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Title of the Invention

Electro-kinetic Combination Drive (ECD)

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Electro-kinetic Combination Drive (ECD)

Understanding the Field of the Invention

Have you ever watched a visible force of unbelievable energy such as a lightning storm and thought what if we could only harvest energy from such an event? Well, this invention harvests energy from the very atomic forces that create such unbelievable events as lightning and to comprehend how together we must go on a brief journey of understanding. The understanding that energy, along with matter, constitutes the basis of all phenomena that takes place in the universe.

We shall begin by discovering what things are made of. We will investigate the atom, the smallest unit of matter, as well as the fundamental particles that it is made up of. We will explore how and why things move, as well as the forces that are required to put things in motion. Along this journey, we will learn of ways to multiply forces and facilitate certain types of work that would otherwise be burdensome, or even outright impossible, for a single human being to perform. Together we will conclude our journey of understanding with an essential review of many types of energy sources currently available, along with their advantages and disadvantages.

Our Journey Now Begins

Democritus, a Greek philosopher born in the middle of the fifth century B.C., had a brilliant idea: it occurred to him that all things were made up of small indivisible particles, which he called atoms. Around the same time, other Greek philosophers decided that all things were the result of the combination of four basic elements: earth, air, water, and fire. Today, we know that atoms are divided and that the matter that surrounds us is a combination of many different natural elements. We continue to gain a deeper understanding of the structure of matter and the way in which atoms combine.

Matter

Anything that takes up space and has a certain Mass is considered to be matter. According to this definition, matter is something perceptible to human senses, without leaving out that which cannot be seen or touched, such as air or subatomic particles. It includes any physical entity in the universe that can be

measured. In addition, it has been known since Albert Einstein, a twentieth-century scientific icon, that matter and energy are interchangeable, as given by his famous equation E=MC2.

Atoms

In the classical definition (which considers anything that has mass to be matter) matter is composed of atoms and appears in three fundamental states of aggregation: solid, liquid and gas. Different types of matter possess different properties that make them useful for certain applications. For example, copper is a good conductor of current but plastics are not. For a long time, the atom was thought to be the elementary and indivisible particle of the universe, but it has now lost that label.

Today it is well known that atoms are made up of smaller particles, which in turn, can be subdivided into even smaller, more primordial particles. The atom, however, continues to be considered the smallest part of a chemical element that preserves the properties of that element. For example, a gold atom is the smallest particle that maintains the properties of gold. If a gold atom was divided, the resulting protons, neutrons, and electrons would not differ in any way from those that make up the atoms of, let's say yourself. These three types of particles (protons, neutrons, and electrons) differ from one another, in particular, by the type of electric charge they have. The first two (protons and neutrons) form the atomic nucleus. The nucleus is made up of protons (with a positive charge [+1]) and neutrons (with a neutral charge.) There are typically about the same number of protons as neutrons. Electrons orbit the nucleus, and their charge is negative (-). They are much smaller than protons and neutrons; about 1,840 electrons collectively would have the same mass as one proton.

The electrons orbit in two shells located at different distances from the nucleus. The first and closest shell accepts only up to two electrons. The second and outer shell accepts up to eight electrons. The forces that keep the electrons orbiting the nucleus are called electromagnetic. An electrically neutral atom would have as many orbiting -electrons as protons in its nucleus because the charges equalize. A charged (positively or negatively) atom is considered unstable. For an atom to be stable, it must have eight electrons in its outer valence shell. This is the case with noble gases, which are not very reactive with other atoms (the naturally occurring noble gases are Helium, Neon, Argon, Krypton, Xenon, and Radon.)

Atomic Bonds

When the number of valence shell electrons differs from eight, atoms try to obtain, give up, or share electrons with other atoms, in order for each to have eight valence electrons. In the process, they form bonds and therefore, create molecules with new properties.

An ionic bond is generated when electrons are transferred from one atom to another, which occurs in general between metals and non-metals. Table salt, the union of chlorine and sodium, is a good example. Sodium has one electron in its valence shell, unlike chlorine, which has seven. When sodium gives up its electron to chlorine, it is stabilized because its new Outermost shell will have eight electrons. However, it will remain positively charged. Chlorine, in exchange, obtains the electron it lacks to complete the eight in its valence shell and becomes negatively charged. The opposite charges attract and the union is sealed.

A covalent bond is when atoms join together but do not lose or gain electrons; instead, they share them. This is the case for carbon dioxide (CO2), water (H2O), and methane (CH4). Carbon dioxide, a gas we exhale, consists of one atom of carbon with four electrons in its valence shell and two atoms of oxygen, which each have six valence electrons. Thus, each atom of carbon shares two of its valence electrons with each atom of oxygen, and all three obtain the eight atoms for their outermost energy level.

A Metallic bond occurs between the metallic elements. Here, the electrons are not gained, lost, or shared; rather, they float freely in a kind of sea of electrons. This characteristic is what permits metals to be good conductors of electric current: electric current is nothing other than a current of electrons.

Manifestations of Energy: Force

We live in a world in motion and for there to be motion, there must be forces that generate a series of effects. Although the word force usually brings to mind a powerful locomotive or a weight lifter in the midst of a competition, to physicists this concept must be defined in terms of any interaction capable of moving an object at rest or changing the velocity or direction of an object already in motion. Understanding the concept of force and determining its nature and how it functions were great unsolved mysteries until the end of the seventeenth century when Isaac Newton wrote what is considered the first modern definition of this phenomenon.

Newton's Laws

Newton's first law states that an object remains at rest or in motion without changing state unless an outside force acts on it. Newton's second law states that upon applying a force, an object changes its state (from rest to motion, a change in direction or in speed) and that the change is related to the strength of the force. The third law states that for every action there is an equal and opposite reaction. Today we recognize a Newton as a unit to measure force. A Newton is equivalent to the force that when applied to a mass of 1 kilogram, experiences an acceleration of 1 meter per second per second (s 2).

Anatomy of a Push

A basic example of force acting on an object would be a cue stick striking a cue ball at rest, imparting a force that results in motion. The cue ball does the same thing with the other balls after colliding with them. In the game of pool, the forces are "contact forces," because contact is necessary in order for there to be any interaction between the object and the force. Magnetism and Gravity, on the other hand, can be defined as noncontact forces, or forces that act at a distance.

Combining and Balancing Forces

Forces can be combined and balanced to generate different effects. When balancing, the strongest forces prevail, although they are perturbed by the action of others. An arm wrestling tournament is a good example of balancing forces; the wrestler that applies the most force with his arm is the winner. And thanks to the combination of different forces, a sailboat can travel windward (that is, in the direction from which the wind is blowing.)

Fundamental Forces

Physicists, concerned with describing the basic forces of nature, discovered four fundamental interactions with matter that cannot be broken down into other simple ones; Gravity, Electromagnetic, Strong Nuclear Force and Weak Nuclear Force. Electromagnetic, Strong Nuclear Force and Weak Nuclear Force are all forces on an atomic or subatomic level. Electromagnetic is the force that links the electrons to the atomic nuclei and it is what gives structure to material. Strong Nuclear Force is what keeps the protons and neutrons together within the atomic nucleus. Weak Nuclear Force is a force that acts on a subatomic level-within the proton and neutrons and it is purely an attractive force.

Motion

From atoms to stars and planets, the entire universe is in a constant state of motion. However, it took thousands of years for humans to comprehend this phenomenon and postulate the first laws that explain it; which were born from the acute Observation of Isaac Newton. An object needs a force to change its motion. An object in motion follows a trajectory, which depends on the type of forces that act over it. When an object's velocity varies, we call this "acceleration." If the variation has a constant value, then the motion is "uniformly accelerated," or "uniformly decelerated" if the variation is negative. An object on the surface of the Earth would experience a force (resistance) that is produced by its contact with the air; this is called friction. This object's horizontal velocity would decrease from this resistance, as its vertical velocity increases from the Earth's gravitational force of attraction.

Friction

When two bodies come into contact, frictional forces are generated between them that act as resistance to the motion. Thanks to these forces, your shoes grip the floor, car brakes function, and we are able to grasp objects with our hands. Because friction turns the kinetic energy of bodies into heat, we can strike a match. Objects cannot change their state of rest or Motion by themselves; they require an outside force to do so. This property is termed "inertia." Therefore, in a vacuum (such as space) away from any masses, an object in motion would conserve its motion indefinitely.

Circular Motion

16.6 miles per second is the velocity at which the Earth travels through space relative to the Sun. However, thanks to inertia, we hardly notice it. This circular motion is easily observed in car wheels and in ceiling fans. An object on the surface of the circle is attracted to the center of the circle, which forces it to constantly change direction. This attractive force that pulls an object toward the center is called "centripetal force." An object in a circular motion also experiences a "centrifugal force" that, contrary to the centripetal force, gives the impression of propelling it outside the circle. However, in reality, this is not a force but inertia.

Machines

Simple machines are simple and ingenious, and they ease daily chores. They are plentiful in any Mechanical device that has mechanical components, and they

start with a basic premise: they must be capable of modifying forces by magnifying them, decreasing them, or changing their sense of direction. However, because of the law of conservation of energy, the energy input to a machine will be exactly equal to the output, although likely distributed differently.

Multiplying Forces

The simple act of riding a bicycle implies making use of a series of simple machines, such as "gears" that allow us, by barely moving our feet, to travel at a speed much greater than we could reach by running.

Gears are especially useful for magnifying or decreasing a force, as well as for changing its direction. If a toothed gear is meshed with another one with more teeth, then the second one will turn more slowly, but with less effort. In a bicycle, this gear relationship is used to go uphill. The bicycle feels "lighter" but requires more pedaling not to lose speed. If a toothed gear is meshed with another one with fewer teeth, then the second one will turn faster, but it will require more effect. Cyclists use this relationship to achieve greater speeds with less pedaling, although the bicycle feels "heavier."

When force is applied to an axle, as in the case of bicycles, the speed is multiplied because the edge of the wheels spin faster. With each turn of the axle, the wheel will travel a greater distance because it has a greater circumference. If the force is applied to the edge of the wheel, then it becomes possible to multiply the force at the axle. Ninety percent is a bicycle's energy efficiency ratio: that is to say, the percentage of energy that is converted into useful work. That of an automobile is only 25 percent.

Complex Machine

A complex machine is a machine that is made up of more than one simple machine. In the bicycle, for example, we can find multiple simple machines such as gears, axles, pulleys, and wheels that optimize the bicycle's performance.

Energy

The universe's energy is a unified force and it is never lost. It can only adopt different forms, be transformed, and even remain latent, manifesting itself under certain conditions-, as in the case of an object suspended in air that is then suddenly dropped. Light, heat, and electricity are some of the forms in which energy is manifested. In the functioning of each subatomic particle and of each

living being, in the occurrence of any terrestrial or atmospheric event, regardless of its scale, energy performs an essential role.

However, it is not a thing, not something tangible. In general, when people speak of energy, they are really referring to its visible effects, such as light, heat, or motion. Energy, moreover cannot be created or destroyed. It only changes form; it is transformed. To better understand it, it is possible to classify it according to the characteristics by which it manifests itself.

Mechanics of Motion

The concept of mechanical energy arises from the study of objects from the standpoint of their position and velocity. This energy is basically the sum of two others: kinetic energy and potential energy.

Kinetic Energy

Objects in motion possess kinetic energy, in as much as they are capable of producing movement, that is to say, of moving other bodies. The magnitude of an object's kinetic energy depends on the object's mass and velocity. The greater the mass and velocity, the greater the kinetic energy.

Potential Energy

Potential energy is the energy stored in a system or the energy that the system is capable of delivering. Potential energy is also related to an object's position. At rest, a stone possesses a given potential energy, which increases if it is suspended above the ground. The same thing occurs with the ends of a spring when they are pulled apart, as the spring stretches, its potential energy increases.

Electrokinetic Energy

Some metals, such as copper and iron, have the capacity for generating noncontact forces of attraction and repulsion, a characteristic you may know as magnetism. The particles that make up an object are usually aligned randomly and the atomic forces (charges) cancel each other. By aligning all of the particles in the same direction, a conductive object will generate a magnetic force. A magnetic object generates an electrokinetic energy field around itself with two poles, a positive pole (+) and a negative pole (-). These poles represent the areas where the maximum forces concentrate. Poles with the same sign tend to repel each other, and those with different signs tend to attract each other.

This phenomenon has a microscopic origin (it arises from the spin of electrons within atoms) but it has an impact on a very big level. In fact, the Earth behaves like a huge magnet. The iron core and the currents of molten rock flowing underneath the Earth's crust generate a magnetic field around the planet. The precise mechanism by which this field is produced continues to be a mystery to humankind. For centuries, magnets were considered magical objects. Only relatively recently has science been able to reveal their secrets.

Since the late nineteenth century, the phenomenon of magnetism has found countless applications in diverse fields. Diagnostic methods such as Magnetic Resonance (MRI) and Computerized Axial Tomography (CAT), which have revolutionized medicine, are based on the principles of magnetism. The magnetic levitation train (MAGLEV) moves without touching the rails, thanks to the repulsion caused between two like magnetic poles. This allows the train to travel at high speeds (greater than 370 miles per hour.) The intimate relationship between magnetism and electricity made possible the development of the telephone, the television, the radio, and a great number of electric devices used today.

Electricity

Few disruptions to daily life exist that are comparable to a blackout of electricity. In the absence of electric lights, a working refrigerator, televisions, desktop computers, or air conditioning a blackout is probably the only time in which we truly stop taking energy for granted and take a moment to realize the importance of one of the most common types of energy in the world. The phenomenon known as electricity originates at the atomic level and has to do with the behavior and movement of free electrons (electrons separated from the atomic nucleus) in certain media. Understanding electricity begins with describing its effects.

One way to begin is to examine interactions that occur when electricity is at rest or static electricity. Static electricity can be seen at work when long hair is combed on a cold, dry day. As the comb is pulled through the hair, strands of hair standout stiffly. Some kind of force seems to pull the hair upward and toward the comb.

As explained above, in an atom there is an equal number of positively charged protons and negatively charged electrons, and such an atom is said to be neutral. If a neutral atom loses one or more of its electrons, it has an excess number of protons and it becomes positively charged. If a neutral atom gains one

or more electrons, it has an excess number of electrons and it becomes negatively charged.

How does this simple atomic model relate to the hair, the comb, and static electricity? With the right conditions when your hair is combed, the hair loses electrons and the comb gains them, producing hair that is positively charged and a comb that is negatively charged. The combing action (friction) created charged objects because it tears electrons loose from your hair and transfers them to the comb. This is called electron capture, (the process in which an atom or ion passes through a material medium and either loses or gains one or more orbital electrons).

One of the most prolific minds in history belongs to Benjamin Franklin, who was a politician, printer, journalist, inventor and a founding father of the United States of America as well as a pioneer in the study of electricity. He is remembered as the scientist behind the famous experiment that demonstrated that lightning is an electric discharge and that clouds are charged with electricity. A discovery he made when he lifted a metal kite during a lightning storm.

Today we know that inside stormy clouds called cumulonimbus clouds, ice particles that are constantly in movement are often electrically charged by friction with each other. In a cloud, the positively charged particles tend to be located at the upper levels of the cloud and the negatively charged particles move to the base of the cloud. Sometimes a powerful discharge is produced between the base of the cloud, which is negatively charged, and the Earth's surface, which is positively charged. We have labeled this phenomenon as lightning.

Conductors and Insulators

Materials can be classified as either capable or incapable of conducting electricity. Remember that within atoms of conductor materials, electrons are weakly joined with their nucleus.

This makes it easy for these electrons to flow as electric energy. In insulators, the bond between the nucleus and the electrons of the atoms is strong. For this reason, the flow of electrons is either much more complex or simply does not occur.

Electric Current

Much like water flowing in a river, running freely from one point to another, free electrons will flow through conductor materials and manifest themselves in the form of energy. When a difference of potential energy is applied between the ends

of a conductor, freed electrons will flow, thus generating electric current. In other words, a negatively charged terminal with an excess of electrons compared with a positively charged terminal that is lacking in electrons produces a difference in electron potential energy (an attractive force.) When the terminals are connected via a conductor, the excess electrons will flow (transfer) to the terminal that lacks electrons, thus generating the electron current that we call "electricity." This current allows electricity to be transported for subsequent distribution and use in electrical devices.

Electric current flows through a conductor in two ways: as a direct current or as an alternating current. In direct current, electrons flow in one direction. Today, this type of current is common in electric devices fed by batteries. In alternating current, the polarity of its terminals is repeatedly reversed (alternated) within the generator.

Circuits

In order for electricity to flow and be readily available whenever it is needed at outlets throughout our homes (or each time a device powered by batteries required it), it is transported by means of a circuit with no breaks or interruptions along the way. Thus, the electric current travels in a loop. All along this loop, the electric current powers electric devices and encounters diverse mechanisms capable of modifying the electrical energy.

Electric Units

There are many units for measuring electricity. An Ampere is used to measure the strength of an electric current, that is, the quantity of electrons moving through a given part of the circuit per second. The Volt is used to measure electric potential, that is, the electromotive force derived from the potential difference between the negative and positive poles in a circuit. A Watt is the power generated from a potential difference of one volt and an electric current of one ampere.

In the United States, power is delivered to residential homes as alternating current. For example, when a lamp is switched on, electrons (vibrate) back and forth within the filament to create light. The electrons that move in the filament are not the same electrons that were deflected in the generator at the power plant. When the lamp is turned on, it lights up instantly because the electric field produced in the generator loop travels through the circuit at close to the speed of light, roughly 300 million meters per second. As the field passes along the conductor, electrons in the conductor interact with the field. It is the electric

energy carried by the field that moves the electrons in the circuit. It is energy, not the charge that flows from the electrical outlet in your home. The electric charges that move in the lamp are already in the lamp. Thus electric companies bill you not for electrons but for electrical energy. The charges on an electric bill are based on Kilowatt-hours (1,000-watt-hours.) A kilowatt is a unit of power or energy consumed per time unit. So a kilowatt-hour is a unit of energy.

Today the definition of a "Generator" is any machine by which mechanical power is transformed into electric power, this invention will alter that definition. Although limited amounts of electricity can be generated by many means, today electric power generation generally implies large scale production of electricity in stationary plants. The generating units in these plants convert mechanical energy from falling water, coal, petroleum, natural gas, and nuclear fuel to electric energy. Most of today's large electric generators are driven either by hydraulic turbines, for conversion of falling water energy, or by steam or gas turbines, for conversion of nonrenewable fuel energy resources.

Sources of Energy

Since the invention of the steam engine, humans have relied more and more on nonrenewable sources of energy, especially coal, petroleum, and natural gas; the reserves of which are limited. To a lesser extent, they have made use of renewable resources, such as water power from rivers to produce electricity, which nevertheless comes at a cost to the environment. Thus, one of the greatest challenges of today is how to obtain energy in an economical, safe, and clean way from renewable sources. Besides the importance of availability, the impact that sources of energy produce on the environment counts a great deal. The nonrenewable sources of energy coal, petroleum, and natural gas make up eighty-one percent of the world's production of energy. Their consumption on such a massive scale contributes to the greenhouse effect.

Coal and Petroleum

Coal and petroleum are the main energy sources in the developed world. They come from ancient organic deposits that have been buried in the bowels of the Earth for hundreds of millions of years. Petroleum's pure state is called crude oil, which is a mixture of different hydrocarbons of little use. Hence, the oil must first be distilled to separate its components. These resources, which pollute the atmosphere when burned, are available only in limited reserves.

Natural Gas

After petroleum, natural gas slowly rose to a position of importance in the global balance of energy sources because of its availability and efficiency. It has a reputation of being the cleanest fossil fuel. Technological advances, especially in the discovery of deposits, have produced an explosion in the reserve statistics in the last 15 years. These developments have been accompanied by an ever-increasing dependency on natural gas in different parts of the planet. Natural gas is known as "the phantom energy" because it is a colorless, odorless fluid that contains between seventy to ninety percent methane, the component that makes it useful as a source of energy.

Biofuels

Gasoline or diesel with added alcohol (ethanol) produced from crops such as corn appears more and more promising as solutions to the problems posed by the eventual exhaustion of the Earth's coal and petroleum reserves, as well as the high cost of fossil fuels on the global markets. However, this type of energy presents new challenges. One item of environmental concern is the possibility that massive exploitation of biofuels could lead to the replacement of jungles and woodlands with single crop plantations meant only for the production of raw plant materials. Ethanol is the alcohol in the medicine cabinets of our homes. It can be used in its pure form as fuel or combined with gasoline in different proportions. Two common mixtures are EIO and E85, which have 10 percent and 85 percent ethanol, respectively. 70 percent of the world's ethanol production is accounted for by Brazil and the United States. In Brazil, ethanol is made from sugarcane, and in the USA, it is made from corn.

Biodigesters

A biodigester is when anaerobic bacteria (bacteria that does not require oxygen to live) decompose organic material through processes such as rotting and fermentation, they release biogas that can be used as an energy resource for heating and for generating electricity. They also create mud with very high nutritional value, which can be used in agriculture or fish production. This technology appears promising as an energy alternative and laboratory tests have demonstrated that the biodigestion process kills up to eighty-five percent of the harmful pathogenic agents present in the organic waste, pathogens which would otherwise be released into the environment. Biogas contains about fifty-five to seventy percent methane, its energy-producing component.

Nuclear Energy

Today another efficient method for obtaining electric energy is through a controlled nuclear reaction. The nuclei of certain atoms, like uranium 235, can be broken apart when bombarded by neutrons. In doing so, they release great amounts of energy and new neutrons that can break down the nuclei of other atoms, generating a chain reaction called nuclear fission.

To achieve the breakdown of the nucleus, the neutrons must collide at a specific speed, which is governed by a moderating substance, such as water, heavy water, or graphite. The purpose of nuclear fission is to create very hot steam to operate turbines and electrical generators. The high temperatures are achieved by using nuclear energy from the reactor. Although this technology has been used for half a century, it continues to be at the center of debate because of the risks it poses to the environment and health and because of the vast amounts of highly toxic waste it creates.

Hydroelectric Energy

About 20 percent of the world's electricity is generated by the force of rivers through the use of hydroelectric power plants. The kinetic energy of rivers is transformed into mechanical energy by turbines and then into electrical energy by generators. This technology, which has been used since the nineteenth century, employs a renewable, non-polluting resource, although the technology's impact on the environment is high. According to the United Nations, two third of the world's hydroelectric potential is currently being used, especially in North America and Europe.

Solar Energy

The harnessing of solar energy to produce electricity and heat for everyday use is gaining popularity. Applications of this clean, unlimited form of energy range from charging batteries in telecommunications satellites, to public transportation, all the way to the solar households being built in greater numbers throughout the world. Photovoltaic Energy, the energy obtained from sunlight, requires the use of solar or photovoltaic cells. The energy is essentially formed by a thin layer of semiconductor material (silicon, for example), where the photovoltaic effect (the transformation of light into electrical energy) takes place. The sun shines on the cell where energetic photons (sunlight) move (vibrates) electrons and make them jump to the illuminated face of the cell. The negatively charged electrons generate a

negative terminal on the illuminated face and leave an empty space in the now positively charged dark face (the positive terminal).

Once the circuit is closed, there is a constant flow of electrons (electric current) from the negative terminal to the positive one. The current is maintained as long as the Sun illuminates the cell.

Another use of sunlight is as a source for heating water as well as for heating homes. In this case, solar collectors are used; unlike photovoltaic cells, the solar collectors do not produce electric energy. The collectors work using the greenhouse effect: It absorbs the heat from the sun and then prevents this heat from being lost. In doing so, it warms a pipe, through which the fluid (water or gas) flows, which in turn heats a water tank. The water from the tank is ready for domestic use of heating.

Wind Energy

In recent years one of the most promising renewable energy resources is the use of wind to produce electricity by driving enormous wind turbines (windmill). The turbines convert the wind into electrical energy through the use of simple technology based on mechanical gears. The wind moves the blades of the wind turbine, producing mechanical energy, which is then converted into electrical energy. Eolic power is an inexhaustible, clean, non-polluting source of energy with some disadvantages. The most important disadvantages are our inability to predict precisely the force and direction of the wind and the negative impact that groups of large towers have on the local landscape.

Geothermal Energy

Geothermal energy is another clean and promising source of energy. The first geothermal plant started operating more than One hundred years ago. Geothermal plants generate electricity from the heat that emanates from the Earth's interior. Geothermal power plants, however, suffer from some limitations, such as the fact that they must be constructed in regions with high volcanic activity. The possibility of this kind of plant becoming defunct due to a reduction in such volcanic activity is always present, along with the obvious dangers of such technology.

Hydrogen

Some people consider hydrogen fuel cells the energy source of the future and predict that in the short term it will gain widespread use in place of fossil fuels. Hydrogen fuel cells produce electricity from the energy released during the chemical reaction of combining hydrogen and oxygen. In the cell, hydrogen collects at the anode and oxygen at the cathode. A catalyst separates the hydrogen electrons from their nuclei. Hydrogen nuclei cross the electrolytic layer without their electrons. Freed electrons, which cannot cross the electrolytic layer, flow through the circuit until they reach the cathode, thereby producing electric current.

The by-products of the process are water and heat, the reaction continues as long as fuel is supplied. Among the advantages of hydrogen-based energy are its very low pollution level and its inexhaustibility (it can be recycled and reused.) Disadvantages include the complications inherent in handling pure hydrogen, its costs, and the wide-scale conversion that would be necessary for petroleum-fueled engines and systems.

Brief Summary of the Invention

The invention through the strategic combination and balancing of electro-kinetic energy at twenty-four individual reaction points converts kinetic energy into circular motion. The established perpetual circular motion is then used to capture excited electrons at six electron capture stations. Where the relative motion is used to establish a magnetic flux within an air gap and as a result, a voltage is induced within a set of coils producing electron flow which we call "electricity". The actual life span of the electro-kinetic energy emitters used in the invention is estimated to last for 6 generations, over 400 years. Therefore, today a single word definition cannot be located to describe the invention or its electrical energy generation capabilities.

Objects and Advantages of the Invention

Accordingly, a few objects of this invention was to provide safe, clean, economical and easy to use electrical energy. The advantages of the resulting invention over all forms of known energy resources are far too many to possibly list, but to list a few;

- This invention produces clean free electrical energy

- This invention is completely self-sufficient
- This invention is portable
- This invention uses safe regenerative electrokinetic energy

Over coal, petroleum, and natural gas;

- This invention does not have to be mined, drilled or distilled
- This invention does not consume a nonrenewable resource
- This invention does not create a pollutant
- This invention does not require manpower to operate

Over nuclear fission;

- This invention can be safely operated by the common individual
- This invention does not create a toxic waste
- This invention does not require massive manpower to operate

Over the sun, wind, and water;

- This invention does not require sunlight to create electricity
- This invention does not require the force of wind to create electricity
- This invention does not require a river to create electricity

Other objects and advantages will become apparent from a consideration of the ensuing drawings and the accompanying descriptions.

Description of the Drawings Reference Numerals and Letters

Number 1 = Electro-kinetic Combination Drive
Number 2 = Electron Capture System
Number 3 = Electron Capture Station
Number 4 = Stabilizer Housing
Number 5 = 4 Point Centripetal Drive Disk
Number 6 = Electro-kinetic Energy Emitting Sectional Plate
Number 7 = Plate Retainer Ring
Number 8 = Shaft Placement Hole
Number 9 = Triangular Electro-kinetic Energy Emitter
Number 10 = Electron Capture Station Housing
Number 11 = Housing Cylindrical Electro-kinetic Energy Emitter
Number 12 = Epoxy Coil Assembly
Number 13 = Individuals Coils
Number 14 = Shaft Through Way

Number 15 = Device Shaft
Number 16 = Bearing
Number 17 = Modified Electron Capture Station Housing
Reference A = Clockwise Circular Motion
Reference B = Air Gap
Reference C = Simulated Electro-kinetic Energy
Reference D = Reaction Point

Description of the Views of Drawings

For a further understanding of the nature and object of the invention, reference should be made to the detailed descriptions herein, taken in conjunction with the accompanying drawings in which elements are given a reference number or letter and wherein:

Figure 1 (FIG 1) = is a front and right side view transparent line drawing of the Electro-kinetic Combination Drive Item #1.

Figure 2 (FIG 2) = is a top view transparent line drawing of the Electro-kinetic Combination Drive Item #1.

Figure 3 (FIG 3) = is an X-Ray view of the Electro-kinetic Combination Drive Item #1.

Figure 4 (FIG 4) = is a right side view transparent line drawing of the Electro-Kinetic Combination Drive Item #1.

Figure 5 (FIG 5) = is a 3D Isometric transparent line drawing of the Electro-kinetic Combination Drive Item #1.

Figure 6 (FIG 6) = is a partially exploded view of the Electro-Kinetic Combination Drive.

Figure 7 (FIG 7) = is a partially exploded sub-assembly view of the Electro-kinetic Combination Drive.

Figure 8 (FIG 8) = is a partially exploded sub-assembly X-Ray view of the Electro-kinetic Combination Drive.

Figure 9 (FIG 9) = the illustration on the left is a 3D transparent exploded view of a left side Stabilizer Housing Item #4 and a Bearing #16. The illustration on the right is a 3D transparent exploded view of a Modified Electron Capture Station.

Figure 10 (FIG 10) = is a 3D transparent exploded view of a right side Stabilizer Housing Item #4 and the Bearing Item #16.

Figure 11 (FIG 11) = is a 3D exploded view of the Modified Electron Capture Station.

Figure 12 (FIG 12) = is a 3D exploded view of an Electron Capture Station Item #3.

Figure 13 (FIG 13) = is a 3D exploded X-Ray view of an Electron Capture Station.

Figure 14 (FIG 14) = is a 3D exploded view of the right side Electron Capture Station.

Figure 15 (FIG 15) = is a 3D exploded X-Ray view of the right side Electron Capture Station.

Figure 16 (FIG 16) = is a 2D transparent line drawing with dimensions of the left side Stabilizer Housing Item #4.

Figure 17 (FIG 17) = is a 2D transparent line drawing with dimensions of the Modified Electron Capture Station Housing #17 and a Housing Cylindrical Electro-kinetic Energy Emitter #11.

Figure 18 (FIG 18) = is a 3D Isometric transparent line drawing of the Modified Electron Capture Housing Item #17.

Figure 19 (FIG 19) = is a 2D transparent line drawing of an Electron Capture Station Housing Item #10 and the Housing Cylindrical Electro-kinetic Energy Emitter Item #11.

Figure 20 (FIG 20) = is a 3D Isometric transparent line drawing of an Electron Capture Station Housing Item #10.

Figure 21 (FIG 21) = is a 4 Point Centripetal Drive Disk Item #5 in a 3D state, a 2D front view line drawing with dimensions and a 3D transparent right side view with dimensions. A Triangular Electro-kinetic Energy Emitter Item #9 is shown in a 3D Isometric transparent state.

Figure 22 (FIG 22) = is an Electro-kinetic Energy Emitting Sectional Plate Item #6 in a 3D state, a 2D front view line drawing with dimensions and a 3D transparent right side view with dimensions.

Figure 23 (FIG 23) = is a Plate Retainer Ring Item #7 shown in a 3D state, a 3D front line drawing with dimensions and a right side view with dimensions.

Figure 24 (FIG 24) = is an Epoxy Coil Assembly Item #12 shown in a 3D state, a 2D line drawing with dimensions and a transparent right side view with dimensions.

Figure 25 (FIG 25) = is the eight Individual Coils Item #13 shown in an assembled 3D state, an assembled 2D front view line drawing with dimensions and an assembled transparent right side view with dimensions. A single coil is shown in a 2D line drawing with dimensions and a 3D transparent state.

Figure 26 (FIG 26) = is the Device Shaft Item #15 shown in a 3D state, a 3D front view line drawing with dimensions and a right side view line drawing with dimensions.

Figure 27 (FIG 27) = is a right side view of the Electro-kinetic Combination Drive Item #1. Identified is Circular Motion (A), Electro-kinetic Energy (C) and Reaction Points (D).

Figure 28 (FIG 28) = is a top view of the Electro-kinetic Combination Drive Item #1. Identified is Air Gaps (B) between the Epoxy Coil Assembly and the 4 Point Centripetal Drive Disk.

Detailed Description of the Invention

While the detailed descriptions and drawings herein contain many specificities, they should not be construed as limitations on the spirit and the scope of the invention, but rather as an exemplification of a few embodiments thereof.

This invention converts electro-kinetic energy into kinetic energy in the form of circular motion. The energy conversion is illustrated in FIG 27 within an Electron Capture Station Item #3. The simulated Electro-kinetic Energy (C) emitted by the Housing Cylindrical Electro-kinetic Energy Emitters Item #11 is balanced against the like poles of the Triangular Electro-kinetic Energy Emitters Item #9 secured within the circumference of the 4 Point Centripetal Drive Disk Item #5. As a result of the strategic combination and balancing of these non-contact forces, the stronger force prevails and the disk's stationary position converts to a Clockwise Circular Motion (A). In a standard device, this conversion will be performed on six disk at 24 individual Reaction Points (D). The disk(s) are

aligned, so the reaction points are equally spread over one complete rotation to maximize the resulting circular motion.

Reference point (B) in FIG 28 identifies an air gap between the 4 Point Centripetal Drive Disk Item #5 and the Epoxy Coil Assembly Item #12 and as a result of the circular motion, the Electro-kinetic Energy Emitting Sectional Plate's Item #6 secured on the side of the disk establishes a magnet flux (a sea of spinning electrons) within the air gaps that encompass the coil assembly. A voltage is induced within the Individual Coils Item #13 as a result of this magnetic flux. In other words, freed electrons are captured by the individual coils as the disk rotates on the shaft.

Alternative Embodiments

The invention may be modified or built to generate a higher or lower output by adding or removing electron capture systems or stations to accommodate for different needs of the users.

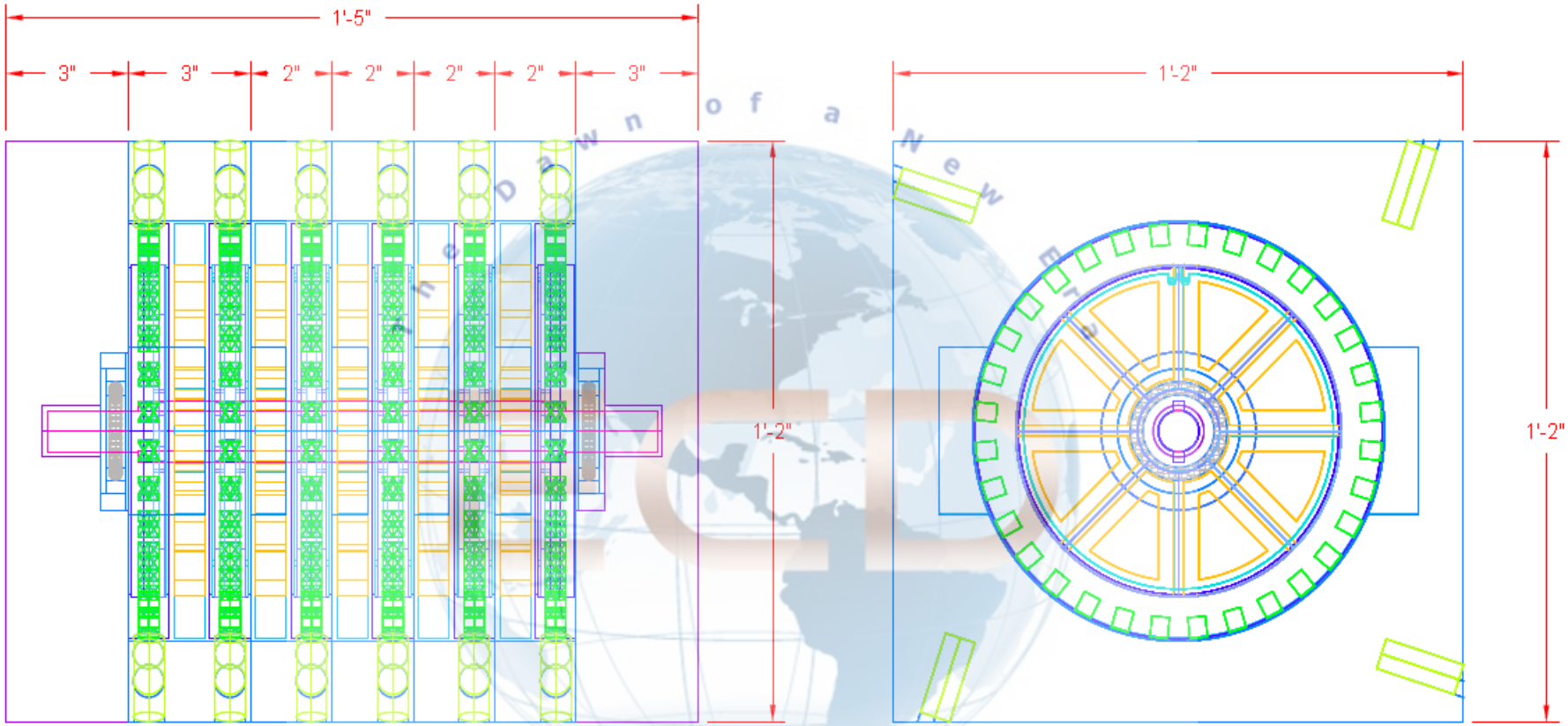
The invention could be used to power electric vehicles, therefore, providing an unbelievable range and eliminating the need to recharge from an outside electrical source.

Alternately, miniaturized embodiments of this invention could be built and combined with any home appliance or electrical device creating countless cordless portable electrical devices that could be used anywhere at any time.

Other types of suitable electrokinetic energy may be used in this invention, for example; the Housing Electrokinetic Energy Emitters 11 could be replaced with computerized electromagnetic technology.

The device should be built using only high-density Teflon or Plastic materials. No conducting materials should be used unless otherwise specified. Many construction means (e.g., stamping, carbon fiber and/or other composites, etc.) may be used for a large scale production of the energy device if so desired.

It will be apparent to those skilled in the art that changes and modifications may be made in the embodiments illustrated, without departing from the spirit and scope of the invention. Thus, the invention is not to be limited to the particular forms herein shown and described.



FRONT VIEW RIGHT SIDE VIEW

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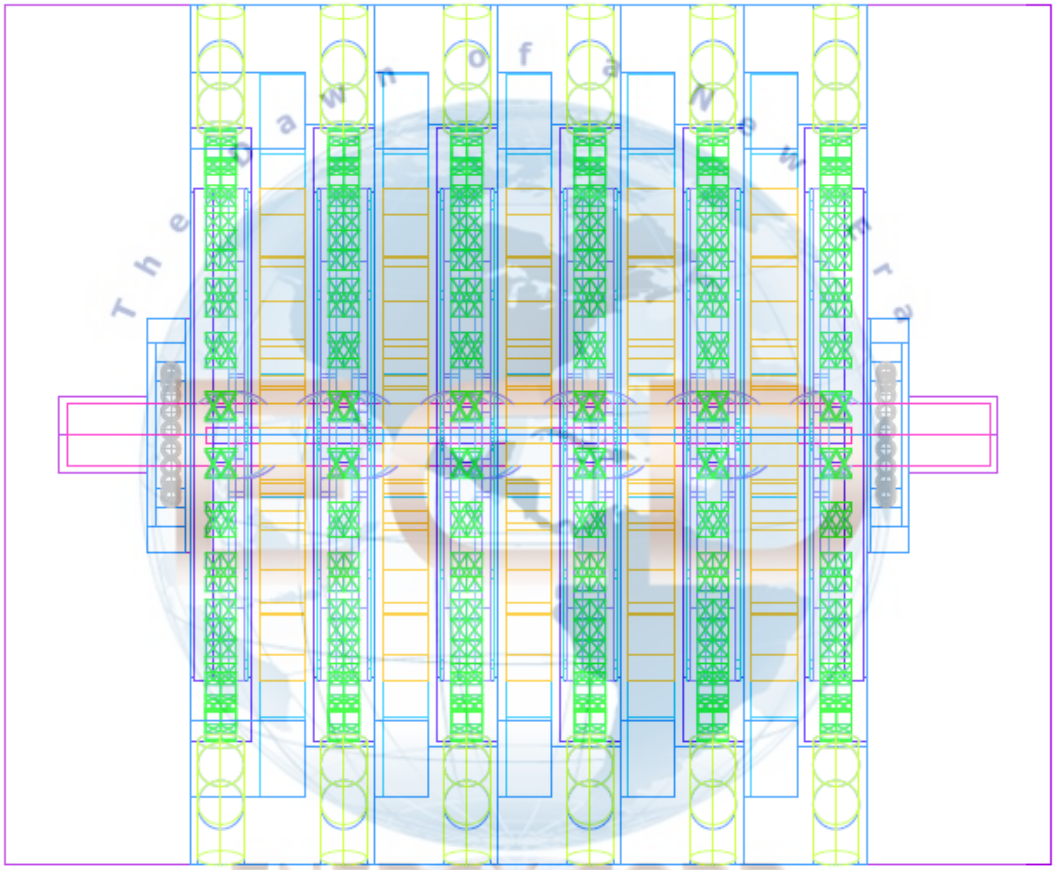
ELECTRO-KINETIC COMBINATION DRIVE ITEM #1

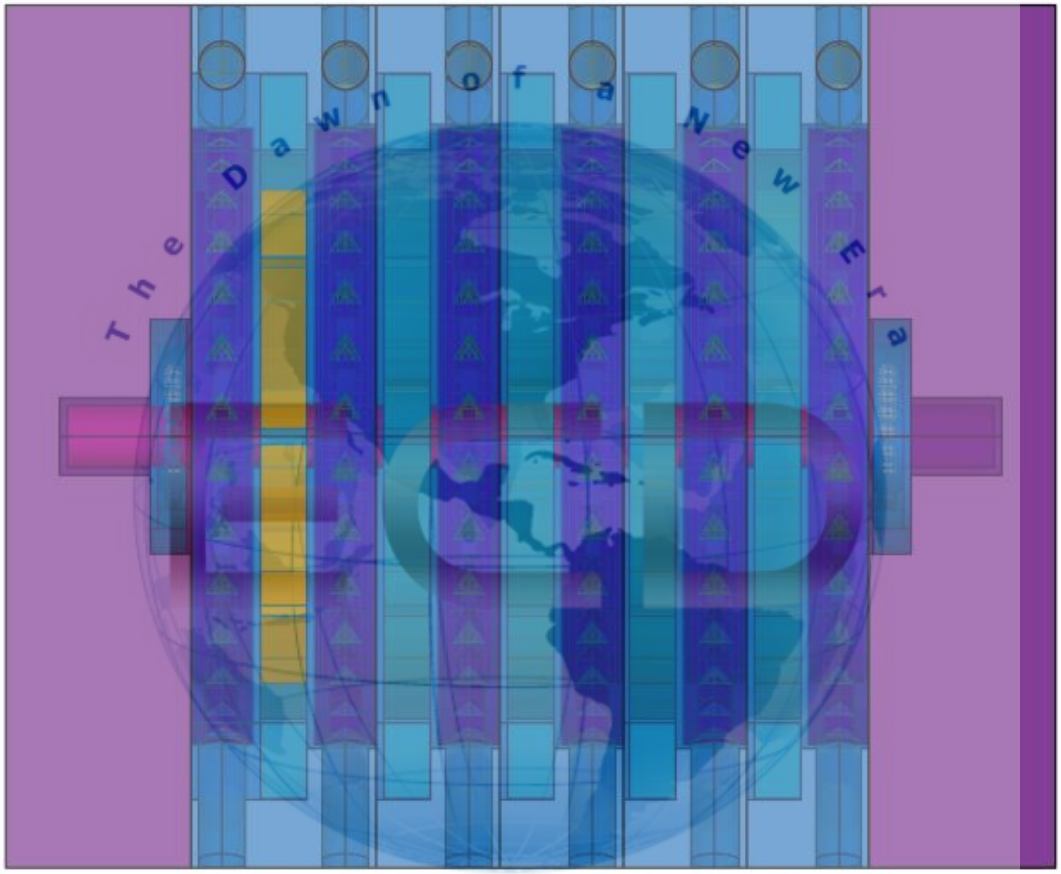
FIG 1



TOP VIEW

ELECTRO-KINETIC COMBINATION DRIVE ITEM #1

FIG 2

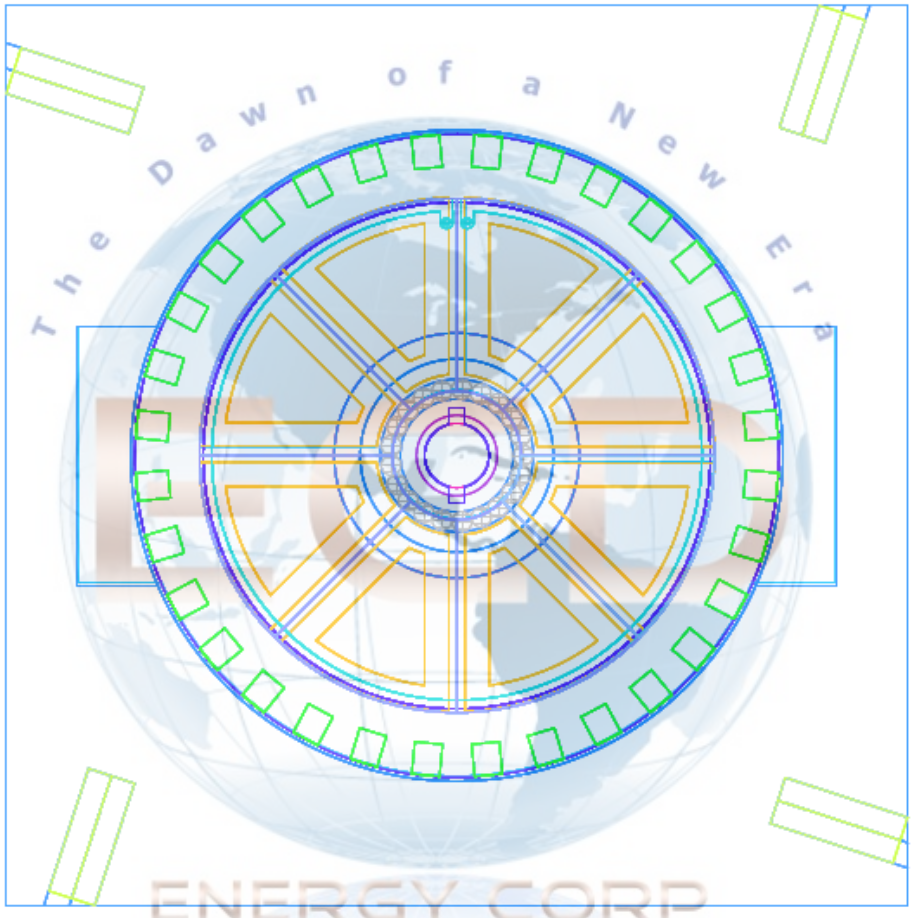


ENERGY CORP

TOP VIEW

ELECTRO-KINETIC COMBINATION DRIVE ITEM #1, X-RAY

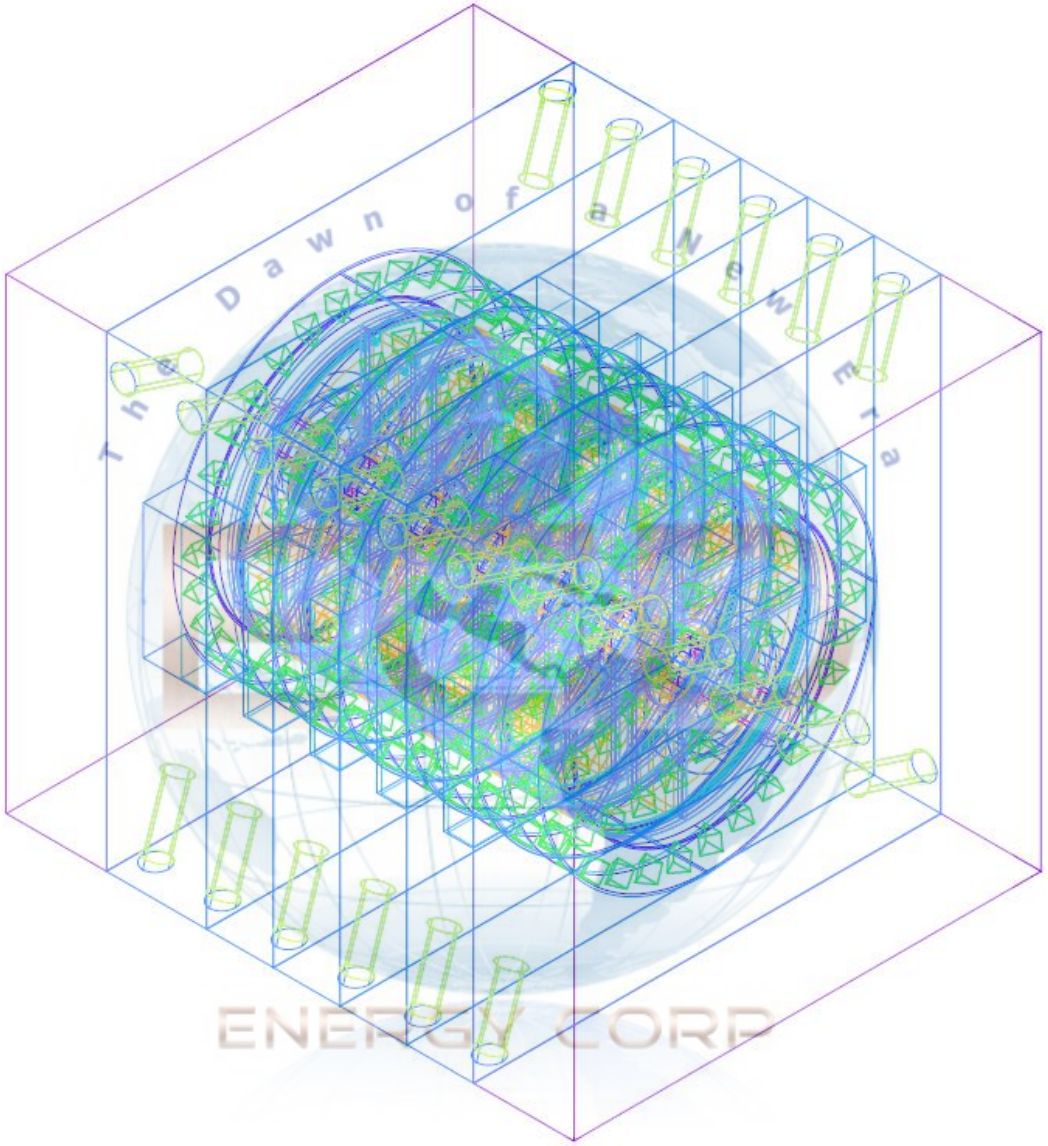
FIG 3



RIGHT VIEW

ELECTRO-KINETIC COMBINATION DRIVE ITEM #1

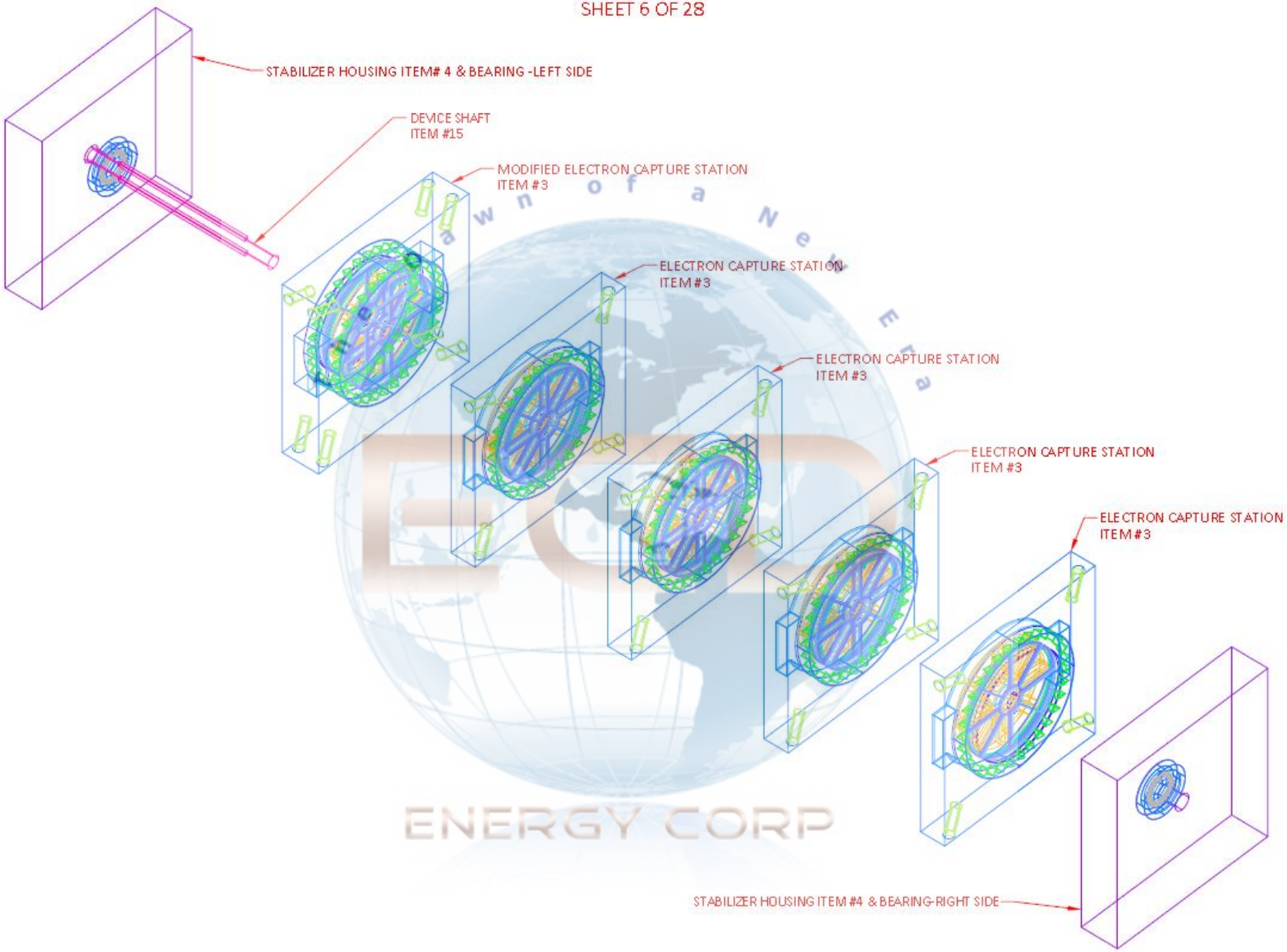
FIG 4



ISOMETRIC VIEW

ELECTRO-KINETIC COMBINATION DRIVE ITEM #1

FIG 5



Dawn of a New Era
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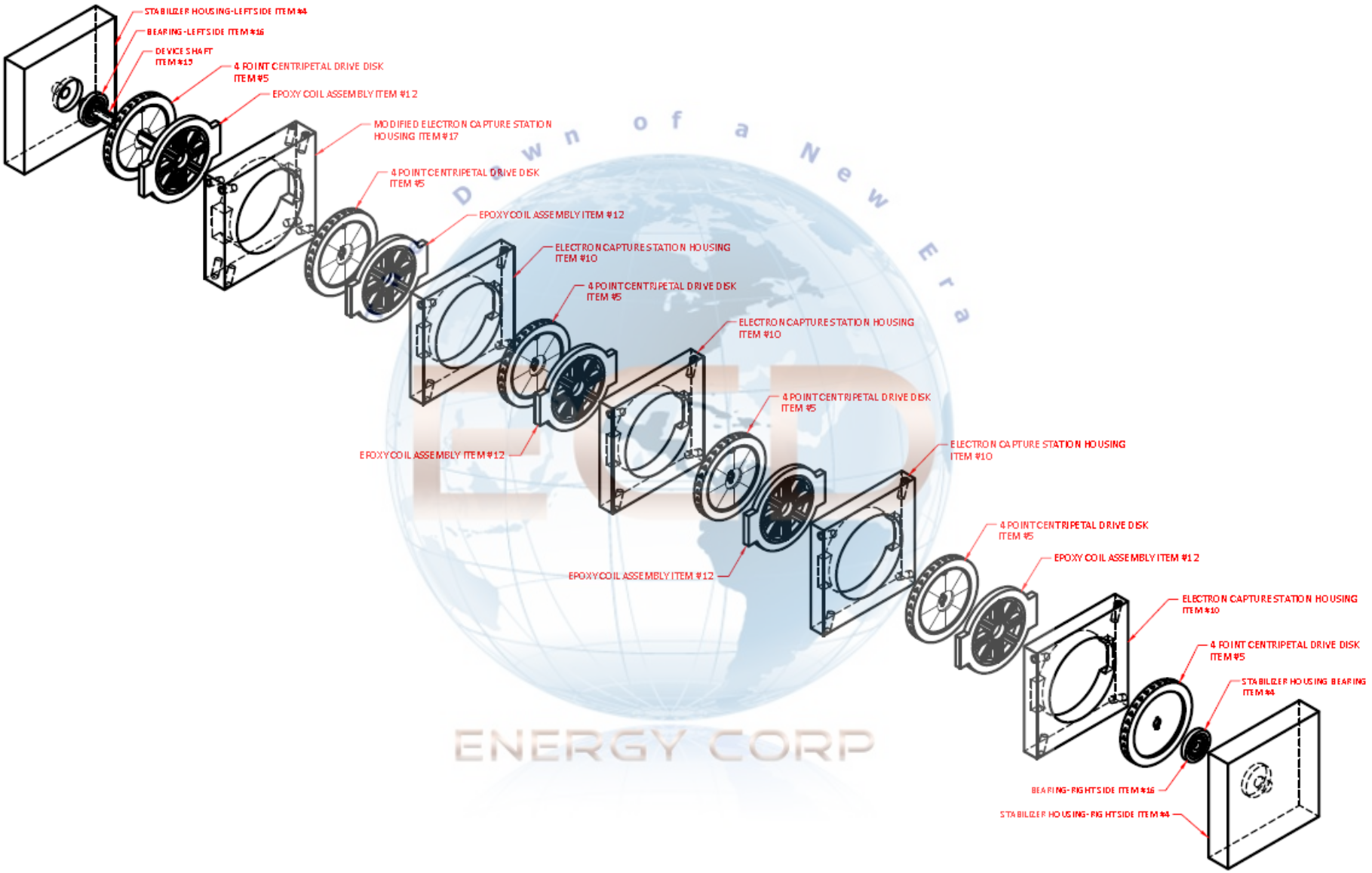
PARTIALLY EXPLODED VIEW OF THE ELECTRO-KINETIC COMBINATION DRIVE ITEM #1

FIG 6

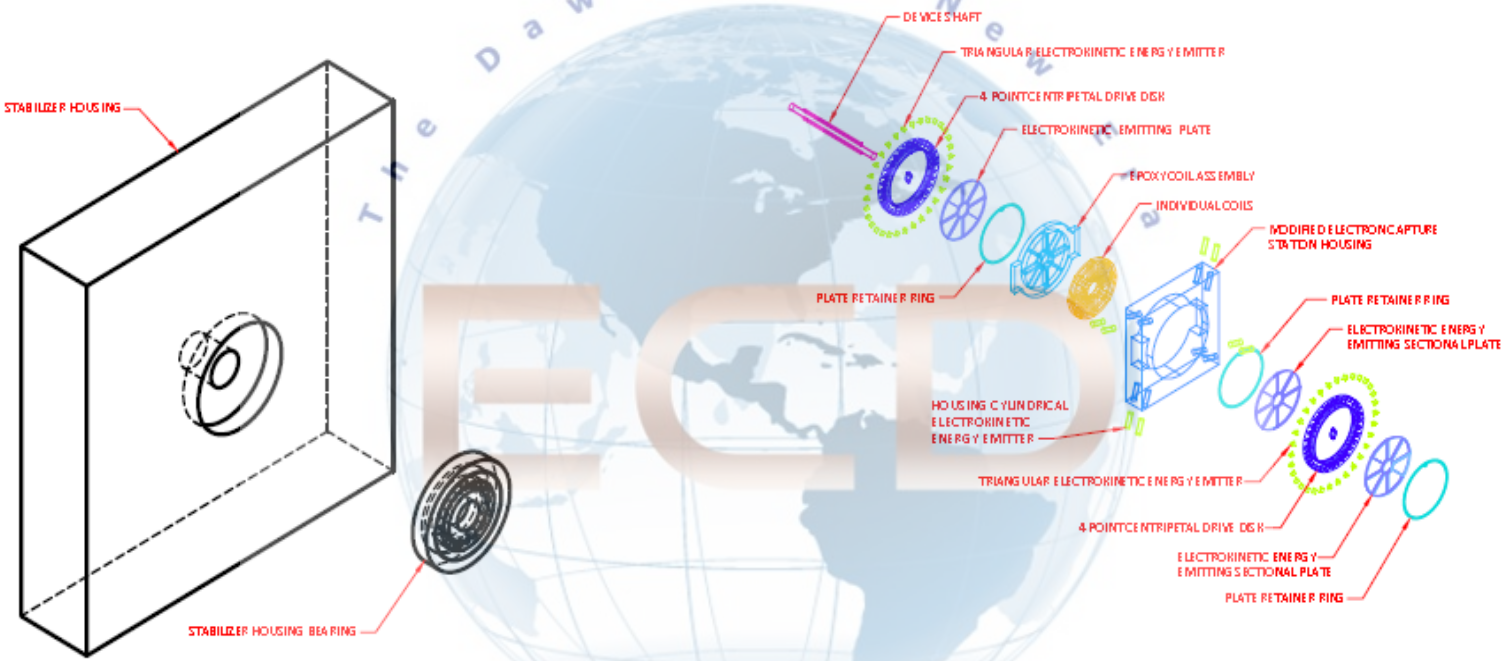


PARTIALLY EXPLODED VIEW OF THE ELECTRO-KINETIC COMBINATION DRIVE SUB-ASSEMBLIES

FIG 7

PARTIALLY EXPLODED VIEW OF THE ELECTRO-KINETIC COMBINATION DRIVE SUB-ASSEMBLIES - X-RAY

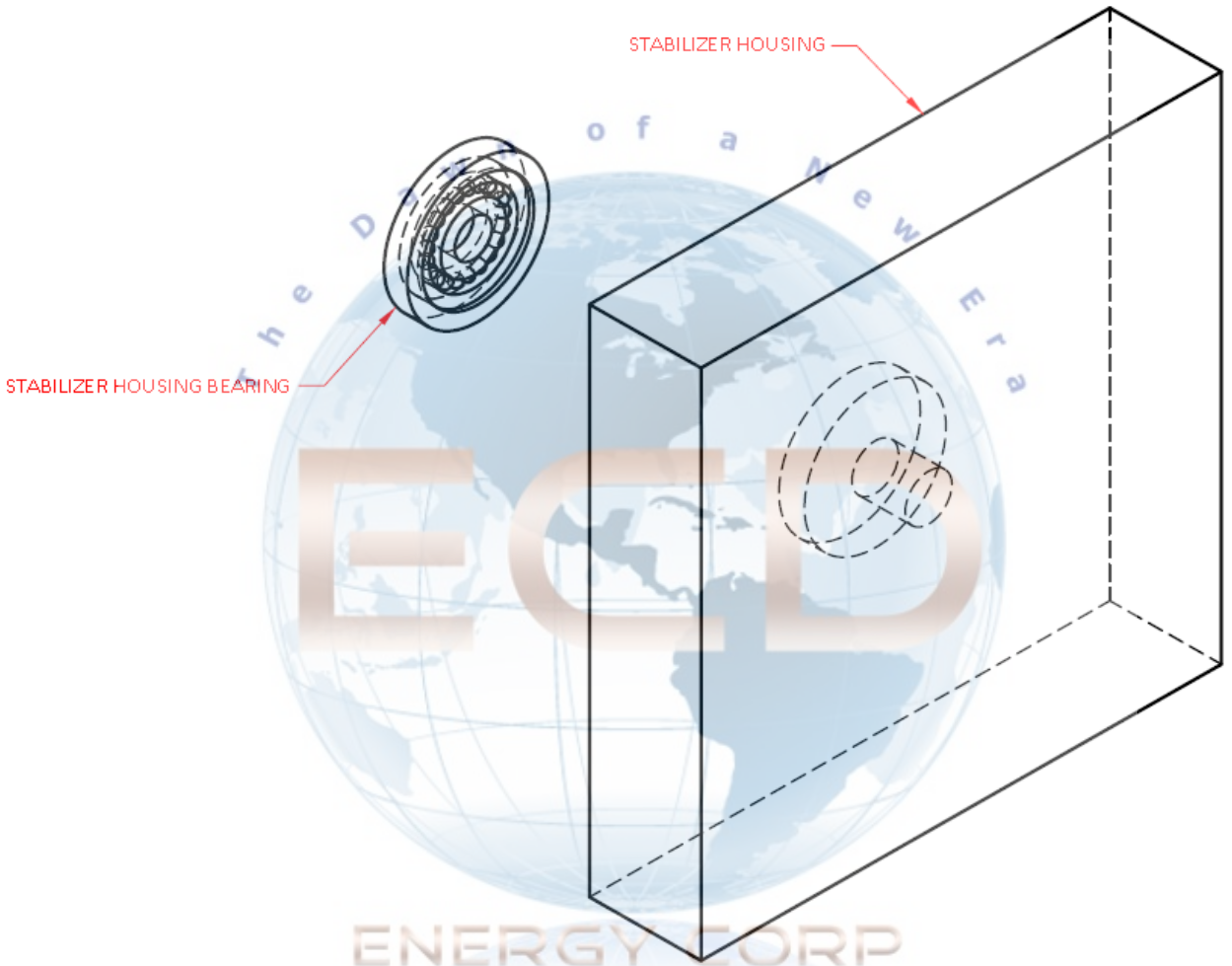
FIG 8



STABILIZER HOUSING BODY ITEM #4
& BEARING ITEM #16 - LEFT SIDE

EXPLODED MODIFIED ELECTRON CAPTURE STATION

FIG 9



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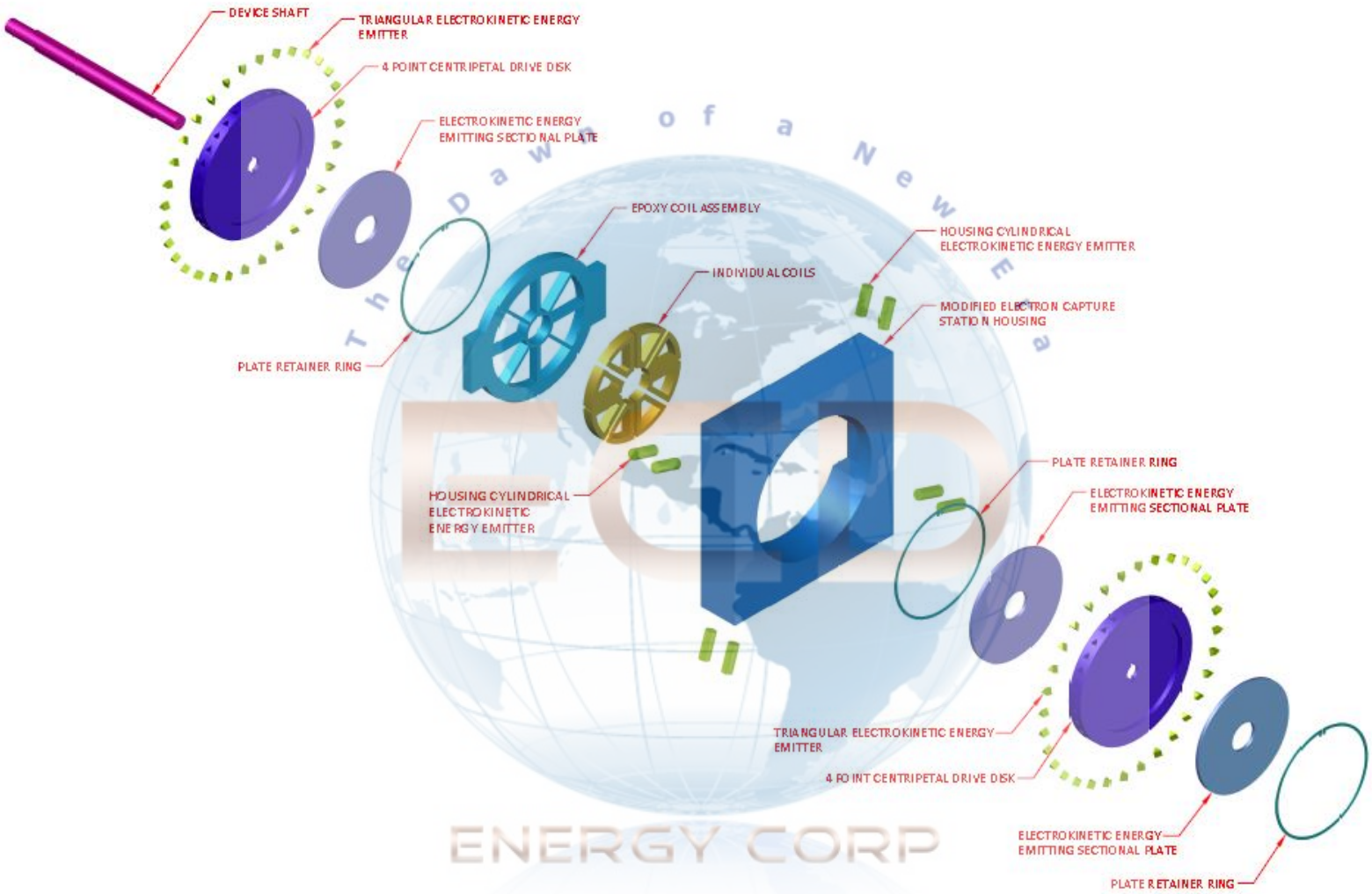
STABILIZER HOUSING ITEM #4 & BEARING ITEM #16 - RIGHT SIDE

FIG 10



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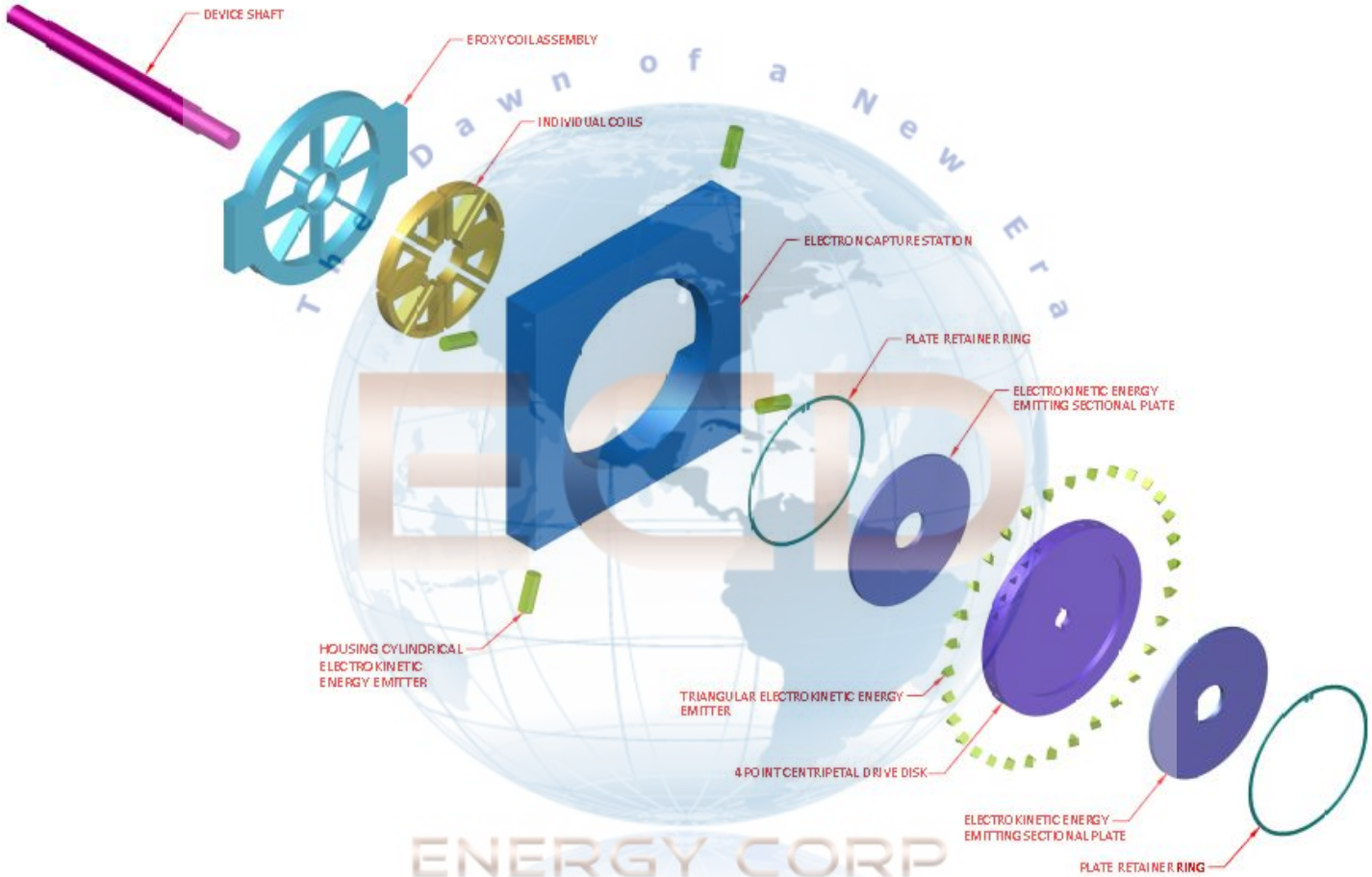
EXPLODED MODIFIED ELECTRON CAPTURE STATION

FIG 11



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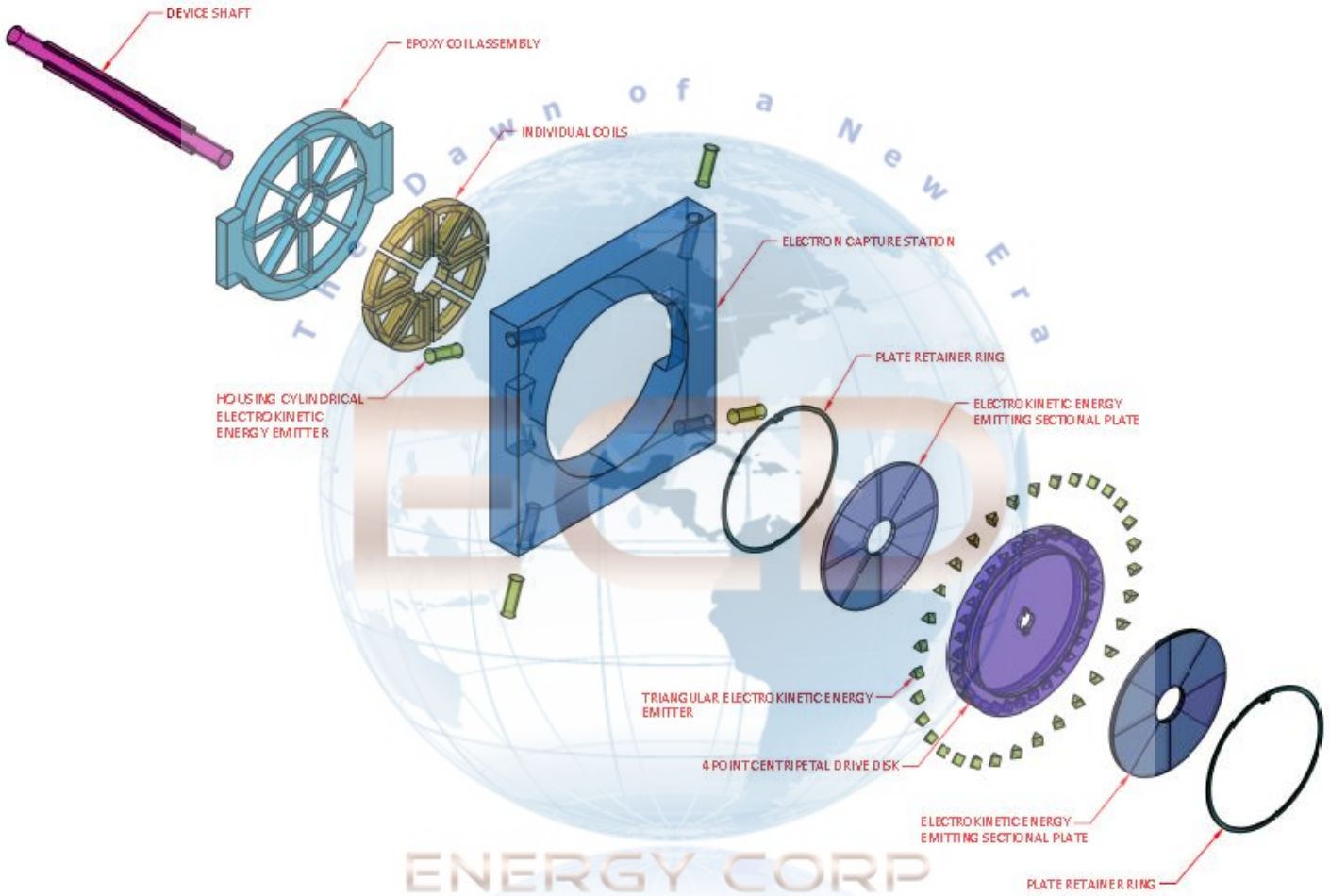
ENERGY CORP

EXPLODED ELECTRON CAPTURE STATION ITEM #3

FIG 12



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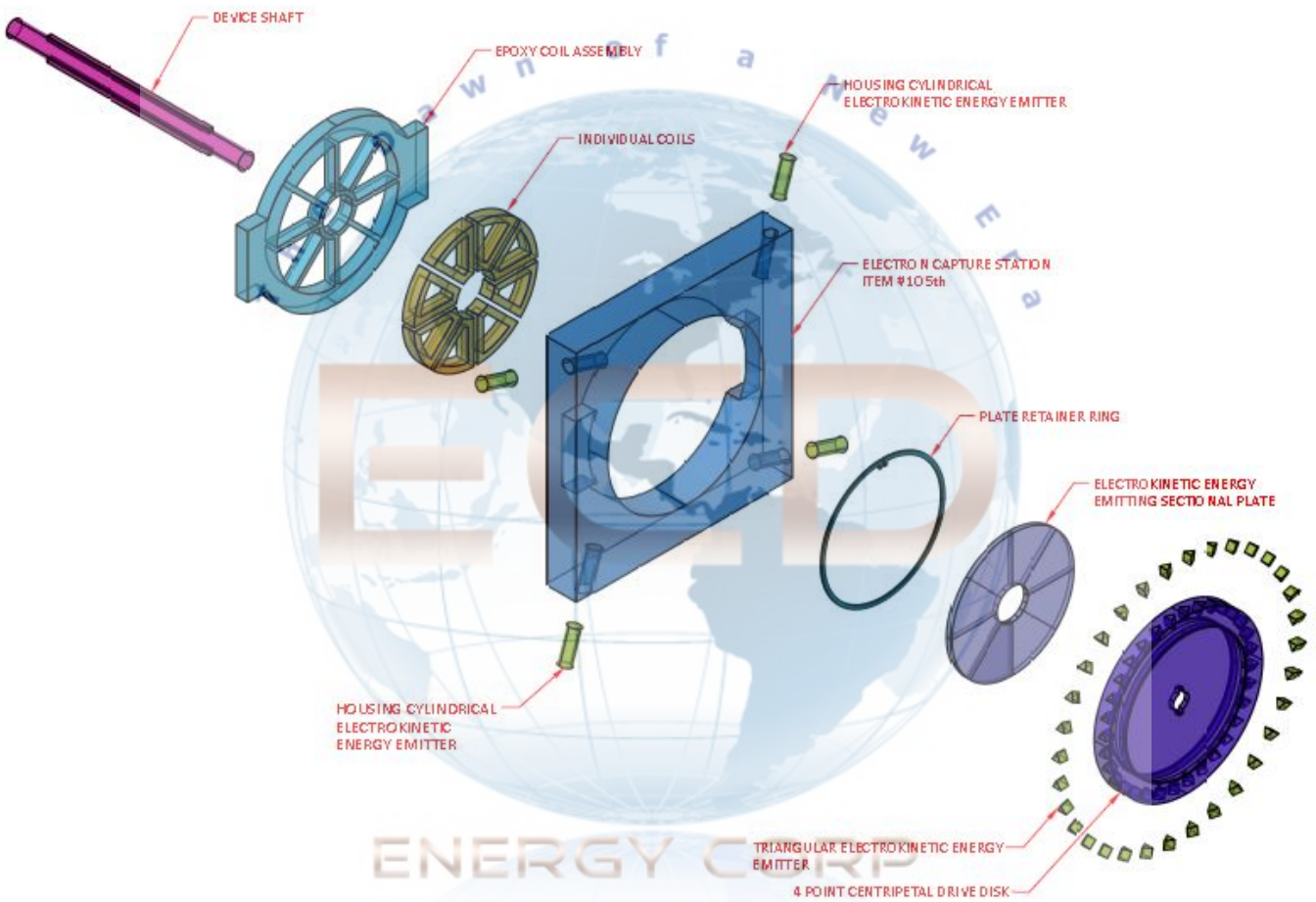
ELECTRON CAPTURE STATION ITEM #3 - X-RAY VIEW

FIG 13

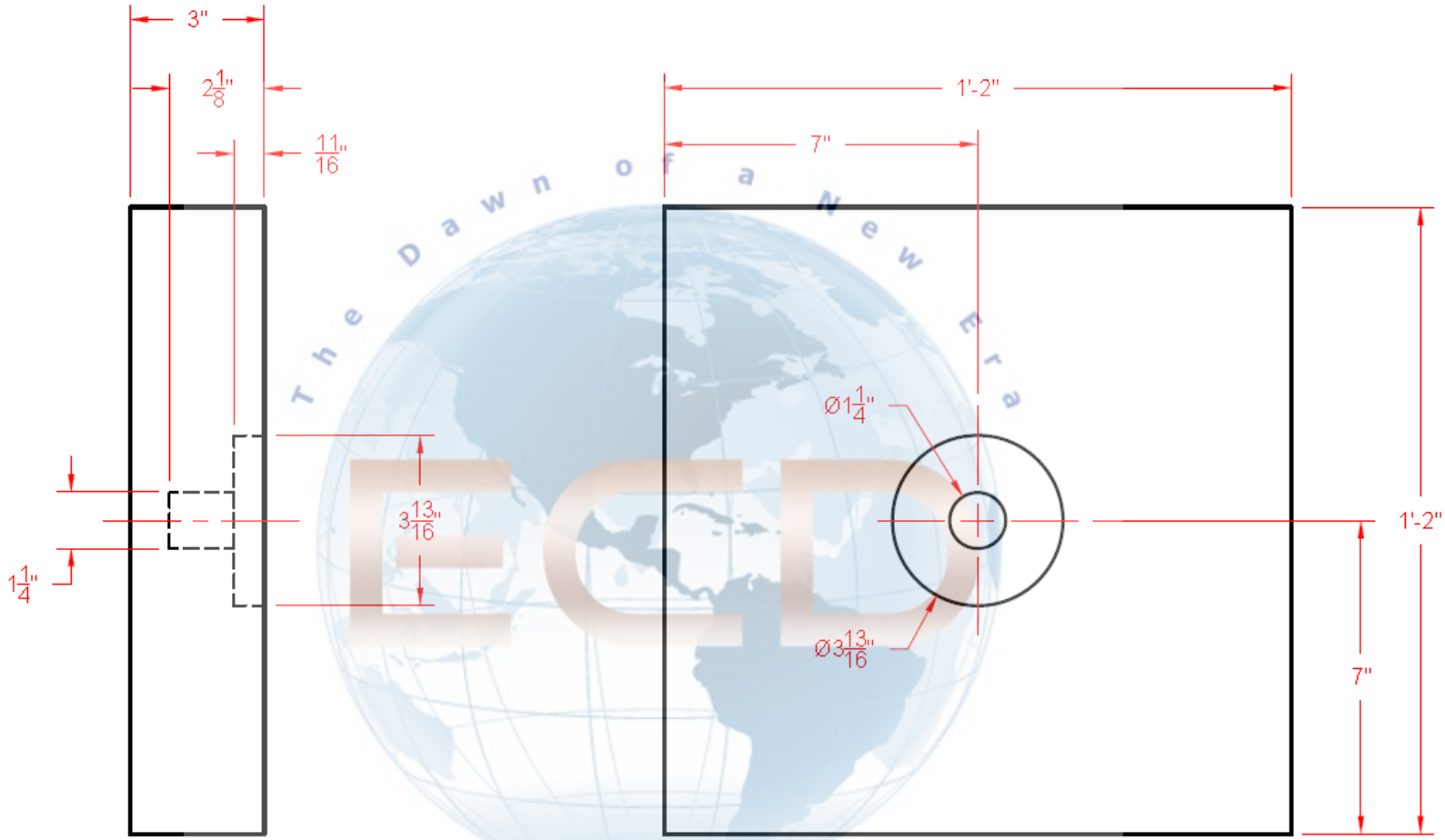
EXPLODED ELECTRON CAPTURE STATION ITEM #3 - (RIGHT SIDE)

FIG 14



EXPLODED ELECTRON CAPTURE STATION ITEM #3 (RIGHT SIDE) - X-RAY VIEW

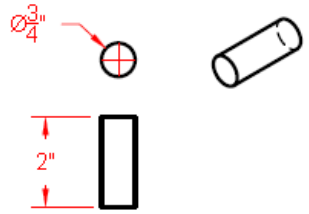
FIG 15



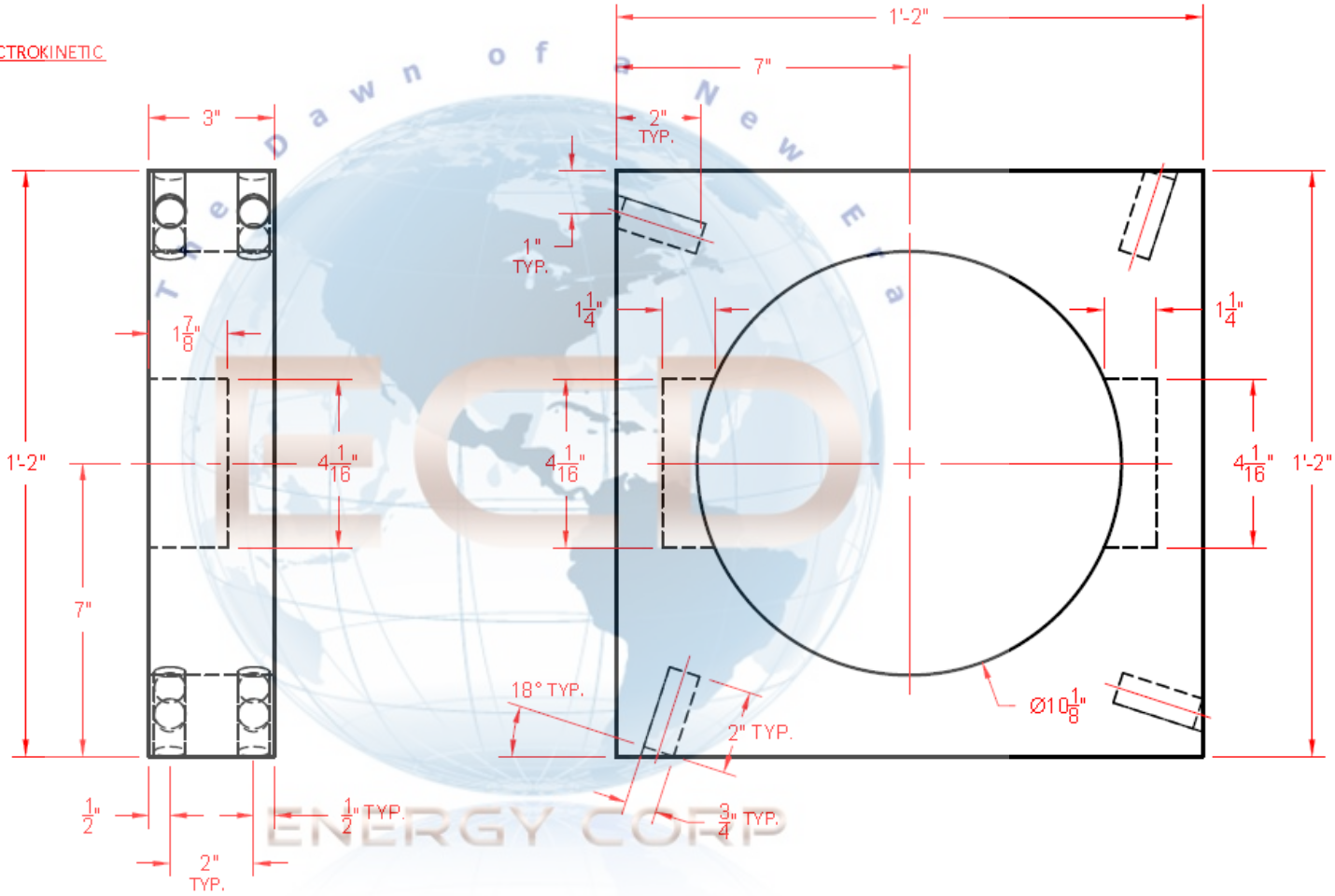
NOTE: STABILIZER HOUSING BEARING DIMENSIONS MAY CHANGE DEPENDANT ON BEARING.

STABILIZER HOUSING ITEM #4 LEFT SIDE (TYPICAL FOR RIGHT SIDE)

FIG 16



HOUSING CYLINDRICAL ELECTROKINETIC
ENERGY EMITTER
ITEM #11 (TYPICAL X (QTY) 8)

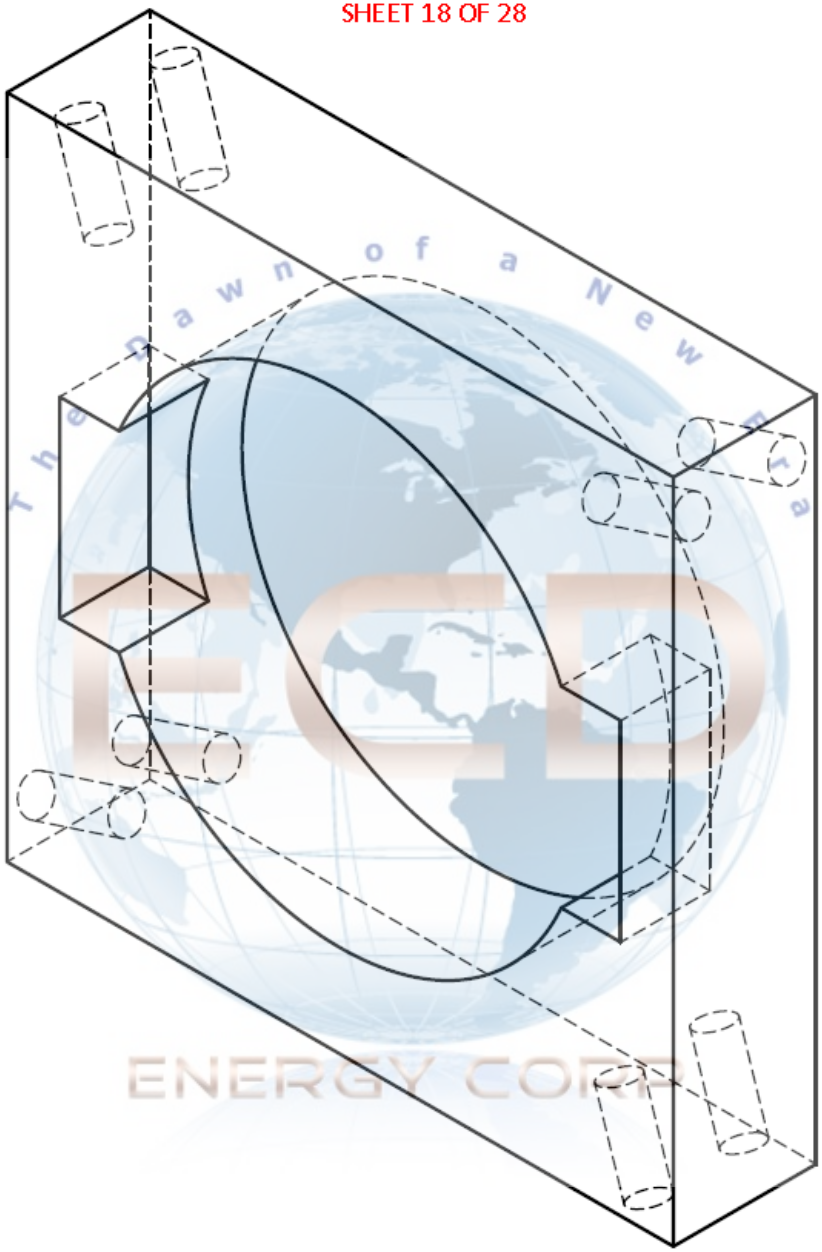


FRONT VIEW

RIGHT SIDE VIEW

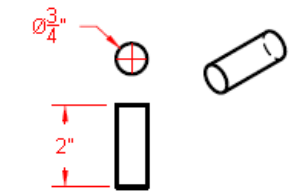
MODIFIED ELECTRON CAPTURE STATION HOUSING ITEM #17 &
HOUSING CYLINDRICAL ELECTROKINETIC ENERGY EMITTER ITEM #11

FIG 17

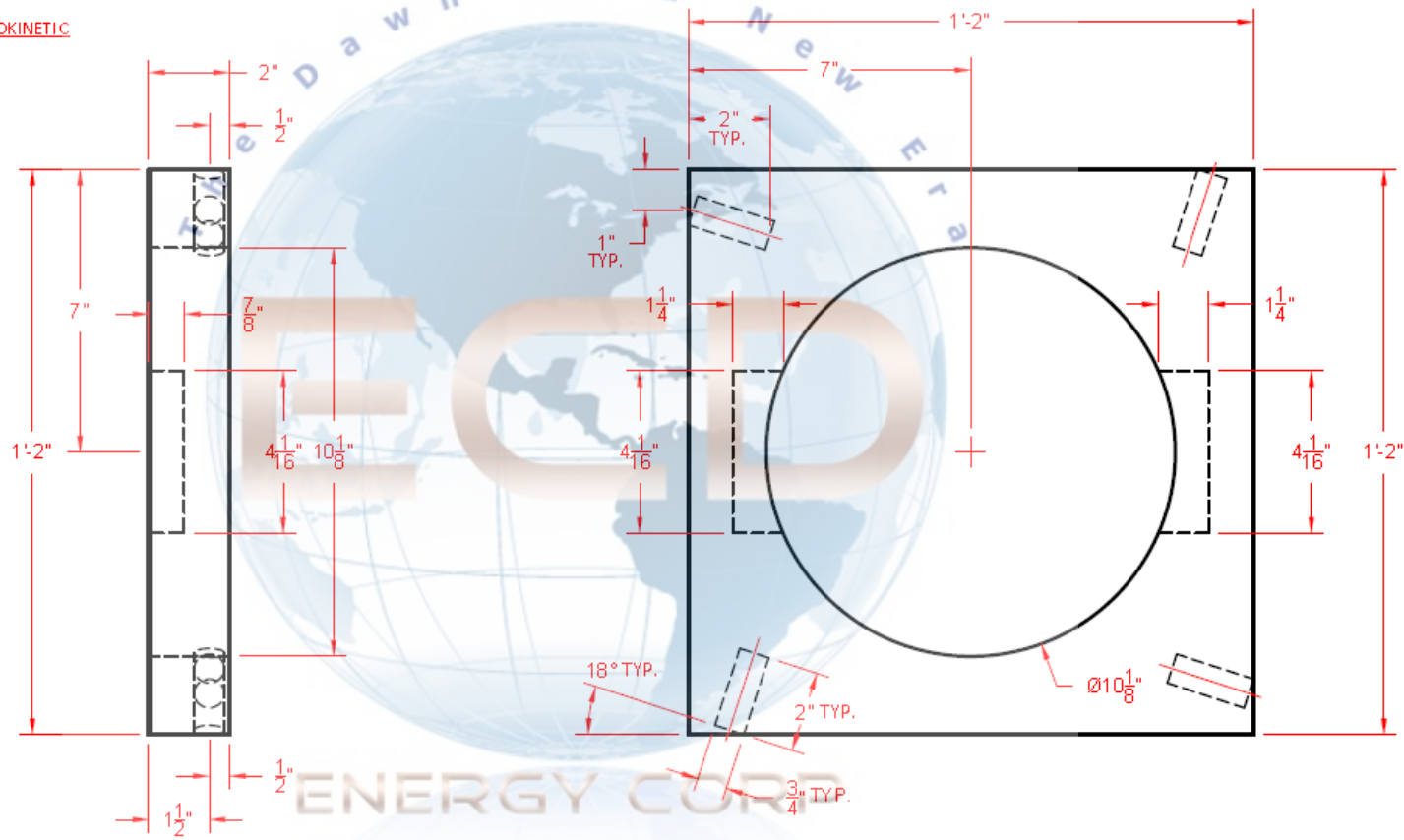


ISOMETRIC VIEW MODIFIED ELECTRON CAPTURE STATION HOUSING ITEM #17

FIG 18



HOUSING CYLINDRICAL ELECTROKINETIC
ENERGY EMITTER
ITEM #11 (TYPICAL X (QTY) 4)

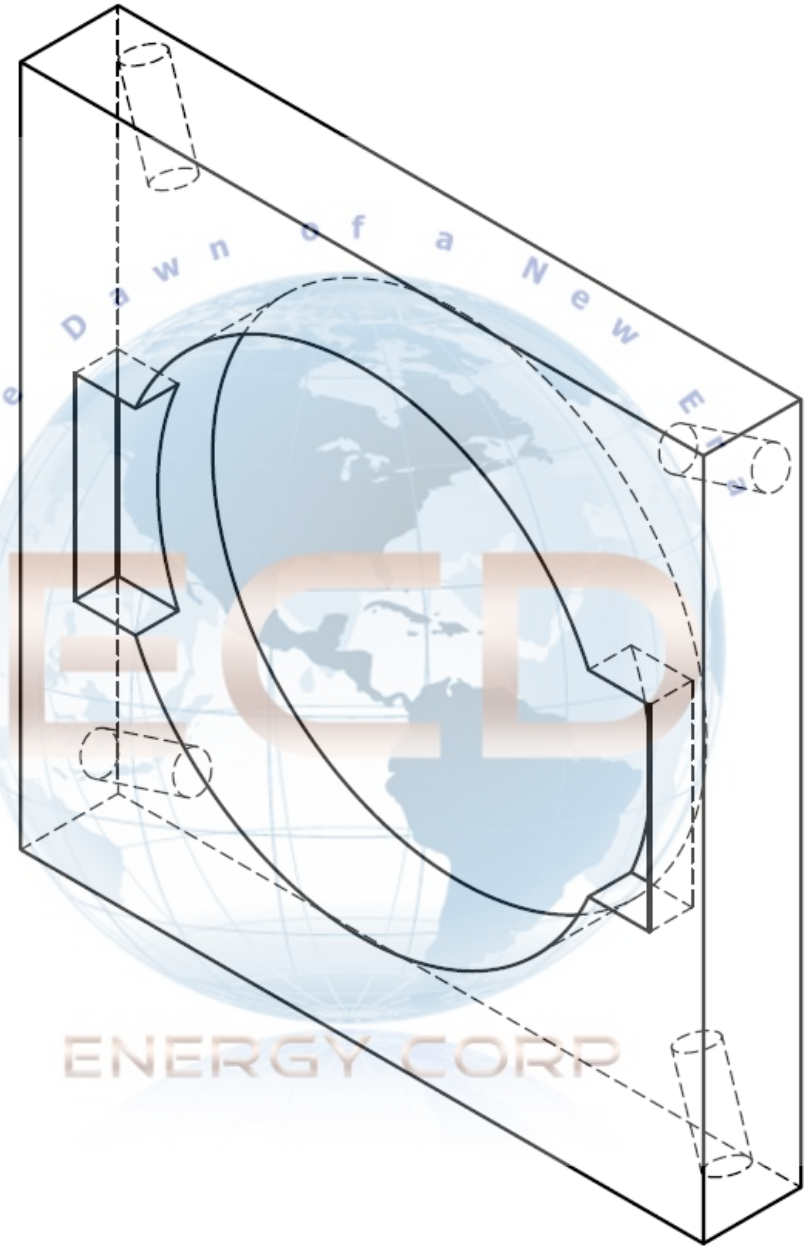


FRONT VIEW

RIGHT SIDE VIEW

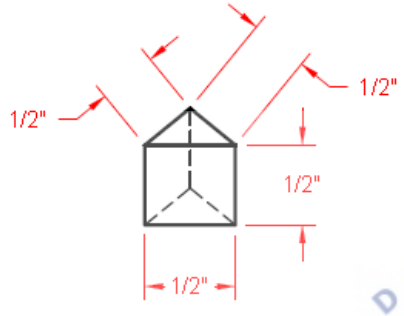
CAPTURE STATION HOUSING ITEM #10 & HOUSING CYLINDRICAL ELECTROKINETIC ENERGY EMITTER ITEM #11

FIG 19

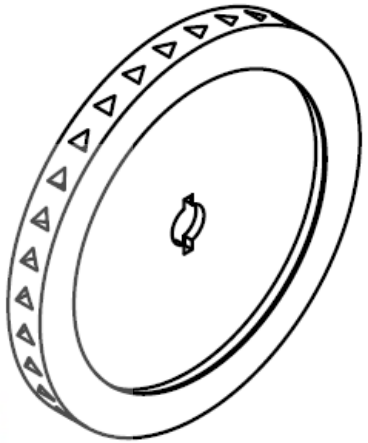


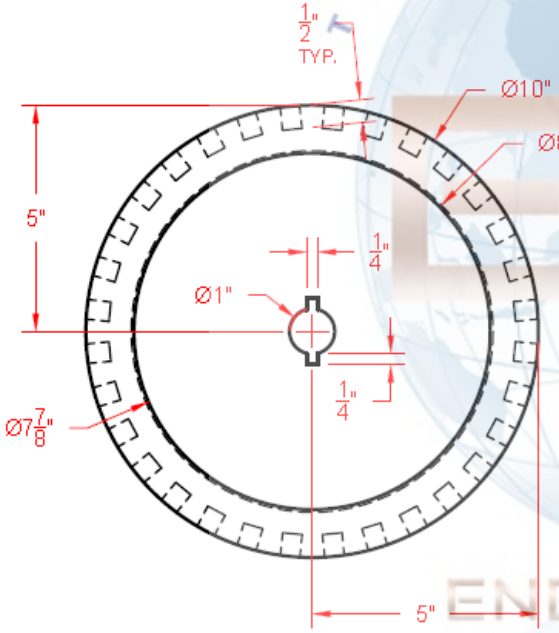
ISOMETRIC VIEW ELECTRON CAPTURE STATION HOUSING ITEM #10

FIG 20

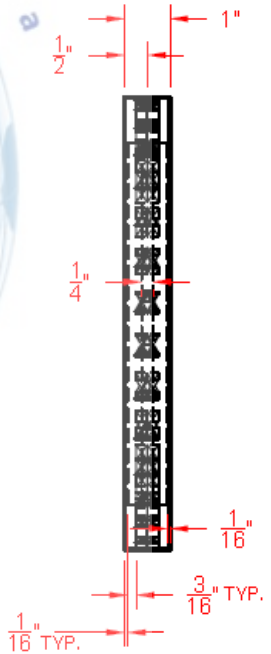


TRIANGULAR ELECTROKINETIC ENERGY EMITTER ITEM # 9





FRONT VIEW



RIGHT SIDE VIEW

4 POINT CENTRIPETAL DRIVE DISK ITEM #5 & TRIANGULAR ELECTROKINETIC ENERGY EMITTER ITEM #9

FIG 21

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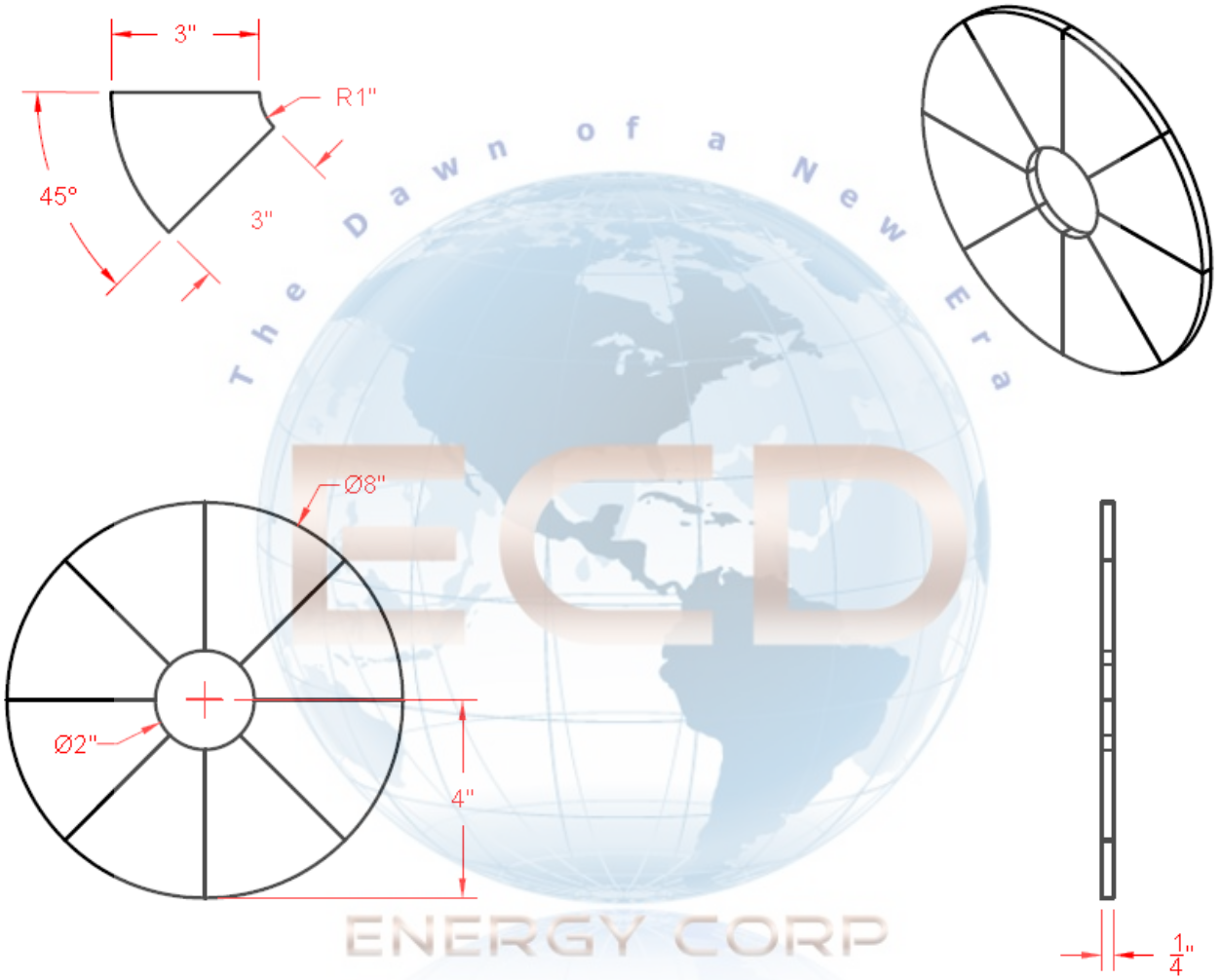
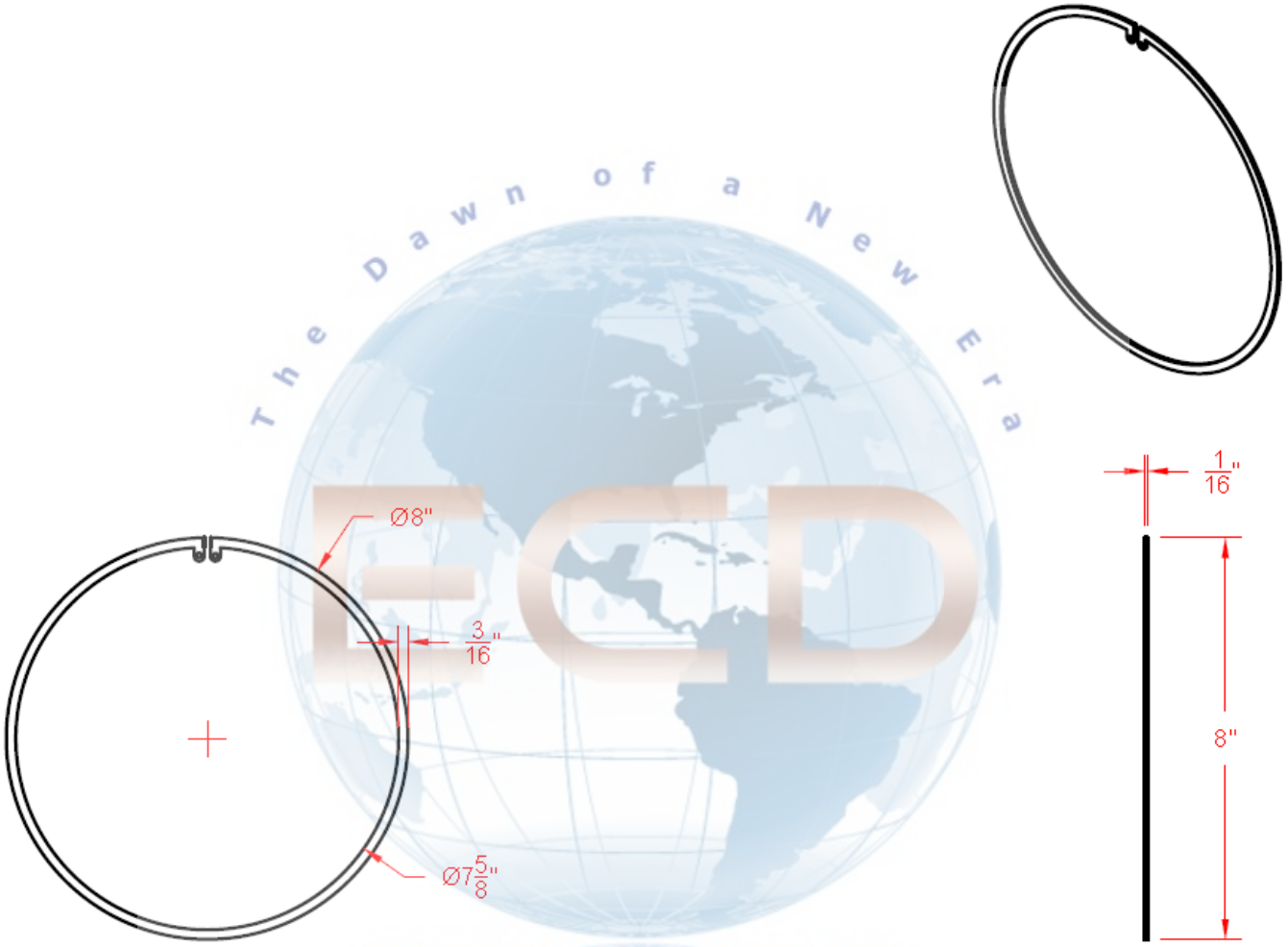


FRONT VIEW

RIGHT SIDE VIEW

ELECTROKINETIC ENERGY EMITTING SECTIONAL PLATE ITEM #6

FIG 22

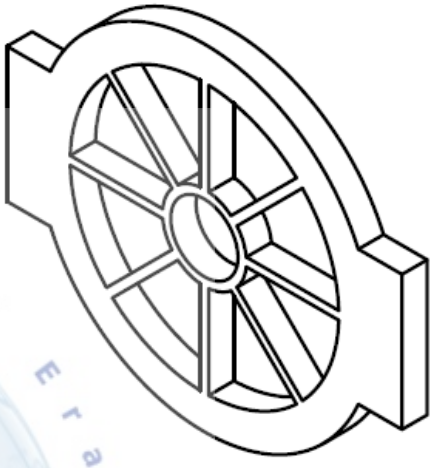


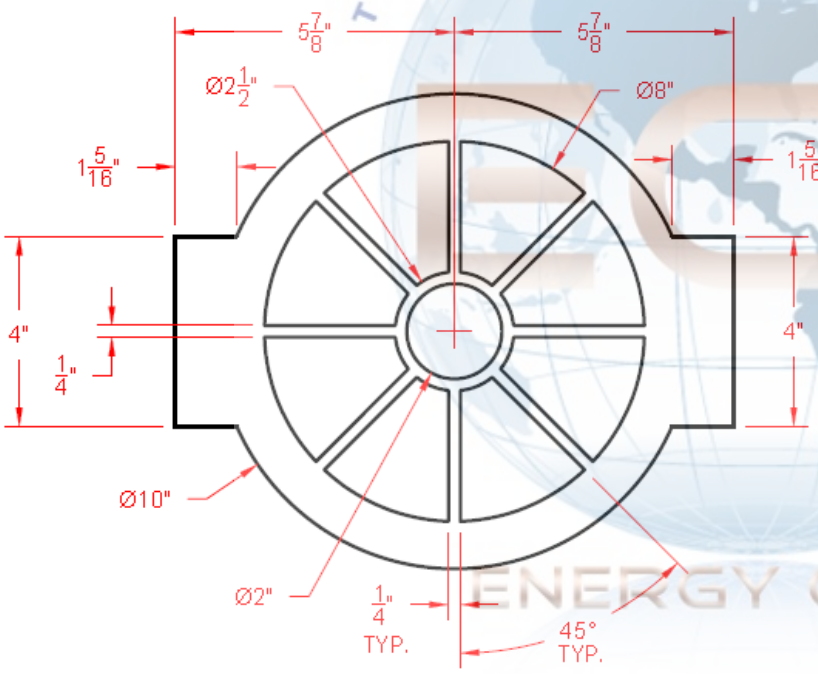
FRONT VIEW

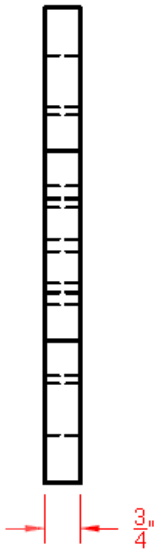
RIGHT SIDE VIEW

PLATE RETAINER RING ITEM #7

FIG 23





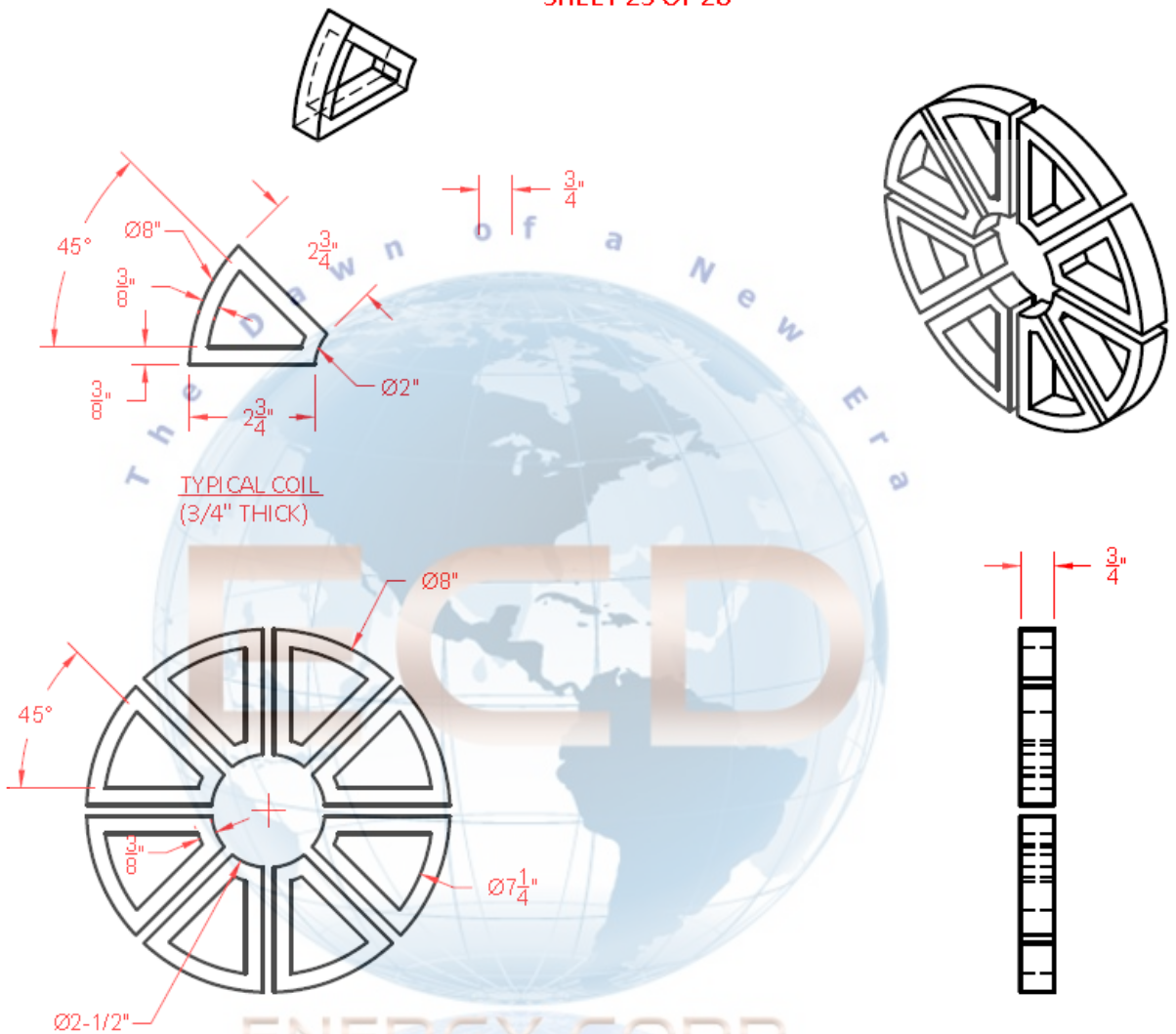


FRONT VIEW

RIGHT SIDE VIEW

EPOXY COIL ASSEMBLY ITEM #12

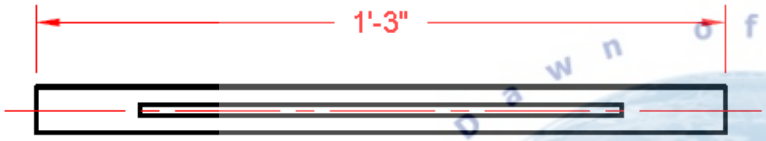
FIG 24



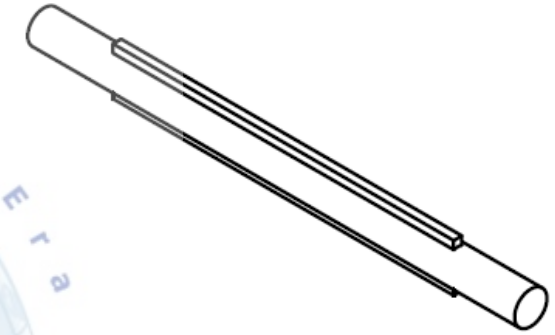
NOTE: COILS ON THIS DRAWING AND IN THE MODEL ARE NOT A TRUE REPRESENTATION OF A COIL.

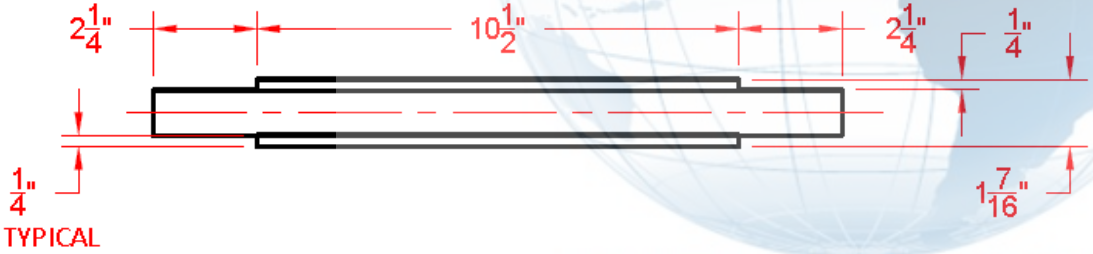
INDIVIDUAL COILS ITEM #13

FIG 25

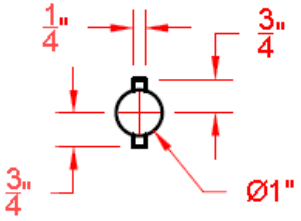


TOP VIEW





FRONT VIEW



RIGHT SIDE VIEW

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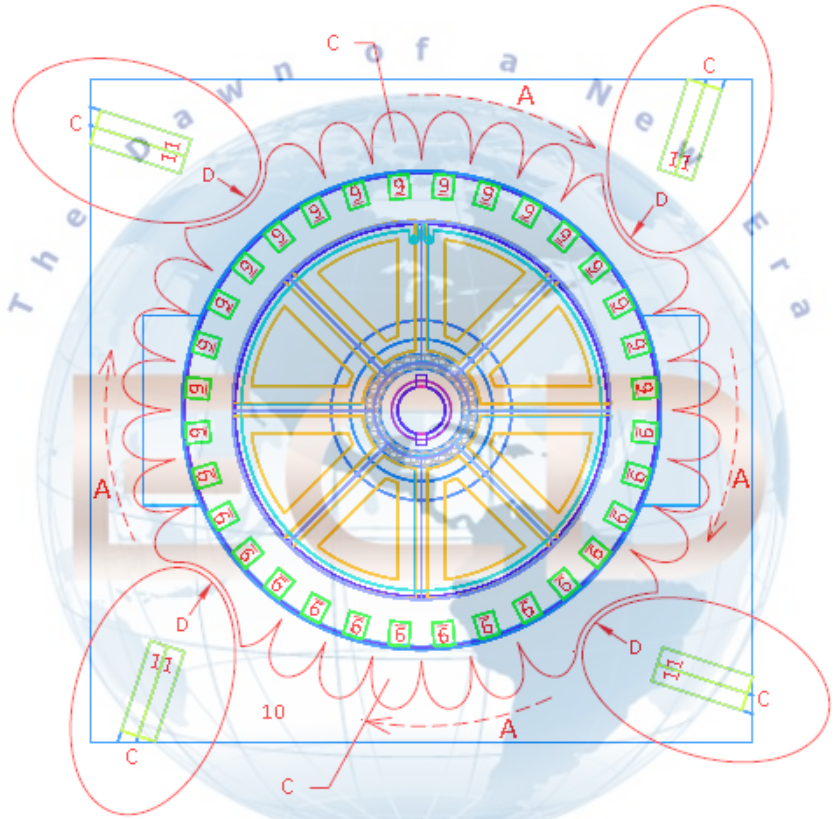
DEVICE SHAFT ITEM #15

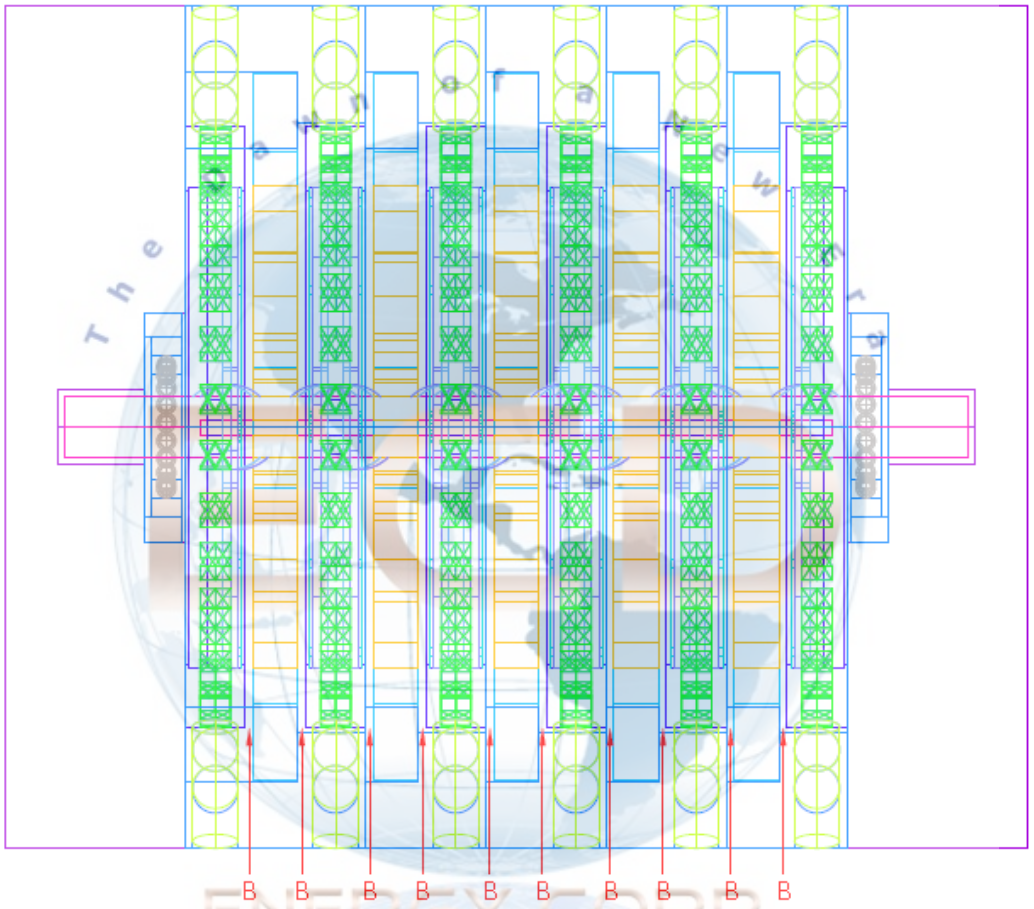
FIG 26



RIGHT VIEW

CIRCULAR MOTION (A), ELECTRO-KINETIC ENERGY (C) AND REACTION POINT (D)

FIG 27



TOP VIEW

AIR GAP "B"

FIG 28