CLAIMS:

1. An ingot puller apparatus for manufacturing a single crystal silicon ingot, the ingot puller apparatus comprising:

a crucible assembly for holding a silicon melt;

a crystal puller housing that defines a growth chamber for pulling a silicon ingot from the melt, the crucible assembly being disposed within the growth chamber;

a silicon feed tube for adding solid silicon to the crucible assembly, the silicon feed tube extending into the growth chamber;

a funnel that at least partially extends into the silicon feed tube, the funnel and silicon feed tube being separated by a gap; and

a flange that extends from the silicon feed tube, the flange extending fully across the gap to reduce backflow of gases from the silicon feed tube into the growth chamber, the flange being disposed above the silicon feed tube and contacting an upper end of the silicon feed tube, the funnel extending through the flange.

2. The ingot puller apparatus as set forth in claim 1 wherein the flange is a quartz ring.

3. The ingot puller apparatus as set forth in claim 1 wherein the silicon feed tube comprises a receiving portion and a main portion having a diameter less than the receiving portion, the funnel being at least partially disposed within the receiving portion.

4. The ingot puller apparatus as set forth in claim 1 wherein the flange and crystal puller housing are separated by a gap.

5. An ingot puller apparatus for manufacturing a single crystal silicon ingot, the ingot puller apparatus comprising:

a crucible assembly for holding a silicon melt;

a crystal puller housing that defines a growth chamber for pulling a silicon ingot from the melt, the crucible assembly being disposed within the growth chamber;

a silicon feed tube for adding solid silicon to the crucible assembly, the silicon feed tube extending into the growth chamber;

a funnel that at least partially extends into the silicon feed tube, the funnel and silicon feed tube being separated by a gap; and

a flange that extends from the silicon feed tube, the flange extending fully across the gap to reduce backflow of gases from the silicon feed tube into the growth chamber, the flange being disposed within the silicon feed tube, the flange having an opening through which solid silicon passes.

6. The ingot puller apparatus as set forth in claim 5 wherein the flange is made of quartz.