permanent record.

For this new voice-recording service, a pair of wires is used between the grabber's location and the yard office. Coils were installed at each

end to set up a simplex circuit which is used for starting and stopping the Soundseriber, by control of the push-to-talk button on the grabber's handset. The Soundseriber machine is electrically operated from the 110-volt a.c. commercial supply in the office. The only other power supply required is a set of three dry cells talking battery for the operation of the grabber's telephone transmitter.

The operation of this voice-recorder number-grabbing system was planned by J. L. Barngrove, Jr., assistant to general manager, and W. A. Moore, general superintendent of electric transmission and communication, the voice-recording and playback machines being furnished by the Soundseriber Corporation, New Haven, Conn., and installed by New Haven forces under the direction of G. N. Loomis, communication engineer.

## Special Gate Circuits

(Continued from page 355)

apply to control point "N", three of which are connected in multiple, for Harvard street and "M" for Heights boulevard.

For operating the gates in case of failure of the automatic controls, a special circuit was installed at each crossing which by-passes the automatic controls to permit manual operation until automatic control can be reestablished. In this circuit is a double-pole, double-throw switch normally disconnected from the automatic controls, when reversed controls the gates manually. At Heights boulevard, the instrument house door must be open to operate a door-operated switch to feed battery for the manual control. A red light is also lighted as a further reminder that the gates are not on automatic control.

In rare instances an engine or cars stop just short of a crossing, and the gates have raised due to operation of a timing relay. To protect a crossing for a continuation of such a movement, key-control stations are provided. These house a normally-closed controller which, when opened by a turn of switch key, drops a relay to lower the gates. The gates are held down when such movements occupy the crossing track circuit. There are five such control stations, two at Harvard street and three at Heights boulevard.

This project was planned and installed by the signal department forces of the railroad.

## Rock Island C.T.C.

(Continued from page 347)

covering. These wires are on the 1st and 2nd pins on the lower arm of the previously existing communications pole line. In siding limits, the 110-volt, a.c. power is extended from the passenger station to the instrument houses at both switches on a line circuit consisting of two No. 6 hard-drawn weatherproof copper wires. The three line wires for local line controls in siding limits are No. 10 hard-drawn bare 40 per cent Copperweld.

Between each instrument house and the switch machine, there are two buried cables, one of which is a six-conductor No. 14 and the other a six-conductor No. 9. To each high signal there are an eight-conductor No. 14 for controls and indication circuits and a two-conductor No. 9 for the lamp circuit. A six-conductor No. 14 cable runs to each dwarf signal. These buried cables terminate on terminals in a box at the base of the mast and from there single conductors extend up inside the mast and out through a flexible metal conduit to the signal. The track leads are No. 9 single-conductor buried cable. All cables connecting to the pole line are underground.

This centralized traffic control was planned and installed by signal department forces of the Rock Island, the principal items of signal equipment being furnished by the Union Switch & Signal Company. The instrument houses and all cases were wired in a shop in Chicago, and were shipped in car loads to construction headquarters. By means of a power derrick the concrete houses were set in place at their final locations. A Fairmont hand derrick on a motor-car trailer, pulled by a gang-type motor car, was used in the remainder of the field work to: (1) Set the pre-cast sectional concrete foundations for signals and instrument cases; and (2) erect the signal masts with ladders attached, and to set the sheet-metal instrument cases. Construction work was started at Caldwell, the center of the project, by two crews consisting of an average of 16 men per crew, one working north and one south. Each crew handled all classes of work except the wiring of cases and houses which was done at a central point. As the sections between controlled sidings were completed they were progressively placed in service.