Aug. 6, 1929. D. P. CUTLER 1,723,331

CRANK CASE HEATER

Filed May 16, 1928

Fig. 1.

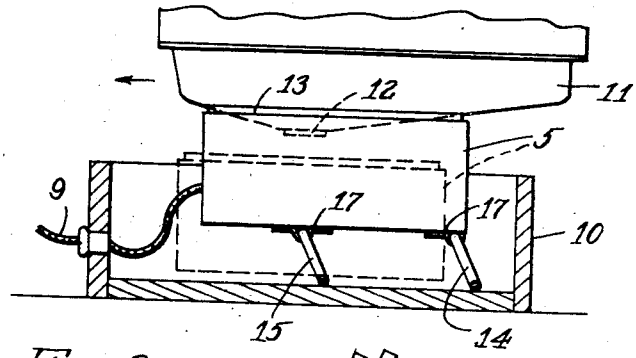


Fig. 2

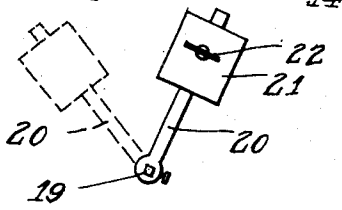


Fig. 3

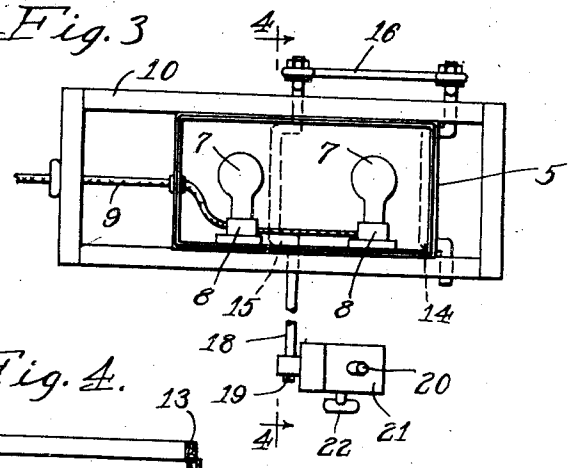
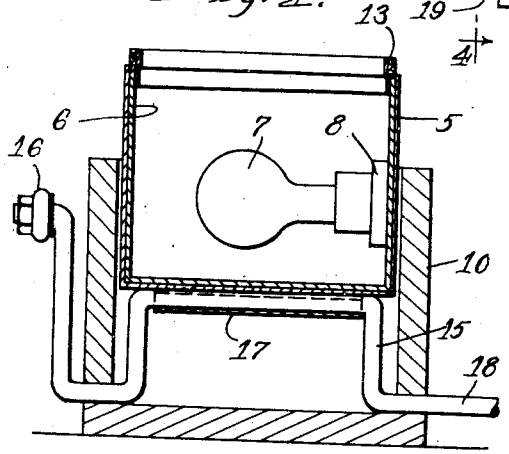


Fig. 4.



Inventor.
Dwight P. Cutler
By Wilson + McCanna
Attys.

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UNITED STATES PATENT OFFICE.

DWIGHT P. CUTLER, OF ROCKFORD, ILLINOIS.

CRANK-CASE HEATER.

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This invention relates to a heater especially designed and adapted for heating the crankcase of an automobile or similar vehicle.

It is well known how the oil in the crankcase of an automobile becomes congealed to such viscosity in cold weather that it affords little or no lubrication to the cylinder walls and main bearings until the engine has been run for several minutes and warmed up sufficiently to fluidify the oil. Because of the congealed condition of the oil, pistons and cylinders are scored, main bearings are frequently burned out, and there is also an excessive load imposed on the battery in starting as well as excessive crankcase oil dilution because of too much use of the choke. It is therefore, the principal object of my invention to provide a heater arranged to be placed on the floor beneath the crankcase to furnish heat particularly in the vicinity of the sump, thus insuring fluidity of the pool of oil at the intake of the oil pump, the purposes and advantages in which will, no doubt, be apparent, and also, in a measure, to furnish heat to the cylinder walls by conduction from the crankcase, so as to at least partially fluidify the oil film on the cylinder walls and enable proper functioning of the starter.

The heater of my invention, briefly stated, comprises a casing containing heating units, such as electric light bulbs, the said casing being mounted in or on a support low enough so that the front or rear axle of the car easily clears the same and the heater need not be disturbed when the car is driven into and out of the garage. The heater casing has manually operable means for raising the same relative to the support into operative relation with the crankcase, the said means being of such a form that the casing may be quickly lowered to an out-of-the-way inoperative position by hand or will be lowered automatically in running the car out of the garage. Thus, no damage can be done to the heater if the motorist forgets to lower the casing before driving out.

The invention is fully illustrated in the accompanying drawing, wherein—

Figure 1 is a view of the heater partly in longitudinal vertical section and partly in side elevation showing the heater casing in operative position against the under side of an automobile crankcase;

Fig. 2 is a fragmentary side view showing the weighted hand lever for raising and lowering the heater casing;

Fig. 3 is a plan view of the device as it appears in Fig. 1; and

Fig. 4 is an enlarged vertical section taken on the line 4—4 of Fig. 3 looking in the direction of the arrows.

The same reference numerals are applied to corresponding parts throughout the views.

The device comprises a heater casing 5 of any suitable material, but preferably sheet metal, lined with asbestos, as indicated at 6, for heat insulation and having one, two, or more electric light bulbs 7 or other heating units, mounted in sockets 8 therein. The sockets 8 are suitably connected in parallel so that any one or all of the bulbs may be lit as desired, according to the amount of heat required to suit the prevailing temperature. The extension cord 9 leads to any convenient light socket from the heater casing through a convenient outlet in the wall of the box 10 which serves both as a support and container for the casing 5, as will presently appear. The casing 5 is of suitable dimensions so that the open top thereof is adapted to receive and enclose a substantial portion of an automobile crankcase, such as that represented at 11, to furnish heat to the engine generally, as stated above, but particularly in the vicinity of the sump, represented at 12, the purpose being to keep the pool of oil in the crankcase at least at a normal temperature such that it will not congeal and the oil pump will be insured of an adequate supply of fluid oil. The casing 5, by reason of the insulation 6, retains the greater portion of the heat supplied by the bulbs 7, and in order that little or no heat will be lost through the open top of the casing, the latter is suitably provided with a protruding lining 13 of felt, or other soft conformable material, serving both as a gasket at the joint between the casing 5 and crankcase 11 and as a means of preventing conduction of heat from the warm crankcase to the cold shell of the casing 5.

The box 10 is arranged to receive the casing 5, as indicated in dotted lines in Fig. 1, and is preferably low enough so that the front or rear axle of the car will clear the same and the heater may, therefore, be left in place on the floor when the car is driven into and out of the garage. Any suitable means may be provided for raising and lowering the heater casing relative to its support into and out of operative relation to the crankcase. Thus, while I have, for the purposes of simplicity, shown the use of a pair of cranks 14 and 15,

I in no way limit the invention to this specific form of means inasmuch as many others will at once appear to those skilled in the art as a result of this disclosure. The cranks 14 and 15 are mounted for swinging movement in the side walls of the box 10 and have arms on the free ends thereof connected by a link 16 to cause the cranks to swing in unison, although, of course, that result is secured also by reason of the fact that the cranks are both pivotally connected to the bottom of the casing 5, as represented at 17. The cranks have sufficient throw to raise the casing from the dotted line inoperative position to the full line operative position. While the two cranks, as herein shown, are of the same radius so as to raise the casing 5 from a substantially horizontal inoperative position to a substantially horizontal operative position it will be evident that, if desired, the one crank may be provided of a longer radius than the other to hold the casing in a tilted position or that the cranks 14 and 15 might be disposed otherwise than in the parallel relation shown to tilt the casing 5, as desired. It will be evident that the cranks adapt the heater to use in connection with crankcases at different elevations within reasonable limits. One of the cranks, in this case the crank 15, has an extension 18, the outer end of which may be squared, as indicated at 19, to facilitate mounting a hand lever 20 thereon. The latter is disposed at such an angularity with respect to the crank 15 that the weight 21, arranged to be secured to the lever by means of a thumb screw 22, is adapted to support the casing 5 in its full line operative position, as shown in Fig. 1, when the lever 20 is in the full line position shown in Fig. 2. Movement of the lever 20 from the full line position, past dead center, to the dotted line position shown in Fig. 2, results in movement of the casing 5 from its full line position shown in Fig. 1 to its dotted line position.

In operation, it will be understood that the heater casing 5 will normally be left in its lowered dotted line position and that the car will be driven into place such that the crankcase 11 is disposed over the heater substantially as shown in the drawing. If desired, provision may be made whereby the car may be guided into proper position or else the heater may be arranged to be shifted into proper relation to the crankcase. In either event, the heater casing is arranged to be raised to the crankcase by swinging the lever 20 past dead center to the full line position shown in Fig. 2. The heater lights need not be left burning all the time the car is standing in the garage unless that is preferred, inasmuch as the operation of the heater is sufficiently effective to fluidify the oil by turning on the heat an hour or so before the car is to be used. Just before running the car out of the garage the heater may be retracted to the out-of-the-way position by simply kicking or throwing the lever 20 over dead center to the dotted line position shown in Fig. 2. If, as stated before, the motorist forgets to withdraw the heater from the crankcase by operation of the lever 20, no damage will be done to the heater inasmuch as the crankcase, in moving in the direction indicated by the arrow in Fig. 1, is bound to move the heater casing 5 sufficiently in the movement of the car to throw the lever 20 past dead center.

It will be apparent from the foregoing description that I have provided a very simple and effective heater for the purpose described, of thoroughly practical and economical construction. While reference has been made in the description to certain specific details of construction and arrangement it should be understood, as stated before, that I do not limit myself in these respects except only as the appended claims may be limited by the state of the prior art.

I claim:

1. A device of the character described comprising in combination with an automobile crankcase, a heater casing containing heating means and having an opening whereby the casing is adapted to enclose at least a portion of the crankcase to subject the same to the action of the heating means, a base, and means for supporting said casing in elevated relation to the base to be in close proximity with the crankcase, said means being operable manually to and from operative position but being arranged to be operated automatically to inoperative position as a result of movement of the automobile.

2. A device of the character described comprising in combination with an automobile crankcase, a heater casing containing heating meas and adapted to enclose at least a portion of the crankcase to subject the same to the action of the heating means, and means for raising and lowering said casing relative to the floor beneath the crankcase to move the heater casing into and out of operative relation to the crankcase.

3. A device of the character described comprising in combination with an automobile crankcase, a heater casing containing heating means and adapted to enclose at least a portion of the crankcase to subject the same to the action of the heating means, a portable support for said heater casing arranged to be disposed on the floor beneath the crankcase so as properly to position the heater casing with respect thereto, and means acting between said support and said casing for raising and lowering the latter to and from operative relation with the crankcase.

4. A device as set forth in claim 3 wherein the last mentioned means includes a part extending from said support a sufficient dis-

tance to permit manual operation of said heater casing at a point alongside the car.

5. A device as set forth in claim 3 wherein the last mentioned means includes a shaft operatively connected with said casing and extending from the support to a point alongside the automobile to facilitate manual operation, and a hand lever mounted on the outer end of said shaft arranged when swung to one position to raise the heater casing to operative position and when swung to another position to lower the heater casing to inoperative position.

6. A device as set forth in claim 3 wherein the last mentioned means includes a shaft operatively connected with said casing and extending from the support to a point alongside the automobile to facilitate manual operation, and a weighted hand lever mounted on the outer end of said shaft and arranged to be swung from one operative position past dead center to another operative position, the connections between the heater casing and said shaft being such that in the first operative position of said lever the casing is held in its raised operative position and in the other operative position of said lever said casing is disposed in its lowered inoperative position.

7. A device of the character described comprising in combination with an automobile crankcase, a heater casing containing heating means and adapted to enclose at least a portion of the crankcase to subject the same to the action of the heating means, a support for said heater casing arranged to be disposed on the floor beneath the crankcase so as to position the heater casing in proper relation thereto, one or more crank elements pivotally mounted on said support and having the heater casing carried thereby, and a weighted hand lever for operating said crank elements, said hand lever by reason of its weight being arranged in one position to tend to swing the crank elements in one direction whereby to hold the heater casing in elevated operative position, and said lever by reason of its weight being arranged when moved from the last mentioned position past dead center to cause said crank elements to swing in the opposite direction so as to lower the heater casing.

8. A device of the character described comprising in combination with an automobile crankcase, an open-top heater casing containing heating means and arranged to be raised into operative position from beneath the crankcase to enclose at least the sump portion thereof.

9. A device of the character comprising in combination with an automobile crankcase, an open-top heater casing containing heating means and arranged to be raised into operative position from beneath the crankcase to enclose at least the sump portion thereof, and means manually operable in one direction for raising said casing to operative position and supporting the same in such position, said means being arranged to be moved in the opposite direction manually, or automatically as a result of the movement of the automobile, for lowering said heater casing from operative position.

10. A device of the character described comprising in combination with an automobile crankcase, of an open-top box arranged to be disposed on the floor beneath the crankcase, said box being low enough for axle clearance to permit the automobile to be driven into place over the same, an open-topped heater casing normally disposed in said box and having heating means therein, and means for raising and lowering said heater casing out of and into said box respectively whereby the casing is adapted to enclose at least a portion of the crankcase within the top thereof.

11. A device as set forth in claim 10 wherein the last mentioned means comprises one or more crank elements swingably mounted in said box in transverse relation thereto having pivotal connection with said casing, and a manually operable lever for swinging the same to and from operative position, said lever having means for holding the same in operative position.

12. A device as set forth in claim 10 where in the last mentioned means comprises one or more crank elements swingably mounted in said box in transverse relation thereto having pivotal connection with said casing, and a manually operable lever for swinging the same to and from operative position, said lever having a weight swingable with it from a position holding the lever in operative position past dead center to another position holding said lever in inoperative position.

13. A device of the character described comprising a heater casing containing heating means, a base arranged to be placed on the floor beneath the crankcase of the engine of an automobile and means operable manually from the side of the automobile for raising said casing to elevated position with respect to said base so as to be in close proximity with the under side of the crankcase of said automobile engine to heat the same, said means being operable automatically to inoperative position as a result of the starting of the automobile.

In witness of the foregoing I affix my signature.

DWIGHT P. CUTLER.