# HOBBY CORNER

## How one hobby can benefit another

**EARL "DOC" SAVAGE, K4SDS,** HOBBY EDITOR

ONE REASON FOR THE WIDESPREAD INterest in electronics is that it touches almost every aspect of modern life. It comes close to being the universal ingredient in all our activities, whether it's work or play.

Over the years, we have presented electronics projects relating to many areas of interest. We have never, however, talked about how electronics can be applied to what is probably the most popular hobby of them all—stamp collecting. This month's project will correct that omission.

Recently, I moved into a new house. During the move, I went through—and at least partially sorted—the accumulation of treasure and junk that one acquires over many years. One of the things I came across was a small box with a window, several knobs, and a trailing AC cord.

It took me a few moments to remember what it was—an electronic watermark-detector that I had built long ago. For the benefit of those who have never collected stamps, let me say that the presence (or absence) of a particular watermark can be quite significant. It can be the crucial factor in identifying a particular stamp that has one or more look-alikes, and can determine whether a stamp is worth fifty cents or fifty dollars.

Holding a stamp up to the light will seldom, if ever, show a watermark because of the presence of the colored ink used to print the stamp. The usual method for detecting a watermark is to place the stamp in a black container and cover it with carbon tetrachloride. It's a messy procedure—you have to avoid inhaling the fumes; you have to wait for the stamp to dry, and you have to be careful not to knock over the bottle of fluid. You can avoid all those problems with an electronic watermark-detector.

The instrument described here is quite simple. It operates on the principle that light of the proper color and intensity will reveal watermarks even on printed and cancelled stamps. The detector produces light of adjustable brightness and color.

The detector is built inside a 5 × 7 × 2-inch case; the 5 × 7-inch top serves as both the control panel and working surface, as shown in Fig. 1.

Let's take a look at the simple circuit (Fig. 2). Depending upon the positions of switches S2 and S3, a voltage of up to 6.3-volts AC is applied to the bulb. The circuit can supply six voltages in all; switch S2 is used to select one of three voltages, and D1 is used to divide each of those when it is switched into the circuit by S3. Thus you can select one of six intensity-levels for the light.

The bulb is mounted on the bottom of the box directly under the "window" that is described below. A reflector made of aluminum foil is placed behind the bulb.

Changing the color of the light is a little more difficult because it involves an optical/mechanical arrangement. The method I used was to mount wedge-shaped segments of colored plastic on the top of a plastic disc. A sketch of the disk is shown in Fig. 3.

That disk is mounted on a shaft and turned by the knob in the center of the panel. As the colored wedges pass over the bulb, the light changes color.

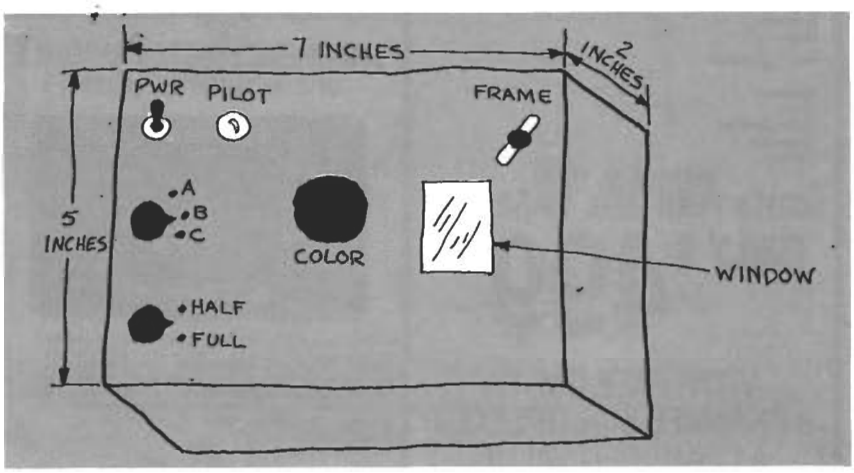


FIG. 1

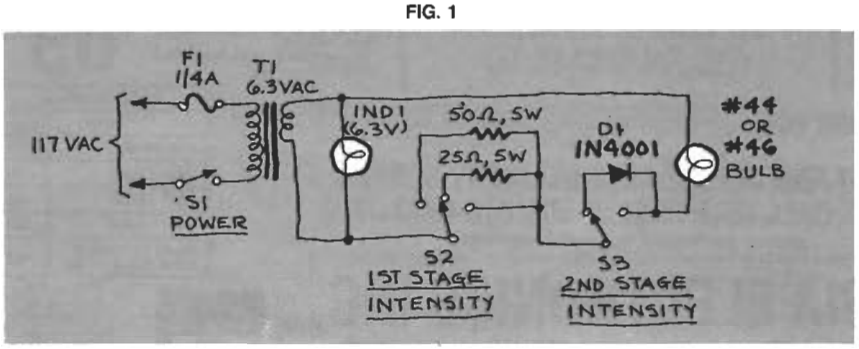


FIG. 2

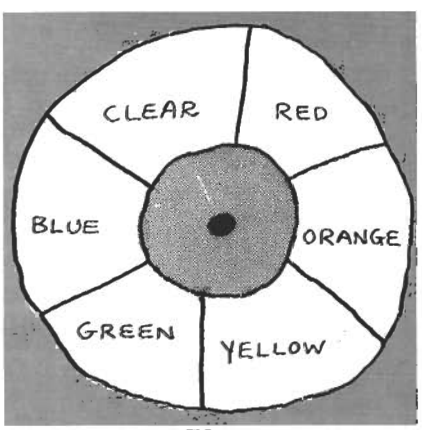


FIG. 3

The light shines through a "window" in the panel on which the stamps are placed. The window is a piece of ground glass, or it can be made from clear glass backed with waxed paper from the kitchen. It should measure about 1½ × 2 inches, to accommodate larger stamps.

Unfortunately, you'll find that there

*continued on page 42*