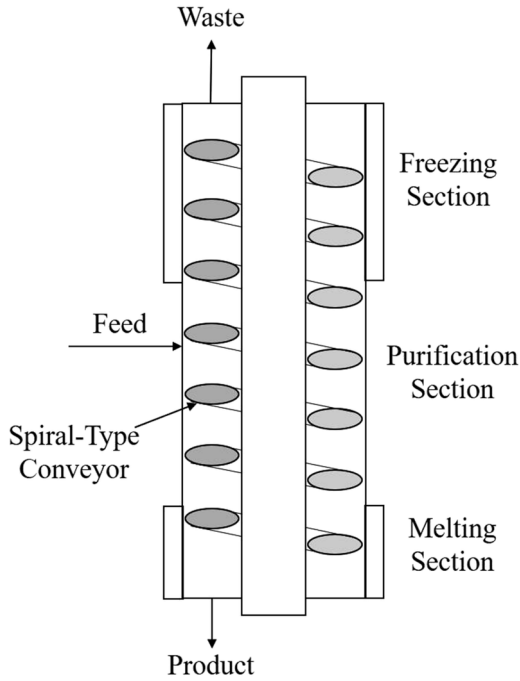

Figure 11.5 Schildknecht column.

size of openings and residence times, crystals with bigger size and higher permeability could be obtained and help to increase the efficiency of solid–liquid separation.

11.4.1.4 Schildknecht Column

Schildknecht developed a vertical column (Figure 11.5) for continuous melt suspension crystallization[1,33] and all the processes, including the crystal growth, countercurrent flow of solid and liquid and melting of the crystals, take place in the different parts of the same column. The column is annular in cross-section and the crystals are transported between the two tubes through a rotating helix, in the direction against the liquid. Openings on the helix could let the liquid flow through it while keep the crystals moving downwards. However, because of the difficulties concerning the complicated structures of helical coils, scaling-up of the Schildknecht column is difficult.

11.4.1.5 Philips Crystallizer

Philips crystallizers,[1,3,33,34] shown in Figure 11.6, were developed based on the continuous fractional crystallization concept, analogous to the distillation process, in the 1950s in America. In Philips crystallizers, crystals nucleate