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(72) Inventor(s):
Shuminskyi Henrik Henrikovych (UA)

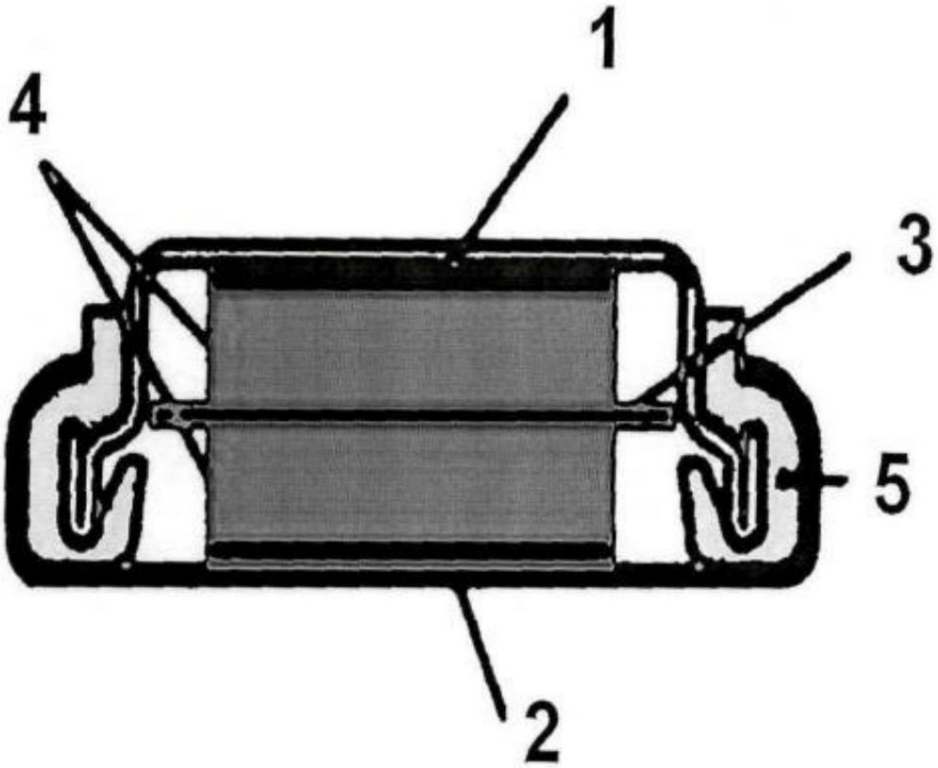
(73) Owner(s):
Shuminsky Henrik Henrikovich,
ave. Voroshilova, 9, quarter 96, Kakhovka, Kherson region, 74800 (UA)

(74) Representative:
Mykhaylova Tetyana Viktorivna, reg. #84

(54) S-KESSOR OF HENRIK SHUMINSKY

(57) Abstract:

C-kessor includes two polarized electrodes with a developed surface, made of conductors of the first kind, which create a double electric layer in a conductor of the second kind, chemically inert to the polarized electrodes. Two conductors of the first kind, different in nature, are used as polarized electrodes.



Фіг. 2

A utility model belongs to electrical engineering and can be used to generate electricity.

Pavlo Kondratiyovych Oshchepkov (1908-1992) made a significant contribution to the development of domestic radar, introscopy and the development of methods for concentrating scattered energy, he is in the middle of the last century introduces the term "kessor" (concentrator of environmental energy).

Later, during the development of this scientific and technical direction, the clarifying term "C-kessor" was additionally introduced, which denotes a capacitor (capacitive) concentrator-converter, i.e. a device that converts low-potential scattered energy of the environment directly into electricity and accumulates it in the form of a concentrated electric charge.

Known examples of the creation of C-kessors - environmental energy concentrators of various designs:

- Karpen's electric battery of unlimited duration (see Patent FR No. 577087, "Pile electrique", EC: H01M 6/00; Y02E 60/12, ÿÿÿ: ÿ01ÿ 6/00; H01M 6/00, 1924-08-30, Nicolae Vasilesco Karpen), which proved in practice the possibility of creating an alternative energy source that converts low-potential environmental energy into electricity with a unique longevity of continuous operation (more than 60 years);

- Generator of Mikoÿy Yemelyanovich Zayev (div. Patent RU No. 2227947, "Capacitive heat-to-electricity converter", IPC: H01M 14/00; H02N 11/00, 2002-09-11);

- Nyquistor - an isothermal converter of heat into direct electric current by Yuri Evgeniyovich Vinogradov (see Yu.E. Vinogradov "Version of the cause of "self-discharge" of thin-film capacitors" / "Journal of Russian Physical Thought", 2012. - No. 1-12. - p. 54);

- Ferroelectric generators by Robert X. Bergener and Gary M. Renlund (see Patent RU No. 2446498, "Electric Generator", IPC: H01G 7/06; H01L 31/00, 2012-03-27, BERGENER II Robert X. (US), RENLUND Gary M. (US); Patent US 2014/0252920 A1, "THICK FILM FERROELECTRIC GENERATOR", Int. C1. H02N 11/00; H01L 41/187, Sep. 11, 2014, Robert H. Burgener, Gary M. Renlund).

- Own desire to contribute to the development of this scientific and technical direction (see Patent UA No. 84117, "DEVICE FOR OBTAINING ELECTRICAL ENERGY", IPC (2006) H01M 6/00; H01G 4/00; dated 10.09.2008; Patent RU No. 2390907, "Device for generating electric energy", IPC H02N 11/00 (2006.01); dated 27.05.20106; Patent UA No. 85360, "Static electric energy generator", IPC (2006) H01G 4/12; H01G 4/008; H01G 4/018; dated 12.01.2009; Patent RU No. 2419951, "Static electric energy generator", IPC H02N 11/00 (2006.01); dated 27.05.2011).

Despite all the relevance and multi-vector solutions, these analogues have a number of disadvantages: high cost, low manufacturability, and most importantly - low electrical power due to the small electrical capacity of known C-keys, which limits their practical application.

Modern electronics widely use energy storage electric capacitors and batteries as rechargeable current sources.

When used as current sources, energy storage electric capacitors have the following advantages over batteries:

- they can be operated in the temperature range from -60 °C to +125 °C and above without maintenance and replacement for twenty or more years;

- capable of withstanding millions of cycles in the "charge-discharge" mode without noticeable damage deterioration of parameters;

- have a specific power of tens of kW/kg, while charging and discharging almost instantly.

Their significant drawback is a small specific energy, about 1 kJ/kg, therefore an increase in specific energy energy storage capacitors are one of the urgent problems of electronic engineering.

Accumulators, unlike capacitors, accumulate specific energy up to 1000 kJ/kg, but their specific power is less than 0.1 kW/kg, as well as the number of "charge-discharge" cycles does not exceed hundreds, and in the best case, thousands of operations .

In terms of specific energy and specific power, there is a "gap", we can say an "abyss", of at least two orders of magnitude between traditional types of batteries and capacitors. This "gap" is gradually being filled by batteries with increased specific capacity - more than 0.1 kW/kg, and capacitors with increased specific energy - more than 1 kJ/kg.

A significant contribution to filling this "gap" was made thanks to the creation and development of production of a new type of energy-storing electric capacitors with double electric layers (ionistors), known as "supercapacitors", "hypercapacitors" (Japan), "ultracapacitors" (Germany, USA), "electrochemical capacitors" (France, Canada) and the like (see "Condensators with a double electric layer (ionists): development and production", Viktor Kuznetsov and others . / Magazine "Components and Technologies", 2005. - No. 6).

The electric double layer is a layer of ions formed on the surface of particles as a result of adsorption of ions from the solution, dissociation of the surface compound or orientation of polar molecules at the phase boundary.

Ions that are directly connected to the surface are called potential-determining. The charge of this layer is compensated by the charge of the second layer of ions, called counterions. A double electrical layer occurs at the contact of two phases, of which at least one phase is liquid (see Wikipedia - double electrical layer).

A well-known review article (see "Condensators with a double electric layer (ionists): development and production", Viktor Kuznetsov et al. / Journal "Components and technologies", 2005. - No. 6), in which a group of leading specialists of OJSC "NDI Girikond ", headed by Ph.D. Kuznetsov V.P., analyze the principles of operation and design of capacitors with a double electric layer (ionistors).

With all the indisputable advantages of ionistors in terms of their technical, technological and technical and economic characteristics over known capacitors, some types of capacitors with a double electric layer are able to accumulate a specific energy of more than 10 kJ/kg and discharge to a load with a specific power of about 1-10 kW/kg , however, they have a significant fundamental drawback, namely, ionistors in the process of operation as a store of electrical energy require inevitable initial and subsequent recharges from additional classical sources of electricity. The ionistor has no self-charging effect. In ionistors, both electrodes are made of the same material. Panasonic EN series ionistor device

(div. "Panasonic supercapacitors: physics, operating principle, parameters", Alexey Pankrashkin / Magazine "Components and Technologies", 2006. - No. 9) was chosen as a prototype of the C-caissor by Henrik Shuminska.

The prototype and the claimed device have the following features in common:
- the design of the claimed device is similar to the design of the ionistor.
- the device includes a pair of polarized electrodes with a developed surface, made of conductors of the first type, creating a double electric layer in a common conductor of the second type, chemically inert to the pair of polarized electrodes.

The known natural phenomenon of adsorption of ions at the phase boundary at the contact of conductors of the 1st and 2nd kind during the formation of an electric double layer is indirectly determined empirically by the rule of Fayants - Peskova - Paneta.

In terms of determining the sign of the charge of competing surfaces of dissimilar conductors of the 1st kind when they are present together in a common conductor of the 2nd kind, it makes it possible to "tame" Maxwell's "demon", that is, to include the mechanism of spontaneous separation of different electric charges and thus ensure the possibility of constructing a new type C - kessora

The basis of the useful model is the task of creating the C-kessor device by Henrik Shuminsky, which has the effect of converting environmental energy into electricity, according to power capable of ensuring its practical use as a source of electric current.

The problem is solved by the fact that in the C-kessor of Henrik Shuminsky, which includes a pair of polarized electrodes with a developed surface, made of conductors of the first kind, creating a double electric layer in a conductor of the second kind, chemically inert to a pair of polarized electrodes, according to a useful model, as polarized electrodes use two conductors of the first kind, different in nature.

What is new in Henryk Shuminsky's C-kessor is that two conductors of the first kind, different in nature, are used as polarized electrodes, while as an electrolyte use a conductor of the second kind.

The cause-and-effect relationship between the set of declared features and the achieved technical result is as follows:

- the use of the natural phenomenon of ion adsorption competition at the boundary of heterogeneous conductors of the 1st kind with the simultaneous presence in a common conductor of the 2nd kind during the formation of a double electric layer (determined by the empirical rule of Fayants - Peskov - Panet) allows to include the mechanism of spontaneous separation of different electric charges and thus ensuring the possibility of constructing a new C-keysor.

- providing the possibility of constructing a new C-keysor allows you to increase the electrical capacity millions of times and, accordingly, to increase the electrical power of C-of Kessor Henrik Shuminsky.

- a significant increase in the electrical power of Henryk Shuminsky's C-keysor, which is claimed, expands the possibilities of its practical use both in technical and economic terms.

- the use of completely harmless materials in the proposed design, in particular on 5 examples of electrochemical systems:

- aluminum / aqueous solution of sodium chloride (NaCl) / titanium +, and the complete absence of consumption of any types of fuel and emissions in Henrik Shuminsky's C-keysors, is environmentally safe during the entire period of its use, from production, operation to cases of disorderly disposal.

Samples of the S-kessor device by Henrik Shuminsky were manufactured similarly to the well-known ionistor manufacturing technologies (see "Panasonic Ionists: physics, principle of operation, parameters", Pankrashkin Alexey -/ Journal "Komponenty i tehnologii", 2006. - No. 9).

In fig. 1 shows the scheme of the C-keysor device by Henrik Shuminsky, where:

1, 2 - electrodes made of two conductors of the first kind 15 (electrodes with a developed surface, modified by carbon fabric, activated coal or graphene);

3 - separator;

4 - carbon fabric or activated carbon or graphene in a conductor of the second kind (in an aqueous electrolyte or an organic electrolyte or an ionic liquid).

In fig. 2 shows the construction of Henryk Shuminsky's C-keysor, which is declared, where

1, 2 - electrodes made of two conductors of the first kind, different in nature (electrodes with a developed surface, modified with carbon fabric, activated carbon or graphene);

3 - separator;

4 - conductor of the second kind (aqueous electrolytes, organic electrolytes and ionic liquids).

5 - seal.

The following were used as conductors of the first kind:

- Busofit carbon fabric for ionistors, produced by JSC Svetlogorskhimvolokno, Republic of Belarus;
- Busofit-l carbon fabric for ionistors, produced by JSC Svetlogorskhimvolokno, Republic of Belarus;
- charcoal activated wood BAU-A, GOST 6217-74 powder;
- charcoal activated wood BAU-MF, GOST 6217-74 powder;
- electrocarbon graphite EUZ-11, GOST 17022-81, plates;
- rechargeable graphite GAK-1, OST 17022-81, powder;
- graphene produced by Teploplast, LLC, Luhansk, Ukraine;
- silicon monocrystalline EKES, GOST 19658-81, plates; - silicon monocrystalline EKES, GOST 19658-81, powder;
- bismuth telluride (ÿÿ2ÿÿ3) n-type semiconductor, plates;
- bismuth telluride (ÿÿ2ÿÿ3) n-type semiconductor, powder;
- aluminum FG, Azh0.6; GOST 745-2003, foil;
- aluminum PA-1, GOST 6058-73, powder;
- ChZhK iron, GOST 13345-85, tin;
- iron Pzhv2, GOST 9849-86, powder;
- gold PLN 99.99, GOST 6835-2002, foil;
- gold powder (manufactured according to RU patent No. 2033443, METHOD OF OBTAINING GOLD POWDER);
- nickel DPRNT NP2, GOST 2170-73, foil;
- nickel PNE-1, GOST 9722-97, powder;
- platinum PlA-00, GOST 31290-2005, foil;
- platinum PlAP-00, GOST 31290-2005, powder;
- titanium VT 1-0, GOST 1 90145-74, foil;
- titanium PTX-2-1, GOST 17809-72, powder.

Water electrolytes, organic electrolytes, and ionic liquids were used as conductors of the second kind.

As water electrolytes used:

- 30% aqueous KOH solution;
- 38% aqueous solution of H_2SO_4;
- 25% NaCl aqueous solution;
- 28% aqueous solution of KCl;

The following organic solvents were used to prepare organic electrolytes:
- propylene carbonate;
- butyrolactone;
- NN-dimethylformamide;
- ethylene carbonate;
- sulfolene;
- 3-methylsulfoline.

The following ion-forming chemicals were used to prepare organic electrolytes substances:
- lithium hexafluorophosphate;
- lithium perchlorate;
- tetramethylammonium chloride;
- tetramethylammonium bromide;
- methylammonium formate;
- ethylammonium formate.

How ionic liquids were used:
- 1-butyl-3-methylimidazole hexafluorophosphate;
- N, N-diethyl-N-methyl-N-(2-methoxyethyl) ammonium tetrafluoroborate.

Example 1.

Henryk Shuminsky's S-kessor was made according to the following electrochemical system: - Iron-tin / Iron powder / 30% aqueous KOH solution / Nickel powder / Nickel foil +.

The claimed device works as follows: ions of the opposite sign, present in the conductor of the second kind, are involuntarily concentrated on a pair of electrodes of different nature, creating a potential difference, which leads to the formation of an electric current at external electrical load.

Example 2.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Iron-tin / BAU-A coal / 30% KOH aqueous solution / BAU-A coal / Nickel foil +.

Example 3.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Iron-tin / BAU-MF coal / 30% KOH aqueous solution / BAU-MF coal / Nickel foil +.

Example 4.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Iron-tin / BAU-A coal / 30% KOH aqueous solution / BAU-MF coal / Nickel foil +.

Example 5.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Iron-tin / Busofit / 30% aqueous solution of KOH / Busofit / Nickel-foil +.

Example 6.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Iron-tin / Busofit-L / 30% aqueous KOH solution / Busofit-L / Nickel foil +.

Example 7.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Iron tin / Busofit / 30% aqueous KOH solution / Busofit-L / Nickel foil +.

Example 8.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Iron-tin / Graphene / 30% aqueous KOH solution / Graphene / Nickel foil +.

Example 9.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Iron-tin / Iron powder / 25% NaCl aqueous solution / Nickel powder / Nickel foil +.

Example 10.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Iron-tin / BAU-A coal / 25% NaCl aqueous solution / BAU-A coal / Nickel foil +.

Example 11.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Iron-tin / BAU-MF coal / 25% NaCl aqueous solution / BAU-MF coal / Nickel foil +.

Example 12.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Iron-tin / BAU-A coal / 25% NaCl aqueous solution / BAU-MF coal / Nickel foil +.

Example 13.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Iron tin / Busofit / 25% NaCl aqueous solution / Busofit / Nickel foil +.

Example 14.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Iron-tin / Busofit-L / 25% NaCl aqueous solution / Busofit-L / Nickel foil +.

Example 15.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Iron tin / Busofit / 25% NaCl aqueous solution / Busofit-L / Nickel foil +.

Example 16.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Iron tin / Graphene / 25% NaCl aqueous solution / Graphene / Nickel foil +.

Example 17.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Iron-tin / Iron powder / 28% aqueous solution of KCl / Nickel powder / Nickel foil +.

Example 18.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Iron-tin / BAU-A coal / 28% aqueous solution of KSl / BAU-A coal / Nickel foil +.

Example 19.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Iron-tin / BAU-MF coal / 28% KSl aqueous solution / BAU-MF coal / Nickel foil +.

Example 20.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Iron-tin / BAU-A coal / 28% KSl aqueous solution / BAU-MF coal / Nickel foil +.

Example 21.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Iron-tin / Busofit / 28% aqueous solution of KCl / Busofit / Nickel foil +.

Example 22.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Iron-tin / Busofit-L / 28% aqueous solution of KCl / Busofit-L / Nickel foil +.

Example 23.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Iron tin / Busofit / 28% aqueous solution of KSl / Busofit-L / Nickel foil +.

Example 24.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Iron - tin / Graphene / 28% aqueous solution of KCl / Graphene / Nickel foil +.

Example 25.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Graphite plates / Graphite powder / 38% aqueous H_2SO_4 solution / Silicon powder / Silicon plates +.

Example 26.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Graphite-plates / BAU-A coal / 38% aqueous H_2SO_4 solution / BAU-A coal / Silicon-plates +.

Example 27.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Graphite-plates / BAU-A coal / 38% H_2SO_4 aqueous solution / BAU-MF coal / Silicon-plates +.

Example 28.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Graphite-plates / Busofit / 38% aqueous solution of H_2SO_4 / Busofit-L / Silicon-plates +.

Example 29.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Graphite-plates / Graphene / 38% aqueous H_2SO_4 solution / Graphene / Silicon-plates +.

Example 30.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Gold-foil / Gold powder / 38% aqueous H_2SO_4 solution / Platinum powder / Platinum foil +.

Example 31.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Gold-foil / Graphene / 38% aqueous H_2SO_4 solution / Graphene / Platinum-foil +.

Example 32.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / Aluminum powder / 25% NaCl aqueous solution / Nickel powder / Nickel foil +.

Example 33.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / BAU-A coal / 25% NaCl aqueous solution / BAU-A coal / Nickel foil +.

Example 34.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / BAU-MF coal / 25% NaCl aqueous solution / BAU-MF coal / Nickel foil +.

Example 35.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / BAU-A coal / 25% NaCl aqueous solution / BAU-MF coal / Nickel foil +.

Example 36.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Aluminum foil / Busofit / 25% NaCl aqueous solution / Busofit / Nickel foil +.

Example 37.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil/ Busofit-L / 25% NaCl aqueous solution / Busofit-L / Nickel foil +.

Example 38.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / Busofit / 25% NaCl aqueous solution / Busofit-L / Nickel foil +.

Example 39. C-kessor is performed similarly to example 1 according to the following electrochemical method system: - Aluminum foil / Graphene / 25% NaCl aqueous solution / Graphene / Nickel foil +.

Example 40.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / Aluminum powder / 28% aqueous KCl solution / Nickel powder / Nickel foil +.

Example 41.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / BAU-A coal / 28% aqueous solution of KCl / BAU-A coal / Nickel foil +.

Example 42.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / BAU-MF coal / 28% aqueous solution of KCl / BAU-MF coal / Nickel foil +.

Example 43.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / BAU-A coal / 28% aqueous KCl solution / BAU-MF coal / Nickel foil +.

Example 44.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / Busofit / 28% aqueous KCl solution / Busofit / Nickel foil +.

Example 45.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / Busofit-L / 28% aqueous KCl solution / Busofit-L / Nickel foil +.

Example 46.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Aluminum foil / Busofit / 28% aqueous solution of KCl / Busofit-L / Nickel foil +.

Example 47.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / Graphene / 28% aqueous KCl solution / Graphene / Nickel foil +.

Example 48.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / Aluminum powder / 25% NaCl aqueous solution / Titanium powder / Titanium foil +.

Example 49.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / BAU-A coal / 25% NaCl aqueous solution / BAU-A coal / Titanium foil +.

Example 50.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / BAU-MF coal / 25% NaCl aqueous solution / BAU-MF coal / Titanium foil +.

Example 51.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / BAU-A coal / 25% NaCl aqueous solution / BAU-MF coal / Titanium foil +.

Example 52.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Aluminum foil / Busofit / 25% NaCl aqueous solution / Busofit / Titanium foil +.

Example 53.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil/ Busofit-L / 25% NaCl aqueous solution / Busofit-L / Titanium foil +.

Example 54.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Aluminum- foil / Busofit / 25% NaCl aqueous solution / Busofit-L / Titanium foil +.

Example 55. C-kessor is performed similarly to example 1 according to the following electrochemical method system: - Aluminum foil / Graphene / 25% NaCl aqueous solution / Graphene / Titanium foil +.

Example 56.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum- foil / Aluminum powder / 28% aqueous KCl solution / Titanium powder / Titanium foil +.

Example 57.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / BAU-A coal / 28% aqueous KCl solution / BAU-A coal / Titanium foil +.

Example 58.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / BAU-MF coal / 28% aqueous solution of KCl / BAU-MF coal / Titanium foil +.

Example 59.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / BAU-A coal / 28% aqueous KCl solution / BAU-MF coal / Titanium foil +.

Example 60.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / Busofit / 28% aqueous KCl solution / Busofit / Titanium foil +.

Example 61.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum- foil / Busofit-L / 28% aqueous KCl solution / Busofit-L / Titanium foil +.

Example 62.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Aluminum foil / Busofit / 28% aqueous solution of KCl / Busofit-L / Titanium foil +.

Example 63.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / Graphene / 28% aqueous KCl solution / Graphene / Titanium foil +.

Example 64.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Aluminum foil / Graphene / lithium hexafluorophosphate solution in propylene carbonate / Graphene / Titanium foil +.

Example 65.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / Graphene / solution of lithium perchlorate in propylene carbonate / Graphene / Titanium foil +.

Example 66.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Aluminum foil / Graphene / solution of tetramethylammonium chloride in propylene carbonate / Graphene / Titanium foil +.

Example 67.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Aluminum- foil / Graphene / solution of tetramethylammonium bromide in butyrolactone / Graphene / Titanium foil +.

Example 68.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Aluminum foil / Graphene / solution of methylammonium formate in NN-dimethylformamide / Graphene / Titanium- foils +.

Example 69.

C-kessor is performed similarly to example 1 with the following electrochemical system: - Aluminum -foil / Graphene / solution of ethylammonium formate in ethylene carbonate / Graphene / Titanium foil +.

Example 70.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum-foil / Graphene / solution of ethylammonium formate in sulfoline / Graphene / Titanium foil +.

Example 71.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Aluminum foil / Graphene / solution of ethyl aluminum formate in 3-methylsulfoline / Graphene / Titanium foil +.

Example 72.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Bismuth telluride plate / Bismuth telluride powder / solution of tetramethylammonium chloride in propylene carbonate / Silicon powder / Silicon plate +.

Example 73.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Bismuth telluride plate / Graphene / solution of tetramethylammonium chloride in propylene carbonate / Graphene / Silicon plate +.

Example 74.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Telluride bismuth plate / Graphene / 1-butyl-3-methylimidazole hexafluorophosphate / Graphene / Silicon-plate +.

Example 75.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Bismuth telluride plate / Graphene / N, N-diethyl-N-methyl-N-(2-methoxyethyl) ammonium tetrafluoroborate / Graphene / Silicon plate +.

Example 76.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Telluride bismuth plate / Graphene / methylammonium formate / Graphene / Silicon plate +.

Example 77.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Telluride bismuth plate / Graphene / ethylammonium formate / Graphene / Silicon plate +.

Example 78.

C-kessor is performed similarly to example 1 using the following electrochemical system: - Bismuth telluride plate / Graphene / solution of tetramethylammonium chloride in ethylammonium formate / Graphene / Silicon plate +.

Example 79.

C-kessor is performed similarly to example 1 according to the following electrochemical system: - Bismuth telluride plate / Graphene / solution of lithium hexafluorophosphate in ethylammonium formate / Graphene / Silicon plate +.

The main electrical characteristics of the claimed device are given in the table.

The S-kessor of Henrik Shuminsky has a significant advantage - it allows you to receive electricity from environment.

Table

Example number	Electrical capacity, [F]	Electric power, [W]	Electric voltage, [V]	Electric current, [A]
	0,010	0,007	0,584	0,012
1	1,10	0,084	0,587	0,143
2	1,11	0,085	0,588	0,145
3	1,11	0,087	0,595	0,146
4	2,97	0,226	0,595	0,380
5	2,99	0,228	0,595	0,384
6	3,01	0,230	0,595	0,387
7	26,85	2,11	0,624	3,382
8	0,010	0,030	0,682	0,044
9	1,10	0,331	0,686	0,483
10	1,11	0,334	0,689	0,485
11	1,11	0,337	0,690	0,489
12	2,97	0,866	0,692	1,252
13	2,99	0,870	0,695	1,252
14	3,01	0,871	0,695	1,254
15	26,85	2,430	0,712	3,413
16	0,010	0,030	0,685	0,044
17	1,10	0,332	0,688	0,483
18	1,11	0,335	0,690	0,486
19	1,11	0,339	0,692	0,490
20	2,97	0,870	0,695	1,252
21 22	2,99	0,872	0,696	1,253

Table

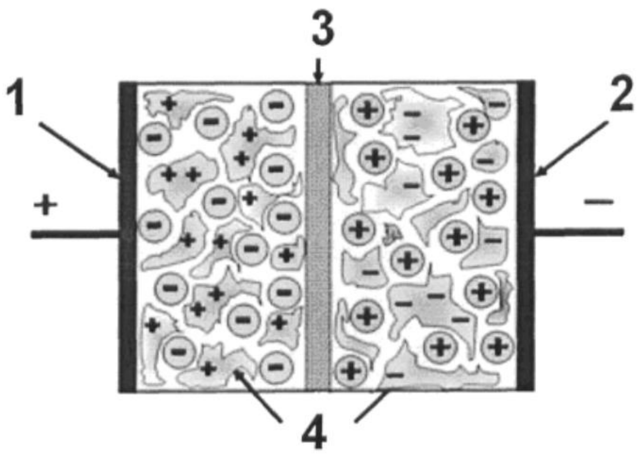
Example number	Electrical capacity, [F]	Electric power, [W]	Electric voltage, [V]	Electric current, [A]
23	3,01	0,877	0,699	1,255
24	26,85	2,441	0,715	3,414
25	0,17	0,095	0,415	0,230
26	1,33	0,171	0,450	0,380
27	1,34	0,172	0,452	0,381
28	3,35	0,414	0,460	0,900
29	29,0	1,321	0,484	2,730
30	0,010	0,008	0,524	0,016
31	26,84	1,753	0,563	3,114
32	0,010	0,054	0,724	0,075
33	1,12	0,635	0,730	0,870
34	1,12	0,638	0,733	0,871
35	1,12	0,641	0,735	0,872
36	3,00	0,810	0,741	1,093
37	3,03	0,814	0,744	1,094
38	3,03	0,814	0,745	1,094
39	26,85	2,333	0,750	3,111
40	0,010	0,054	0,725	0,075
41	1,12	0,635	0,732	0,870
42	1,12	0,638	0,735	0,871
43	1,12	0,641	0,736	0,872
44	3,00	0,810	0,742	1,093
45	3,02	0,812	0,741	1,092
46.	3,03	0,814	0,746	1,094
47	26,85	2,333	0,751	3,111
48	0,010	0,079	0,825	0,096
49	1,11	0,726	0,830	0,875
50	1,12	0,733	0,835	0,878
51	1,12	0,740	0,839	0,882
52	3,01	1,084	0,845	1,283
53	3,02	1,099	0,851	1,292
54	3,03	1,121	0,866	1,295
55	26,85	2,731	0,875	3,121
56	0,010	0,079	0,826	0,096
57	1,11	0,726	0,831	0,875
58	1,11	0,733	0,835	0,878
59	1,12	0,740	0,839	0,882
60	3,00	1,085	0,846	1,283
61	3,02	1,100	0,852	1,292
62	3,03	1,121	0,866	1,295
63	26,84	2,724	0,873	3,120
64	26,85	1,585	0,916	1,730
65	26,85	1,585	0,915	1,732
66	26,85	1,584	0,910	1,741
67	26,85	1,571	0,942	1,668
68	26,85	1,579	0,995	1,587
69	26,85	1,605	1,211	1,325
70	26,85	1,601	1,205	1,329
71	26,85	1,631	1,200	1,359
72	0,010	0,085	2,226	0,038
73	26,85	1,758	2,250	0,781
74	26,85	1,643	2,255	0,729
75	26,85	1,651	2,248	0,734
76	26,85	1,633	2,415	0,676

Table

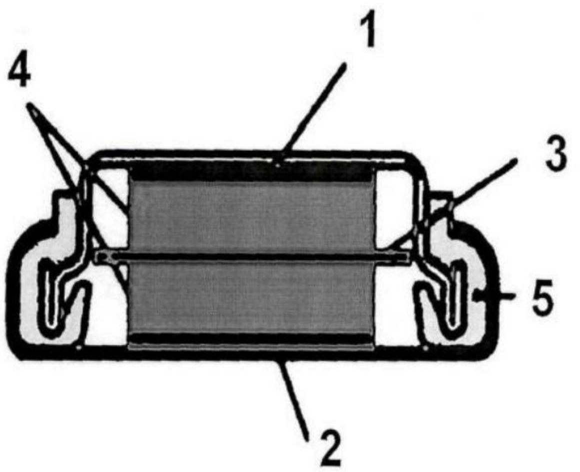
Example number	Electrical capacity, [F]	Electric power, [W]	Electric voltage, [V]	Electric current, [A]
77	26,85	1,650	2,480	0,665
78	26,85	1,688	2,222	0,760
79	26,85	1,690	2,224	0,760

USEFUL MODEL FORMULA

C-kessor, which includes two polarized electrodes with a developed surface, made of conductors of the first kind, creating an electric double layer in a conductor of the second kind, chemically inert to the polarized electrodes, which **differs** in that, as polarized electrodes, two different in nature are used conductors of the first kind.



Фіг. 1



Фіг. 2

Computer layout by O. Ryabko

State Intellectual Property Service of Ukraine, st. Vasyl Lypkivskyi, 45, Kyiv, MSP, 03680, Ukraine

SE "Ukrainian Institute of Intellectual Property", str. Glazunova, 1, Kyiv - 42, 01601