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J. W. KELCH ET AL

HEATER FOR AUTOMOBILES

Filed Aug. 11, 1925

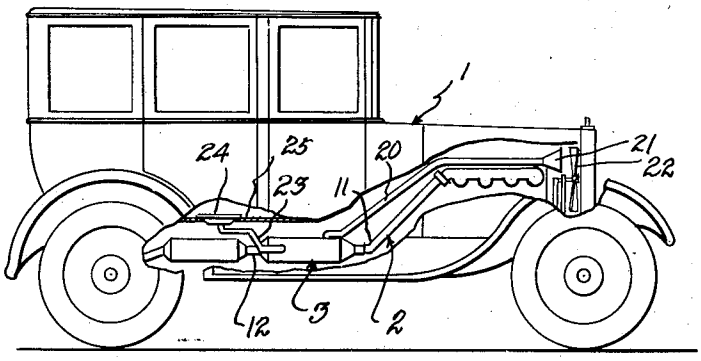


Fig. 1

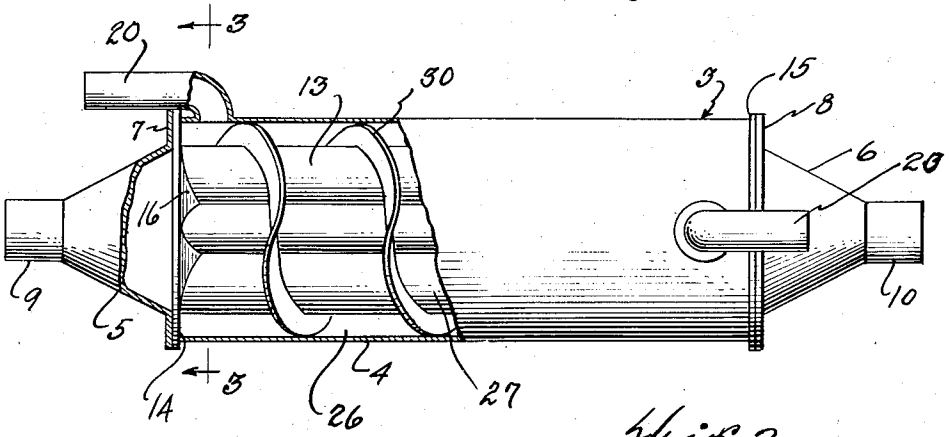


Fig. 2

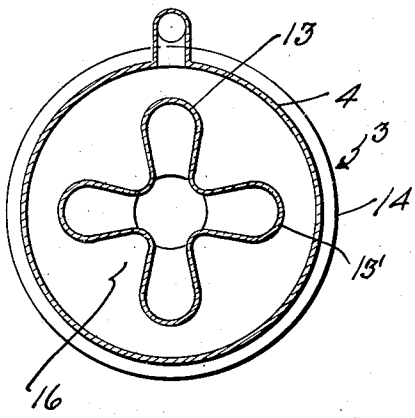


Fig. 3

INVENTORS
JAMES W. KELCH
JAMES J. SUNDAY

BY
Whittemore Hulbert Whittemore
& Belknap ATTORNEYS

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JAMES W. KELCH AND JAMES J. SUNDAY, OF DETROIT, MICHIGAN, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO KELCH VENTILATING HEATER COMPANY, A CORPORATION OF MICHIGAN.

HEATER FOR AUTOMOBILES.

Application filed August 11, 1925. Serial No. 49,528.

This invention relates generally to heating apparatus for motor vehicles and consists of certain novel features of construction, combinations and arrangements of parts as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawing:

Figure 1 is a fragmentary side elevation of a vehicle with a heater embodying my invention attached thereto.

Figure 2 is a side elevation of the heater with parts broken away.

Figure 3 is a cross sectional view taken on the line 3—3 of Figure 2.

Referring now to the drawing, the numeral 1 designates a motor vehicle having an engine exhaust conduit 2 to which the heater 3 embodying our invention is preferably attached. As shown, this heater is provided with a tubular outer shell or casing 4 that is closed at its opposite ends by flanged substantially funnel shaped heads 5 and 6 respectively. The flanges 7 and 8 respectively of these heads may be secured by any suitable means to the shell 4, while the tubular portions 9 and 10 respectively of the heads are preferably clamped upon the adjacent portions 11 and 12 respectively of the engine exhaust conduit 2.

For conducting the exhaust gases through the shell 4 from the head 5 to the head 6, we provide the shell 4 with a core which preferably comprises a single tube 13 that extends longitudinally of the shell 4 between the heads 5 and 6 respectively. As shown, this tube 13 is corrugated longitudinally and is provided at its opposite ends with the heads 14 and 15 respectively that are substantially equal in diameter to the diameter of the flanges 7 and 8 respectively. As shown in Figure 3, the head 14 has a central opening 14′ conforming in shape to and registering with the open forward end of the tube 13. Any suitable means may be employed for securing the heads 14 and 15 respectively to the flanges of the heads 5 and 6 and shell 4. Thus with this construction the exhaust gases from the engine will pass from the conduit portion 11, through the head 5, tube 13 and thence out through the head 6 to the exhaust conduit portion 12.

With devices of this kind, it is desirable of course to obtain the maximum heat from the exhaust gases passing through the shell. Heretofore this has been accomplished by various means such as providing the shell with baffles, deflectors and the like, which caused the exhaust gases from the engine to follow a circuitous path through the heater shell. However this has proven very objectionable for the reason that such baffles constitute obstructions for the gases and cause back pressure to be built up on the engine. It is well known that back pressure on the engine causes the latter to become overheated with a resultant loss of power and if the pressure is sufficiently great, it is apt to cause the heater to explode. With the present construction, this difficulty has been entirely overcome by providing the forward header 14 with spaced substantially V-shaped webs 16 which project rearwardly from the edges of the opening 14′ between the corrugations 13′ of the tube 13 and are rigidly secured thereto for directing the exhaust gases from the head 5 into the tube 13, the forward edges of the said tube between the corrugations being cut away to conform to the adjacent edges of the inclined inwardly extending webs 16 of the header. Inasmuch as these webs are disposed directly in rear of the tubular portion 9 of the forward head 5, it will be readily apparent that the gases from the engine will be directed centrally within the tube 13 which in turn is in alignment with the tubular portions 9 and 10 respectively of the heads 5 and 6. Hence the exhaust gases will have a free and uninterrupted passage through the heater, back pressure on the engine is eliminated, and the passage of gases through the heater will be substantially uniform.

Any suitable means may be employed for directing air from the atmosphere to the shell 4 and for conducting the heated air to the interior of the motor vehicle. As shown, a pipe 20 extends forwardly from the shell 4 adjacent to the forward end thereof and terminates in a flared portion 21 that is preferably located immediately in rear of the usual fan 22 of the engine. A second pipe 23 extends rearwardly from the shell 4 adjacent to the rear end thereof and connects into a suitable air register 24 which may be located at any convenient place such as in the floor 25 of the vehicle body. Inasmuch as the core or tube 13 is much smaller in diameter than the shell 4, an annular air

space 26 is provided between the tube 13 and shell 4 in addition to the longitudinal extending passages 27 provided between the corrugations of the core 13, hence air from the atmosphere discharged from the pipe 20 will circulate about the core 13 within the shell 4 without mixing with the exhaust gases from the engine. The corrugations 13′ of the core will throw out the maximum heat so that the air within the shell will be heated thoroughly before passing outwardly into the pipe 23 leading to the floor register. To facilitate the circulation of air through the shell 4, we preferably provide a spiral deflector 30 that surrounds the core 13 between the headers 14 and 15 respectively. Thus this spiral deflector 30 will direct the air about the core 13 and at the same time will advance it longitudinally of the shell toward the outlet pipe 23.

While it is believed that from the foregoing description, the nature and advantages of the invention will be readily apparent, we desire to have it understood that we do not limit ourselves to what is herein shown and described, and that such changes may be resorted to when desired as fall within the scope of what is claimed.

What we claim as our invention is:

In a heater for motor vehicle bodies, the combination with a tubular shell having inlet and outlet openings for air, of means for heating the air within said shell including a longitudinally corrugated tube extending longitudinally of said shell and adapted to receive exhaust gases from the vehicle motor, and a head for said tube secured to said shell and having an opening therein conforming in shape to and in alignment with the cross sectional area of said tube, said head consisting of a disk provided with inwardly and rearwardly projecting substantially V-shaped webs defining the contour of the aforesaid opening, the forward edges of said tube abutting the disk and having V-shaped recesses fitting and receiving the adjacent edges of said webs whereby gases from the vehicle will be directed by said webs into the corrugations of said tubes, said tubes forming an inwardly tapered inlet to the corrugated tube.

In testimony whereof we affix our signatures.

JAMES W. KELCH.
JAMES J. SUNDAY.