

Feb. 19, 1929.

1,702,775

G. D. HAUSER

ELECTRIC HEATER

Filed March 31, 1927

2 Sheets-Sheet 1

Fig. 1

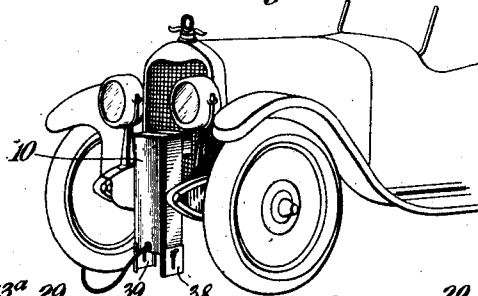


Fig. 2

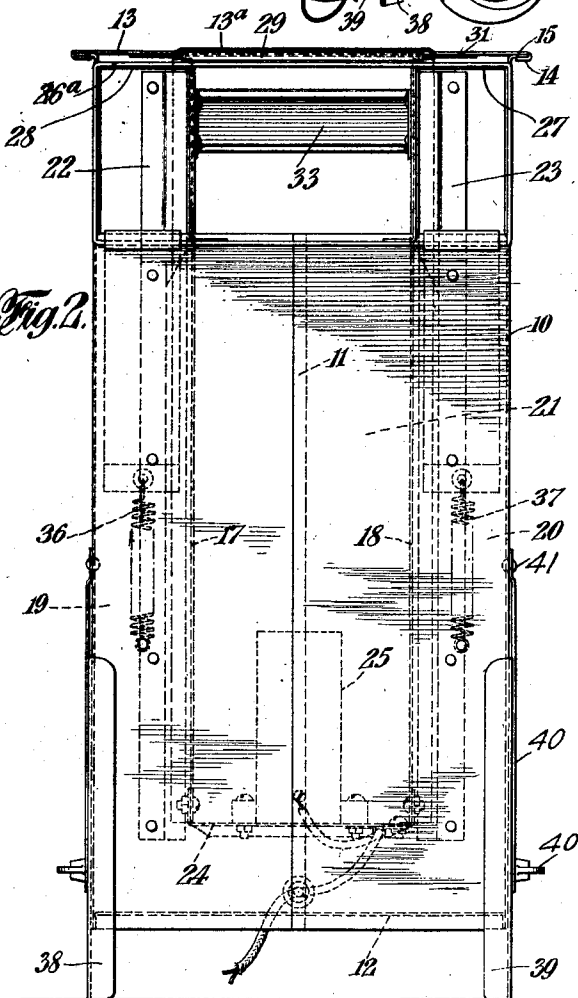
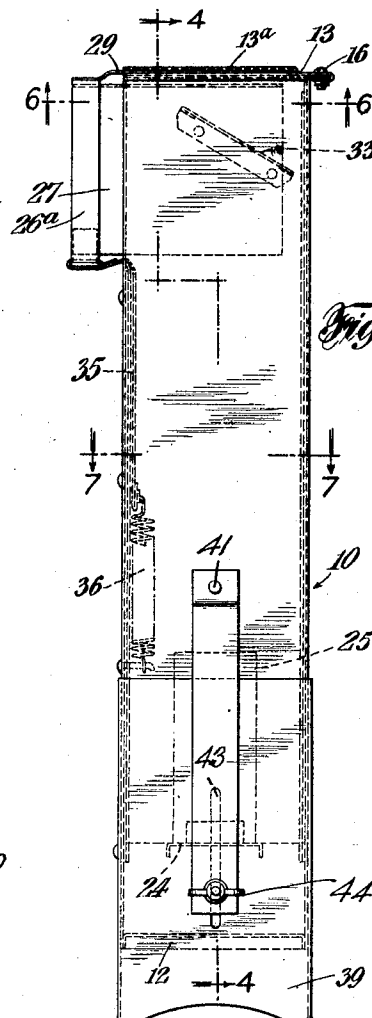


Fig. 3



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By *his* Attorneys

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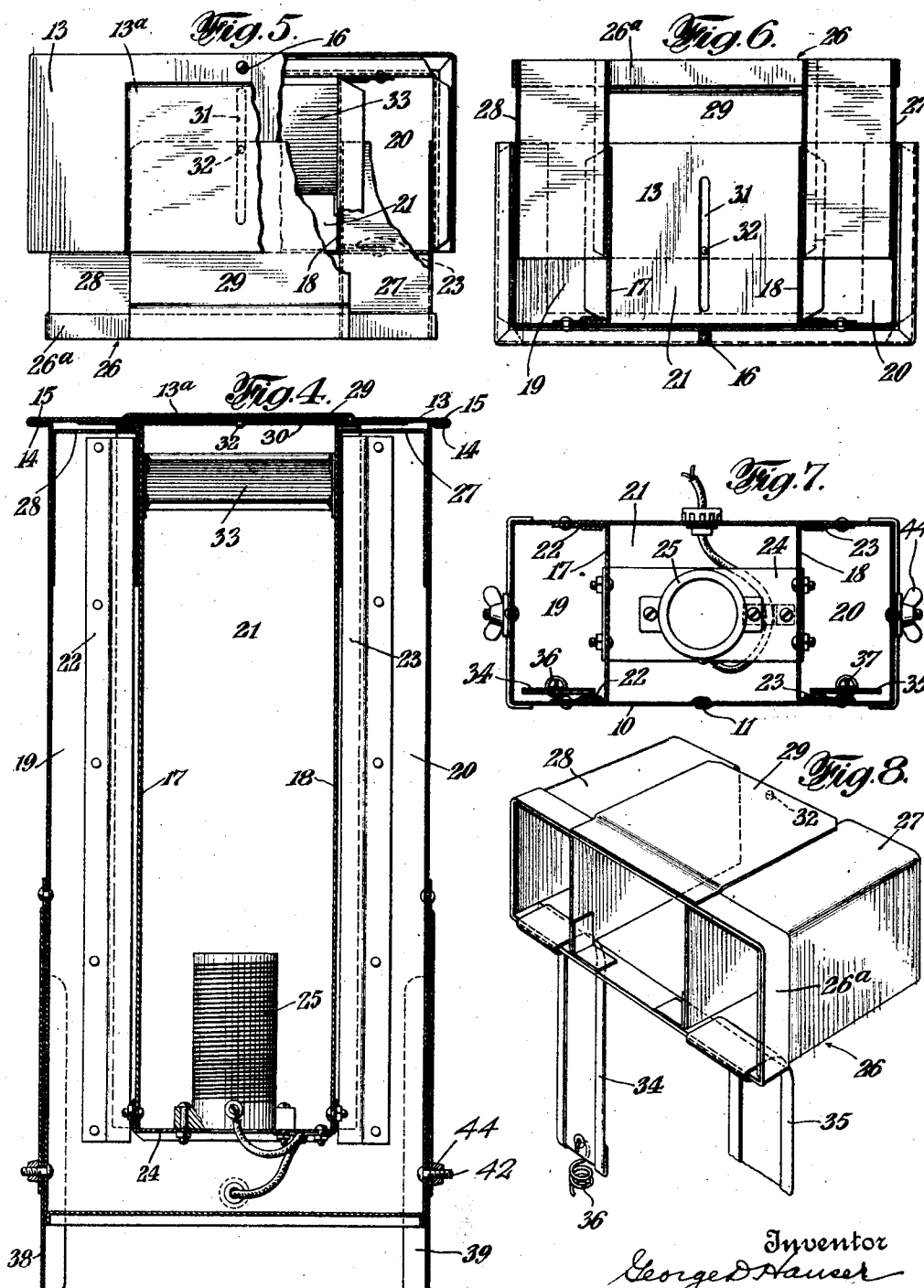
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2 Sheets-Sheet 2



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Patented Feb. 19, 1929.

UNITED STATES PATENT OFFICE.

GEORGE D. HAUSER, OF UTICA, NEW YORK, ASSIGNOR TO UTICA PRODUCTS, INC., OF
UTICA, NEW YORK, A CORPORATION OF NEW YORK.

ELECTRIC HEATER.

Application filed March 31, 1927. Serial No. 179,834.

This invention relates to electric heaters and has for an object a heater for circulating heated air around the engine of an automobile for the purpose of facilitating starting the engine.

According to one embodiment of this invention, the heater comprises a hot air flue and one or more cold air flues so arranged that the outlet of the hot air flue and the inlet of the cold air flue or flues may contact with the face of the radiator of an automobile at adjacent points. By virtue of this arrangement, heated air is projected through the radiator into the space below the engine hood, is circulated around the engine, and in part at least is drawn back through the radiator into the cold air flue or flues for reheating. During operation of the device partially heated air is drawn into the cold air flue or flues instead of fresh air, thereby increasing the efficiency of the heater. If a blanket be thrown over the radiator and hood to cover the louvres at the side of the hood, the effect of the heater is increased. This heater maintains the engine block at such temperature as to prevent congealing of the lubricating oil and the contraction of metal parts of the engine, thereby making it possible to start the engine more easily in unheated garages or even out of doors than would otherwise be the case. In addition, the circulation of the heated air through the radiator tends to prevent freezing of the contents thereof. In order that the heater may be made use of in connection with different types of automobiles, it is provided with vertically adjustable legs and the upper ends of the flues are arranged for horizontal adjustment.

Other objects, novel features and advantages of this invention will be apparent from the following specification and accompanying drawings, wherein

Figure 1 is a perspective view of the front end of an automobile with the heater in operative position;

Fig. 2 is a front elevation of the heater;

Fig. 3 is a side elevation thereof;

Fig. 4 is a section on the line 4—4 of Fig. 3;

Fig. 5 is a plan view partially broken away;

Fig. 6 is a section on the line 6—6 of Fig. 3;

Fig. 7 is a section on the line 7—7 of Fig. 3; and

Fig. 8 is a perspective view of a detail.

The heater comprises a body 10 composed of a single sheet of metal so folded that it is rectangular in cross-section, the edges of the sheet being connected together as at 11 in any suitable manner. The front wall of the body is of less height than the rear wall, the purpose of which will be apparent from further description of the heater. The bottom of the body is closed by a plate 12 and the top by a cover 13 having an upset central portion 13^a. The lateral and back edges of the cover 13 are bent back as at 14 to form a groove within which is arranged a flange 15 integral with the body 10 and a bolt 16 passes through the flange and edge of the cover. Within the body 10 are arranged partitions 17 and 18 which extend from the top of the body to a point short of the bottom, thus forming side chambers or flues 19 and 20 and a central chamber or flue 21 which are in communication with each other at the bottom of the body. The partitions 17 and 18 are held in place by means of flanges integral therewith which are clamped against the sides of the body by means of straps 22 and 23 which are riveted to said sides. A platform 24 of less width than the flue 21 extends between the partitions 17 and 18 and is bolted to the lower edges thereof. Upon the platform 24 is mounted an electrical heating element which may be of any suitable type but is here shown as a cylinder of insulated material around which is spirally wound a resistance unit 25 to the ends of which are connected suitable electrical conductors for connecting the heating element to a suitable source of electrical energy.

In the body 10 above the upper edge of the front wall is arranged a slidable member 26 providing horizontal extensions of the flues 19, 20 and 21. This member is composed of a rectangular frame or strap 26^a in which are arranged the ends of two inverted trough-shaped members 27 and 28. A rectangular plate 29 is attached at one end to the upper part of the frame 26^a and is of a length just short of that of the members 27 and 28. The major portion of this plate is offset upwardly slightly so that there is a slight clearance between its edges and the members 27 and 28, which it slightly overlaps. When assembled with the body of the heater, the plate 29 slidably rests upon a plate 30 welded to the cover 13 and spanning the offset portion 13^a. The members 27 and 28 lie just below

the lateral portions of the cover 13 and are arranged between the partitions 17 and 18 and the end walls of the body 10. The chambers formed by the members 27 and 28 and the plate 29 are in alignment with the flues 19, 20 and 21 and form horizontal extensions thereof. A slot 31 is provided in the plate 30 and on the plate 29 is provided a stud 32 arranged within the slot 31 to limit the sliding movement of the plate 29.

In the flue 21 at its upper end is provided a deflector 33, the ends of which are riveted to the partitions 17 and 18 and which acts as a brace as well as a deflector. Straps or other like flexible members 34 and 35 of a width approximately equal to the width of the members 27 and 28 are attached to the frame 26 and extend over the upper edge of the front wall and down along the inner surface thereof, the free ends being attached to the ends of springs 36 and 37, the opposite ends of which are rigidly attached to the body. When the member 26 is pulled out, these straps substantially close the bottoms of the projecting portions of the members 27 and 28. Adjustable legs 38 and 39 are provided for the body by means of which its height may be varied. Each of the legs 38 and 39 is slidably arranged between the body 10 and a metal strap 40 riveted to the body at 41. Bolts 42 carried by the body 10 extend through vertical slots 43 in the legs and apertures in the straps 40; wing nuts 44 are threaded on said bolts for clamping the straps 40 against the legs to hold them in adjusted position.

When this heater is in use, it is placed in front of the radiator as shown in Fig. 1, with the legs 38 and 39 properly adjusted and the member 26 pulled out so that its end is in contact with the radiator. Air in the flue 21 is heated by the heating element 25 and caused to rise through the flue from whence it is discharged on to the face of the radiator through the middle horizontal chamber. The heated air is projected through the radiator and is circulated around the engine block under the hood and is returned in part at least through the radiator to the inlets of the flues 19 and 20 through which it passes and is conducted up around the platform 24 into contact with the heating element 25. Because of the arrangement of the flues 19 and 20, and because of the straps 34 and 35, any substantial influx of fresh cool air to the heater is prevented. Substantially all the air returned to the heater is air which has previously been heated and circulated around the engine. The return of partially-heated air for further heating gives to this device a very high efficiency and definitely assures that the engine will be kept at such temperature as to prevent congealing of the lubricant and contraction of its parts, thereby facilitating the starting of the engine.

Also the circulation of heated air through the radiator will tend to prevent freezing of the circulating fluid. A blanket thrown over the radiator and hood will prevent the escape of heated air through the radiator and the louvres of the hood, thereby materially assisting in keeping the engine and radiator warm.

I claim:

1. An automobile engine heater comprising a hot air flue, a cold air flue communicating therewith, and a heater in said hot air flue, the inlet of said cold air flue and the outlet of said hot air flue being adjacent to each other in horizontal alinement and being arranged to circulate heated air around an automobile engine.

2. An automobile engine heater comprising a vertical hot air flue, a vertical cold air flue communicating therewith, a heater in said hot air flue, each of said flues having horizontally adjustable portions arranged to contact with the front of the radiator of an automobile.

3. A heater comprising a tubular closed body, a partition therein terminating short of the bottom thereof and forming a hot air and a cold air flue, a heater arranged in said hot air flue, and an aperture in one wall of said body forming an outlet for said hot air flue and an inlet for said cold air flue.

4. A heater comprising a tubular closed body, a partition therein terminating short of the bottom thereof and forming a hot air and a cold air flue, a heater arranged in said hot air flue, an aperture in the upper part of one wall of said body forming an outlet for said hot air flue and inlet for said cold air flue, and a member horizontally adjustable through said aperture and forming continuations of said flues.

5. A heater comprising a closed tubular body having an aperture in the upper part of one wall, a vertical partition terminating short of the bottom of said body to form flues, a heating element in one of said flues, a member horizontally slidable through said aperture and having downwardly extending sides forming chambers in alignment with said flues, and a flexible member forming a bottom for one of said chambers when said slidable member is in one position.

6. A heater comprising a tubular closed body, a partition therein terminating short of the bottom thereof and forming a hot air and a cold air flue, a heater arranged in said hot air flue, an aperture in the upper part of one wall of said body, a member horizontally slidable through said aperture and having downwardly extending sides forming chambers in alignment with said flues, a flexible member forming a bottom for one of said chambers when said slidable member is in one position, and means for maintaining said member under tension.

7. A heater comprising a tubular closed body, a partition therein terminating short of the bottom thereof and forming a hot air and a cold air flue, a heater arranged in said hot air flue, and an aperture in one wall of said body forming an outlet for said hot air flue and an inlet for said cold air flue, and a deflector in the upper part of said hot air flue.

8. A heater comprising a tubular closed body, a partition therein terminating short of the bottom thereof and forming a hot air and a cold air flue, a heater arranged in said hot air flue, an aperture in the upper part of one wall of said body forming an outlet for said hot air flue and an inlet for said cold air flue, a member horizontally adjustable through said aperture and forming continuations of said flues, and a deflector in the upper part of said hot air flue.

9. A heater comprising a tubular closed body, partitions therein terminating short of the bottom thereof and forming interconnected flues, a heater arranged in one of said flues, and an aperture in one wall of said body forming an outlet for that flue in which the heater is arranged and forming inlets for the other of said flues.

10. A heater comprising a tubular closed body, partitions therein terminating short of the bottom thereof and forming interconnected flues, a heater arranged in one of said flues, an aperture in one wall of said body forming an outlet for the flue in which the heater is arranged and forming inlets for the other of said flues, and a member horizontally adjustable through said aperture and forming continuations of said flues.

11. A heater comprising a closed tubular body, vertical partitions therein terminating short of the bottom of said body to form a central and lateral communicating flue, a heating element in said central flue, a member slidable through an aperture in the upper part of one wall of said body and having downwardly extending sides forming chambers in alignment with said flues, and flexible members forming bottoms for the lateral chambers when said slidable member is in one position.

12. A heater comprising a closed tubular body, vertical partitions therein terminating short of the bottom of said body to form central and lateral communicating flues, a heating element in said central flue, a member slidable through an aperture in the upper part of one wall of said body and having downwardly extending sides forming chambers in alignment with said flues, flexible members forming bottoms for the latter chambers when said slidable member is in one position, and means for maintaining said flexible members under tension.

13. A heater comprising a closed tubular body, vertical partitions therein terminating short of the bottom of said body to form a central and lateral communicating flue, a heating element in said central flue, a member slidable through an aperture in the upper part of one wall of said body and having downwardly extending sides forming chambers in alignment with said flues, flexible members forming bottoms for the latter chambers when said slidable member is in one position, means for maintaining said flexible members under tension, and a deflector in the upper part of said central flue.

14. A heater comprising a tubular closed body, a partition therein terminating short of the bottom thereof and forming a hot air and a cold air flue, a heater arranged in said hot air flue, an aperture in one wall of said body forming an outlet for said hot air flue and an inlet for said cold air flue, and means for vertically adjusting said body.

15. A heater comprising a tubular closed body, a partition therein terminating short of the bottom thereof and forming a hot air and a cold air flue, a heater arranged in said hot air flue, an aperture in the upper part of one wall of said body forming an outlet for said hot air flue and inlet for said cold air flue, a member horizontally adjustable through said aperture and forming continuations of said flues, and means for vertically adjusting said body.

In testimony whereof, I have signed my name to this specification.

GEORGE D. HAUSER.