Claims

1. An implantable pulse generator comprising an electric circuit, the electric circuit comprising:
   - a primary energy store;
   - a plurality of secondary energy stores; and
   - a control unit, the control unit being configured
     - to activate an electric switch in the electric circuit in such a way that, in a first interval of a first phase of a pulse delivery, the primary energy store is discharged via a therapeutic current path, and
     - to activate an electric switch in the electric circuit in such a way that, in a second interval of the first phase of the pulse delivery, the primary energy store and consecutively, all of the plurality of secondary energy stores are discharged via the therapeutic current path, or the primary energy store and in each case one of the plurality of secondary energy stores are discharged via the therapeutic current path,

   wherein the primary energy store and the plurality of secondary energy stores being configured to electrically connect in series, and
   wherein the discharge via the therapeutic current path has an approximately rectangular pulse waveform.

2. The implantable pulse generator according to claim 1 or 2, wherein the control unit is further configured to activate at least one electric switch.

3. The implantable pulse generator according to claim 2, wherein the at least one electric switch is a plurality of switches of a bridge circuit, in a second phase of the pulse delivery in such a way that the direction of current in the therapeutic current path is reversed.

4. The implantable pulse generator according to any one of the preceding claims, wherein the primary energy store includes a plurality of individual energy stores that are fixedly connected in series or connectable in parallel with one another.

5. The implantable pulse generator according to any one of the preceding claims, wherein the switch or switches of the electric circuit is or are electronic switches, in particular selected from: insulated-gate bipolar transistor (IGBT), anode gated thyristor (AGT), or a combination of the aforementioned electronic switches.

6. The implantable pulse generator according to any one of the preceding claims, wherein the electric circuit comprises between two and four secondary energy stores, preferably three secondary energy stores.

7. The implantable pulse generator according to any one of the preceding claims, wherein the primary energy store and/or the plurality of secondary stores, independently of one another, are a capacitor or a coil.

8. The implantable pulse generator according to claim 7, wherein the plurality of secondary energy stores are formed by a capacitor comprising at least one electrode having a first polarity and at least two second electrodes having a second polarity, each electrode being electrically contactable separately from one another from the outside of the capacitor.

9. An implantable pulse generator according to any one of the preceding claims, wherein
   - the primary energy store has a capacitance in the range of 150 µF to 300 µF and/or a nominal voltage in the range of 250 V to 255 V, and/or
   - the plurality of secondary energy stores has a capacitance in the range of 180 µF to 360 µF and/or a nominal voltage in the range of 250 V to 255 V, independently of one another.

10. A method for delivering an electrical pulse having a substantially rectangular voltage waveform (pulse waveform), comprising:
   - connecting a charged primary energy store to a discharge current path in a first interval of a first phase of a pulse delivery; and

– connecting a plurality of secondary energy stores to the discharge current path in a second interval of the first phase of the pulse delivery,

the primary energy store and the plurality of secondary energy stores being fixedly connected, or connectable, in series, and

in the second interval, the primary energy store and, consecutively, all secondary energy stores being discharged via the therapeutic current path, or

the primary energy store and in each case one of the plurality of secondary energy stores being discharged via the therapeutic current path.

11. The method according to claim 10, wherein the plurality of secondary energy stores are connected to the discharge current path in the second interval of the first phase of the pulse delivery.

12. The method according to claim 11, wherein:

– only one of the plurality of secondary energy stores at a time is connected to the discharge current path, in particular each of the plurality of secondary energy stores being consecutively connected to the discharge current path, or

– the plurality of secondary energy stores are sequentially connected to the discharge current path, in particular all secondary energy stores being consecutively connected to the discharge current path.

13. A method according to any one of claims 10 to 12, wherein the connection of the primary energy store and of the at least one secondary energy store or of the plurality of secondary energy stores is carried out in each case by way of a switch, and in particular by way of an electronic switch.

14. A method according to any one of claims 10 to 13, wherein the direction of current in the therapeutic current path is reversed in a second phase of the pulse delivery.