side of the conductor winding **106** due to the superimposition of the magnetic field **501** induced in the conductor winding **106** in the same direction. However, the magnetic field **403** is weakened on the right side of the conductor winding **106** due to the superimposition of the magnetic field **501** induced in the conductor winding **106** in the opposite direction. As a result, on the surface of the silicon steel piece **107**, the magnetic field **403** develops a gradient from left to right thus creating a clockwise torque **602** which supports the clockwise rotation of the rotor **102**. This is in accordance with Lenz's Law and is confirmed by the right hand rule which shows that a conductor winding **106** within a downward directed magnetic field **403** and carrying a current **110** in the induced direction (coming out of the page) will experience a clockwise force.

[0051] Therefore, as a result of this configuration, the conductor winding **106** embedded within the stator **103** is cut at two places by each magnetic flux originating from the north pole of the first set of magnets **104**. Specifically, a first time when the magnetic field **401** enters the stator **103** in an upward direction and a second time when the magnetic field **403** exits the stator **103** in a downward direction through a silicon steel piece **107**. The net effect is that the clockwise torque generated by the magnetic field **403** rerouted through the silicon steel pieces **107** partially cancels the counter-clockwise torque generated by the magnetic field **401** originating from the north poles of the first set of magnets **104**. This results in a partial nullification of the back torque reaction caused by the effect of Lenz's Law reaction and results in a corresponding increase in the efficiency of the machine because the external drive source has to supply less torque to overcome the reduced reaction of the machine.

[0052] FIG. **7** depicts a longitudinal cross sectional view of the flow of magnetic fields emanating from the second set of magnets within a reduced reaction generator according to an exemplary embodiment of the present invention. As shown by FIG. **7**, the magnetic flux **701** flowing into the south pole of the second set of the magnets **105** travels vertically downward from within the stator **103** and across the air gap **108** as the magnetic flux **701** rotates with the rotor **102** relative to the stator **103**. As this rotating magnetic flux **701** exits the static stator **103**, it cuts sideways across the conductor winding **106** embedded within the stator **103** and induces a current within that conductor winding **106**.

[0053] Within the stator **103**, a portion of the magnetic flux **702** flows longitudinally along the grain stampings within the stator **103** from a position where the magnetic flux **702** enters the stator **103**. This portion of the magnetic flux **702** is static relative to the stator **103** and to the conductor winding **106** embedded within the stator **103**. As such, this portion of the magnetic flux **702** enters and flows through the stator **103** without any sideways movement relative to the embedded conductor winding **106** and, therefore, without inducing a current within the conductor winding **106**.

[0054] Outside of the stator **103**, a portion of the magnetic flux **703** flows from a north pole of the second set of magnets **105**, through a corresponding silicon steel piece **107**, upward across the air gap **108** and into the stator **103**. The silicon steel piece **107** focuses the magnetic flux **703** within the air gap **108** providing a more efficient and specifically designed path for the magnetic flux **703** originating from a corresponding second set of magnets **105**. The magnetic flux **703** exists the steel piece **107** and enters the stator **103** thereby closing the magnetic flux loop between the south and north poles of each magnet of the second set of magnets **105**.

[0055] FIGS. **8** and **9** depict the interaction between the magnetic flux originating from the south poles of the second set of magnets and the magnetic flux resulting from an induced current in the conductor winding according to an exemplary embodiment of the present invention. In both FIGS. **8** and **9**, the current **110** induced in the conductor winding **106** by the clockwise rotation of the rotor **102** is shown as going into the page. Moreover, in accordance with the application of the right hand rule, the magnetic flux **801** surrounding the conductor winding **106** as a result of the induced current **110** is shown as having a clockwise rotation.

[0056] In FIG. **8**, the magnetic flux originating from the second set of magnets is shown traversing the air gap in a downward direction and interacting the magnetic flux surrounding the conductor winding. As shown by FIG. **8**, the magnetic field **701** originating from the second set of magnets **105** is strengthened on the right side of the conductor winding **106** due to the superimposition of the magnetic field **801** induced in the conductor winding **106** in the same direction. However, the magnetic field **701** originating from the second set of magnets **105** is weakened on the left side of the conductor winding **106** due to the superimposition of the magnetic fields **801** induced in the conductor winding **106** in the opposite direction. As a result of this interaction, the net magnetic field in the air-gap over the surfaces of the second set of magnets **105** results in the application of a counter-clockwise torque **802** to the rotor **102** which opposes the clockwise rotation of the rotor **102**. This is in accordance with Lenz's Law and is confirmed by the right hand rule which shows that a conductor within a downward directed magnetic field and carrying a current in the induced direction (going into the page) will experience a counter-clockwise force.

[0057] In FIG. **9**, the portion of the magnetic flux originally routed through the steel pieces **107**, across the air gap **108** and into the stator is shown interacting with the induced magnetic flux surrounding the conductor winding. As shown by FIG. **9**, the magnetic field **703** routed upwardly through a steel piece **107** and across the air gap **108** is strengthened on the left side of the conductor winding **106** due to the superimposition of the magnetic field **801** induced in the conductor winding **106** in the same direction. However, the magnetic field **703** is weakened on the right side of the conductor winding **106** due to the superimposition of the magnetic field **801** induced in the conductor winding **106** in the opposite direction. As a result, on the surface of the silicon steel piece **107**, the magnetic field **703** develops a gradient from left to right thus creating a clockwise torque **902** which supports the clockwise rotation of the rotor **102**. This is in accordance with Lenz's law and is confirmed by the right hand rule which shows that a conductor winding **106** within an upward directed magnetic field **703** and carrying a current **110** in the induced direction (going into the page) will experience a clockwise force.

[0058] Therefore, as a result of this configuration and as described above for the first set of magnets, the conductor embedded within the stator is cut at two places by each magnetic field terminating at the south pole of the second set of magnets. Specifically, a first time when the magnetic field **701** exits the stator **103** in a downward direction and a second time when the magnetic field **703** enters the stator **103** in an upward direction through a silicon steel piece **107**. The net effect is that the clockwise torque generated by the magnetic field **703** rerouted through the silicon steel pieces **107** par-