What is claimed is:

[Claim 1] With the intention for use within a rotatable free-flight body of generally platter shaped configuration, comprising a main body-plate portion and a rim portion integral with said main body-plate portion, consistent with the shape of flying discs thrown in sports such as Ultimate and Disc Golf, additional mechanisms are presented within or attached to the object's body (as can be seen in the drawings) which function to exert dynamic changes to various physical aspects of the object during the course of its flight, thus providing the capability to dynamically change the object's flight characteristics during the course of its flight.

[Claim 2] The invention in Claim 1 hereby referred to as a "flying disc" or a "disc".

[Claim 3] The invention in Claim 1 containing within the body-plate portion of the disc, a fluid filled diaphragm having elastic properties, herein known as the "central reservoir".

[Claim 4] The invention in Claim 1 further containing near or within the rim portion of the disc, one or a plurality of a fluid filled diaphragm(s) having elastic properties, herein known as the "distal reservoir".

[Claim 5] The invention in Claim 1 further containing portals and tubes that enable the transfer of fluid between the central and distal reservoirs, such that spinning the disc around its central axis generates centrifugal forces that propel some of the fluid from the central reservoir toward the outer radius of the disc, and into the distal reservoir. The amount of centrifugal force generated is proportional to the rate of axial spin, thus, the faster the spin; the more fluid is shifted from the central to the distal reservoirs. As the disc's rate of spin slows down, the elastic property of the diaphragms returns the displaced fluid back into the central reservoir. This shifting of fluid between the central and distal reservoirs in response to the rate of spin around the disc's central axis is herein referred to as the DFSpinShift Effect.

[Claim 6] For the invention in Claim 1 functioning as it is intended throughout the course of a flight, consisting of a "throw" in which the disc is

rotated around its central axis and also propelled along a forward planar vector upon release, followed by a period of time in free-flight, followed by a catch or a landing or other such occurrence which results in the disc coming to rest and the throw considered to be finished, the duration of its flight is described as starting at the moment of release, and ending at the moment the disc comes to rest.

[Claim 7] For the intended disc function during intended flight as described in Claim 6, wherein throughout the course of its flight, the disc typically exhibits the affects of natural forces, including wind resistance and gravity, which slows down its linear speed and also slows down its axial rotational speed, until the end of the flight, the axial rotational speed is at its maximum at the start of the flight and slows down to zero as the flight progresses.

[Claim 8] For the intended disc function during intended flight described in Claim 7, throughout the course of its flight, the disc additionally exhibits the affects of changes in various flight characteristics caused by the shifting of fluid between reservoirs due to the DFSpinShift effect described in Claim 5, including, but not limited to: a) Changes in the distribution of weight within the disc, for example, having a center-centric distribution while the disc is at rest, and a more con-centric distribution while the disc is spinning around it main axis, due to the DFSpinShft effect described in Claim 5. This shift in weight distribution throughout the course of the disc's flight is herein referred to as DFWeightShift Effects. b) Changes in the external shape of the disc, for example, having a more flat shaped center plate while the disc is spinning and more of a dome shaped center-plate while at rest, or any other conceivable external facet, morphology, or shape change that can be implemented by harnessing moving fluid throughout the course of the disc flight due to the DFSpinShft effect described in Claim 5. These changes to the shape of the disc throughout the course of the disc's flight are herein referred to as DFDynaForm Effects. c) Changes in the properties of rotational inertia displayed by the disc, for example, as the fluid shifts back to the inner diaphragm in the later phases of the disc's flight, and the weight

distribution becomes more center-centric due to the DFWeightShift effect, the disc will increase its axial rotational speed due to the laws of physics which state that the rotational inertia is conserved. The result is a disc that exhibits an extra burst of axial rotational speed as the disc flight slows down. This increase in rotational speed as a result of the DFWeightShift effect in the later phases of the disc's flight is herein referred to as the DFFluidTorque Effect.

[Claim 9] For a less expensive implementation of the DFWeightShift and DFFluidTorque effects, the fluid reservoirs and transfer mechanisms described in Claims 1 through 5 are simplified into a single cigar-shaped fluid-filled and sealed elastic tube. A disc having such a tube mounted or otherwise affixed across the center of the central-plate exhibits the DFSpinShift effect during flight, as described in Claim 5 by the following mechanism: a) The fluid within the tube will pool up in the tube's extremities in response to the centrifugal force generated when the disc is thrown, and thus the tube's shape changes from a cylinder into more of a bow-tie shape. b) The net outward fluid shift results in creating the DFWeightShift effect, causing the disc's weight distribution to become more concentric. c) The elastic property of the tube returns the displaced fluid back when the disc spins down, causing the center-centric distribution to occur, and triggering the DFFluidTorque effect. These tubes are herein referred to as DFSpinTubes.

[Claim 10] The magnitude and rate of fluid flow in the mechanisms introduced in Claims 1 through 5 and in Claim 9 can be controlled by any of the following factors: • Fluid viscosity: If the fluid is thicker, it will slow the rate of flow between diaphragms, resulting in a slower transition of these effects. If the fluid is thinner, the opposite takes place. • Fluid density: The denser the fluid the more pronounced the DFWeightShift Effect. • Length and diameter of the connecting tubes, number of connecting tubes: Longer tubes and/or tubes with smaller diameters, or less number of tubes also result in a slower flow rate. • Elasticity of the diaphragms and/or connecting tubes: Higher elasticity of these components will also result in decreased

flow rate. • The volume of fluid present within the diaphragms and tubes: Less fluid means less total flow. The intended use of DFSpinTubes, as described in Claim 9, is to mount or otherwise affix them onto a conventional disc, thereby enhancing its performance characteristics. As such, it is desirable to provide a range of DFSpinTubes, each with different specifications, providing a range of performance characteristics. It is therefore desirable to have a standardized set of DFSpinTubes shapes and an accompanying set of standards and specifications for facilities used for mounting these tubes onto conventional discs. Special slots, which conform to these specifications for the purpose of mounting DFSpinTubes onto conventional discs, are herein referred to as DFSpinTubeSlots.

[Claim 11] The DFWeighShift, DFDynaForm, and DFFluidTorque effects described in Claim 8 can be used individually, collectively, or in any combination in the design of new flying discs for use in various disc sports. The introduction of these new effects, as enabled by the advent of the DFSpinShift effect, and implemented by the introduction of the fluid transfer mechanisms introduced in Claims 1 through 5, and/or through the use of DFSpinTubes introduced in Claim 9, are intended to be combined with current and future disc manufacturing technologies, to supplement and enhance these technologies in a never ending effort to evolve the performance of flying discs.