Claims

1. A receiving device (1) for receiving a magnetic field and for producing electric energy by magnetic induction, wherein
- the receiving device (1) comprises at least one coil (33, 35, 37) of an electric line, wherein the magnetic field induces an electric voltage in the coil (33, 35, 37) during operation and wherein the coil (33, 35, 37) comprises an inductance,
- the receiving device (1) and the coil (33, 35, 37) are adapted to receive the magnetic field from a receiving side,
- the receiving device (1) comprises a case (2, 3) enclosing the at least one coil (33, 35, 37) and further components of the receiving device (1),
- the receiving device (1) comprises at least one capacitor (115) having a capacitance, which capacitor (115) is electrically connected to the coil or to at least one of the coils (33, 35, 37) so as to form an electric circuit (111) having a resonance frequency according to the inductance(s) of the coil(s) (33, 35, 37) and to the capacitance(s) of the capacitor(s) (115), characterized in that
- the at least one capacitor (115) being arranged on a side opposite to the receiving side, in a protruding portion (5) of the case (2, 3).

2. The receiving device of claim 1, wherein the case (2, 3) has a flat configuration defining a first surface on the receiving side and a second surface on the side opposite to the receiving side, wherein the first surface and the second surface are connected by side surface areas of the case (2, 3) which are oriented for each side surface to another side than the receiving side and the side opposite to the receiving side and which are smaller than the first surface and the second surface.

3. The receiving device of claim 2, wherein the protruding portion (5) of the case (2, 3) is located in the centre of the second surface.

4. The receiving device of claim 3, wherein the protruding portion (5) is elongated and extends along a centre line of the second surface.

5. The receiving device of one of claims 1 to 4, wherein the protruding portion (5) of the case

(2, 3) is elongated and contains the at least one capacitor (115) as well as connecting electric lines (112, 113, 114) which electrically connect - during operation of the receiving device (1) - the at least one coil (33, 35, 37) to another device.

6. The receiving device of one of claims 1 to 5, wherein the case (2, 3) comprises a first part (2) that forms the first surface on the receiving side and comprises a second part (3) that forms the second surface on the side opposite to the receiving side, wherein the second part (3) comprises the protruding portion (5) of the case (2, 3).

7. A method of manufacturing a receiving device (1) for receiving a magnetic field and for producing electric energy by magnetic induction, wherein
- a case (2, 3) having a protruding portion (5) is provided for enclosing components of the receiving device (1) to be manufactured,
- at least one coil (33, 35, 37) of an electric line is arranged within the case (2, 3), wherein the coil (33, 35, 37) comprises an inductance, so that the magnetic field can induce an electric voltage in the coil (33, 35, 37) during operation of the receiving device (1),
- the coil (33, 35, 37) and its arrangement with in the case (2, 3) are adapted to receive the magnetic field from a receiving side,
- at least one capacitor (115) is provided, which capacitor (115) has a capacitance and is electrically connected to the coil (33, 35, 37) or to at least one of the coils so as to form an electric circuit (111) having a resonance frequency according to the inductance(s) of the coil(s) (33, 35, 37) and to the capacitance(s) of the capacitor(s) (115),
characterized in that
- the at least one capacitor (115) is arranged on a side opposite to the receiving side, in the protruding portion (5) of the case (2, 3).

8. The method of claim 7, wherein the case (2, 3) has a flat configuration defining a first surface on the receiving side and a second surface on the side opposite to the receiving side, wherein the first surface and the second surface are connected by side surface areas of the case (2, 3) which are oriented for each side surface area to another side than the receiving side and the side opposite to the receiving side and which are smaller than the first surface and the second surface.

9. The method of claim 8, wherein the protruding portion (5) of the case (2, 3) is located in the centre of the second surface.

10. The method of claim 9, wherein the protruding portion (5) is elongated and extends along a centre line of the second surface.

11. The method of one of claims 7 to 10, wherein the protruding portion (5) of the case (2, 3) is elongated and connecting electric lines (112, 113, 114) which electrically connect - during operation of the receiving device (1) - the at least one coil (33, 35, 37) to another device (120) are arranged within the protruding portion (5) in addition to the at least one capacitor (115).

12. The method of one of claims 7 to 11, wherein a case (2, 3) is used which comprises a first part (2) that forms the first surface on the receiving side and comprises a second part (3) that forms the second surface on the side opposite to the receiving side, wherein the second part (3) comprises the protruding portion (5) of the case (2, 3).

13. An arrangement comprising the receiving device (1) of one of claims 1 to 6 and further comprising a rectifier (120), wherein the rectifier (120) is electrically connected to the at least one coil (33, 35, 37) of the receiving device (1) and is adapted to rectify an alternating current produced by the at least one coil (33, 35, 37) and wherein the rectifier (120) is housed by a housing (121) arranged in line with the protruding portion (5) of the case (2, 3) of the receiving device (1).