

DRYING OVEN WITH HEAT RECLAMATION AND AIR POLLUTION CONTROL SYSTEM

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Appl. No.: **050085**

Filed: **June 19, 1979**

Current U.S. Class: 432/21; 34/86; 432/1; 432/72

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ABSTRACT

A system of drying ovens is disclosed with associated means for heat reclamation and air pollution control. The ovens are primarily for drying or baking paint or other coatings on pipes or the like where the emissions are primarily hydrocarbons. In this system of ovens, hydrocarbon fumes are concentrated at the ends of the oven. Solvent laden fumes are, therefore, collected where the concentration is the highest. The exhaust from the oven is located at the central portion and leads to a combustion/incineration chamber where it is exhausted to atmosphere after incineration and a major part of the heat is recovered and recirculated to the oven. In a sequence of ovens, the exhaust from one oven is circulated to the next at a high linear velocity, but low volume (at 25% LEL) and heated to a high temperature (1400.degree. F.) by in-line incineration of the fumes. The low volume, high velocity, high temperature gasses are mixed with a high volume, low velocity, low temperature exhaust collected from the end of that oven. This incineration and mixing and recirculation of gasses is repeated in each succeeding oven and no gasses are exhausted to atmosphere until the last oven. In the last oven, in sequence, a burner is provided to incinerate fumes recirculated at one end of the oven and the exhaust goes to atmosphere through an incinerator/heat exchanger where the reclaimed heat is supplied to outside air being fed to support combustion in the incinerator at one end of the last oven.

20 Claims, 10 Drawing Figures

