

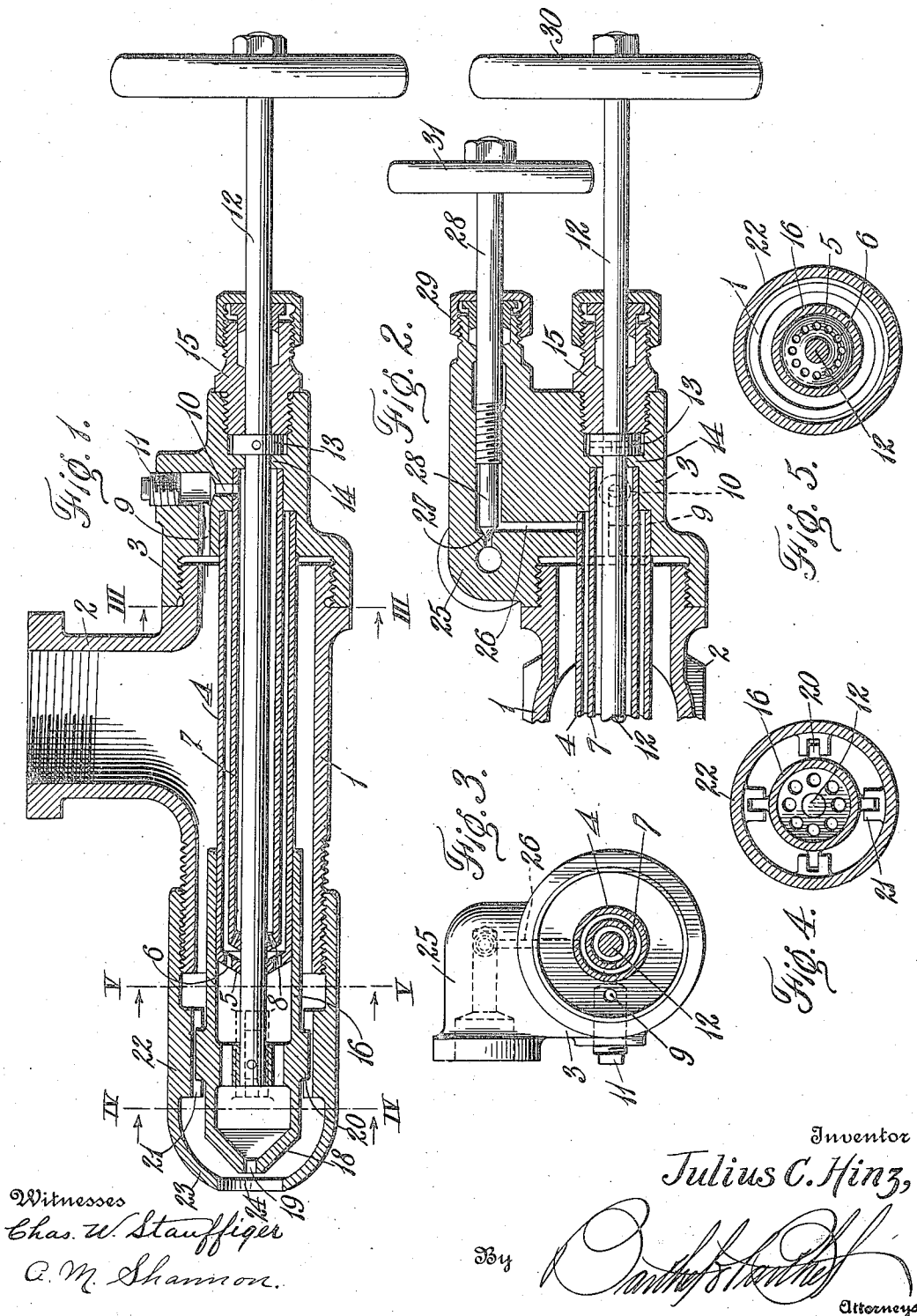
J. C. HINZ.

OIL BURNER.

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JULIUS C. HINZ, OF DETROIT, MICHIGAN.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JULIUS C. HINZ, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Oil-Burners, of which the following is a specification, reference being had therein to the accompanying drawings.

10 In the operation of oil burners or nozzles for muffle furnaces and the like it is necessary for their successful operation that the parts be so protected from the heat of the furnace that the fuel used does not cake
15 or carbonize within the burner and thereby choke the latter and at the same time that the parts are cool, enough for an operator to adjust them while in use without personal discomfort.

20 This invention relates to a liquid burner for muffle furnaces and the like wherein the parts are so protected from the heat of the furnace that the fuel does not become carbonized to clog the burner, means also being provided for regulating the blast and
25 fuel supply while the burner is in operation without danger of injury to the user.

The invention consists in the matters hereinafter set forth and more particularly
30 pointed out in the appended claims.

In the drawings, Figure 1 is a view in longitudinal section through a burner that embodies features of the invention; Fig. 2 is a view in longitudinal section, partially
35 broken away, taken at right angles to the plane of view of Fig. 1; Fig. 3 is a view in section taken on or about line III—III of Fig. 1; Fig. 4 is a view in transverse section taken on or about line IV—IV of Fig.
40 1; and Fig. 5 is a view in section taken on or about line V—V of Fig. 1.

Referring to the drawings, a substantially cylindrical casing 1 has a lateral air inlet nipple 2 fitted for connection with a suitable supply pipe. A cap 3 is screwthreaded
45 on to the rear or outer end of the casing in such manner as to form a close joint therewith. An outer barrel 4 of less diameter than the casing is secured at its inner end
50 in the counterbored recess of the cap with its outer contracted end portion 5, that is supplied with jet orifices 6, concentric with the inner end portion of the casing. An inner sleeve 7 of less diameter than the barrel
55 4 and with similarly tapered and apertured end 8, is secured concentrically within the

barrel 4 with its inner end extending into an inner counterbore of the cap 3. An air duct 9 from the barrel of the casing leads to a radial inlet 10 opening into the inner
60 end of the sleeve 7. Access to the passage 10 may be had by removal of a screw plug 11, the aperture in which the latter is screwthreaded affording means for connection with a steam pipe if it is desired to
65 introduce steam to the sleeve 7.

A stem 12 is rotatably and non-reciprocally secured concentrically in the casing, barrel and sleeve, as by means of a thrust collar 13 bearing against a shoulder or
70 flange 14 of the cap 3, a suitable packing gland 15 insuring a tight joint. The inner end portion of the stem which extends well beyond the ends 5 and 8 of the barrel and sleeve, is secured to a jet nozzle whose body
75 16 is rotatable on the barrel 4 and whose outer tapered or conical end 18 has a central jet aperture 19. Parallel flanges or slides 20 extending longitudinally of the body 16 engage corresponding ribs 21 on the interior surface of an outer head 22 whose body
80 is screwthreaded on to the casing 1 and whose outer contracted end 23 has a central opening 24 substantially in axial alinement with the opening 19. The cap 3 has a boss or nipple 25 which is apertured and fitted to form connection with a fuel supply pipe. A duct 26 connects the bore of this nipple or boss with an annular chamber between the barrel 4 and sleeve 7 through an
85 annular valve seat 27 which co-acts with a needle closure 28 to control passage of fluid therethrough. A packing gland or stuffing box 29 affords tight joint for the stem 28. Appropriate hand wheels 30 and 31 afford means for manually operating both
90 stems.

In operation manipulation of the main stem moves the head 22 back and forth on the casing relatively to the nozzle 16 so as
100 to choke or increase the air passage. Manipulation of the fuel valve regulates the admission of fuel. Both operations are conducted without injury or inconvenience to the operator as the parts are perfectly
105 air cooled between the jet and the operator's hand. As the main fuel passage is annular and is jacketed both interiorly and exteriorly with inrushing air there is little chance for the fuel to become heated and
110 carbonized and clog the burner before it reaches the jet. Steam may be introduced

in place of the inner air current if desired by closing the passage 9 and making the proper connection in place of the plug 11. As the parts are all housed they do not become affected by heat or injured by the dust and dirt common in the operation of furnaces.

Obviously, changes in the details of construction may be made without departing from the spirit of the invention and I do not care to limit myself to any particular form or arrangement of parts.

I claim:—

1. An oil burner comprising a casing having an air and a fuel inlet, a jet nozzle rotatable in the casing in communication with the fuel inlet, a head in screwthreaded engagement with the casing and in non-rotatable, sliding engagement with the nozzle, having a discharge jet opening in communication with the air inlet and with the jet nozzle opening, means controlling communication between the fuel inlet and nozzle, and means extending into the casing for turning the nozzle to shift the head.

2. An oil burner comprising a casing having an air and a fuel inlet, a jet nozzle rotatable in the casing in communication with the fuel inlet, a head in screwthreaded engagement with the casing and in non-rotatable, sliding engagement with the nozzle, having a discharge jet opening in communication with the air inlet and with the jet nozzle opening, a sleeve having a lateral inlet in communication with an air duct from the casing interior and having an apertured end within the jet nozzle, means controlling communication between the fuel inlet and nozzle, and means extending into the casing for turning the nozzle to shift the head.

3. An oil burner comprising a casing having an air and a fuel inlet, a jet nozzle rotatable in the casing in communication with the fuel inlet, a head in screwthreaded engagement with the casing and in non-rotatable, sliding engagement with the nozzle, having a discharge jet opening in communication with the air inlet and with the jet nozzle opening, means controlling communication between the fuel inlet and nozzle, and means rotatable within the sleeve secured to the nozzle to turn the latter and shift the head.

4. An oil burner comprising an air and a fuel inlet, a valve controlling the fuel inlet, a barrel in the casing in communication with the fuel inlet; a jet nozzle rotatable on the barrel; a head in screwthreaded engagement with the casing and in non-rotatable, longitudinally reciprocable engagement with the nozzle, provided with a discharge jet opening in alignment substantially with the nozzle discharge, a sleeve within the barrel having a

discharge opening adjacent the nozzle discharge and in communication with the air inlet of the casing, and means rotatable through the casing and sleeve secured to the nozzle to turn the latter.

5. An oil burner comprising an air and a fuel inlet, a valve controlling the fuel inlet, a barrel in the casing in communication with the fuel inlet, a jet nozzle rotatable on the barrel, a head in screwthreaded engagement with the casing and in non-rotatable, longitudinally reciprocable engagement with the nozzle, provided with a discharge jet opening in alignment substantially with the nozzle discharge, a sleeve within the barrel having a discharge opening adjacent the nozzle discharge and in communication with the air inlet of the casing, and a stem rotatable through the casing and a sleeve secured to the nozzle to turn the latter.

6. An oil burner comprising an air and a fuel inlet, a head in rotatable screwthreaded engagement with one end of the casing provided with a discharge jet opening, a cap detachably secured to the other end of the casing, a barrel secured to the cap within the casing and provided with an apertured end within the head, a jet nozzle rotatable on the barrel in non-rotatable, sliding engagement with the head, a fuel valve controlling passage from the fuel inlet into the barrel, a sleeve within the barrel secured to the cap and provided with an air inlet in communication with the interior of the casing and an air outlet adjacent the apertured end of the barrel and a stem journaled in the cap and secured to the nozzle, the cap and attached parts being bodily withdrawable from the casing.

7. An oil burner comprising a casing having an air inlet, an apertured head in screwthreaded engagement with one end of the casing; a barrel in the casing having an apertured discharge end, a jet nozzle rotatable on the barrel in sliding non-rotatable engagement with the head, a sleeve secured in the casing concentrically within the barrel, means for admitting fuel to the sleeve and means for rotating the nozzle.

8. An oil burner comprising a casing having an air inlet, a head in screwthreaded engagement with the casing, apertured to form a discharge jet, a barrel in the casing having an apertured fuel discharge end, a nozzle rotatable on the barrel in non-rotatable, longitudinally reciprocable engagement with the head, with a jet opening aligned with the aperture of the head, a sleeve secured in the casing concentrically within the barrel and provided with an apertured discharge end adjacent the discharge end of the barrel and with a lateral inlet that communicates with an air duct from the interior of the casing, a stem rotatable in the casing within the

sleeve and barrel, secured to the nozzle to rotate the latter, and a fuel valve adapted to control the admission of fuel to the barrel.

9. An oil burner comprising a casing having an air and a fuel inlet, a jet nozzle within the casing in communication with the fuel inlet, a head adjustable on the casing relatively to the nozzle provided with a discharge jet opening for the casing, means for
10 operating the head through the casing and

nozzle to shift the head to and from the latter, and means for controlling the fuel supply.

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

JULIUS C. HINZ.

Witnesses:

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ANNA M. SHANNON.