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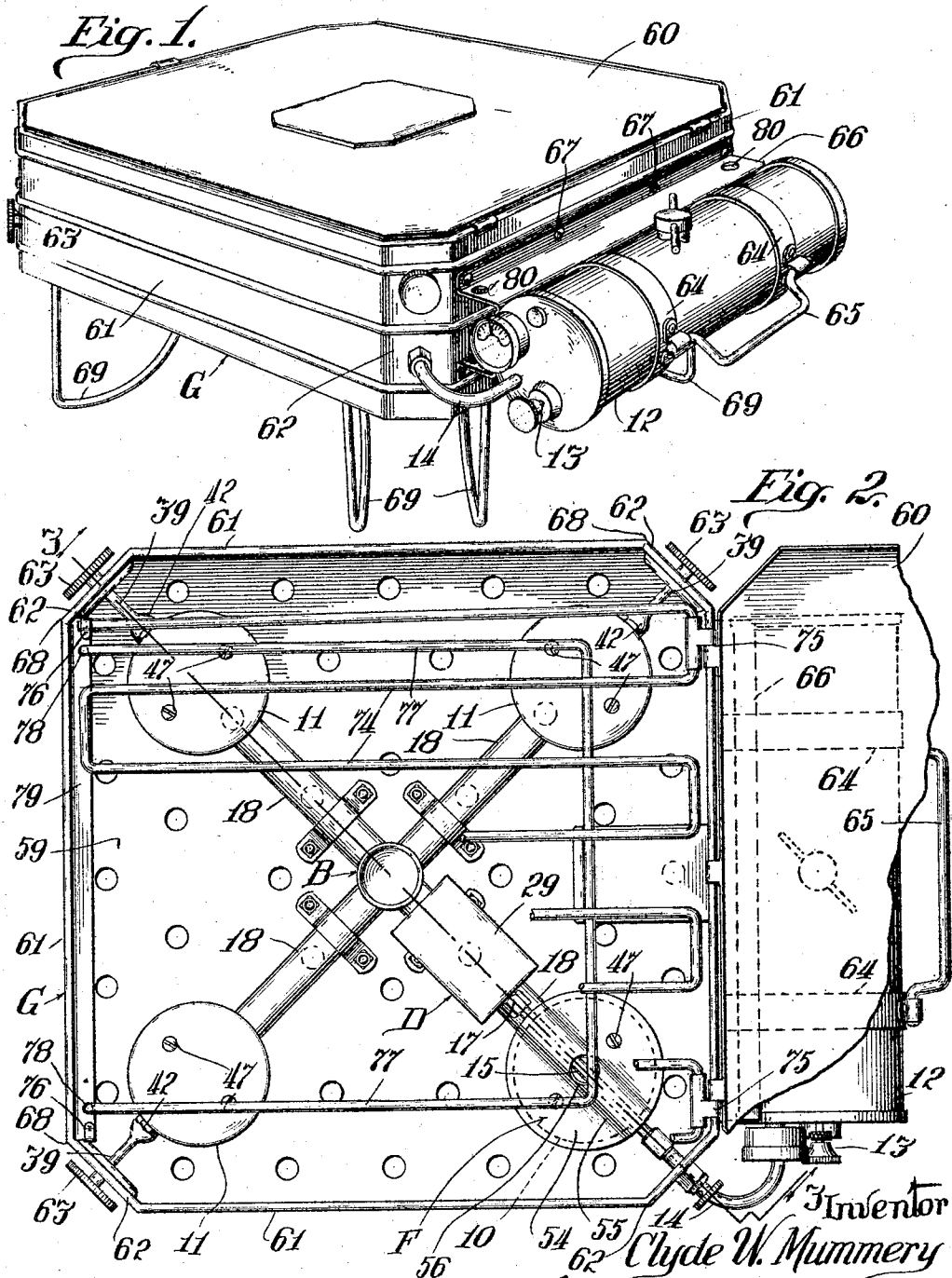
C. W. MUMMERY

1,827,951

STOVE

Filed Sept. 7, 1926

2 Sheets-Sheet 1



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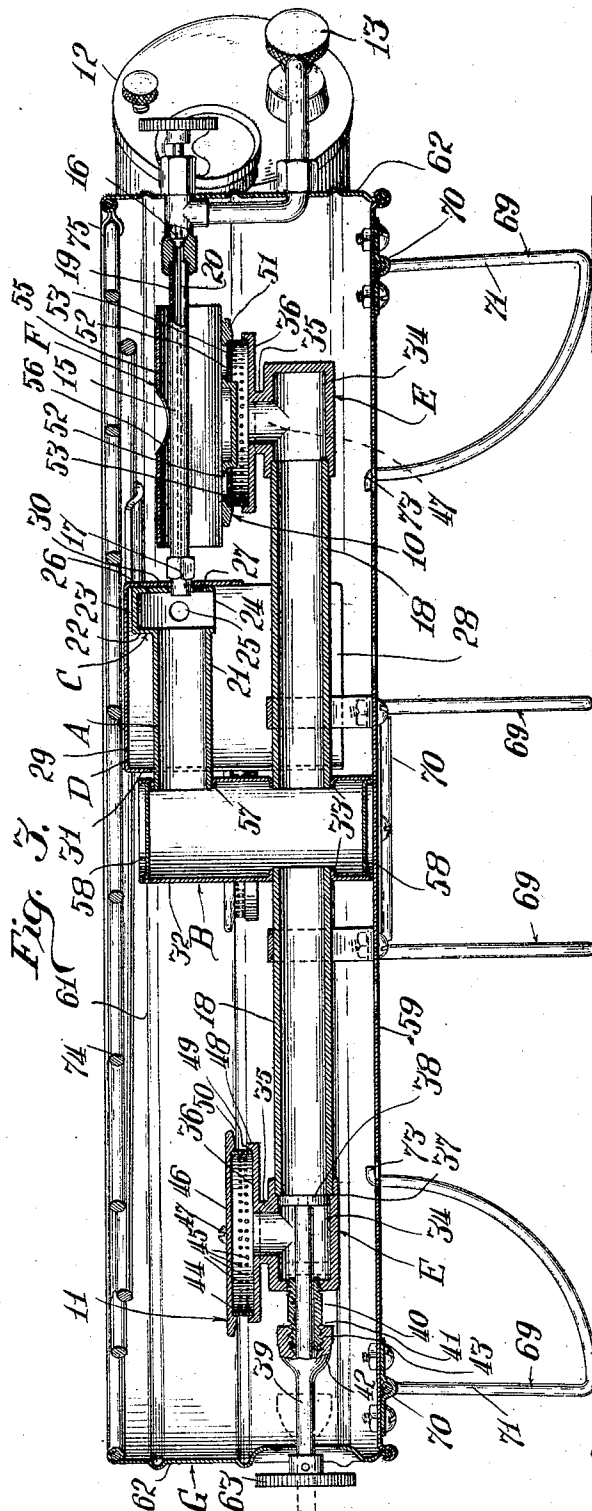
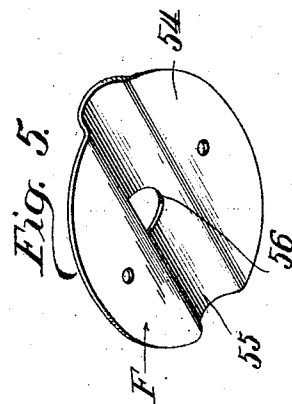
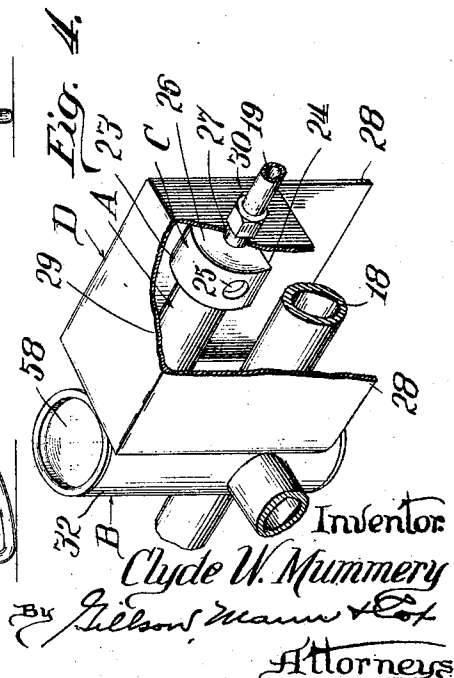
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STOVE

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This invention relates to stoves of the type in which liquid fuel is vaporized in a generator, mixed with air and supplied to several burners; and it has for its principal objects to permit any one or all of the burners to be quickly put in operation, to permit the supply of fuel to the burners to be quickly changed from high to low and vice versa, to improve the control of the flame as it issues from the burner, to permit uniform generation in spite of drafts, to provide a construction that can be economically manufactured, to make the control of the valves easily accessible while being protected from injury, and to provide an improved casing for portable stoves.

Further objects and advantages of the invention will be understood as the disclosure proceeds and the description is read in connection with the accompanying drawings illustrating a preferred embodiment of the invention, and in which

Fig. 1 is a perspective view of the improved stove ready to be opened and set in operation;

Fig. 2 is a plan view with the lid open and broken away;

Fig. 3 is a transverse vertical sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is a perspective view of a fragment of the stove illustrating the mixer, its shield, the distributing chamber and the feed pipes; and

Fig. 5 is a perspective view of a shield for protecting the generating flames.

In its preferred form the stove includes a generator burner 10, and three other burners 11, arranged at the corners of a square. The fuel, preferably gasoline, is carried in a supply tank 12, equipped with a pump 13 by which pressure may be put on the fuel to force it through the feed pipe 14 to the generator 15, under the control of the generator valve 16. The generator converts the fuel into vapor which issues from the nozzle 17 thereof into a mixer, generally indicated by A, from which it passes to a distributor chamber, generally indicated by B, and thence through feed pipes 18 to the burners 10 and 11.

The generator here shown is of conventional structure. The valve 16 permits the gasoline to flow into the tube 19, which is acted upon by flames from the burner 10. The valve carries a cleaning rod 20, which runs through the tube 19 and serves to keep the nozzle 17 always open for the free flow of vapor when the valve 16 is open.

The mixer includes a casing, generally indicated by C, and a tube 21 leading to the distributing chamber B. The tube is the length of commercial tubing, to one end of which is fixed an annular disc 22, to which in turn is fixed a short length of larger tubing or pressed metal 23, cut away at the bottom, as indicated at 24, and perforated at the sides, as shown at 25, to provide for the free admission of air. The end of the casing C is formed by a disc 26, fixed to the wall 23 in any suitable manner, and perforated at 27 to admit the vapor from the mixer.

The mixer is protected by a shield, generally indicated by D, which includes sides 28 connected by a top 29 and a back 30, the latter being perforated in alinement with the perforation 27 to receive the nozzle 17. The sides 28 straddle the mixer and the feed pipe 18 leading to the generator burner 10. The top extends across the top of the mixer and is provided with a short wall 31 at its inner end, to prevent draft from that direction.

The distributing chamber B by preference is composed of a piece of relatively large commercial tubing 32, punched to form openings for the pipes 18, surrounded by inwardly tapering flanges 33 all lying in substantially the same plane and lying along diagonals of the square at the corners of which the burners are arranged. The fuel pipes 18 are lengths of commercial tubing, slightly tapered at their inner ends and pressed into the flanges 33. A similar connection is made between the tube 21 and the flange 57. The ends of the tube 32 are closed by stamped heads 58, pressed into the tube and held in place by friction.

Secured to the outer ends of the pipes 18 are burner castings, generally indicated by E, which form valve casings and the base por-

tions of the burners. Each casting includes a substantially horizontal tubular portion 34 and an upwardly directed tubular portion 35, on top of which is a disc 36. The inner ends
5 of the tubular portions 34 are counterbored to form slight shoulders 37, and the tapered ends of the pipes 18 are pressed to a seat against these shoulders.

A valve head 38 is mounted to move between a closed position resting against the end of the tube 18, and a full open position at the opposite end of the tube, indicated by dotted lines in Fig. 3. The valve head is swiveled on a stem 39, which is rotatably and
15 slidably mounted in a short tube 40, threaded into the outer end of the tubular portion 34. The tube 40 has a short external thread 41, and the stem is equipped with a cup 42 having a corresponding internal thread 43. Very
20 little rotation of the stem in one direction serves to open the valve and disengage the cup from the sleeve, when the head can be thrown to the opposite end of the valve chamber, leaving the fuel passage wide open. A
25 similar reverse movement will almost close the fuel passage, when a slight rotation in the opposite direction will seat the valve and entirely close the fuel passage.

Ordinarily no valve will be provided for the generator burner 10 other than that which forms a part of the generator, as indicated at 16.

The disc 36 receives a ring 44, having a plurality of rows of perforations 45, and on top of the ring is a disc 46, secured to the casting E by stove bolts 47. The disc 36 is provided with a marginal flange 48, presenting an upwardly and outwardly inclined surface 49 to the fuel and flame issuing from the perforations. The disc 46 has a somewhat similar flange 50, of greater extent but less inclination. The two flanges combine to make the flame cup or curve upwardly and still prevent it from coming too straight up from the
45 perforations when very low.

In the generator burner 10 the disc 51, corresponding to the disc 46 in the other burners, is provided with a plurality of openings 52, below which are perforated discs 53, which
50 permit of a plurality of jets of fuel and flame to issue upwardly from the burner and act upon the tube 15 of the generator. In order to prevent uneven generation due to drafts of air, a shield, generally indicated by F in
55 Fig. 5, is provided. It consists of a disc 54, secured to the burner by the stove bolts 47 and having a diametrical portion 55 arched to extend upwardly and over the generator. In about the center of the shield there is an opening 56 to permit the ready introduction of a
60 priming charge of fuel to start the generator burner.

The construction so far described is capable of use in stoves for a variety of purposes. It
65 can be very readily manufactured from com-

mercial tubing, stampings and light castings. The principles disclosed may be incorporated in stoves having a lesser or greater number of burners, and arranged to suit particular conditions.

The distributing chamber B should be relatively large as compared with the feed pipes 18. Otherwise the valve-controlled burners cannot be lighted until the generator burner has in a measure warmed up the entire device. The relatively large distributor and the relatively small feed pipes permits any one or all of the burners to be lighted as occasion may require.

The valve construction permits the burner to be quickly adjusted from a low flame to a high flame, by merely pulling or pushing the valve stem. This is a decided advantage over prior constructions, where the valve heads are moved slowly by the rotation of the threaded stem and considerable time and labor are required to move the valve between full open and full closed positions.

The letter G generally indicates a casing or box particularly adapted for use when the stove is to be portable or is, what is commonly referred to as, a camp stove. It is made of sheet metal and includes a bottom 59 and a top 60, which forms the lid and is hinged to swing from the position shown in Fig. 1 to that shown in Fig. 2. The walls of the casing comprise relatively long sides 61, connected by relatively short sides 62 at right angles to the diagonals of the square upon the corners of which the burners are arranged. This has the effect of chamfering or beveling the corners of the rectangular figure, and not only eliminates the objectionable sharp edge but improves the appearance, and provides for the location of the valve handles 63 within the angle formed by the projecting long sides 61 and still outside the casing, where they can be readily reached, and where the operator's hand will be protected from the flame and the hot utensils by the wall of the casing.

The fuel tank 12 is secured along one of the long sides 61 by straps 64, which carry a handle 65 by which the entire organization can be readily lifted and transported. The straps are secured to a pressed metal frame 66 by rivets or bolts 67. When the device is being carried by the handle 65, the valve handles 63 are protected by the adjacent corners 68 formed by the long sides 61 and short sides 62. The stove can be set down on the long sides 61 opposite the tank without bringing the lower handles 63 in contact with the supporting surface.

Four legs, 69, are pivoted in slips 70, and may be swung from the position shown in Figs. 1 and 3 to a position in which the arms 71 lie flat against the bottom, and the braces 72 extend inside the casing along the burners. The tips 73 of the braces 72 spring into

notches in the bottom and retain the legs in operative position.

A grate 74, formed by giving the rod a series of U-shaped bends, is pivoted beneath the lid at 75, and may be swung upwardly to permit access to the burners, the generator, etc. It is normally held in operative position by the ends of the rod lying beneath the clips 76.

A U-shaped brace 77 has downturned fingers 78 at its ends, adapted to project through a flange 79 on the casing when the stove is in folded position. They will also project through holes 80 in the frame 66 and hold the brace in position to support the lid open and parallel to the bottom, thereby forming a shelf or table adjacent to the burners.

Use has been made of specific description and illustration in order to give a complete and clear disclosure, but it is not intended to thereby limit the scope of the patent or require it to be given a more restricted interpretation than is made necessary by the prior art.

I claim as my invention—

1. In a stove, the combination of a generator for liquid fuel, a mixer receiving vapor from the generator, a relatively large distributing chamber to which the mixer delivers adjacent to the top and provided below with a plurality of lateral outlets of small size compared with the chamber, a plurality of burners, and a supply pipe connecting each burner with a lateral outlet.

2. In a stove, the combination of a generator for liquid fuel, a mixer receiving vapor from the generator, a relatively large cylindrical distributing chamber to which the mixer delivers adjacent to the top, a plurality of burners arranged around the distributing chamber, and a plurality of burner supply pipes connected laterally to the cylindrical chamber and leading to the burners.

3. In a stove, the combination of a generator for liquid fuel, a mixer receiving vapor from the generator, a relatively large distributing chamber, a delivery pipe connecting the mixer with the distributing chamber adjacent to its upper end, a plurality of burners arranged around the distributing chamber, and a plurality of relatively small supply pipes radiating from the distributing chamber to the burners.

4. In a stove, a generator for liquid fuel, a burner, and means for controlling the flow of fuel between them including a valve casing having a relatively long valve chamber therein and a relatively short threaded portion, a valve head movable in the chamber, a stem connected with the valve and having a corresponding threaded portion adapted to engage the threaded portion on the casing when the valve is near its closed position only.

5. In a stove, a burner including a bottom and top, and a perforated ring between them,

the bottom and top each having a flange surrounding the perforated ring presenting an upwardly and outwardly inclined surface to the burning fuel issuing from the ring, the flange on the top being of greater extent and less inclination than the flange on the bottom.

6. In a stove, a burner having upwardly directed flame openings, a generator extending across the burner in the path of the flame issuing from said opening, and a shield arched upwardly from the burner and over the generator and provided with an opening to permit the burner to be primed.

7. In a stove, a burner having upwardly directed flame openings, a generator extending across the burner in the path of the flame issuing from said opening, and a shield comprising a disc mounted on the burner and having a diametrical arch extending over the generator.

8. In a stove, the combination of a generator for liquid fuel, a mixer receiving vapor from the generator, a plurality of burners, a distributing chamber comprising a length of relatively large tubing arranged upright and connected adjacent to the top with the mixer, and a length of relatively small tubing adjacent the bottom connecting the distributing chamber with each burner.

9. In a stove, a generator for liquid fuel, a relatively large distributing chamber, a plurality of burners arranged around the distributing chamber, a plurality of relatively small pipes radiating from the distributing chamber to the burners, a mixer between the generator and the distributing chamber including a tube entering the chamber, a relatively large casing at the end of the tube opposite to the chamber, said casing being open at the bottom and perforated at the sides to admit air and also being perforated in alignment with the tube to receive vapor from the generator.

10. In a stove, the combination of a burner, and means for controlling the flow of fuel into the burner including a valve casing having a valve chamber therein, a relatively short portion of which casing is screw threaded, a valve head movable in the chamber, a stem connected with the valve head having a threaded portion adapted to engage the corresponding threaded portion of the valve casing only when the valve is operated adjacent its closed position.

11. In a stove, the combination of a burner, and means for controlling the flow of fuel into the burner comprising a casing having a tubular valve chamber therein, a valve longitudinally movable within the casing, complementary screw threads on the valve and casing enabling the valve to be moved from closed position to slightly open position by rotation of the valve, said screw threads being of such length only as to permit the valve to be moved from slightly open to fully open

position by a mere rectilinear thrust on the valve.

12. In a stove, the combination of a burner,
a fuel conduit for supplying fuel to the
burner, and a valve interposed in the con-
duit to adjustably regulate the flow of fuel
into the burner, said valve having graduated
means operable only by rotation of the valve
for moving the valve from closed position to
a position intermediate the fully open posi-
tion, and means associated therewith permit-
ting the valve to be moved from said last
named position to fully open position by a
linear force acting along the axis of the valve.
In testimony whereof I affix my signature.
CLYDE W. MUMMERY.