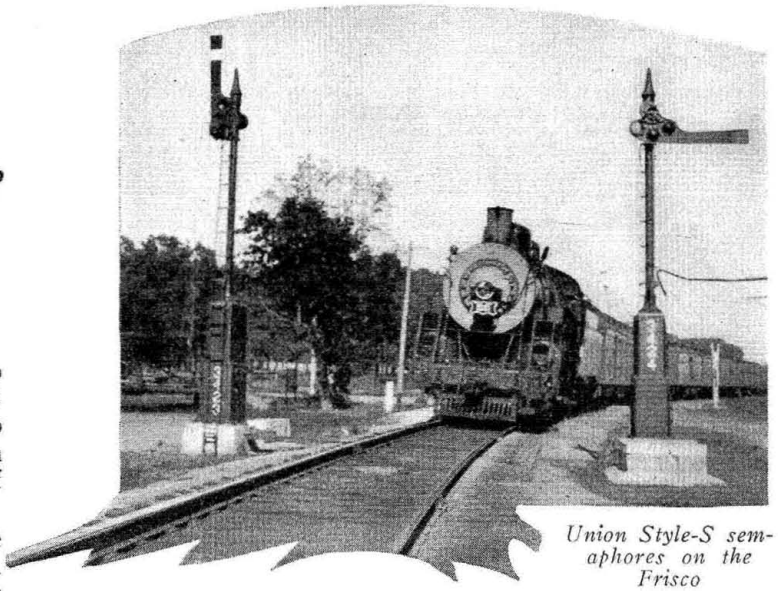
Frisco Installs Semaphores with Color-Light Indication

A 5-watt, 10-volt bulb in signal lamp with reflector gives a daylight indication up to 5,000 ft.



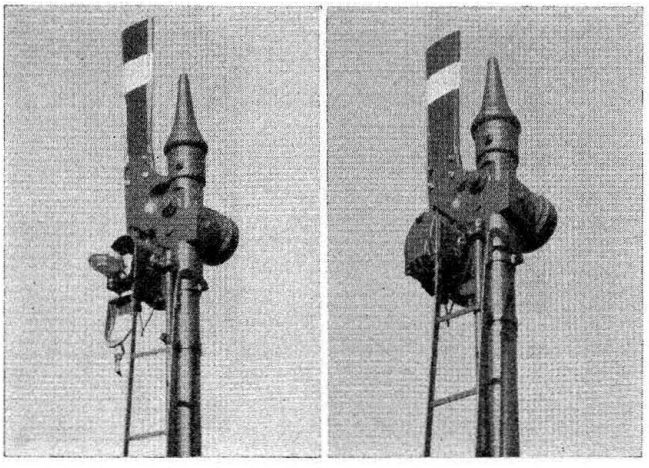
Union Style-S semaphores on the Frisco

DURING 1928, the St. Louis-San Francisco installed automatic block signals on 58 miles of single track from Thayer, Mo., to Hoxie, Ark., on 14 miles of double track from Tulsa, Okla., to Sapulpa, and on 22 miles of single track from Sapulpa, Okla., to Bristow.

All signals are the upper-quadrant semaphore type with d-c. Styles-S Union mechanisms. Combination mechanism and instrument cases were used. The foundations were pre-cast in combination with a concrete battery housing designed to hold 48 cells of battery. The track battery, where not located at a signal location, was housed in a concrete box designed to hold eight cells. Each control circuit is full metallic and has its own battery, the common return wire being eliminated. Polar relays, of 670 ohms, are used on all line circuits with 4-ohm relays on track circuits.

Approach lighting is accomplished in three different ways; on curved track, the lighting circuit is controlled through a back point of the approach track relay; at double signal locations on single track, the control is through a circuit controller operated by the opposite signal, the circuit being closed with the signal in the stop position. At all other locations a D. N. L. relay of 78 ohms resistance is connected in series with the signal control circuit of the signal in the rear, and the light is controlled through the back point of the D. N. L. relay.

For the purpose of placing the semaphore blade about the height of an engineman in the cab of a locomotive, short masts were used, which placed the center of the blade 15 ft. above the level of the top of the rail.



Long range electric signal lamps provide not only a night indication but also a daylight indication under the most adverse conditions

The most interesting feature of the signals constructed in the 1928 program is the use of long range electric signal lamps designed to provide not only a night indication, but also a daylight indication under the most adverse conditions. The operating department desired that semaphore signals be used in order that trainmen could observe the signals, and the track department considered that semaphore signals assisted men on motor cars by protecting them from approaching trains. However, the operating department desired that the semaphore indication be supplemented at all times by the electric light. The signal department, therefore, made numerous tests to secure an electric semaphore lamp that would give a satisfactory daylight indication even under the adverse conditions of the sun shining on the lens.

In view of the fact that these signals extend through a rather sparsely populated section, where power is not available, it was necessary to use primary battery as a source of power. Therefore, the lamp rating was limited to 5 watts at 10 volts, the light being approach controlled and fed from the regular 16-cell primary battery, which serves also for the operation of the signal and the line control relays.

The signal lamps are the Adams & Westlake type, No. 1184, with cast-aluminum body and fittings for mounting on a regular Signal Section, A.R.A., lamp bracket. The lamp is mounted in a fixture bracket so arranged as to bring the filament at the focal point of a 6½-in. decentered Corning-Lebby mirror, which throws the beam through the clear glass cover and out through the colored roundel in the spectacle casting.

The track is curved throughout the greater portion of the recent installation so that spread-light cover glass lenses were required. The color-light indications at night can readily be seen as far as the signal is in view of an engineman of an approaching train and the color of the indication can easily be distinguished by the reflection of light on the rail on a curve before the signal is in view. During daylight, the color-light indication can be seen readily and in some cases, can be seen better than the blade where the background is against a hill or trees. After a thorough inspection, the operating department expressed satisfaction with the results obtained by the new signals.