

United States Patent [19]

Murrell

[11] Patent Number: 5,049,252

[45] Date of Patent: Sep. 17, 1991

[54] WATER CLEANING SYSTEM

[76] Inventor: Wilfred A. Murrell, Wilga Farm, Hillston, New South Wales, Australia, 2675

[21] Appl. No.: 497,850

[22] Filed: Mar. 23, 1990

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 5,726, Jan. 21, 1987, abandoned.

[30] Foreign Application Priority Data

Jan. 21, 1986 [AU] Australia PH4293

[51] Int. Cl.⁵ C02F 1/46

[52] U.S. Cl. 204/268; 204/269; 204/275; 210/192; 210/243

[58] Field of Search 210/192, 243, 748, 717; 204/149, 268, 269, 275, 280, 284, 292

[56] References Cited

U.S. PATENT DOCUMENTS

Re. 26,329	1/1968	Hougen	204/149
3,404,088	10/1968	Dujardin	.
3,479,281	11/1969	Kikindai et al.	.
3,562,137	2/1971	Gehring	.
3,619,391	11/1971	Eisner	204/149
3,783,114	1/1974	Ishii et al.	204/149
3,816,274	6/1974	Anderson	204/149
3,816,275	6/1974	Ichiki et al.	204/149
3,817,865	6/1974	Austin	204/149
3,853,736	12/1974	Harnden et al.	204/269
3,898,150	7/1975	Russell et al.	204/275
3,904,521	9/1975	Stopka	210/192
3,920,530	11/1975	Xylander	204/149

3,925,203	12/1975	Turner	204/149
3,944,478	3/1976	Kuji et al.	204/275
3,975,269	8/1976	Ramirez	204/149
4,012,319	3/1977	Ramirez	204/149
4,075,076	2/1978	Xylander	204/149
4,189,381	2/1980	Laferty et al.	.
4,197,180	4/1980	Woodward	204/275
4,202,767	5/1980	Alfenaar	.
4,294,697	10/1981	Sawa et al.	.
4,311,595	1/1982	Julke	.
4,623,436	11/1986	Umehara	204/149

FOREIGN PATENT DOCUMENTS

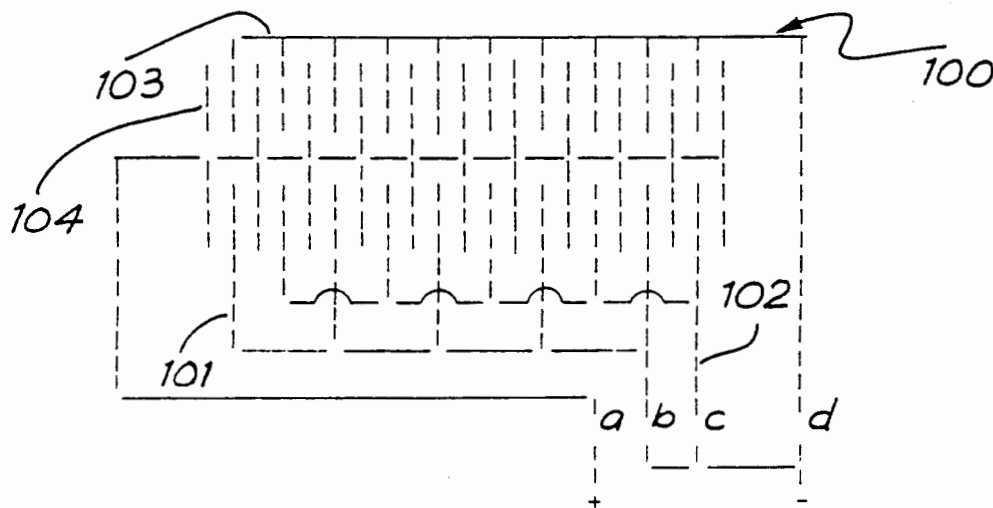
255770	12/1960	Australia	.
5625180	7/1980	Australia	.
0100538	2/1984	European Pat. Off.	.
0128782	12/1984	European Pat. Off.	.
0187720	7/1986	European Pat. Off.	.

Primary Examiner—Peter Hruskoci
Assistant Examiner—Robert James Popovics
Attorney, Agent, or Firm—Cushman, Darby & Cushman

[57] ABSTRACT

A method and apparatus for treating water contained in a tank to remove contaminants by passing a current through a novel electrode arrangement characterized by vertically disposed electrodes plates. Positive and negative half length electrode pairs are arranged vertically with respect to one another. Such electrode pairs are used in conjunction with full length, active or passive vertical electrode plates which are each adjacent a vertical pair. Preferably the electrodes and tank are made of aluminium.

10 Claims, 7 Drawing Sheets



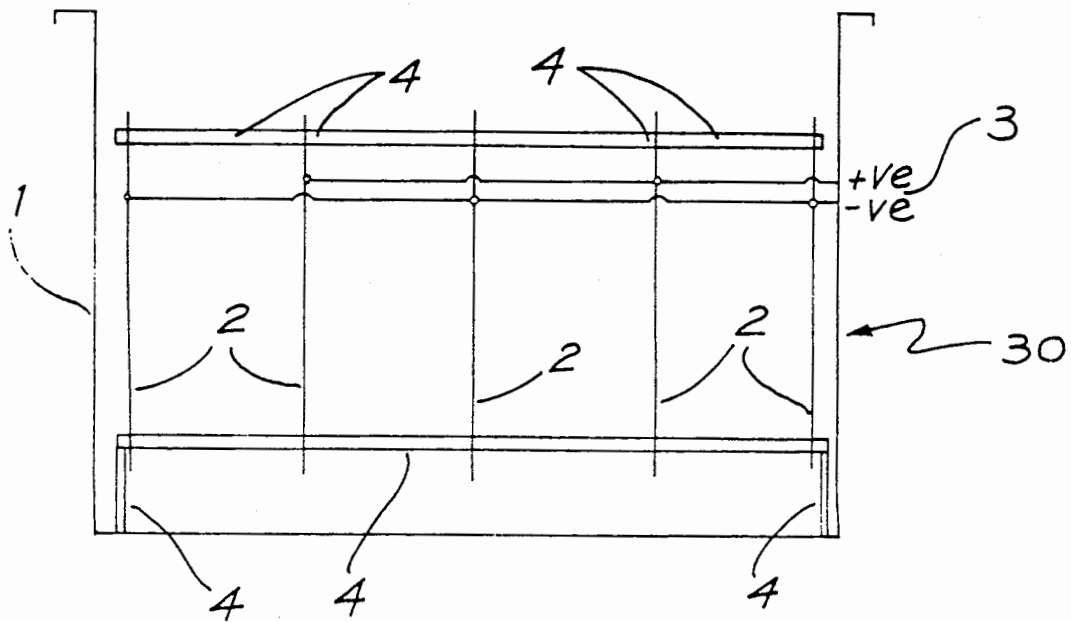


FIG. 1

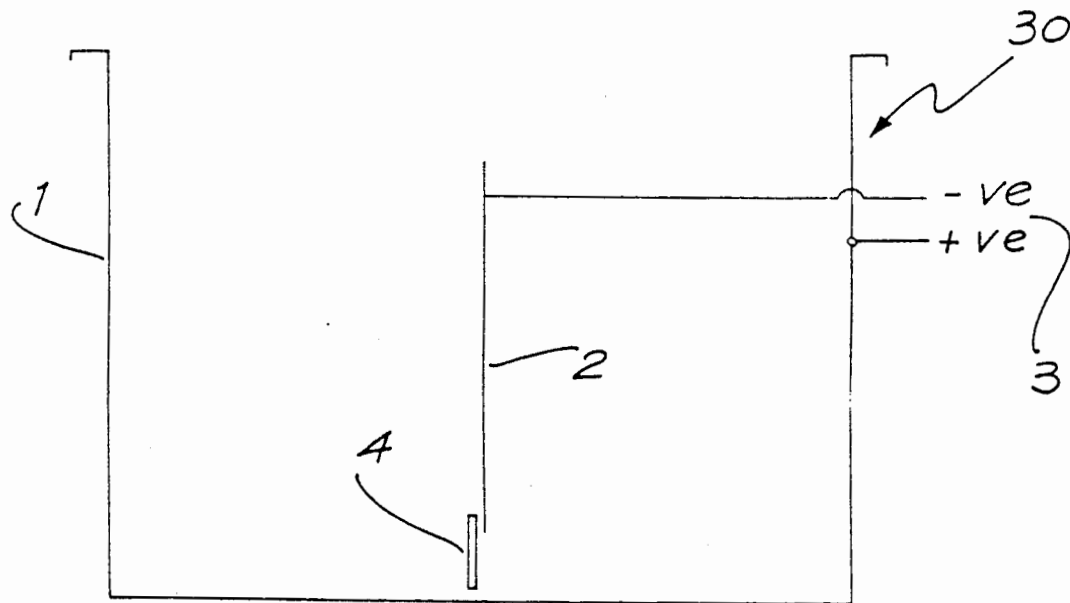
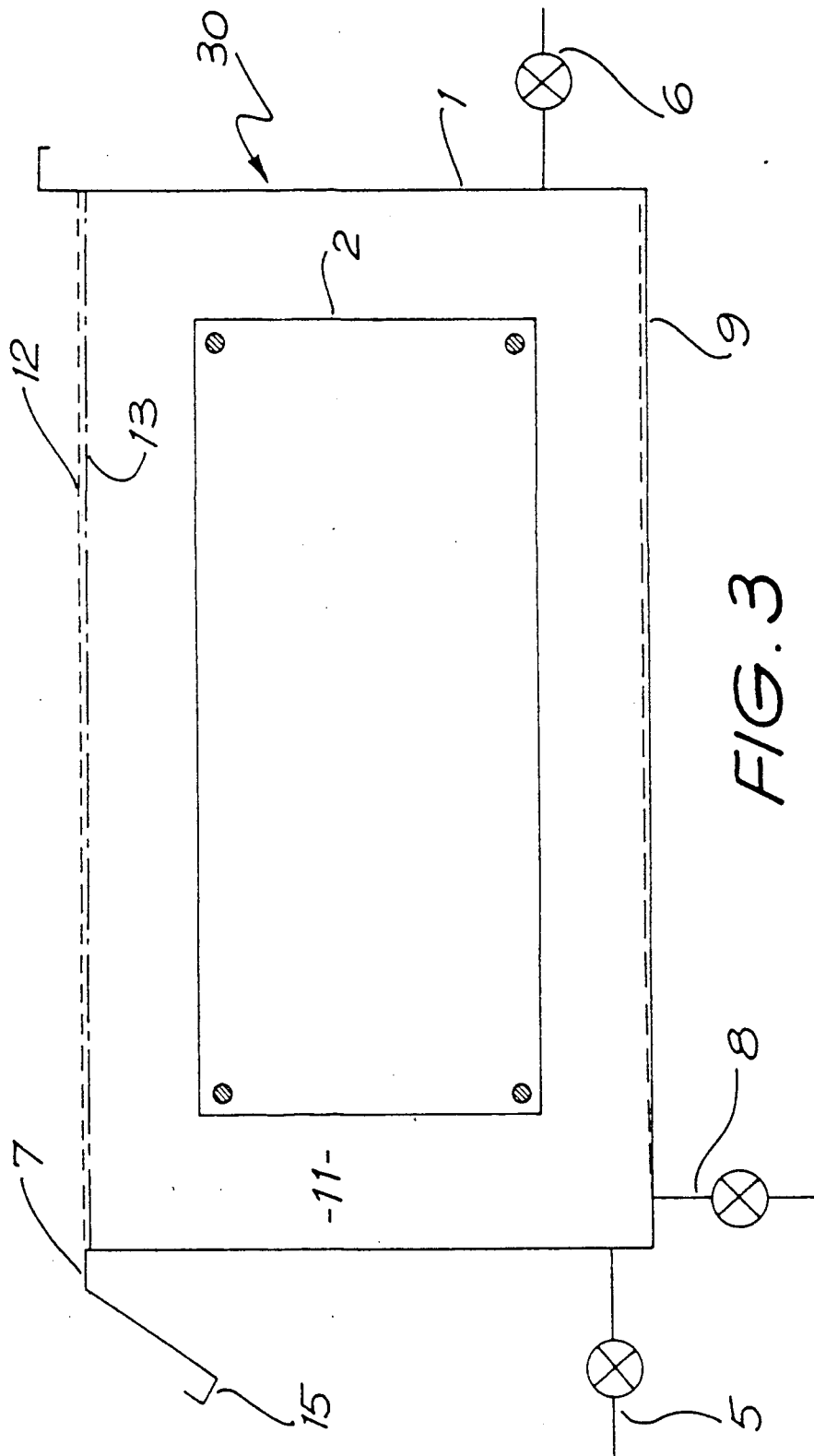


FIG. 2



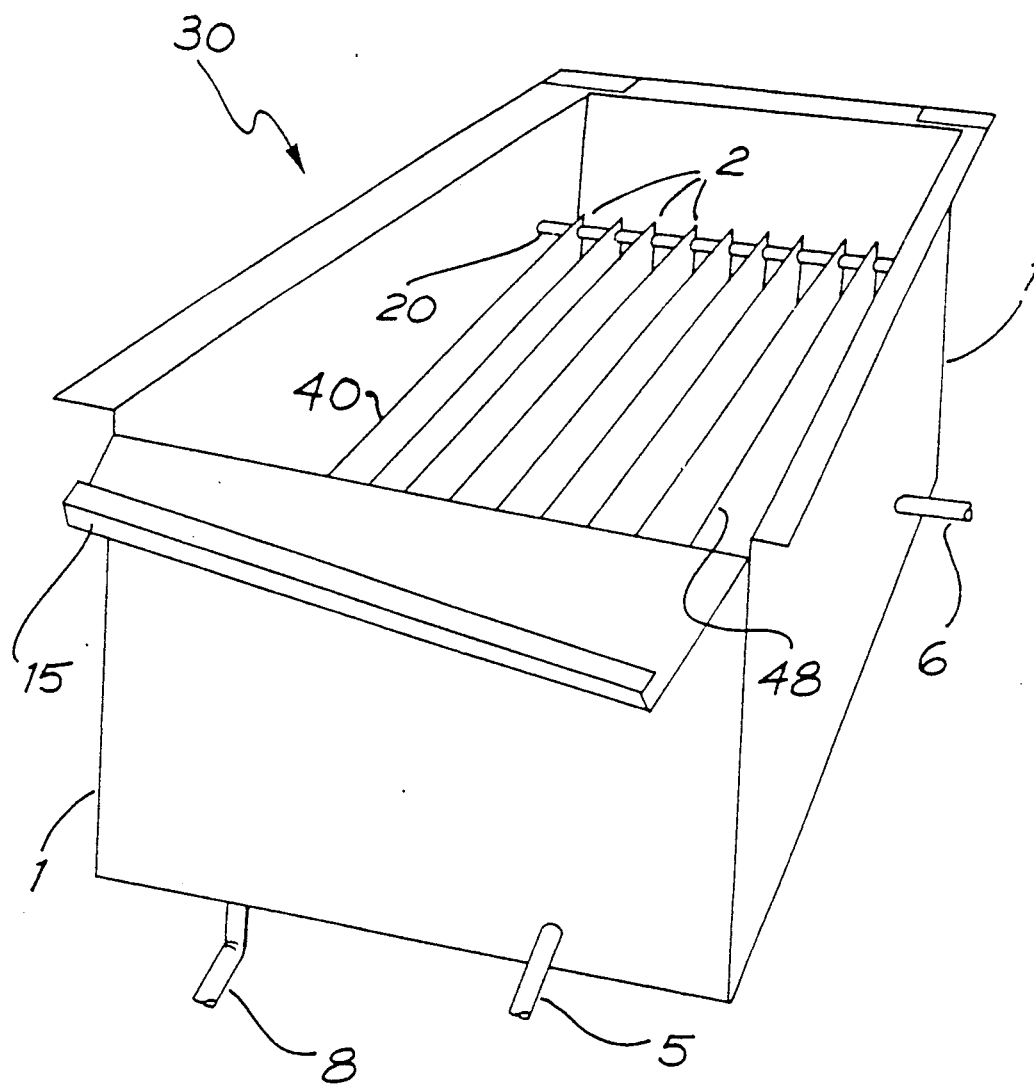


FIG. 4

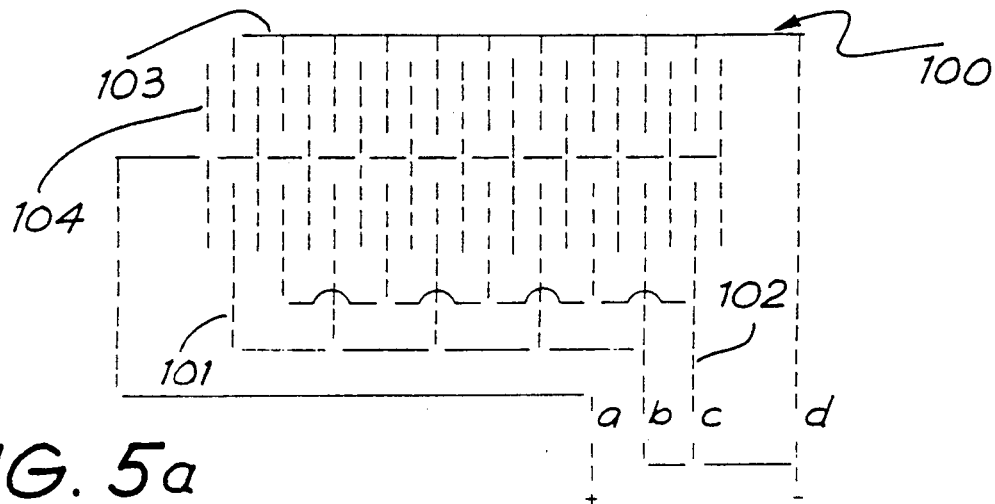


FIG. 5a

FIG. 5b

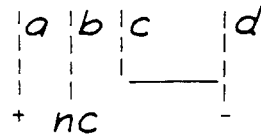


FIG. 5c

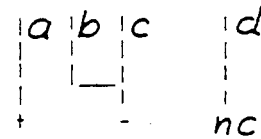


FIG. 5d

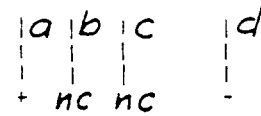


FIG. 5e

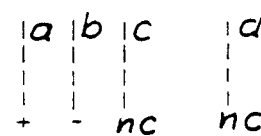


FIG. 5f

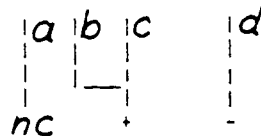
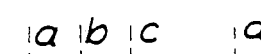
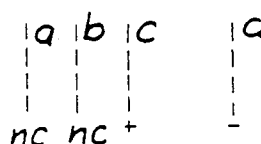


FIG. 5g



Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.