W. WELSHAUSEN.

HEATER FOR AUTOMOBILE RADIATORS.

APPLICATION FILED APR. 11, 1917.

1,293,273.

Patented Feb. 4, 1919.

2 SHEETS—SHEET 1.

FIG. 1.

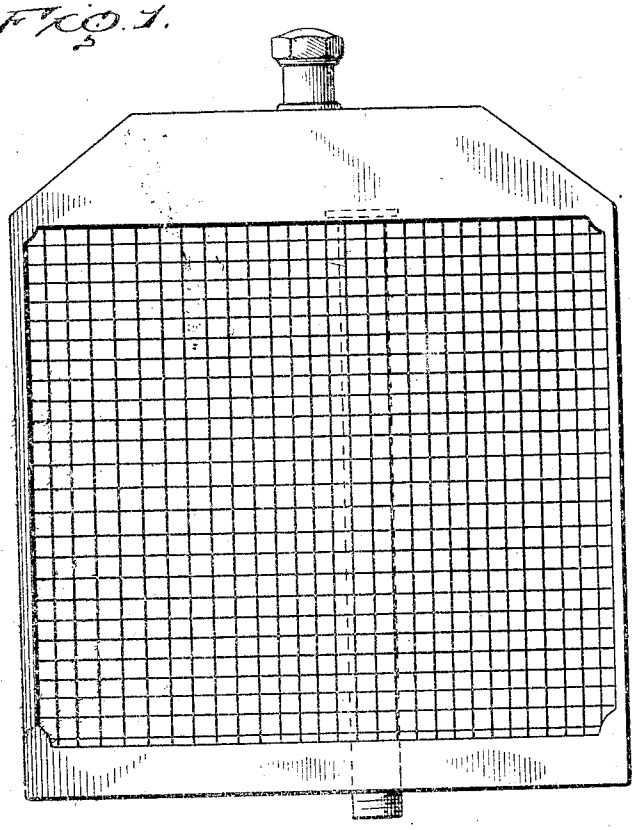


FIG. 2.

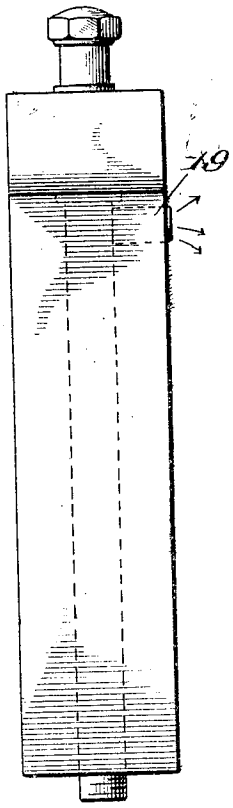


FIG. 6.

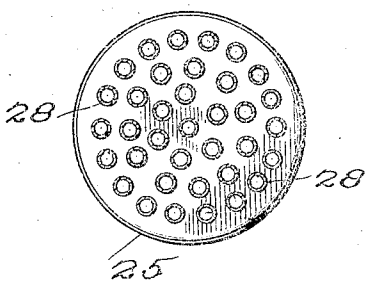
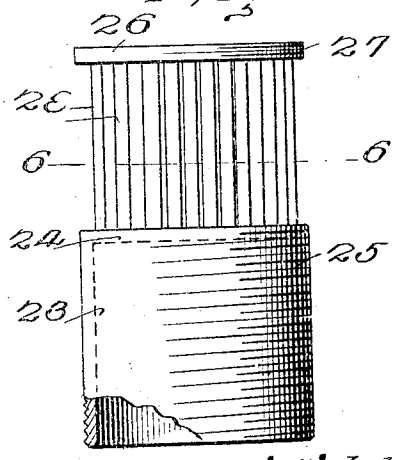


FIG. 5.



Witness

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2 SHEETS—SHEET 2.

FIG. 3.

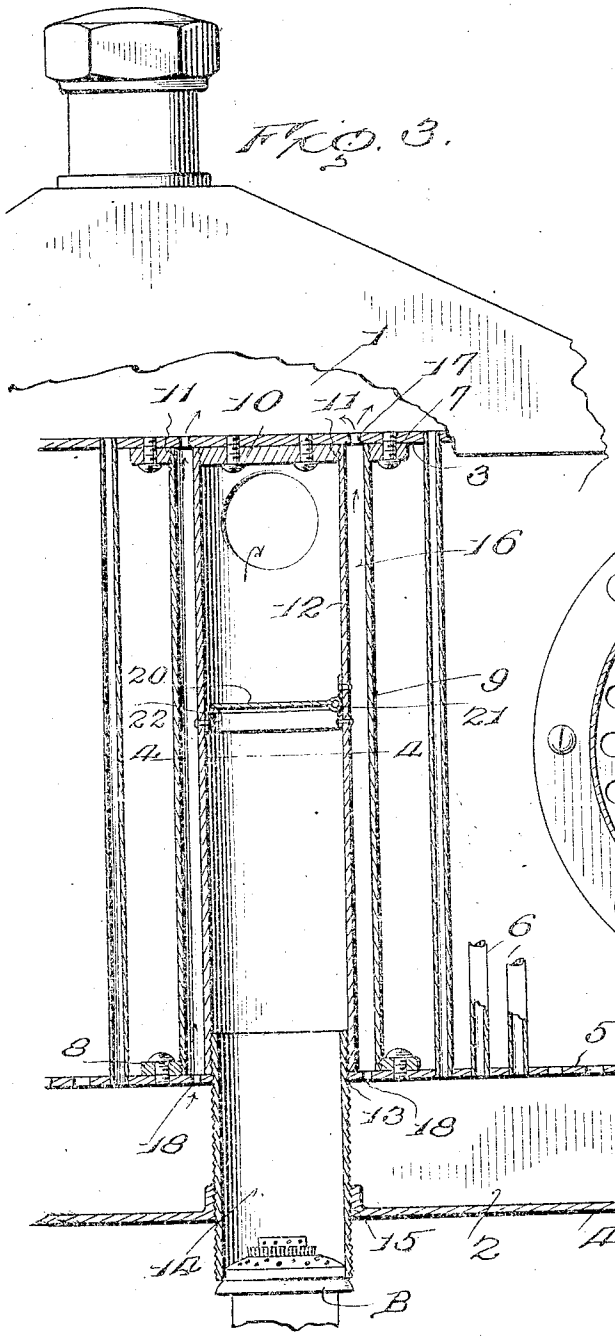
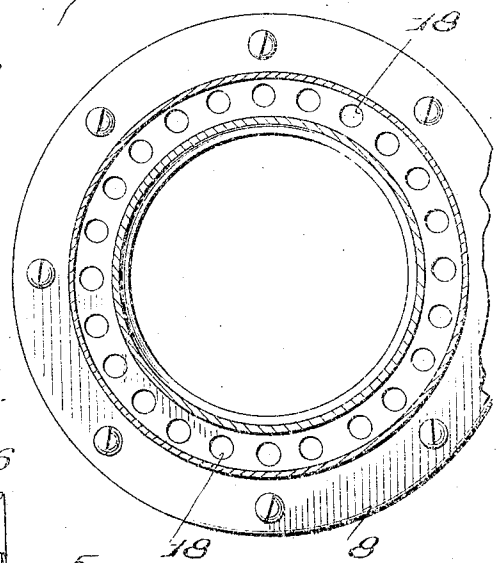


FIG. 4.



Witness

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UNITED STATES PATENT OFFICE.

WILLIAM WELSHAUSEN, OF ALLENHURST, NEW JERSEY.

HEATER FOR AUTOMOBILE-RADIATORS.

1,293,273. Specification of Letters Patent. Patented Feb. 4, 1919.

Application filed April 11, 1917. Serial No. 161,247.

To all whom it may concern:

Be it known that I, WILLIAM WELSHAUSEN, a citizen of the United States, residing at Allenhurst, in the county of Monmouth and State of New Jersey, have invented certain new and useful Improvements in Heaters for Automobile-Radiators, of which the following is a specification.

This invention relates to improvements in automobile radiators and has as its object to provide means whereby the water in the radiator may be kept at a temperature above freezing and caused to circulate so that all portions of the volume of water will be heated to substantially the same degree of temperature.

Another aim of the invention is to provide a heating device for radiators which will be effective also in heating the interior of the hood so that the engine water jackets may receive the benefit of heated air currents which would otherwise pass directly to the atmosphere.

Another aim of the invention is to provide a heating device of the class described which may be readily adapted for the use of either a smoking or non-smoking fuel.

In the accompanying drawings:

Figure 1 is a front elevation of an automobile radiator equipped with the heating device embodying the present invention;

Fig. 2 is a side elevation thereof;

Fig. 3 is a vertical transverse sectional view through the heating device and the associated radiator parts;

Fig. 4 is a horizontal sectional view on the line 4—4 of Fig. 3;

Fig. 5 is a side elevation of a modified form of flue section;

Fig. 6 is a horizontal sectional view on the line 6—6 of Fig. 5.

In the accompanying drawings, the numeral 1 indicates the upper water space of the radiator and the numeral 2 the lower space thereof. The bottom of the upper water space 1 is indicated by the numeral 3 and the bottom of the lower water space 2 is indicated by the numeral 4, the top of the water space 2 being indicated by the numeral 5. Communication is established between the water spaces 1 and 2 by the usual bank of water tubes 6. Secured in any suitable manner to the underside of the bottom 3 of the upper water space 1 and to the top 5 of the lower water space 2 are annular interiorly threaded collars 7 and 8, respectively, and threaded into these collars are the upper and lower ends of a tube 9 which is thus located within the bank of tubes 6 but is of relatively large diameter. Secured upon the underside of the bottom 3 of the upper water space 1 is a circular head 10, the periphery of which is threaded, as indicated by the numeral 11, and fitted at its upper end to this head is a flue section 12 which is of less diameter than the tube 9 and concentrically arranged therein. The flue section 12 is interiorly threaded at its lower end and surrounds an opening 13 formed in the top 5 of the water space 2 and into this opening and also into the lower end of the said flue section is threaded the upper end of a flue section 14, the section, in that form of the invention shown in Fig. 3 of the drawings, being exteriorly threaded from its upper to its lower end. The lower portion of the flue section 14 is threaded, as at 15, through the bottom 4 of the water space 2 and preferably projects a short distance below the said bottom so as to provide means whereby a burner B of suitable construction may be attached in position with its flame immediately below the said flue section 14 or within the same. It will now be apparent that between the tube 9 and flue 12 there is provided a water space 16 which surrounds the said flue 12. In order that the water heated in this space by the heated air currents passing up through the flue may circulate in the radiator, the bottom 3 of the water space 1 and the top 5 of the lower water space 2 are respectively formed with annular series of openings 17 and 18. At its upper end the flue 12 is provided with a rearwardly extending branch 19 which opens beneath the hood and from which the heated air currents pass to warm the engine parts and water jacket.

In order to prevent the flame of the lamp being extinguished due to any back draft which may enter the flue 12, a thin valve plate 20 is pivotally mounted at one side, as at 21, in the flue 12 near the upper end thereof and rests at its diametrically oppo-

site side upon a stop shoulder 22 within the said flue. It will be apparent that the heated air currents rising through the flue 12 will lift the valve 20, this valve being extremely thin and light in weight and that in the event of the occurrence of a back draft the valve will immediately close so as to prevent the draft reaching the flame of the lamp at the lower end of the flue section 14.

The flue section 14 of that form illustrated in Figs. 3 and 4 of the drawings is interiorly of relatively large diameter and is designed chiefly for use when a smoking fuel is employed. Where, however, the fuel used is not of a nature to deposit soot, a flue section of the form shown in Figs. 5 and 6 of the drawings may be employed. This latter form of flue section comprises a cylindrical body 23 open at its lower end and provided at its upper end with an integral head 24, the body being exteriorly threaded, as indicated by the numeral 25 so as to adapt it to be fitted within the opening 15 in the bottom 4 in the water space 2. This flue section further includes an upper head in the nature of a circular disk 26 having its periphery threaded, as indicated at 27, so as to fit within the threaded lower end of the flue section 12 in the same manner that the upper end of the flue section 14 fits within the said lower end of the flue section 12. Extending between the heads 24 and 26 is a bank of tubes 28 which open at their ends through the said heads and which, when this particular flue section is substituted for the first described section, will be located within the lower water space 2. Thus as the heated air currents pass upwardly through the tubes 28 the water within the said head will be heated.

Having thus described the invention, what is claimed as new is:

1. The combination with a radiator having spaced water heads, of a flue for a heating medium including an upper section extending between the said heads and having a discharge branch opening at the rear of the radiator, and a lower section including a body fitted through the bottom wall of the lower water head, a head fitted within the lower end of the upper flue section, and a plurality of flue tubes extending between the body and head and opening therethrough and occupying a position within the said lower water head.

2. The combination with a radiator having spaced upper and lower water heads, of a flue for a heating medium secured at its upper end at the under side of the upper water head and having a branch opening through the rear side of the radiator, the flue at its lower portion extending through the upper and lower walls of the lower water head and being open at its said lower end, and a tube extending between the lower wall of the upper water head and the upper wall of the lower head and secured to the said walls at its upper and lower ends respectively, the said tube surrounding and inclosing that portion of the flue which extends between the said water heads and being spaced from the flue whereby to provide a surrounding water chamber in communication at its upper and lower ends with the upper and lower water heads respectively through the under and upper walls thereof.

In testimony whereof I affix my signature.

WILLIAM WELSHAUSEN. [L. S.]