March 25, 1924. 1,487,737

L. B. GOLDBERG ET AL

PORTABLE LIQUID FUEL CAMP STOVE

Filed June 26, 1922 2 Sheets-Sheet 1

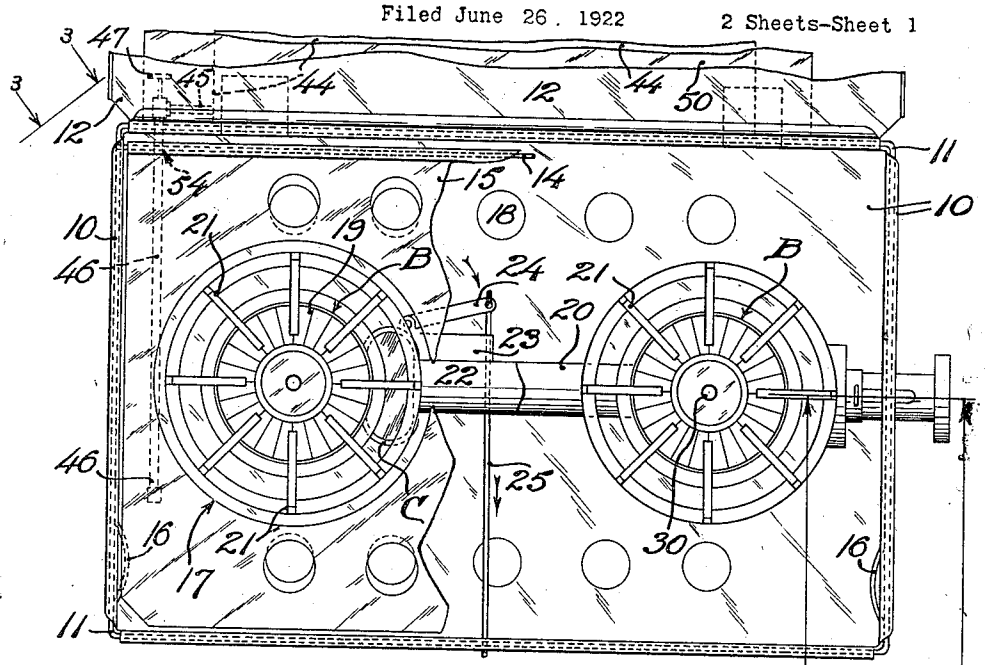


Fig. 1.

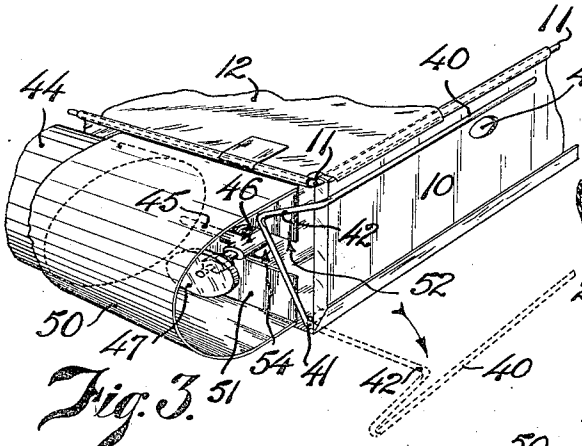


Fig. 3.

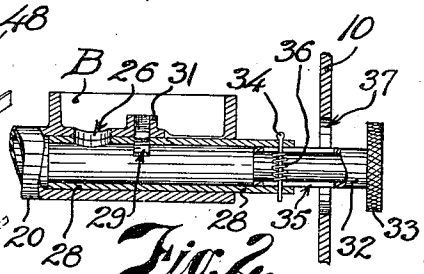


Fig. 2.

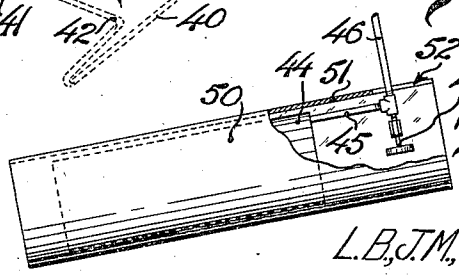


Fig. 4.

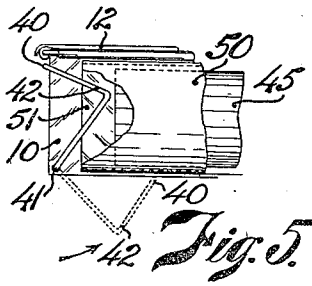


Fig. 5.

Inventors,
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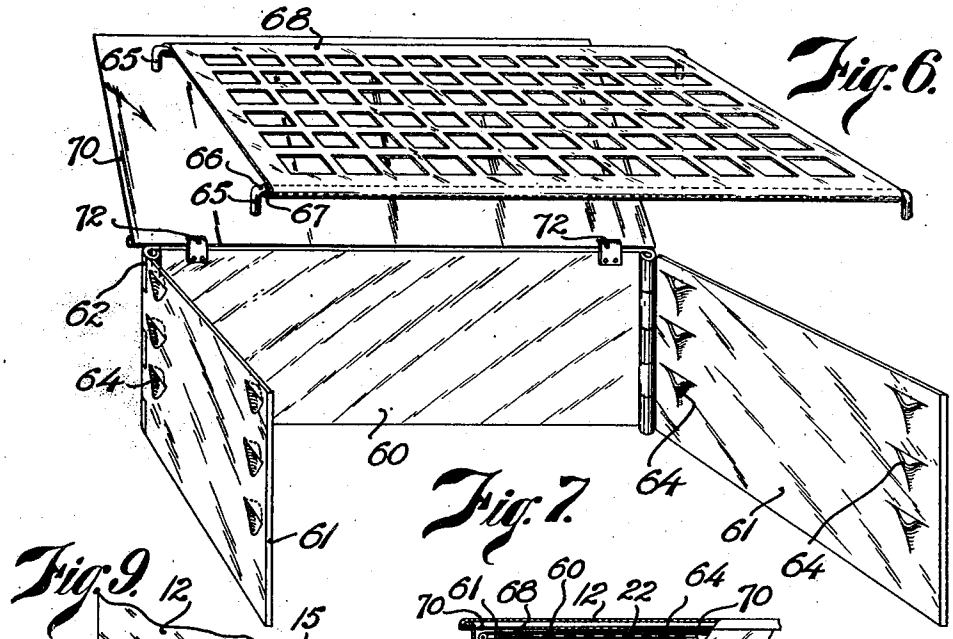


Fig. 6.

Fig. 7.

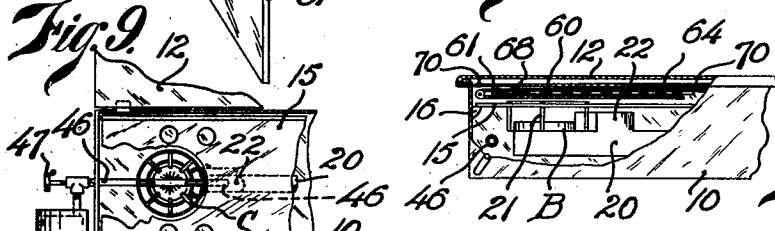


Fig. 9.

Fig. 10.

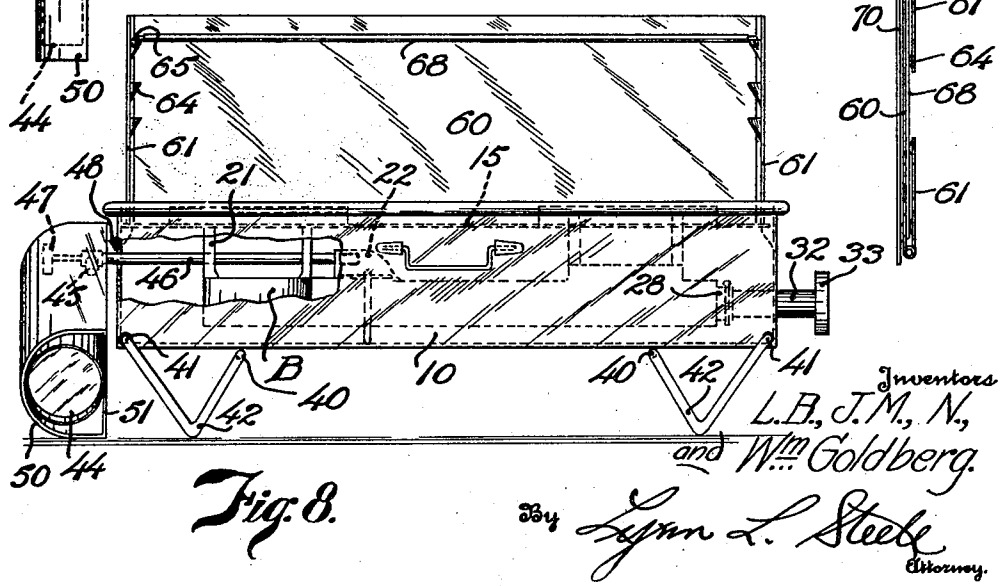


Fig. 8.

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Patented Mar. 25, 1924. 1,487,737

UNITED STATES PATENT OFFICE.

LOUIS B. GOLDBERG, JACOB M. GOLDBERG, NATHAN GOLDBERG, AND WILLIAM GOLDBERG, OF DENVER, COLORADO.

PORTABLE LIQUID-FUEL CAMP STOVE.

Application filed June 26, 1922. Serial No. 570,995.

To all whom it may concern:

Be it known that we, LOUIS B. GOLDBERG, JACOB M. GOLDBERG, NATHAN GOLDBERG, and WILLIAM GOLDBERG, citizens of the United States, and residents of the city and county of Denver, State of Colorado, have invented certain new and useful Improvements in Portable Liquid-Fuel Camp Stoves; and we do 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, reference being had to the accompanying drawings, which form a part of this specification.

The object of this invention is to provide a portable camp stove having means for burning liquid fuel, wherein all the parts of the stove and its equipment may be compactly disposed within or upon the stove casing when the same is not in use.

Briefly the invention comprises a casing within which liquid fuel burners are mounted, one of which is controlled by collapsible valve operating means adapted to be withdrawn from or returned into the casing. A liquid fuel tank from which there projects laterally a vaporizing tube, is mounted within a protector which is adapted to be retained upon a wall of the casing when not in use with the vaporizing tube projecting into the casing. When in use the protector is removed and the tube passed through an opening in the casing to place the same across a burner and in operative connection therewith. Conveniently the retaining means for the protector may be the legs of the stove. The stove also comprises a wind shield and grate adapted to be set upon the top of the stove for use, the grate being removable for packing but so retained on the shield when in use as to prevent spreading of the shield. The grate is adapted to be folded within the shield and to be placed with the shield between the burners and the cover of the casing for transportation.

In the accompanying drawings wherein certain embodiments of the invention are disclosed by way of illustration,

Fig. 1 is a plan showing the cover opened and largely broken away, the tank and its protector being in packed or inoperative position;

Fig. 2 is a sectional detail on line 2—2 of Fig. 1;

Fig. 3 is a perspective detail from line 3—3 of Fig. 1;

Fig. 4 is a detail of the tank and its protector;

Fig. 5 is an elevational detail at the end of the casing and tank opposite from that of Fig. 3;

Fig. 6 is a perspective view of the grate and windshield;

Fig. 7 is chiefly a vertical section showing the windshield and grate packed in the casing;

Fig. 8 is chiefly a front elevation showing the parts in operative position, the stove being set up for use;

Fig. 9 is a fragmentary plan showing the tank and vaporizing tube in operative position;

Fig. 10 is an edge view showing the windshield and grate folded up for packing.

The stove comprises a main casing 10 the upper edges of whose walls are preferably rolled around a reinforcing rod 11, said casing having a cover or lid 12 hinged thereto at the back, rod 11 serving as a pintle for each hinge. A second rod 14 is provided at the back of the casing upon which a grid 15 is swingingly mounted, lugs 16 being struck up from the casing walls to support the forward portion of the grid. The grid 15 is apertured at 17 to accommodate the burner grates 21 and may be apertured elsewhere as shown if desired, while the bottom of the casing is apertured at 18 for draft. The burner cups B which carry spreader plates 19 in any desired manner are connected by means of a manifold 20 and support the grates 21. The manifold 20 is provided with a fuel intake 22 which opens laterally directly above a priming cup C carried by one of the burners, said manifold also being provided with an air inlet 23 controlled by a damper 24 and rod 25 as disclosed in our copending application Serial No. 509,396, filed October 21, 1921, for regulating both burners. The opposite burner B is independently controlled at a port 26 governed by a rotary valve 28 having an aperture to register with port 26 and slotted at 29 to receive the end of a screw 30 (Fig. 1) which is threaded through a boss 31 on the burner cup as disclosed in

copending application Serial No. 526,670, filed January 3, 1922. Valve 28 receives in its outer end a hollow reciprocating sleeve 32 operable by a knob 33, and a pin 34 secured in the outer end of said valve 28 passes through slots 35 in the sleeve 32, an expansion spring 36 being disposed about said pin and having its ends frictionally engaging the inner walls of the sleeve. In this manner, the sleeve 32 will be held by the spring 36 in any position of adjustment, either extended for operation of the valve or innermost position within the confines of the casing for transportation, the knob 33 working in aperture 37 in the casing.

The casing is supported upon legs each of which has a cross bar 40 adapted to engage the end of the casing when in inoperative position and to engage the bottom of the casing when in operative position, this cross bar being connected with offset pivoting fingers 41 by means of angular portions 42 which engage the sides of the casing when folded up and the tips of which rest on the ground when in use. The pivoting fingers 41 are passed through the sides of the casing adjacent the corners which readily permits the legs to fold up at the ends or to swing down under the casing as seen in Fig. 8. This construction is described and claimed in our copending application Serial No. 517,903, filed November 26, 1921. In the present construction these legs perform the additional function when the stove is packed of retaining upon the casing 10 a liquid fuel tank 44 and its protector or retainer 50, as seen in Figs. 1, 3 and 5.

The fuel tank 44 has a rigid extension 45 leading therefrom which carries a laterally disposed vaporizing tube 46 controlled by a needle valve 47 leading to its tip, and the tube 46 when in use projects through an opening 48 in the end of the casing opposite from knob 33 and overlies the adjacent burner B and cup C and projects into the fuel intake 22. At all times except when filling, the tank 44 will be carried in a protector or retainer 50 having one flat wall 51 which is provided with a slot extending inward a short distance from its end as indicated at 52. This slot 52 receives the tube 46 so that the valve 47 may also be housed in the protector 50 and shielded from damage either during use or during transportation. If desired the valve 47 may be withdrawn sufficiently for more ready manipulation.

When the stove is to be packed the vaporizing tube will be withdrawn from the aperture 48 and the protector placed against the back wall of the casing 10 as seen in the perspective view of Fig. 3 in which instance the tube 46 will be passed through an opening 54 in the said back wall so that said tube will lie transversely of and within the adjacent end of the casing 10. When the legs 40 are swung up into folded position, the angular portions 42 thereof will be made to engage the exposed face of the wall 51 of the protector and overlie the same as seen in Figs. 3 and 5. Thus, the legs 40, 42 when in folded position will securely retain the protector and the tank 44 in position on the back of the casing so that the same may be carried and the tube 46 will also be protected.

The stove is also provided with a windshield and removable grate. The windshield comprises a back wall 60 to which are hinged end walls 61 at 62. Offset lugs 64 are provided on the end walls 61 by striking up some of the metal, thus providing pockets for offset fingers 65 on the ends of rods 66 rotatably mounted in beads 67 upon the edges of the grate 68. A series of these lugs is provided so that the grate may be set at various heights, for different purposes of cooking, broiling, toasting or merely warming. In any event the grate will be positioned a little below the top of the shield so that the upper portions thereof will form retaining walls to prevent any object from being pushed off the ends or rear of the grate as by another vessel. When in use, the windshield rests upon the grid 15, and the positioning of the fingers 65 behind the lugs 64 prevents the shield from spreading. When the grate is removed, the fingers may be rotated to lie in the plane of the grate. The grate may then be laid on the back wall 60, the end walls 61 folded thereover, and the whole placed in the top of the stove on the grid 15, the cover then being closed to retain the parts as seen in Fig. 10, and in Fig. 11.

Thus, since the burners are secured permanently in the casing, the whole stove may be packed up in compact form, with the windshield and grate within the casing, the vaporizing tube projecting thereinto from the back, and the tank retainer and protector secured against the back wall of the casing when the legs 40 are folded up into packed position, so that the whole forms a neat, compact unit without any loose parts. To set the stove up, it is merely necessary to swing the legs 40 into supporting position, thereby releasing the retainer 50, withdraw the vaporizing tube from opening 54 and insert it into aperture 48 and fuel intake 22, and set up the windshield and grate on grid 15.

If desired the back wall 60 of the windshield may have a flap 70 hinged to the upper edge thereof as at 72, this flap being slightly longer than the back wall 60 as seen in Figs. 6, 7 and 10 so that when it is moved in the direction of the arrow of Fig. 6 after the grid 15 has been lowered into position, its ends will rest upon the end walls 61 of

the windshield and be supported thereby. The flap 70 has two functions, one of which is to serve as an additional wind guard and prevent the wind from blowing down onto the burners from above, and the other of which is to serve as a cooking or warming surface. For instance flapjacks may be baked thereon. However, said flap 70 may be omitted, as will be seen from Fig. 8.

We claim:

1. A camp stove having a casing and burners therein, and a fuel tank adapted to be connected with said burners and adapted to be removably mounted upon an outside wall of the casing when not in use.

2. A camp stove comprising a casing, burners mounted therein, a fuel tank, a retainer in which said tank is mounted, a connection on the tank for operative connection with the burners, and means for removably connecting the retainer with an outer wall of the casing when not in use.

3. A camp stove comprising a casing, a burner therein, a fuel tank having means for connecting the same with the burner, said means being adapted to pass through a wall of the casing to the burner, and means for removably mounting the tank upon an exterior wall of the casing when not in use with said connecting means projecting into the casing.

4. A camp stove comprising a casing, a burner therein, a fuel tank having a vaporizing tube adapted to connect with the burner to supply the latter, and means for removably mounting the tank upon an exterior wall of the casing when not in use with the vaporizing tube projecting through the casing into the interior thereof.

5. A camp stove comprising a casing, a burner therein, a fuel tank, a connection thereon for supplying the burner, a protector about said tank and adapted to be removably mounted upon an exterior wall of the casing when not in use with said connection projecting through the casing into the interior thereof for protection of the connection.

6. A camp stove comprising a casing, a burner therein, a fuel tank, a connection on said tank having a valve for supplying the burner, a protector about said tank in which said valve is also positioned, an opening in one wall of the protector through which said connection projects, and means on the casing for removably mounting said protector on an exterior wall thereof when not in use with said connection projecting through the casing into the interior thereof.

7. A camp stove comprising a casing having a burner therein, a fuel tank to supply the burner, and swinging legs on the casing adapted to removably retain said tank upon the casing when in one position.

8. A camp stove comprising a casing, a burner therein, a fuel tank for the burner, and legs on the casing adapted to retain the tank upon the casing when not in use.

9. A camp stove comprising a casing, a burner therein, a fuel tank, and swinging legs adapted to support the stove when in use and to swing into position against the casing to retain the tank upon the casing when not in use.

10. A camp stove comprising a casing, a burner therein, a fuel tank, a protector mounted about said tank and having a wall adapted to be placed against a wall of said casing when not in use, and swinging legs adapted to swing under the casing to support the same and adapted to fold against the casing when not in use and removably retain said protector with the tank upon said wall when the tank is not in use.

11. A camp stove comprising a casing, a burner therein, a fuel tank having a connection to supply the burner, a valve for said connection, a protector about said tank and said valve and adapted to be placed against a wall of the casing when not in use with said connection projecting into the casing, and movable legs on the casing adapted to support the casing during use and to fold against the casing and engage and retain said protector thereon when the stove is not in use.

12. A camp stove comprising a casing, a burner therein, a rotary valve for the burner, an operating sleeve slidable longitudinally within said valve, a pin passing through the valve and through said sleeve and fixed to the valve, and a spring about said pin and within said sleeve with its ends engaging the inner walls of the sleeve to maintain adjustment.

13. A camp stove comprising a casing, a burner therein, a cover therefor, a collapsible windshield adapted to be mounted upon the stove and adapted to be folded and placed within the casing between the burner and the cover when the latter is closed and a grate having swinging fingers, to be removably mounted and vertically adjustable on said windshield.

14. A camp stove comprising a casing, a burner therein, a grid about the burner, a cover for the casing, a collapsible windshield adapted to be mounted upon the grid, a grate adapted to be removably mounted upon the windshield, said windshield when folded and said grate being adapted to be received in said casing between the cover and the grid for transportation.

15. A camp stove comprising a casing, a burner therein, a grid above the burner, a collapsible windshield adapted to be mounted upon the grid, and a grate adapted to be adjustably mounted upon the windshield and to retain the windshield against spreading and collapsing.

16. A windshield for camp stoves, comprising folding walls having a plurality of retaining means vertically disposed thereon, in combination with a grate having swinging fingers for engaging said retaining means in various positions of vertical adjustment.

17. A windshield comprising folding walls having a plurality of pockets thereon, in combination with a grate having rotary fingers adapted to engage in said pockets to prevent spreading or collapsing of the windshield, the fingers being rotatable into the plane of the grate when detached from the windshield.

18. In combination, a windshield for camp stoves having a plurality of folding walls, a plurality of retaining means on said walls, a grate, and a plurality of movable fingers adapted to engage said retaining means in various positions of adjustment and removable therefrom, said fingers being adapted to lock the windshield against spreading or collapse, and when detached to be moved into the plane of the grate.

19. In combination, a camp stove comprising a casing, a burner therein, a fuel tank having a connection to supply the burner, said tank and connection being removable from the burner, means for detachably mounting the tank upon an exterior wall of the casing when not in use with said connection projecting into the casing for protection thereof, and a collapsible windshield adapted to be mounted upon the stove when in use and adapted to be folded and laid upon the burner when not in use, the casing being provided with a cover to close the same and retain the windshield.

20. A windshield for a camp stove comprising a plurality of collapsible walls adapted to be opened up and set upon the stove, a grate having swinging fingers adapted to be removably and adjustably mounted upon said walls, and a flap movably connected with one of the walls and adapted to be swung down upon the upper edges thereof.

In testimony whereof we affix our signatures.

LOUIS B. GOLDBERG.
NATHAN GOLDBERG.
JACOB M. GOLDBERG.
WM. GOLDBERG.