terminal of the primary winding 122 and out from the positive terminal of the second secondary winding 126b.

From the description given with reference to the Figs. 2a-b and 3a-b, the skilled person will understand that the embodiments of Figs. 3a-3b may be combined into one circuit; such an embodiment of a current booster 100 is illustrated in Fig. 4. In Fig. 4, the secondary side of the transformer 120 comprises the first through fourth secondary switches 131, 132, 133, 134 and the primary side of the transformer 120 is identical to that of Figs. 2a-b and 3a-b. The first secondary switch 131 is connected to control a connection between the positive terminal of the first secondary winding 126a and the positive terminal of the load 40. The first secondary switch 131 is controlled by the third control signal G3, preferably synchronous with the first control signal G1. The second secondary switch 132 is connected to control a connection between the negative terminal of the first secondary winding 126a and the negative terminal of the load 40. The second secondary switch 132 is controlled by the fifth control signal G5, preferably synchronous with the second control signal G2. The third secondary switch 133 is connected to control a connection between the positive terminal of the second secondary winding 126b and the negative terminal of the load 40. The third secondary switch 133 is controlled by the sixth control signal G6, preferably synchronous with the first control signal G1. The fourth secondary switch 134 is connected to control a connection between the negative terminal of the second secondary winding 126b and the positive terminal of the load 40. The fourth secondary switch 134 is controlled by the fourth control signal G4, preferably synchronous with the first control signal G1. With the circuitry as embodied in Fig. 4, it is possible to provide a secondary current i_s into either the positive or negative terminal of the load 40. That is to say, the direction of secondary current i_s through the load 40 is controllable regardless of a polarity of the primary current i_p provided by the power source 30.

With continued reference to Fig. 4, if it is assumed that the primary side current i_p as a full wave rectified sinusoidal current as illustrated in Fig. 4, an unrectified zero offset sinusoidal current may be provided to the load 40.

The positive half period of the secondary current i_s may be provided by, for a first half period of the primary side current i_p, allowing the circuitry of Fig. 4 to operate