CLAIMS

1. A generator of a magnetic field of adjustable direction including a magnetic circuit comprising:

a first polar end (37; 90) of vertical axis (Z) arranged above a horizontal plane (29; 100); and

at least two second polar ends (28A to 28D; 102; 102') arranged symmetrically on said horizontal plane,

the generator further comprising coils (50A to 50D, 52A, 52B; 82) arranged so that each portion of the magnetic circuit connecting two of the first polar end and the at least two second polar ends runs inside at least one coil, the coils being adapted to be connected to circuits configured to conduct currents of settable intensities and of selected directions therethrough.

2. The generator according to claim 1, wherein the polar ends (28A to 28D; 102; 102') of each pair of neighboring second polar ends have parallel vertical surfaces (40A to 40D, 42A to 42D; 104; 104') arranged symmetrically with respect to a plane containing the vertical axis (Z).

3. The generator according to claim 1 or 2, wherein the first polar end (37; 90) has the shape of a truncated cone having a circular lower surface (38; 92) arranged at a height (H) in the range from 0.5 to 5 mm above said horizontal plane (29; 100).

4. The generator according to any one of claims 1 to 3, comprising four second polar ends (28A to 28D) symmetrical with respect to two orthogonal planes containing the vertical axis.

5. The generator according to claim 4, wherein each polar end is at the end of an arm (26, 36) connected to a frame (22).

6. The generator according to claim 5, wherein the arm (26) associated with each second polar end (28A to 28D) horizontally extends a bar (24) surrounded with one of the coils (50A to 50D).

7. The generator according to claim 5 or 6, wherein the frame (22) is a square frame and the arm (36) associated with the first polar end (37) is connected to a horizontal rod (32) connected to the middles of opposite sides of the frame (22), one of the coils (52A, 52B) being arranged around each half of the horizontal rod.

8. The generator according to claim 6 or 7, wherein the arm (36) associated with the first polar end (37) is surrounded with one of the coils.

9. The generator according to any of claims 1 to 3, comprising two second polar ends (102; 102'), each of the first and second polar ends (90; 102; 102') being at the end (88, 96, 96') of an arm connected to a rod (84), the arm (88) associated with the first polar end being connected to the center of the rod, and one of the coils (82) being arranged around each half of the rod.

10. The generator according to claim 9, wherein the arm (88) associated with the first polar end (90) is surrounded with one of the coils.