

April 6, 1926.

1,579,231

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OIL HEATER FOR INTERNAL COMBUSTION ENGINES

Filed March 5, 1924

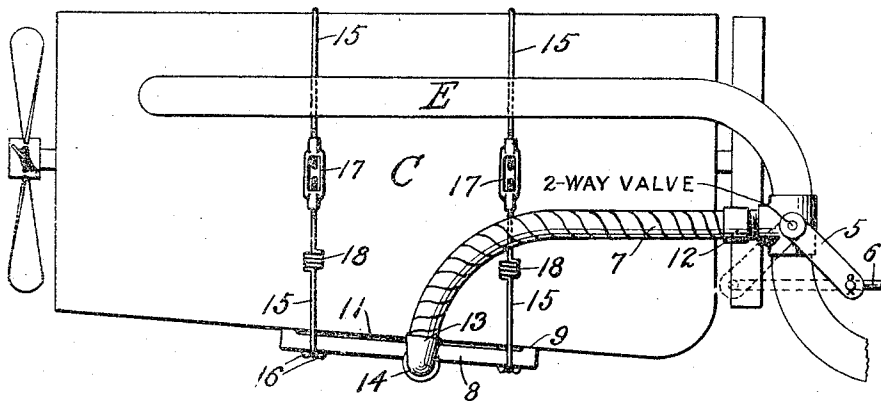


Fig. 1.

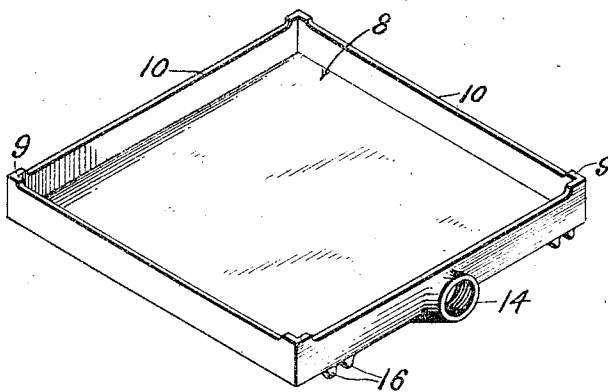


Fig. 2.

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OIL HEATER FOR INTERNAL-COMBUSTION ENGINES.

Application filed March 5, 1924. Serial No. 697,045.

To all whom it may concern:

Be it known that I, CLYDE B. MILLER, citizen of the United States, residing at Piqua, in the county of Miami and State of Ohio, have invented certain new and useful Improvements in Oil Heaters for Internal-Combustion Engines, of which the following is a specification.

This invention relates to an improved oil heater, and especially to the class of oil heaters employed for heating and thinning congealed oil in the bottom of the gear casing or oil container of an automobile-engine or other internal combustion engine.

It is known that other devices exist for the purpose above explained, so it is not deemed necessary to explain the conditions under which a device of this kind is necessary, beyond merely mentioning that when the oil congeals, in consequence of extremely cold weather, it is necessary for the oil to be melted, and thereby thinned, so it will properly lubricate the engine.

The devices for this purpose, which are known to the inventor, are of such character and construction that the engine casing must be cut or bored to provide an opening through which the heating fluid passes from the exterior to the interior of the gear casing. Obviously, this requires a very considerable expense, not only for the actual cutting or boring of the hole, but in many cases the removal of one or more parts of the machine for obtaining access to the place where the hole is to be cut or bored, and besides, there is considerable expense in attaching the device to the gear casing or oil container in such relation as to prevent leakage through the hole thus cut or bored.

Therefore, one object of this invention is to provide an improved but very simple oil heater which may be attached to all or approximately all makes or types of automobile engines and other internal combustion engines, without making any hole or effecting any change in the construction of the gear casing or other part of an engine.

Another object is to provide a device of this character which includes means to connect it to the exhaust pipe of the engine, and to divert at least a part of the exhaust into the heater, the latter being of such construction that it spreads the exhaust fluid on a large area of the lower surface of the gear casing or oil container, so as to very quickly

melt all of the congealed oil in the gear casing.

Other objects and important features will be pointed out or implied in the following description, in connection with the accompanying drawings in which,—

Figure 1 is a side view of the device attached to the gear casing or oil container of an engine, the latter being shown, together with the exhaust tube or manifold, somewhat conventionally; and,

Fig. 2 is a perspective or isometric view of the pan or spreader which is shown under the gear casing or oil container in Figure 1.

Referring to these drawings in detail, in which similar reference characters correspond with similar parts throughout the several views, and in which the gear casing or oil container C and exhaust tube or manifold E are shown merely to illustrate the application of the oil heater; the invention consists not only in the application of the device, as shown, but also in the specific device, independent of the engine casing or oil container and exhaust tube, as an article of merchandise, that is, a unitary article which may be sold in any general merchandise store or automobile supply store, to be attached to the gear casing or oil container and exhaust tube of any engine to which it is adapted, or adaptable by any necessary or desirable mechanical change within the scope of the invention.

The 2-way valve, shown in Figure 1, may be of any ordinary construction, and therefore, its details of construction are not here shown; and it may be operated by any appropriate means, for instance, by a lever 5 and a rod 6, the latter being operable directly by hand or by any intermediary means (not shown). The purpose of this 2-way valve is to divert the exhaust gas or a portion of it, through a tube 7, into the spreading member or pan 8, thus spreading the exhaust gas over the lower surface of the casing or oil container C. The pan 8 is formed with relatively high portions 9 and relatively low portions 10, the latter extending substantially throughout the length of the walls of the pan. These high portions 9 may be located either at the corners, as shown, or at any other convenient places, and serve to hold the greater portion of the walls away from the surface of the casing or oil container C, so as to provide relatively

long and narrow or shallow openings 11 through which the exhaust passes out of the pan, in all directions, or in one or more directions, in one or more sheet-like streams, according to the number of low parts 10, as in the form here shown, or in any merely structural modification of this form.

It may be preferable in most cases to employ a flexible tube 7, as indicated, and to provide the same with suitable screw-threaded connections 12 and 13, for connection respectively with the 2-way valve and with an internally threaded inlet boss 14 of the pan 8, these connections 12 and 13 being secured to the tube 7 by any appropriate means.

As one of the many devices for securing the pan 8 against the lower side of the casing or oil container C, without altering the construction of the casing, I may employ flexible rods or straps 15, by passing these rods or straps over the casing or oil container C and under the pan 8. I may provide spaced lugs or lumps 16 for forming pairs of keepers between which each rod 15 is seated and held against lateral movement with respect to the pan 8. I may provide turn buckles 17 to connect the ends of the straps 15 and tighten them for seating the parts 9 tightly against the bottom of the casing or oil container, and I may provide springs 18, as elements of the rods 15, so the rods will yield to the expansion caused by heat of the casing or oil container, but will continually hold the pan 8 in its proper place.

When it is desired to employ this device for melting the congealed oil, the 2-way valve is turned in the proper direction for diverting exhaust gas into the tube 7 and thence into the pan 8. As the entire top of the pan is open, the diverted exhaust gas comes into direct contact with the casing or oil container C, and in consequence of the low parts 10 of the pan, the exhaust gas which escapes from the pan, over these low parts, also flows into contact with the parts of the engine casing forward and rearward of the pan 8, also rightward and leftward of the pan, provided every wall of the pan has a low portion 10; however, in practice, it may be found desirable to provide such low portion 10 at only the front and rear, especially where the pan 8 has its right and left sides substantially flush with the right and left sides of the casing, as is here shown.

It should be understood that when the congealed oil has become thawed or melted, the 2-way valve is then to be turned so that the

exhaust will be cut off from the pipe or tube 7 and pass out through the regular outlet of the exhaust tube E.

It is not intended to limit this invention to the exact details of construction and arrangement here shown, but changes may be made within the scope of the inventive ideas as implied and claimed.

What I claim as my invention is:

1. The combination with an oil container, of a pan provided with an open top and with means for holding a part of the open top spaced from the bottom of the oil container, and means to conduct a heating fluid into said pan, whereby said heating fluid passes into direct contact with said bottom of the casing for heating the latter and thereby melting congealed oil within the oil container.

2. The structure defined by claim 1, and means to suspend said pan from a part of said oil container above said bottom, said suspending means being provided with an elastic or resilient element for yielding to the expansion of the oil container.

3. In a device of the character described, a pan provided with relatively high and low portions to form an opening in one or more of its walls, and a pipe connection including an inlet from the exterior to the interior of the pan, for the purpose specified.

4. The structure defined by claim 3, and means on the exterior of the pan for engaging with means for attaching and securing the pan against the lower side of an oil container.

5. The combination of a pan having an open top, means to conduct heating fluid into said pan, and means to secure the open top of the pan against the under side of an oil container, means being provided to permit escape of the heating fluid from the pan, and to spread the escaping heating fluid against the container's under surface externally of said pan, for the purpose specified.

6. The combination with an oil container, of a pan having an open top and provided with means to conduct heating fluid thereinto, and means securing the open top of the pan adjacent the under side of the oil container, means being provided to permit escape of the heating fluid from the open top of the pan and to spread the escaping heating fluid against the oil container's surface externally of the said pan, thereby applying the heating fluid to an area considerably greater than that of the bottom of the pan.

In testimony whereof I affix my signature.

CLYDE B. MILLER,