



Signal Bridges and Tower, Retiro Station, Buenos Aires

Interlockings in Argentine Terminal

Two Electro-Pneumatic Plants with Route Indicators and Special Control Levers, Facilitate Train Movements in Retiro Station, Buenos Aires

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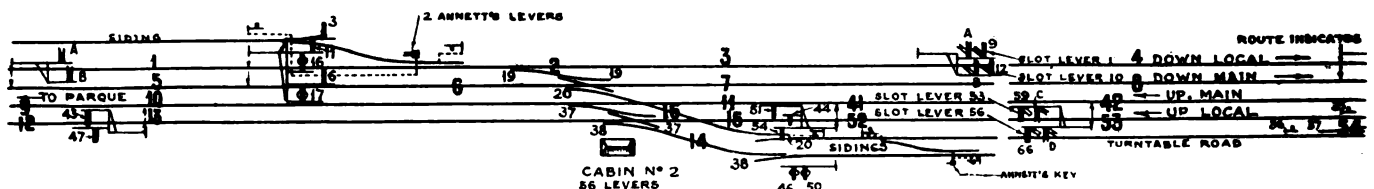
IN connection with the Retiro station of the Central of Argentine Railway at Buenos Aires, Argentine, two complete electro-pneumatic interlockings and a connecting system of electro-pneumatic signals protect all train movements in or out of the terminal. Incidentally the Central of Argentine operates some 3,000 miles of line and an average of 318 trains are operated in and out of this station every day, while it is claimed that 24,000,000 passengers in-going and out-going are handled every year.

Cabin, or rather interlocking No. 1, controls the station yard proper, having a switch control limit of 600 yards at the platform end and 550 yards towards Cabin No. 2. The interlocking machine in Cabin No. 1 is of the electro-pneumatic type, having 258 levers with 173 working levers. Eight of these are the control levers for four ground frames located at the end of the platform, each of which has five working levers. The total number of working levers, controlling all train movements in and out, or about the station yards, being 193 levers, distributed as follows:

are controlled from Cabin No. 1. By this means the towermen at Cabin No. 1 control the down advanced starting signal at Cabin No. 2, which controls the section of track leading up to the down outer signals at Cabin No. 2. The routes are distinguished by the letters *A*, *B*, *C*, *D*, *E* and *F*, and an engineman on approaching the outer home signals is informed of the route he is taking by one of these letters being displayed, when the signal is at clear position.

At the inner home signals the number of routes vary; here the route indicators are numbered, to correspond to the number of the platform road or platform road siding, so that the number displayed informs the engineman that he is running into the platform or platform road siding corresponding to that number. Road *A* has two routes and leads to platform No. 1 or siding No. 1, road *B* has three routes and leads to platform No. 1 or 2 and to siding No. 1.

Road *C* has no "route indicators" and leads only to platform No. 3, but as No. 3 platform road is divided into two sections, with control signals, an indicating signal



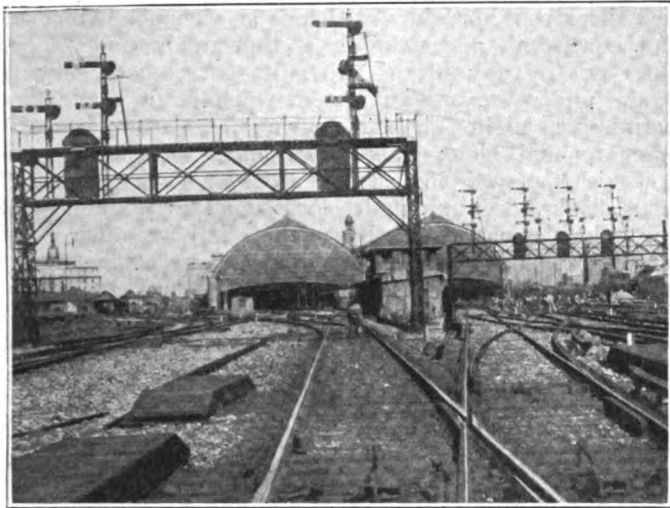
Track and Signal Plan, Showing the Signals, Switches, Track Circuits and Route Indicators

- 68 Main road and shunt signals.
 - 34 Route indicators.
 - 29 Dwarf siding signals.
 - 80 Sets of switches with facing point locks and bars and 16 sets of switches without bars in the platform roads.
- Train movements in or out between Cabins No. 1 and No. 2 are handled by electro-pneumatic signals which

is provided. This signal works automatically with the platform road section signals. If a train is running to the far end of No. 3 platform road, both the inner home and the indicating signals are given, but if the train is to stop in the first section of the platform road the indicating signal remains at the danger position. Road *D*

has 9 routes; these lead to either platform 3, 4, 5, 6, 7 and 8 or to platform road sidings 2, 3 or 4. This road is also provided with an automatic indicating signal, for running into No. 3 platform road.

Road E has 6 routes, which lead to either 5, 6, 7 or 8 platforms, or to platform road sidings 3 or 4. Road F has two routes, one leading to platform No. 8, the other to sidings 7a. Trains leaving the station are controlled

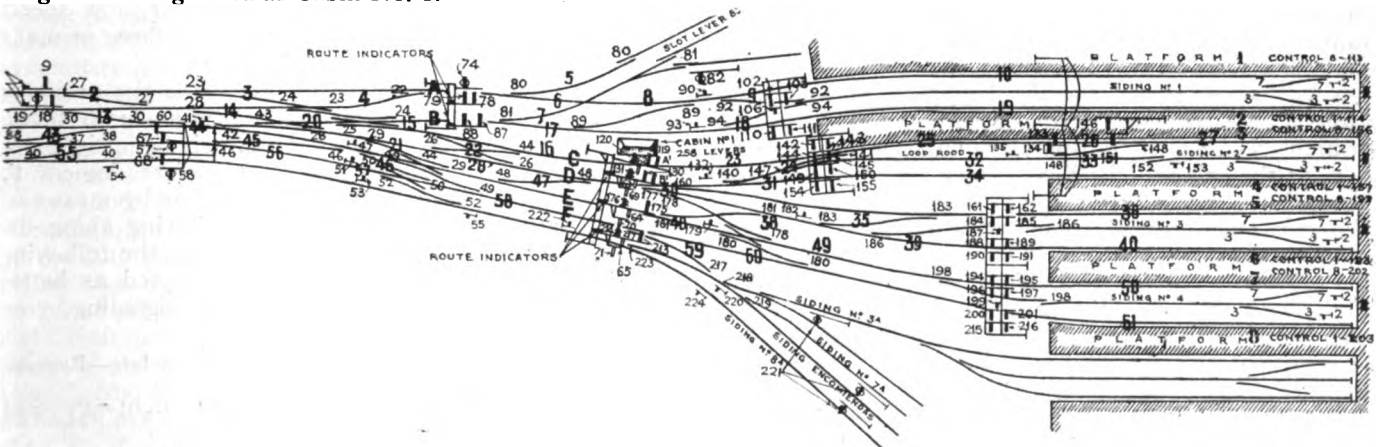


Home Signals for the Train Sheds

by the platform starting signals, inner homes, outer homes and advanced starting signals, these latter signals being controlled from No. 2 cabin by means of the electro-pneumatic control. Switching signals are provided at all the platform road starting signals, for engine or empty train working out from the station, and switching signals are provided at the inner homes for all such movements into the station.

All signals are controlled by track circuits and their locking circuits are taken through the point detector relays, so that before any signal can be cleared not only must the proper route be set up, but everything over which the engine or train is to pass must be correct. By means of electric locks all facing point levers are automatically locked in position by the engine or train in advance, and released as soon as the train has passed the fouling point of each individual switch. This enables the leverman to set up another route quickly with safety.

The conditions of all sections of track are indicated to the towerman by means of an indicating diagram of the tracks and signals and the position or movement of an engine or train can be seen at all times. This is a necessary part of the equipment of any signal cabin, controlling such a large area as Cabin No. 1.

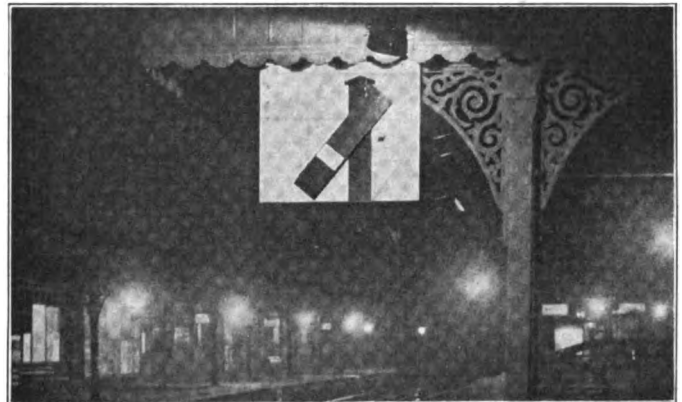


Track and Signal Plan, Showing the Signals, Switches, Track Circuits and Route Indicators

Illuminated Semaphore Signal

ON the London & South Western Railway, England, the signals of the "indicating" or "repeating" type are used as a supplement to the ordinary semaphore signals, and are worked in conjunction with them. On several portions of the line there is a length of slightly curving track before entering a station, and the supplementary signal allows the engineman ample time to pull up before the main signal comes into view. A feature of interest is the method of illuminating these supplementary signals by concealed lights which is illustrated in the accompanying photograph. The signal consists of a red-painted arm on a white background illuminated by a two-burner gas lamp slightly above and in front of the white plate. The gas mantles are completely screened from the eye and the engineman can see the brightly illuminated arm at a considerable distance before arriving at the station.

Another simple but useful device originated on the Metropolitan Railway and now generally used on the



Night View of Illuminated Signal

Underground Railways is the substitution of an electric lamp, giving a visible signal, for the audible signal given by detonators during fogs. The new device consists simply of an electric lamp provided with one orange and one green Fresnel concentrating lens, placed about five feet from the track. This gives an indication that the driver cannot fail to perceive and does away with detonators, the frequent explosions of which are apt to be considered a nuisance by passengers or persons living near the railway.

In addition, the large number of detonators used on the old system proved fairly costly and the substitution of the luminous signal has therefore led to a considerable saving.