

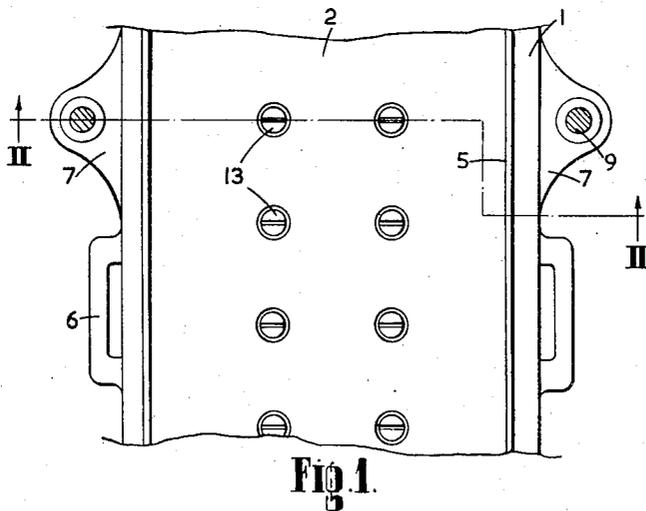
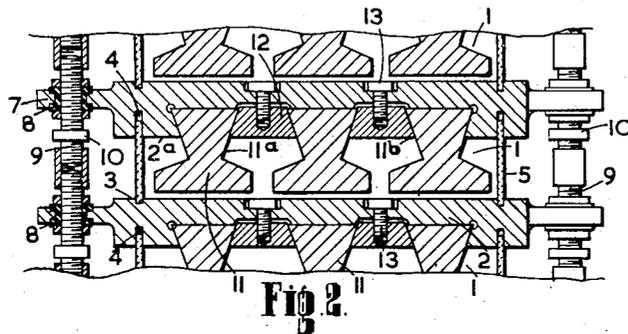
Nov. 27, 1951

S. V. ANDREASEN

2,576,553

ELECTROLYTIC CELLS

Filed Oct. 15, 1948



Svend Lind Andreassen INVENTOR.

BY
Victor Armstrong ATTORNEY

UNITED STATES PATENT OFFICE

2,576,553

ELECTROLYTIC CELLS

Svend Vind Andreassen, Stockton-on-Tees, England, assignor to The Power-Gas Corporation Limited, Stockton-on-Tees, England, a British company

Application October 15, 1948, Serial No. 54,651
In Great Britain October 18, 1947

1 Claim. (Cl. 204—219)

1

2

This invention relates to improvements in electrolytic cells.

An object of the present invention is to provide a vertical assembly of electrolytic cell units connected in series in which the cell units are of the type adapted to employ a liquid metal cathode, said assembly providing readily adjustable electrolysis gaps between the electrodes whilst maintaining the cells gas-tight.

A further object of the present invention is to provide such an assembly of electrolytic cell units in which the electrodes may be readily inspected without necessitating dismantling of the cell assembly.

The invention will now be more particularly described by reference to the accompanying drawings in which

Figure 1 is a plan view of an electrolytic cell assembly, and

Figure 2 is a sectional elevation of the cell assembly on the line II—II of Figure 1.

A plurality of generally rectangular cell units 1 are arranged one above the other. The bottom of one cell unit and the top of the cell unit immediately below is constituted by a cell plate 2 provided with grooves 3 and 4 in its upper and lower surfaces respectively extending along its longitudinal edges into which side walls of transparent material 5 are inserted; each such cell plate 2 in the assembly is provided with interspaced conductor lugs or ears 6 and supporting lugs 7. The supporting lugs 7 are provided with insulating bushes 8 through which pass threaded supports 9 supplied with turnbuckles 10 by means of which the distance separating adjacent cell plates may be adjusted. Each cell plate is provided on its lower surfaces 2a with a plurality of parallel longitudinally extending members 11 of anode material. The said members 11 are of inverted generally T-shaped cross-section in which the stem 11a makes a dovetail connection 11b with the cell plate by means of wedge shaped fixing pieces 12 extending longitudinally complementary to the dovetail stems and secured to the cell plate by adjusting bolts 13. The ends of the cell plates are provided with inlet and outlet pieces (not shown) leaving openings for inlets and outlets of liquids and gases.

By means of the present invention a horizontal electrolytic cell assembly is provided in which the cell plate dividing adjacent cells with or without separate anode material fixed thereto serves as a common electrode for two adjacent cells, in which means are provided when separate anodes

are used to fix them to the cell plate by pressurized contacting faces, in which the vertical distance between cell plates is adjustable, in which a substantial pressure or vacuum may be established in the cells and in which one or more of the cell units can be put out of operation by short circuiting the electric current through a conductor or bus bar without interfering with the operation of the remaining cells in the assembly.

I declare that what I claim is:

A vertical assembly of electrolytic cell units connected in series comprising a plurality of electrically conductive plates each having a substantially horizontal but slightly sloping upper face adapted to support and maintain electrical contact with a sheet of liquid metal flowing along its upper face to form the sole cathode of one cell unit and having at least one anode of the cell unit therebeneath electrically connected thereto and depending from a lower surface thereof, said plates having longitudinal grooves at the edges of the upper and lower faces and in vertical alignment, side walls for each cell unit having their upper and lower end portions located in the longitudinal grooves, said grooves having a depth sufficient to allow adjustment of the plates in vertical relation to one another, and support members of vertically adjustable length externally supporting said plates horizontally in vertical spaced relationship to one another and carrying the whole of the weight of said plates.

SVEND VIND ANDREASEN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
587,437	Hurter	Aug. 3, 1897
1,030,490	Potter	June 25, 1912
1,541,947	Hartman	June 16, 1925
1,732,117	Brandt	Oct. 15, 1929
1,815,079	Smith	July 21, 1931
2,055,962	Boss	Sept. 29, 1936
2,104,677	Sorensen	Jan. 4, 1938
2,430,374	Stuart	Nov. 4, 1947

FOREIGN PATENTS

Number	Country	Date
17,759	Great Britain	Aug. 2, 1913
89,782	Germany	Dec. 19, 1896
173,520	Germany	July 26, 1906