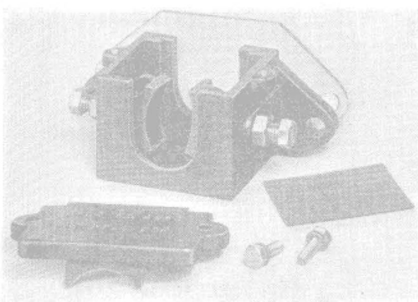
NEW DEVICES

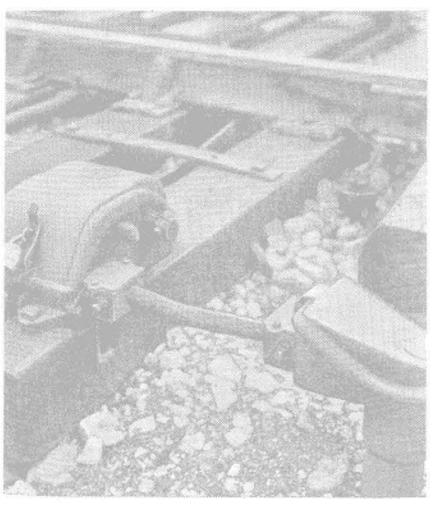
Raco Entrance Seal And Riser Box

THE Railroad Accessories Corporation has recently placed upon the market an improved means for connecting parkway cable to switch machines,



Raco entrance seal complete

dwarf signals, switch circuit controllers, etc. This is provided by the newly introduced Raco No. 458 en-



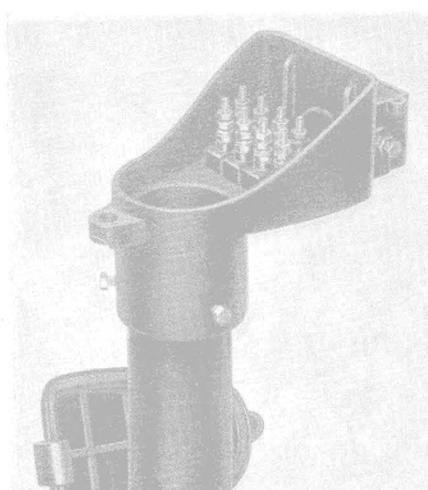
Entrance seal and riser box

trance seal and No. 464 riser box, as shown in the illustrations.

The parkway cables are terminated on A.A.R. terminals in the box at the top of the riser, where either 8 or 12 terminals can be furnished. Separate stranded-conductor insulated jumper wires are run in flexible conduit from the terminal box to the switch circuit controller, or dwarf signal, etc. This construction reduces the number of wire breakages to a minimum, and by providing spare jumpers, repairs, if required, can be made quickly without disturbing other parts.

To seal the switch box entrance against dirt, water and other foreign matter, and to clamp and seal the flexible conduit and jumper wires, the entrance seal is used. These entrance seals can be applied to switch circuit controllers, dwarf signals, etc., in service by removing the old entrance caps and substituting the entrance seals, which have the same screw hole centers and are made in parts to fit over existing wires or cables in service. They are furnished with a substantial clamping device which takes any size cable or wire up to 1½ in., outside diameter. The entrance seal is filled with a sealing compound after the cables or wires are clamped in place. The life of the parkway cable is increased, since no vibration or bending strains can reach it. Exclusions of dirt and water from the switch circuit controller reduces the wear as well as the cleaning required.

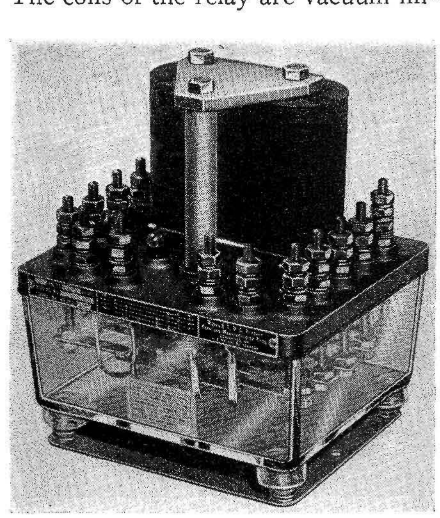
The riser box is equipped with a similar box for clamping and sealing the flexible conduit or cable. The standard height of the riser to outlet center is 17 in., 20½ in. over all, and the inside diameter of the pedestal is 3⅛ in. Gaskets used on the riser and the circuit controller entrance seals are furnished whole and are easily cut in the field to take any size of flexible conduit or cable. The entrance seal and riser box are constructed of cast iron, and all cap screws are bronze.



No. 464 Raco riser and box

Flasher Relay

THE Peerless Manufacturing Corporation has placed on the market an improved flasher relay designated as the Model E-1. The relay is 6½ in. deep, 7½ in. wide, and 8⅜ in. high. Molded brown bakelite composes the top plate and a molded glass shield encloses the mechanism of the relay with a neoprene composition gasket. Terminal posts are made of monel metal and silicon relay steel is used in the magnetic structure of this relay. Lock washers are tin plated, and the nuts, terminal washers, screws, and other brass assembly are nickel plated. The coils of the relay are vacuum im-

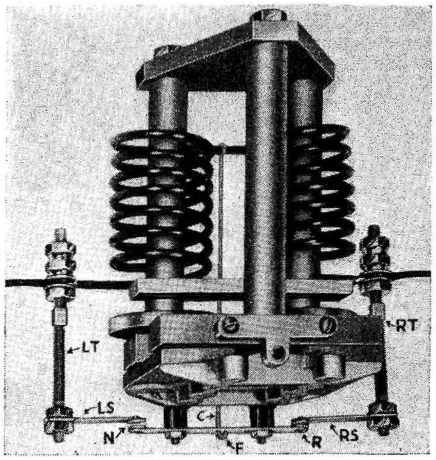


Model E-1 flasher relay

pregnated. Trunnion bearings and trunnions are hardened stainless steel, ground and highly polished. The relay base is made of cadmium plated steel and is shock absorbing.

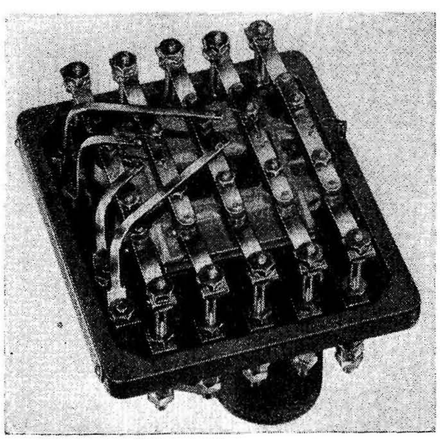
This Model E-1 relay has four normal, four reverse flasher, and two operating contacts, the latter being at the back of the relay. Each contact is designed to carry 5 amp. continuously and is of the silver to silver disk type. Flexible connections to fingers are made where the least movement occurs, minimizing the possibility of breakage. The effects of vibration are reduced by securing the rigid members of contacts to the armatures, and the flexible members to the terminal posts.

Referring to the photograph of the flasher skeleton, note the position of armatures and contacts. When cur-



Skeleton of flasher relay

rent is applied to the two terminals of the operating contacts, the path of the current through relay passes from the terminal post on the left, through the left-hand coil, thence through the connector C from top of coil, to and joining finger F at base of relay structure, through right-hand contacts R and spring RS to the right-hand terminal post RT. The left coil is thus energized, magnetizing the iron structure so that a magnetic flux flows in a path through the pole in the foreground, the left-hand pole, and the top plate. The left-hand armature is attracted by this flux, causing the left-hand contacts to close and the right-hand contacts to open. Therefore, the condition of the circuit is changed by this occurrence, that is,



Bottom side of flasher relay

current flows from the left-hand terminal LT, spring LS, contact N, finger F, through connector C, and through the right-hand coil, thus energizing the right-hand coil and attracting the right-hand armature, thus completing one cycle of operation.

Due to the design of the three pole magnetic structure and circuit, considerably more pull is obtained on the armatures because of the flux being concentrated near the outer edges of the armatures. The armatures are so placed that there is no magnetic pull to present friction at the trunnion, which is made possible by dividing the usual single armature into two separate armatures and by joining them with a non-magnetic support. The support is counterbalanced so that normal contacts will always make when the relay is de-energized. Contact adjustment is obtained by means of adjusting nuts, which eliminate the necessity of bending any part. A frequency adjusting bar on the outside of the relay permits a wide variation of speeds, without reducing efficiency of the instrument, and without the necessity of opening the relay. The construction of the Model E-1 relay complies with A.A.R. specification No. 185-39.

I. C. C. Annual Statistics

In accordance with past practice, the Interstate Commerce Commission recently has issued a tabulation of statistics covering signals, interlocking, automatic train control, and communication facilities utilized for train order transmission. This data, compiled by the Bureau of Safety, is effective as of January 1, 1940.

The total length of railroad in the United States operated under the block system as of January 1, 1940, was 112,967.5 miles. Of this total 65,255.5 miles of road were automatic and 47,712.0 miles, non-automatic; comparing these figures with the corresponding figures for January 1, 1939, there was an increase of 731.0 miles in the length of road operated under the automatic block system and a decrease of 1,056.7 miles of road operated under the non-automatic system. The total of 65,255.5 miles of road operated under the automatic block system represented 95,887.2 miles of track; 53,825.9 miles of track were equipped with semaphore signals, and 39,870.6 miles of track with light signals.

An aggregate of 7,860.6 miles of road, representing 14,360.3 miles of track, and 5,256 locomotives and 1,316 motor cars are equipped with automatic train stop or train control devices. Automatic cab signal devices and equipment is in service on 4,020 locomotives and 666 motor cars, and on 8,452.9 miles of track. Cab signal operation is provided in connection with automatic wayside signals, without automatic train control on 6,078.8 miles of track; without automatic wayside signals and without automatic train control on 10.6 miles of track; with automatic wayside signals and automatic train control on 608 miles of track; and with automatic wayside signals but without automatic train control, on 1,755.5 miles of track.

As of January 1, 1940, automatic interlockings were in service at 356 points, electric interlockings at 1,378 points, electro-pneumatic at 308 points, electro-mechanical at 428 points, mechanical at 1,958 points, pneumatic at 8 points, and other types at 90 points; a total of 394 interlockings were remotely controlled.

A total of 190 installations of centralized traffic control are in service, covering 1,674.5 miles of road, 2,143.0 miles of track, and 296 passing sidings; controls are affected for 1,383 switches, 635 semaphore signals, and 2,928 light signals; 345 automatic semaphore and 1,369 automatic light signals are utilized in these areas.

A total of 17,926.3 miles of road are operated under the manual block system using telegraph; 29,028.2 miles of road using telephone; 210.6 miles using electric bell or light; 103.1 miles of road under the controlled manual block system; and 64.1 miles under the train staff. Manual block signal stations total 5,581, permissive signaling is allowed, for all trains, on 21,066.8 miles of road, and for all except passenger trains on 26,417.6 miles of road.

One direction operation by signal indication, without written train orders, is utilized on 153.8 miles of track in centralized traffic control territory (15 installations), on 3,299 miles of track in manual block territory (58 installations), on 15.8 miles of track in controlled manual block territory (3 installations), and on 26,999.1 miles of track in automatic block territory (395 installations). Either direction operation by signal indication, without train orders, is utilized on 1,985.1 miles of track in centralized traffic control territory (144 installations), on 390.5 miles of track in controlled manual block territory (60 installations), on 1,936.7 miles of track with automatic block in both directions (142 installations), and on 475.3 miles of track in territory that is provided with automatic block in one direction, traffic locking reverse direction (61 installations).

Telegraph is used in transmitting train orders on 85,107 miles of road, and telephone on 148,248 miles of road.