

voltage test, but for a current test it is necessary only to reverse the knife switch and to change the meter tap-switch to correspond with the desired scale. The volt-ammeter shown is the Weston Model-280; the potentiometer has a resistance of 100 ohms.

This set can be used for testing the pick-up and release of any low-voltage relays, indicators, and electric locks, as well as for the necessary tests on low-voltage signals. When testing the release of a signal slot the knife switch should be opened as soon as the slot releases, in order to prevent the coil from being burned out.

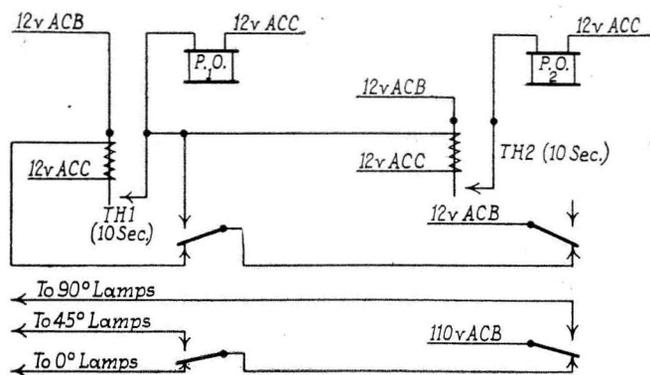
Circuit for Signal Demonstration

By A. J. Baylies

Foreman of Telegraph and Signals, Pennsylvania, Trenton, N. J.

EMPLLOYEES of the signal department are sometimes requested to help in preparing the electrical decorations at safety rallies and other meetings. Recently, we were requested, on short notice, to arrange the aspects of a position-light signal, used for decorative purposes, so that they would progress from "Stop and Proceed", to "Caution", then to "Clear", then back to "Stop", and so forth.

Because of the short time available in which to complete the job, no consideration was given to a brush and slip-ring motor-driven contactor, and so the circuit shown in the sketch was used. This circuit employs two Type-TH thermal relays and two power-off relays, both of which are designed for operation on 12 volts



An all-relay circuit designed for signal demonstration purposes

a-c. Power-off relay No. 1 is stick controlled to secure stable operation. A peculiar condition developed during the meeting: A decided flicker was noticed when the aspect was changing from Stop to Caution during the playing of a short concert on the pipe organ. This was due, no doubt, to the mechanical vibration of points 2 and 4 and the TH relays, and to the relatively sluggish action of the power-off relays.

Templet for Bootleg

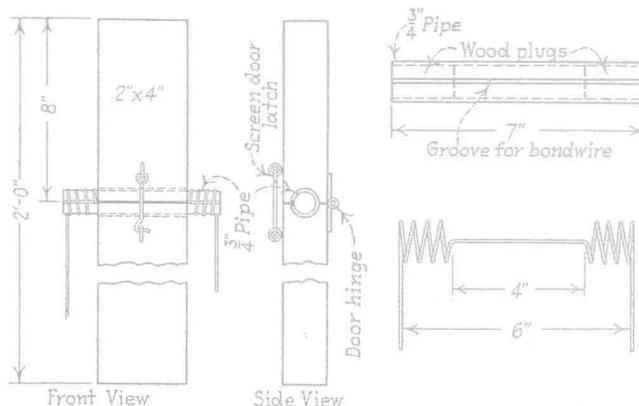
By S. W. Brown

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IN changing standards for bootlegs on this division, the first thing realized was the need of something on which to make the new kind of bootlegs. I took a piece of two by four pine lumber 2 ft. long and drilled a hole through it edgewise, and then sawed the piece in two just off the center of this hole. I then hinged the two pieces together with a 2-in. butt hinge on one side. Next I took a piece of 3/4-in. pipe 7 in. long and sawed it through as shown, to accommodate the size of the bond

wire, and then plugged each end of the pipe so as to keep the bond wire from falling into the open space of the pipe.

In forming the bootleg, I place the piece of two by four lumber in the vise, lay the piece of pipe in the hole



An easily made templet on which bootlegs may be wound

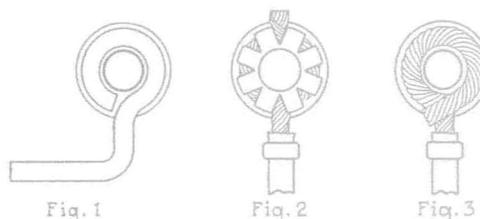
which has been sawed in two, place the bond wire in the pipe—equally dividing the length of the wire—and pull the other part of the two by four in place, and fasten the hook latch. This then holds the wire in place in the slotted pipe and holds the pipe solidly in the two by four. It is now a simple matter to make the bootleg: Simply start wrapping one end of the wire around the pipe, and then wrap the other end the same way, making five or six turns as desired, and the job is completed. Release the hook or latch and lift the bootleg out and slip the pipe out at one end. This makes a neat bootleg, and it is surprising how fast they can be made.

Improved Eyelet Terminals

By Fritz Ottoson

Signalman, Great Northern, Sauk Center, Minn.

MUCH inconvenience has been experienced as a result of wire leads breaking off where fastened to terminal eyelets or test clips. This is especially true of meter leads, motor car ignition wires, etc. A simple way to reinforce such wires is illustrated in the three figures shown in the sketch. A No. 14 solid copper wire is formed in the shape shown in Fig. 1. Then the whole piece is flattened in order to make it more flexible and it is assembled to the wire and the eyelet is shown in Fig. 2, the free end of the reinforcing wire being wrapped around



The reinforcing wire relieves the strain and eliminates breakages

the insulation. It will be noted that the reinforcing piece is placed first on the eyelet and then the stranded wire is placed over it; then the eyelet is compressed with an eyelet pliers and the free end of the reinforcing piece is wrapped around the insulation. If it is desirable to use a reinforcing piece without the eyelet, both wires should be formed around a nail clamped in a vise.