

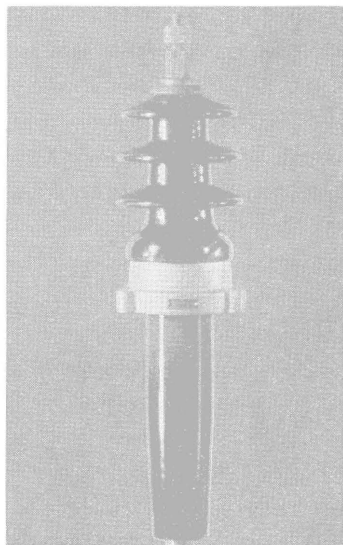
operate on the same voltage of 25-cycle frequency. The new relay is operated by an induction-disk variable-speed motor, the frequency of the flashes being variable between 25 and 50 per minute by a screw adjustment. The two silver-to-silver contacts are rated at 15-amp. each.

The relay is constructed with an insulating top plate, glass sides with metal corners, cast base, standard terminal posts and standard clearances. Overall dimensions of the relay are  $6\frac{1}{8}$  in. by  $5\frac{1}{8}$  in. by  $5\frac{1}{2}$  in., the latter including the terminal posts.

## Insulating Bushing

THE OHIO BRASS Company, Mansfield, Ohio, announces a line of new and improved dry-type apparatus bushings for lower distribution voltages.

Oil seepage of dry-type bushings on conservator-type transformers, according to this manufacturer, was one



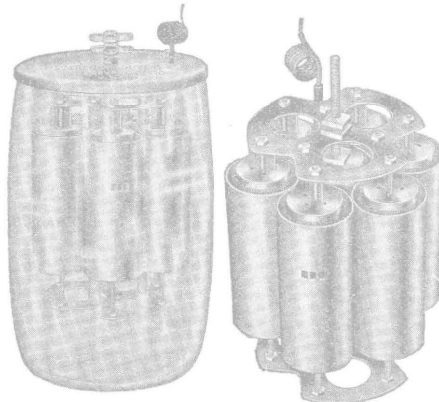
New O-B Transformer bushing

problem in bushing construction which had never been solved to the entire satisfaction of users. Under the pressure of a head of oil, bushings of this type, in the past, were subject to seepage. In the new Class-R bushings recently designed by this company, this problem is believed to have been definitely solved by the use of a new method of assembly at the flange line of the bushing, and by the use of a bronze insert at the top of the bushing which is ground to a true flat surface. The bushing is fitted with a cork gasket which is held in constant compression between the lower porcelain weather-shed and metal mounting flange. Thus the new Class-R bushings, according to the manufacturer, are both seep-proof and gas-tight.

## Waterbury High-Amperage Primary Cells

THE WATERBURY Battery Company has designed a new high-amperage type of primary-battery element which will deliver current at an extraordinarily high rate over long periods of time. The elements are manufactured in both the 500-a.h. and the 1000-a.h. capacity.

This element has been designed particularly for service where the discharge rate required is higher than is feasible with the older type of battery. It is particularly useful in operating highway crossing signals where several signals are being operated from a single battery source. In this case a cell is needed which will maintain its voltage with a high rate of discharge. The new Waterbury high-amperage type of cell will give practically the same curve on an 8-amp. discharge as the regular batteries give on a 3-amp. continuous discharge. For intermittent work even higher



Primary cell designed for heavy duty

discharge rates are practical, according to the manufacturer.

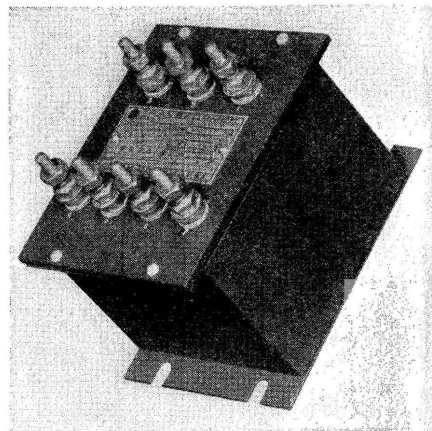
The indication of exhaustion is through the window bars, a patented feature such as has been used in the Waterbury Telecells for some time. With this indication the maintainer is in position to determine at a glance the condition of the cells at any time during their life.

## Signal Transformers

THE GENERAL ELECTRIC Company has announced two lines of air-cooled transformers designed especially for railway-signal use, principally with the a-c. floating-battery and the a-c. primary-battery systems of power supply for direct-current railway-signal systems. They differ from the design of ordinary air-cooled transformers in case construction, insulation, electrical characteristics, and

length of leads, and conform fully with specifications of the A.A.R. Signal Section, exceeding them in many respects.

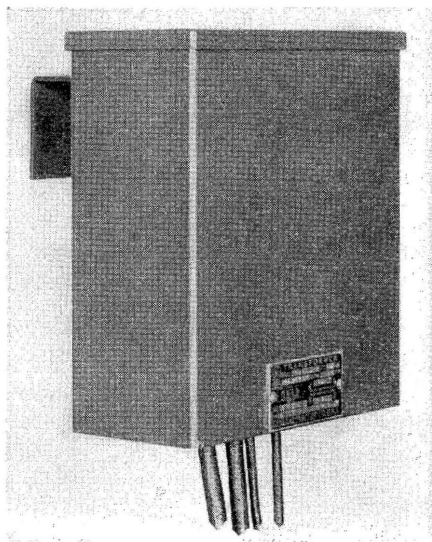
Transformers for distribution,



Signal transformer for indoor service

booster and lighting service are available in standard ratings, 50 to 100 cycles. Modifications of these standards, and transformers for special applications, can be furnished.

The transformers embody a special low-loss core construction, which



Transformer housing is of welded construction

minimizes the total transformer load on the signal line. They are designed with exceptionally low exciting currents to reduce the out-of-phase component of current on the line.

The outdoor distribution types are fitted with strong cross-arm hangers, and 36-in. high-voltage leads so that they can be connected directly to the high-voltage cutouts without splicing. The housings of the outdoor types are of heavy galvanized sheet steel, electrically welded and coated with weather-resisting lacquer.

The indoor lighting types are ar-

ranged for convenient wall or shelf mounting. Their Textolite terminal boards give maximum accessibility and ample spacing for terminals. Both types are equipped with diagrammatic nameplates, showing connections and arrangements of leads and terminals.

## Coded Track Circuit Control

A NEW SYSTEM of track-circuit coding for controlling wayside, cab and highway-crossing signals, is announced by the Union Switch & Signal Company, Swissvale, Pa. The new coded-track-circuit control system is a further development of the coded continuous cab-signal system. Coded energy is fed to the track circuits at all times and is used to control the wayside signal. Or, in other words, one form of track energy, namely coded track energy, is used to control either wayside signals, cab signals, or both. The same decoding equipment is used to decipher the code at wayside signal locations as has been and is being used on the coded locomotive equipment, except that this apparatus is differently assembled to make it suitable for housing in wayside signal instrument cases.

A new development in connection with the new coded-track-circuit control system is the code-following relay. Years of experience with the master relays of coded locomotive equipments, which operate continuously while the locomotive is in service, is convincing proof that a continuously-operating code-following track relay is not only practical, but that it has marked advantages and a definite additional factor of safety.

The coded-track-circuit control

principle may be applied to almost any type of signaling, such as in either steam or electric-propulsion territory; wayside signals or/and cab signals to two-block, three-indication signaling; three-block, four-indication signaling; or even a greater number of signal indications. This system can also be used in connection with different forms of track-circuit energy supply.

The coded-track-circuit control system has several distinctive features. It provides for three or four indications without the use of line wires between signals for signal control. Further distinguishing it from the cab-signal track circuit is the dual function of the coded track circuit, as it controls both the wayside and cab-signal circuits. This system has a number of other distinctive and important features.

## Snubbing Rectifier for 2A Signal

A SNUBBING RECTIFIER has been developed by the General Railway Signal Company to improve the operation of Model-2A signals. It is used instead of a fixed resistor and contacts in the snubbing circuit of low-voltage, d-c., Model-2A signal motors. The purpose of the rectifier is to eliminate sparking at the commutator, which often results in commutator troubles, and to provide easier, smoother snubbing action throughout the full movement of the semaphore arm.

The new snubbing rectifier comprises a small copper-oxide rectifier unit,  $1\frac{1}{2}$  in. in diameter and  $2\frac{3}{8}$  in. through the center bolt, with suitable leads and attachments for easy mounting on a terminal post of the circuit

controller of the signal, as shown in Fig. 1.

The rectifier is permanently connected across the motor terminals but, on account of its action as a valve,

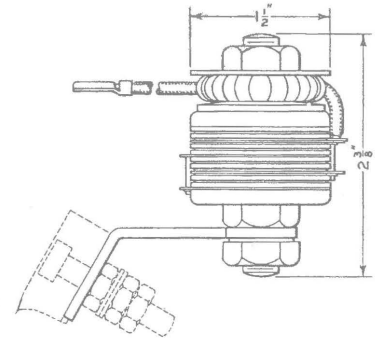


Fig. 1—Side view of snubbing unit

allowing current to pass through it only in one direction, the rectifier is connected so that the motor-operating current cannot pass through it. When, however, the motor circuit is opened, and the semaphore arm falls by gravity, causing the motor armature to rotate in the opposite direction and to operate as a generator, the snubbing

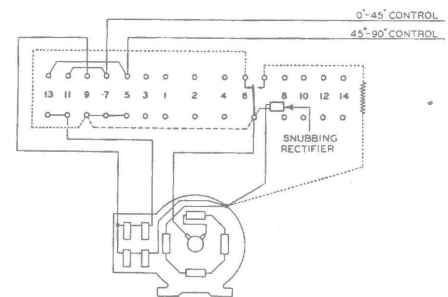
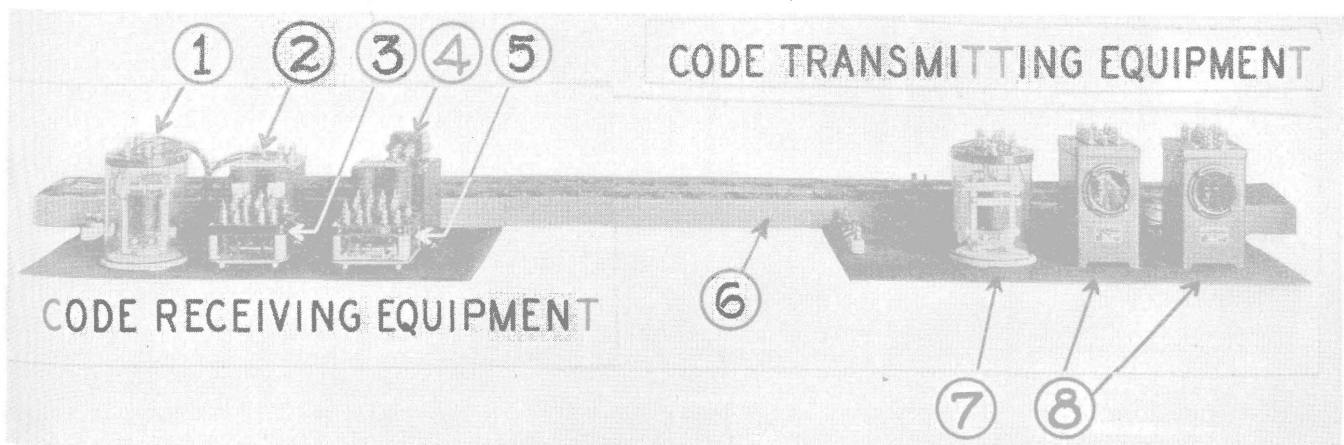


Fig. 2—Circuit for Model-2A signal

circuit is established through the snubbing rectifier, as shown in the circuit diagram, Fig. 2.

The snubbing unit is easily installed



Coding and receiving equipment for one block in steam-road territory

1—Code following track relay, 2—Decoding transformer, 3—H relay, 4—Clear decoding unit, 5—D relay, 6—Track, 7—Code-following repeater relay, 8—D-c. code modulator.