Claims:

1. An assembly for generating sound, the assembly comprising:

a first surface ~~coupled with an electrostatic field generating structure~~; and

a second surface ~~coupled with an electrostatic field sensitive structure~~;

wherein the first surface is a magnetized diaphragm, the magnetized diaphragm comprising or having disposed thereon or therewithin, a permanent magnet or magnetically sensitive particles or one or more magnetically sensitive layers, wherein the magnetically sensitive particles or the one or more magnetically sensitive layers are at least one of: affixed onto the magnetized diaphragm, affixed within the magnetized diaphragm, coated onto the magnetized diaphragm, embedded within the magnetized diaphragm, and sandwiched within the magnetized diaphragm;

wherein the second surface is coupled with an electromagnetic field generating structure or with a permanently magnetized means; and wherein the magnetized diaphragm and the second surface are positioned and interspaced relative to each other, such that at least one of the first surface and the second surface is impelled to move relative to the other of the first surface and the second surface by an electromagnetic field generated by application of a current across the electromagnetic field generating structure that is coupled with the second surface, or by application of a magnetic field generated by the permanently magnetized means that is coupled with the second surface~~and the second surface are interspaced from each other, such that responsive to generation of an electromagnetic/electrostatic field by the electromagnetic/ electrostatic field generating structure, at least one of the first surface and the second surface is impelled to move relative to the other of the first surface and the second surface~~.

2. The assembly as claimed in claim 1, wherein the first surface and the second surface are coaxially disposed annular surfaces.

~~3. The assembly as claimed in claim 2, wherein one of the first surface and the second surface comprises a diaphragm.~~

4~~3~~. The assembly as claimed in claim 1, wherein ~~one of the first surface and the second surface comprises a~~the diaphragm ~~having~~ has an extensible structure.

~~5~~4. The assembly as claimed in claim 1, wherein the first surface and the second surface are interconnected by a plurality of resilient tethers.

~~6~~5. The assembly as claimed in claim 1, wherein ~~one of the first surface and the second surface comprises a diaphragm,~~ said magnetized diaphragm ~~comprising~~ comprises a plurality of flexibly interconnected diaphragm segments.

~~7~~6. The assembly as claimed in claim 1, wherein each of the first surface and the second surface are mounted on opposite sides of a spacer, such that said first surface and second surface are interspaced relative to each other.

~~8~~7. The assembly as claimed in claim 1, wherein one or both of the first surface and the second surface comprises a spiral surface.

~~9~~8. The assembly as claimed in claim 1, wherein at least one of the first surface and second surface is provided with one or more surface rigidity adjusters.

~~10. The assembly as claimed in claim 1, wherein one of the first surface and the second surface is a diaphragm, and said diaphragm having charged particles or charged layer or magnetically sensitive particles or magnetically sensitive layer disposed thereon.~~

~~11~~9. The assembly as claimed in claim 1~~0~~, wherein the magnetized diaphragm comprises ~~of~~ one or more layers of ~~charged particles or~~the magnetically sensitive particles with each such layer of ~~charged particles or~~the magnetically sensitive particles disposed between two diaphragm substrate layers.

~~12~~10. The assembly as claimed in claim 1, wherein one of the first surface and the second surface ~~comprises a diaphragm having~~has one or more electrically conductive structures additively or subtractively formed thereon or attached thereto.

~~13~~11. The assembly as claimed in claim 1, wherein ~~one of~~ the first surface ~~and the second surface comprises a diaphragm having~~has one or more electrically conductive structures with each conductive structure disposed between two diaphragm substrate layers.

~~14~~12. The assembly as claimed in claim 1, wherein one of the first surface and the second surface comprises ~~a diaphragm, said diaphragm comprising~~ an electrically conductive mesh structure having non-electrically conductive filler material interspaced between conductive elements of said mesh structure~~, wherein an external periphery of filler material within each interspace is separated from an external periphery of filler material within at least one adjacent interspace~~.

~~15~~13. The assembly as claimed in claim 1, wherein one of the first surface and the second surface comprises ~~a diaphragm, said diaphragm comprising~~ an electrically conductive mesh structure, and having air gap interspaces between conductive elements of said mesh structure.

~~16~~14. The assembly as claimed in claim 1, wherein ~~one of the first surface and~~ the second surface has an electrically conductive structure disposed thereon, while ~~the other of~~ the first surface ~~and the second surface has an electromagnetic field~~has a magnetically sensitive structure~~ disposed thereon~~, wherein the electrically conductive structure and the ~~electromagnetic field~~magnetically sensitive structure have substantially identical~~ly~~ structures.

~~17~~15. The assembly as claimed in claim 1, wherein ~~one of the first surface and the second surface comprises a diaphragm,~~ said magnetized diaphragm ~~having~~ has a plurality of electrically conductive structures disposed thereon, wherein each of the plurality of electrically conductive structures is electrically isolated from the others.

~~18~~16. The assembly as claimed in claim ~~17~~15, wherein one of the plurality of electrically conductive structures is configured to carry a current, and at least one of the plurality of electrically conductive structures is isolated from any externally applied current.

~~19~~17. The assembly as claimed in claim ~~17~~15, wherein one of the plurality of electrically conductive structures is configured to carry a first current, and another of the plurality of electrically conductive structures is configured to carry a second current, wherein the first current and the second current are electrically isolated from each other.

~~20~~18. The assembly as claimed in claim ~~17~~15, wherein one of the plurality of electrically conductive structures has different structural characteristics in comparison with at least one other of the plurality of electrically conductive structures.

~~21~~19. The assembly as claimed in claim 1, wherein ~~one of the first surface and the second surface comprises a diaphragm,~~ said magnetized diaphragm ~~comprising~~ having a first cross-sectional thickness, and at least one additional diaphragm region having a cross-sectional thickness not equal to first cross-sectional width.

~~22~~20. The assembly as claimed in claim 1, ~~wherein one of the first surface and the second surface comprises a diaphragm, and~~ wherein said magnetized diaphragm is configured as an input diaphragm.

~~23~~21. The assembly as claimed in claim 1, ~~wherein one of the first surface and the second surface comprises a diaphragm, and~~ wherein said magnetized diaphragm is configured as a microphone diaphragm.

~~24~~22. The assembly as claimed in claim ~~17~~15, wherein one of the plurality of ~~independent~~ electrically conductive structures is connected to a first input signal stream corresponding to a first audio channel, and another of the plurality of ~~independent~~ electrically conductive structures is connected to a second input signal stream corresponding to a second audio channel.

~~25~~23. The assembly as claimed in claim 1, ~~wherein one of the first surface and the second surface comprises a diaphragm, and~~ wherein said magnetized diaphragm comprises a plurality of non-porous membranes sealed together to form ~~a~~ one or more fluid tight compartments, wherein said one or more fluid tight compartments ~~is~~ are expanded using gas at ~~above~~ atmospheric pressure or above.

~~26~~24. The assembly as claimed in claim ~~25~~23, wherein said magnetized diaphragm comprises a plurality of non-porous membranes sealed together to form one or more fluid tight compartments, wherein the boundaries of said one or more fluid tight compartments are defined by one or more of:

a rigid spacer over which the plurality of non-porous membranes are mounted; and

one or more fasteners that define a periphery of said one or more fluid tight compartments.

25. The assembly as claimed in claim 12, wherein an external periphery of filler material within each interspace is separated from an external periphery of filler material within at least one adjacent interspace.

~~27~~26. An assembly for generating sound, comprising:

one or more wave generating surfaces configured such that movement of said wave generating surfaces generates a sound wave, wherein said one or more wave generating surfaces are configured for any one reciprocating motion, cyclical motion, rotational motion or elliptical motion;

a driver configured for driving one or more of the wave generating surfaces from a first position to a second position motion for generating sound; and

one or more actuators configured to modify any of (i) an airflow characteristic of one or more of the wave generating surfaces or (ii) direction or rate of motion of one or more of the wave generating surfaces.