No. 680,441. Patented Aug. 13, 1901.

B. E. F. RHODIN.

ELECTRODE FOR ELECTROLYTIC CELLS.

(Application filed July 19, 1900.)

(No Model.)

Fig. 1.

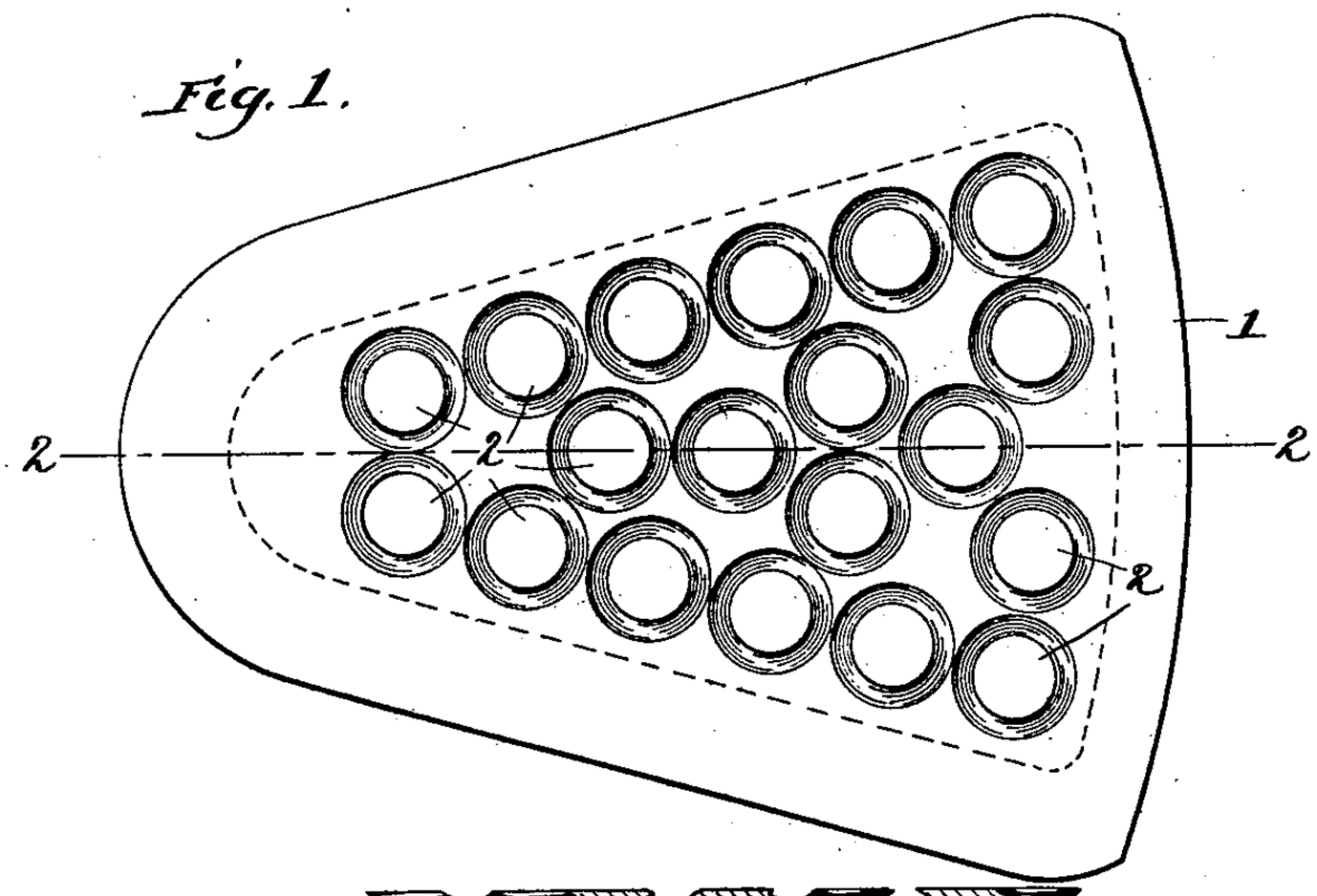
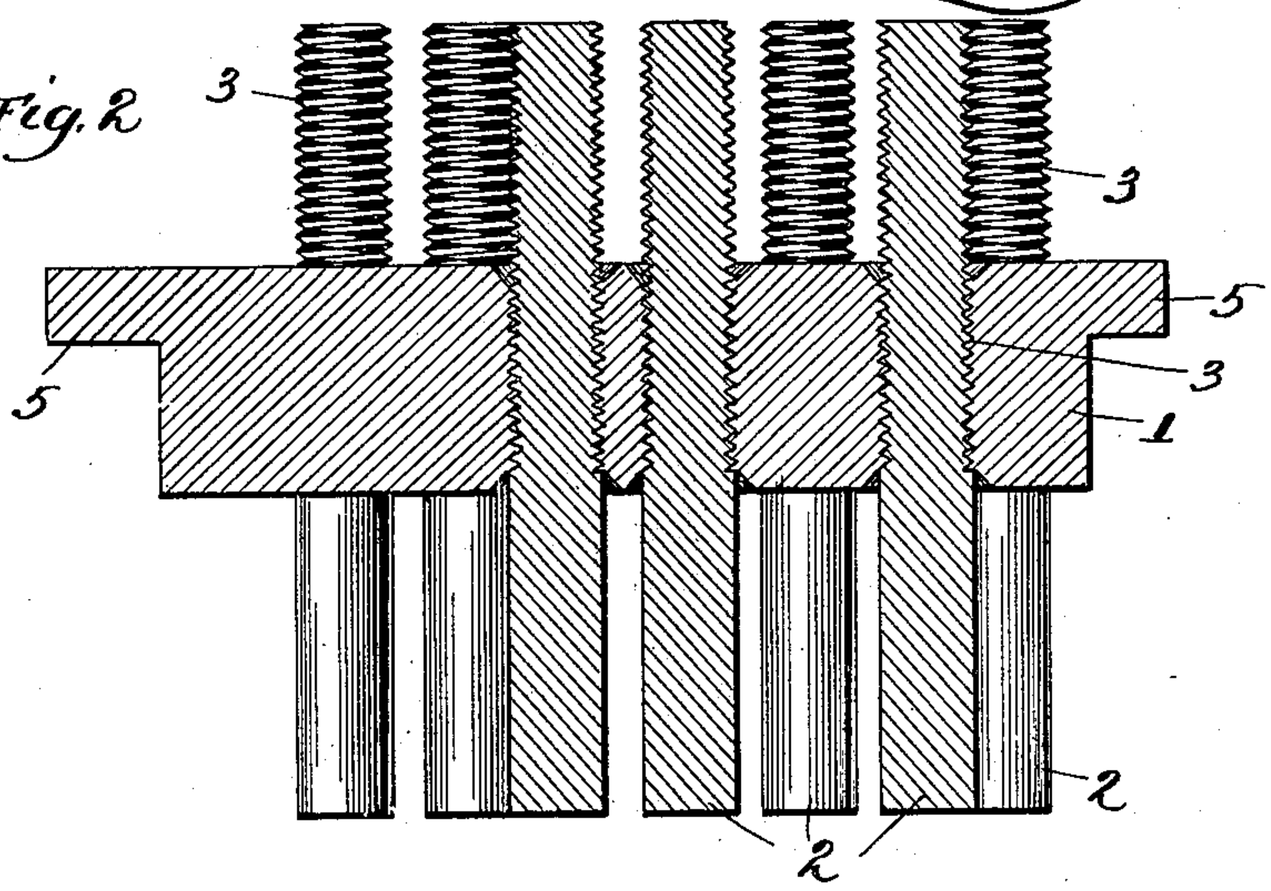


Fig. 2



Witnesses:
H. B. Hallock.
L. W. Gilligan.

Inventor:
Brodde E. F. Rhodin
by
Augustus B. Stoughton
Atty.

UNITED STATES PATENT OFFICE.

BRODDE E. F. RHODIN, OF SAULT STE. MARIE, CANADA, ASSIGNOR TO AMERICAN ALKALI COMPANY, OF CAMDEN, NEW JERSEY.

ELECTRODE FOR ELECTROLYTIC CELLS.

SPECIFICATION forming part of Letters Patent No. 680,441, dated August 13, 1901.

Application filed July 19, 1900. Serial No. 24,159. No model.)

To all whom it may concern:

Be it known that I, BRODDE E. F. RHODIN, a subject of the King of Sweden and Norway, residing at Sault Ste. Marie, Canada, have invented certain new and useful Improvements in Electrodes for Electrolytic Cells, of which the following is a specification.

Objects of the present invention are to provide comparatively inexpensive and efficient electrodes for electrolytic cells which shall resist the action of such gases or fumes as are liberated, for example, in the electrolytic decomposition of brine and which shall be of high electrical conductivity and which shall permit of the ready and convenient renewal of any or all of the separate rods and of the independent and collective adjustment of the same.

To this and other ends hereinafter set forth the invention, stated in general terms, comprises an electrode consisting of a carbon block and carbon rods connected together by a screw-thread connection and arranged to have the rods entirely traverse the block.

The nature, characteristic features, and scope of the invention will be more fuliy understood from the following description, taken in connection with the accompanying drawings, forming part hereof, and in which—

Figure 1 is an elevational view illustrating an electrode embodying features of the invention, and Fig. 2 is a view illustrating the same principally in section.

In the drawings, 1 is a block of graphitized carbon which serves as a connection between the source of electricity and the rods 2 of graphitized carbon, and the two are connected together by a screw-thread connection 3. Graphitized carbon is ordinary carbon subjected to a comparatively high temperature, usually in an electric furnace, whereby impurities are removed and the material rendered easily workable and well fitted for use as a conductor of electricity.

The electrode as a whole, as well as its parts, may be of any preferred size and shape, and it has for the sake of illustration been shown as adapted for application to the type of apparatus described and claimed in Letters Patent No. 608,300, of August 2, 1898, to J. G. A. Rhodin.

A conductor may be applied to the block 1, and the block 1 is provided all around with a marginal flange 5, constructed to fit a corresponding opening in the top of the electrolytic cell, and thus serves to close the opening as well as to support the block. The screw-thread connection 3 provides a gas-tight joint which resists the action of gases and fumes, such as chlorin, which is the gas evolved in the electrolytic decomposition of brine, as described in said patent. The block 1, as well as the whole electrode, also resists the action of the evolved gases. In case of breakage of one or more of the rods 2, as often occurs in practice, the damaged rod or rods may be easily removed and replaced by new ones by the simple operation of unscrewing the damaged part or parts and replacing it or them by another or others. It will be understood that wear on the rods occurs principally at their lower ends, and such wear tends to raise the potential difference of the electrolytic cell. In this invention such wear may be compensated for and the potential difference maintained practically constant by adjusting the rods in respect to the block by the simple operation of unscrewing them. As shown, the threaded portions of the rods extend clear through the tapped openings in the block, and thus afford a comparatively wide range of adjustment for wear at the lower ends of the rods.

The electrode as a whole may be easily and cheaply constructed and is durable and efficient.

In my pending application, Serial No. 24,158, filed July 19, 1900, I have claimed a complete cell embodying as one of its parts the electrode herein claimed.

It will be obvious to those skilled in the art to which the invention relates that modifications may be made in details without departing from the spirit thereof. Hence I do not limit myself to the precise construction and arrangement of parts hereinabove set forth and illustrated in the drawings; but,

Having thus described the nature and objects of the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An electrode for electrolytic cells comprising a block of carbon and carbon rods

extending through the block and adjustably and detachably connected thereto by a screw-thread connection, substantially as described.

2. An electrode for electrolytic cells comprising a block of carbon having tapped holes formed through it and carbon rods provided with threads and extending through said holes, substantially as described.

3. An electrode for electrolytic cells comprising a block of carbon having a marginal flange and having openings through it, carbon rods extending through said openings, and a screw-thread connection between the rods and block, substantially as described.

In testimony whereof I have hereunto signed my name.

BRODDE E. F. RHODIN.

In presence of—

GRACE B. HURLBUT,

K. M. GILLIGAN.