

# NEW DEVICES



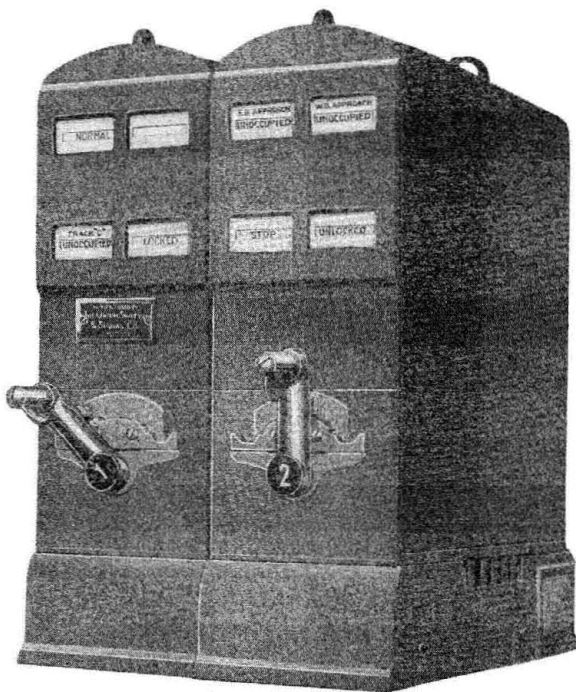
## Improved Type of Circuit Controller

THE economy produced by power operation of out-lying switches and signals, remotely controlled from a signal tower or station office, has caused an ever increasing interest in such installations.

The Union improved interlocked circuit controller lends itself to the universal control of semaphore or light type of signals; 110-volt or low-voltage switch and lock movements or electro-pneumatic switch and lock movements. Either direct or alternating current may be used as provision is made for both types of

ing. Large size contact rollers are caused to rotate through 120 deg., thereby assuring reliable adjustment of contacts.

A feature of this Union controller is the information afforded by a maximum of four indicators per unit.

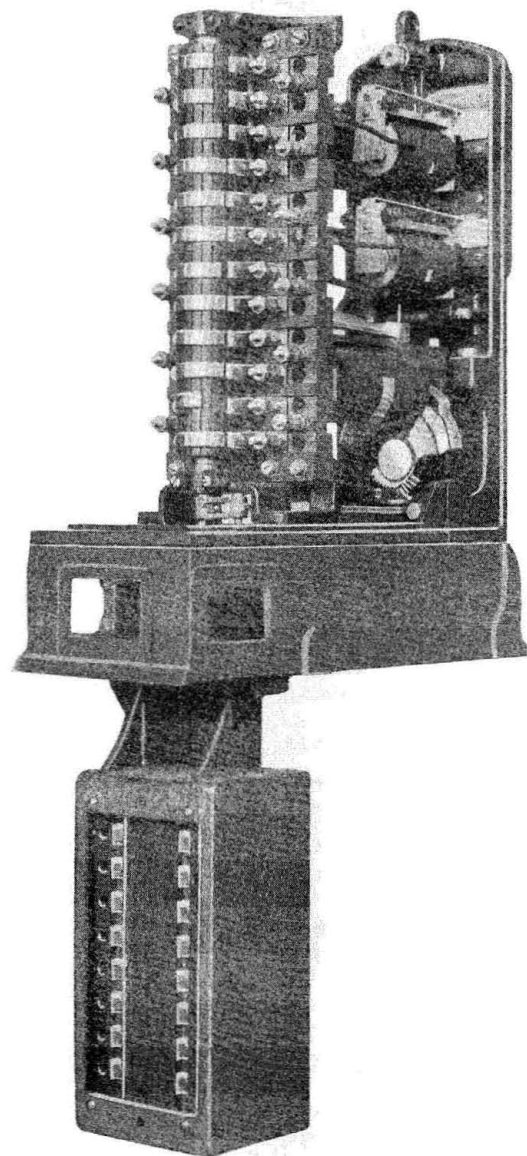


Two Units of New Union Improved Type Desk Lever Interlocked Circuit Controller

magnets for electric locks and indicators. It incorporates all of the features found in any modern power interlocking machine lever and has been especially developed to meet the exacting requirements of safety which have to be established in connection with the remote control of switches and signals.

Twelve contacts constitute the standard equipment of this circuit controller but ready means are provided for eight additional auxiliary contacts.

Control levers are long and travel through an arc of 90 degrees, thus insuring not only ease of movement but also no confusion on the part of the operator as to the position in which levers may be left stand-



Circuit Controller Standard Equipment Includes 12 Contacts but Means Are Provided for 8 Additional Contacts

In the switch control unit the indicators may be arranged to show the position of the switch as normal or reverse; whether the track circuit in which the

switch is located is occupied or unoccupied; and whether the lever is electrically locked or unlocked. This last function may be effected by linking the indicator directly with the electric lock. Indicators on signal control units may show directional approach of trains; whether what may be termed the "home" block is occupied or unoccupied; and whether the lever is electrically locked or unlocked.

Mechanical interlocking between units is of the miniature S. & F. type, the same as is used in the Union Model-14 power interlocking machine. Ample space is provided behind the mechanical locking for reception of external wiring and liberal mechanical clearances throughout guard against congestion of wires and their interference with moving parts.

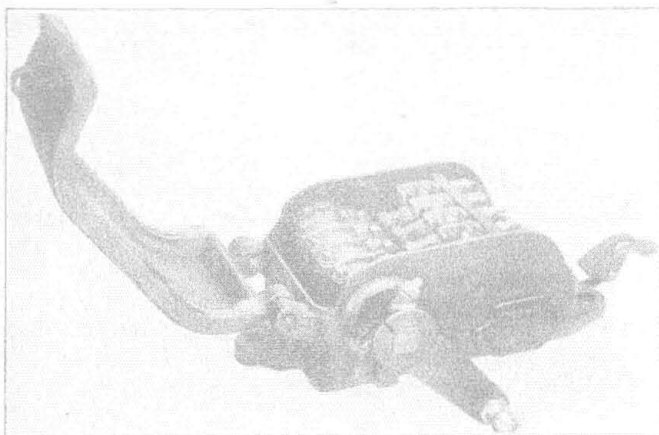
The lock segment is provided with a forged drop feature which guarantees that the armature of the electric lock drops into engagement with the notches of the lock segment. This guarantees against a false release of the lever as a result of mechanical sticking of the electric lock.

The use of time locking to guarantee against taking a signal away from an approaching train and immediately changing the position of a switch in a route, is readily realized by means of a mercury time release application which can be furnished with the improved circuit controller.

These units are shipped completely assembled by the Union Switch & Signal Co. and practically the only work to be done in connection with their installation is the wiring up of the circuits.

### Switch Controller Has Special Adjustment Features

A NEW switch circuit controller designed to secure simplicity and positiveness in adjustment has been placed on the market by the Chicago Railway Signal & Supply Company. Four contact fingers are used, each equipped with front and back contacts. In order to insure against grounds the contact and fingers are insu-



New Switch Controller Has Improved Adjustment Features

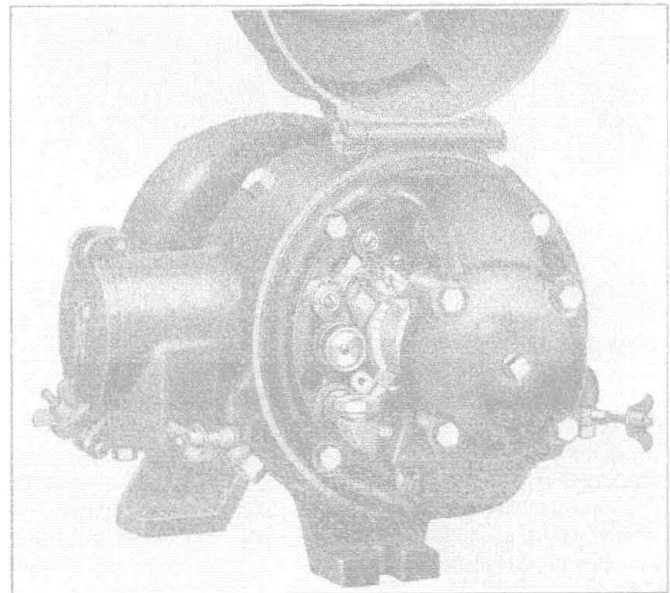
lated from the case on a heavy bakelite base. Standard A.R.A. terminals, 12 in number, are mounted on the same panel with the controller.

An insulating link  $\frac{1}{2}$  in. square and  $1\frac{1}{4}$  in. long connects each finger with the arm that engages with the cam. To reduce friction to the minimum, a hardened steel roller is used to transmit the rotary motion of the cam to the contact finger control arm. The cams are mounted on a  $1\frac{1}{2}$  in. cam shaft and can be

adjusted by means of a worm screw arrangement, locked by a clamp. Special cams are furnished for installation at points requiring switch controller contacts to make and break during the stroke of the switch. The overall dimensions of the new switch circuit controller are  $7\frac{1}{2}$  in. by 15 in. by 6 in.

### Turbo-Generator Designed for Train Control Application

THE requirements of modern train control have created a number of new conditions to be met by turbo-generator design. For the combined service of locomotive headlighting and power supply to the train control apparatus new standards of performance are required. In the operation of train control systems, either of the continuous or intermittent types, the important feature of a smooth wave and



End View of Pyle-National Small Turbo-Generator Unit

unvarying direct current supply for the filament, dynamotor and inductor circuits should receive primary consideration. Alternating current in these circuits may introduce a potential failure of the train control. The existence of an a.c. supply in the amplifier circuit may introduce an overload or parasitic loading of the vacuum tubes with a probable failure of the train control. A two or four-pole generator with a ring wound or lap wound armature contributes to the undesirable possibilities due to the inherent characteristics of these types.

With the belief that no adaptation of a standard headlighting generator would be satisfactory for train control service, the Pyle-National Company designed a special unit for this service. The Type E-3 turbo-generator was the first machine on the market which was built specifically to meet train control requirements. It was designed to give a perfectly smooth, flat voltage wave form, and to retain its special characteristics throughout its entire service life. These machines, of which there is a number now in operation, have given satisfactory service.

Based upon operating experience with the Type E-3 unit, and in response to a definite demand for a smaller machine, the Pyle-National Company has designed the new Type MO-6 turbo-generator for combined headlighting and train control service. This machine