

provement in the cams, their adjustment and the ease with which the adjustment could be made, the general tendency being to make them more substantial than heretofore. Some of them were equipped with three-position cams.

The battery displays were even more thorough than usual, the application of caustic battery to track circuit being ample reason for this. Several of the companies have recently designed a 1,000 a. h. cell having some advantages over the 500 a. h. type, the principle being to have twice the amount of active material in the chemical.

The insulated rail joint display was larger than usual. Several new ones have been put on the market, which indicates clearly that perfection has not yet been reached. Each year brings out new suggestions by track and signalmen, and when these are combined with the engineer's ability, there should eventually be perfected a good, serviceable insulated rail joint which will not be over-expensive, either in first cost or maintenance.

On account of the increased amount of automobile traffic in recent years, there is an increasing demand by the public at large for better highway crossing protection and this demand has brought on the market various types of warnings in every conceivable design, the wig-wag being the highest in favor at present. At this year's exhibit a generous display was made by all companies interested in such devices, the motor-driven and the magnetic being the principal designs. The motor arrangement is a gear-driven affair which operates the banner alternately across the public thoroughfare upon the approach of a train, and the magnetic types comprise a Z-armature arrangement which by the medium of contacts and gravity accomplishes the same result. The disappearing disc was a new feature over the 1916 exhibit, the new attachment being for the purpose of indicating to the public when the apparatus is out of order. The big object in the present development of wig-wags is apparently to reduce the current consumption and in turn reduce the cost of maintenance, which at present is high. The various methods of control for these wig-wags were displayed, including track instruments, time elements, interlocking relays, etc., and indicate a decided improvement.

The motor car display showed improvement in that the weight of the cars has been taken into consideration and the efficiency of the motive power increased, and it might not be out of place to state that any cars exhibited could be relied on to get you into your destination on time, which is saying a good deal when compared with cars of six or seven years ago.

The slide rules, tapes, scales and other measuring instruments displayed were something which appealed to the signalman in that their exhibit had a touch of accuracy about them which made the observer confident if he bought a scale and took it out on the job a one-inch plunger would measure one inch and not one and one-eighth inches.

The automatic stop displays were so equipped and assembled as to make it comparatively easy to understand the performance of the apparatus, which excited the curiosity of even the ordinary laymen as well as observing signalmen. As a suggestion, I think companies exhibiting would not be amiss to try to so arrange their apparatus that one would see it as in actual field practice. The ordinary signalman is in this way better able to grasp the idea of what the various pieces of apparatus are designed for and would be more impressed by the possibility of an application of this particular piece of apparatus to some special condition he had to meet.

TORNADO DAMAGES INTERLOCKING PLANT

VERY few signal or interlocking installations are called upon to withstand the elements as was a plant in southern Indiana in a recent storm. The result is described as follows in a letter from O. E. Rice, supervisor of signals, Pennsylvania Lines West, Louisville, Ky.:

"After a day of hard rains and high winds a terrific tornado came up from the southwest and traveling along the Ohio river struck the city of New Albany, Ind., in all its fury, cutting a swath through the town about six blocks wide and about two miles long and leaving in its wake 49 dead, 175 wounded and damage to property estimated at \$1,500,000.

"Traveling thence across the country, destroying everything in its path, the tornado struck the crossing of the B. & O. S. W. and the P. C. C. & St. L. about 2½ miles north of Jeffersonville, Ind., and about two miles east of New Albany. This crossing is protected by an interlocking operated and owned by the B. & O. The tower was a two-story frame building and the interlocking machine was a 16-lever Style A, Federal machine with electric detector locking.

"The tornado reduced this tower to splinters and cast it and the interlocking machine across the P. C. C. & St. L. track. The machine was found in the crossing frog about 50 feet from the foundation of the tower. The towerman had a miraculous escape from death, being blown with the wreckage across the track. Although painfully injured, he managed to reach one of the few farm houses in this vicinity that escaped the tornado and sent word to headquarters.

"The tornado tore down nearly all of the signals and demolished the wire lines for nearly half a mile in every direction, either uprooting the poles or snapping and twisting them off about five feet above the ground. The interlocking machine had one leg broken and several levers bent, but otherwise the damage was slight, considering the distance it was blown. The lead-out cranks were torn off, the bolts and lugs being left in the timbers.

The lead-out in front of the tower was entirely demolished, the pipes being bent and broken. All the pipe lines were bent and knocked out of line by flying debris and two steel home signals were broken off of their concrete bases, falling across the track. The signals that were left standing were shorn of their signal blades by the force of the wind.

"Upon receipt of the message from the towerman, a wreck train was sent on the P. C. C. & St. L. from Jeffersonville and work was immediately started, cleaning the debris from the tracks. After 1½ hours' work the tracks were cleared, no delay to trains being sustained. The signal wires were straightened and used as emergency telegraph wires. These were later replaced by a temporary cable laid upon the ground. The movement of trains over the crossing was governed by hand signals. The next day a crossing target was installed and is still being used as a different track layout is under consideration.

"In addition to the marvelous escape of the towerman, the cyclone played many freaks, the most prominent being the manner in which some of the signal blades were damaged on a few of the signal poles left standing. The blades were sheared off in the middle, the line of break being as straight and sharply defined as if a line had been marked across the blade, the timber in the blades being of unusually good quality."