Signaling Kinks

Ohm's Law Chart*

By E. L. Searl
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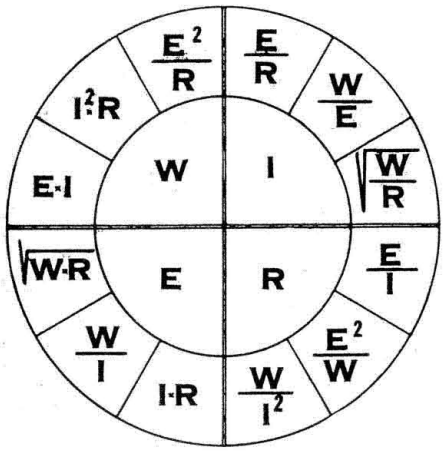
From the fundamental equations, $I = \frac{E}{R}$ (Ohm's Law) and $W = EI$, twelve possible equations may be written, giving each of these quantities in terms of the other three. This is done by an arrangement of the equations in a circular form shown in the accompanying illustration. In this arrangement, W represents power in watts; I, current in amperes; E, electromotive force (emf.) in volts; and R, resistance in ohms.



Ohm's Law Chart

In using the chart, for example, W in the upper left-hand quadrant equals $E \times I$, $I^2 \times R$ and $\frac{E^2}{R}$, while I, in the upper right-hand quadrant equals $\frac{E}{R}$, $\frac{W}{E}$ and $\sqrt{\frac{W}{R}}$. In the lower right-hand quadrant, R equals $\frac{E}{I}$, $\frac{E^2}{W}$ and $\frac{W}{I^2}$, while E in the lower left-hand quadrant equals $I \times R$, $\frac{W}{I}$ and $\sqrt{W \times R}$.

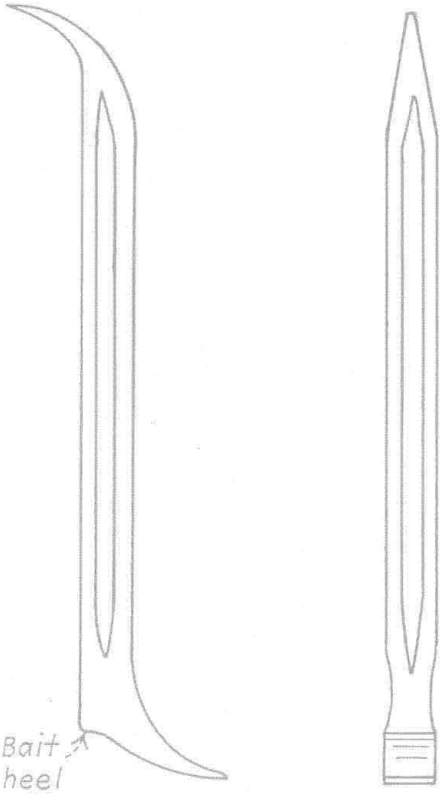
Thus, it can be seen, with any combination of two values in the two fundamental equations, $I = \frac{E}{R}$ and $W = EI$, the third may be readily obtained by use of this chart. This chart will be found convenient reference to engineers and others if reproduced in larger scale and pinned on the wall or placed under the glass on the top of a desk.

*From *Sylvania News*, December, 1945, Sylvania Electric Products, Inc.

Tommy Bar

By A Signalman

The accompanying diagram represents an improved tommy bar, the idea for which was derived from a railroad claw bar. This style of bar is a vast improvement over others used, as the heel acts as a bait, which pulls pins straighter. The improved



A better tommy bar

tommy bar can be used also to hammer on while drawing cotter keys, instead of using the hammer on the claw end of the bar. When the gang blacksmith makes one of these bars from an ordinary bar, the bar is narrower on the sides, but wider where the strain is, as the metal has to be drawn out to make the heel.

Spring Switch Testing Block

By W. A. McDonald
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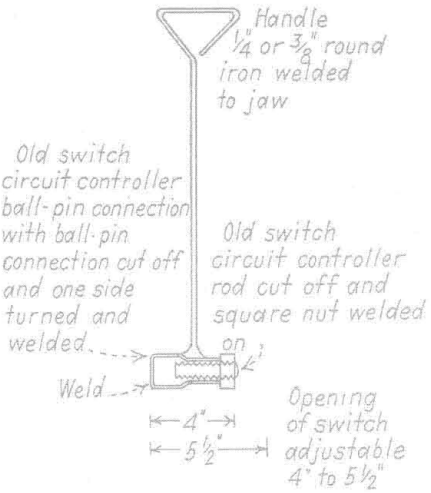
Testing spring switches requires opening the switch, blocking it open while the hand lever is returned to the normal position, knocking out the block, and timing the return of the switch point to the normal position. Various blocks have been used, but my assistant, T. M. Woodward, and I designed the one shown in the accompanying diagram which meets all requirements. While I have an assistant, this tool is especially handy for one man to make the test.

The device is made from scrap parts usually found around the tool house of any maintainer. It will be



Spring switch testing block

noted that an old switch circuit controller ball-pin jaw is used. The ball pin connection is cut off, one side turned down and welded. The threaded part of the rod is cut off and a square nut welded on. Opening is adjusted from 4 in. to 5½ in. The handle on this tool is made from ¼-in. or ⅜-in. round iron and is welded to the jaw.

In using the device in testing a spring switch, the block is inserted in the point, the square nut given sufficient turns backward until it fits tight enough to hold. The switch lever is then closed, after which the block is knocked out.