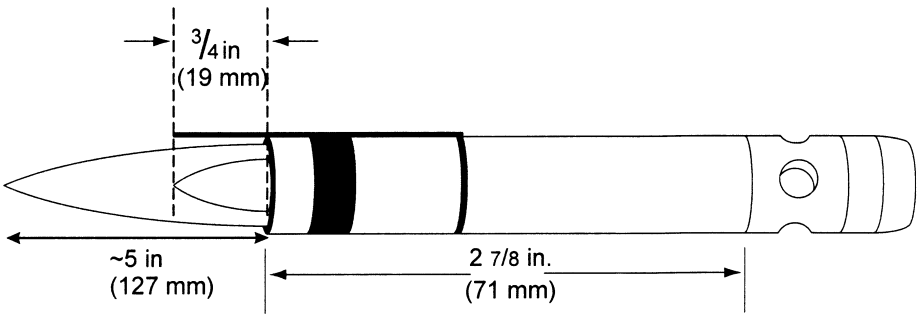

Figure 6 – Propane Pilot Burner

(5) *Thermocouples.* Install a 24 American Wire Gauge (AWG) Type K (Chromel-Alumel) thermocouple in the test chamber for temperature monitoring. Insert it into the chamber through a small hole drilled through the back of the chamber. Place the thermocouple so that it extends 11 inches (279 mm) out from the back of the chamber wall, 11½ inches (292 mm) from the right side of the chamber wall, and is 2 inches (51 mm) below the radiant panel. The use of other thermocouples is optional.

(6) *Calorimeter.* The calorimeter must be a one-inch cylindrical water-cooled, total heat flux density, foil type Gardon Gage that has a range of 0 to 5 BTU/ft^2-second (0 to 5.7 Watts/cm^2).

(7) *Calorimeter calibration specification and procedure.*

(i) *Calorimeter specification.*

(A) Foil diameter must be 0.25 ±0.005 inches (6.35 ±0.13 mm).

(B) Foil thickness must be 0.0005 ±0.0001 inches (0.013 ±0.0025 mm).

(C) Foil material must be thermocouple grade Constantan.

(D) Temperature measurement must be a Copper Constantan thermocouple.

(E) The copper center wire diameter must be 0.0005 inches (0.013 mm).

(F) The entire face of the calorimeter must be lightly coated with ''Black Velvet'' paint having an emissivity of 96 or greater.

(ii) *Calorimeter calibration.* (A) The calibration method must be by comparison to a like standardized transducer.

(B) The standardized transducer must meet the specifications given in paragraph VI(b)(6) of this appendix.

(C) Calibrate the standard transducer against a primary standard traceable to the National Institute of Standards and Technology (NIST).

(D) The method of transfer must be a heated graphite plate.

(E) The graphite plate must be electrically heated, have a clear surface area on each side of the plate of at least 2 by 2 inches (51 by 51 mm), and be ⅛ inch ±1⁄16 inch thick (3.2 ±1.6 mm).

(F) Center the 2 transducers on opposite sides of the plates at equal distances from the plate.

(G) The distance of the calorimeter to the plate must be no less than 0.0625 inches (1.6 mm), nor greater than 0.375 inches (9.5 mm).

(H) The range used in calibration must be at least 0–3.5 BTUs/ft^2 second (0–3.9 Watts/cm^2) and no greater than 0–5.7 BTUs/ft^2 second (0–6.4 Watts/cm^2).

(I) The recording device used must record the 2 transducers simultaneously or at least within 1⁄10 of each other.

(8) *Calorimeter fixture.* With the sliding platform pulled out of the chamber, install the calorimeter holding frame and place a sheet of non-combustible material in the bottom of the sliding platform adjacent to the holding frame. This will prevent heat losses during calibration. The frame must be 13⅛ inches (333 mm) deep (front to back) by 8 inches (203 mm) wide and must rest on the top of the sliding platform. It must be fabricated of ⅛ inch (3.2 mm) flat stock steel and have an opening that accommodates a ½ inch (12.7 mm) thick piece of refractory board, which is level with the top of the sliding platform. The board must have three 1-inch (25.4 mm) diameter holes drilled through the board for calorimeter insertion. The distance to the radiant panel surface from the centerline of the first hole (''zero'' position) must be 7½ ±⅛ inches (191 ±3 mm). The distance between the centerline of the first hole to the centerline of the second hole must be 2 inches (51 mm). It must also be the same distance from the centerline of the second hole to the centerline of the third hole. *See* figure 7. A calorimeter holding frame that differs in construction is acceptable as long as the height from the centerline of the