

W. J. NEILSON.
POWER GENERATOR.

APPLICATION FILED NOV. 15, 1909.

Patented Mar. 21, 1911.

2 SHEETS—SHEET 1.

987,158.

Fig. 2.

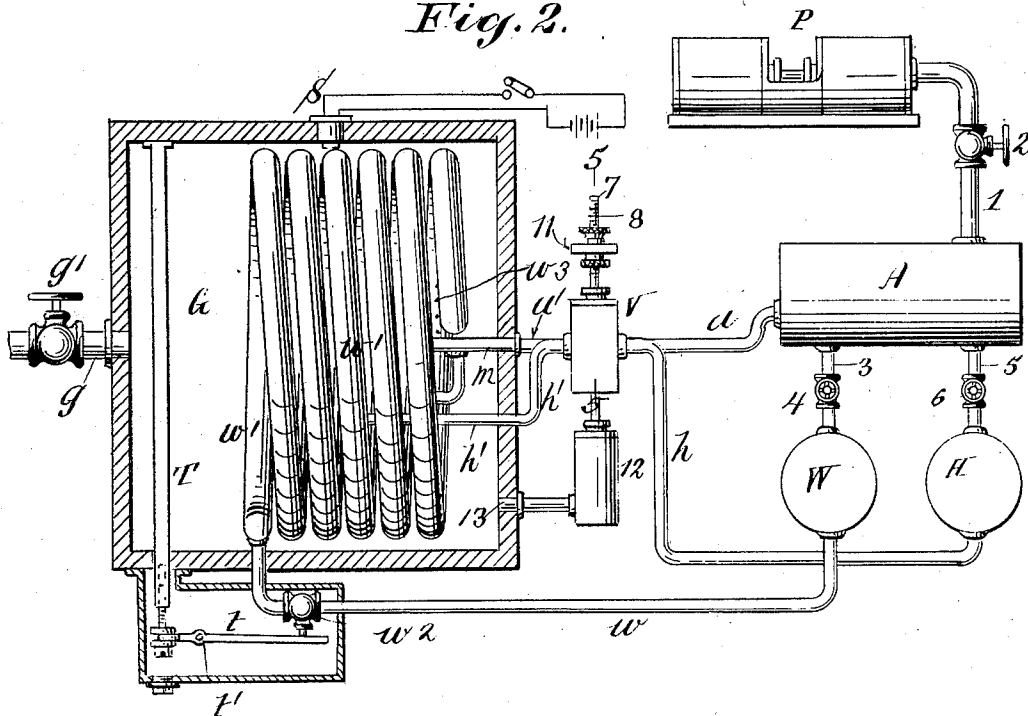
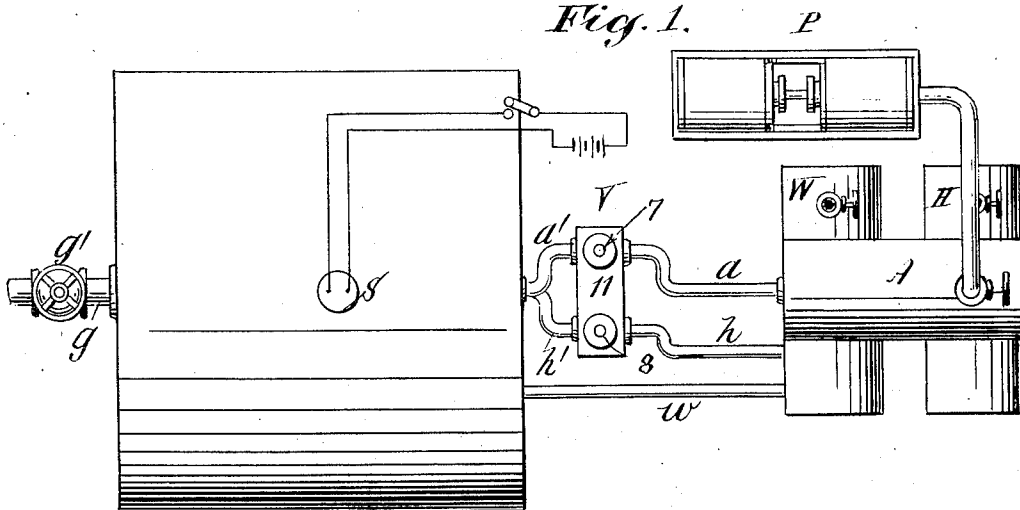


Fig. 1.



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Inventor:

William J. Neilson
By his Attorney
Geo. W. M. Malt

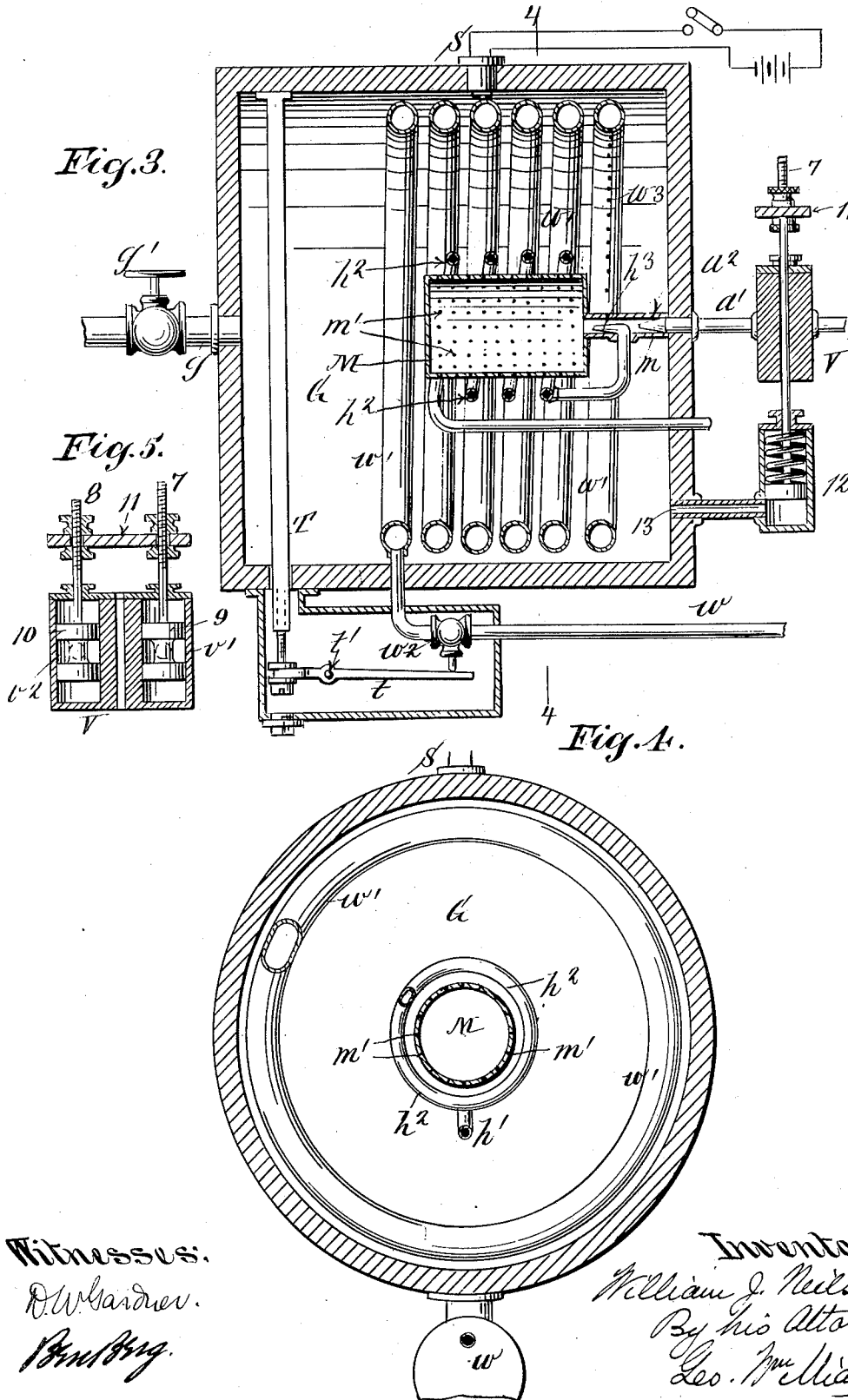
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UNITED STATES PATENT OFFICE.

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POWER-GENERATOR.

987,158.

Specification of Letters Patent.

Patented Mar. 21, 1911.

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To all whom it may concern:

Be it known that I, WILLIAM J. NEILSON, a citizen of the United States, residing at Elmhurst, Queens county, and State of New York, have invented certain new and useful Improvements in Power-Generators, of which the following is a specification.

My invention relates to generators in which the combustion of hydro-carbon is utilized as a source of power, and the invention consists primarily in preventing excessive temperature within the combustion chamber by the introduction of and vaporization of water therein, the resultant steam being also used in conjunction with gaseous products of combustion to form a highly elastic medium for the transmission of power substantially as hereinafter set forth.

Incidentally my invention includes other features described and claimed specifically.

In the accompanying drawings, Figure 1, is a plan of apparatus adapted to the practical application of my invention; Fig. 2, is a vertical section of the generator chamber the other parts being shown in elevation; Fig. 3, is a section of the generator chamber and parts contained therein; Fig. 4, is a section upon plane of line 4—4, Fig. 3; Fig. 5, is a sectional elevation upon plane of line 5—5, Fig. 1.

The generating chamber G, may be of any suitable form and construction, of sufficient strength and capacity, that shown symbolically in the drawings being of cylindrical form.

A, represents a tank or reservoir into which air is forced and maintained under pressure through the medium of conduit 1 and valve 2, by means of a pump P or other mechanical expedient. The air reservoir A is connected by pipe 3 and valve 4 with a water reservoir W, and a hydro-carbon reservoir H, is connected by pipe 5 and valve 6, so that a uniform pressure may be maintained in all three tanks. Gasoline, kerosene, alcohol or any desired form of hydro-carbon may be supplied to the tank H, as may be found most expedient.

V, is a valve chest containing two valve chambers v' , v^2 , the first of which v' , is connected by the pipe a , with the air reservoir A, the other v^2 , being connected by means of the pipe h , with the hydro-carbon reservoir H. The stems 7 and 8 of the valves 9 and 10 are connected with and individually ad-

justable upon a common cross head 11, which latter is automatically controlled in position by a regulator 12, represented symbolically in Fig. 1, communicating with the interior of the generating chamber through passage 13. The valve chamber v^2 , is connected by a pipe h , with the hydro-carbon reservoir H, and by pipe h' , with the coil h^2 , surrounding the mixing chamber M. In this same conduit m , and behind the nozzle h^3 , is a nozzle a^2 , connected by pipe a' , with the valve chamber v' . The mixing chamber M is formed with holes m' , for the escape of the admixture of air and vaporized hydro-carbon into the generator chamber G.

The water reservoir W is connected by pipe w , with the water coil w' , in the generator chamber G, a valve w^2 , being interposed in the said pipe w , to regulate the flow of water to the coil automatically by means of a thermostat T arranged to operate the valve stem. Thus, as in Figs. 2 and 3, the thermostat T may be connected with a lever t , fulcrumed at t' , upon the free end of which lever t , the valve stem rests,—a set screw being arranged to adjust the thrust of the lever t .

g , is a conduit and g' , a valve communicating with the interior of the generator chamber G, and by which the pressure generated therein may be transmitted to any desired form of motor, engine, turbine or the like, or utilized for any other purpose.

S is a sparking device used as a means of effecting the ignition of the vaporized hydro-carbon within the generator chamber G.

In operation; the hydro-carbon is vaporized during its passage through the coil h^2 , and is injected into the mixing chamber M, where it is combined mechanically with the air under pressure from the nozzle a^2 . Combustion takes place continuously as the admixture escapes through the holes m' , the products of combustion mingling with the steam generated in and escaping from the coil w' . The last convolution of the coil w' , may be formed with perforations w^a , through which the steam will be ejected into the products of combustion. The gaseous steam and gaseous products of combustion combine to form a highly elastic medium which may effectually be used as a source of power.

The use of the water coil performs a double function in that it not only pro-

vides for the generation of the steam required but it also regulates within practical limits the temperature of the generating chamber acting in this respect as the equivalent of a water jacket while saving and utilizing all the heat that would be absorbed and wasted by a water jacket. This constitutes an important and distinguishing feature of my invention, which I have demonstrated experimentally to be most economical and effective in the generation of power.

The term "perforated" is herein used in a broad sense as covering a series of holes however formed.

What I claim as my invention and desire to secure by Letters Patent is,

1. A generating chamber, a perforated mixing chamber therein, means for injecting air into said mixing chamber, means for injecting hydro-carbon into said mixing chamber including a coil surrounding said mixing chamber, and means for injecting water into said generating chamber including a perforated coil surrounding the said mixing chamber, for the purpose and substantially in the manner described.

2. A generating chamber, a perforated mixing chamber therein, means for injecting air into said mixing chamber, means for injecting hydro-carbon into said mixing chamber including a coil surrounding said mixing chamber, means for injecting water into said generating chamber including a perforated coil surrounding the said mixing chamber, and automatic means governed by the temperature in the generating chamber for regulating the supply of water thus injected into said generating chamber,

for the purpose and substantially in the manner described.

3. A generating chamber, a perforated mixing chamber therein, means for injecting air into said mixing chamber, means for injecting hydro-carbon into said mixing chamber including a coil surrounding said mixing chamber, automatic means governed by the pressure in the generating chamber for regulating the supply of air and hydro-carbon thus injected into the mixing chamber, and means for injecting water into said generating chamber including a perforated coil surrounding the said mixing chamber, for the purpose and substantially in the manner described.

4. A generating chamber, a perforated mixing chamber therein, means for injecting air into said mixing chamber, means for injecting hydro-carbon into said mixing chamber including a coil surrounding said mixing chamber, automatic means governed by the pressure in the generating chamber for regulating the supply of air and hydro-carbon thus injected into the mixing chamber, means for injecting water into said generating chamber including a perforated coil surrounding the said mixing chamber, and automatic means governed by the temperature in the generating chamber for regulating the supply of water thus injected into said generating chamber, for the purpose and substantially in the manner described.

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Witnesses:

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