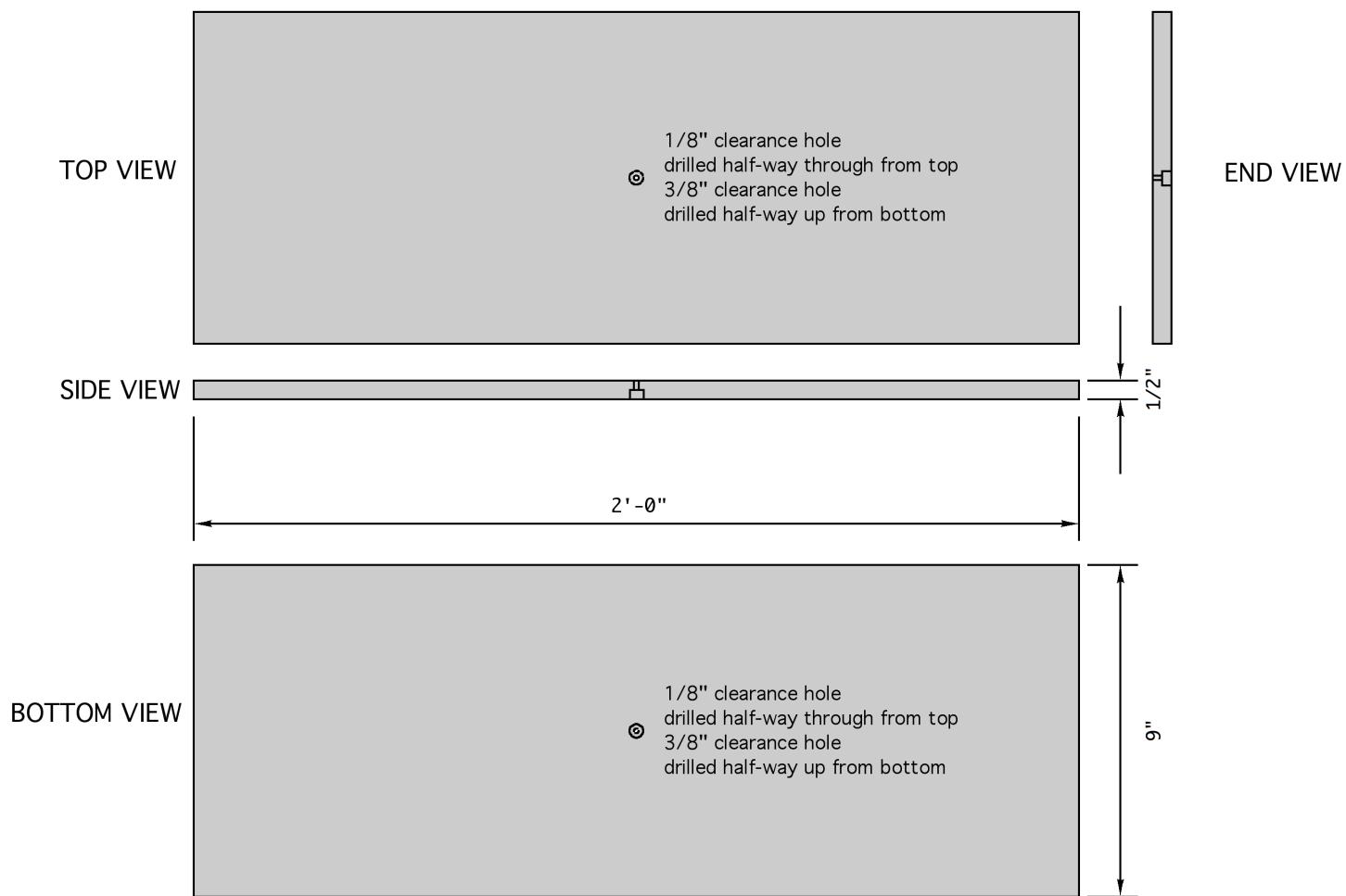


PLATFORM SCHEMATICS & CIRCUIT DIAGRAMS

This supplemental information shows schematics for assembling the tail flick analgesia meter and circuit diagrams for the tail flick analgesia meter. The schematics are shown in traditional drafting style with multiple views of each piece. Assembled views are also shown.

The black lines in the circuit diagrams indicate wires connecting the various components. All wires can be made any length that makes assembly as simple as possible. Fig. 1 shows what the various components look like in their physical appearance and the traditional circuit diagram.

TOP OF PLATFORM (Acrylic, need 1)



The hole drilled in the center is for the phototransistor.
It can be taped or glued into place from the bottom.
It is typically easier to drill the 1/8" hole all the way through.
Then drill the 3/8" hole from the bottom about half-way through.
It is not critical that it is exactly half-way.

Figure 1: Top of the apparatus with a small hole for the phototransistor.

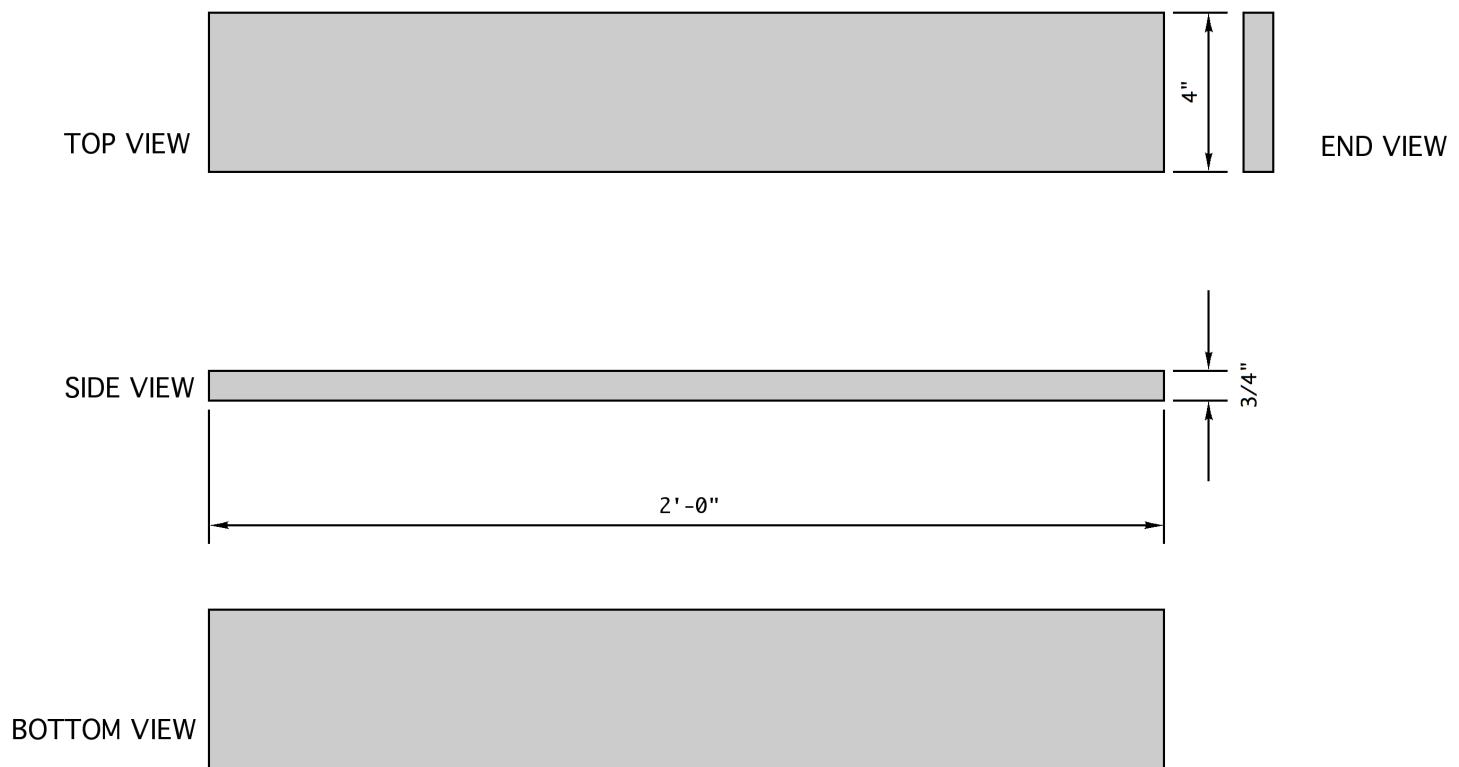
FRONT AND BACK OF PLATFORM (plywood, need 2)

Figure 2: Front and back of the apparatus.

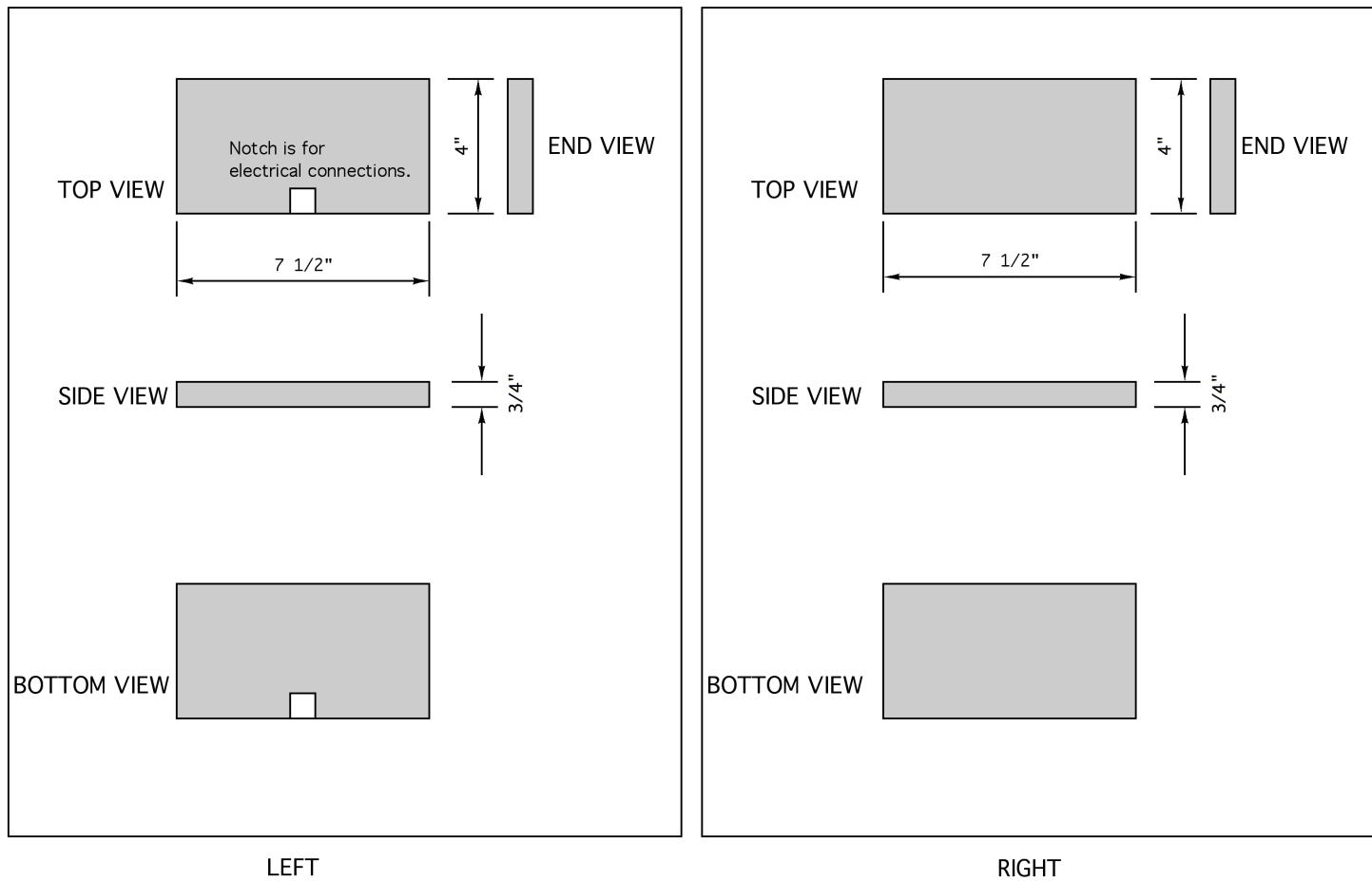
SIDES OF PLATFORM (plywood, need 1 each)

Figure 3: Sides of the apparatus with a cutout hole for the electronics cables.

BASE ASSEMBLED

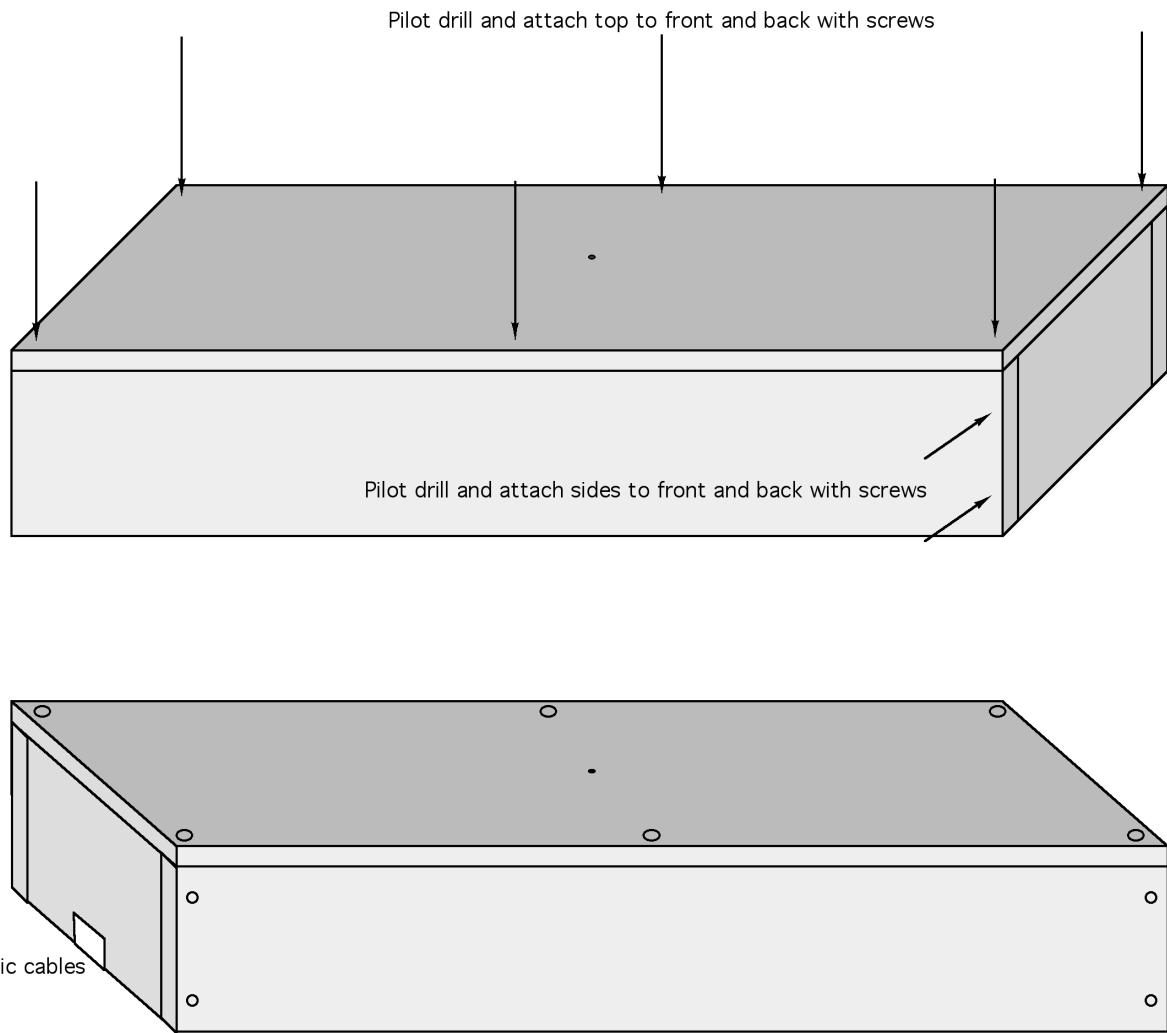


Figure 4: Assembled base of the apparatus.

LIGHT MOUNT (2x2 wood, need 1 each)

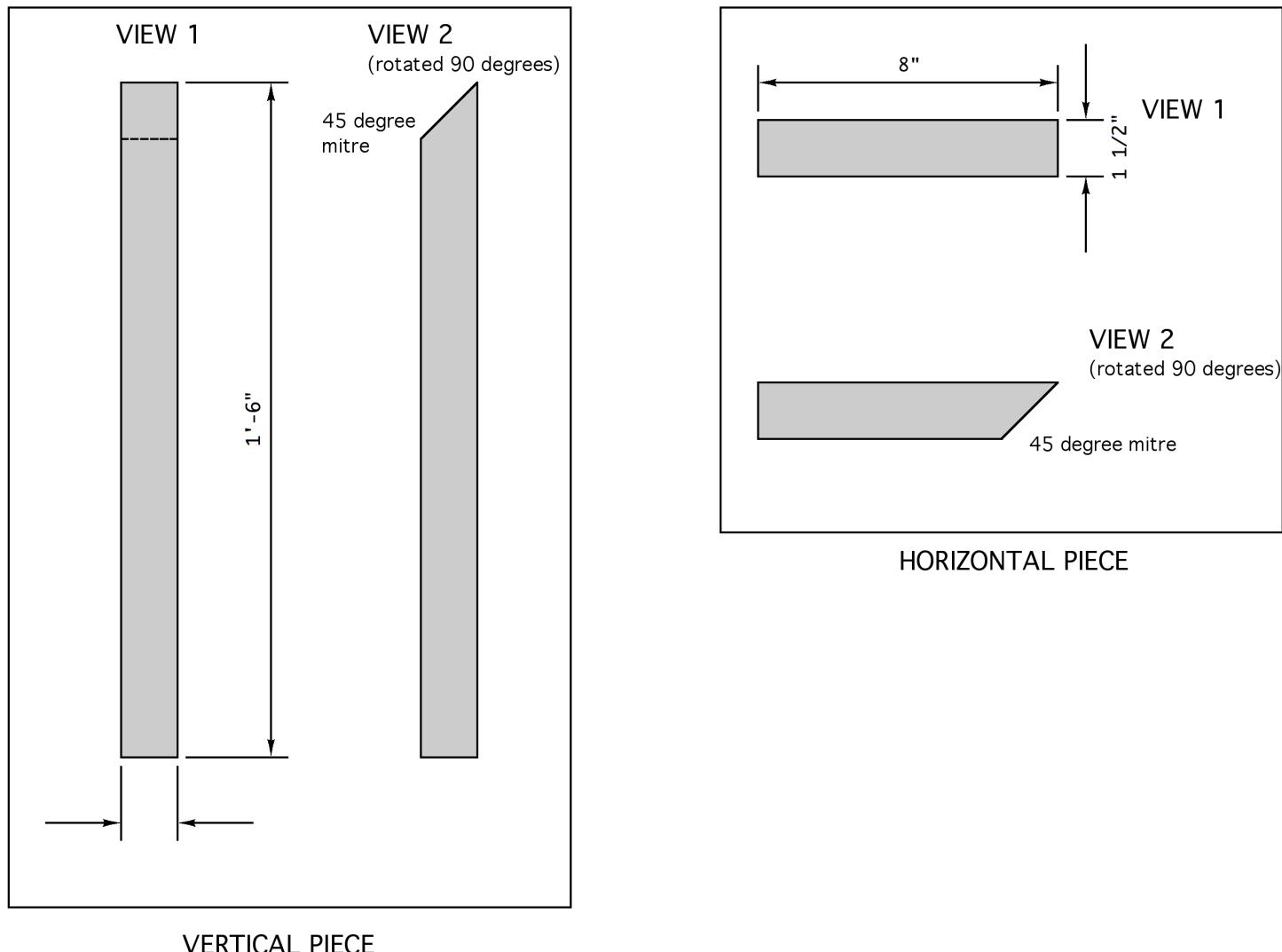


Figure 5: Heat lamp mount for the apparatus.

LIGHT MOUNT ASSEMBLED

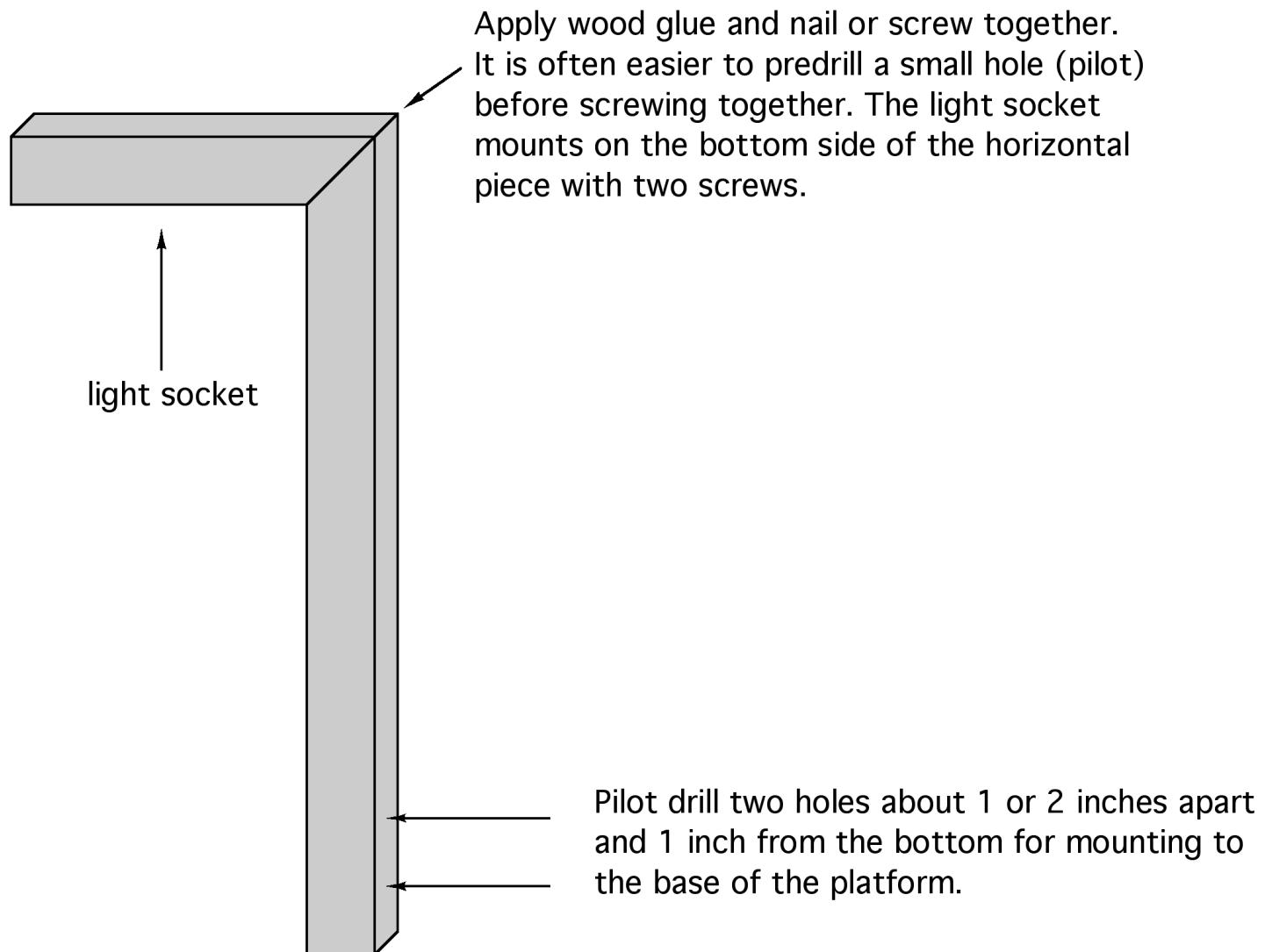


Figure 6: Assembled heat lamp mount for the apparatus.

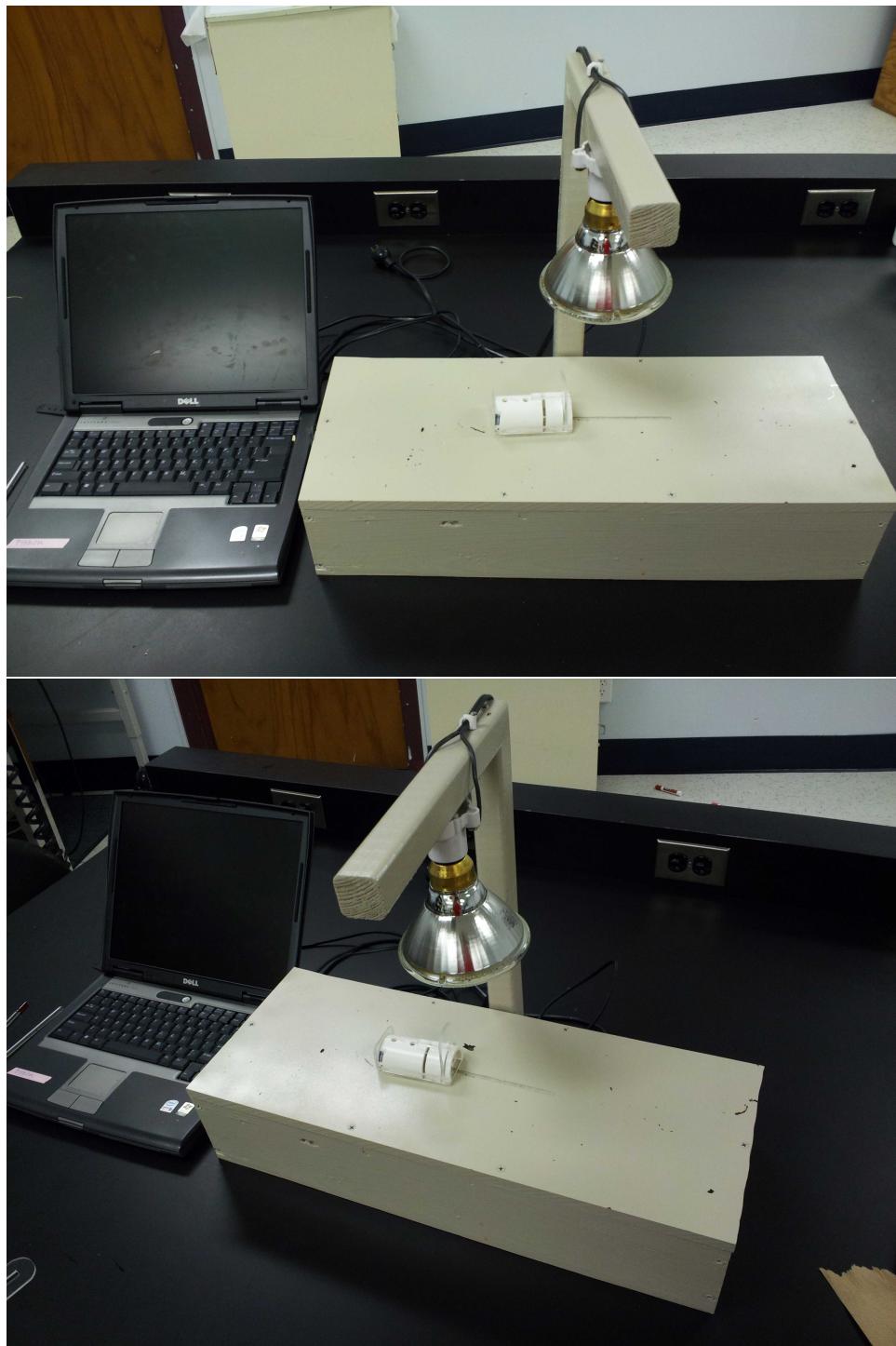


Figure 7: Photos of the assembled apparatus.

(a)

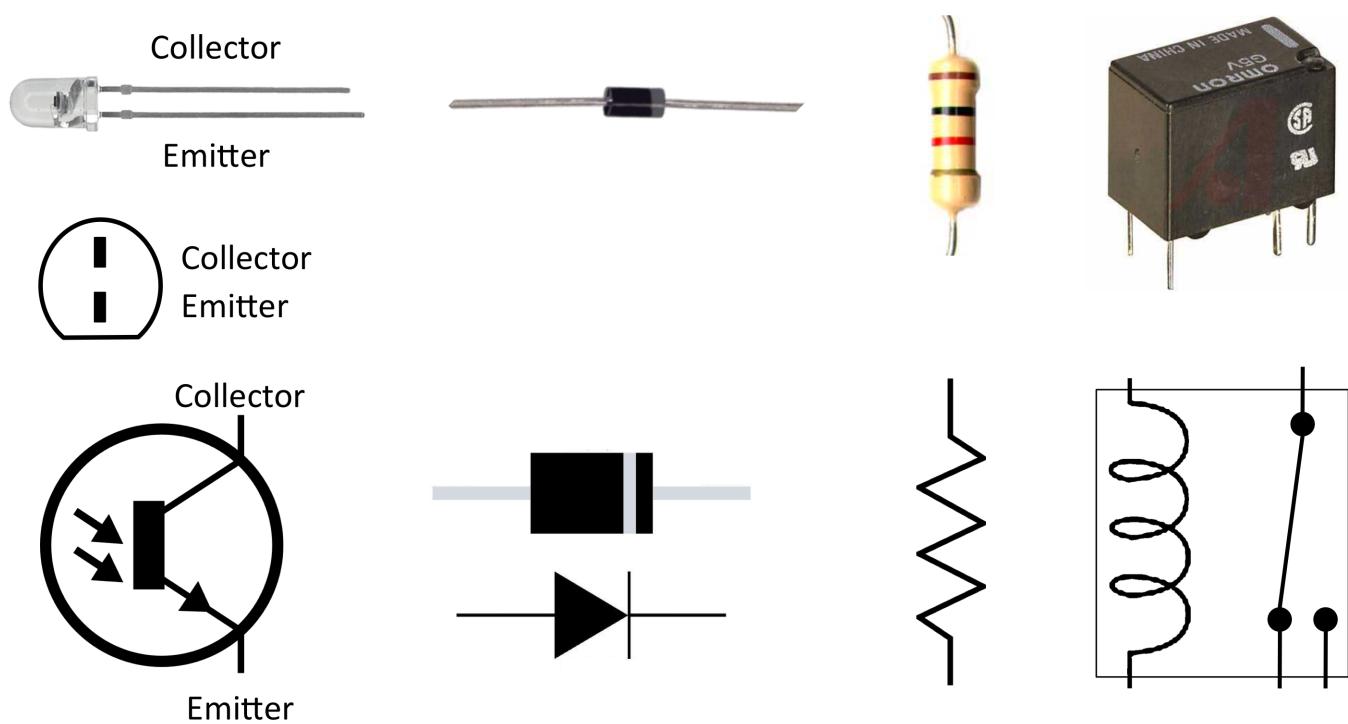


Figure 8: The four components of the circuit shown as their physical appearance and circuit diagram equivalent. Left to Right: npn phototransistor, diode, resistor, relay.

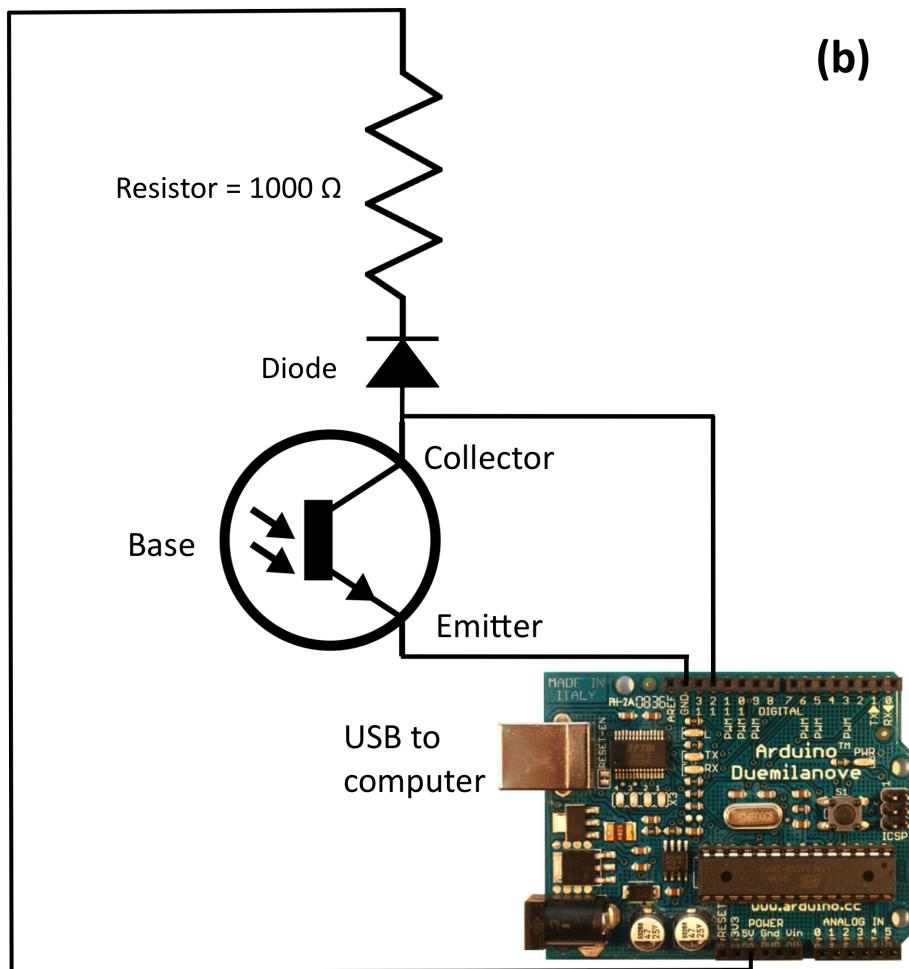


Figure 9: The photo-sensing circuit utilizing a phototransistor as a binary switch to indicate to the Arduino digital pin 2 whether the rodent tail is blocking (0) or not blocking (1) the transistor. The wires are shown as black lines. Wire connections to the Arduino are shown.

(c)

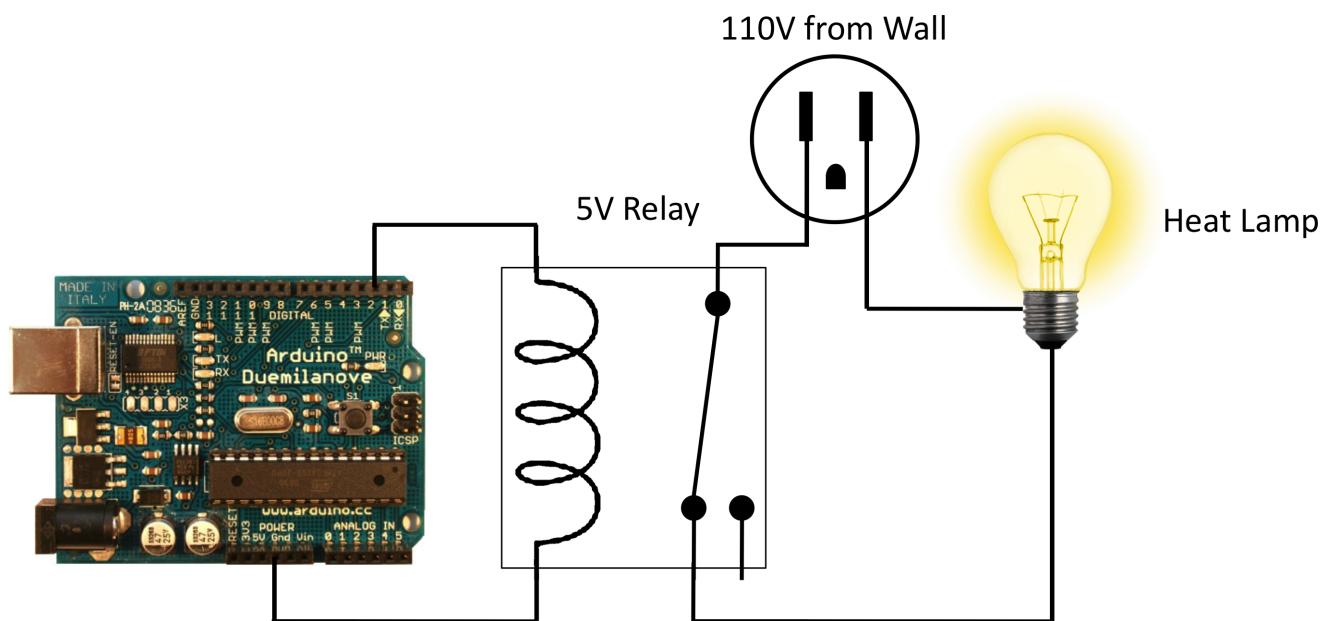


Figure 10: The light powering circuit uses the Arduino digital pin 12 to supply 5 volts for actuating the relay and turning the heat lamp on/off.

