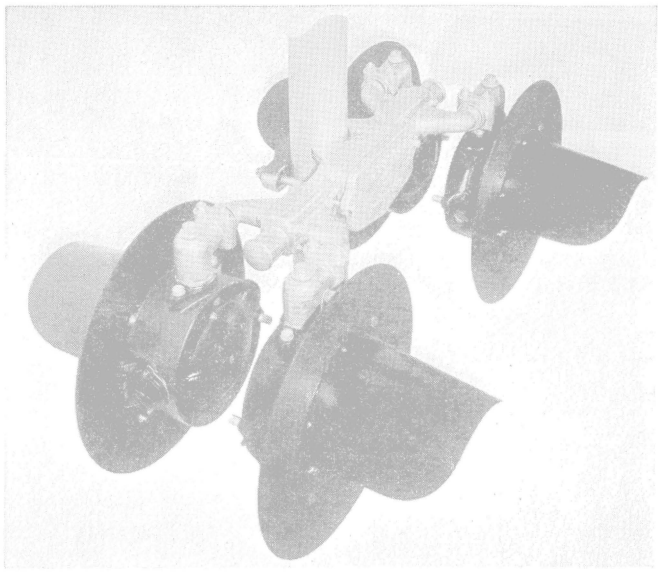


Union cross-arm and junction box with the new Type HC-81 flasher units mounted back to back

tering end assembly.

A cork gasket is added at the joints between the brackets and the cross-arm. All cadmium plated parts are specified as double thickness, which is desirable for severe outdoor service.

The junction box contains two groups of a three-way multiple terminal block, with the terminal post moulded in bakelite, making a total of 12 terminal posts. Each pair of posts is connected by a metallic connector, easily removable, so that the field forces may, if necessary, make wire connections on single posts and thus be able to handle a total of 12 circuits.

side only for a distance wide enough to permit the U-bolt assembly, but protecting this opening is a skirt which encloses the U-bolt as shown in the section D-D view. A 3/8-in., soft sponge rubber gasket inside of elbow at end of cross-arm, seals against moisture, snow or dust en-

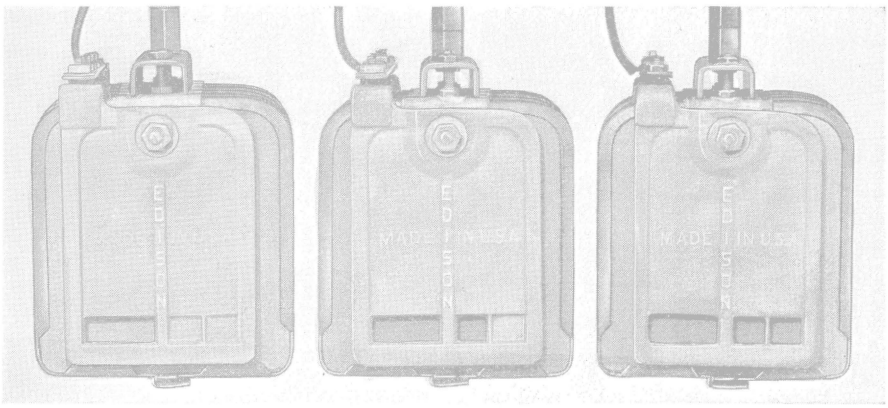
## Progressive Indication for Primary Cells

THE Thomas A. Edison, Inc., has announced that the elements for all their HA-500 and HA-1000 ampere-hour primary cells now include indicator panels of a new design which provide accurate progressive indication from 40 per cent to rated capacity, instead of from 85 per cent exhaustion to rated capacity as heretofore. This new maintenance feature is said to have a distinct advantage over the standard visual indication previously supplied with cells of this type in that it not only provides an advance warning of approaching exhaustion much sooner but also affords a means of more closely determining the actual capacity remaining in the cell at any time during its life.

Three separate and distinct panels each of different thickness are now provided in the outer zinc plates of the elements, instead of two panels of equal thickness as before. Each of these panels is designed to perforate gradually until entirely eaten out at a time when a definite percentage of the cell capacity has been delivered.

Progressive indication starts in the large left hand panel which is shown in the accompanying illustration, after about 40 per cent of the capacity has been taken from the cell. Complete perforation of this panel indicates that the cell is 50 per cent exhausted. At 75 per cent exhaustion, the second panel will be completely eaten out. Clean perforation of the third and final panel shows that the cell has delivered its rated capacity, and is ready for renewal. However, as a safety factor, HA cells are designed to deliver approximately 10 per cent more than rated capacity after all panels become perforated.

This new progressive indication is available only in Edison HA cells. No change has been made in the indicator panels of other types.



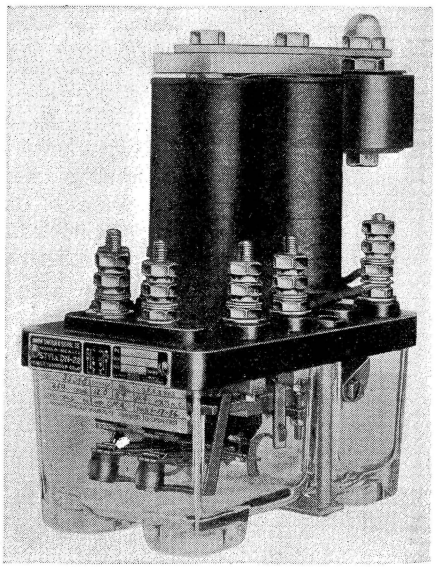

Progressive indications now provided in Edison HA cells. Left—Indication for 50 per cent exhaustion. Middle—Indication for 75 per cent exhaustion. Right—Indication for total exhaustion of rated capacity

## Power-Transfer Relay for Crossing Signals

THE Union Switch & Signal Company, Swissvale, Pa., has designed and is producing a new relay, known as Style DN-22-P, especially for highway crossing service.

Maximum safety in power transfer relay service at highway crossings requires the following:

1. Non-fusible contacts as insurance against welding due to lightning or abnormal service.



DN-22-P power-transfer relay

2. Positive drop-away and positive pick-up to improve contact performance.
3. Liberal air gap.
4. Trunnions and general structure in accordance with standard d-c. relays for safety track circuit and line service, such as provided in A.A.R. specifications.
5. Definite under-voltage release when the line voltage drops to approximately 70 per cent normal.
6. Good voltage characteristics under wide changes in temperature.

The new DN-22-P relay meets

these requirements. The relay consists of a style DN-22 d-c. relay, having special features in the design of its contact structure and magnetic circuit to make it especially suitable for this service, and a rectifier to permit its operation from the normal a-c. supply. The DN-22 is a safety relay meeting A.A.R. standards, having standard contact openings with non-fusible front and back contacts. The armature air gap is more liberal than has been provided heretofore on any relay. The silver to silver impregnated carbon contacts are designed to carry a load of 7.5-amp. per contact. This high rating is accomplished without sacrifice in contact drop. The design of the contact structure includes a feature which assures that the two back contacts will remain closed until the actual time of pick-up of the relay.

The new relay transfers the load to the standby source, not only when the power is actually interrupted but when the a-c. voltage has dropped to a value 70 per cent of that on which the relay is designed to operate. Another feature of design prevents the armature from "floating" in the event the voltage is reduced close to the value at which the armature should release.

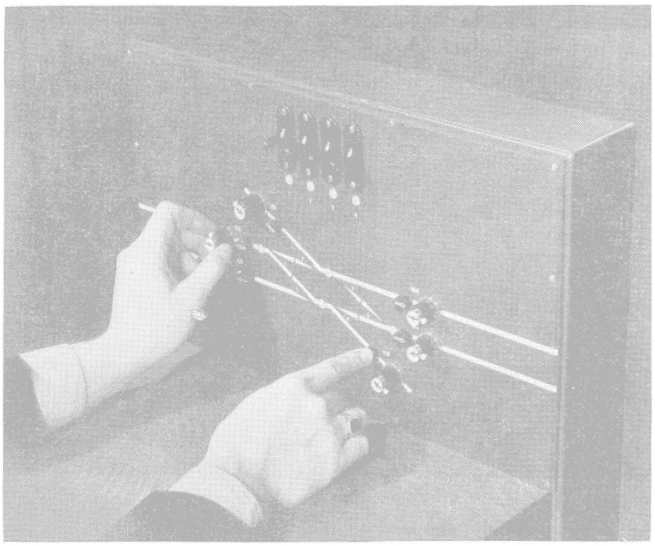
The relay is designed so that one of the two front contacts will open slightly in advance of the other. This is for the purpose of making the relay adaptable to a special stick circuit and eliminating difficulties from such special conditions as high resistance in the a-c. system, in fuse or wire connections or poor regulation of the transformer.

# NX Electric Interlocking

LAYING claim to the initiation of a new era in electric interlocking, the General Railway Signal Company has announced the development of the NX-Type electric interlocking. The basic principle of the system hinges on the fact that trains through an interlocking plant travel by routes, which have an entrance and an exit. The operator needs to know only these two details about the train's movement, and he directs it accordingly.

Knowing where the train is entering, the operator turns the "entrance knob." Knowing where the train is going, he pushes the "exit button." The rest is automatic. The switches line up, the signal clears, and indicators on the control board indicate the positions of the switches, the locking of the switches, the clearing of the signal, and the occupancy of the various track sections in the route, as the train proceeds through the plant. The point indicators on the control board clearly define the route set up.

Interlocking is a means to an end, that end being the safe and speedy directing of trains in a terminal or junction area. A system of interlocking that achieves this end in a simple, straight-forward manner without the ramifications that are today associated with an interlocking machine, is fulfilling a long-felt need.



Setting up route by turning the "Entrance Knob" and pushing the "Exit Button" of an "NX" interlocking

Because of the absence of switch and signal levers, the NX-Type electric interlocking allows the operator to concentrate on the directing of trains, and relieves him of the responsibility of operating switches and signals. He directs trains in every sense of the word. He thinks no more in terms of separate functions but of routes. His sole interest is to get the train "in here" and "out there."

Several claims are made for this new type of electric interlocking, among them the following:

1. It is simple to operate because the principle is basic, that of identifying the route "entrance" and "exit." Once this identification is complete in the operator's mind, it need not be broken down into its component parts, such as operating this switch lever and clearing that signal.
2. No manipulation chart is necessary as there are no levers to manipulate and no sequence of lever operations to observe.
3. The operator's attention is focused on the route he is setting up, and he is not distracted by switch and signal levers that are off to one side.
4. There is less chance of error in lining up the route.
5. The operating speed is greatly increased.
6. The operator can actually see the route he has set up. It is so clearly defined on the control panel that even the casual observer can see it.
7. The value of this system in "breaking in" new operators is apparent. They can master the operation of the control machine after being shown only once how to set up a route.
8. All switches, whether in the route or protecting the route are automatically positioned to provide the greatest possible safety to the train traveling over that route.
9. If there are several paths which a train might take from "entrance" to "exit," and another train is blocking the normal path, a second path is automatically chosen.
10. A layout of the most complicated character is condensed to its simplest form on the control board. Only the operating essentials are brought to the attention of the operator. Anything that interferes with this ideal has been discarded.

The indications on the control board are of value to the operator in the following ways:

1. They provide an easy means of visualizing the route.
2. The complete operating picture is in miniature before the operator all the time.
3. One glance tells what route or routes are set up.
4. When one route is set up, it is definitely apparent what other routes are possible.
5. One glance discloses what signals are clear and over what routes.