Construction and Functionality

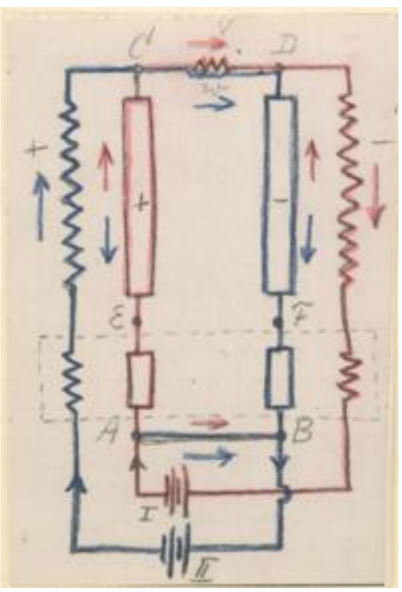
of the

Primary Voltage Converter

Coler.

1.
Based on the observed phenomena, it should be assumed without wanting to justify this physically at this point, that the "extra currents" (self-induction currents) are the site of energy formation, and that their true nature has so far only been misunderstood. (See page ___).

2.
Therefore, the task must be to build a system that:
a) Generates extra currents,
b) Rectifies them,
c) Connects them in series, collects their energy, and forwards it to a load resistance.



3.
The following basic circuit results from this:
Two identical systems, each consisting of a number of plate groups and self-inductions, are excited by a battery. Parts C D and A B are common to both circuits, as are A C and B D.

As a result, current I flows over A C D and A B D in the red direction of the arrow, and current II flows over C A B and C D B in the blue direction of the arrow. Thus, A C D B forms a closed current loop. Parts E C and D F serve to generate and rectify the extra currents (together with the associated flat coils); the

Redrawn Diagram:

Based on the description, here's a redraw of the provided diagram:

Diagram Components:

- C D, A B, A C, B D: Shared parts of the circuits
- E C, D F: Components for generating and rectifying extra currents

Diagram Description:

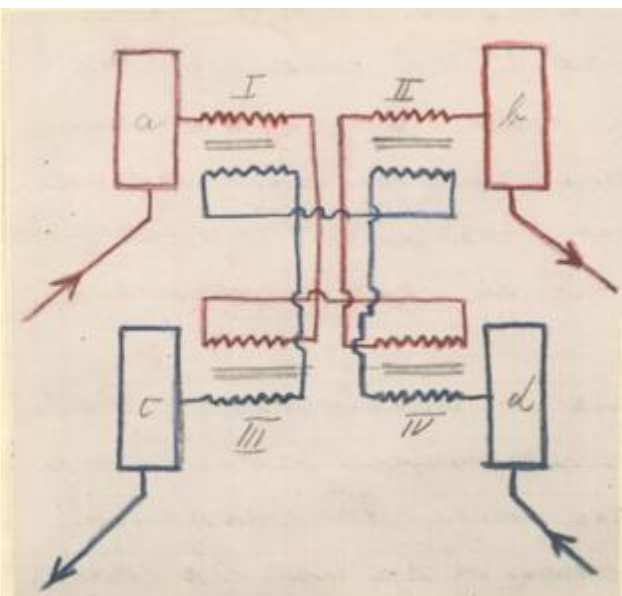
- Red Arrows: Direction of current I
- Blue Arrows: Direction of current II
- Shared Components: Parts that are common to both circuits

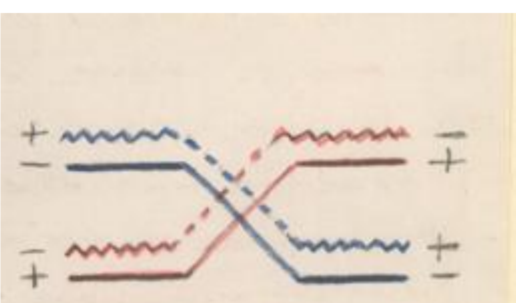
Page 2

The part of the apparatus framed with dashed lines is the interrupter.

Due to the load resistance W (located between C and D), the current branches of each circuit are unequally excited by the battery. The resistance W should be as large as that of A C and B D (these must be exactly the same among themselves); thus, from battery I, a total current of 3 x Amp flows in A C, a current of x Amp in B D, and similarly from II in C A 2 x Amp, in B D x Amp. These currents partially cancel each other out. In this way, by interrupting and closing A B, inverted electromagnetic fields of approximately equal strength can be generated in the conductors A C and B D (alternating current from direct current).

Thus, the section A B must be influenced by the indicated interrupter device.





4. Individual Circuit:
Parts A C and B C consist of individual plate groups connected with magnet transformers (transformers).

Redrawn Diagram:

Diagram Components:

- A, B, C, D: Connection points for the plate groups.
- I, II: Primary current directions in red and blue arrows.
- a, b, c, d: Plate groups and their associated transformers.

Diagram:
Description of the Diagram:

- a, b, c, d: Plate groups with transformers.
- I, II, III, IV: Flow directions of the primary and secondary currents.
- A, B, C, D: Connection points for the plate groups.
- W: Load resistance placed between points C and D.
- Red and Blue Arrows: Indicate the direction of the primary currents I and II.

In the diagram:

- Plate groups (a, b, c, d) are connected in series and parallel as described.
- The resistors (W) are positioned to influence the current flow and maintain balance.
- The dashed lines indicate the part of the apparatus influenced by the interrupter.

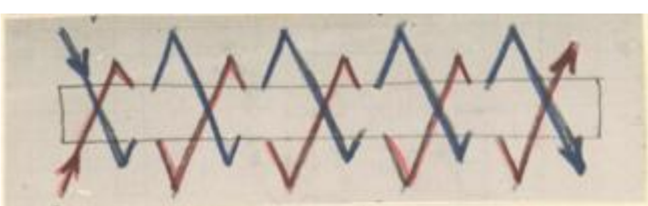
Page 3

The primary coil from II to plate b corresponds to the blue circuit.

The local arrangement required for rectification is shown in the sketch; the negative self-inductions lie above the positive plates and vice versa.

5. Winding of the Magnets (Transformers): The winding is always counter-rotating, as is the current direction. The two coils always excite opposite poles, thus canceling each other out. Therefore, reversing the currents by opening or closing A B would have no external effect on the magnetic fields.

![Diagram with alternating red and blue lines]



6. Changing the Fields: This can only occur through other influences. It is achieved through a third circuit (details below).

With each field change achieved this way, one coil produces an extra current in the same direction as the main current, while the other produces an opposite extra current. I refer to one as the magnetic plus potential and the other as the minus potential.

Due to these counter-potentials resting on a magnet, a uniform exchange of such potentials in the closed circuit A C D B is established. Thus, they distribute themselves in the red section A C:

(A \rightarrow \square + - + \rightarrow C)

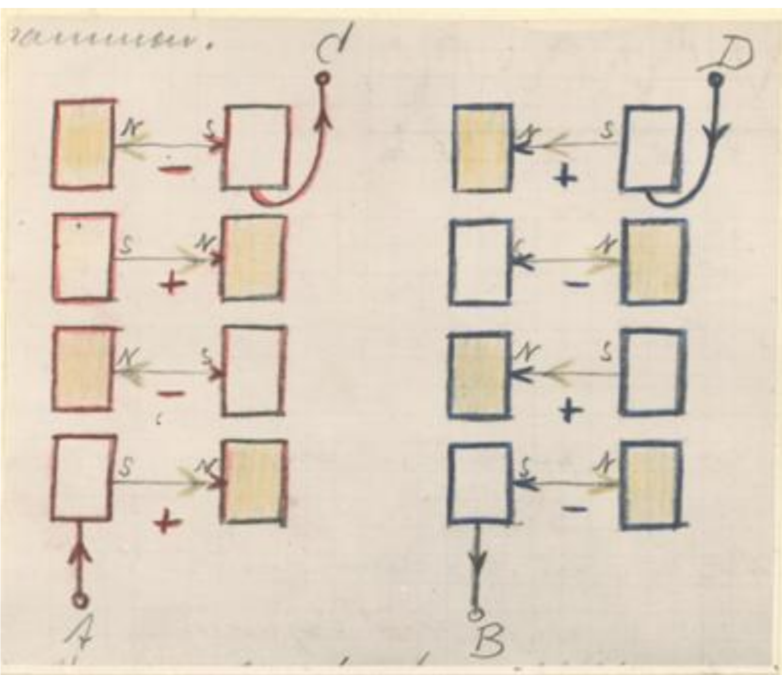
on the blue:

(B \leftarrow \square + - \square \leftarrow D),

forming a closed ring of alternating potentials and thus polarities (circuit diagram of the magnets below). Extremely important: All four coils between each pair of plates carry the same polarities and combine into a uniform magnetic potential.

Page 4

![Diagram with red and blue plates and connections]



When the magnetic field disappears, as known, extra currents are induced in the direction of the yellow arrows and charge their energy into the yellow-shaded plates. When the field reappears, the opposite extra currents occur and charge the other capacitor plates accordingly.

Connecting the plates should be omitted for now and developed later.

7. Interruption of the Fields: The primary currents I and II cannot achieve this, as mentioned; opening A B will cause an internal reversal of the current direction, but not affect the fields.

This is achieved by the third current flowing through the third transformer coils. The first effect could simply be achieved with soft iron cores. However, due to specific physical processes that are not further discussed here, a combination of soft iron and permanent magnets must be used. The fields of the permanent magnetic cores present in this way must therefore be erased by the third current.

This already determines the size of the battery used for neutralization. The current flowing through the neutralizing coils must be measured so that the field of the magnets can be precisely erased. These third coils are all connected in series; the current must therefore also influence the interrupter part.

Page 5

From the processes occurring there, it is initially only mentioned that the fields must be erased simultaneously, and the current direction must be changed. This also requires the necessity of activating these two currents simultaneously to initiate the first impulse.

8. Under these conditions, the processes are now examined.

In the off state, only parts C D and A B, as well as current III, are interrupted. Then, with batteries I and II always connected with like poles against each other, they must always balance in the rest position, which is very important for startup, as only completely identical fields ensure the device starts.

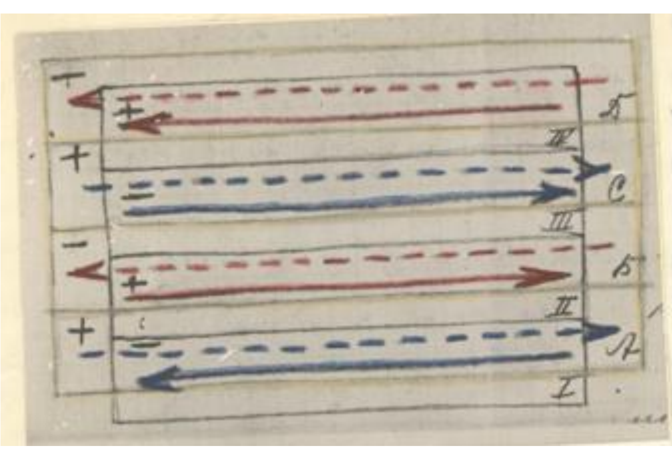
(All other switches are essentially unnecessary but very desirable for preliminary work. The switch in A B also interrupts current III (neutralizing current) as a double-pole switch).

Now, first, close the switch in C D. This causes currents of approximately x Amp in A C and D B in the corresponding direction. The permanent magnets form their fields, which are not changed by the bifilar nature of the current-carrying magnet coils.

Electromagnetic fields may arise in the plate-flat coil system, as a lateral view might show.

Page 6

![Diagram with alternating red and blue arrows and components]



Around the plates (drawn thick), fields I, II, III, and IV (shown as black framed rectangles) are formed. Around the flat coils (shown with dashed lines), fields A B C D (shown as yellow-bordered rectangles) are formed. These fields intersect each other, but for greater clarity, it is assumed that the fields stop where their boundaries are indicated. The fields of the plates intersect with those of the coils above to two-thirds of the plates, and with the coils below to about one-third, the rest only interact with each other.

Now, I and II, III and IV must attract each other due to opposite current directions, while II and III repel each other.

Similarly, I and A, II and B must attract each other, while IV and B, III and C repel each other.

A B C D all repel each other.

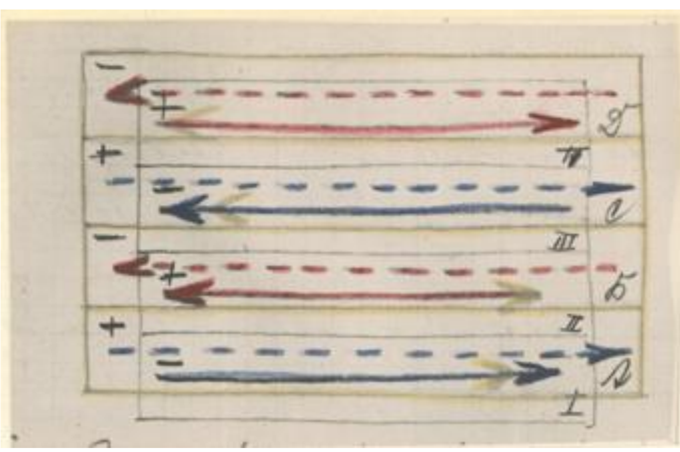
This circuit, found through many experiments, is the only one suitable for achieving rectification in connection with the occurring electrical voltage potentials.

I can limit myself to the representation of 4 plates or flat coils, as the same conditions always repeat after 4 plates.

The direction of the current, resulting from the above requirements, is evident from the direction of the arrows.

9. Now, if current III and the connection A B are switched on together, both a reversal of the current direction in the plates and the disappearance of the fields of the magnets generate extra currents (yellow arrows), resulting in the following picture:

![Diagram with yellow arrows and alternating red and blue components]



Page 7

The following changes (illustrated on the next page) result. The electrical voltage potentials to be observed are: Red plates and blue coils have a voltage difference against blue plates and red coils. The former are positive, the latter negative, regardless of whether the bridge A B is switched on or not.

From the last two sketches, the following repelling or attracting field tendencies arise:

A) (C D switched on)

I + (attracting)
II - (repelling)
III -
IV +

B) (A B and II added)

I +
II
III - (but changed current direction)
IV +

IV D
III C
II B
I A

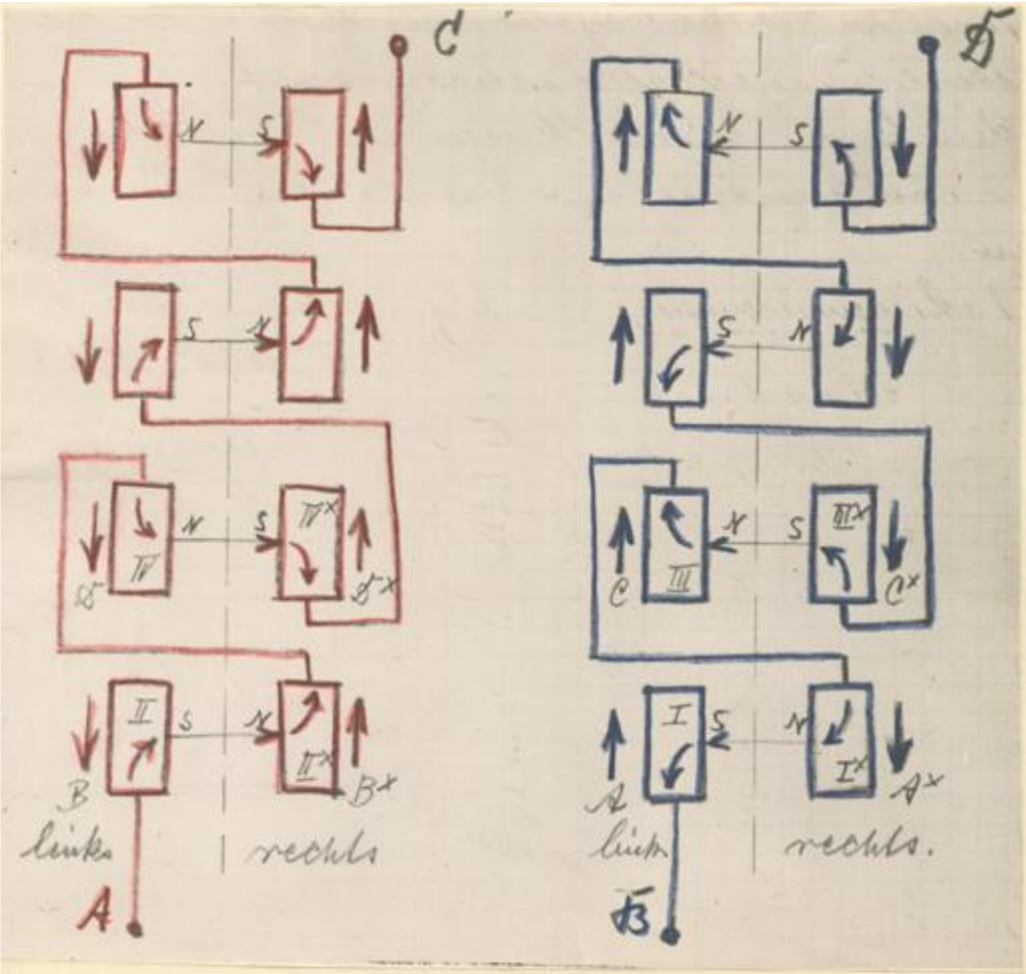
2/3 intersected

Page 8

IV + +
C + -
III + ⅔ intersected.
B + -
II + +
A + -
D + -

Now, based on the derived field directions, we can complete the connection of the plate groups among themselves.

![Diagram with red and blue plates and connections]



The blue and red arrows next to the plates indicate the direction of current in the flat coils above the plates, the arrows in the plates indicate the direction of the plate current when A B is opened.

Page 9

The halves of the plates, as they are stacked, are divided into left and right halves by the dividing lines.

The plates and arrows (coils) on the left half are labeled with A B C D or I, II, III, and IV, and those on the right with I’, II’, III’, and IV’ or A’, B’, C’, and D’.

If you compare this image with the previous two sketches, the left half shows the same image as before closing the bridge A B (page 6), the right half (page 7).

Since alternating currents (extra currents) can only be directed under the same conditions, it is logical that they always have alternating directions and thus create the same conditions each time.

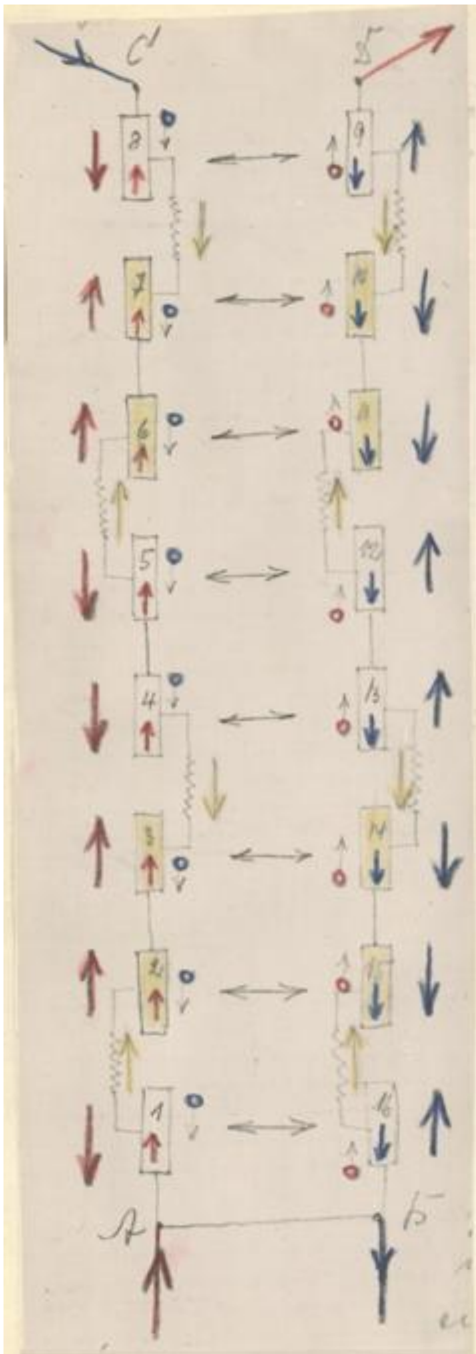
This only enables the specified connection, which inevitably results.

10. Now let’s move on to rectification. The last image shows the state before the first reversal of the fields, i.e., before closing A B. Pole designations refer to the permanent magnets.

After closing A B and reversing the magnets, extra currents are induced as shown in the sketch on page 4 and load the corresponding plates, while at the same time, a current direction change occurs in the plates. If we now stretch the plates into an extended current path, the following image emerges (see next page).

Page 10

![Diagram with yellow arrows and alternating red and blue components]



The yellow arrows show the direction of the extra currents and the corresponding charged plates. The pencil arrows with the colored circle show the current path of the predominant current caused by the closure of A B, the colored arrows next to the plates the current direction in the flat coils above the plates, the colored arrows finally in the plates, the resulting basic current direction by opening A B.

In itself, the image appears not exactly suitable for the desired purpose of rectification.

Since the extra currents would otherwise run without regard to the existing currents, they must cancel each other out completely, as equal and opposite directed extra currents arise on each side. However, they are hindered by the electromagnetic fields of the flat coils and the capacitor effect of the system, considering the following conditions.

First of all, it is noticeable that the fields of the flat coils lying over the charged plates always tend to align with the extra current when it comes to plates directed at C or B (e.g., plates 2, 6, 10, 14).

In these plates, however, the direction of the basic current is opposite to the flat coils and extra currents.

Page 11

In the other plates (i.e., 3, 7, 11, 15), we have the extra current direction opposing tendency in the flat coils, but aligned with the basic current, thus:

A (Pl. 2, 6, 4, 10) B (Pl. 3, 7, 11, 15)
Spule : + + + +
Grundstrom : + - + -
Extrastrom : + - + -

Now, if the magnetic field is restored and the current A B is interrupted, a basic current flows in the plates in the direction indicated by the arrows in the plates. The flat coils maintain their current direction, the extra currents are oppositely directed, the white plates are charged.

Now we have the same conditions as above, under A) plates 1, 5, 9, 13, under B) 4, 8, 12, 16.

A difference exists insofar as the plates of the first group under A show a tendency of the extra currents directed at C or B, so the basic current connects to B, while in the second group, this relationship is reversed, resulting in mutual displacement in the influence.

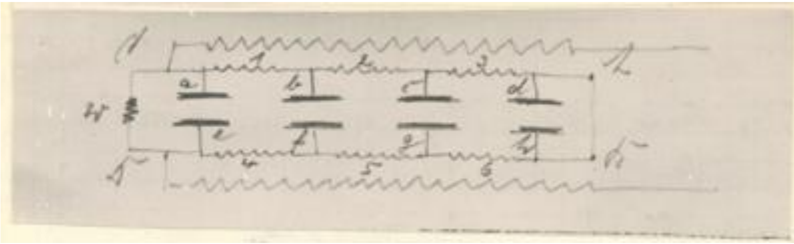
From the number sequences, it is also already apparent that every fourth plate works the same. We thus have to consider four different conditions.

Basically, the question of rectification remains that the whole system is a capacitor consisting of four different coatings, of which two are charged, while the other two lie at electric voltages, forming a uniform electric potential.

Instead of a capacitor, the term “condenser-like structure” might be more accurate. For two of the coatings are, if viewed as coils (as such, they act through the self-inductions of the magnet coils), twice short-circuited (via A B and W), the other two are also short-circuited via W.

Page 12

![Diagram with connections and current directions]



Of fundamental importance here is the well-known phenomenon that when switching off DC magnets very quickly (as is the case in my apparatus), the magnetic energy is largely converted into electrostatic energy, and high overvoltages arise, which can endanger the insulations under certain circumstances.

As shown in the sketch on page 10, the two directly opposing plates always work together, so:

1 - 16
2 - 15
3 - 14
4 - 13

From these:

1, 3, 5, 7 \leftrightarrow 10, 12, 14, 16 (right)
2, 4, 6, 8 \leftrightarrow 9, 11, 13, 15 (left)

Of these, 1 - 8 are positive, 9 - 16 negative electrically.

Now, it is still to consider that the magnet coils directly interact with each other and the plate groups 1 - 8 and 9 - 16 overlap on the same cores, thus having capacitive effects on each other.

Thus, we have explained all conditions of mutual influence. Unfortunately, the mutual relationships are so extraordinarily complicated that I could not proceed further.

From the picture on page 12 (and the marked relationships here), it should now be clear that…

Page 13

… the extra currents arising in the A C D B circuit cannot balance themselves but instead charge up due to the electrostatic nature of the released energy. This arises because the transformer coils 1-6 act as inductors (self-inductions), creating electrical voltage potentials that are actually equal each time.

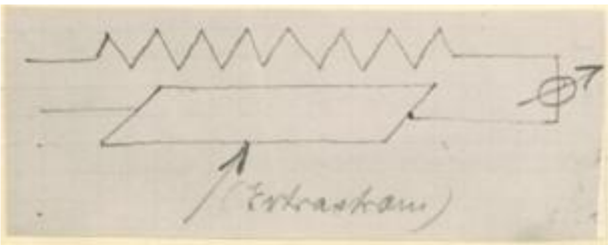
Let it be assumed that the system oscillates due to the interrupter, forming the frequency in which the system resonates. This resonance is caused by a complex relationship between the constant energy of the flat coils, the changing coupling factor due to alternating current direction, the plates, and the electrical potential modules. Thus, all described conditions interact, creating a rectifying accumulation and sequential connection of the extra current energy.

My intent here is merely to demonstrate which functions occur and that through absolute symmetry of all conditions, the prerequisites for the aforementioned functions are created.

How exactly these processes occur can be figured out by the physicist using the diagrams. Therefore, only the following should be mentioned:

a) The magnetic cores are connected monolithically with the corresponding plates and oscillate with the system (core 2 = grid; coils I and II = anodes; coil III = emission).

b) A strong capacitor effect between the flat coils and plates is observed.



When the flat coils are completely turned off, a current flows between them and the plates above and below when an extra current enters the plate.

Page 14

c) These discharges change the purely electrical voltage potentials occurring between the plates, between the flat coils, and between the flat coils and plates.

12. I now leave this point, as it concerns less the physical evidence than a logical explanation of the switching method, and come to the last point, the interrupter.

That this interruption represents a proper mechanical interruption (as by a switch) is, of course, unthinkable. Instead, it is a type of oscillation generation that achieves a momentary standstill of the existing basic currents through a capacitor and self-induction, thus practically achieving the same as a mechanical interruption.

The fact that a system set in oscillation by a current impulse can continue to oscillate despite strong damping is something new, but understandable when considering that through the influence of the interrupter, and the equally influencing current section A B in the exciter part, a strong current circulates from the sum of all extra currents. Thus, the interrupter can supply energy in precisely the same rhythm, overcoming damping resistances. Therefore, the system acts like a clock, whose pendulum is also set in motion by the energy of the spring at the moment of reversal.

Thus, the available sections for the interrupter function are:

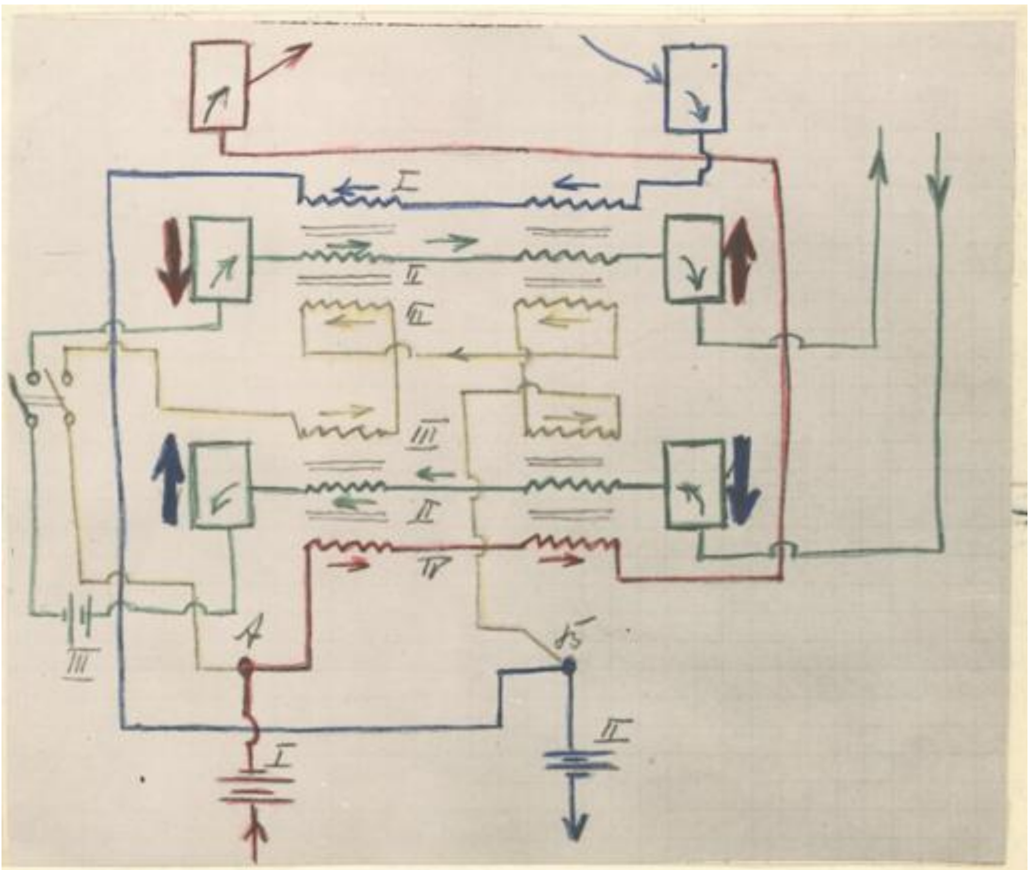
a) Current section A B.
b) The magnetic current III.
c) The two current sections A E and F B (see sketch on page 1).
d) The two flat coils lying over the above-mentioned sections.

From the combination of these sections, oscillation generation must be achieved. That current section A B must be switched with current III together and simultaneously to perform the first reversal has already been mentioned.

Page 15

Already for reasons of symmetry, we imagine the interrupter part designed exactly like the exciter part, i.e., plates with magnets in between, exactly like the picture on page 2, i.e., two plates with magnets in between, and each pair of plates with a flat coil. However, since this time the main influence is on current III, we place this on the plates. This results in the following circuit diagram:

![Circuit diagram with colored connections]



13. The mode of operation is now explained. First, it should be emphasized that the cores used in the interrupter are not permanent magnets but made of soft iron, as shown by the following considerations.

Page 16

First: under no circumstances should the absolute symmetry of the generating system in the alternation of magnetic potentials (+ - + - + - , etc., see page 3 below) be broken.

Second: in the interrupter system, only oscillations should be generated, i.e., no extra currents should be created.

A consideration of the current directions shows that the currents A B and III must create opposing fields, canceling each other out to achieve the stability of the magnets. The third coils traversed by currents A E and F B (see page 1) change their field direction through the interruptions of A B, thus reversing the unstable fields each time with the same strength.

14. These requirements determine the sizes of the two batteries I and II. Battery III was set by the requirement that its current should neutralize the permanent magnets of the exciter system as precisely as possible. From the easily determined current strength with the resistance, the required voltage, i.e., the number of elements, results.

Exactly the same current strength / A B must now guide the current section. This results from two equally sized components; each of the two batteries I and II provides half. Since each of the two batteries flows 2/3 through A B, 1/3 through the other path, battery III must provide such a third, so the voltages of I and II (and thus the number of elements) must relate to the voltage of III as 3 to 4 (or 6 to 😎. The prerequisite for this is the equal resistance of all transformer coils and a corresponding adjustment of the flat coil resistances. A calculation of the resistances will easily confirm this.

For this reason, tuning of the entire oscillation system (such as with variable capacitors, etc.) is not required, as the balancing of the current strengths can be fully achieved.

Now to the mode of operation of the interrupter.

Page 17

If only C D is switched on initially, no currents flow in A B (coils III) and in the magnetic circuit (coils II). However, currents flow in I and IV in the indicated arrow direction (see picture on page 15).

If the double switch is now inserted, currents of equal strength flow in II and III in opposite directions, not forming a field but stabilizing it.

Simultaneously, the fields in I and IV of equal size reverse.

Thus, induction currents are generated in III and II, supporting the current in III but trying to brake the current in II.

Firstly, this is quite insignificant (low valve effect), but the latter is important as it already initiates the following process with the help of the connected capacitor system.

By the first activation impulse, as mentioned, a strong surge current is generated in the exciter part (out of all extra currents produced by the potential differences). This creates a counter-current in the opposite direction to the previous current in A B, as it must balance to a closed circuit. Thus, a counter-current in A B about 10-12 times stronger than the previous current in A B or III is generated. This counter-current induces equally strong currents in all coils, creating an equally strong current impulse in all directions, i.e., a strong counter-current in II (magnet current), which must reverse the entire magnet system.

Induction currents are also generated in I and IV, which are directed like the original currents before A B was closed. Now, it remains to be noted (which applies to the entire remaining system) that when switching from A B to the flat coils, only 2/3 of the current strengths flow…

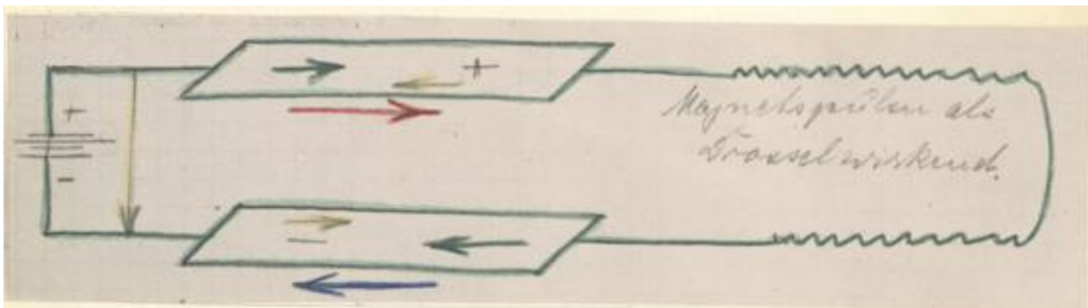
Page 18

… resulting from the capacitor interactions. This change also takes place later, contributing to the oscillation advantage.

As we have seen, the current induced in the magnetic circuit reverses the permanent magnets. Simultaneously, the induction currents in I and IV achieve a current reversal in III (A B), as these currents join the system's current, practically reaching the initial state (before closing A B and III). Thus, the old fields are restored. The old currents return to their rights, and the cycle begins anew.

The extent to which the capacitors promote the oscillation of the magnetic circuit with the simultaneous participation of the flat coils is easily understood.

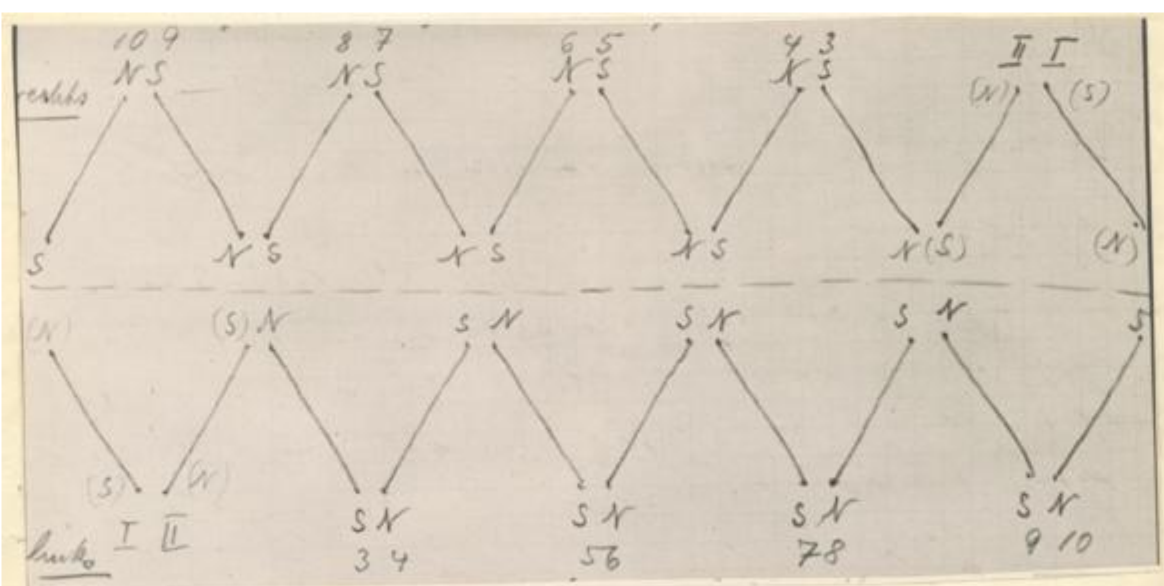
![Diagram with arrows and magnetic coils]



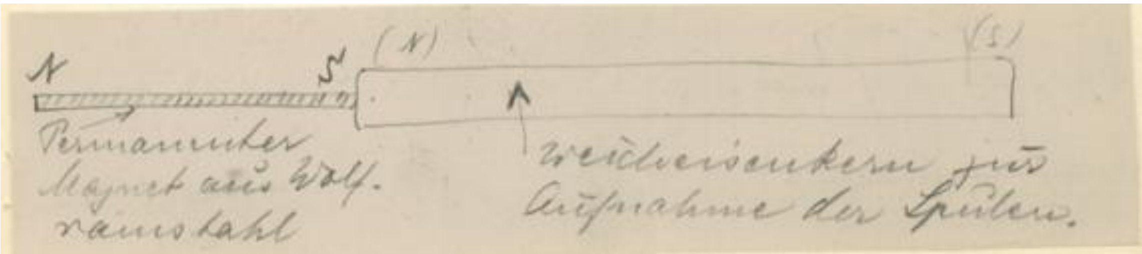
16. If even a single condition or cooperation in the exciter system or interrupter does not agree with the described processes, the apparatus cannot oscillate, and thus, cannot generate energy.
17. Now we come to the arrangement of the magnets. These are not arranged randomly but built into a self-contained whole, preferably so that always attracting magnetic poles face each other. All coils are arranged over a continuous magnetic ring, which closes magnetically (not galvanically, otherwise short-circuit).

We attach all magnets on both sides of a board so that the cores connected to the left plates (page 😎oscillate, and the others are arranged on the right side of the board as follows:

![Diagram with magnetic arrangements]

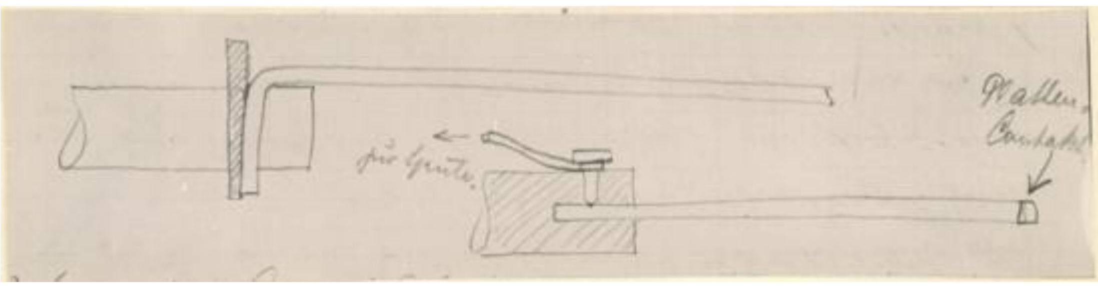


Magnets I-II on each side are soft iron cores of the interrupter plates, 3-10 permanent magnets, whose poles face each other as closely as possible (1/2 - 1 mm), thus forming an air gap, performing the same work during pole reversal as the air gap in the dynamo machine. Since permanent magnets lose their permanence when subjected to alternating current, the coils are placed on soft iron cores, forming the extension of a permanent magnet. This can be relatively small, as a magnetization of approximately 120-150 Gauss is sufficient.



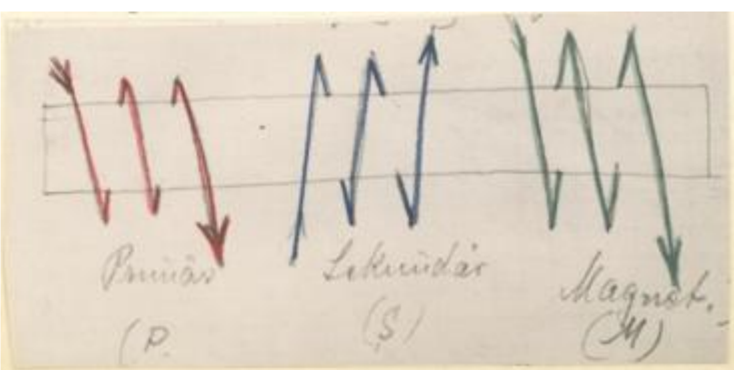
The interrupter magnets do not have steel magnets. The front magnets are either pinned or fastened with set screws.

![Diagram with magnet construction]



Any other construction is equally suitable, provided it achieves intimate contact between tungsten steel and iron. The latter construction is much easier since it achieves a galvanic connection of the core with the corresponding plate, making the permanent magnet act as a conductor between the core and plate.

18. The magnets are wound as follows: each magnet carries three coils, the bottom and top with the same winding direction, the middle with the opposite winding direction.



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The half of the required magnets on the left, the other half on the right. The former have a north pole at the primary and magnetic coil entrance, a south pole at the exit, the latter a south pole at the entrance and a north pole at the exit. In the secondary coil, it is reversed.

The winding and switching diagram on the following page is now easily understandable. Red, blue, and green represent the current circuits I, II, and III. The pole indications are shown in corresponding colors due to the winding directions. Brown represents the A B circuit. Magnetic potentials (+ and -) are indicated in corresponding colors. The polarity caused by the permanent front magnets is shown in yellow. Left and right are explained above.

The numbers on the coils mean:
1 = bottom
2 = middle
3 = top

All connections and switches are now apparent.

Each individual coil should have as equal winding numbers and resistances as possible to facilitate the tuning and starting of the apparatus.

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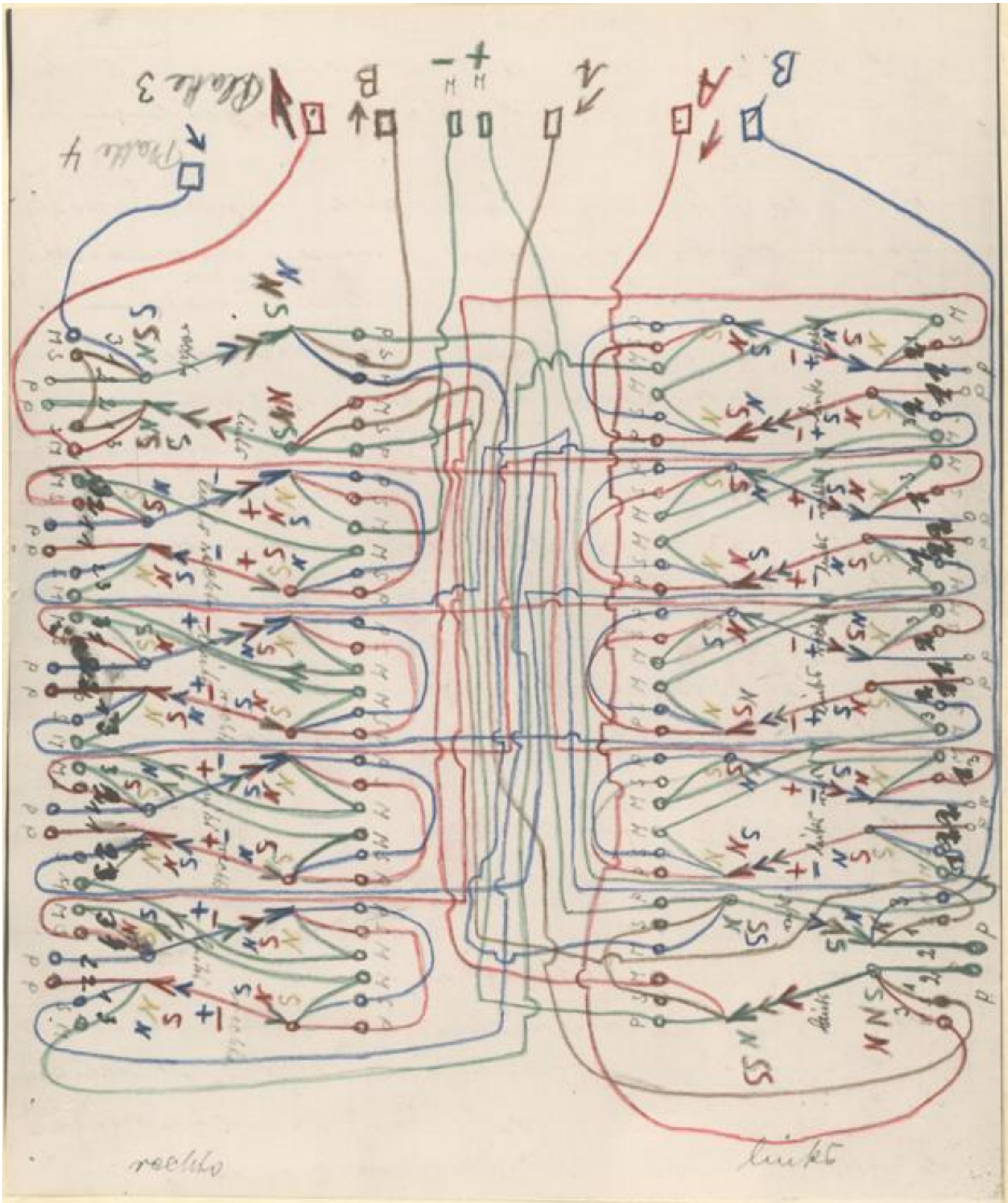
![Detailed wiring and coil diagram]



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19. Summary.

From the treatise, it follows that a new source of current or power has not been discovered, but rather the phenomenon involves entirely ordinary extraneous currents. Hence the name: Primary Voltage Converter.

The notion that there is an increase in energy initially appears unbelievable, given that our current understanding of induction phenomena is fundamental to electrical engineering.

We must now embrace a different perspective, one that was already anticipated and named “extra” currents.

In my opinion, all induction currents (whether extra currents or induction currents) originate from an energy source that is directly from the sun or mediated by the iron-nickel core of the earth. As each induced current in the induced conductor is opposed by a counter-induction current in the inducing conductor, this inherent interconnection of the two conductors results in an increase in the induction current and a decrease in the induced current, justifying the view that the energy of one comes from the other.

If my view proves correct, my discovery has enormous significance for all electrical engineering, as it removes the barriers set by the mistaken understanding of the induction process.

The processes in my apparatus do not restrict the validity of the law of conservation of energy.

The induction energy from the sun is likely an oscillation, and like light, heat, etc., is continuously sent to us.

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I have succeeded in separating action and reaction from each other. Whether this can be done with much simpler means, in every dynamo machine or transformer, I do not know, but I am convinced it can. Further investigations are not the task of the practical inventor but of the physicist.

20. Exact measurements of the frequency in the apparatus are not yet available. They can, however, be estimated from the prevailing conditions in the apparatus.

The elimination of the permanent fields generates a strong current impulse that produces a countershock in the neutralization circuit, restoring the old fields, and a new impulse is created that makes the fields disappear again.

Each oscillation thus generates two current impulses.

The duration of one oscillation mainly depends on the path the generated current pulse must travel.

The length of the circuit A C D B in my apparatus is about 300 meters. The speed of the current in the conductor depends on the capacitive and inductive conditions and should be about 150,000 km per second in this system. Each current pulse thus requires about 1/200,000 second to pass through the system. Since two such impulses form one oscillation, the frequency should be around 100,000 per second. The wavelength is about 3000 meters.

21. The power of the apparatus is calculated based on the known induction laws, considering that the continuously increasing energy from magnet to magnet causes the output not to rise arithmetically but geometrically. Each new potential increases the voltage and the sum of all previous ones.

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This results in a voltage of 322 volts between plate 3 and 4 (1 and 2).

7 = 322 volts
6 = 123 “
5 = 47 “

4 = 18 “
3 = 7 “
2 = 3 “
1 = 1 “

Thus, 8 plates would yield a voltage of 322 volts. However, due to the damping of the system, particularly from the increasing resistance, this is reduced from stage to stage.

Therefore, the total apparatus will soon reach a practical limit because the moment must occur when the increasing damping consumes the voltage and current increase.

In my 8-stage apparatus, a load voltage of around 150 volts is achieved. Four more stages add about 110 volts, another four stages only about 80. Therefore, the construction height is practically limited.

The load capacity has two limitations. Once the output current of about 0.8 amp (in my apparatus) is reached, a simple summation occurs from layer to layer, about 7-8 amps. Additionally, further use resistances must be considered, which must be reduced so that a field direction change in the plate coil system is still sufficiently ensured. In this case, increasing displacement of the rectifying conditions occurs, causing the voltage to drop steadily, and the apparatus, due to excessive damping, loses its oscillations and thus…

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…stops its energy generation.

If there is a significant mismatch between the resistance of w and that of A C or D B, the apparatus will not start.

I hope I have now provided a completely clear picture of the construction and function of my apparatus.

Berlin, October 1, 1928.

Hans Coler,
Engineer.