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54 **Control system for a boiler or furnace.**

57 A control system for a boiler or furnace (2) extracts from the flue (4) a sample portion of the burnt flue gas. The level of unburnt oxygen therein is detected and compared with a stored reference level which, for the particular fuel supply rate, is indicative of efficient boiler or furnace operation. If the detected oxygen level differs from said stored reference level by more than a predetermined amount the relative proportion of fuel and air in the mixture is adjusted in the appropriate sense, prior to the burnt flue gas being re-tested. Before detection the sample portion is passed through a trap (18) having a condenser portion from which liquid condensed from the sample portion drains into a sump portion. The condensed liquid is automatically drawn from the sump portion at intervals by a siphonic duct.

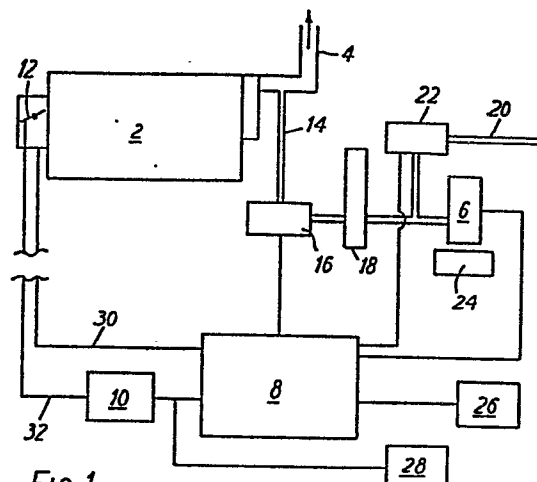


FIG.1



01 21 437

Application number

EP 84 30 2239

| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
|---|---|--|--|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int. Cl. 3) |
| X A | CONTROL AND INSTRUMENTATION, vol. 9, no. 11, December 1977, London, GB "Meeting smaller users' demands for efficient combustion controls", page 33. * Left figure; mid. column * | 1 2,4,6 | F 23 N 5/00 |
| X A | OIL & GAS JOURNAL, vol. 79, no. 38, September 21, 1981, Technology TULSA, Oklahoma, US D.J. LEONARD et al.: "Automatic control ups heater combustion", pages 134-138 * Figure 5 * | 1 4,7 | TECHNICAL FIELDS SEARCHED (Int. Cl. 3) |
| A | ADVANCES IN INSTRUMENTATION, vol. 37, 1982, Part 3, Research Triangle Park, NC, US Pittsburgh, US C. PRESSER et al.: "Evaluation of O ₂ and Co monitoring systems for combustion controls", pages 1515-1536 * Pages 1516-1517, paragraphs b,c,d * | 2,6 | F 23 N |
| The present search report has been drawn up for all claims | | | |
| Place of search The Hague | | Date of completion of the search 02-07-1984 | Examiner THIBO |
| CATEGORY OF CITED DOCUMENTS | | T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document | |
| X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document | | | |



CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ All claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claims:
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

☒ LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions, namely

- 1) Claims 1-8: Control system a method for a furnace a boiler
- 2) Claims 9,10: Trap for removing liquid a vapour from a gasstream

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up to all claims.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees has been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims: 1-8



| DOCUMENTS CONSIDERED TO BE RELEVANT | | | CLASSIFICATION OF THE APPLICATION (Int. Cl. 3) |
|-------------------------------------|---|-------------------|--|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | |
| A | <u>FR - A - 2 392 327</u> (TELEGAN LTD) * Figures 1-4; page 13, lines 6-9; page 6, line 31 - page 7, line 10; page 16, claims 1,2,3,5,6,8,10 * -- | 1,3,4,5,8 | |
| A | <u>EP - A - 0 050 840</u> (KARL DUNGS GmbH & Co) * Figures 1-3; claims 1,2,4 * -- | 3-5,7 | TECHNICAL FIELDS SEARCHED (Int. Cl. 3) |
| A | <u>US - A - 4 160 170</u> (K.I. HARNER et al.) * Figure 2; column 11, lines 31-52 * -- | 1,4,5 | |
| A | <u>US - A - 3 404 836</u> (W.M. HICKAM) | | |
| A | <u>FR - A - 2 069 721</u> (JONES & LAUGHLIN STEEL CORP.) | | |
| A | <u>DE - A - 3 103 940</u> (G.G. BAUMBACH) | | |
| A | <u>GB - A - 2 088 091</u> (ECONICS CORP.) ----- | | |