UNITED STATES PATENT OFFICE.

WILLIAM S. GLINES, OF BRIDGEPORT, CONNECTICUT.

SIGNALING APPARATUS FOR MOTOR-VEHICLES.

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To all whom it may concern:

Be it known that I, WILLIAM S. GLINES, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and useful Improvement in Signaling Apparatus for Motor-Vehicles, of which the following is a specification.

My invention relates to certain new and useful improvements in signaling apparatus for motor-vehicles, and has especial reference to that type of vehicles in which the motive power is derived from the combustion of a gaseous vapor within the engine.

The object of my invention is to utilize a portion of the exhaust-pressure of the products of combustion from the engine to operate the signaling horn or whistle for warning pedestrians and occupants of other vehicles of approaching danger.

A further object of my invention is to greatly simplify the construction of the apparatus employed, and thereby provide efficient structure at small cost.

My invention consists in equipping a motor-vehicle of this character with a signaling apparatus provided with means for trapping a portion of the escaping exhaust-gases on their way from the engine to the outside air and transmitting such pressure through suitable pipes to the signaling-horn, a suitable valve for controlling the speaking of said horn being located within easy access of the operator, and my invention comprises certain elements of construction hereinafter fully described, and particularly designated in the claims.

In describing my improvement only such limited illustration of and reference to the well-known parts of a motor-carriage will be made as is deemed necessary for a proper understanding of my invention.

Referring to the accompanying drawings, which form a part of this specification, and in which like parts are similarly designated throughout the several figures, Figure 1 is a side elevation of the framework of a motor-carriage provided with any suitable gas-engine and equipped with my improvements, many of the well-known parts of the carriage which do not enter into my invention being omitted for the purpose of clearness of illustration, with a portion of the vehicle in dotted lines. Fig. 2 is a detail sectional elevation of a check-valve which I prefer to employ; Fig. 3, a cross-section of the same, taken in the plane indicated by the line A B on Fig. 2; and Fig. 4 is a detail vertical sectional elevation of the throttle or operating valve which controls the supply of gas to the signaling-horn.

1 is the motor-carriage of any approved design, upon the framework 2 of which is suitably mounted a gas-engine 3.

4 is the intake or supply pipe of the engine, which communicates with any suitable reservoir (not shown) for supplying the engine with a suitable combustible fluid or vapor, such as petroleum, gasoline, &c.

Since a gas-engine of any approved design would fully answer the requirements of my invention, I shall not, therefore, enter into any detailed description of its working parts, but merely make such limited reference thereto as is deemed necessary for a proper understanding of my appliances.

5 is the exhaust-pipe, which leads from the engine 3 to a tank or muffler 6, secured to the framework 2 of the carriage and from which the exhaust-gases communicate with the outside air. The function of the muffler 6 is of course to deaden the sound of the engine. 8 is a check-valve located in the pipe 5, preferably at a point intermediate of said tank and engine and through which the exhaust-gases pass. Referring to Figs. 2 and 3, 10 is the valve-seat, which is conical in form and fitted with a tapered plunger 11, provided with a stem 12, which passes loosely through a supporting-web 13. 11 and 15 are nuts run on the threaded end of the stem 12, and 16 is a coil-spring interposed between the innermost nut 15 and the web 13, whereby the plunger 11 is resiliently held against the valve-seat 10. The gases in passing through this valve force the plunger 11 away from the valve-seat 10 against the resiliency of the spring 16, the tension of the latter being in proportion to the pressure it is desired to trap or reserve for operating the signaling-horn. The operation of this portion of my improvement is as fol-
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 lows: After the engine is started the exhaust-gases pass through the pipe 5, forcing open the valve 8 and gaining admission to the tank or muffler 6, from whence they escape to the outside air, a part of the pressure remaining in the line of piping 5 between said valves 8 and engine, the strength of pressure therein maintained being in proportion to the tension of the spring 16, which serves to close said valve, and in this connection I will say that the pressure calculated to be maintained within this pipe need not be more than ten or fifteen pounds to the square inch.

While I have described in detail the structure of the valve 8 in order that my invention may be clearly understood, still I do not wish to be limited in this respect, since a check-valve of any approved pattern would answer the requirements of my invention equally as well.

17 is a signaling horn or whistle of any approved construction suitably mounted on the carriage 1 and connected with the pipe 5 at any point intermediate of the valve 8 and engine 3 by a line of piping 18.

19 is a throttle or operating valve located on the line of piping 18 within convenient reach of where the operator sits. The valve 19 has a conical-shaped seat 20, adapted to receive a tapered plunger 21, provided with a stem 22, equipped with an operating-handle 23.

24 is a coil-spring interposed between the under side of the plunger 21 and a threaded cap 25, which closes the bottom portion of the valve-chamber 26.

27 28 are ports through which the gas-pressure passes when the plunger 21 is forced away from the seat 29 by the operator.

Although I have shown and described in detail the structure of the operating-valve which I prefer to employ, still I do not wish to be limited thereby, since any approved construction of operating-valve would serve the purposes of my invention equally as well.

Bearing in mind that after the engine is started a continuous pressure is maintained within the pipe 5 in order to blow a danger-signal, all that is necessary for the operator to do is to depress the operating-handle 23 of the valve 19, whereupon the gas-pressure in said pipe 5 will be free to pass through the line of piping 18 to the signaling-horn and cause the latter to speak, the duration of the blast on the same being entirely at the operator's command.

Motor-carriages equipped with certain types of mufflers wherein the gases meet with considerable resistance in gaining access to the outside air, owing to the tortuous course through which the gases are compelled to pass in traveling through the muffler, cause considerable back pressure in the exhaust-pipe leading from the engine to the muffler, and in such instances it is unnecessary to employ the check-valve 8, since sufficient pressure is otherwise provided to operate the signaling-horn; but for general use, regardless of any special type of muffler, I prefer to employ a check-valve to insure a proper pressure being always on reserve for operating the horn.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a motor-vehicle provided with a gas-engine, a tank or muffler, a pipe connecting the latter with the exhaust of said engine, and an automatic check-valve located in said pipe intermediate of said tank and engine through which the exhaust-gases from the engine are so caused to pass on their way to the atmosphere, whereby a portion of the exhaust-pressure is trapped within said pipe, in combination with a signaling horn or whistle suitably mounted upon the vehicle, a pipe connected with said signaling-horn and communicating with said first-mentioned pipe at a point intermediate of said check-valve and engine, whereby said trapped gas-pressure is transmitted to said signaling-horn, and a manually-operated valve on the pipe leading to the signaling-horn intermediate of the latter and said check-valve, substantially as and for the purpose set forth.

2. In a motor-vehicle provided with a gas-engine, a tank or muffler, a pipe connecting the latter with the exhaust of said engine, in combination with a signaling horn or whistle suitably mounted upon the vehicle, a pipe connected with said signaling-horn and communicating with said first-mentioned pipe at a point intermediate of said tank and engine, whereby the back pressure in said first-mentioned pipe is transmitted to said signaling-horn, and a manually-operated valve on the pipe leading to the signaling-horn intermediate of the latter and said tank, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM S. GLINES.

Witnesses:
J. S. FINCH,
Geo. P. SANBORN.