## CLAIMS

What is claimed:

1. A delayed coking heater for heating a feedstock to delayed coking temperature comprising:

a heater including a radiant heating zone comprising a lower portion including a hearth burner section and an upper portion including a wall burner section, the hearth burner section comprising a plurality of hearth burners located adjacent to the bottom hearth for firing in the radiant heating zone; and the wall burner section comprising a plurality of wall burners located adjacent to opposing walls; and

a ~~multiple parallel~~ vertical serpentine heating coil located in the radiant heating zone, the heating coil including multiple parallel horizontally extending flow conduits defining a continuous flow path extending from at least two inlets disposed in an upper portion of the radiant heating zone of the heater to at least two outlets disposed in a lower portion of the radiant heating zone of the heater.

2. A delayed coking heater for heating a feedstock to delayed coking temperature comprising:

a heating vessel having upper and lower radiant heating sections, a vertical ~~multiple parallel~~ serpentine heating coil including multiple parallel horizontally extending flow conduits defining a continuous flow path extending from at least two inlets disposed in an upper portion of the heating vessel to at least two outlets disposed in a lower portion of heating vessel, the heating coil being disposed between and spaced apart from opposite side walls of the heating vessel through which the feedstock is transported, and a plurality of burners located in the lower radiant section of the heating vessel on each side of the multiple parallel serpentine heating coil so as to be capable of providing and directing sheets of flame upwardly on opposite sides of the multiple parallel serpentine heating coil, the sheets of flame

each individually lying in a plane generally parallel to the plane in which the multiple parallel serpentine heating coil is suspended.

3. The delayed coking heater of claim 1 or claim 2, further comprising a flow splitter for splitting the flow of the feedstock into inlets of the multiple parallel serpentine heating coil.

4. The delayed coking heater of any one of claims 1-3, further comprising a flow mixer for combining the heated feedstock from corresponding outlets of the multiple parallel serpentine heating coil.

5. The delayed coking heater of claim 4, further comprising a temperature sensor located downstream of the flow mixer for measuring a temperature of the combined heated feedstock.

6. The delayed coking heater of any one of claims 1-5, further comprising a control system for adjusting an operating parameter of the delayed coking heater based on the measured temperature of the combined heated feedstock.

7. A process for heating a feedstock in a delayed coking heater to delayed coking temperature, comprising:

splitting a flow of a feedstock into upper inlets of ~~a~~ multiple parallel horizontally extending flow conduits defining a serpentine heating coil vertically disposed in a delayed coking heater, the delayed coking heater comprising:

a heating vessel having upper and lower radiant heating sections, the ~~vertical multiple parallel~~ serpentine heating coil disposed between and spaced apart from opposite side walls of the heating vessel through which the feedstock is transported, and a plurality of burners located in the lower radiant section of the heating vessel on each side of the ~~multiple parallel~~ serpentine heating coil so as to be capable of providing and directing sheets of flame upwardly on opposite sides of the multiple parallel serpentine heating coil, the sheets of flame each individually lying in a plane generally parallel to the plane in which the ~~multiple parallel~~ serpentine heating coil is suspended;

heating the feedstock to delayed coking temperature in the ~~multiple parallel~~ serpentine heating coil;

recovering heated feedstock from corresponding lower outlets of the ~~multiple parallel~~ serpentine heating coil; and

combining the flow of the heated feedstock from the multiple corresponding outlets outside of the heating vessel.

8. The process of claim 7, further comprising measuring a temperature of the combined heated feedstock.