R. M. PIERSON.

SIGNAL FOR MOTOR VEHICLES.

APPLICATION FILED JULY 17, 1909.

961,158. Patented June 14, 1910.

Fig. 1.

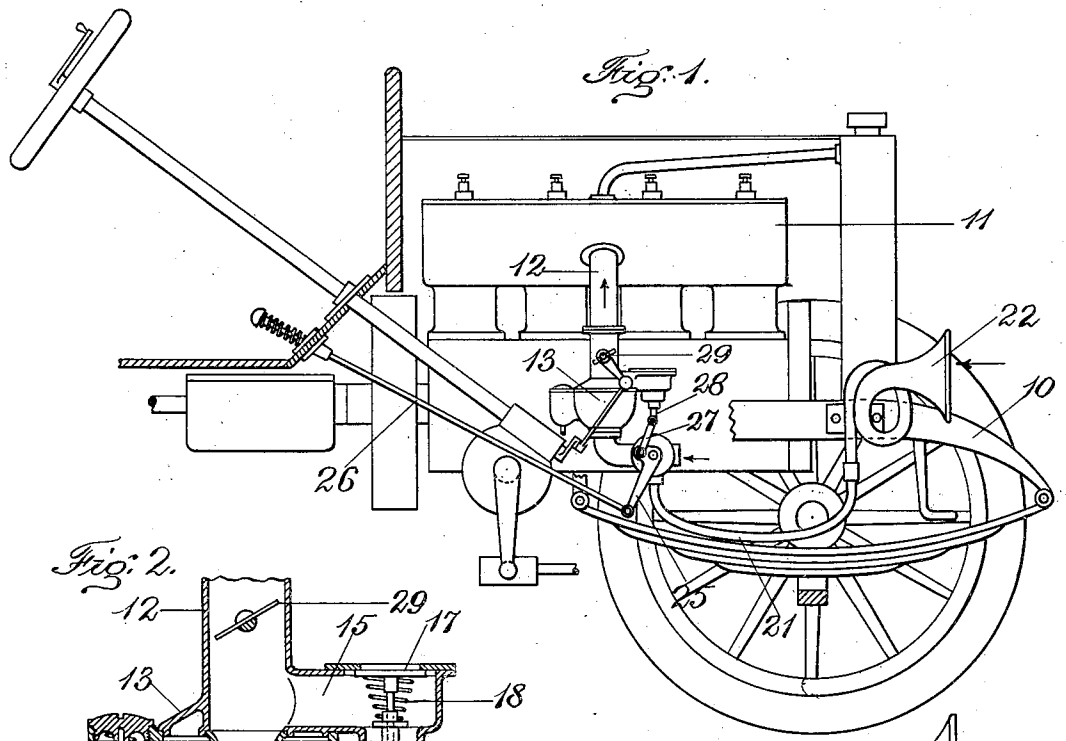


Fig. 2.

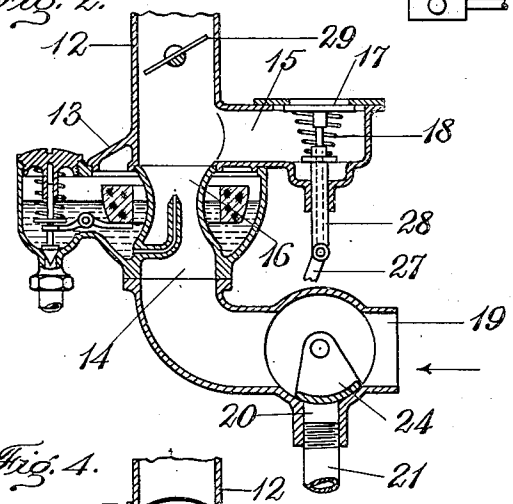


Fig. 3.

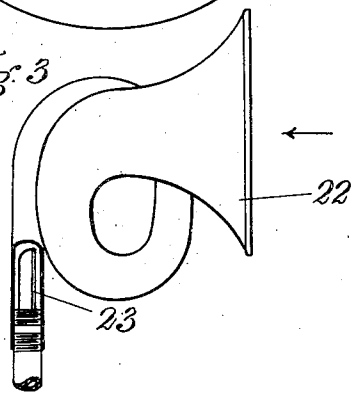


Fig. 4.

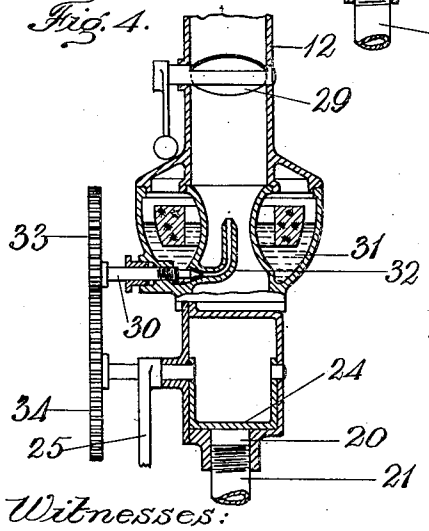
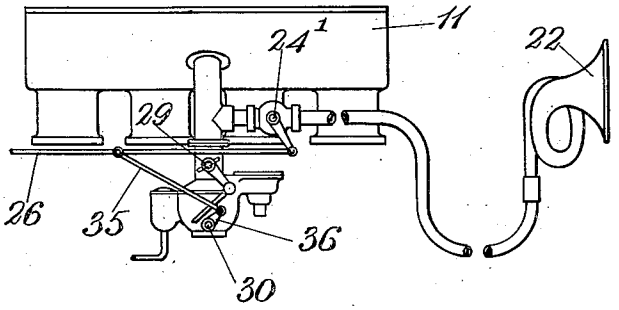


Fig. 5.



Witnesses:
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Inventor:
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UNITED STATES PATENT OFFICE.

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SIGNAL FOR MOTOR-VEHICLES.

961,158. Specification of Letters Patent. **Patented June 14, 1910.**

Application filed July 17, 1909. Serial No. 508,227.

To all whom it may concern:

Be it known that I, ROBERT M. PIERSON, a citizen of the United States, residing at Bronxville, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Signals for Motor-Vehicles, of which the following is a specification.

This invention relates to the construction and operation of audible warning signals, especially on land and water vehicles propelled by internal-combustion motors. Heretofore, so far as I am aware, such signals, when not operated by hand, have either required a reserve of stored power of some kind, or a mechanical connection with the motor, or have utilized the exhaust gases from the motor. These prior methods are open to various objections which in large measure are overcome by my present invention, which involves the combination, with the motor inlet-pipe, of a suction-operated horn or other signal whereby the indraft of air to the motor is caused to sound a warning blast at the will of the driver.

Figure 1 in the accompanying drawings represents a view in section and elevation showing the forward part of an automobile equipped with my improved signaling appliances. Fig. 2 represents a section of the carbureter and associated parts. Fig. 3 represents a section showing the reed of the horn. Fig. 4 represents a section showing a modification. Fig. 5 represents a side elevation showing a second modification.

Referring to Figs. 1–3, 10 is the chassis of the automobile, 11 is the propelling motor therefor of the ordinary explosion type, and 12 is its air and mixture inlet-pipe containing the suction-operated spray-carbureter 13. While various types of carbureters may be used, I have shown one in which the supply passage has separate branches 14 and 15 for primary and secondary air respectively, the former anterior to the fuel-aspirating or mixing chamber 16, and the latter posterior thereto and provided with an automatic check-valve 17 having a valve-seating spring 18.

19 is the inlet through which the carbureter normally draws its supply of primary air, and 20 is another inlet for primary air connecting by a pipe 21 with the horn 22. This horn is provided with a reversed reed 23 as seen in Fig. 3, that is, one having its free end turned outwardly so as to be operated by an inflow of air through the horn.

24 is a stop-valve controlling the horn-pipe 21, and preferably also acting, as shown, in the capacity of a switching valve so that the inlets 19 and 20 may be alternated, the former closing as the latter opens and vice versa. 25 is an arm on the stem of this valve controlled by a push-rod 26 within reach of the driver's foot, and from said arm a link 27 extends to a sliding abutment 28 for the spring 18 so that when the horn is sounded an increased supply of air will be provided through the secondary valve 17 by relieving the tension on spring 18.

29 is the ordinary throttle-valve in the mixture-pipe between the mixing-chamber and the engine, operated by the usual connections.

A thrust on the pedal-rod 26 rotates valve 24 and opens port 20, at the same time more or less closing port 19, so that an air-current is drawn through the trumpet or resonator of horn 22, setting the reed 23 in vibration and causing a slightly-muffled musical note to be emitted as a warning of the approach of the vehicle. During its continuance, the partial relief of tension on the spring 18 caused by recession of the abutment 28 corrects the tendency to an over-supply of fuel from the increase of vacuum due to the resistance to the passage of air through the horn. This tendency may be counteracted in various other ways as well, and in Fig. 4 I have shown, in place of the spring-tension adjuster for the secondary-air valve, a needle-valve 30 controlling the fuel passage from the float-chamber 31 to the jet-nozzle 32 and connected by gearing 33, 34 to the shaft of the lever 25 which operates valve 24, whereby when said valve is opened to sound the horn, needle-valve 30 will be slightly closed to diminish the fuel-supply. In either form of the invention, any decrease of power in the engine while the horn is being sounded may be made up by increasing the opening of the throttle-valve 29 if the latter is not already fully opened.

While the use of some compensating device such as described for maintaining correct mixtures is considered desirable, it is not always essential, and such means may be omitted without serious detriment to the normal operation of the carbureter, espe-

cially if the horn is constructed to work with a small vacuum and a low air velocity.

An advantage is obtained by drawing the air through the horn into the motor air-pipe at a point anterior to the throttle-valve 29 and to the mixing-chamber 16, in that a gentle air-current for causing the horn to emit a fundamental musical note is thereby more readily obtained and the functions of the carbureter are subjected to less disturbance requiring correction. But this arrangement may be varied. Fig. 5, for example shows the horn pipe 21 connected to the mixture-pipe 12 at a point posterior to the throttle-valve 29, and provided with an operating valve 24'. The rod 26 for controlling this valve is connected by a link 35 with an arm 36 on the stem of the carbureter needle-valve 30, so that when the horn is sounded, an additional supply of fuel is provided to meet the extra air passing into the mixture-pipe.

Various other modifications may be made without departing from the invention.

I claim,—

1. The combination with a vehicle driven by an internal-combustion motor, of a warning signal carried by said vehicle and operated by the suction of the motor.

2. The combination, with an internal-combustion motor, of a suction-operated horn applied to the air-inlet pipe thereof, and a valve for opening and closing the connection between said horn and air-inlet pipe.

3. The combination, with an internal-combustion motor, of a horn associated with the air-supply pipe of said motor and having a reed adapted to be sounded by an inflow of air through the horn to the motor.

4. The combination, with an internal-combustion motor and its inlet-pipe, of a suction-operated spray-carbureter associated with said pipe and having a fuel-aspirating chamber, a throttle-valve in the pipe between the aspirating chamber and the motor, and a suction-operated signal connected with said pipe at a point anterior to said throttle-valve.

5. The combination, with an internal-combustion motor and its inlet-pipe, of a suction-operated spray-carbureter associated with said pipe and having a fuel-aspirating chamber, a throttle-valve in the pipe between the aspirating chamber and the motor, and a suction-operated signal connected with said pipe at a point anterior to said throttle-valve and to the aspirating chamber.

6. The combination with an internal-combustion motor, of a suction-operated signal associated with the air-pipe thereof, means for supplying fuel to form a combustible mixture with the air, a valve controlling the operation of said signal, and means operated conjointly with said valve for controlling the relative quantities of air and fuel in the mixture.

7. The combination with an internal-combustion motor having an air-supply pipe, of a carbureter associated with said pipe and having means for entraining liquid fuel by the suction of the motor, a suction-operated signal also associated with said pipe, a valve controlling said signal, and means connected for conjoint operation with said valve and controlling the relation between the air and fuel supplies, for maintaining a combustible mixture during the operation of the signal.

8. The combination of a suction-operated spray carbureter having a fuel-entraining chamber, a normal air-inlet and a horn air-inlet to said chamber, a suction-operated horn associated with said horn-inlet, and valve mechanism for alternating the air-supply to said chamber between said inlets.

9. The combination of a suction-operated spray carbureter having a fuel-entraining chamber, air-inlets thereto, a suction-operated horn associated with one of said inlets, a switching-valve for alternating the air-supply between said inlets, and means connected for conjoint operation with said valve for controlling the relative quantities of air and fuel in the mixture.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses, this 16th day of July 1909.

ROBERT M. PIERSON.

Witnesses:
G. BLAKE,
F. E. NARES.