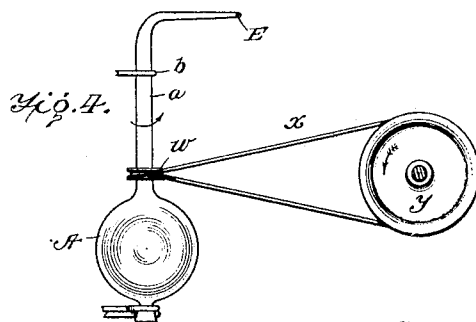
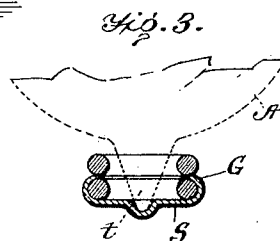
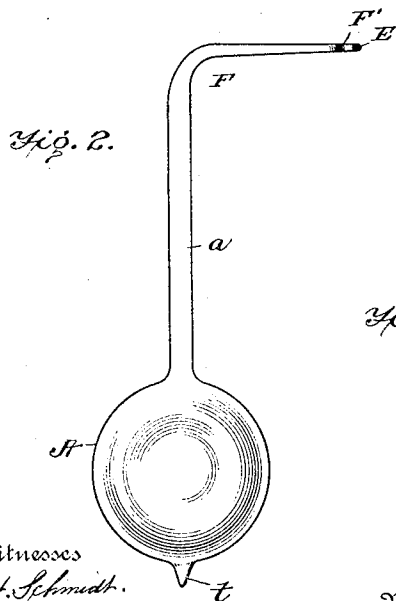
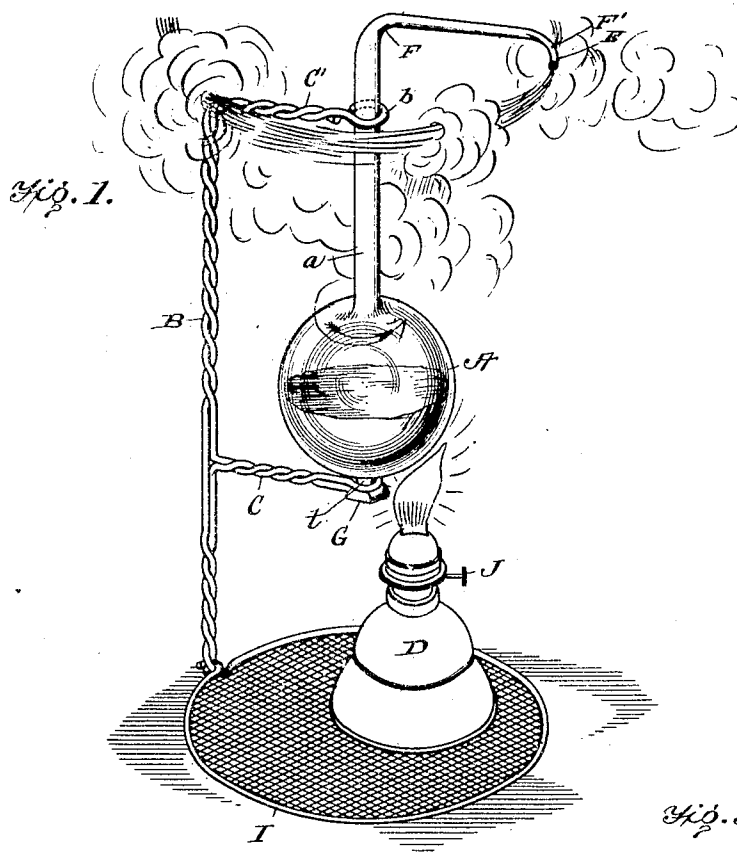


No. 888,415.

PATENTED MAY 19, 1908.

G. W. BARBER, SR.
 ROTARY REACTION MOTOR.
 APPLICATION FILED DEC. 11, 1907.



Witnesses
 L. H. Schmidt.
 Edw. W. Bysu.

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UNITED STATES PATENT OFFICE.

GEORGE W. BARBER, SR., OF JACKSONBURG, WEST VIRGINIA, ASSIGNOR OF ONE-HALF TO
WADE BLACKSTOCK, OF JACKSONBURG, WEST VIRGINIA.

ROTARY REACTION-MOTOR.

No. 888,415.

Specification of Letters Patent.

Patented May 19, 1908.

Application filed December 11, 1907. Serial No. 405,983.

To all whom it may concern:

Be it known that I, GEORGE W. BARBER, Sr., a citizen of the United States, residing at Jacksonburg, in the county of Wetzel and State of West Virginia, have invented a new and useful Improvement in Rotary Reaction-Motors, of which the following is a specification.

My invention relates to that most ancient type of steam engine which operates by the reactionary effect of an escaping jet of steam issuing tangentially to the axis of rotation, and known to the world as Hero's engine.

The object of my invention, is to construct a very simple, practical and inexpensive motor of this type, to be used for various purposes, but more especially for diffusing and distributing disinfectants, medicinal vapors or perfume in a room, and for use as a toy, and which in some of its applications may be constructed of such material and proportions as to find useful application for turning light mechanical toys, dentists' and jewelers' lathes, to operate revolving fly brushes, or even sewing machines, or other machinery.

The invention consists in the novel construction and arrangement of parts hereinafter more fully described with reference to the drawing, in which

Figure 1 is a perspective view of the entire device. Fig. 2 is a detail of the boiler and its reaction nozzle. Fig. 3 is a sectional detail of the lower step bearing and Fig. 4 is a modification showing the application of my invention to the running of machinery.

The device consists of a globular glass boiler A blown with an integral, elongated, vertical, tubular stem *a* bent and tapering to a small discharge nozzle E. The lower part of the tubular stem forms an axial shaft which is contained within a circular bearing *b* formed on the end of a horizontal arm C' projecting from a vertical standard B and above this point the tubular stem is bent twice in two different planes. The first bend F turns the tube from its vertical position to a horizontal position, and the second bend F' lies in the same horizontal plane, but turns the nozzle end E so that instead of discharging radially it discharges tangentially to the vertical axis of rotation and so by reactionary effect turns the boiler globe A. At the lower end of the globe there is blown a projecting integral glass teat *t* arranged in exact coaxial relation to the axial stem *a* above and pro-

jecting a distance far enough from the globe to form a pivotal step in conjunction with a subjacent cup bearing G which is formed on the end of a second horizontal arm C projecting from the standard B.

The standard B is rigidly attached to a circular base I projecting on the same side of the standard as the horizontal arms and adapted to receive a small lamp D having a wick regulator J. This lamp should be an alcohol lamp, or at least a lamp burning a fluid that will not deposit carbon on the boiler.

In building the support for the boiler, I construct it cheaply and lightly of wire, the base I being formed of a stout circular wire with a woven wire interior and the standard and arms being formed of one piece of heavy wire doubled and twisted to form the standard and its two arms with the loops or bearings at the ends of the same. The step bearing of the lower arm is made of one or more coils of the wire, to the underside of which is clenched a flat piece of metal *s*, seen in Fig. 3, having on its upper side and inside the coils a concave dent to receive the end of the teat on the bottom of the boiler. This construction avoids the use of solder, which would be liable to be melted off by the heat of the lamp, and forms a simple and practical step bearing of very cheap and durable construction.

In applying my invention to the purpose of a driving motor I attach to the rotating stem *a* of the boiler a small pulley wheel *w*, as seen in Fig. 4, and this pulley wheel *w* is connected by a belt *x* to a larger wheel *y* connected to any moving toy or machinery which it is desired to operate.

In constructing the boiler and its reaction nozzle I prefer to have it blown in one piece in glass and when so made it may be filled by expanding the air therein by heat thus partially driving it out, and then immersing the nozzle end in the liquid to be evaporated. As the air cools and contracts the liquid will be drawn into the globe in sufficient quantities.

In some applications of my invention, I may make the boiler stem and bent arm of aluminum or other metal and in such case the boiler may have a filling cap like that used on the font of an oil lamp.

When the boiler A is filled two thirds with water, perfumed water, or water medicated with disinfectant acids, oils, or other fluids for the relief or cure of various diseases, the

lighted lamp D will generate steam therein which escapes through the tubular stem E and by reaction rotates the boiler A quickly or slowly as desired, this being regulated by the thumb screw of the wick holder J on the lamp.

In order to get the best and most economical results, only just sufficient steam should be generated as to cause the boiler A to revolve very slowly, thus avoiding an over pressure of steam, and undesired evaporation of the liquids and allowing the device to run twice the length of time without refilling.

The vapors of the medical or aromatic substances are mixed with the steam, so as to obtain in a room an artificial atmosphere properly medicated for the treatment of pulmonary and other diseases, such as the relief or cure of asthma, or other disorders of the throat and lungs. It is also admirably adapted for the cure of membranous croup, diphtheria and catarrh, as the vapors can be inhaled with impunity and without distress. It is also admirably adapted to ventilating and purifying the air of crowded school rooms, churches, theaters, public halls, steamships, railway cars, etc., as the steam vapors while condensing absorb the noxious exhalations and carbonic acid gas, and attract, by forming a vacuum, a new quantity of fresh air.

I am aware that small reaction motors of the type described have been applied as disinfecting devices and for driving toys, and I do not claim this broadly.

I claim—

1. A rotary reaction motor, constructed as a globular boiler with an elongated vertical stem forming an axial shaft bent and terminating in a tangentially arranged nozzle, said globular boiler having also a step pro-

jection arranged on the opposite side from the tubular shaft and in coaxial relation thereto.

2. A rotary reaction motor constructed in one piece as a globular glass boiler having an elongated and hollow vertical stem on one side and a coaxial and integral teat on the other side, the hollow stem being bent to form a tangentially discharging nozzle.

3. A rotary reaction motor constructed in one piece as a globular glass boiler having an elongated and hollow vertical stem on one side and a coaxial and integral teat on the other side, the hollow stem being bent to form a tangentially discharging nozzle, in combination with a stand having two horizontally projecting arms, the upper one having an enlarged circular bearing embracing the hollow stem of the boiler and the lower one having a step bearing to receive the pivotal teat on the boiler.

4. A rotary reaction motor constructed in one piece as a globular glass boiler having an elongated and hollow vertical stem on one side and a coaxial and integral teat on the other side, the hollow stem being bent to form a tangentially discharging nozzle, in combination with a stand having two horizontally projecting arms, the upper one having an enlarged circular bearing embracing the hollow stem of the boiler and the lower one having a step bearing to receive the pivotal teat on the boiler, said step bearing being formed of wire coils and a subjacent metal plate clenched to the coils and having a concave depression in its upper face within the coils.

GEORGE W. BARBER, Sr.

Witnesses:

W. W. FITCHER,
CHARLES STUART.