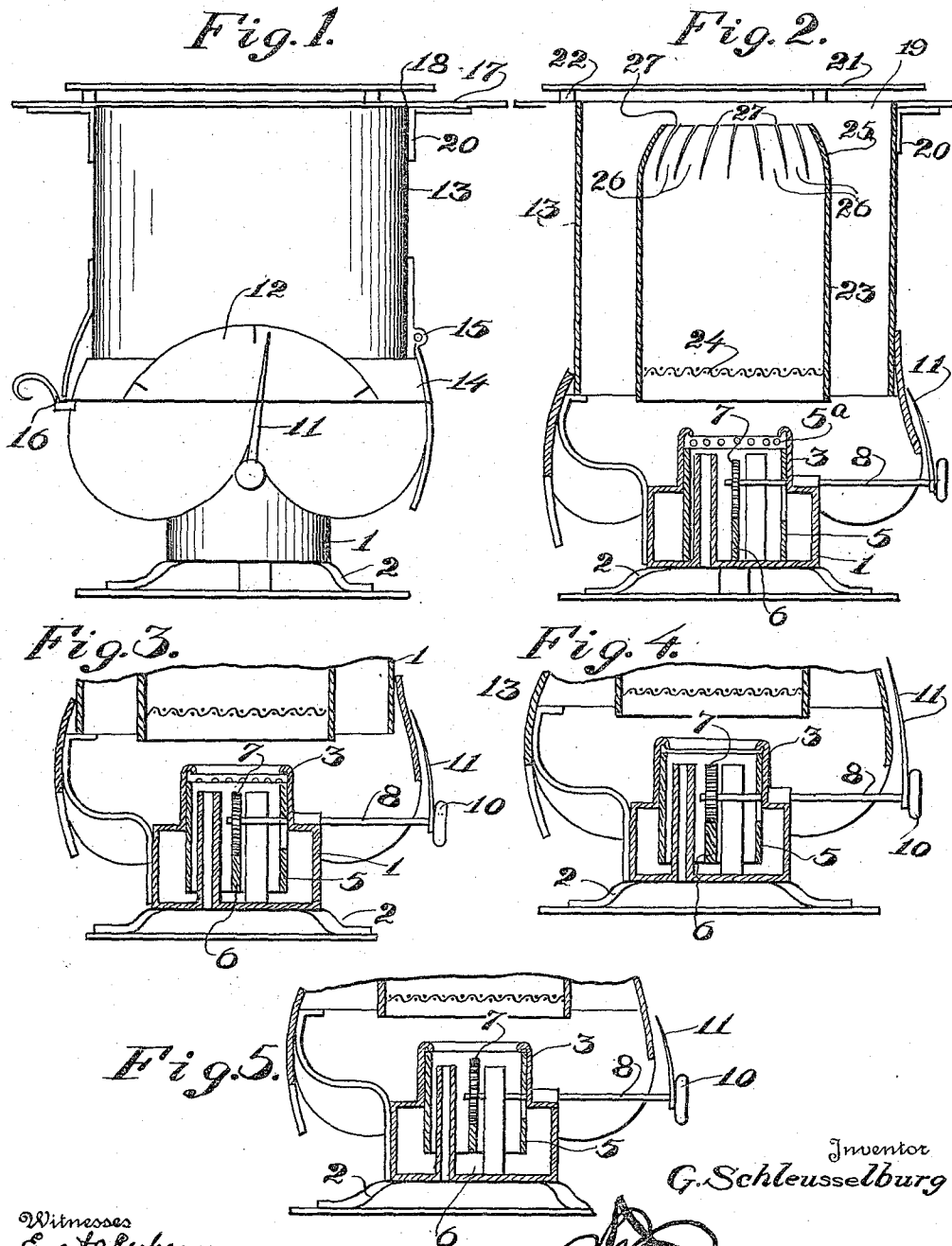


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 ALCOHOL GAS STOVE.
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1,176,171.

Patented Mar. 21, 1916.



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UNITED STATES PATENT OFFICE.

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ALCOHOL-GAS STOVE.

1,176,171.

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To all whom it may concern:

Be it known that I, GEORGE SCHLEUSSELBURG, a subject of the Emperor of Germany, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Alcohol-Gas Stoves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to improvements in alcohol stoves.

The object of the present invention is to improve the construction of alcohol stoves and to provide a simple, practical and comparatively inexpensive alcohol stove equipped with means for collecting and burning the vapor or gases given off by an ordinary alcohol burner whereby the heating capacity of the alcohol stove is materially increased and a smokeless and odorless combustion assured.

A further object of the invention is to provide an alcohol stove of this character adapted to be arranged to produce an intense blue flame or a series of tongue flames exposed to the atmosphere at different points to produce perfect combustion.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing Figure 1 is a side elevation of an alcohol heating stove constructed in accordance with this invention, Fig. 2 is a central vertical sectional view of the same, Figs. 3 to 5 inclusive are sectional views of the lower portion of the alcohol stove showing different adjustments of the valve of the regulating alcohol burner.

Like numerals of reference designate corresponding parts in all the figures of the drawing.

In the accompanying drawing in which is illustrated the preferred embodiment of the invention the alcohol stove comprises in its construction an alcohol burner 1 mounted on a suitable base 2 and including

a burner tube 3 provided with lateral air apertures 5^a adapted to be covered and uncovered by a vertically movable cylindrical valve 5. The valve 5 which is connected with a rack 6 is raised and lowered by a pinion 7 mounted on a spindle or shaft 8 extending outwardly from the burner 1 of the alcohol stove and having a head 10 or other operating means at its outer end to enable it to be readily rotated to raise and lower the valve 5 to control the admission of air through the lateral apertures.

The shaft or spindle carries a hand or pointer 11 which moves over a scale 12 for indicating the position of the vertically movable valve 5 of the adjustable burner 1.

The outer shell or casing of the alcohol stove consists of upper and lower portions or sections 13 and 14, the upper section being in the form of a cylinder and hinged at 15 to the lower section 14 and detachably secured over the latter by a suitable catch 16. The hinged upper section is adapted to be thrown back on the hinge 15 to afford access to the interior of the alcohol stove. The upper section 13 of the outer shell or casing of the alcohol stove is provided at the top with a supporting plate 17 having a central opening 19 of the same diameter as the upper section 13 of the outer casing and secured to the said upper section by knees 20 or other suitable means. The outer casing is also equipped with a removable cover plate 21 supported in spaced relation with the said plate 17 by lugs or projections 22 extending upwardly from the supporting plate or other portion of the alcohol stove. The cover plate is adapted to be arranged over the upper end of the upper casing 13 and it is designed to be removed when the apertures of the alcohol stove are covered whereby the necessary admission of air to the interior of the alcohol stove is obtained to support combustion.

Within the outer casing of the alcohol stove is suitably mounted a cylindrical heating shell or member 23 constructed of metal or other suitable material and arranged concentric with the upper section 13 of the casing in spaced relation with the same. The superposed heating member which is adapted to collect the vapor or gas given off by the alcohol stove burner and is located above the latter in spaced relation with the same and is of greater diameter than the burner tube 3. The heating and collecting member

is provided at its lower portion with a horizontal diaphragm or baffle 24 of woven wire which is located in the focus of the flame of the adjustable alcohol burner whereby it will become red hot through the heat of the burner and will operate as a baffle for a flame and facilitate the igniting of vapors and gases given off by the alcohol burner. The heating shell or member 23 is provided with a superheating crown 25 consisting of a tapered truncated portion formed by splitting the upper portion of the cylinder or shell 23 and bending the split portion inwardly. The tongues or portions 26 of the crown 25 are curved upwardly and inwardly and are spaced apart at their upper portions to form apertures 27 which divide the flames into an annular series of tongue flames which are subjected to the air so as to produce perfect combustion as herein-after fully explained.

In the operation of the alcohol heater, alcohol contained in the burner 1 is lighted and in order to promote a rapid gas development the burner is adjusted by swinging the hand or indicator to the right hand of the scale to raise the slide valve 5 to its highest position in which no outer air is permitted to pass inwardly through the lateral apertures to the flame of the alcohol burner. When the burner is adjusted to this position the cover plate is removed to permit free access of air to the upper portion of the alcohol heater. As soon as the alcohol heater is started in this manner the hand or indicator 11 is gradually moved to the left until the conical flame column in the upper portion of the cylindrical shell or heating member 23 burns clear. Then the removable cover plate may be replaced and the device used for heating a room or a receptacle with contents to be heated may be placed upon the supporting plate. If the hand of the indicator be now moved to the right hand end of the scale a circular flame will be formed and by putting the hand or pointer at a point between the left hand end and the center of the scale a clear blue flame will be produced and the superheating crown of the inner heating shell or member will become red hot. The hand or pointer of the indicator may then be turned down to the left hand end of the scale and a ring cover placed upon the burner. This will result in a central ignition with a dark blue pointed flame of a most efficient heating power and highest economy. By turning the hand or pointer down from the center of the scale to the left hand end thereof, the concentric ring like extremity of the flame will disappear; the dark blue flame column will turn immediately into a yellowish straw color and grad-

ually central ignition will take place. It has been found by experience that by this means the alcohol stove is capable of maintaining about a gallon of water at boiling point for hours with a small quantity of alcohol.

The combustion of the alcohol is so complete that neither smoke nor soot is formed and a heating stove possessing extraordinary heating power is produced. By arranging the inner heating cylinder or member with the wire baffle or diaphragm above the alcohol burner in the focus of the lower closed conical flame, the latter will operate in a nature of a blow pipe when the hand or pointer of the indicator is turned down to the left hand end of the scale and air is admitted through the lateral inlet openings 5^a, and the flames driven against the wire diaphragm or baffle which thereby becomes red hot. Then by moving the hand over between the left hand end of the scale and the center the superheated alcohol gases passing through the red hot wire net work of the diaphragm or baffle are ignited in the interior of the heating cylinder or member forming a dark blue conical flame column. By uncovering the upper end of the upper section of the casing of the stove or heater, the aforesaid hollow conical dark blue flame column is divided into a great number of separate tongue flames which obtain a complete supply of outer air through the upper end of the heated member or shell and complete combustion of the alcohol gases results.

What is claimed is:—

1. An alcohol stove including an alcohol burner having lateral inlet apertures provided with means for covering and uncovering the same, means including a rack and pinion for moving said means, and a superimposed heating and collecting member provided at the lower portion with a baffle arranged to be heated by the flames of the alcohol burner.

2. An alcohol stove including an alcohol burner having lateral inlet apertures and provided with means for covering and uncovering the same, means including a rack and pinion for moving said means, an indicator having a hand or pointer connected with said moving means, and a superimposed heating and collecting member provided at the lower portion with a baffle arranged to be heated by the flames of the alcohol burner.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE SCHLEUSSELBURG.

Witnesses:

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