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(54) **APPARATUS AND METHOD FOR GENERATING ROTATIONAL TORQUE UTILIZING A HIGH VELOCITY JET**

(76) Inventor: **Tai Huang**, Yorba Linda, CA (US)

Correspondence Address:
CHARLES C.H. WU
98 DISCOVERY
IRVINE, CA 92618-3105 (US)

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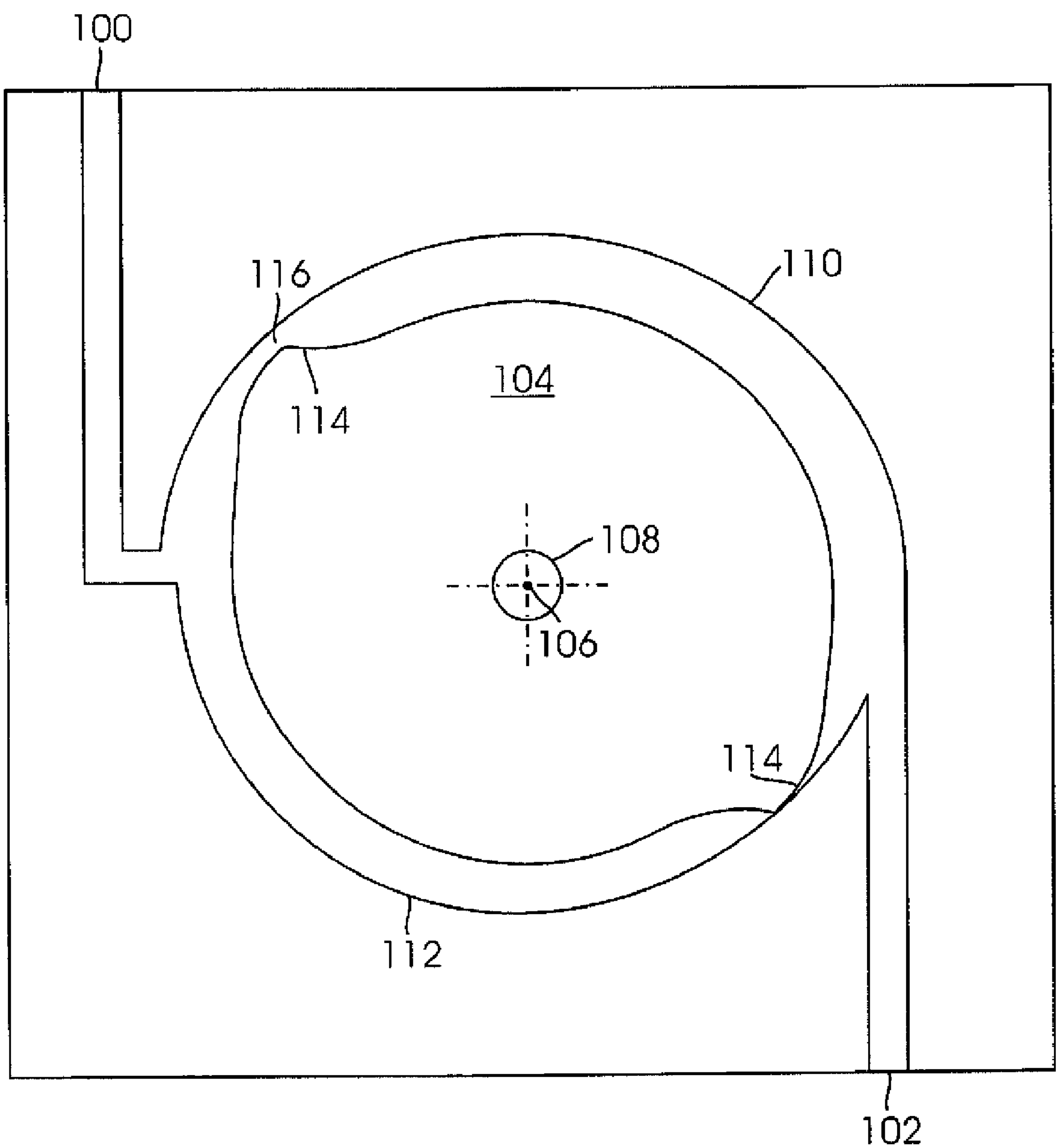
(57) **ABSTRACT**

The present invention relates to a method and apparatus for generating rotational torque utilizing a jet stream created by a converging-diverging nozzle within a cylindrical housing wherein the jet stream flows along an internal circumference of said cylindrical housing. Such a high velocity jet stream can be used to drive a rotor within said cylindrical housing to generate the desired torque, which in turn can be used to generate energy.



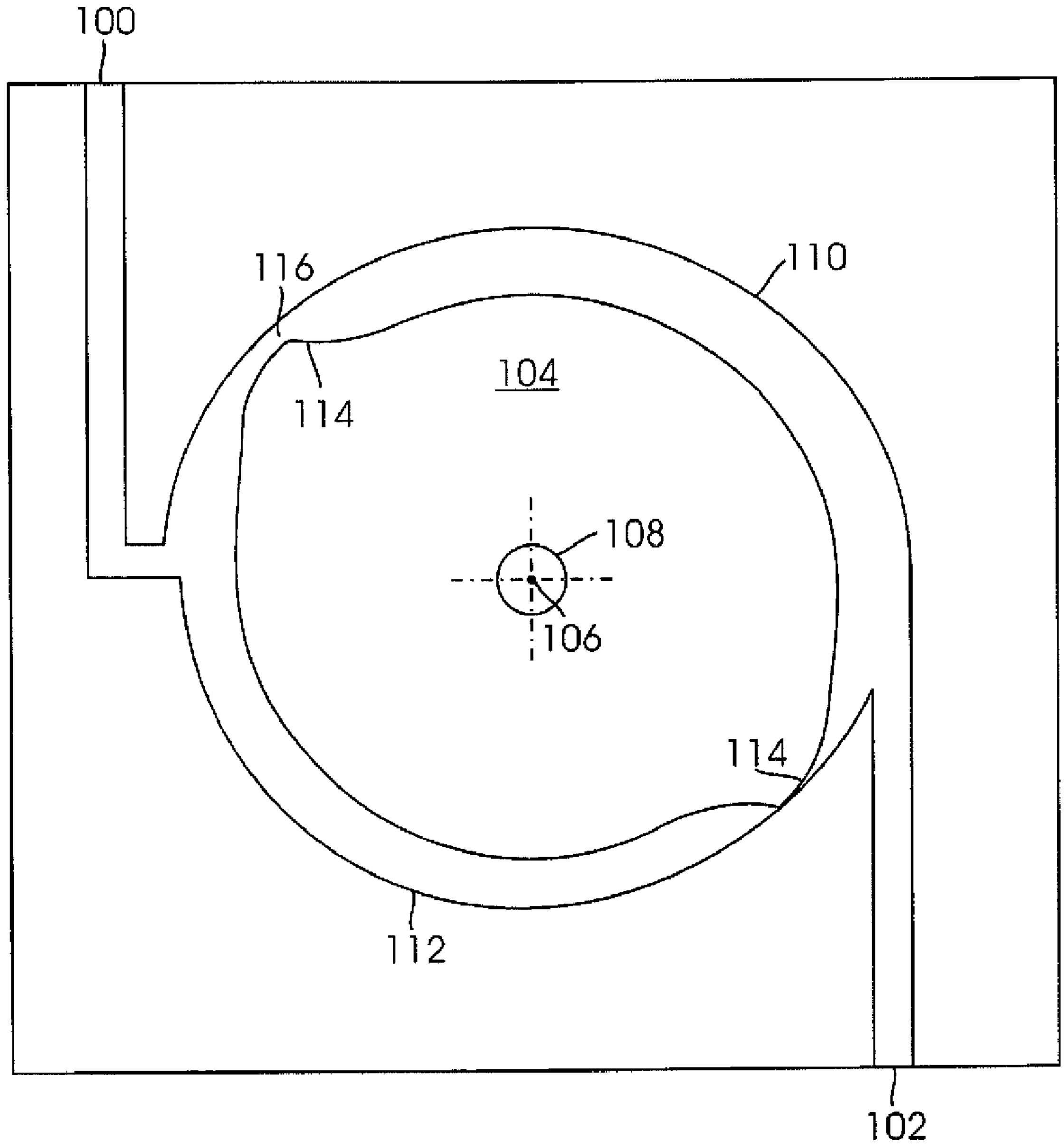


FIG. 1

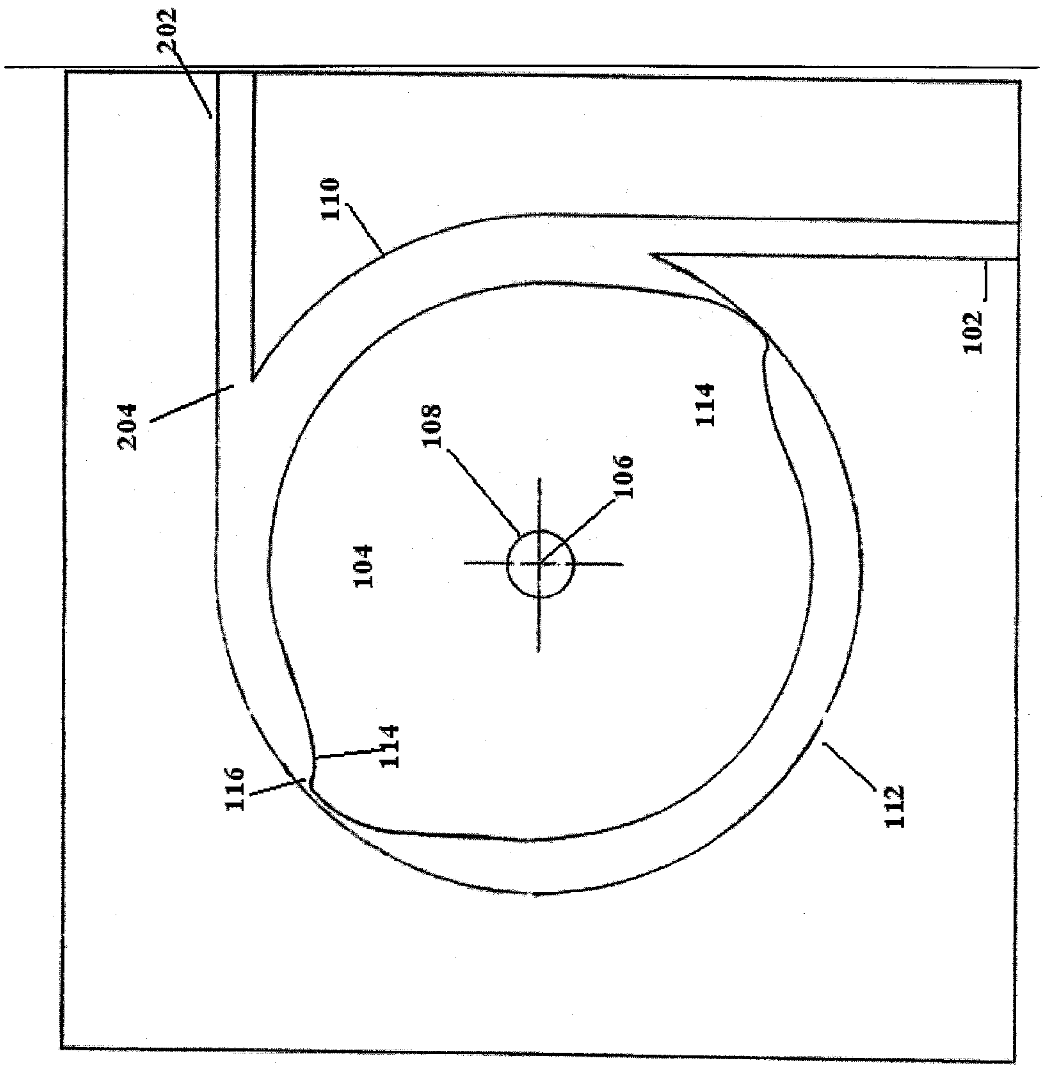


FIG. 2

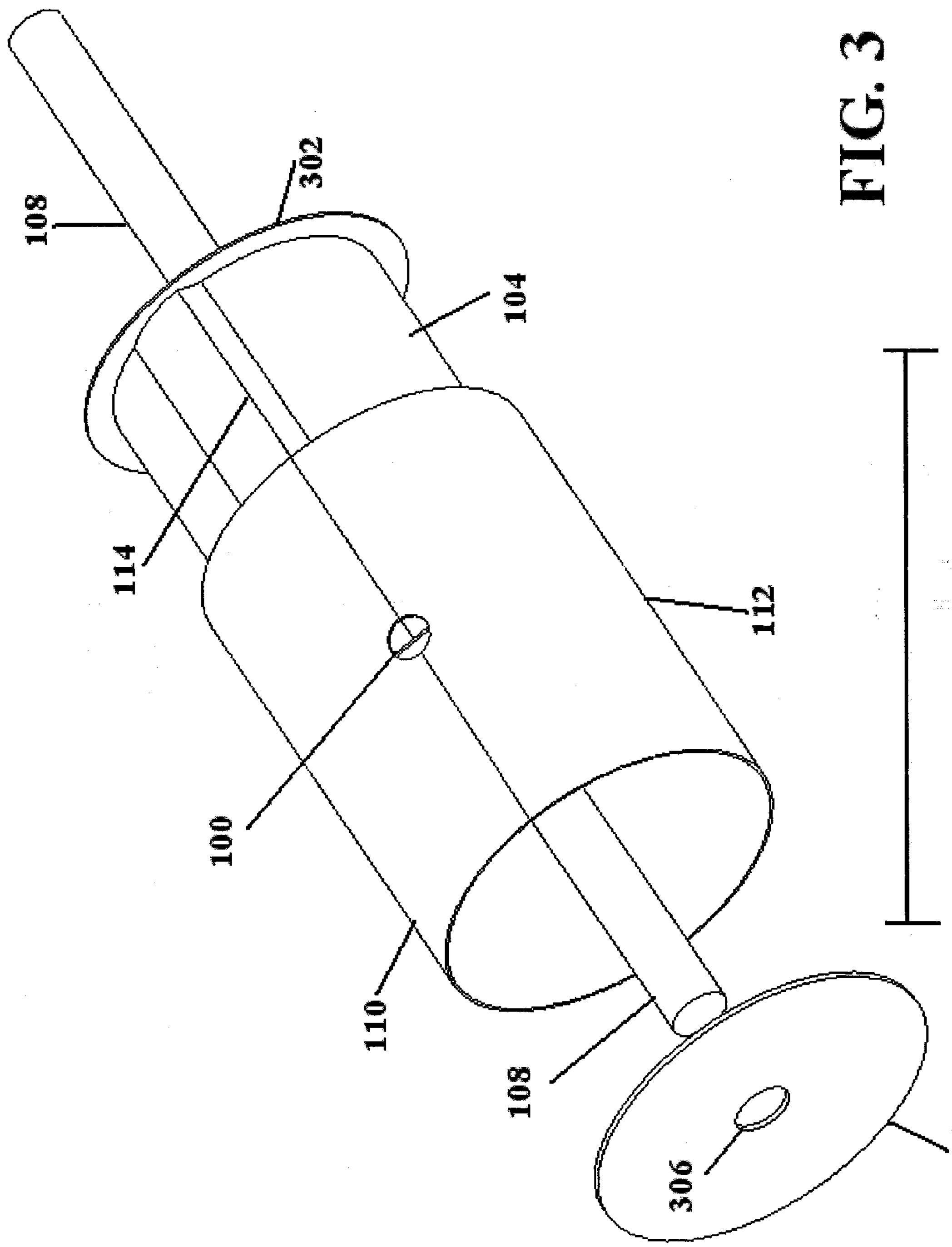


FIG. 3

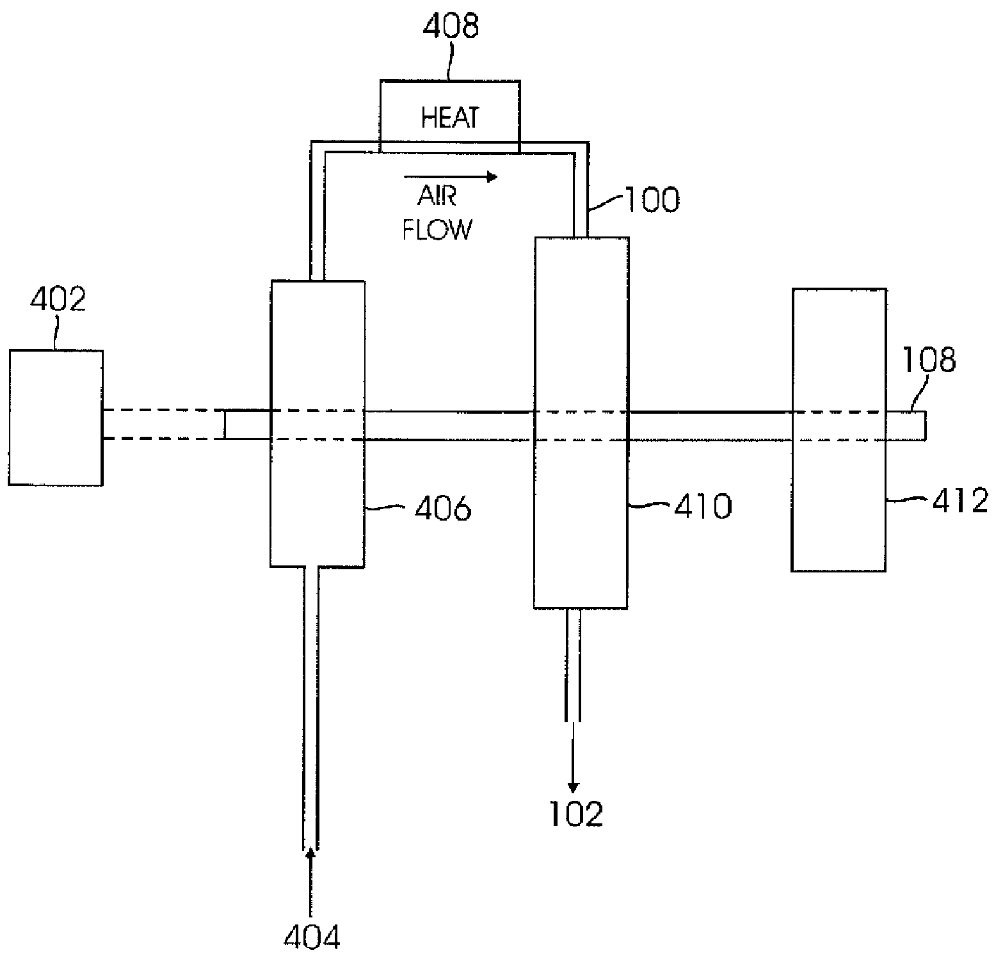


FIG. 4

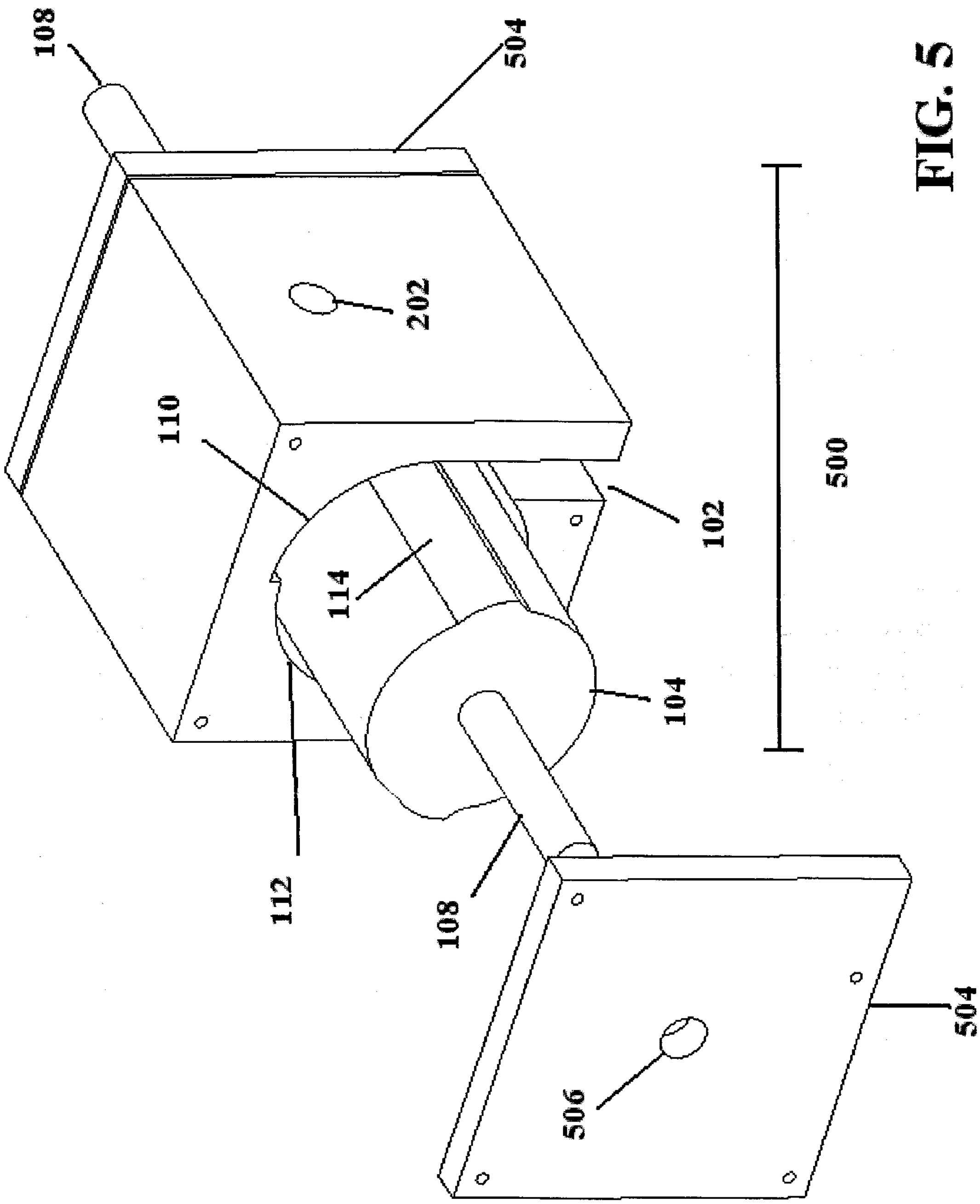


FIG. 5

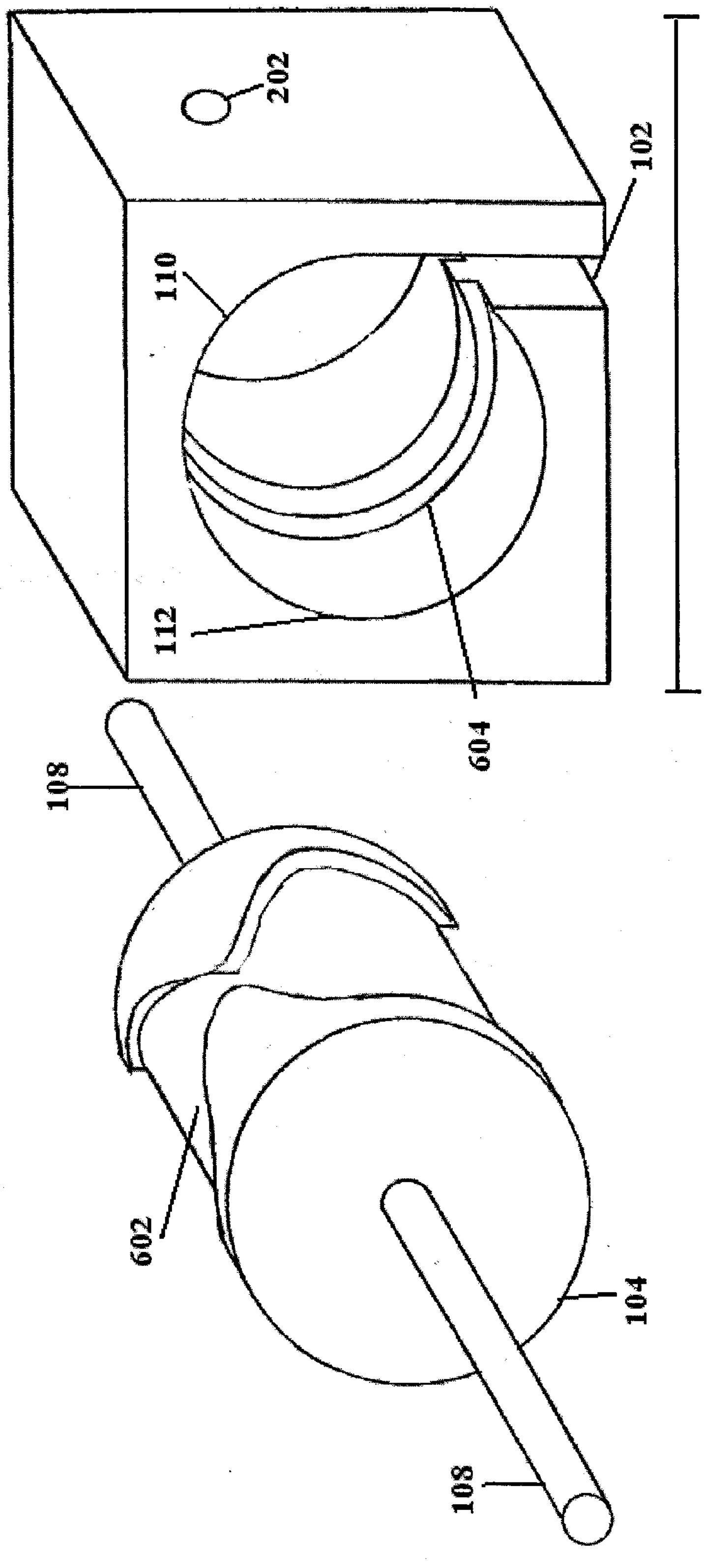


FIG. 6

APPARATUS AND METHOD FOR GENERATING ROTATIONAL TORQUE UTILIZING A HIGH VELOCITY JET

BACKGROUND OF THE INVENTION

[0001] 1. Technical Field of the Invention

[0002] The invention relates in general to an apparatus for generating rotational torque within a cylindrical housing a rotor. More specifically, creating a converging-diverging nozzle on the outer surface of the rotor placed in an inner surface of a cylindrical housing by using specifically designed protrusions on the rotor itself to create a high velocity jet.

[0003] 2. Description of the Related Art

[0004] Throughout history, men have always struggled to generate power and to find an effective way to achieve such a goal. As our society develops and expands, more and more of our lives depend on the continuous delivery of power. One specific type of power is rotational torque, which is the turning power of something that is rotating.

[0005] Electricity is one of the major power sources that we depend on in our society today, and very often electricity is generated from a mechanical energy source such as torque, allowing conversion of kinetic energy stored in rotational torque to be converted to electrical energy.

[0006] Rotational torque has always been one of the basic methods of power generation and it can come in numerous ways and forms. Many modern day devices such as windmills and dams all utilize turbines that spin around a central axis to generate torque. However, these methods of generating energy are complex and expensive, and most importantly can often be inefficient.

[0007] Jet engines, on the other hand offer a very efficient method of generating power by energy through compression of the fluid. A high velocity jet stream is created as a result of the jet engines, generation a high amount of linear thrust. Linear thrust, although powerful, is not efficient in generating usable energy. Consequently, despite its immense efficiency, jet engines fall short in generating usable energy.

[0008] Several attempts have been made to combine the efficient power of high velocity jet stream with that of a turbine to create usable rotational torque energy. One of the many examples is the use the high velocity thrust of a jet engine aimed at a turbine blade to generate rotational torque. This method can be seen in jet airplanes utilizing the exhaust from the combustion to turn a turbine that is connected to a compressor at the beginning of the jet engine. However, this method is still flawed because it still utilizes a traditional turbine, consequently still suffers from the lack of efficiency.

[0009] Due to the foregoing, it can be seen that there is a need in the art for a simple, effective, efficient, and cost effective way of utilizing jet engine power to create a usable energy in a form such as rotational torque rather than just linear thrust.

[0010] Consequently, it would be an advance in the art to provide an apparatus and method that can take advantages of all the benefits of a jet engine without the inefficient drawbacks of a turbine that is perpendicular to the direction of the linear thrust.

SUMMARY OF THE INVENTION

[0011] To minimize the limitations found in the prior art, and to minimize other limitations that will be apparent upon the reading of the specifications, the present invention provides an apparatus and a method generating rotational torque that will allow the utilization of high velocity jet stream along the circumference of a rotating rotor. When a high velocity jet stream is created along the circumference of a rotating rotor, rotational torque can be generated in a simple, elegant manner that can eliminate the complex machinery often associated with traditional turbine machines used to generate rotational torque.

[0012] An apparatus in accordance with the present invention for generating rotational torque comprises of a hollow cylindrical housing, and inlet attached to said hollow cylindrical housing for allowing a flow of fluid into said hollow cylindrical housing, an outlet attached to said hollow cylindrical housing for allowing said flow of fluid out of said hollow cylindrical housing, and a rotor enclosed within said hollow cylindrical housing; wherein said rotor creates a jet stream within said cylindrical housing to accelerate said flow of fluid within said hollow cylindrical housing to accelerate a rotation of said rotor.

[0013] An additional apparatus in accordance with the present invention for generating rotational torque comprises of a hollow cylindrical housing, an inlet attached to said hollow cylindrical housing for allowing a fluid into said hollow cylindrical housing, an outlet attached to said hollow cylindrical housing for allowing said flow of fluid out of said hollow cylindrical housing, and a rotor enclosed within said cylindrical housing; wherein said rotor is shaped with a plurality of diametrically opposed protrusions to generate resistance to said flow of fluid creating a jet stream within said hollow cylindrical housing.

[0014] A method in accordance with the present invention for generating rotation torque comprises of supplying a flow of fluid into a hollow cylindrical housing through an inlet; wherein said flow of fluid flows along an internal circumference of said hollow cylindrical housing, creating a jet stream within said cylindrical housing to accelerate said flow of fluid within said hollow cylindrical housing, spinning a rotor about the center of said hollow cylindrical housing to generate said rotational torque, and discharging said flow of fluid out of said hollow cylindrical housing through an outlet.

[0015] It is an objective of the present invention to generate rotational torque in a simple, efficient, inexpensive, and elegantly manner that is difficult to achieve during traditional turbine technology.

[0016] It is another objective of the present invention to generate rotational torque using a high velocity jet stream created within a cylindrical housing to accelerate the flow of said fluid.

[0017] It is yet another objective of the present invention to allow the flow of fluid along the internal circumference of said housing to create the high velocity jet stream instead of having the jet stream flowing parallel to the axis of rotation of the fanblade.

[0018] It is yet another objective of the present invention to utilize the high kinetic energy of the high velocity jet streams in an efficient manner to generate rotational torque.

[0019] It is yet another objective of the present invention to generate rotational torque without the complexities associated with turbines.

[0020] It is yet another objective of the present invention to generate rotational torque in a way that eliminates the need of traditional fanblade associated with turbine.

[0021] It is yet another objective of the present invention to create the high velocity jet stream using a converging-diverging nozzle.

[0022] It is yet another objective of the present invention utilizing a plurality protrusions placed along the outer circumference of said rotor on the rotor to generate force required to create torque using the high velocity jet stream.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] Elements in the figures have not necessarily been drawn to scale in order to enhance their clarity and improve understanding of these various elements and embodiments of the invention. Furthermore, elements that are known to be common and well understood to those in the industry are not depicted in order to provide a clear view of the various embodiments of the invention, thus the drawings are generalized in form in the interest of clarity and conciseness.

[0024] FIG. **1** is a sectional view of the current invention explaining the high velocity jet effect.

[0025] FIG. **2** is an additional sectional view of the current invention explaining the high velocity jet with an alternate inlet position.

[0026] FIG. **3** is an isometric exploded view of the current invention

[0027] FIG. **4** is a block diagram of one embodiment wherein the current invention can be used to generate electricity

DETAILED DESCRIPTION OF THE DRAWINGS

[0028] In the following discussion that addresses a number of embodiments and applications of the present invention, reference is made to the accompanying drawings that form a part hereof, and in which is shown by way of illustration specific embodiments in which the invention may be practiced. It is to be understood that other embodiments may be utilized and changes may be made without departing from the scope of the present invention.

[0029] FIG. **1** is a sectional view of the current invention to show the inner workings of a converging-diverging nozzle creating a high velocity jet stream to generate rotational torque. FIG. **1** shows an inlet **100** and an outlet **102** to facilitate the flow of a fluid. Rotor **104** spins about a central axis of rotation **106** through a shaft **108**. The hollow cylindrical housing is comprised of a first chord section **110** with an increased radius on one side and a second chord section **112** with a decreased radius on the other side. Finally, the current invention utilizes a set of diametrically opposed protrusions **114**, one of which, working with the first chord section creates a converging-diverging nozzle **116**.

[0030] Inlet **100** here in this case is connected to the hollow cylindrical housing at the junction between first chord section **110** with an increased radius and second chord section **112** with a decreased radius to provide a flow of fluid into the system. However, inlet **100** can be placed along any section of the hollow cylindrical housing to achieve the same effect without departing from the scope of the present invention.

[0031] In an exemplary embodiment, compressed air is used at inlet **100** to supply the fluid necessary for the operation of the current invention. However, numerous other fluids such as water, gas, or any other fluid may be used for the operation of the current invention without departing from the scope of the present invention.

[0032] In another exemplary embodiment, hot compressed air can be used at inlet **100**, as the converging-diverging nozzle **116** can also be used to convert thermal energy stored in the fluid in heat into additional rotational torque. This heat can come from any source such as a combustion chamber, heating element, or any other source capable of raising the temperature of the fluid without departing from the scope of the present invention. However, inlet **100** can also receive regular compressed fluid that is not heated and still create the desired high velocity jet stream without departing from the scope of the present invention.

[0033] Outlet **102** here in the current exemplary embodiment is connected to the hollow cylindrical housing at the other junction between first chord section **110** with an increased radius and second chord section **112** with a decreased radius to provide a flow of fluid out of the system. In another word, outlet **102** is placed on diametrically opposite side of inlet **100**. Outlet **102**, like inlet **100**, can also be placed along any section of the hollow cylindrical housing to achieve the same effect without departing from the scope of the present invention. Outlet **102** in the current embodiment is shown as a straight circular hole; however, outlet **102** can also be in other geometry such as an angled expansion without departing from the scope of the present invention.

[0034] Rotor **104** in the current embodiment spins about the central axis of rotation **106**, after the converging-diverging nozzle **116** generates enough thrust to push the rotation of rotor **104**. The rotation of rotor **104** spins shaft **108** which can be connected to numerous apparatuses that can take advantage of the energy generated. (see FIG. **4**) Rotor **104** generally has an outer diameter that is smaller than the inner diameter of the hollow cylindrical housing to allow the flow of air along the circumference of rotor **104**.

[0035] Rotor **104**, in the current embodiment, is cylindrical in shape with diametrically opposed protrusions **114** along the length of the cylinder to provide the requisite resistance to the flow of fluid, which flows along the circumference of rotor **104** itself. However, rotor **104** can be rectangular, octagonal, hexagonal, or any polygonal shape capable of providing a surface for the flow of fluid without departing from the scope of the present invention.

[0036] Rotor **104**, as seen in the current embodiment, can be made out of paper cardboard that is sufficient to stand the pressure of the fluid into the system. However, rotor **104** can be made out of aluminum, steel, carbon fiber, composites, or any other material capable of withstanding the pressure of the fluid into the system without deforming without departing from the scope of the present invention.

[0037] Central axis of rotation **106**, here in the current embodiment serves as the center of both rotor **104** and hollow cylindrical housing; however, central axis of rotation **106** can be off-centered to increase or decrease the converging-diverging nozzle effect without departing from the scope of the present invention.

[0038] Shaft **108** in the current embodiment is attached to rotor **104**, and spins along with rotor **104** as rotor **104** is driven by the high velocity jet stream within the hollow cylindrical housing. Shaft **108** extends longitudinally beyond the ends of hollow cylindrical housing to allow attachment to another apparatus to utilize such rotational torque energy.

[0039] In the current exemplary embodiment, the rotational torque generated by shaft **108** can be used to generate electricity, as electricity is the most common source of energy needed. Rotational torque generated by shaft **108**, can also be used to generate other sources of energy such as thermal energy and magnetic energy.

[0040] Shaft **108** in the current embodiment is made out of a wooden material for its structural rigidity and light weight characteristics; however, shaft **108** can be made out of steel, aluminum, copper, or any other material capable of providing the requisite structural rigidity without departing from the scope of the present invention. Moreover, although shaft **108** spins most effectively in a cylindrical shape, shaft **108** can be made out of numerous other shapes such as a rectangle, octagon, hexagon, or any other polygonal shape without departing from the scope of the present invention.

[0041] First chord section **110** in the current invention has an increased radius to allow a gap to be formed between the first chord section **110** and the diametrically opposed protrusions **114** to create a converging-diverging nozzle **116** that restrict the flow of fluid within that area. Such a restriction will help create a high velocity jet stream to drive the rotation of the rotor **104** and spin shaft **108** by pushing the accelerated flow towards the other diametrically opposed protrusion **114** in contact with second chord section **112** with a decreased radius.

[0042] Second chord section **112** in the current invention, as mentioned above, has a decreased radius to eliminate the gap between second chord section **112** and the diametrically opposed protrusions **114**. This elimination of the gap impedes the high velocity jet stream flow of fluid, which causes the rotor **104** to spin as the high velocity jet stream pushes against the diametrically opposed protrusions **114**.

[0043] First chord section **110** covers about half of the circumference of the hollow cylindrical housing, with second chord section **112** with a decreased radius covering the other half. In the current embodiment, first chord section **110** and second chord section **112** are divided at inlet **100** and outlet **102**; however, first chord section **110** and second chord section **112** can divide at any two point along the circumference of the hollow cylindrical housing without departing from the scope of the present invention.

[0044] Diametrically opposed protrusions **114** are placed at opposite ends of rotor **104** to create a converging-diverging nozzle **116** when rotating past first chord section **110** with an increased radius and impedes the flow of fluid when rotating past second chord section **112** with a decreased radius. In the current exemplary embodiment, rotor **104** contain only two diametrically opposed protrusions **114** to facilitate the high velocity jet stream; however, rotor **104** can contain three equally spaced protrusions, four equally spaced protrusions, or any number of protrusions without departing from the scope of the present invention.

[0045] Diametrically opposed protrusions **114**, in the current embodiment are placed at diametrically opposite side of the other protrusion to facilitate the most effective high velocity jet stream; however, the diametrically opposed protrusions **114** can technically be placed in any location along the outer circumference of rotor **104** without departing from the scope of the current invention.

[0046] In the current exemplary embodiment, diametrically opposed protrusions **114** are made out of the same material as rotor **104** as a single unitary unit. However, diametrically opposed protrusions **114** can be made out of a different material that is capable of forming a converging-diverging nozzle **116** along the first chord section **110** and capable of impeding the flow of air along second chord section **112** without departing from the scope of the present invention. Additionally, diametrically opposed protrusions can also be a separate attachment entity to achieve the same goal instead of being a unitary piece with rotor **104** without departing from the scope of the present invention.

[0047] Converging-diverging nozzle **116** is created by the gap generated between diametrically opposed protrusions **114** and first chord section **110** with an increased radius. This gap does not exist between diametrically opposed protrusions **114** and second chord section **112** because of the decreased radius at second chord section **112**. This arrangement, however, can be reversed with the converging-diverging nozzle **116** formed at a second chord section **112** with an increased radius while decreasing the radius of first chord section **110** to achieve the same effect without departing from the scope of the present invention.

[0048] Although it is preferable to have a symmetrical rotor with identical diametrically opposed protrusions **114** while adjusting the radius of the chord sections **110** and **112** to achieve the converging-diverging nozzle **116**; the same converging-diverging nozzle **116** can be created by keeping the radius of the chord sections **110** and **112** constant while varying the size and location of diametrically opposed protrusions **114** without departing from the scope of the present invention.

[0049] FIG. **2** shows an alternative embodiment of the current invention wherein the inlet **202** is placed at a different location along the circumference of the hollow cylindrical housing. Additionally, inlet nozzle **204** is also shown in this alternative embodiment to generate the high velocity jet stream required for the operation of the system instead of at converging diverging nozzle **106** as in the previous embodiment. Inlet nozzle **204** in the current embodiment is a straight circular hole, however, inlet nozzle **204** can be in numerous other geometries such as a conical expansion without departing from the scope of the present invention.

[0050] Inlet **202** here, in the current embodiment is placed near outlet **102** instead of being placed at a location furthest away from outlet **102**, as shown previously with inlet **100**. With inlet **202**, the flow of fluid passes into hollow cylindrical housing, and reaches protrusion **114**, wherein it encounters a resistance causing the flow of fluid back towards outlet **102**. However, because of the resistance created at protrusion **114**, the reactionary force from the resistance causes rotor **104** to spin to generate the desired rotational torque.

[0051] Inlet nozzle **204** in this alternative embodiment creates the high velocity jet in the system to be introduced into hollow cylindrical cylinder. This inlet nozzle **204** is used to create a high velocity jet by utilizing a converging-diverging effect. As shown in FIG. **2**, the fluid entering the system suddenly diverging at inlet nozzle **204** to accelerate the flow of air into hollow cylindrical housing.

[0052] Although in this preferred embodiment, inlet **202** is placed ninety degrees away from outlet **102** to achieve maximum efficiency, inlet **202** can be placed anywhere along first chord section **110** or second chord section **112** without departing from the scope of the present invention.

[0053] Turning now to FIG. **3**, it shows a three dimensional view of the current invention showing the connection between rotor **104** and hollow cylindrical housing **302**. This figure gives a better view of the current invention, explaining how the components fit together. One additional component shown in FIG. **3** is the flap **302** attached to each end of rotor **104**, and a hollow cylindrical housing **300** containing end plate **304**.

[0054] Hollow cylindrical housing **300** in the current invention creates a housing to support rotor **104**, and provide an area of rotation for rotor **104**. As shown in the current preferred embodiment, hollow cylindrical housing **300** consists of a first chord section **110** with an increased radius and a second chord section **112** with a decreased radius as shown above in FIG. **1** and FIG. **2** to facilitate the high velocity jet stream effect.

[0055] In the current exemplary embodiment hollow cylindrical housing **300** is made out of a metal type material for its structural rigidity in maintaining a rotational circumference for the flow of fluid into the system. However, hollow cylindrical housing **300** can be made out of cardboard, wood, aluminum, or any other type of material capable of providing the requisite structural rigidity without departing from the scope of the present invention.

[0056] Rotor **104** slides in and out of hollow cylindrical housing **300** to complete the current invention to generate rotational torque energy. Flap **302** in the current invention is used to serve as a rotational guide for rotor **104** enclosed within the hollow cylindrical housing **300**. Flap **302** are attached to each end of rotor **104**, and serve to provide some barrier for enclosing the flow of air within hollow cylindrical housing **300**. Additionally, flap **302** also serves as a rotational stabilizer to guide rotor **104** when it spins within cylindrical housing **300**. Flap **302**, although helpful in providing stability through operation, is not necessary to the operation of the current invention, and could be eliminated without departing from the scope of the present invention.

[0057] End plate **304** serves as an essential element of the current invention in creating the necessary seal for hollow cylindrical housing **300** by being connected at both open ends of hollow cylindrical housing **300**. End plate **304** is shown in the current embodiment without a center hole, however, a center hole **306** is drilled to accommodate shaft **108** without departing from the scope of the current invention. Moreover, in the current exemplary embodiment, an end plate **304** is required at both openings of hollow cylindrical housing **300**, although only one is shown in FIG. **3** for demonstrative purposes.

[0058] End plate **304** in the current embodiment is made out of the same metallic material as hollow cylindrical housing **300**, and is removably attached to hollow cylindrical housing to form the requisite seal indicated above. However, end plate **304** can be made out of copper, aluminum, composite or any other material capable of forming a seal with hollow cylindrical housing **300** without departing from the scope of the present invention.

[0059] FIG. **4** shows a system diagram of one embodiment of the current invention wherein the current invention could be used to generate electricity using a generator. FIG. **4** shows the current invention of a jet motor **410** displaced between inlet **100** and outlet **102**. Additionally, a starter **402** is added to the system to start the compressor **406** to allow compressed air to be introduced into the system from compressor inlet **404**. A heater **408** is also added to the system in this current embodiment to generate additional energy to be used in the jet motor **410**. Finally, a generator **412** is attached to shaft **108** of the jet motor **410** to generate electrical energy.

[0060] Starter **402** in this current exemplary embodiment is used to start off the compressor **406** during the beginning of the operation cycle. Once the cycle has been started, the starter **402** is no longer needed, as shaft **108** connected to jet motor **410** is also connected to the compressor **406**, of which some of the rotational torque generated can be used to drive compressor **406**.

[0061] Starter **402** in the current embodiment is connected directly to shaft **108**, however, starter **406** can be connected to shaft **108** using a system of gears and pulleys without departing from the scope of the present invention. Although starter **406** is important to the operation of the current invention, it can be eliminated from the system without departing from the scope of the current invention.

[0062] Compressor inlet **404** in the current embodiment is placed before compressor **406**, which draws in ambient air from compressor inlet **404** in order to compress the air passing through to jet motor **410**.

[0063] Compressor **406** in the current embodiment can utilize any numerous methods of compression, including but not limited to turbines and venture valves, or any other device capable of compression air without departing from the scope of the present invention. In the current exemplary embodiment, compressor **406** is connected directly to shaft **108**, however, compressor **406** can be connected to shaft **108** using a system of gears and pulleys without departing from the scope of the present invention.

[0064] Heater **408** in this exemplary embodiment raises the temperature of the air before it enters the jet motor **410** in order to create more potential energy stored in the heat to be converted to rotational torque within jet motor **410**. Heater **408**, in the current exemplary embodiment can be a combustion chamber; however, heater **408** can also be a electrical heater, a gas heater, or any other device capable of generating heat without departing from the scope of the present invention.

[0065] Heater **408** in the system increases the efficiency of the system by generating more rotational energy than the energy that is required to generate the heat. Although heater **408** is existent in this preferred embodiment of the application of the current invention, heater **408** can be eliminated from the current system without departing from the scope of the present invention.

[0066] Jet motor **410** in the current exemplary embodiment is the essence of the current invention, and uses the jet motor effect to create a jet stream within the hollow cylindrical housing **300** to drive shaft **108**, which generates rotational torque. This rotational torque can be used to drive compressor **406** as well as generator **412** to create the necessary electricity.

[0067] Generator **412** in the current exemplary embodiment utilizes the rotational torque generated by jet motor **410** transferred through shaft **108**. This rotational energy can be used by generator **412** to generate electricity. Generator **412** converts kinetic energy to electrical energy using electromagnetic induction. The rotational torque generated by shaft **108** is not limited to be used by a generator **412** to generate electricity, but can also be used to drive other machinery that utilizes rotational torque such as a drive train without departing from the scope of the present invention.

[0068] In the current exemplary embodiment, generator **412** is connected directly to shaft **108**, however, generator **412** can be connected to shaft **108** using a system of gears and pulleys without departing from the scope of the present invention.

[0069] FIG. 5 shows an alternative embodiment of the current invention wherein hollow cylindrical housing is replaced with a hollow rectangular housing **500**, requiring rectangular end plate **504** to be attached to the ends, each having a center hole **506** to accommodate shaft **118**.

[0070] FIG. **5** in this angle allows a better view of the difference in diameter between first chord section **110** with an increased radius to allow the formation of a converging-diverging nozzle **116** as shown in previous figures. Additionally, second chord section **112** with a decreased radius is also shown in this current exemplary embodiment to eliminate the converging-diverging nozzle **116**, thus allowing rotation of rotor **104**.

[0071] As shown in the current exemplary embodiment in FIG. **5**, inlet **202** is used, as shown previously in the two dimensional FIG. **2** indicating an alternative position for the inlet **202** to enter into the hollow rectangular housing **500**. Here, inlet **202** is shown to be placed near outlet **102** instead of at the opposite end like inlet **100** shown in FIG. **1**. As explained above, in this exemplary embodiment, the flow of fluid passes into hollow rectangular housing **500** reaches protrusion **114**, wherein it encounters a resistance causing the flow of fluid back towards outlet **102**. However, because of the resistance created at protrusion **114**, the reactionary force from the resistance causes rotor **104** to spin to generate the desired rotational torque.

[0072] Hollow rectangular housing **500** in the current exemplary embodiment is similar to hollow cylindrical housing **300**, in that it provides a circular internal opening to enclose rotor **104**. Hollow rectangular housing **500** can be rectangular, or circular, or any other shape that is capable of creating a circular internal opening to accommodate said rotor **104** without departing from the scope of the present invention.

[0073] End plates **504** in the current exemplary embodiment serves the same purpose as end plates **304** in FIG. **3**, but differ in shape to accommodate the change the hollow rectangular housing **500**. End plates **504** serves to create a seal to the system, thus preventing air to escape from within said hollow rectangular housing **500**.

[0074] Center hole **506** in the current exemplary embodiment serves the same purpose as center hole **306** in allowing shaft **108** to extrude out of the system in order to transfer the rotational torque to an additional apparatus such as compressor **406** or a generator **412** as shown in FIG. **4**.

[0075] FIG. **6** shows an alternative embodiment of the current invention wherein channels **602** are used to generate the converging diverging nozzle **116** effect, while introducing prominences **604** along second chord section **112** to create the requisite seal within hollow rectangular housing **500**.

[0076] Channels **602** in the current alternative embodiment replace protrusions **114** to create a high velocity jet. Channels **602** still create a diverging-converging nozzle. However, with the introduction of channel **602**, the first chord section **110** and second chord section **112** no longer needs to have different diameters, allowing a uniform hollow housing for rotor **104**.

[0077] In the current alternative embodiment, the channels **602** vary in size along rotor **104** to allow the generation of the converging diverging nozzle **116** is would be generated if protrusions **114** were used. The shown carving although uses gradual radial changes to create the high velocity jet, can also take the shape of numerous other designs without departing from the scope of the present invention so long as it is capable of creating said high velocity jet.

[0078] Prominence **604** here in the current embodiment is located along second chord section **112** to create an obstruction to the flow of air past second chord section **112**. The prominences **604** work in conjunction to fit within the channels **602** as channels **602** pass through a specific section of the second chord section **112**.

[0079] Numerous characteristics and advantages of the invention have been set forth in the foregoing description, together with details of the structure and function of the invention, and the novel features thereof are pointed out in appended claims. The disclosure, however, is illustrative only, and changes may be made in detail, especially, in matters of shape, size and arrangement of parts, materials and the combination thereof within the principle of the invention, to the full extend indicated by the broad general meaning of the terms in which the appended claims are expressed.

What is claimed is:

1. An apparatus for generating a rotational torque comprising:
- a hollow housing;
- an inlet attached to said hollow housing for allowing a flow of fluid into said hollow housing;
- an outlet attached to said hollow housing for allowing said flow of fluid out of said hollow housing; and
- a rotor enclosed within said hollow housing;
- wherein said rotor creates a jet stream within said cylindrical housing to accelerate said flow of fluid within said hollow housing to rotate said rotor.

2. The apparatus of claim **1**, wherein said jet stream flows along an internal circumference of said hollow housing.

3. The apparatus of claim **2**, wherein said rotor is shaped with a plurality protrusions placed along the outer circumference of said rotor to generate a resistance to said flow of fluid creating said jet stream within said hollow housing.

4. The apparatus of claim **3**, wherein said hollow housing contains a first chord section with an increased radius to create a gap between said plurality protrusions placed along the outer circumference of said rotor and the inner diameter of said hollow housing to create said jet stream.

5. The apparatus of claim **4**, wherein said gap between said plurality of cylindrically opposed protrusions and the inner diameter of said hollow housing creates a converging-diverging nozzle accelerating a velocity of said jet stream.

6. The apparatus of claim **5**, wherein said plurality protrusions placed along the outer circumference of said rotor come in contact with a second chord section with a decreased radius to eliminate said gap between said plurality protrusions placed along the outer circumference of said rotor and the inner diameter of said hollow housing.

7. The apparatus of claim **6**, wherein said plurality of protrusions placed along the outer circumference of said rotor are placed in a diametrically opposite location.

8. The apparatus of claim **7**, wherein said flow of fluid is heated to increase said rotation of said rotor by increasing said velocity of said jet stream.

9. The apparatus of claim **8**, wherein said inlet and said outlet are positioned at diametrically opposite ends of said hollow housing.

10. The apparatus of claim **8**, wherein said inlet and said outlet are positioned at the same end of said hollow housing.

11. The apparatus of claim **2**, wherein said rotor has a channel along the outer circumference of said rotor to alter said flow of fluid, creating said jet stream within said hollow housing.

12. The apparatus of claim **11**, wherein said flow of fluid across said channel creates a converging-diverging nozzle accelerating a velocity of said jet stream.

13. The apparatus of claim **12**, wherein a prominence is placed along the inner surfaces of said hollow housing to eliminate said gap at said second chord section.

14. The apparatus of claim **13**, wherein said channel is placed along the outer circumference of said rotor are placed in a diametrically opposite location.

15. A method for generating a rotational torque comprising:

supplying a flow of fluid into a hollow housing through an inlet;

wherein said flow of fluid flows along an internal circumference of said hollow housing;

creating a jet stream within said cylindrical housing to accelerate said flow of fluid within said hollow housing,

spinning a rotor about the center of said hollow housing to generate said rotational torque;

discharging said flow of fluid out of said hollow housing through an outlet.

16. The method of claim **15**, wherein said rotor is shaped with a plurality protrusions placed along the outer circumference of said rotor to generate a resistance to said flow of fluid creating said jet stream within said hollow housing.

17. The method of claim **16**, further comprising:

creating a gap at a first cord section of said hollow housing between said plurality protrusions placed along the outer circumference of said rotor and the inner diameter of said hollow housing to create said jet stream by increasing a radius of said hollow housing.

18. The method of claim **17**, further comprising:

creating a converging-diverging nozzle at said gap between said plurality protrusions placed along the outer circumference of said rotor and the inner diameter of said hollow housing that accelerates a velocity of said jet stream.

19. The method of claim **18**, further comprising:

eliminating said gap at a second cord section between said plurality protrusions placed along the outer circumference of said rotor and the inner diameter of said hollow housing by decreasing said radius of said hollow housing.

20. The method of claim **19** wherein said plurality of protrusions placed along the outer circumference of said rotor are placed in a diametrically opposite location.

21. The method of claim **20**, further comprising:

heating said flow of fluid into said inlet to increase said rotation of said rotor by increasing said velocity of jet stream.

22. The method of claim **21**, wherein said inlet and said outlet are positioned at opposite ends of said hollow housing.

23. The method of claim **21**, wherein said inlet and said outlet are positioned at the same end of said hollow housing.

24. The method of claim **15**, wherein said rotor is shaped with channels along the outer circumference of said rotor to alter said flow of fluid, creating said jet stream within said hollow housing.

25. The apparatus of claim **24**, wherein said flow of fluid across said channel creates a converging-diverging nozzle accelerating a velocity of said jet stream.

26. The apparatus of claim **25**, wherein a prominence is placed along the inner surfaces of said hollow housing to eliminate said gap at said second chord section.

27. The apparatus of claim **26**, wherein said channel is placed along the outer circumference of said rotor are placed in a diametrically opposite location.

28. An apparatus for generating rotational torque comprising:

a hollow housing;

an inlet attached to said hollow housing for allowing a flow of fluid into said hollow housing;

an outlet attached to said hollow housing for allowing said flow of fluid out of said hollow housing; and

a rotor enclosed within said cylindrical housing;

wherein said rotor is shaped with a plurality protrusions placed along the outer circumference of said rotor to generate a resistance to said flow of fluid creating a jet stream within said hollow housing.

29. The apparatus of claim **28**, wherein said jet stream within said hollow housing is created by a converging-diverging nozzle accelerating a velocity of said jet stream.

30. The apparatus of claim **29**, wherein said converging-diverging nozzle is a gap comprising:

a plurality protrusions placed along the outer circumference of said rotor on said rotor, and

a first chord section with an increased radius on said hollow housing.

31. The apparatus of claim **30**, wherein said jet stream flows along an internal circumference of said hollow housing.

32. The apparatus of claim **31**, wherein said plurality of protrusions placed along the outer circumference of said rotor are placed in a diametrically opposite location.

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