

## **Columbus Interlocking Towers in 1897**

When this newspaper article was written in 1897 Columbus had seven interlocking towers. Interlocking towers gave an operator the ability to remotely operate switches and signals from the tower, new technology in the late 19<sup>th</sup> Centenary. The tower operator and the trainmen had the safety and security of interlocking safe guards that ensured the operator couldn't turn a signal to proceed unless the switches were properly lined up or operate a switch under a train.

Enjoy this unknown reporter's 1897 tour of the interlocking towers in Columbus.

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### **INTERLOCKING SWITCHES**

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#### **HOW TRAINS ENTERING COLUMBUS ARE CONTROLLED.**

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**Wonderful System Which Economizes Labor and Insures Safety.**

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**Responsibility and Intelligence of the Men Who Operate the Levers.**

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**An Engine at the Disposal of The Press Makes the  
Rounds of the Interlocking Switch Stations**

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**Columbus Post Press (October 31, 1897)** – You may envy the engineer his position and wish you could ride in the engine. I did. I do not any more. You have thought how easy it all was for the engineer to sit looking out of the cab window with nothing to do but ring the bell or pull the throttle, letting out a shrill whistle that set your very teeth on edge and deafened your ears, or else sent out a white cloud of steam. You have seen the fireman shoveling coal into that fiery furnace that is always asking for more coal, and thought it was easy.

That's because your curiosity has not been gratified. Mine has. I have no more desire for a

#### **RIDE ON AN ENGINE,**

and shall hereafter say a prayer daily for the engineers and firemen that they may go straight to heaven, where there is an even temperature all the year round. The engine is the hottest place on earth in summer and the coldest in winter – the dirtiest spot on earth always. There is the soot that flies from the smokestack, finding its way in the most insistent manner back again into the cab. The fine coal dust from the tender blows about and into your face with sharp stinging cuts. The poetry in life, any way much of it, lies in imagination. Hold to your imagination, for things are not what they seem on an engine. I wanted to be anywhere else in less than five minutes after I was bundled up into the cab by Yardmaster Stack, of the Big Four, and the district passenger agent. All the questions I had planned to ask vanished into space. I could think of

naught but holding onto my seat and my hat. I shall never forget that ride. It came about this way. It was through the courtesy of E.O. McCormick, of the Big Four, redeeming a promise made some three years ago and the district passenger agent, here, that Yardmaster S.A. Stack, of the Big four, brought Engine 95 to the foot of the viaduct steps on the west side Monday morning and I was soon aboard the engine, bound for the interlocking switch tower out by the Insane asylum. [The Big Four's Miami Crossing – MI tower]

The crew was Engineer Frank J. Kearney, Brakeman George Lamma and Joe Donohue, with Conductor Henry Maloney. At first it was easy and slow going, and I blandly remarked to Mr. Stack, "Isn't this glorious?"

He replied something, the full import of which I did not catch, as the track was clear ahead of us, the smooth roadbed of yellow sand and the rails like steel blue ribbons glistening, and verging into a point ahead of us. Perched up on one of the soft padded seats at the side of the engine, my feet refused to touch the floor. The seat seemed awfully narrow, too. With 140 pounds of steam on, we shot forward like a catapult. I swallowed soot, coal, and gasped for breath. The engine seemed to be a teeter-board and rocked and swayed from side to side. I grabbed my hat to keep it on and the yardmaster grabbed me to keep me on the seat.

A runaway electric car is not in it with an engine for an apprehension of danger, and it was the spice of danger about that fast-going engine that was fascinating. We reached the interlocking switch tower in less time than it takes to write it. It was rare good sport for those two crews that day, with my ignorance and timidity.

### **COLUMBUS' INTERLOCKING SWITCHES**

There are seven interlocking switch towers in the city, the Big Four having three alone. They are queer looking little houses with their whole top story of glass and are placed at the crossing of some two, three or four roads. There are but few people ever up in those towers, as the minds of the operators must be given with close attention to the telegraph and electric signals, that the leverman may throw the levers, giving in turn his signal for "stop", or "clear track".

Some years ago, before railroads were so numerous as now, a single man was placed at the target and switch to throw the rail out or in, or to give the signals for the trains.

With the growth in number of railroads, the numerous crossing lines and switches, the demand came for a concentration of power and the more need of precaution at the tracks. Then these interlocking switches were brought into use, and there are very few target men left in the city.

In each tower house in the city there is a row of levers, numbering from 10-48, but which in other places sometimes number 100, according to the requirements of traffic. It is no sinecure these lever men enjoy. Too many hundreds of lives and the safety of too much property are in their keeping. The men are chosen for their sobriety as well as their general knowledge of railroads. Each tower is manned with telegraph instruments, electric annunciators, one or two have telephones, and each lever man must understand telegraphy.

The first thing a man does when he is employed by a railroad in any capacity is to learn the signals, whether it be the semaphore signals, the wild waving of arms, that to the uninitiated makes a man look insane, or the curves and half curves, and circles, as the red, green and white lantern is swung about in the darkness of the night.

Each time a train is to pass over a switch, from one to four of these great heavy iron levers must be pulled back, the same way, the locks in the machinery giving the reverse. They are generally the long and home distant signal levers, the derail and the lock lever, that are thrown.

Every precaution is taken to insure safety, for if one of these signals or details were not attended to, crash would go the trains of passenger coaches with their weight of human freight, into disaster.

At the interlocking switch

## **TOWER OF THE BIG FOUR**

### **[The Big Four's Miami Crossing – MI Tower]**

just a little to the west of the Insane asylum and north of it, the leverman during the day is Mr. T.S. Crissinger, a young man who gives promise of doing much good work for the company, as he is very careful and painstaking. He learned telegraphy at Martel, O., and for one thing, sure, does write a fine hand. At night Mr. T.J. O'Neil watches over all and slumbers not. At this tower the Panhandle crosses the Big Four and a little further east the B&O and the Toledo and Ohio Central. This is about three miles from the city. The Big Four has three towers in the city the most of any road entering Columbus.

There are 15 levers here. The Panhandle has an electric signal to announce the approach of trains to the tower, as well as depending upon the memory of the operator. The machine used is manufactured at Swissvale, Pa. The longest distance for the throw of the derail switch is about 125 yards, and the target is a quarter of a mile distant. The derail is often called the safety switch, as its being open or closed causes the train to stop, throwing it off or on to the main track. For a still further protection of the derail the detector bar is run along the rail so the derail cannot be thrown up under the train and so catch it.

If anything goes irreparably wrong here the leverman notifies Mr. L.D. Jones, of Springfield, for the Big Four, or Mr. T.J. English, superintendent of this division, by wire. The Pan Handle supervisor of signals is notified at Cincinnati. The lamps for these crossings are not kept in the Big Four tower as at most places. Some years ago a man named Young tended the target before the interlocking machines were used. His home was on the north side of the tracks, and across the rails from the present tower. He built an old fashioned underground cellar that is walled up on the outside by dirt, after the manner of those days. The Big Four uses this cellar for keeping of the lamps and the oils; and everything at the tower house is sweet and clean. It is the only one in the city where the lamps are not kept in the tower house.

There is as much individuality shown in the care of these towers as women show in their homes. Mr. Crissinger loves flowers and in the south windows has a number of them. As stated before the lever room is all surrounded by glass windows and the scenery from this one of the Big Four is beautiful. It is in the cleanest location of any tower in the city except the one at Bannon station south of Columbus, and belonging to the Toledo & Ohio Central and Norfolk & Western.

At night the lamps in the tower are so placed as not to be directly seen from approaching trains, as that would blind the approaching engineer's view of the railroad signals.

We were out at this tower sometime watching the working of the levers for the different trains coming and going when engine 46 came out after us manned by a jolly crew – Conductor

Parker, Engineer Thomas Carney, Fireman I. Irwin, Brakeman James Maloney and W.M. Burgoon, and we were soon back in the city.

There are odd terms used in these towers for different parts of the machinery – locks, selectors, block signals, bell crank leadouts, socket shafts, carriers and sleeves and plugs and couplings for pipe lines, which are used to throw switches, screw jaws, compensators and facing point locks, which must be used on all switches and a detector bar provided for each route, worked in connection with the facing point lock, and also used at crossings to insure clearance of way. Counter balance levers and derails, when not otherwise specified, are considered as switches that are unintelligible to the uninitiated.

Home and distant signal arms of the semaphore are painted yellow on the face with a black band upon the arm, and the back painted white with a similar black band across the arm.

The machines at the towers are supported on a separated foundation, not connected with the building in any way, and one notices the top plates in the lever room are made in sections, and all levers have an equal, uniform throw. All levers are numbered, with the switch and lock levers in the center, signal levers at the extreme ends and in the direction of the signals which they operate. One lever may be used to throw a switch and lock, switch and signal or lock and a signal, a home and a distant signal or a high and low speed signal.

Pipe lines are used for connections to switches, detector bars, locks, selectors, and block signals, and may be used for all signals. They are the iron pipes so often seen running along the rails, not less than three feet from the iron rail and about every seven feet apart are little wooden platforms. These are called carriers or supports. A compensator is used to reverse the levers of the pipe line and all pull back to lock the derail.

The signals of the railroads generally used are of the semaphore pattern. They are an upright white pine post, painted white and never less than 25 feet high, with one or two movable arms, with either square or forked ends according as their signal is. Thus, an arm with a square end is a home signal, and in daytime in a horizontal position it indicated “danger, stop.” At night these positions are shown by illuminating the arm or indicated by colored lights, red for horizontal.

Inclined at an angle of 45 degrees to the horizontal it indicates “caution, proceed carefully,” and has the green light. At an angle of 75 degrees or to the horizontal, it indicates “safety, proceed,” and the white light is used at night.

An arm with a forked end, that is notched to a depth of eight inches, is a distant signal for a high speed route and regulates the approach, as the top arm, excepting for train order and switch signals, is used to govern the main line or high speed route, and the bottom to govern all diverging routes. Two arms are used on a home signal post or one arm on a distant signal post. In a horizontal position its indication is to approach its home signal prepared to stop, and has green light. Inclined at an angle of 75 degrees its indication is “safety, proceed,” and at night a white light is used.

A separate post is used for each track to be governed and whenever it can be done is placed on the right hand side of the track. The signals are kept at “danger,” except when ready for trains to pass clear, and the home signals are placed at the first point of danger, which they govern, near the tower house, and distant signals for a tower in advance must never be located at a distance less than 600 feet in advance of a home signal of the tower in the rear, and in no case are any interlocking signals located between a home signal and its distant signal.

All the signal arms have to be counterweighed so that the arm will go to a horizontal position should a brake occur in any of the connections, or the lever be released.

A high semaphore signal is used as a distant switch signal at points where the signal at the switch cannot be seen at a sufficient distance. Then when used so in a horizontal position indicates that the switch is open.

The low signal arms of the dwarf semaphore are not over two feet six inches high above the base of the rail. The short, low semaphore arms, like dwarfs, govern the main running tracks in their reverse direction, and movements from sidetracks to the main tracks, or sidetracks to sidetracks. If the signals are not properly displayed, the engineer may watch for accident, as it presages danger. The train must stop, and not proceed until every precaution has been taken to insure safety.

The lampman, where there is need for more than one man in a tower, is a machinist as well. He has to inspect all signal switches, derails, detector bars, locks and other movable parts at least twice a day, and has to keep them in perfect order. In case of accident he cannot repair, he at once wires the supervisor of signals, as there are telegraph instruments in each tower. Then, too, in the lamps but the very best of lamp oils are used, and these lamps must be cleaned and filled every day and the wicks trimmed, all of it a slow puttery, but important part of the work.

### **SWITCH TOWER PRISONERS**

#### **[The Hocking Valley's Scioto tower – LM Cabin]**

“We are just like prisoners here for 12 hours of the day.” Said W.H. Albee, machinist and lampman at the interlocking switch tower at the intersection of the Toledo and Ohio Central road, the Little Miami, and the Hocking Valley near the Toledo and Ohio central depot on the West Side. “From here you can see the hundreds of tracks winding in and about the city like a great octopus reaching out. From the street one can have no idea of the work done in these towers nor the number of railroads in a city, but up here you can glean some idea.”

In every direction were the blue steel ribbons and the switches that were constantly being shut or opened by the lever with a quick clang. If it were not for these interlocking switches it is doubtful if all the lines could get into the city. Some of the roads use one another's tracks as they near the center of town.

The machine used in this tower is a 28 lever, put up by the Union Switch and Signal Company of Swissvale, Pa., and has been in operation since October 1895, when the large tower house was built. J.E. Murphy is day leverman and Peter Madsene night leverman. One lever at this tower, No. 22, pulls five different semaphores or signals, but one at a time of course. As stated before these levers are all painted and the first home semaphore signal from this tower is 500 feet and at the Toledo and Ohio Central, north of Broad street, 800 feet. The distance switch semaphore is thrown a distance of 1500 feet, the longest distance of any in the city.

In this tower, which Mr. Albee and Mr. Murphy claim the dirtiest, though it was clean, noisiest and busiest in the city, there are electric annunciators. When one of the pipe line levers is used to lock the derails, standing in tower, the levers are all drawn back the same way, then are the compensators drawn to reverse the levers, and if it were not for these reverse locks, there would be some mighty big smashups. The protection bar is another thing that prevents the towerman or leverman from taking the derail away from the train. They must see before

replacing the signals at danger that the rear part of the train is not stopping on the detail or the protection bar, else there would be trouble from that.

Mr. Albee has grown up in the interlocking switch work, and has helped put many machines in, among them the one near the Twelfth street station of the Big Four on the Lake front of Chicago.

When machinery breaks or accidents occur here Supervisor of Signals of the Toledo and Ohio Central Mr. F.S. Schmeiser, of Bucyrus, is noted.

### **IMPORTANT TOWER POINTS**

At the Norfolk and Western tower house on Chase avenue there are three men on duty there who work each eight hours per day. It has a crossing with the C., A. & C. railroad and there are 22 levers there. [The N&W's CW Tower]

At Reed avenue the interlocking tower has a 48-lever machine, the Union Machine company, though but 10 levers are in use. The Norfolk and Western railroad has a double track and the B. & O. and the Panhandle cross here. Dayman Morgan and Mr. Best at night have charge. Here the levers throw a distance of 600 feet. It is the oldest tower in the city. [The N&W's BW Tower]

The octagon shaped tower house on Russell street, of the Cleveland, Akron and Columbus Railroad near Milo, is the prettiest in the city. Fragrant honeysuckles and morning glories run riot up the sides of the house over the balcony on the south side, until it looks like a cottage from a distance set down in the V at the junction with the Norfolk and Western.

The supervisor of signals of the Cleveland, Akron and Columbus road is Lewis E. Cargould, and he has chosen a good set of men, students some of them, for the work is not so constant and wearing as at the Toledo and Ohio Central railroad tower of the West Side, nor of the Big Four.