May 15, 1956 I. CHERTOFF 2,745,372

APPARATUS FOR GENERATING SOUND WAVES

Filed April 24, 1952

Fig. 3.

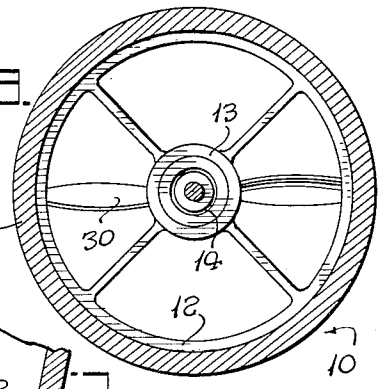


Fig. 1.

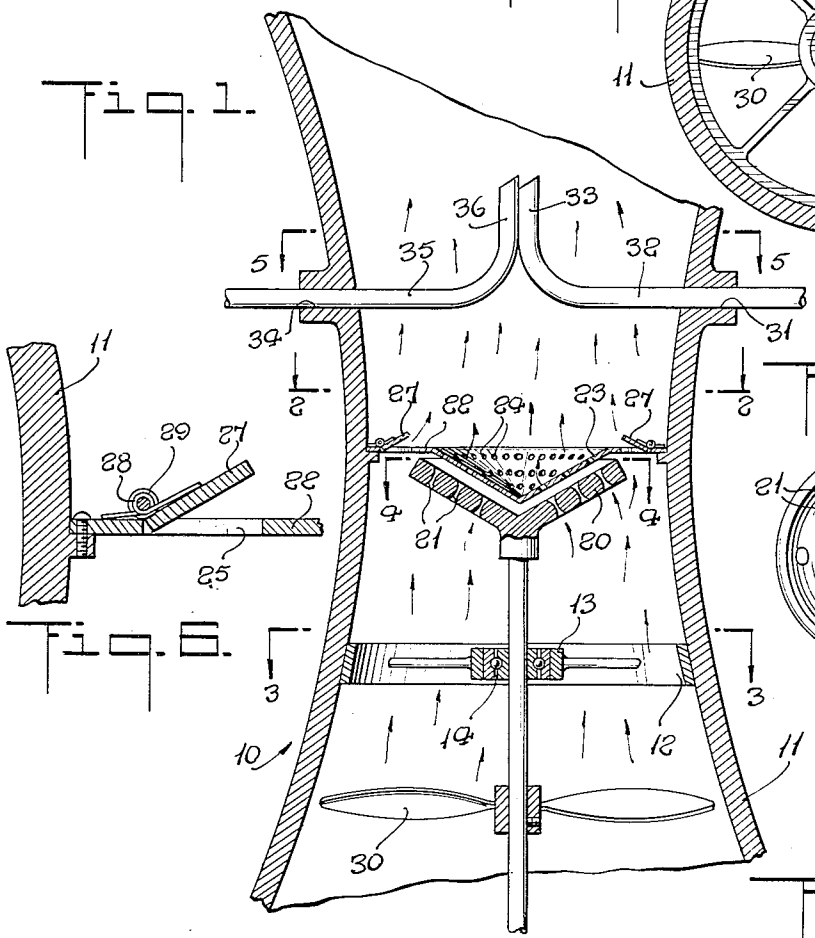


Fig. 4.

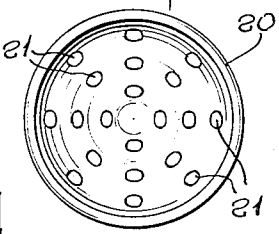


Fig. 6.

Fig. 2.

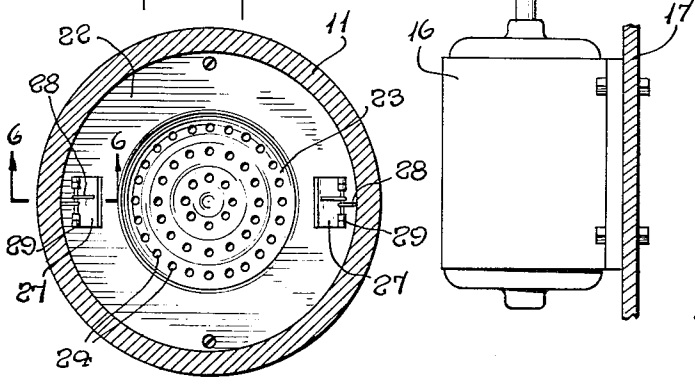
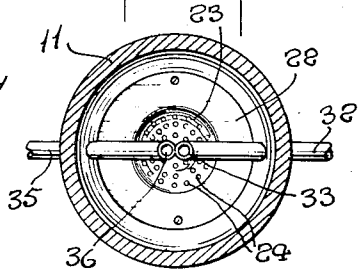


Fig. 5.



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United States Patent Office 2,745,372 Patented May 15, 1956

2,745,372

APPARATUS FOR GENERATING SOUND WAVES

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Application April 24, 1952, Serial No. 284,091

3 Claims. (Cl. 116—137)

This invention relates to an apparatus for generating sound waves.

An object of this invention is to provide a carburetor having improved high frequency audio signal means to produce a highly efficient fuel mixture.

Another object of this invention is to provide in a carburetor of the character described, siren means to produce supersonic sound waves comprising a hollow cone rotor and a fixed cone within said hollow cone, said cones being formed with registering openings so that rotation of the rotary cone will produce high frequency sound waves, said cones being located within a carburetor tube to which fuel is fed for the purpose of producing a highly efficient combustible fuel mixture.

Still another object of this invention is to provide in a carburetor of the character described, means to produce air pressure in the Venturi tube, and spring pressed valves to relieve pressure of air passing through the Venturi tube.

Yet another object of this invention is to provide in a carburetor of the character described, means to feed fuel as well as water into the stream of supersonic sound waves, to produce a highly efficient gaseous fuel mixture.

Still a further object of this invention is to provide a compact and durable carburetor of the character described which shall be highly efficient in operation and relatively inexpensive to manufacture.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts, which will be exemplified in the construction hereinafter described, and of which the scope of invention will be indicated in the following claims.

In the accompanying drawings in which is shown various illustrative embodiments of this invention,

Fig. 1 is an axial cross sectional view of a carburetor embodying my invention;

Fig. 2 is a cross sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a cross sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is a cross sectional view taken on line 4—4 of Fig. 1;

Fig. 5 is a cross sectional view taken on line 5—5 of Fig. 1; and

Fig. 6 is a partial view illustrating one of the air pressure relief valves.

Referring now in detail to the drawing, 10 designates a carburetor embodying the invention. The same comprises a Venturi tube 11. Fixed within the Venturi tube 11 is a spider 12 formed with a central hub 13 in which is mounted a ball bearing 14.

Extending through said bearing 14 and journalled therein, is an axial shaft 15. The shaft 15 may be rotated by any suitable motor 16. The motor 16 may be supported on any suitable base 17. Fixed to one end of the shaft 15 is a hollow axial cone 20 formed with a plurality

of circular series of Venturi-shaped through openings 21. Fixed within the throat of the Venturi tube 11 is a transverse wall 22 formed with a hollow cone 23 projecting into the cone 20 and of similar shape but somewhat spaced therefrom.

The cone 23 has a plurality of circular series of through openings 24. Wall 22 may be provided with a plurality of openings 25 which may be closed by spring pressed valves 27 of any suitable construction. The valves 27 are normally kept closed by torsion springs 28 on hinges 29 for said valves.

On the shaft 15 is a fan 30 or blower, of any suitable type for producing air pressure flowing in the direction of the arrows shown in Fig. 1.

Extending through an opening 31 in the Venturi tube is an inlet pipe 32 for liquid fuel such as gasoline. Said tube 32 has a nozzle 33 substantially at the axis of the tube. The tube 11 is furthermore formed with another opening 34, opposite opening 31, and through which a water inlet tube 35 passes. The tube 35 has a nozzle 36 substantially contacting the nozzle 33.

It will now be understood that as the motor operates, air is blown through the two cones which form a siren to produce high frequency sound waves. The stream of sound waves catches the flow of liquid fuel and water in the stream and breaks them up to produce a very highly efficient gaseous mixture. The louvres or valves 27 open when the pressure of the air increases beyond a predetermined point. The fan creates a constant pressure in the Venturi tube. The conical-shaped siren has the ability to directionalize and concentrate the audio signals in a definite path or stream and the fuel and water is fed directly to said stream. The rotary cone 20 is preferably relatively thick and is made of light weight metal such as aluminum and the openings therein are preferably Venturi-shaped.

Preferably the holes in the two cones are located in registering circles although there does not have to be the same number of holes in each circle. The moving holes passing over the fixed holes create a siren effect for producing high frequency sound. The high frequency sound waves atomize the fuel and water to produce a very efficient fuel mixture.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention I claim as new and desire to secure by Letters Patent:

1. An apparatus for generating directed high frequency sound waves comprising a Venturi tube, means for passing a stream of air through the said Venturi tube, a hollow cone fixed transversely within the throat of the said Venturi tube with the apex directed toward the incoming air, a hollow rotary cone nesting with the said fixed cone, the said cones having series of openings in register with each other, a shaft mounted concentrically within the said Venturi tube supporting the said rotary cone, and means for rotating the said shaft.

2. An apparatus according to claim 1, in which the said hollow rotary cone is thick-walled and the openings therein are Venturi-shaped openings passing perpendicularly through the wall.

3. An apparatus according to claim 1, in which the said fixed hollow cone is mounted within the annular opening of an internal flange carrying a plurality of spring

operated valves adjusted to open upon a given air pressure increment.

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