Allow the thermometer to stand in the ice bath for 2 minutes, and then read the temperature indicated by the thermometer to the nearest 0.2 degree. Remember that the thermometer must be read *while still in the ice bath.* If the reading indicated by the thermometer differs from 0°C by more than one degree, replace the thermometer and repeat the ice bath calibration.

Allow the thermometer to warm to room temperature by resting it in a safe place on the laboratory bench.

Set up an apparatus for boiling as indicated in Figure 4-1, using a 100-mL beaker containing approximately 75 mL of water. Add 2–3 boiling chips to the water, and heat the water to boiling.

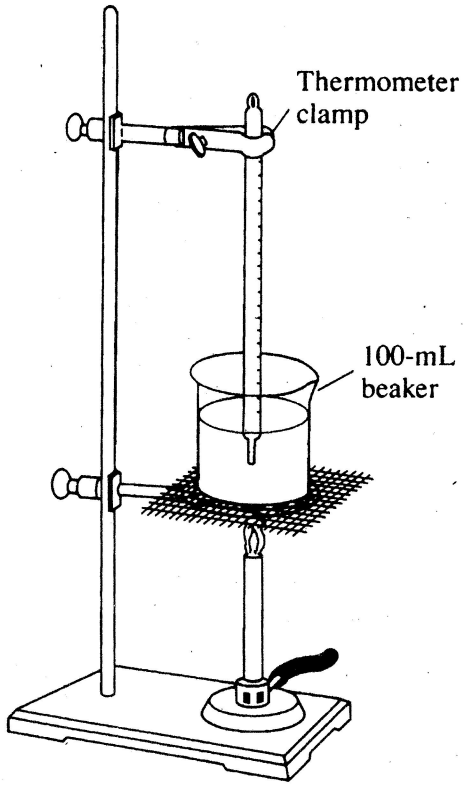

Figure 4-1. Apparatus for thermometer calibration in boiling water. Make certain the thermometer is *freely suspended* in the water and is not touching the walls or bottom of the beaker.

Using a clamp, suspend the thermometer so that it is dipping into the boiling-water bath with the bulb completely immersed in the boiling water. Make certain that the thermometer is not touching the walls or bottom of the beaker. Allow the thermometer to stand in the boiling water for 2 minutes; then record the thermometer reading to the nearest 0.2°C.

A boiling-water bath has a temperature near 100°C, but the actual temperature of boiling water is dependent on the barometric pressure, and changes with the weather from day to day. Your instructor will write the current barometric pressure on the chalkboard. Using a handbook of chemical data, look up the actual boiling point of water for this barometric pressure and record.

If your measured boiling point differs from the handbook value for the provided barometric pressure by more than one degree, exchange your thermometer at the stockroom, and repeat the calibration of the thermometer in both the ice bath and the boiling-water bath.