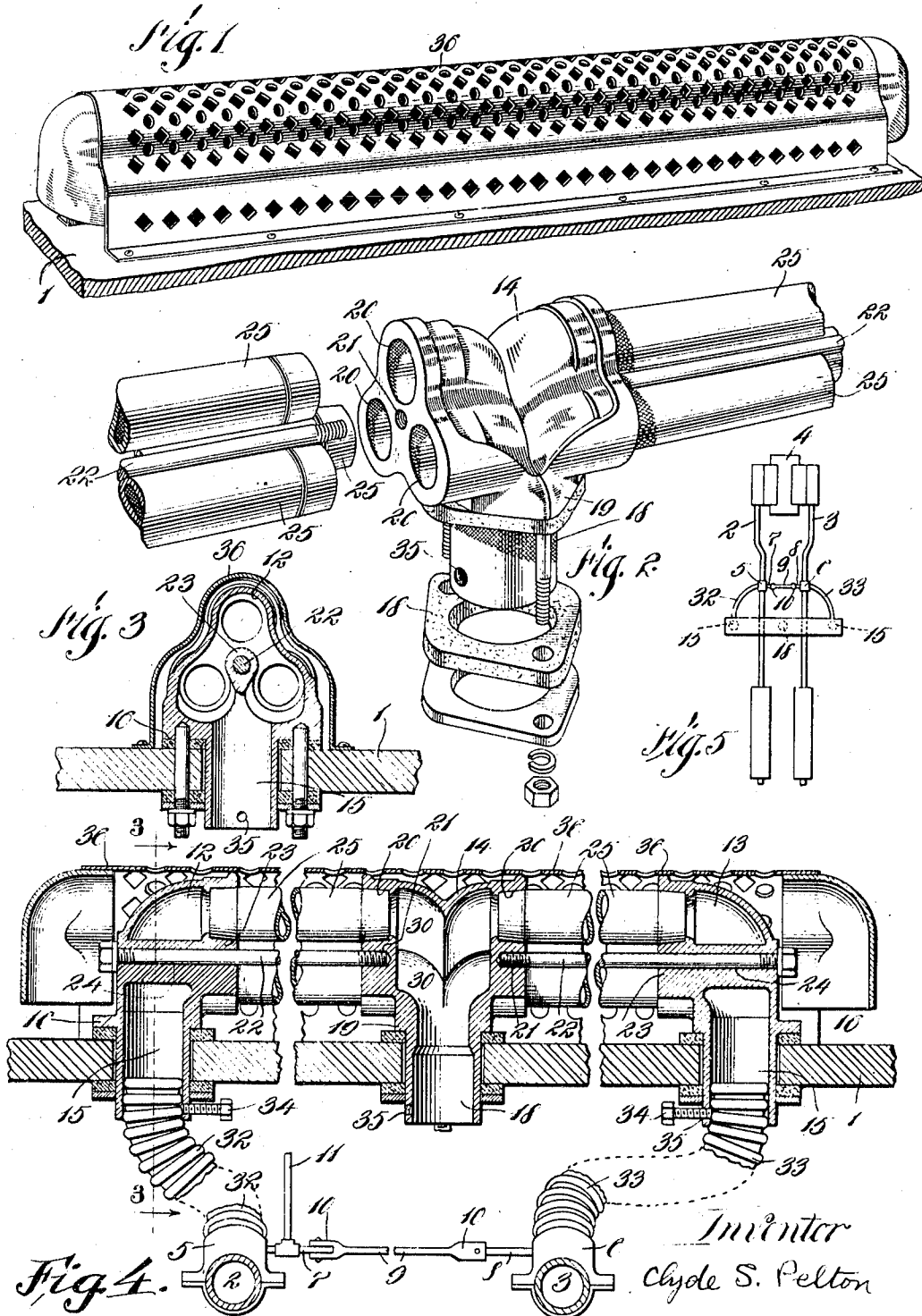


C. S. PELTON.
 HEATER FOR MOTOR PROPELLED VEHICLES.
 APPLICATION FILED DEC. 6, 1916.

1,314,697.

Patented Sept. 2, 1919.
 2 SHEETS—SHEET 1.

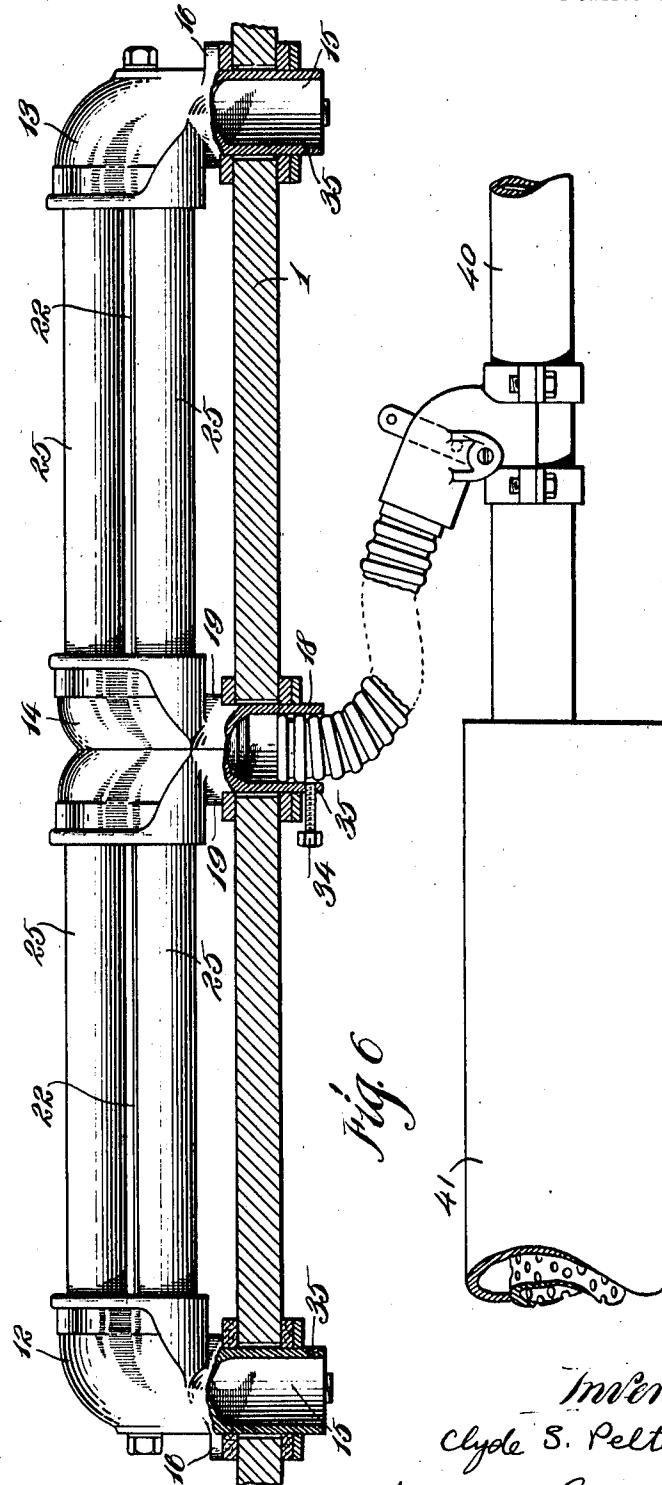


Inventor
 Clyde S. Pelton
 By Hull Smith Brock & West
 Attys.

C. S. PELTON.
 HEATER FOR MOTOR PROPELLED VEHICLES.
 APPLICATION FILED DEC. 6, 1916.

1,314,697.

Patented Sept. 2, 1919.
 2 SHEETS—SHEET 2.



Inventor
 Clyde S. Pelton
 By Huel Smith, Brock & West
 Attys.

UNITED STATES PATENT OFFICE.

CLYDE S. PELTON, OF CLEVELAND HEIGHTS, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS,
TO THE PERFECTION HEATER & MANUFACTURING COMPANY, OF CLEVELAND,
OHIO, A CORPORATION OF OHIO.

HEATER FOR MOTOR-PROPELLED VEHICLES.

1,314,697.

Specification of Letters Patent.

Patented Sept. 2, 1919.

Application filed December 8, 1916. Serial No. 135,300.

To all whom it may concern:

Be it known that I, CLYDE S. PELTON, a citizen of the United States, residing at Cleveland Heights, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Heaters for Motor-Propelled Vehicles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to vehicle heaters, and especially to heaters for motor propelled vehicles, wherein the hot exhaust gases from the engine are employed to heat the passenger compartment. The objects of the invention are the provision of a device of this character which can be connected to the twin exhaust pipes employed in certain kinds of motors, so as to heat the car without at the same time throwing the motor out of balance; the provision of a device of this character of great simplicity, efficiency and reliability; while further objects and advantages will become apparent as the description proceeds.

In the drawing accompanying and forming a part of this application I have illustrated one construction in which my said invention may be embodied, although it will be understood that the same is only one of many which could be employed for the purposes in view. In these drawings Figure 1 represents a perspective view of the heater as seen from the car interior; Fig. 2 is a perspective view of a portion of said heater with the casing removed and certain of the parts separated from each other; Fig. 3 is a transverse sectional view of said heater; Fig. 4 is a longitudinal vertical sectional view of the same; and Fig. 5 is a diagrammatic view showing the engine, mufflers, and heater; and Fig. 6 is a view showing the same radiator employed with a single exhaust pipe.

In some makes of automobiles, engines are employed having two independent exhaust pipes, one on each side of the car, and two independent mufflers. In order to secure even operation of the engine it is desirable that these pipes be of the same size and have the same number of bends and be connected to mufflers of the same size and construction; and it is found that if a portion of the exhaust gases of one

pipe be diverted to operate a heater the engine is slightly unbalanced, added to which is the fact that the cylinders are so small and the gas consumption so complete that the heat derived from a single pipe is frequently inadequate for warming the vehicle. In order to overcome these disadvantages I provide a heater having two inlets, each of which is adapted to be connected to one of the exhaust pipes, the two halves of the heater being exactly the same so that the effect upon the two exhaust pipes is identical; and I also provide two similar valves, one for each exhaust pipe, and means for operating said valves simultaneously.

In these drawings, 1 represents the floor of an automobile, and 2 and 3 represent the twin exhaust pipes leading from a twin type engine 4. Secured upon these exhaust pipes are similar valves, 5 and 6, respectively, of the usual or any suitable type, the same being here illustrated as provided with rock-shafts, 7, 8, respectively, connected together by a rigid link, 9, the latter preferably having universal joints 10, 10, therein, so as to facilitate installation. A single lever 11 is provided at some suitable point whereby both rock-shafts may be moved together.

In its preferred form the heater itself comprises two sets of parallel imperforate pipes 25 whose sizes, lengths and numbers are equal so that they will have equal resistance to gas flow. Headers are secured to the ends of the sets of pipes, said headers being hollow and formed with an inlet chamber and an outlet chamber for each set. In the present embodiment, the inlet chambers are in the fittings 12 and 13, and both outlet chambers are formed in the fitting 14, although different arrangements can be employed as will be obvious. Each of the inlet chambers has an inlet nipple here shown at 15 which projects beneath the floor of the car and is connected to one of the exhaust pipes while the outlet chamber also has discharge means such as the nipple 18 projecting downwardly and discharging below the car floor. These nipples are here shown as provided with flanges 16 and 19 respectively whereby the heater is supported, and a suitable casing incloses all the heating pipes.

The top and side walls of the fitting 14

are preferably curved downwardly toward the nipple 18, as illustrated at 30, 30, so as to deflect toward said nipple the hot gases delivered thereto from said tubes. The nipples 15, 15, are attached to the valves 5, 6, by means of suitable conduits, 32, 33 respectively, the same being preferably of flexible metallic tubing and secured to said nipples in any suitable manner, as by having their ends inserted therein and clamped in place by set screws 34, 34. In addition, I preferably provide the nipple 18 with tube-securing provisions, such as an aperture, 35, for the reception of a set screw, so that an outlet pipe can be attached thereto if desired to convey the exhaust to any particular point before discharging the same; and, likewise, this permits me, as I have sometimes done, to employ this heater with an engine having only a single exhaust pipe 40 and muffler 41, connecting this exhaust pipe to the nipple 18, and allowing the gases to escape through both the nipples 15, 15, as shown in Fig. 6.

A heater made and connected in this manner offers certain marked advantages in connection with a single exhaust pipe over heaters of a simpler type, in that the internal resistance is smaller owing to the free outlet afforded by two distinct paths, which produces an extremely rapid flow of gas. It will be understood that the only force tending to expel the gases through the heater resides in the back pressure created by the muffler 41, since it is not permissible to close off the main outlet at any time since this would impede the engine. Therefore the only mode of securing increased flow in the heater resides in a decrease in its internal resistance, which must sometimes be made extremely small in order to secure a proper gas flow as compared with many recent mufflers which have extremely small internal resistance. The necessity of decreasing the heater resistance is also emphasized by the increasing use of small-diameter, long-stroke, high-speed engines, whose exhaust gases are of comparatively low temperature so that great heater efficiency is necessary to secure adequate results therefrom. By using a heater of less internal resistance than the muffler, as by making it of the form here shown a maximum gas flow is produced; while by properly breaking up the gas flow and increasing the radiating and heat dispersing efficiency as by making the tubes of a high conducting metal covered with a black conducting surface so as to afford maximum radiation, the abstraction of heat from the gas while passing through the radiator is sufficient to effect a thorough silencing of the explosions.

I have shown the nipples 15 and 18 as of

equal size, which I esteem the preferable construction, but the device will operate satisfactorily as a single heater with twin outlets in any case where the combined area of said outlets is at least as great as that of the inlet; and for use as a twin heater the center nipple can be enlarged if desired.

I preferably cover the radiating device above described by means of a suitable housing, such as that shown at 36 in Figs. 1, 3 and 4, preferably made of perforated sheet metal and adapted to allow the free circulation of air while keeping the rider's feet and clothing out of immediate contact with the heated pipes. It will be understood that many changes in detail, design and construction can be made within the scope of my invention, wherefore I do not limit myself except as defined in the claims hereto annexed or except as rendered necessary by the prior state of the art.

Having thus described my invention, what I claim is:—

1. In a device of the character described, the combination with an internal combustion engine having a plurality of exhaust pipes, of a heater having outlets and a plurality of inlets equal in number to said exhaust pipes and connected one to each of said exhaust pipes, said heater having equal internal resistances between each of said inlets and the outlet therefor, valves for such connections, and means for moving said valves simultaneously.

2. In an automobile, the combination with an engine having two independent exhaust pipes, of a heater comprising a pair of headers connected one to each exhaust pipe, a plurality of imperforate heating pipes extending from each header transversely of the car, outlet means connected to the opposite ends of said pipes and having a downwardly turned discharge passage which opens beneath the car, and a casing surrounding all of said heating pipes and opening into the car interior.

3. In an automobile, the combination with an engine having two independent exhaust pipes, of a casing, two sets of parallel imperforate pipes in said casing, a header clamped to each end of each set of pipes, there being an inlet chamber and an outlet chamber in said headers for each set of pipes, each of said inlet chambers having an inlet nipple projecting beneath the casing and connected to one of said exhaust pipes, and said outlet chambers having discharge means projecting beneath the casing and discharging below the car floor.

In testimony whereof, I hereunto affix my signature.

CLYDE S. PELTON.