United States Patent [19]

Mims

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[54] GAS WELL FLOW INSTRUMENTATION

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Related U.S. Application Data

[63] Continuation of Ser. No. 56,271, May 26, 1987, abandoned, which is a continuation of Ser. No. 660,130, Oct. 12, 1984, abandoned.

[51] **Int. Cl.**[4] **G01F 1/00**

[52] **U.S. Cl.** **364/510**; 73/861.02; 73/861.03

[58] **Field of Search** 364/509, 510, 550, 571; 73/861.02, 861.03

[56] **References Cited**

U.S. PATENT DOCUMENTS

1,877,810	9/1932	Chamberlain	137/486
1,931,474	10/1933	Ryder	236/70
1,977,498	10/1934	Staegemann	73/861.44
2,264,370	12/1941	Harrison	235/61 C
2,566,803	6/1951	Eckman	242/217
2,611,812	9/1952	Hornfeck	340/870.05
3,322,339	5/1967	Nolte	235/61 R
3,407,658	10/1968	Kerbow et al.	73/861.02
3,742,515	6/1973	Yeiser	346/49
3,752,393	8/1973	Moseley	364/510
3,980,865	9/1976	Messer et al.	364/510
4,133,034	1/1979	Etter	364/464
4,149,254	4/1979	Molusis	364/510
4,150,721	4/1979	Norwood	166/53
4,173,891	11/1979	Johnson	364/510 X
4,326,411	4/1982	Gant et al.	364/510 X
4,355,365	10/1982	McCracken et al.	377/2
4,390,956	6/1983	Cornforth et al.	73/861.03 X
4,414,634	11/1983	Louis et al.	364/510
4,527,600	7/1985	Fisher et al.	364/510 X
4,562,744	1/1986	Hall et al.	73/861.02
4,581,707	4/1986	Millar	364/510 X

OTHER PUBLICATIONS

Brochure File No. 1800:215-2 Meriam Instrument of Cleveland Ohio "Digital Flow Totalizer".

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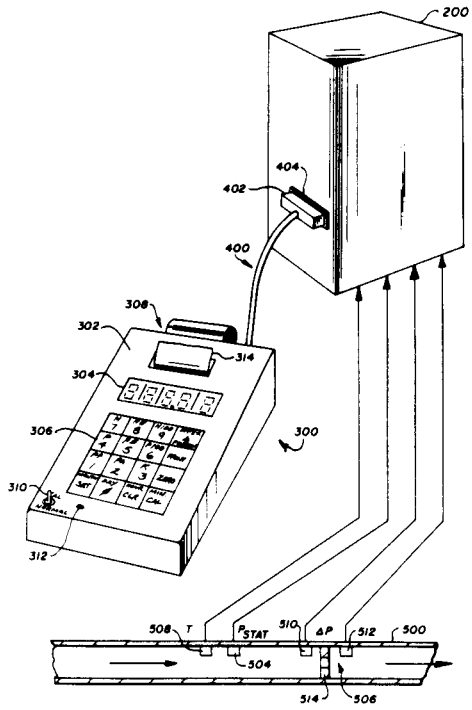
[57] **ABSTRACT**

Gas well flow instrumentation includes a computation unit and an interrogation unit. The computation unit measures parameters of gas flow at the well head and accumulates gas flow information over a plurality of different independent time intervals. The interrogation unit selectively accesses the stored information and makes a permanent record of the information. The interrogation unit also is used to calibrate the computation unit and to perform a number of other different functions. The interrogation unit includes an integral printer which documents the flow information for subsequent proof of acutal gas flow.

15 Claims, 10 Drawing Sheets