

feat had legislative proposals, but good laws once enacted usually remain on the statute books while, in their absence, the defeat of bad ones has to be repeated at every session of the legislative body.

Harrison Street Low Pressure Pneumatic Interlocking.

The diagram given herewith shows the arrangement of tracks, switches and signals at the Harrison street terminal passenger station, the "Grand Central Station" of the Chicago Terminal Transfer Company, at Chicago, which station is now temporarily used by the trains of the Chicago, Rock Island & Pacific and the Lake Shore & Michigan Southern, while the terminal station of these roads at Van Buren street is being rebuilt. At present the traffic of the several roads at Harrison street aggregates 212 regular trains a day, viz.:

	Trains.
Chicago Terminal	14
Baltimore & Ohio	8
Chicago Great Western	12
Chicago, Rock Island & Pacific	178
Lake Shore & Michigan Southern	
New York, Chicago & St. Louis	

Until recently the switches and signals at this station were handled by the electro-pneumatic system. When it



Fig. 1.—A Cabin Which Pays No Ground Rent.

was found necessary to enlarge the capacity of the terminal it was decided to adopt the low-pressure pneumatic apparatus; and this has recently been put in by the Pneumatic Signal Co., of Rochester. All the switches and signals shown on the diagram, Fig. 3, are worked from a single cabin with three men working eight-hour shifts. There are about 1,200 train movements a day.

Owing to the necessity of economizing space it was found advisable to set the signal cabin on an open steel frame supported on narrow foundations between the tracks so as not to necessitate the abandonment of any of the tracks.

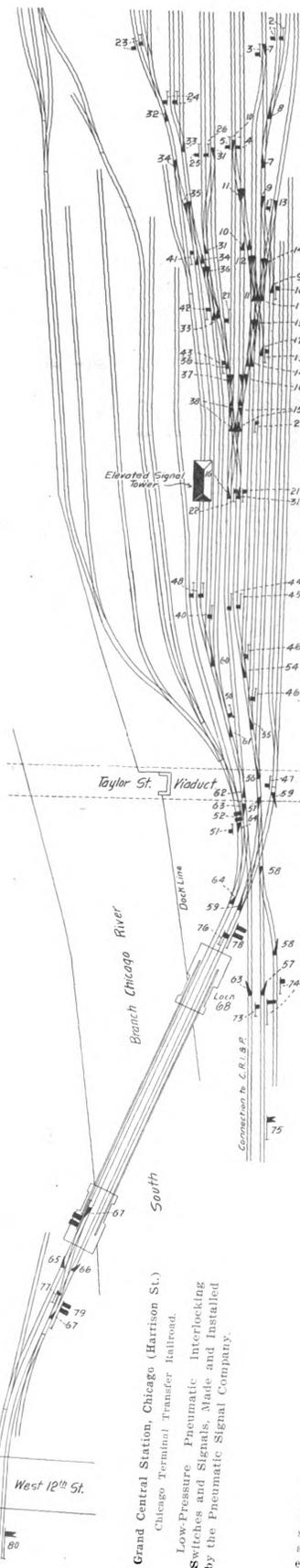
A view of this cabin from the south is shown in Fig. 1. It will be noticed that the track at the extreme left runs underneath the cabin. A better view of the cabin is shown in Fig. 2. This is the first installation of a pneumatic plant in a cabin of this kind, and affords an example of the highest economy of space and most complete freedom from surface obstruction.

The low-pressure pneumatic system of interlocking, now in use at the Grand Central Station, New York City; at Buffalo, Suspension Bridge, Chicago, Jamaica, L. I.; Jersey City, Philadelphia and elsewhere, is well known to readers of the *Railroad Gazette*. Briefly, its advantages are:

1. Requires no force but air.
2. The air pressure is always low; normally 15 lbs. per sq. in.
3. No auxiliary force, such as electricity, is necessary, and no vital function depends on gravity or springs or withdrawal or reduction of pressure.
4. All pipes are normally (except when a switch or a signal is being moved, etc.) subject to atmospheric pressure only.
5. The final movement of the lever is automatic, requiring no effort or care on the part of the operator, so that after pulling a lever he can leave it to go to another portion of the machine.

The power to operate this plant is furnished by an air compressor in the station, which performs other important duties. The signals return to the stop position by gravity, as in other systems, and in addition the placing of the signal at "danger" is insured by air pressure, the same amount of power being used to place it at danger as to place it at safety; in fact, the return "indication" is not possible until the movement of air used for it has first put the signal to danger. The dwarf signals are all locked, thus guarding against the liability of any careless or malicious changing of the arm by persons passing through the yard.

The machine at Harrison street has 68 operating levers and 12 spare spaces. These levers work 42 signals, 68 switches and one bridge lock.



Roadmasters' and M. W. Association—Abstracts of Reports Read at the Milwaukee Meeting.*

Best Methods of Making Foremen, and of Discipline.

There is increasing difficulty in securing young men of suitable qualifications for foremanships, as these qualifications are advancing all the time. In former times many good foremen were illiterate, many not being able to read or write, but with modern standards and methods men of some education and capability of development are required. The difficulty lies in the inadequate compensation. The right kind of men can get more lucrative employment in other lines. The report enumerates the multifarious duties of the section foreman, indicating the extent of general knowledge he must possess and the responsibility attaching to his duties. "He must be posted on the book of rules, he must know much about rules governing trains, he must understand and be up-to-date on the time card, he must have character and good habits, vision and hearing, must know the use of signals, he must inspect the track each morning and guarantee its safety, using his own judgment, he must watch for obstructions, have a knowledge of the capacity of waterways, have a knowledge of masonry, know about bridges and strength of same, he must be so reliable that he will patrol the track in storm, have the material in his charge well cared for and where it can be gotten at quickly, must have his

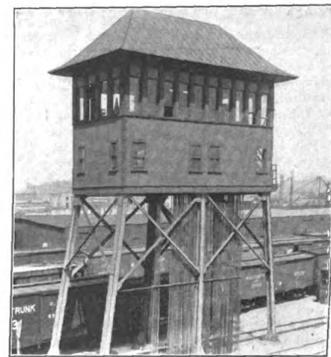


Fig. 2.—Harrison Street, Signal Cabin, Chicago. Low-pressure Pneumatic Interlocking.

tools in place and all rubbish picked up, grass and weeds mowed on the right of way, fences in good condition, must report on wrecks, stock killed, know how to put foot-guards in frogs and obey special instructions, look out for fires, know that the signal lights are out, help when there is a wreck, all day and all night if it is required, and assist all other departments in laborious work; and yet he must have all his own work done, and that with a regular crew of section men. When the daily labor hours are over he must make out and keep a record of his own time and that of the men under him, and make requisitions for supplies needed on his section. He must know how to write letters and keep books without the aid of a stenographer or bookkeeper. He must understand how to raise the track, take out the sags, smooth the surface and tamp the joints, keep the proper elevation and alignment of rails on curves, and when he knows all of this and has it done, he will be considered a fairly good section foreman, if he has the base of mile post mounds built with white-washed rock and has a few flower beds along the line.

The process of education should begin with the section gang. Probably the best plan is to select young men with the apparent mental qualifications, who have joined the gang, and at once begin to work them in charge of crews. Such men the roadmaster must keep carefully under his eye, talking with and instructing them frequently. The foreman must have the importance of accuracy and thoroughness impressed upon him, as the lives of all of the passengers going over his section are under his care. Meetings of the foremen for discussion of matters would prove instructive and beneficial.

As to controlling section men, the days of swearing at them are fast disappearing. However, they must be firmly dealt with. They represent a great variety of characters. The foreman must be a student of human nature to handle his men successfully. The report is signed by L. Bradley, chairman; S. B. Rice, A. L., Mead and E. P. Hawkins.

Track Jacks.

The committee has carefully inquired of the roadmasters and supervisors of many of the trunk lines as to the jacks used by them. While there is still room for improvement, we find that jacks are the best adapted tool for raising track. The track jacks that give the best results to-day are the ones that will raise the track safely and accurately, and release quickly. In yards, around switches and frogs, the work is heavier than elsewhere, consequently the strongest jacks, even though not as quick as others, would be satisfactory. Out on

*A report of this meeting appears on another page.