South Shore Line Uses Spring Switches on Heavy Traffic Lines

Number 20 turnouts permit high speed—Two spring rods for switch

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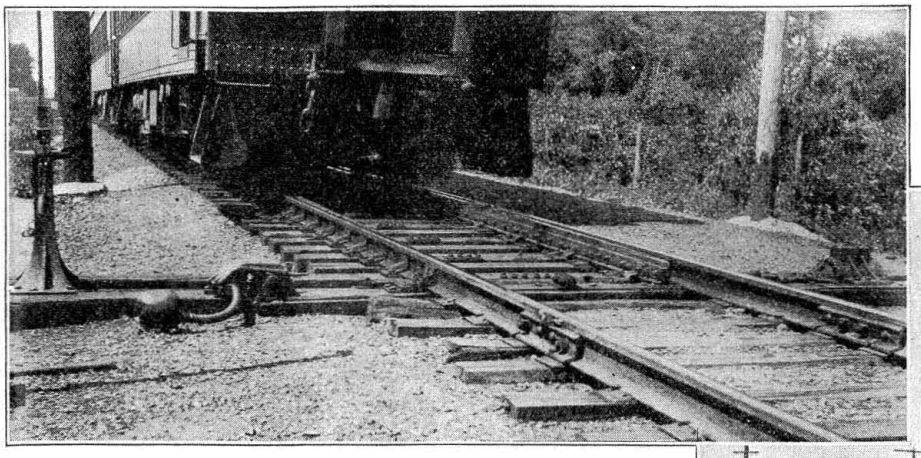
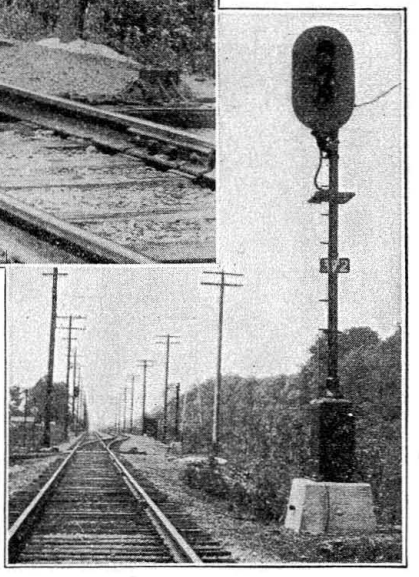


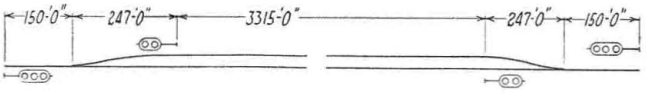
View of front of passenger train traveling 45 m.p.h. on main line through a spring switch



Color-light signal as facing point protection for spring switch Signal is 150ft. in approach at switch point

SEVERAL interesting developments in the application of oil buffered spring switches have been made on the Chicago, South Shore & South Bend, an electrified railroad that is handling a heavy passenger and freight traffic. On the 25-mile section of single track between Gary, Ind., and Michigan City, the "South Shore" is handling 44 passenger and 8 to 10 freight trains daily and in the summer season as high as 62 passenger trains on Sunday. Passenger trains consist of from 2 to 8 cars, and freight trains, up to 40 cars. The motor cars weigh 130,000 lb. and the trailers 93,000 lb. The dining cars weigh 112,000 lb. and the parlor cars 111,000 lb. Freight locomotives, of which there are eight, weigh 80 tons each. About 140 coaches pass through the high-speed sidings in a day or an average of three cars per train. The "South Shore" carries fast l.c.l freight with overnight service between points on its own lines, and interchanges at several points with steam roads. About 150 loaded cars of freight are handled daily and in the coal season as high as 400 cars.

Through passenger trains are scheduled to run between Gary and Michigan City in 31 min. or at the rate of 49 m.p.h. In order to maintain such schedules, the number of train stops and time lost in



Automatic signal protection at passing siding equipped with spring switches

waiting at meeting points, must be reduced to a minimum. The schedules are arranged so that opposing trains arrive at opposite ends of a passing track at approximately the same time.

A typical passing track, 4,060 ft. long, is located on the north side of the main line at Tamarack, 15 miles east of Gary. The switch at the east end is set normally to divert trains on to the passing track, and after running the length of the passing track, they trail out through the switch at the other end, which is set normally for the main line. Eastbound trains stay on the main line, trailing through the switch at the east end of the passing track. In order to permit trains to run in and out of these passing tracks at high speeds, No. 20 turnouts are used. These turnouts are taken normally at 45 m.p.h., but a test demonstrated that the turnout could be taken at speeds up to 60 m.p.h. with safety.

Special Features of Switch Construction

The main line as well as the passing tracks are of 100-lb. rail. Morden adjustable rail braces are used on the front switch ties with an insulated gage plate. Morden 5/8-in. detector bar braces (14 on each point) are used. Tie plates and rail braces are used on the 15 or 16 ties back to the end of the switch point. The switch points are 30 ft. long and are reinforced with steel measuring 1¾ in. square and 28 ft. long. The reinforcing is required to prevent whipping of the points when the switch is being trailed through.

Four adjustable gage rods are used, with a Morden spring rod connection on the first rod connected to the operating rod of the switch stand, and another spring rod on the gage rod connected to the fixed plate. This second spring is used for the purpose of holding the switch stiff and tight against the rail and to prevent bending of the point. The two switch ties are 7 in. by 9 in. by 18 ft. long, with the switch stand on one side of the track and the oil buffer on