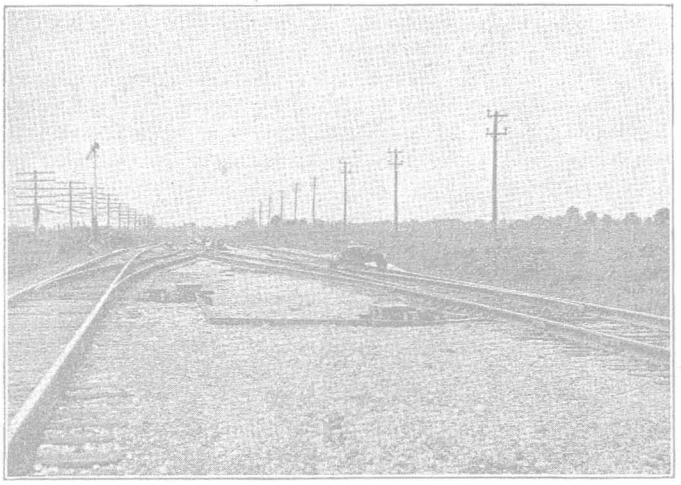
addition to the machine on account of the fact that an enlargement of the mechanical machine would have been very expensive. The outgoing switch of a large yard at Davies, Mo., is located in the main line about 5,000 ft. from a railroad crossing where there is an interlocking plant and it was arranged to operate this outgoing switch by power machines and save employing switchtenders. The cost of this installation was $4,300 while the annual cost of switchtenders would have been $5,168.

Ends of Double Track Handled Economically

At several places on the Burlington, where the switch at the end of double track would otherwise necessitate train stops, this switch, together with the signals protecting the movement of trains, are operated electrically by low-voltage motors and are controlled by levers in nearby stations or towers. For example, at Bridge Switch, Wis., the switch at the end of double track is controlled from the tower at a railroad crossing at Crawford, 1½ miles away, thereby eliminating the necessity for trains stopping. This line handles four passenger trains and about eight freight trains each way per day. This installation



Two of the Switch Machines at East End of Center Passing Track, Mendota, Ill.

cost about $9,000, as compared with a separate interlocking which would have cost $7,500 and necessitated the services of operators at $4,900 a year.

A somewhat similar arrangement was installed at the end of a passing siding at Armour, Mo. A crossover located about 5,000 ft. from the actual end of double track is used for the operating end, the extra track being used as an advance passing siding. The distant switch is operated by a power machine controlled from the station, which cost $5,200 and eliminates many train stops. The control of this switch is in the hands of the operator at the station 5,000 ft. away. At Shannon, Iowa, the mechanical interlocking at the end of double track is being replaced by a low-voltage electrical layout to be controlled from levers in the interlocking plant at Harrison which is the other end of a short piece of single track 3.9 miles long.

Permits Great Economies at Passing Track Switches

In locations where grades are adverse for the starting of trains, either in entering passing sidings or in starting trains after stopping to close the switch when pulling out, the use of switch machines to operate passing track switches has proved to be an important factor in reducing delays and in reducing the number of pulled-out drawbars and other unnecessary wear in equipment, especially in long freight trains.

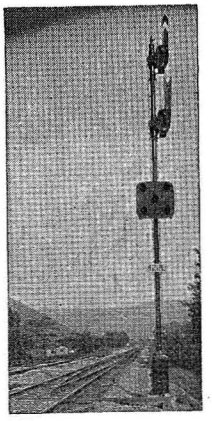
On the double track main line through Mendota, Ill., the west end switches for a middle passing track are operated mechanically by pipe connections from a mechanical interlocking machine. The three switches at the east end of this siding as well as the derail on the siding, together with the necessary signals, are operated by low-voltage motors, controlled by a separate set of levers in the tower about one mile away. This installation, which cost $18,500, facilitates train movements out of a congested yard.

In the double track line through Oneida, Ill., lap sidings are used, the entrances to which are at the station and are handled by the station operator. The sidings are 5,000 ft. long and the outgoing switches were handled by trainmen, making it necessary to stop the trains to set the switches behind them. The switch of the eastward siding is 5,000 ft. from the station and at the foot of a grade, making it difficult to start a heavy freight train after stopping to pick up a brakeman after he has reset the switch behind it. To avoid such stops and the consequent delays this switch was equipped with a power machine controlled by the operator in the station, at a cost of $5,200, which has not only saved the cost of making the stops but has appreciably shortened the time of eastward freight trains which have taken the siding at this point.

In most cases, as shown by the foregoing, the Burlington has installed remote control power switch machines to enlarge the scope of an existing interlocking plant and in that way get the advantage of the facility without increasing operating expenses. One installation proposed for this year, which is estimated to cost $13,000, will completely eliminate an existing interlocking plant which costs $4,900 per year for labor to operate.

Position-Light Take Siding Signal in Combination With Semaphore Installed on C. & O.

THE Chesapeake & Ohio has recently installed a position-light type take siding signal to be used in combination with a semaphore automatic signal located 3,450 ft. west of Deepwater Station, W. Va. This is a special signal of the two-position light type used to indicate to approaching trains that they should take siding at the first non-interlocked switch located 1,150 ft. east of the signal.



Position-Light Take Siding Signal

If the operator receives instructions from the train dispatcher to have an aproaching train take siding the operator manipulates a double pole switch in Deepwater station which controls a line relay located at the signal and the five lights are continuously lighted from primary battery until the train has passed the signal and the operator has placed the double pole switch in the normal position. The lights on the signal give the appearance of the letter "X" when burning.

This is he first position-light signal in service on the Chesapeake & Ohio. On account of its special type the indication given by the signal does not conflict with other indications given in the book of rules. The use of this signal has proved of great value in facilitating train movements into the Deepwater passing siding.