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1,987,603

CAR HEATER

Filed April 17, 1933

2 Sheets-Sheet 1

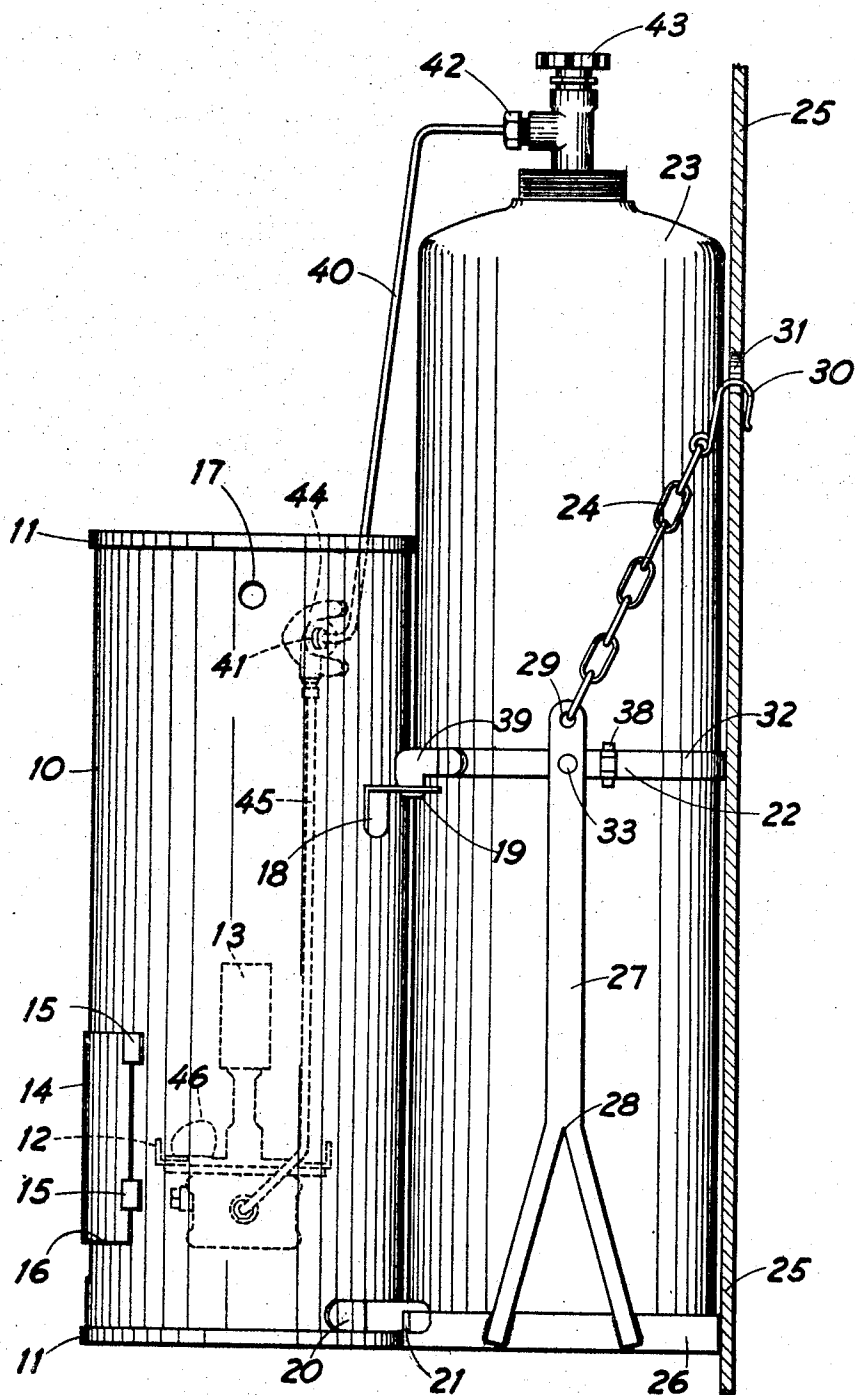


Fig. 1

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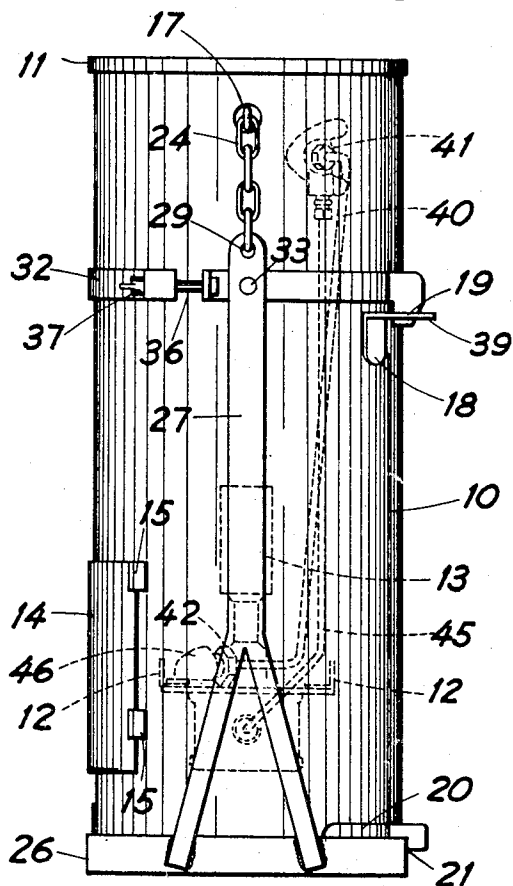
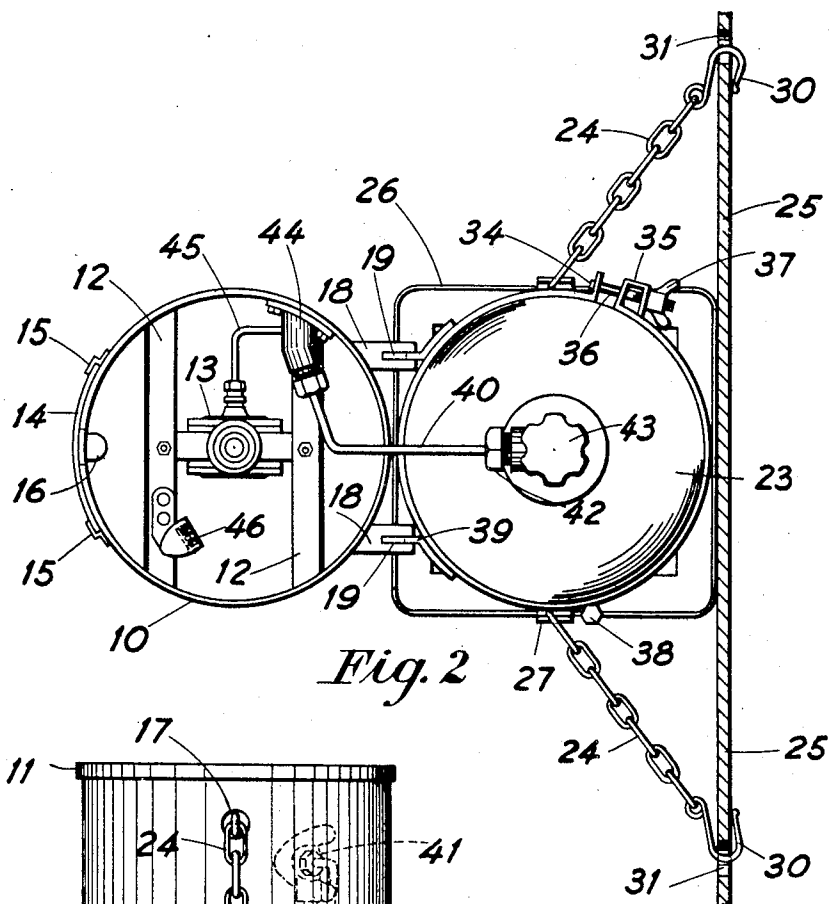


Fig. 3

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UNITED STATES PATENT OFFICE

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CAR HEATER

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10 Claims. (Cl. 126-93)

This invention relates to a casing and support for a car heater, particularly one adapted to utilize liquefied petroleum gas stored in a portable cylinder or tank which may be attached to the casing structure.

Heretofore, portable stoves used for heating cars filled with perishable products that were liable to damage by freezing, have been bulky and awkward to handle, to install, and to return to their starting point. Some types were enclosed in large screened compartments, which required several men for handling and a considerable space for storage or shipping. Others were mounted on base plates adapted to be clamped to the floor of the car. Altogether, the arrangement of the devices and particularly the methods and means used for their securing to the car structure as well as their connection to the tank of liquefied petroleum gas or other fuel, were unsatisfactory and mitigated against their extensive use.

It is an object of this invention to provide an improved stove or casing and support for a burner adapted to utilize fluid fuel and particularly liquefied petroleum gas.

Another object is to provide a simple arrangement of such a stove with a storage cylinder for liquefied gaseous fuel, together with supporting or anchoring means for the assembly.

Another object is to provide a simple carrier and attachment means for a heater of this type which is particularly adapted to be disassembled and stored or shipped in a minimum of space.

Yet another object is to provide a simple connection means between the burner of a portable stove and the source of fuel supply, so that the assembled or disassembled unit can readily and safely be handled either in service or while being returned for future use.

Another object is to provide a portable heater assembly which may be installed in a suspended position against a wall or anchored upon a slat or ventilated floor in a refrigerator car, storage compartment, platform, or the like.

These and other objects and advantages of this invention will become apparent from the description which follows, and from the accompanying drawings, which form a part of this specification and illustrate a preferred embodiment of the invention.

In the drawings:

Figure 1 is a side elevation of a car heater embodying this invention, with its fuel tank in place, and installed against a bulkhead of a refrigerator car.

Figure 2 is a plan view of the heater, support, and tank shown in Figure 1.

Figure 3 is a side elevation of the heater casing removed from the fuel storage tank and assembled into its support for shipment to the starting point.

Referring to the drawings, the numeral 10 designates a sheet metal cylindrical casing, open at both ends and preferably beaded over as at 11, to provide a smooth strong construction. Inside the lower part of the casing 10 are brackets 12, of any suitable type to support the burner generally designated 13. The nature of burner 13 or the method of its control is immaterial to this invention and any one of a number of available types may be used.

A door 14 may be provided for inspection and operation of the burner 13, and, in the example shown, is of the vertically sliding type, operating inside of clips 15 and arranged with an inwardly directed stop lug 16, to prevent removal and loss. Holes 17 are diametrically spaced near the top of casing 10, and are used as shown in Figure 3, when the casing is to be packed for shipment.

Supporting lugs 18 are attached to the body of casing 10 as shown in Figures 2 and 3, and are provided with slots 19 which are engaged by the support frame, to be described below, when the device is assembled and also when it is packed together for shipment, as shown in Figure 3. Supporting lugs 20 are similarly mounted near the lower end of casing 10 and are notched as at 21 to engage the support frame in either position.

A skeleton frame generally designated 22 is utilized to support the casing 10, as just explained, and also supports and aligns the fuel tank 23. Frame 22 is illustrated as being supported or secured by chains 24 from a vertical wall, such as an end bulkhead 25 in a refrigerator car (not shown).

Frame 22 may be arranged as shown, with an angle iron base 26. On each side of the frame are vertical straps 27, which are split for stability, as at 28, and which are drilled at their upper ends 29 for chains 24. Chains 24 terminate in hooks 30 which may be engaged into the perforations 31 usually found in bulkheads 25 of such cars, or which may be engaged in floor eyes or rings. It is obvious that various modifications might be made in this arrangement, the essential feature being that some means be provided for securing or anchoring frame 22 to the structure on which or against which it is to be placed.

A clamping ring 32 is rotatably attached to the vertical straps 27, as at 33, and is adapted to pass around the fuel tank 23, or around casing

10, as may be required. It is desirable that the casing 10 be of the same outside diameter as tank 23, to facilitate this operation.

Ring 32 is preferably provided with an adjustable tightening means, such as the brackets 34 and 35, bolt 36 and wingnut 37, together with a hinge 38, to facilitate insertion and removal of the fuel tank 23, and also the arranging of the heater casing and frame for shipment, as shown in Figure 3. Ring 32 is also fitted with outwardly extending hooks 39, which are adapted to be received into slots 19 of lugs 18 on casing 10, as shown in Figures 1, 2 and 3.

The heater is assembled by hooking the notches 21 in lugs 20 over the rim of base 26, and then, after tipping ring 32 slightly on its connection 33, engaging hooks 39 into slots 19 on casing lugs 18. Tank 23 may then be lowered into place on base 26 and clamping ring 32 tightened by turning wingnut 37 on bolt 36. In that position, casing 10 and frame 22 are securely fastened together by the opposed hooks and lugs 39, 18 and 20.

Fuel connection 40, which may be a rigid or flexible metallic conduit, with union connections 41 and 42, normally extends from the conventional threaded and valved outlet 43 on fuel tank 23, to an intermediate junction box or connector 44, mounted inside of casing 10. A second section of conduit 45 extends from junction box 44 to the inlet of the burner 13, or to any regulating mechanism (not shown) that may be used therewith. The heater structure is usually the property of the railway or the shipper, and is returned to the place of departure after each trip or period of use. The fuel tank 23, however, usually belongs to an oil refiner or distributor, and as it is more or less depleted of its original charge of liquefied petroleum gas after one or two trips, it is separately returned to the refinery or servicing point for refilling, after which it is forwarded to the shipper to be reassembled with a heater and reused. Thus it is convenient to have the two parts of the assembled device, namely the heater and the tank, separately portable and of suitable shape for ready and economical transportation or stacking. This has been accomplished in this invention by arranging the clamping or support means which normally holds the tank 23 to the casing 10 so that, when the tank is removed, these means may be reversed, so to speak, and fastened about the heater casing, as shown in Figure 3, so as to occupy the minimum space and also be snugly and securely held together. The method of accomplishing this reversal for the example shown, will be described in the following paragraph.

When the heater is to be shipped in the condition shown in Figure 3, the fuel tank 23 is removed, the casing 10 is set into frame 22, and the nut 37 tightened on bolt 36, thus clamping the two units firmly together. Unions 41 and 42 on fuel conduit 40 are disconnected, and conduit 40 is secured in casing 10 with union 41 in junction box 44, and union 42 in a threaded bushing 46 (Figure 2) which is mounted on one burner support bracket 12. Chains 24 are passed through holes 17 in the casing and hooked together, forming a handle by means of which the assembly may be moved as desired.

It will be appreciated that numerous changes could be made in the arrangement shown without departing from the essential features of the invention, which reside in the provision of a simple casing or burner enclosure for a portable

heater of this type, together with a fuel tank support frame which is adapted to support and align the casing and fuel tank securely in their operating position, and also to be fitted around the casing when the apparatus is to be shipped or stored in a minimum of space.

Although a specific construction embodying the invention has been described and illustrated, it is to be understood that the invention is not limited to that arrangement, and all such modifications and changes as come within the scope of the appended claims are embraced thereby.

I claim:

1. A portable heater, comprising a burner, a cylindrical open ended casing enclosing said burner, a cylindrical fuel tank of substantially the same diameter as said casing, a conduit connecting said tank to said burner, a frame provided with a base to support said tank, a clamp on said frame to secure said tank therein, said frame and said clamp adapted to receive and retain said casing when said tank is removed from said frame, lugs on said frame to connect the same to said casing, and flexible connectors adapted to secure said frame to a support.

2. A portable heater comprising a burner, a cylindrical open ended casing enclosing said burner, a cylindrical fuel tank of substantially the same diameter as said casing, a conduit connecting said tank to said burner, a frame provided with means to support said tank, clamping means on said frame to secure said tank therein, said frame and said clamping means adapted to receive and retain said casing when said tank is removed from said frame, means for connecting said frame to said casing, and means attached to said frame and adapted to suspend said frame from a vertical support.

3. A portable heater comprising a burner, a cylindrical casing enclosing said burner, a fuel tank of substantially the same diameter as said casing, a conduit connecting said tank to said burner, a frame provided with means to support said tank, clamping means on said frame to secure said tank therein, said frame and said clamping means adapted to receive and retain said casing when said tank is removed from said frame, means for connecting said frame to said casing, and means attached to said frame and adapted to secure said heater to a support.

4. A portable heater comprising a burner, a cylindrical casing enclosing said burner, a fuel tank of substantially the same diameter as said casing connected to said burner, a frame provided with means to receive and retain said tank, said means adapted to receive and retain said casing when said tank is removed from said frame, connecting means between said frame and said casing and means for securing said heater to a support.

5. A portable heater comprising a burner, a cylindrical casing enclosing said burner, a fuel tank of substantially the same diameter as said casing, a frame provided with means to receive and retain said tank, said means adapted to receive and retain said casing when said tank is removed from said frame, and removable means adapted to connect said casing and said frame.

6. A portable heater comprising a burner, a fuel tank connected to said burner, a cylindrical casing for said burner, said casing being of substantially the same diameter as said fuel tank, and means associated with said casing adapted to receive and retain said tank in close proximity to said casing, said means also being adapted to

receive and retain said casing when said tank is detached therefrom.

5 7. A portable heater comprising a burner, a fuel tank connected to said burner, a cylindrical casing for said burner, said casing being of substantially the same diameter as said fuel tank, and clamp means associated with said casing and adapted to receive and retain said tank in close proximity to said casing, said clamp means also being adapted to be positioned about said casing
10 when said tank is detached therefrom.

15 8. A portable heater comprising a burner, a fuel tank connected to said burner, a cylindrical casing for said burner, said casing being of substantially the same diameter as said fuel tank, and a clamp attached to said casing and adapted

to encircle said tank to hold said casing thereto, said clamp also being adapted to encircle said casing when said tank is detached therefrom.

9. A portable heater according to claim 8 with the further addition of means for securing said heater to a support. 5

10. A portable heater comprising a burner, a fuel tank connected to said burner, a casing for said burner, and a clamp means attached to said casing and adapted to receive and retain said tank in close proximity thereto, said casing being of such configuration or shape that said clamp means is also adapted to be positioned thereabout when said tank is detached therefrom. 10

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