Our second announcement is that a lot of people out there have been sending in answers to another problem we outlined last August: namely, how to generate a negative supply from a two terminal transformer. Bill McFadden of Corvallis, OR not only sent us a solution, but also did a really good job of analyzing the circuit and explaining how it works. What he didn't send me was his return address. Maybe that's because we blew the prize money budget on the other contest. Seriously though—if you're taking the time to drop us a note, make sure to put your return address on the note, as well as the envelope, so we can answer you.

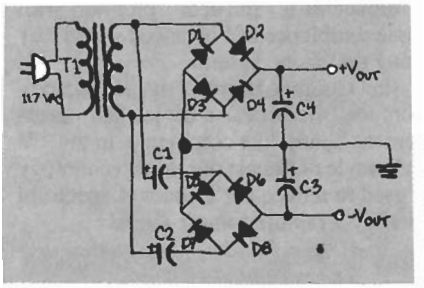

FIG. 2

Bill's final circuit is shown in Fig. 2. It could really come in handy when you're designing circuitry that needs a bit of juice from a negative supply. Its operation has all the hallmarks of a slick design—simplicity, elegance, and common sense.

Diodes D1 through D4 form a full-wave bridge rectifier and produce a positive DC voltage with respect to system ground—nothing really unusual there. But, as you all should know, that positive DC voltage is generated on every positive half-wave of the incoming AC signal from the secondary of the transformer. What Bill did was to take advantage of the negative half-cycle of that signal. Capacitors C1 and C2 charge up on the positive half-cycle of the input—as you would expect—and then dump their charges across diodes D5 to D8 on the negative half-cycle. Since C1 and C2 are always looking at signals that are 180° out-of-phase with each other, none of the input is wasted (both sides are used). Capacitor C3 is the filter capacitor for the negative supply and Bill has indicated that the best performance is obtained from that circuit when C1, C2, and C3 are of equal value. Anyone who needs a negative supply should take advantage of his work and give the circuit a try. If you do use it, let us know how things worked out and we'll pass the information along.