A journey of a thousand miles begins with a single step.





## BASIC INFORMATION PACKAGE

An Information Summary

Prepared for

# Mr. Daniel Woody

# Invention: "INTERNAL COMBUSTION BOUNDRY LAYER

### TURBINE ENGINE"

Confidential Client File #TGR-201

.



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May 10, 2023

Dear Mr. Woody:

Enclosed is the Basic Information Package report, which you have requested for your invention, the "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE". In this report, we have provided the service of "packaging" your invention; that is, we have assembled basic information relevant to the "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" in an organized report format that can serve as a handy reference tool.

Primarily, the Basic Information Package report is a resume of the "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" summarizing its positive and most appealing features, just as a resume assembles the assets of an individual seeking a job. As you will recall from our Services and Fees Flow Chart, InventHelp<sup>®</sup> also performs a submission service under a separate contract. If you decide to proceed with our submission program, the Basic Information Package report will serve as the basis for the preparation of descriptive materials which will be presented to industry in the hope of obtaining a good faith review of the "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE". If you decide to promote your invention on your own, the Basic Information Package report can be a useful reference, and it can also be used by you to stimulate interest among potential investors.

Our submission agreement will permit us to present the "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" to industry and review any interest that may be expressed. We look forward to working with you.

Research Department InventHelp



### **GENERAL CONSIDERATIONS**

#### Introduction: Disclosure to InventHelp®

Information Summary This relates to product concept called a "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" which has been disclosed to InventHelp<sup>®</sup> by Mr. Daniel Woody of Troy, Michigan. This Information Summary is based upon information and disclosure forms submitted to InventHelp<sup>®</sup> by the originator along with notes from conversations with our InventHelp® sales representative. We have also supplied general marketing information tailored to "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" and have made suggestions when appropriate. The result is a reference tool which can be used to submit "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" to industry in a logical format which stresses its positive and most appealing features.

In preparing the Basic Information Package, we utilize standard statistical data with a heavy orientation on material prepared by the U.S. Department of Commerce and the Bureau of the Census. We attempt to supplement this data with more specialized information available from other basic marketing reference works, trade associations, trade publications, libraries, and other sources. The statistics provided in this report should not be interpreted as projections. Statistics generally

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lag two or more years behind the current year because of the time required by the various sources to compile and summarize the figures.

The completion of the Disclosure to InventHelp<sup>®</sup> and Record of Invention form documents the confidential disclosure of "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" to InventHelp<sup>®</sup> on a given date and may help establish a record of origin and disclosure to others.

#### Description: Product Concept Review

In this Information Summary, we will review the distinctive features of the product concept and the needs it may fulfill. The concept of "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE", as Mr. Woody submitted it to InventHelp<sup>®</sup>, is an innovative engine design that burns less fuel, generates less pollution, and can be used in a wide range of possible applications. This continuous burn engine design would be a major improvement over traditional piston engines and gas turbine engines.

The cylindrical unit would measure approximately 3 feet long and 1-1/2 feet in diameter. It would employ a main metal chassis and titanium discs.

Operation of the invention utilizes a single rotating assembly housed in a pressure chassis. The discs are the operational part of the engine, which are flat and

have three exhaust ports near the center. There is also a hub at the center for mounting on a rotating shaft for delivering torque.

The engine would have currents of working fluid introduced at the disc periphery that are directed inward in a spiraling motion towards the exhaust port. The energy delivered to the disc from the inward spiral of fluid, progressively reducing its radius of spin, would be inversely proportional to the torque produced by the engine.

Because the primary coupling effect is drag on both sides of the disc, that effective torque times the high speed of the engine is proportional to the power output. The one-piece construction of the disc naturally lends to potentially higher radial speed than its vane turbine counterpart. These discs can be made very thin to reduce the centrifugal and gyroscopic effects at high rotational speeds.

The high power output engine has a smoothness and simplicity to its operation, as the only moving component which contacts any surface of the chassis are made through the bearing surfaces on which the shaft is mounted. This design would require approximately one-third of the power input (fuel) to produce the same power output while also emitting less pollution.

Additionally, the "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" may utilize different possible fuel sources,



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making it independent of the high-end fuel refining process. The engine may be considered for a wide range of possible applications, including new-production automobiles, boats, aircraft, power generation, power tools, centrifuge pumps, and military equipment.

#### Function and Appealing Features

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"INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" is being suggested by Mr. Woody because he believes it would fulfill the need for enhanced performance and fuel efficiency for vehicles and equipment.

The appealing features of "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" would be its low friction, high efficiency, and variety of possible fuel sources. The innovative design of this engine would burn much less fuel to save motorists money at the pump. Burning less fuel would also reduce harmful pollutants being emitted into the atmosphere for a "green" or environmentally-friendly design.

This continuous burn engine would have a rather simple design with no complicated cooling system, allowing it to run much hotter with more fuel energy being converted to mechanical shaft energy. It would not have close-fitting parts, thereby avoiding the wear and friction commonly associated with traditional piston/cylinder engine designs. The invention would be very reliable, long-lasting,

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scalable to the desired power output, and versatile enough to be considered for various possible applications.

#### **Historical Development**

Prior to contacting InventHelp<sup>®</sup>, Mr. Woody identified a need or a problem to be solved that prompted him into the invention process. He then conceived "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE". Subsequently, sketches/drawings and a written description were prepared for review by InventHelp<sup>®</sup>. No attempts have been made to manufacture or market "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE".

Mr. Woody indicates that a United States Patent Application Publication was made for the "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" on February 14, 2013 (Publication No: US 2013/0039744 A1).



### **PRODUCTION CONSIDERATIONS**

InventHelp's work is based on the premise that the originator has predetermined that "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" will work, function as designed, serve the intended purpose, and accomplish those objectives desired. We do not express an opinion regarding feasibility nor do we make projections regarding the success of an idea or concept as the elements involved in marketing are many and complex.

#### **Variations**

The potential exists for varying the production of "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" in ways which could make it more appealing to a wider range of end users. This could include producing the engine in different sizes for various possible applications. This may include models for the power plant of a hybrid vehicle and a power plant for generators (hybrid vehicles).

#### **Producibility**

While "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" remains in a conceptual state of development, it appears that manufacture would encompass existing technology and make use of relatively



standard materials and manufacturing processes. The ultimate design developed may require some variations in current production procedures but would likely not require any new technology.

This advanced cylindrical engine design for multiple applications could be manufactured using a metal chassis with titanium discs. Components may be forged or cut to size and precision machined to specifications, including the shaft and bearing surfaces. Of course, other metals and manufacturing procedures may also be considered for the engine. For new vehicle production, this high efficiency engine could be installed in standard assembly line fashion.

#### Packaging

In the event that "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" is manufactured, it will require a package. Developing a package for a new product involves numerous considerations. Requirements for packaging can be highly variable. Some items, such as automobiles and heavy machinery, are not usually packaged. Other items, notably consumer goods, require elaborate packaging designs.

Industrial packaging is primarily concerned with identifying and protecting the product during shipment and storage. While some industrial products can be shipped as single units, others must be shipped as sub-assemblies and used in the production process or installed by millwrights or technicians at plant facilities.

The engine may be packaged in a wooden crate or a reinforced cardboard box with inserts (depending upon size) to protect it during shipment.

#### **Cost Estimates**

A wide range of factors influence the selling price, distribution channel markups, and unit cost of a product. The large number of variables and their fluctuations make it exceedingly difficult (if not impossible) to accurately estimate price, markups, and cost factors short of actual manufacture and distribution.

One common approach towards the selection of a possible selling price considers "positioning" of the proposed product relative to other existing products with similar attributes. Price positioning therefore is part of the overall market position and reflects a price which could be in line with the potential perceived value for the proposed product.

Once "price" or "perceived value" is estimated, consideration can then be given to what type of markup structure could reasonably be used to arrive at such a final selling price, given known or estimated markup correlations between retailers, wholesalers or distributors, and manufacturers. We use a retrospective approach and

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work with an estimated selling price to approximate wholesaler markups and manufacturing costs.

Manufacturers, in determining their prices, also consider such factors as fixed costs associated with plant, equipment, and tooling; factors such as the costs of raw materials, labor (affected by automation), assembly techniques, packaging, and overhead; and marketing variables such as the costs of shipping and handling, sales expenses, warranty and return factors, factors of loss, overhead, competitive pricing, geographic and demographic location, etc.

Within the scope of this Basic Information Package report, even the best efforts can result in deriving only rough approximations for the positioning of selling price, corresponding distributor channel markups, and potential manufacturing costs. For working purposes in preparing this Information Summary, however, we project an estimated pricing structure as follows:

-	Manufacturing Cost:	\$ 375.00 to \$ 500.00 per unit
-	Wholesale Price:	\$ 750.00 to \$1,000.00 per unit
-	Sales Price:	\$1,500.00 to \$2,000.00 per unit

Of course, this is a very rough pricing estimate that may vary considerably based upon a number of different factors.

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### Industrial Classification

There are firms that may be capable of manufacturing "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE". InventHelp<sup>®</sup> uses the traditional Standard Industrial Classification (SIC) system developed by the U.S. Department of Commerce to structure their databases of manufacturers. Under the SIC system, each manufacturing category is assigned a numerical classification code. In preparing this Basic Information Package report, we designate manufacturers in a general category using a four-digit SIC code. The following represents the number of manufacturers classified in the broad category corresponding to "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE":

- 5,795 Manufacturers of Motor Vehicle Parts and Accessories (SIC 3714) (includes manufacturers of automotive engines)
- 782 Manufacturers of Internal Combustion Engines, n.e.c. (SIC 3519)

Only a small percentage of these manufacturers may be appropriate candidates for the submission of "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE". We use this SIC code to attempt to match your invention to companies registered in our Data Bank<sup>TM</sup> or with companies from



general industry sources. In some cases, a more defined keyword will be used to narrow the broad SIC category down to a more specific area of interest. We attempt to match the SIC code or keywords assigned to your invention with corresponding areas of interest of companies in our Data Bank<sup>TM</sup>. We also search for companies with matching or similar SIC codes from our database or general business sources. In addition, you may have knowledge of companies which you believe may be interested in your invention. We encourage your participation in the submission process and will attempt to submit your invention summary to companies you have designated. Generally, we strive to send submission materials to up to 100 companies.

In 1997, the U.S. Department of Commerce implemented a new classification system, the North American Industrial Classification System (NAICS), to replace its Standard Industrial Classification (SIC) system that had been in use for more than 60 years and was last revised in 1987. NAICS (pronounced "nakes") was developed in conjunction with Canada and Mexico to more easily interpret and compare economic data among these allied trading partners. Although NAICS represents a more comprehensive way for the Department of Commerce to report economic statistics, both systems continue to be used.



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### MARKET CONSIDERATIONS

#### **Competitive Environment**

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When considering the introduction of a new product to the marketplace, one of the factors that should be considered is the competitive environment. Efforts should be made to learn what existing competitors are offering to their customers and the customers' wants and needs. A new product introduction can be an improved or modified version of an existing product or it can be a totally new product innovation. In either case, the competitive environment should be studied to determine the existence of similar or identical products.

The inventor has disclosed a belief that this product concept is original; we have relied on this information when preparing this report. We conduct a necessarily limited check of the marketplace for competitive products. An in-depth investigation is not possible as there is no definite way to assure that an idea or product has not been tried or thought of in the past or is not now in use somewhere in our country or elsewhere. In addition, the competitive environment changes daily. Old products disappear; new ones appear. Seasonal trends also influence the availability of products. While a check of the marketplace may turn up nothing today, a similar product may already be produced and on its way to a distributor. A new product may even be on the drawing board in preparation of actual manufacture, and of

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course there would be no way for us to know of its existence. A competitive product may also be available within a specific geographical market area or available only on a limited basis as part of a test marketing program, so it is possible that neither the inventor nor InventHelp<sup>®</sup> would be able to locate competitive products.

In preparing our Basic Information Package reports, we generally review catalogs for the existence of similar products. In conducting such a spot-check for "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE", we did not find an existing competitive product on the market.

### Benefits, Appeals, and Trends

Many factors influence the acceptance of a product in the marketplace. Two of the major factors relate to the needs a product fulfills (the benefits) and a desire to own that product (the appeal and/or a combination of these factors). Also important are the trends and outlook of the industry pertaining to the invention. Within this section of our Information Summary, we will consider the various benefits, appeals and trends which relate to "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE".

To provide manufacturers of vehicles and other equipment with an unconventional engine design with a number of positive attributes, Mr. Woody has conceived the "INTERNAL COMBUSTION BOUNDRY LAYER TGR-201 - 13 -



TURBINE ENGINE". This innovative product would burn less fuel and generate less pollution in operation than traditional piston engines and gas turbine engines. It would also be easily scalable to achieve the desired power output for the particular application.

One clear advantage of this product would be its high level of efficiency. It would not encounter friction and internal mechanical drag from reciprocating pistons within cylinders and other moving mechanical parts. It has a very simple design to minimize resistance to rotation so more torque gets delivered to the main shaft for propulsion.

This design would help consumers achieve greater fuel economy on streets and highways with significantly-reduced overall fuel consumption. This would save money at the pump, making this engine very appealing to budget-conscious drivers.

By improving fuel economy with the "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE", a reduction in air pollution would also be realized. With this design, emissions of carbon monoxide, hydrocarbons, and oxides of nitrogen that are normally produced by traditional engines could be reduced. This could help protect the environment, making it a very appealing "green" alternative for vehicle manufacturers. This engine would utilize a continuous combustion process that provides smooth, quiet, and continuous power output. There would be no need for a bulky and complicated cooling system in the operation so the engine runs hotter with more fuel energy being converted into mechanical power.

The engine would have a rather simple construction with just one moving assembly. There would be no pistons, valves, radiator, or oil and water manifolds needed for operation. This would translate into a high level of reliability for a very long and productive product life. In the automotive industry, this would be a real selling point for demanding consumers seeking the latest in engine technology and design.

The scalable nature of this high power output engine would also make it very versatile. In addition to new-production automobiles and light trucks, it could be readily adapted for the military, boats, aircraft, power generation, power tools, and centrifuge pumps.

Since the "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" could be used extensively in the automotive industry, it is interesting to note trends relating to motor vehicle accessories, parts, and equipment. Vehicle parts are generally defined as either aftermarket parts or original equipment (OE).



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Original equipment parts are used in assembling new-production vehicles or are purchased by the manufacturer for use in its service network. The majority of the auto parts industry is derived from the automotive manufacturing industry.

Aftermarket parts for vehicles can be divided into two categories: accessories and replacement parts. Accessories are generally components made for comfort, convenience, performance, safety, or customization, and are retrofitted or used in conjunction with motor vehicles that have already been sold.

Any automotive parts built or remanufactured to replace original equipment parts as they wear out or become damaged are considered replacement components. Automotive parts suppliers manufacture a variety of components, including windshield wipers, airbags, filters, wheels, radiators, and various other vital parts.

According to Mordor Intelligence, the aftermarket parts and components market for 2020 was valued at \$17 billion in the United States. By 2026, this market is expected to reach the \$19 billion level, registering a compound annual growth rate of about 2 percent per year.

Americans are holding onto their vehicles for longer periods of time, so they will need worn-out parts to be replaced. The average age of vehicles in the U.S. climbed to a record 12.1 years in 2020. Besides age, other factors also influence demand in the automotive aftermarket parts industry, including income levels, vehicle



prices, fuel prices, consumer sentiments, production innovations, interest rates, and vehicle scrappage rates.

Certain automotive parts are purchased much more by consumers than by automobile manufacturers. An automaker, for example, only installs one battery per car. Over the entire life of that same car, however, several replacement batteries might be purchased. Some parts are replaced with even greater frequency, such as oil filters, where as many as 35 replacement parts may be purchased by consumers.

The automotive parts and accessories market is also influenced by innovation and technological advancements, as offerings of electric cars, driverless cars, and smart cars increase. Over time, automotive markets are merging with other fields and industries due to new technology, boosting growth in sales. Google testing selfdriverless cars and Tesla offering sophisticated vehicle automation options are just a few highlights of progression in this field.

#### Market Targets

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One of the most important factors to consider in the new product development process is the size of the potential market. For purposes of this report, a "market" is defined as the "set of potential purchasers" of a new product. While few products have universal appeal, it is possible to generally define a broad market to give an indication of its size. Since most products are targeted to specific groups of

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consumers with specialized interests, it is often possible to segment the market into submarkets. Each submarket differs in its requirements, buying habits, or other critical characteristics.

It is not our intention in this section to imply that all or even any of the markets identified would represent actual purchasers of "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE". Our purpose is simply to identify those groups which we view as being appropriate potential market targets for the invention in the event that it is manufactured and marketed.

The <u>Primary Market</u> would consist of the automotive original equipment manufacturers. This includes General Motors, Ford, and Chrysler as well as foreign-based companies that produce cars and trucks in North America (i.e., BMW, Hyundai, Honda, Kia, Mercedes, Nissan, Mitsubishi, Subaru, and Toyota). According to the market research firm IBISWorld, there are 144 passenger car manufacturers, 60 light truck manufacturers and 86 medium- to heavy-duty truck manufacturers in the U.S. These assembly plants are operated by the Big Three, by foreign-based producers, and as cooperative ventures between them.

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In 2020, these companies produced approximately 2 million passenger cars, 6.6 million light trucks, 99,000 medium-duty trucks, and 141,000 heavy-duty trucks.

Some major heavy-duty truck manufacturers in the U.S. are Ford, Daimler AG, Navistar International, Peterbilt, Mack, Kenworth, and Volvo. The car and truck manufacturing industry has an estimated market value of \$320 billion.

To a great extent, motor vehicle manufacture represents the assembly of myriad parts, components, and systems, many of which are produced by subcontractors for the original equipment manufacturers (OEMs). As such, subcontractors allied to the OEMs could also represent a potential market for "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE". These subcontractors provide components for motor vehicles either as original equipment or as replacement parts for the aftermarket. In some cases, components are supplied for both.

Within the motor vehicle parts industry, there are 4,035 companies operating at 4,991 locations that manufacture motor vehicle gasoline engines and engine parts, vehicle electrical and electronic equipment, steering and suspension components (except springs), brake systems, transmissions and power train parts, seating and interior trim, metal stamping, air conditioning, and other motor vehicle parts.

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The market research firm IBISWorld publishes reports on the various automobile parts industries including the number of companies and their market size. In 2020, there were 253 companies producing vehicle steering and suspension systems with a market size of \$14 billion; 19 companies producing car airbags worth \$3 billion; 178 companies producing brakes worth \$12 billion; 744 companies producing vehicle engine and engine parts worth \$39 billion; 455 companies producing vehicle transmissions worth \$44 billion; 754 companies producing metal stampings worth \$38 billion; 585 companies producing vehicle electronics worth \$22 billion; and 1,340 companies producing auto parts and accessories worth \$71 billion.

The <u>Secondary Market</u> would consist of manufacturers of boats and ships. There are an estimated 3,603 boat building and repairing facilities in the U.S. and an additional 1,053 ship building and repairing businesses.

According to the U.S. Bureau of Economic Analysis, American consumers spent \$21.35 billion for pleasure boats in 2020.

The <u>Tertiary Market</u> would consist of manufacturers of aircraft. There are an estimated 1,361 aircraft manufacturers in this country.



U.S. manufacturers sold 1,596 civilian aircraft in 2017, a 2.5 percent increase over the number delivered in 2016. Of the total; 786 were piston airplanes, 409 were turboprop planes; and 401 were jets.

The <u>Quartern Market</u> would consist of the U.S. military. In 2020, the U.S. had roughly 1,123,086 active-duty Army, Navy, Marine Corps, Coast Guard, and Air Force personnel serving nationwide.

With respect to the military branch, in 2020, the Army had 383,022 active duty personnel; the Navy had 279,782 active duty personnel; the Air Force had 265,336 active duty personnel; the Coast Guard had 32,068 active duty personnel; and the Marine Corps had 162,878 active duty personnel.

The U.S. Armed Forces currently has more than 13,200 military aircraft, 40,000 armed vehicles, and 450 naval vessels in service. Defense spending is expected to grow from \$714 billion in 2020 to \$900 billion by 2030. The U.S. Air Force is expected to register the highest growth rate due to procurement plans to replace aging combat aircraft. They have requested \$47.2 billion in 2021 for research and development of new technology, including investment in new unmanned aerial systems (UASs), which are crucial to remote operations and inexpensive to produce. DOD is also making investments in hypersonic missile technology and various other electronics.

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In addition, they Department of Defense will be making investments in the development and launch of satellites, weapons, ammunition, and protection and training equipment. The U.S. was the largest spender for military Personal Protective Equipment (PPE) in the world. Military PPE refers to body armor, tactical vests, respiratory devices, combat helmets and gloves, and footwear. The purpose is to protect personnel from physical, biological, chemical, and radioactive hazards.

Standard issued equipment for military personnel can vary widely depending on branch, unit and mission. Such equipment includes uniforms, boots, body armor and helmet, and a rucksack. Communications equipment, power sources, night vision goggles, food rations, toiletries, and a first aid kit would also be carried. In addition to those items, military personnel would also carry weapons and ammunition. Weapons can include a variety of guns, such as pistols, shotguns, rifles, carbines, and machine guns, as well as grenades.

In addition to those domestic markets previously identified, the international market might offer the potential for expanded marketing activities. Factors of language, cultures, and standards of living would be important considerations when viewing the world market.



Many products today enjoy worldwide distribution. The interdependence of nations, growing import and export trade, and expanding common markets have all tended to draw our world closer together in both buying habits and product utilizations.

According to the International Trade Administration, U.S. exports of goods and services for 2020 were \$2.1 trillion, which was a 15.7 percent decrease from 2019. More than 304,000 U.S. companies exported goods and nearly 98 percent of these companies were small- or medium-sized enterprises (SMEs) with fewer than 500 employees. One of the most popular export destinations for SMEs is Canada, with more than 89,492 registered export sales worth \$61.0 billion. Additionally, 53,586 SMEs exported to Mexico, which totaled \$85.9 billion in goods. In addition to Canada and Mexico, the top five export markets also included China, Japan, and the European Union.

The following export product groups represent the highest dollar value in American global shipments during 2020: machinery, including computers (\$182.6 billion); electrical machinery and equipment (\$162.9 billion); mineral fuels including oil (\$155.1 billion); vehicles (\$105.2 billion); optical, technical, and medical apparatus (\$83.4 billion); aircraft and spacecraft (\$80.9 billion); plastics



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and plastic articles (\$60.2 billion); gems and precious metals (\$60 billion); pharmaceuticals (\$53.9 billion); and organic chemicals (\$34 billion).

According to the Foreign Trade Division of the Census Bureau, U.S. firms exported \$7.68 billion worth of motor vehicle gasoline engines and parts in 2020, a decrease from exports in this category during 2019, which totaled \$8.84 billion.

### **Distribution Channels**

Once the potential market targets for a new product have been identified, consideration should be given to identifying the types of outlets where the product could potentially be distributed to those market targets. In this section, we will identify potential channels of distribution for "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE". However, there is absolutely no way that anyone can project with any accuracy the number of distribution outlets which might actually handle any given product.

In obtaining the number of outlets for a particular distribution channel, we utilize information from the <u>Economic Census</u> conducted by the Census Bureau, an agency within the U.S. Department of Commerce, as our primary source.

The following channels represent potential outlets where "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" could be distributed to the primary market:



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		InventHelp <sup>®</sup>
-	Merchant Wholesalers of Motor Vehicle Suppl & New Parts:	lies 13,169
-	Wholesale Trade Agents and Brokers of New and Rebuilt Automotive Parts and Suppl and Trailer Parts and Supplies:	ies, 876
Th	ose distribution channels that might relate to other	market targets include
the followi	ng:	
-	Merchant Wholesalers of Aircraft & Aeronauti Equipment, Parts & Supplies:	cal 1,575
-	Merchant Wholesalers of General Purpose Industrial Machinery, Equipment, & Parts:	27,017
-	Merchant Wholesalers of Marine Machinery, Equipment, & Supplies:	830
-	Wholesale Trade Agents and Brokers of Aircraft and Aeronautical Equipment:	196
-	Wholesale Trade Agents and Brokers of Other Transportation Equipment:	46
-	Wholesale Trade Agents and Brokers of Boats and Go-Carts:	453

Of particular interest within some general categories already suggested could be these more specialized potential outlets (as counted by a major business list firm):

- Wholesalers of Truck Equipment & Parts: 918

In today's global marketplace, products may be exported in a number of ways: directly by the manufacturer, by wholesalers, by retailers, or by other agents, to name a few. According to the <u>Economic Census</u>, nearly 7,190 merchant wholesalers (with employees) cite exporting to be the primary nature of their business. This number represents 3.2 percent of the total number of exporting establishments tracked by the Foreign Trade Division of the U.S. Commerce Department. Nevertheless, these exporters—in addition to exporters included among the distribution channels previously cited—may be of interest when considering distribution to the international market:

-	Wholesale Merchant Exporters of Motor Vehicle Parts (with employees):	9,751
-	Wholesale Merchant Exporters of Transporation Equipment (with employees):	17,661
-	Wholesale Merchant Exporters of Motor Vehicles (with employees):	2,770
-	Wholesale Merchant Exporters of Ships & Boats (with employees):	1,010



### PROMOTIONAL CONSIDERATIONS

Marketing a product involves more than development, pricing, and accessibility to the targeted markets. Any company attempting to market a new product is inevitably cast in the role of promoter. Potential customers must know that a new product exists, what its advantages are, and where it can be purchased.

InventHelp<sup>®</sup> is not the manufacturer or marketer. Many marketing organizations maintain in-house promotional staffs, while others purchase outside services from advertising agencies and public relations firms. In this Basic Information Package report, InventHelp<sup>®</sup> will suggest some means of promotion that could be considered by a potentially interested manufacturer or marketing organization.

#### **Advertising**

One of the most widely used methods of promoting sales of a new product is advertising. Advertising can take many forms and involve varied media, including television, radio, magazines, newspapers, and the Internet and social media. Many newspapers and magazines offer digital subscriptions in addition to, or instead of, their print options. In general, advertising is a pervasive mode of communication which permits the advertiser to repeat a message many times. An advertising posture for "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" might involve the use of trade magazines. Some business (trade) publications, whether print or digital options, to consider for the placement of advertising for "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" include <u>Automotive News</u>, <u>Automotive</u> Industries, and <u>SAE Autmotive Engineering International</u> as well as <u>Air Transport</u> World Magazine, <u>Aircraft Maintenance Technology Magazine</u>, <u>Aviation</u> Maintenance, <u>Avionics</u>, <u>Airport</u>, <u>Rotor & Wing</u>, and <u>Business & Commercial</u> <u>Aviation</u>.

Also included could be <u>Boating Industry</u>, <u>International Boat Industry</u>, and <u>Professional Boatbuilder</u>.

In addition, advertising in trade magazines oriented to import/export activities (such as Exporter, Global Trade, and Commercial News USA) might be utilized.

#### **Special Promotional Programs**

In addition to the modes of promotion already suggested, a manufacturer or marketer may elect to promote a new product by displaying it at trade shows. Specifically, "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" could be displayed at new product trade shows. Direct



sales could also be used for promoting "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE".



### <u>SUMMARY</u>

InventHelp<sup>®</sup> performs its services in two stages. In the first stage, we begin the packaging of your idea, invention, or product by assembling basic information about "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" in a professional and attractive form. This report completes our Basic Information Package service to you.

You now have several alternatives to consider. One option would be to stop at this stage and do nothing further with "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE". However, you would not be taking any steps to attempt to gain interest in your idea.

Another option would be to use your report to try to stimulate interest in or as a basis to further promote or develop "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE". While having information about your idea in an organized report is helpful, we find that most inventors who approach us recognize that they do not have the time, expertise, or inclination to work on their ideas on their own.

A third option would be for you to move on to the second stage of submitting "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" to industry through InventHelp<sup>®</sup>. If you purchase InventHelp's



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Submission Services, we can attempt to submit your idea to industry in the hope of obtaining a good faith review. We believe the submission of a new product idea to industry is best performed by an experienced company, and this is the role that InventHelp<sup>®</sup> can perform for you.

### <u>How InventHelp<sup>®</sup></u> can assist you further:

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• Professional Presentation: We are an experienced company that will create a professional presentation for your invention based on the information you provide to us. Information from your Basic Information Package will be used as a reference tool in the final packaging of "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" for submission to industry during this phase of our services.

• Submission to Companies: InventHelp<sup>®</sup> has many unique approaches in trying to submit our clients' ideas to industry. These include the use of the InventHelp<sup>®</sup> Data Bank and other industry databases, publicity efforts, virtual invention presentations and other creative methods.

• Patent Application: If you are interested in filing a patent application with the United States Patent and Trademark Office and you do not want to locate a patent attorney on your own, you may request that InventHelp<sup>®</sup> refer you to a patent attorney to whom we refer our clients' patent work. Because of the volume of work that we refer to patent attorneys, they are able to offer these patent services to our clients at a low cost and a flat fee.

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• Licensing: Our sister company, Intromark, Inc., is a licensing company that employs a number of licensing representatives. If a company expresses substantial interest in a client's invention, then an Intromark representative will follow up with the company to attempt to license the invention on the inventor's behalf.

Whichever option you choose, your Basic Information Package will serve as a convenient reference tool for your invention. Thank you for selecting InventHelp® to provide this service for you. We hope you are satisfied with our work and will now proceed to our second stage, the InventHelp® Submission Service. If you are interested in having our company submit your idea to industry, we suggest you consider the following InventHelp® services:

- Submission Agreement
- Virtual Invention Presentation
- Prototype Model
- Technical Drawings
- Virtual Invention Browsing Experience
- Patent Application Services based upon your patent attorney's recommendation





We look forward to working with you in submitting "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" to industry.



### **BIBLIOGRAPHY**

"Information Platform," MarkLines Automotive Industry Portal, <u>www.marklines.com</u>, September 2021.

"Truck and Bus Manufacturing Industry in the US," IBISWorld, September 28, 2021, <u>www.ibisworld.com</u>, September 2021.

"SUV & Light Truck Manufacturing Industry in the US," IBISWorld, March 31, 2021, <u>www.ibisworld.com</u>, September 2021.

"Car & Automobile Manufacturing Industry in the US," IBISWorld, May 28, 2021, <u>www.ibisworld.com</u>, September 2021.

"Manufacturing: Summary Statistics for the U.S., States, and Selected Geographies," Economic Census, <u>www.data.census.gov</u>, September 2021.

"Auto Parts Manufacturing Industry in the US," IBISWorld, April 29, 2021, www.ibisworld.com, October 2021.

"Automobile Steering & Suspension Manufacturing Industry in the US," IBISWorld, July 29, 2021, <u>www.ibisworld.com</u>, October 2021.

"Car Airbag Manufacturing Industry in the US," IBISWorld, September 29, 2020, <u>www.ibisworld.com</u>, October 2021.

"Automobile Brakes Manufacturing Industry in the US," IBISWorld, March 17, 2021, <u>www.ibisworld.com</u>, October 2021.

"Automobile Engine & Parts Manufacturing Industry in the US," IBISWorld, July 26, 2021, <u>www.ibisworld.com</u>, October 2021.

"Automobile Transmission Manufacturing Industry in the US," IBISWorld, August 30, 2021, <u>www.ibisworld.com</u>, October 2021.

"Automobile Metal Stamping Industry in the US," IBISWorld, August 23, 2021, <u>www.ibisworld.com</u>, October 2021.



### **CLIENT BIOGRAPHY**

### "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" invented b Mr. Daniel Woody



Mr. Woody was inspired to design the "INTERNAL COMBUSTION BOUNDRY LAYER TURBINE ENGINE" from studying Nikola Tesla's life and inventions, including the Tesla Engine which utilized an external combustion (steam-driven) source of power. This prompted him to design his own advanced engine that burns less fuel, releases fewer pollutants, and may be used in a wide range of possible applications.

Mr. Woody is 74 years old, married, and has been a resident of his community in Troy, Michigan for 20 years. He is employed as an electrical engineer and also has work experience in telecommunications, automotive engine controls (ECM) development, and hybrid hydraulic truck development (military). Some of his interests include motorcycling, mathematics, science, long-range shooting, and flying (private pilot).



### **A Word about Statistics**

In preparing your Basic Information Package report, we utilize secondary market research, especially that provided by the Census Bureau, U.S. Department of Commerce. We attempt to supplement governmental data with more specialized information available from trade associations and their publications, magazine articles, or other sources. Generally, the governmental data is two or more years old at the time of its release by the government. Information from censuses conducted by the government every five years cannot be updated until these censuses are taken again and the new statistics are compiled and released.

Data obtained from trade associations is generally more current. In some cases, InventHelp<sup>®</sup> has included older sources because of the detail provided. InventHelp<sup>®</sup> will use the source and supplement it with more current information.