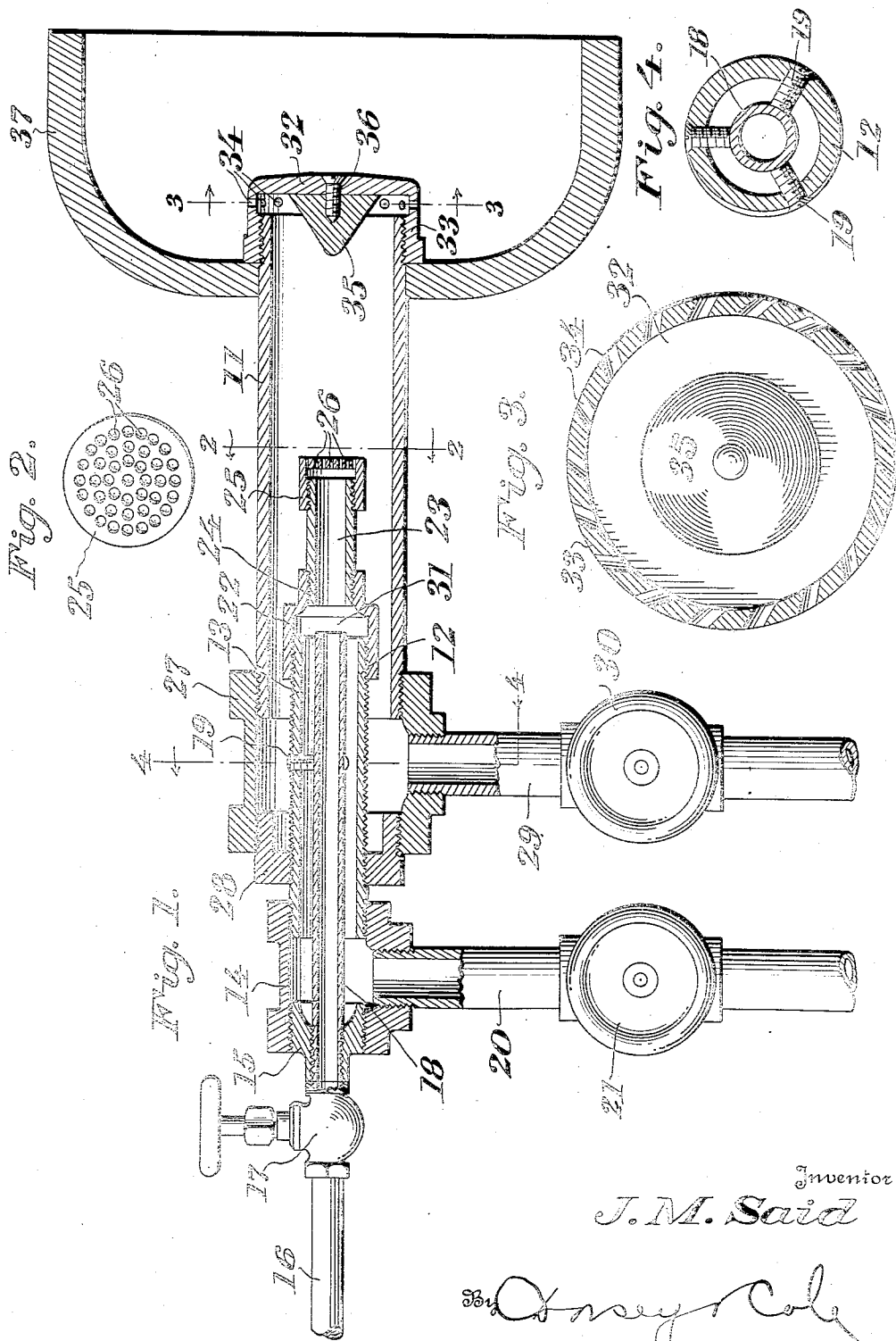


J. M. SAID.
 BURNER FOR FIRE POLISHING GLASSWARE.
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1,337,328.

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BURNER FOR FIRE-POLISHING GLASSWARE.

1,337,328.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JESSE MADISON SAID, a citizen of the United States of America, and a resident of Corning, county of Steuben, and State of New York, have invented certain new and useful Improvements in Burners for Fire-Polishing Glassware, of which the following is a specification.

My invention relates to a burner especially adapted for fire-polishing glass-ware, and providing a means whereby the ware may be fire-polished on the press before it is removed from the molds.

My present invention in one aspect comprises a burner having inner and outer mixing chambers for producing an intense flame, the outer mixing chamber having a cap thereon provided with openings in the side walls thereof formed at an angle to the radial line of the cap. A bell of suitable size and dimensions is attached to the end of the cap adjacent the cap and the flame therefrom is deflected within the bell to produce a swirling effect and completely envelop the work for the desired purpose.

For illustration, I have shown as the preferred embodiment of my invention, an oil burner having an inner mixing tube for uniting the oil with an initial supply of air, this mixture being forced through a perforated cap which breaks it up into fine particles when it is united with a supply of air from a source independent of the first supply of air. This latter mixture passes through the cap inclosing the outer end of the burner and upon becoming ignited produces a very intense flame within the bell.

In another aspect it comprises the use of a cap inclosing the end of the burner provided with non-radial openings in the side wall thereof, whereby the mixture of fuel and air is deflected at an angle to produce a swirling flame.

In the accompanying drawings,—

Figure 1 is a longitudinal section through a fuel oil burner, constructed in accordance with my invention.

Fig. 2 is a transverse section taken on the line 2—2 of Fig. 1.

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

Fig. 4 is a similar view taken on the line 4—4 of Fig. 1.

Referring to the drawings, the burner comprises an outer mixing tube 11, and an

inner mixing tube 12. The inner mixing tube 12 comprises a main body portion 13, which is preferably externally threaded throughout the major portion of its length. At one end thereof is attached a suitable T 14 having an externally and internally threaded plug 15, to which is attached the fuel oil pipe 16, having a suitable valve 17, for regulating the supply of fuel. Also threaded within the plug 15 is the fuel-intake pipe 18, which forms a continuation of the oil pipe 16, and extends approximately the length of the pipe 12, being supported therein by means of the set screws 19, as plainly shown by Fig. 4 of the drawings.

Threaded into the T 14 is the air inlet pipe 20, provided with a valve 21 for controlling the amount of air admitted into the mixing tube 12. A reducer 22, is coupled to the forward end of the mixing tube 12, and a short length of pipe 23, somewhat less in diameter than the mixing tube 12, is threaded to the smaller end 24, of the reducer 22. A perforated cap 25, is threaded to the outer end of the pipe 23, the openings 26, thereof being designed to break up the mixture of fuel and air as it is forced therethrough.

The burner as above described is capable of producing a fairly hot flame, but as my invention is applicable to be used in finishing the edges of glass-ware vessels formed of hard glass, it is necessary to fire-polish the ware with an intense flame. For this reason the outer mixing tube 11 is provided, and the inner end thereof is threaded into a T 27, which is somewhat larger than the T 14. A bushing 28, is also threaded into the T 27 opposite the outer mixing tube 11, as shown, and is internally threaded to support the inner mixing tube 12, as is readily understood. A secondary air-inlet pipe 29, is threaded to the T 27, and has a valve 30, for regulating the amount of air admitted into the outer mixing tube 11.

The fuel unites with the air from the pipe 20 in the chamber 31, of the inner mixing tube, and is forced through the pipe 23, having the perforated cap 25. Due to the particular construction of the cap 25, the particles of fuel are scattered when they enter the outer mixing tube 11, and become united with a large quantity of air from the inlet-pipe 29. This latter mixture is forced

through the openings 34 provided in the side walls 33 of the cap 32 threaded to the end of the outer mixing tube 11, where it becomes ignited. That the flame may be deflected from the cap 32 through the openings 34 thereof with the least possible resistance, I have provided the inside of the cap with a cone-shaped member 35, which is secured thereto by means of the set-screw 36.

A bell 37 is attached to the outer end of the burner and may be of any sizes or shape to fit the various pieces of ware to be fire-polished, and preferably clears the work about one half an inch.

The purpose of the bell 37 is to confine the flame from the burner as it is discharged through the openings 34, so that it may be deflected against the edges of the glassware for the desired purpose.

That the flame may be distributed in the best possible manner within the bell 37, I have formed the openings 34 in the side walls 33 of the cap 32 at an angle with the radial line of the cap, as shown by Fig. 3 of the drawings. This construction tends to produce a swirling flame inside the bell 37.

I do not limit my invention to the particular form above described, inasmuch as the burner may be designed for use with any desired fuel other than oil, such for instance, gas, acetylene, or the like. It is also obvious that I am not limited to the precise form shown, and that changes may be made in the form and proportion of the various parts without departing from the spirit of the appended claims.

Having thus described the invention what I claim as new, and desire to secure by Letters Patent is,—

1. An apparatus for fire-polishing glass-ware comprising a burner having a primary mixing chamber, and a secondary mixing chamber, a bell attached to the secondary mixing chamber and adapted to receive the glass-ware to be fire-polished, and means for deflecting the mixture from said burner to produce a swirling effect inside of the bell.

2. An apparatus for fire-polishing glass-ware, comprising an interior mixing chamber and an exterior mixing chamber, a bell attached to the exterior mixing chamber and adapted to receive the glass-ware to be fire-polished, and means for producing a swirling effect of the fuel mixture inside the bell.

3. An apparatus of the class described comprising a burner having fuel supply means, primary and secondary fuel mixing chambers, a bell attached to said secondary mixing chamber and adapted to receive glass-ware to be fire-polished, and means for producing a swirling flame within said bell for the purpose set forth.

4. The combination with a burner having means for discharging a swirling flame, of a bell carried by the burner and adapted to receive glass-ware to be fire-polished, said burner being so positioned with respect to the said flame-discharging means as to deflect the swirling flame along the surface of the glass-ware positioned in the bell.

5. The combination with a burner having means for discharging a swirling flame, of a glass-ware receiving means carried by the burner in position to deflect the swirling flame along the surfaces of a piece of ware contained in the glass-ware receiving means, whereby to fire-polish the ware.

6. The combination with a bell for fitting over a piece of glass-ware in spaced relation thereto, of means for introducing a swirling flame between the bell and the glass-ware, whereby to fire-polish the glass-ware.

7. A burner for fire-polishing glass-ware including a secondary mixing chamber, means for deflecting the mixture from the secondary mixing chamber at an angle to the radius thereof, means for admitting air to the secondary mixing chamber, a primary mixing chamber having a reducer arranged to discharge into the secondary mixing chamber, and means for admitting fuel and air to the primary mixing chamber.

In testimony whereof I have signed my name.

JESSE MADISON SAID.