PTO FOR NO.

JAMES ROUNTREE

AIR-BORNE SEDIMENT COLLECTING DEVICE

The scheme I suggest here combines 3 items that are well known in relation to dust in the agricultural world. Everyone knows the oil bath engine air filter. The centrifuge oil filter is less well known, but it gives excellent performance. And the rotary screen that throws off sediment is very well known too.

The major detail of this scheme is that a cake will build up on the centrifuge wall which will provide a sample that stores easily & is very practical to examine in a laboratory.

A secondary detail is unknown. What will be found to be dissolved in the oil? The only way to find out is to create one of these devices & test it.

A third detail is that performance with volatile contents in the air is unknown. Perhaps additives to the oil could precipitate some of these.

Development of this idea has been based only on agricultural general knowledge & there has been no engineering input so far.

My ideas on the power requirement is that this should be a free-standing operation & a combination of wind power, solar panels & batteries should provide sufficient electrical power, & the scale of the device should only be as large as is practically necessary.

This suggested device could have many varied applications other than monitoring for air pollution. One of them could be as an air cleaning device for use by asthmatic patients.

I just want to get a particular air pollution monitoring job done & I am not out to make money out of it. I think E.P.A. should take an interest in this & preserve any rights, patents, etc in the public interest so that no person or company profits from these ideas. And I want to see wider public interest & hopefully other ideas of a similar nature will be put forward. There are 2 objects here — a search to find the best ideas & then obviously to produce a practical operation.

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SCHEME OF AIRBORNE SEDIMENT COLLECTING DEVICE

OH Sub No. 48(b)

Recd From: James Rountree

SUCTION PUMP

NOTE: Vacuum controlled to produce -15 psi to raise the oil level + allow ambient air to be sucked through the oil

NOTE: Increased pressure at the filter screen

AIR OUTLET

AIR INLET

OLD TYPE OIL BATH AIR FILTER

SUCTION PUMP

OIL RETRIEVED

OIL LEVEL

OIL CIRCULATED

CENTRI-FUGE

ROTATING CYLINDER FILTER SCREEN

NOTE: At high speed any oil droplets carried in the air flow will be deflected, collected + delivered to the centrifuge oil circulation.

NOTE: The outer housing should also rotate at slow speed + should be brushed.

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FOOD WASTE IN INCINERATION

I asked Mr Bagore a question (15/4103) about the burning of protein producing ammonia + we discussed 2 different processes involving ammonia.

(A) The burning of protein produces ammonia. Temperatures are so high in incineration that this ammonia is entirely destroyed + becomes elemental H + N. Energy is not produced by this process. The production of ammonia produces energy but the destruction of this ammonia consumes an equal amount of energy. Then the elemental Nitrogen consumes energy as it is oxidised to NOx. So the burning of protein results in reduced heat energy in comparison to what you would otherwise expect from refuse with equivalent CHO analysis.

(B) When flue gases cool down substantially, it is practical to introduce ammonia to react with + eliminate NOx gases.

We are talking about 2 separate processes here. One happens at the maximum temperature + the other at a much reduced temperature at a later stage in the ~~two~~ incineration process.

My point here is that I do not believe it is justifiable on a heat energy basis to burn food waste in an incinerator. There is a further point that food waste contains salt which contributes to the formation of dioxins.