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W. LA MIRAND
VEHICLE ENGINE HEATER
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FIG. 1.

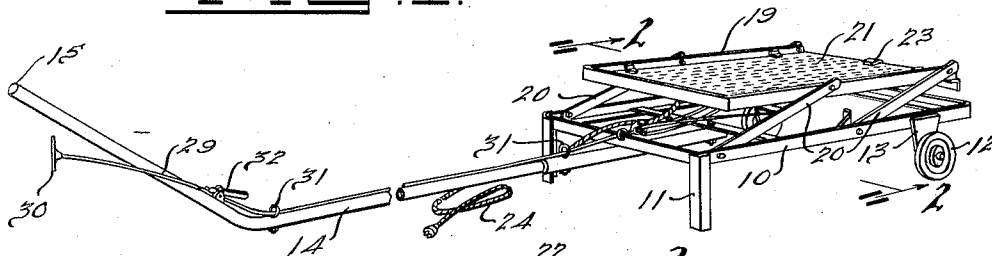


FIG. 2.

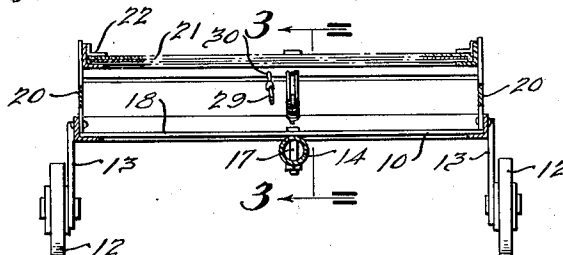
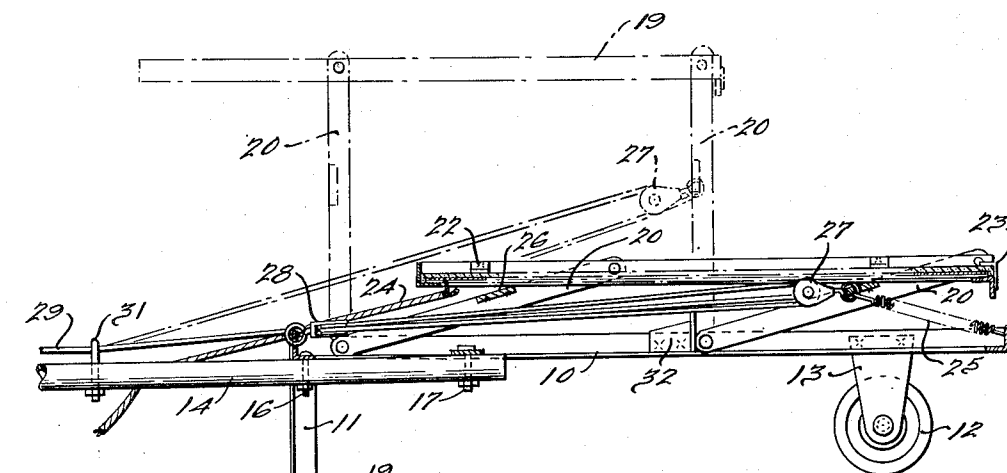


FIG. 3.

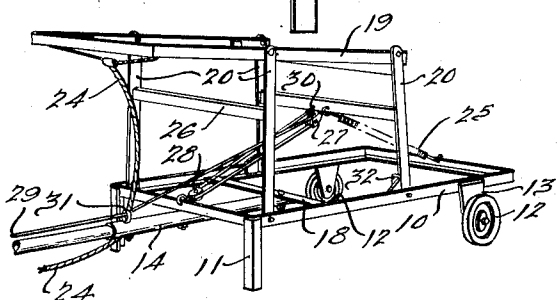


FIG. 4.

INVENTOR.
Walter LaMirand.
BY
Maxwell K. Murphy
ATTORNEY.

UNITED STATES PATENT OFFICE

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VEHICLE ENGINE HEATER

Walter La Mirand, Detroit, Mich., assignor to
Glassheat, Inc., Detroit, Mich., a corporation
of Michigan

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5 Claims. (Cl. 219—19)

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This invention relates to a portable and easily transportable device for quickly warming up cold automobile and truck engines in cold weather.

Frequently fleets of trucks, as well as passenger cars, are stored on open lots overnight or for longer periods. In climates where winter temperatures fall to zero or below, great difficulty is encountered in starting the engines of these vehicles after they have been idle for some time. The oil in the crankcases becomes thick in cold weather and the starting batteries are in many instances exhausted without getting the engines started. In addition, engines are frequently damaged when started cold because of the lack of lubrication on the cylinder walls during the period of time required to heat the crankcase oil sufficiently to permit circulation thereof.

It is the prime object of my invention to provide a simple and easily movable device for warming up engines before starting in cold weather.

A further object is to incorporate in such a device radiant heating means to the end that the maximum amount of heat can be transferred to the engine in a short time with portable and economical equipment.

Other objects and advantages of my invention will be apparent from the following description when taken in conjunction with the accompanying drawing, in which:

Fig. 1 is a perspective view of my improved engine heater;

Fig. 2 is a sectional view taken along the line 2—2 of Fig. 1;

Fig. 3 is a sectional view taken along the line 3—3 of Fig. 2, showing the erected position of the heating plate in broken lines; and

Fig. 4 is a partial perspective showing the device in its operating position.

Referring to the figures, it may be seen that the device comprises a main frame 10 preferably constructed of steel or aluminum angle section. The frame has legs 11 at its forward corners and wheels 12 mounted at each side near its rear end by means of flat sub-axle supports 13. A tubular handle or tree 14 provided at its outer end with a hand gripping portion 15 is secured to the frame 10 by bolts 16 and 17, the latter being carried by a flat reinforcing strut 18 mounted on the frame between the side pieces thereof.

For convenience in shipping, the handle is preferably made in two sections, the outer section telescoping within the rear section as illustrated.

A secondary or sub-frame 19 is movably mounted on the main frame 10 by means of four links 20. The latter are suitably pivoted at their ends

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to the angle sections of the main frame and sub-frames respectively and permit the latter to be moved upwardly and forwardly relative to the main frame for purposes which will presently appear.

The sub-frame 19 carries a sheet-like heating element 21. This element is preferably of glass with metal alloy fused on the back to form a resistance path for electrical current. However, any other type of element of sheet form may be used provided it is capable of radiating heat rays efficiently.

The heating element 21 is secured in the sub-frame 19 by welded tabs 22 carried by the side members and a tab 23 carried by the rear down turned angle section. The tab 23 may be detachably secured to the frame such that removal thereof will enable easy replacement of the glass plate by sliding it from under the tabs 22. The metal alloy constituting the heat generating means is bonded to a suitable flexible cord 24 adapted to be plugged into an electrical power outlet.

The sub-frame 19 is yieldably retained in its Figure 1 position by a coil spring 25, the frame bed resting on the cross members 26 which are carried by the links 20 (see Fig. 4). The spring 25 is secured at its ends to the rear members of the frames 10 and 19 respectively and serves to keep the sub-frame in down position and to return it to that position from its operating position as will be later described.

The rear cross member 26 carries a pulley block 27. A similar block 28 is carried by the front angle section member of the main frame 10. A flexible cable 29 provided with a gripping handle 30 is trained through the aforesaid pulley blocks as illustrated and fastened at its rear end to the rear cross member 26. A pair of eye members 31 guide the cable along the handle 14 and the rearwardly disposed eye also serves as a fastening means for the two tubular handle sections. A clamp, generally designated at 32, is provided to lock the cable in any selected position.

When not in use, my engine heater may be stored flat or stood up against a wall in its rear frame member with the sub-frame in down position as illustrated in Fig. 1. To use the device, the cord 24 is plugged in to a source of electrical current and the frame portion is positioned beneath a motor vehicle engine which is easily accomplished by grasping the handle portion 15 and lifting the forward end of the heater, thereby permitting it to be wheeled on the wheels 12.

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The heater may then be placed in operating condition by erecting the sub-frame 19. This is accomplished by grasping the handle 30 and pulling the cable 29 forwardly whereupon the frame 19 will be moved upwardly and forwardly. It is desirable to place the heater plate 21 as close as possible to the bottom of the engine about to be started. If possible, the frame 19 may be pulled to its extreme forward position. This is an "over-center" position with the rear links 20 resting against stops 32 carried by the main frame side members.

To retain the sub-frame in its erected position against the tension of the spring 25, the clamp 32 is manipulated to clamp the cable 29 against movement.

Clamp 32 may also be used to hold the sub-frame in positions intermediate its extreme up and down positions, thus providing for cases where the engine or chassis is too low for the full up position.

When it is desired to withdraw the heater from under the vehicle, the clamp 32 is released. The spring 25 will then draw the sub-frame down to the position shown in Fig. 1. It is desirable during lowering of the sub-frame for the operator to grasp the handle 30 for the purpose of slowing the return of the sub-frame and avoid breakage of the glass plate.

It may thus be seen that I have provided an extremely simple and useful device for warming cold motor vehicle engine, although it is obvious that the usefulness thereof is not confined entirely to this use.

While I have shown for illustrative purposes a preferred form of my device, it will be apparent to those skilled in the art that the invention need not take the identical form shown, but various changes may be made therein without departing from the scope and spirit thereof as set forth below in the appended claims.

I claim:

1. In a portable heater for vehicle engines, a main frame, a sub-frame movable vertically with respect to said main frame, an electrically energized heat radiating element carried by said sub-frame, a handle extending from and carried by

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said main frame, cable means carried on said handle for moving said sub-frame, and clamping means carried by said handle adapted to engage said cable for retaining said sub-frame in selected positions.

2. The combination set forth in claim 1 wherein the main frame has wheels mounted thereon.

3. The combination set forth in claim 1 wherein the heat radiating element consists of a sheet of glass with a metal resistance grid fused therein.

4. As a new article of manufacture, a portable radiant heater for warming motor vehicle engines comprising, a main frame, wheels mounted on said main frame for transporting said heater, a sub-frame, an electrically energized heating element mounted on said sub-frame links pivoted to said respective frames for mounting the sub-frame on the main frame and permitting relative movement therebetween thereby to adjust the elevation of said element, a handle carried by and extending outwardly from the main frame, cable means carried on said handle and connected to said frames such that the sub-frame may be moved relative to the main frame by pulling said cable means, and clamping means carried by said handle for locking said cable in selected positions.

5. The combination of claim 4 wherein a tension spring is connected between said frames for resisting movement of said sub-frame.

WALTER LA MIRAND.

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