New Devices

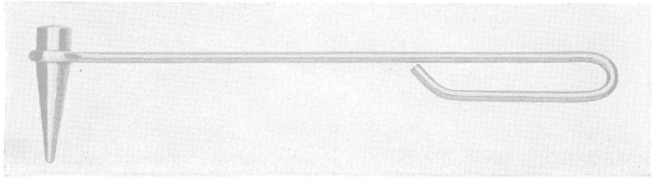
Welded Bond

THE American Steel & Wire Company recently added two new types of signal bonds to the Tigerweld group—Types BA-2M and BA-LM, as illustrated. These bonds are designed for installation in the rail head. Holes of ⅜-in. diameter ¼-in. deep are drilled in the rail head, 4 in. apart. The studs are then fitted into the holes and expanded by inserting the driving tool in the terminal head, and giving it three or four good blows with an ordinary 4-lb. hammer. This makes a very simple and efficient installation.

These bonds are made with bronze conductors of high fatigue resistance. The springy rope stranded type will stand a great deal of abuse, and, it is claimed that, if hit by dragging equipment, it will not become distorted but will retain its original form. It is flexible in all directions. The advantage of the laminated conductor is that it lies closer to the rail head.

The Type-BA-2M bond is practically theft proof. The terminals are steel, and all of the outer wires are tinned to give the appearance of an all-steel bond. The top and bottom straps of Type BA-LM are also tinned, which practically disguises this bond too.

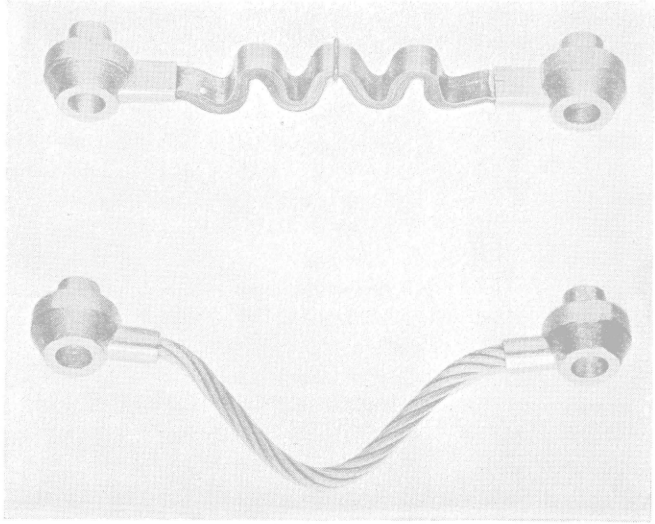
Both types are manufactured by the flash butt-welding process, the same as other Tigerweld bonds. With this method of manufacture, a union is perfected between the terminal and the conductor which, the manufacturer states, is stronger than the strand itself. Under a pull test the break occurs in the strand proper and not at the weld or adjacent to it.



Left—Tool for use with welded bond

Right—Type BA-LM welded bond

Right—Type BA-2M welded bond

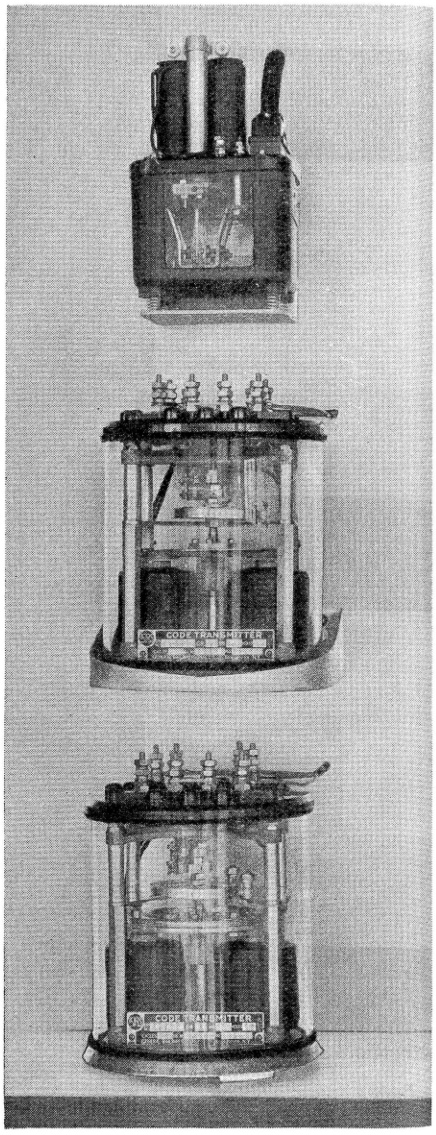


Coded Track Circuit

THE General Railway Signal Company has announced the development of a full line of apparatus for the application of coded track circuits to signaling systems. This track circuit differs from the ordinary track circuit in that the supply of energy to the rail is periodically interrupted or "coded."

The code-following track relay follows the track code, and operates continuously; in other words, this relay is energized during the "on" period and de-energized during the "off" period of the code, which is rhythmic.

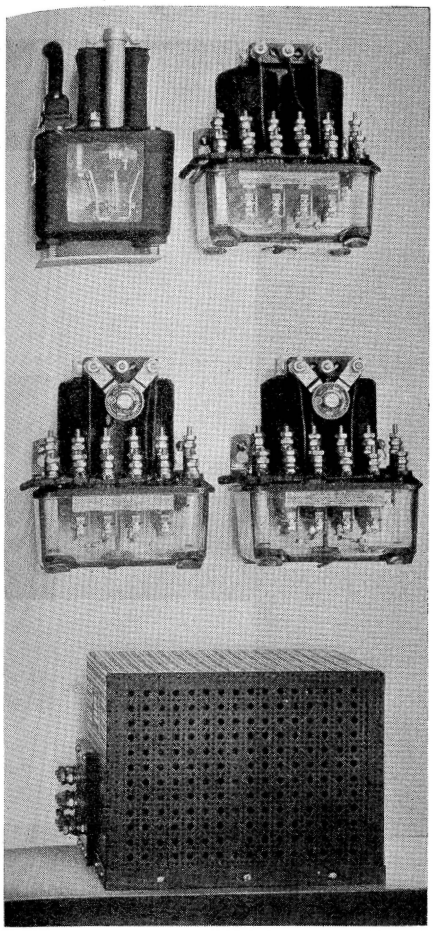
Several advantages are claimed for this new system. One of the more important features is that the use of "coded" energy provides increased immunity to false energization, thereby increasing the degree of safety. This feature is inherent, for when the track relay is either continuously energized or continuously de-energized, a stop indication is displayed by the signal. Coded energy in track circuits thus minimizes the foreign-current



Energy-end apparatus for G.R.S. coded track circuits

track-circuit problem. In the G.R.S. coded track-circuit system foreign current, if effective, would produce a false stop indication rather than a less restrictive indication. Since the system requires continuous movement or operation of the relay to display "proceed" indications, mechanical failures result in "stop" indications.

The shunting sensitivity of this system is very high, for power is cut off



Signal-end apparatus for G.R.S. coded track circuits

from the relay during the "off" period of the code. Obviously the shunting sensitivity is dependent upon a train shunt reducing the voltage across the relay coils to just below the pick-up value of the relay rather than the release value, as is the case with the conventional track circuit.

The use of the three common train-control "proceed" codes, that is, 75, 120 and 180 code cycles per minute, provides a full complement of signal controls without the use of line wires. It is possible to secure an additional indication to effect a 4-block 5-indication signaling system by merely adding a 240 code. This system may be employed with or without cab signals.

Mounting for Crossing Signals

THE Union Switch & Signal Company, Swissvale, Pa., has designed and is marketing a junction box and cross-arm, for mounting flashing-light highway crossing signals, to meet proposed A.A.R. drawings 1656B and 1657B, except with regard to fittings at the end. The fittings incorporated in the "Union" cross-arm present some new and valuable features.

The A.A.R. drawings mentioned, cover a design of junction box and cross-arm to meet the desire for a universal mounting for flashing-light highway crossing signals, whether of the back-light type (single-arm) or mounted back to back (double-arm). The advantages of such a design from an installation and maintenance standpoint are obvious.

In the new "Union" cross-arm, in place of threaded end fittings, a special elbow and U-bolt assembly is used. The design overcomes many objections with regard to ease and permanency of installation and adjustment. It is completely sealed against moisture and dust. There is no chance of having threads rust in service, thus making readjustment or removal, at some later date, very difficult. There is no chance for moisture to follow any thread to the interior.

Attached to the top of the flashing light unit (Fig. 1) is a casting (A) having a side opening for wire entrance and a tapped hole in the top for suspension bolt (B). The suspension bolt has a skirt, integral with the head of the bolt which encloses a boss on the top of casting (C) to prevent water leakage at that point. The casting (C) engages with a finished surface on the upper part of casting (A) and this joint is loosened slightly by the turning of bolt (B) whenever horizontal adjustment of the unit is desired. When the proper position is reached, the tightening of bolt (B) brings the two castings tight together and locks the horizontal adjustment. Casting (C) is fitted over the end of the cross-arm and clamped to it by a ⅜-in. diameter U-bolt, fitted into a groove around the lower half of the projection on the cross-arm so as to prevent the unit from slipping off the end when loosened. It will readily be seen that the U-bolt permits vertical adjustment independent of the horizontal adjustment and will lock the assembly securely on the end of the cross-arm. The casting (C) will be open on the under

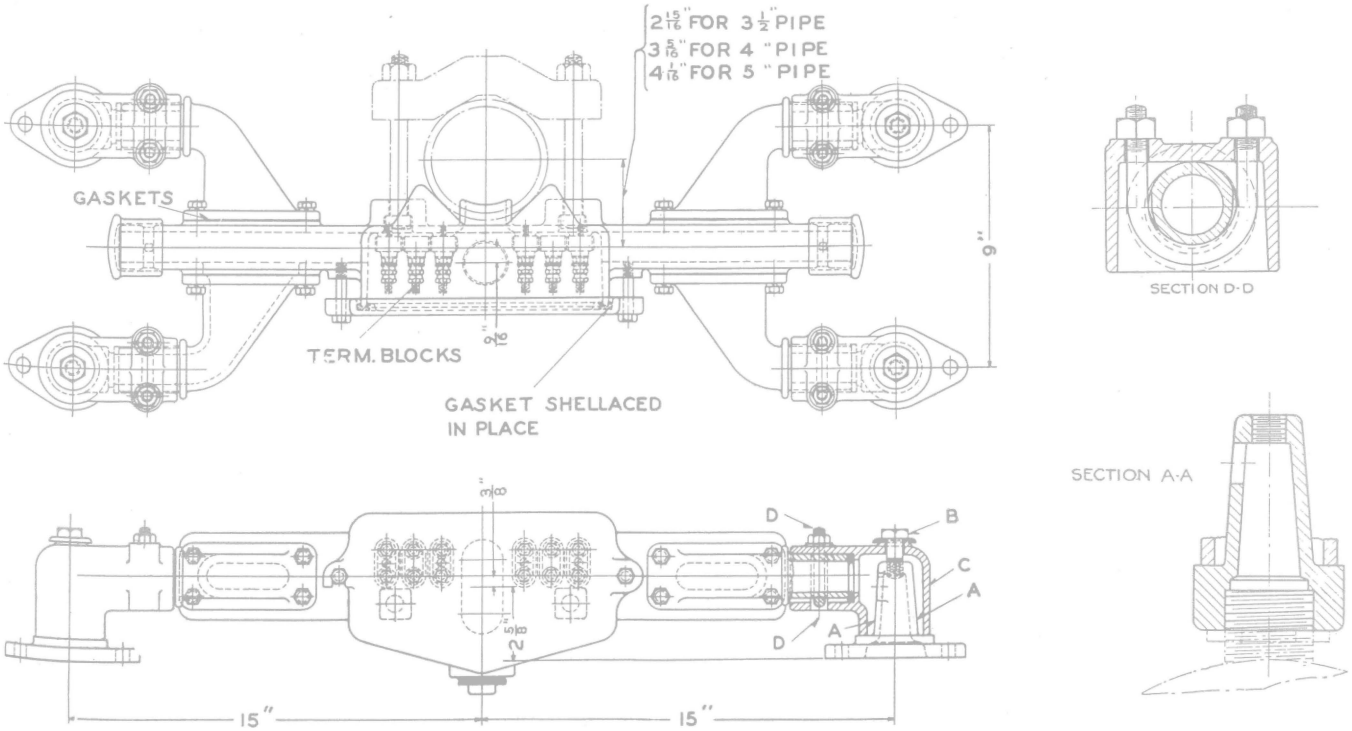


Fig. 1—Drawing of Union Type HC-81 flashing signal mounting with junction box