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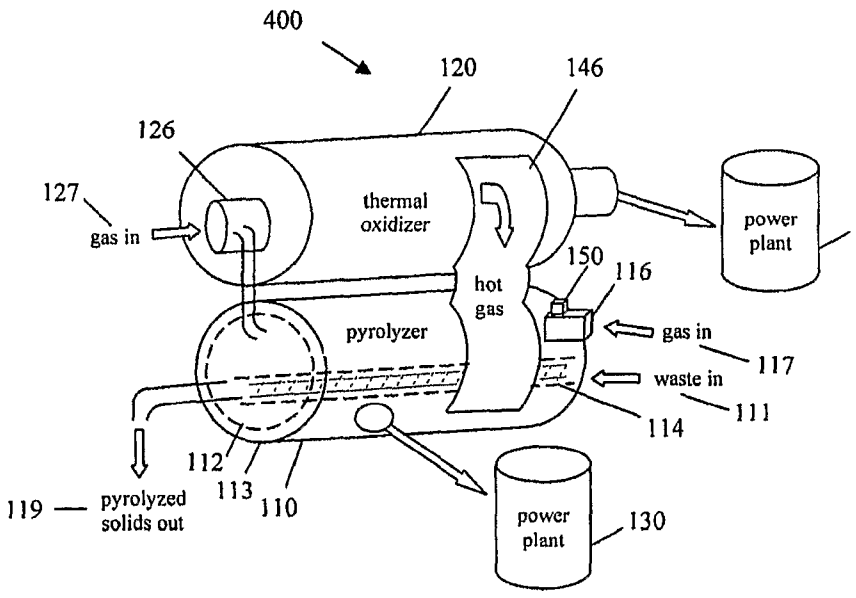
(54) Title: PRODUCTION OF SYNTHETIC GAS FROM ORGANIC WASTE



(57) Abstract: A pyrolysis device has a pyrolyzer (retort) and a thermal oxidizer, each with its own burner, but coupled so that the burner of the pyrolyzer can be down-regulated as heat from the thermal oxidizer is used to hear the pyrolyzer. One or more automatic controllers preferably adjust a burn rate of the extrinsic gas by the first burner as a function of a rate at which heat is transferred from the thermal oxidizer to the pyrolyzer. In preferred embodiments, the burn rate of the extrinsic gas can be adjusted to ≤ 50%, ≤ 30% or even lower relative to a base rate that would be required to pyrolyze the waste without the heat thermal oxidizer.

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AMENDED CLAIMS

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1. A device for pyrolytically treating a waste, comprising:

a pyrolyzer and a thermal oxidizer;

a first burner that primarily heats the pyrolyzer to produce a synthetic gas from the waste;

a second burner that primarily assists in combusting the synthetic gas in the thermal oxidizer, the second burner spaced apart from the first burner, and combustion of the synthetic gas producing an exhaust gas; and

a heat transfer component that carries heat from the thermal oxidizer to the pyrolyzer.

2. The device of claim 1, wherein the first burner receives a supply of extrinsic gas.

3. The device of claim 2, further comprising a controller that automatically adjusts a burn rate of the extrinsic gas by the first burner as a function of a rate at which heat is transferred from the thermal oxidizer to the pyrolyzer.

4. The device of claim 2, further comprising a controller that automatically adjusts a burn rate of the extrinsic gas to below 50% of a base rate that would be required to pyrolyze the waste without the heat from the thermal oxidizer.

5. The device of claim 2, further comprising a controller that automatically adjusts a burn rate of the extrinsic gas to below 30% of a base rate that would be required to pyrolyze the waste without the heat from the thermal oxidizer.

6. The device of claim 2, further comprising a controller that automatically adjusts relative amounts of the extrinsic and synthetic gasses combusted by the first burner as a function of a characteristic of the synthetic gas.

7. The device of claim 1, further comprising a line that carries a portion of the synthetic gas to the first burner.