April 30, 1929. F. H. FRITZ 1,711,408

HUMIDIFIER FOR INTERNAL COMBUSTION ENGINES

Filed March 11, 1927

Fig. 1.

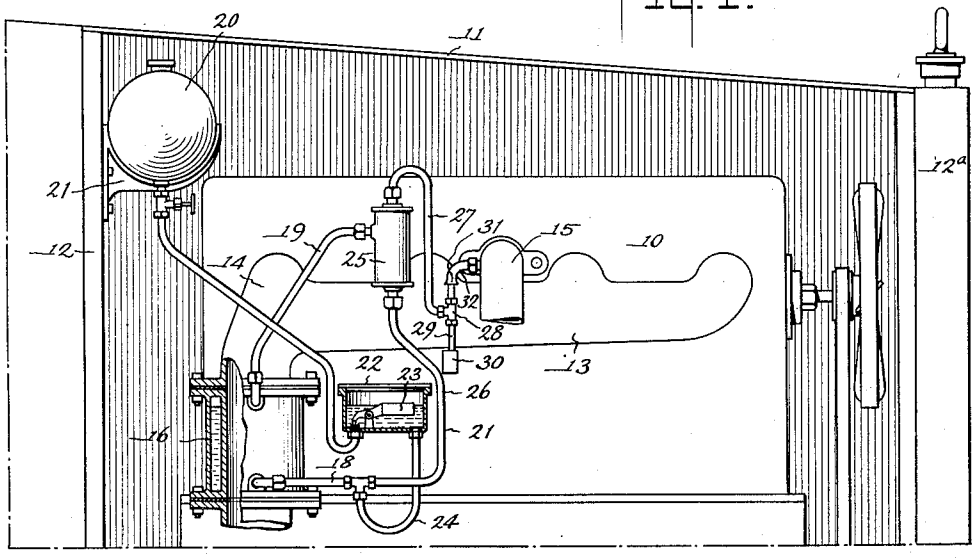


Fig. 2.

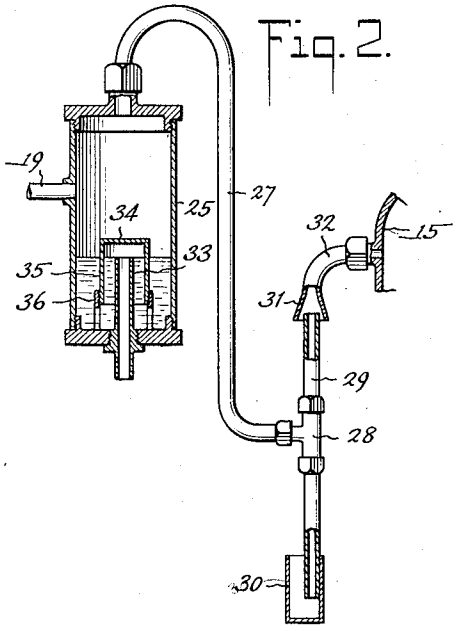


Fig. 3.

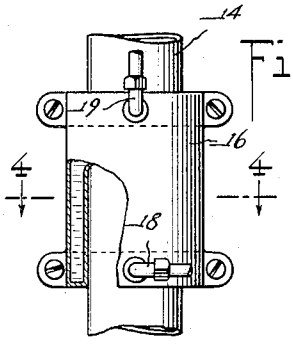
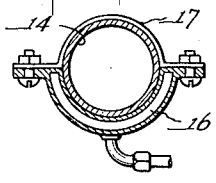


Fig. 4.



WITNESSES

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Patented Apr. 30, 1929. 1,711,408

UNITED STATES PATENT OFFICE.

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HUMIDIFIER FOR INTERNAL-COMBUSTION ENGINES.

Application filed March 11, 1927. Serial No. 174,550.

The present invention is concerned with the provision of a humidifying attachment for motors adapted to be built into a new motor or to be readily applied as an attachment to an old one. An object of the invention is to provide means for delivering a small quantity of steam to the intake manifold of an engine in order to richen the mixture, give more power, a quicker pick-up, and a smoother-running, cooler motor. In addition, the application of moisture to the mixture entering the manifold, particularly to the hot air entering the carburetor, serves to maintain the engine substantially free from carbon deposits.

Other objects of the invention are to provide a humidifying attachment of simple, practical construction, which will be rugged, durable and efficient in use, and well suited to the requirements of economical manufacture and expeditious and facile installation.

With the above noted and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter set forth and pointed out in the claims. The invention may be more fully understood from the following description in connection with the accompanying drawings, wherein—

Fig. 1 is a view in side elevation of an internal combustion engine equipped with my improved humidifying means.

Fig. 2 is an enlarged schematic view showing the two steam traps in section.

Fig. 3 is a view partly in section and partly in elevation of the steam generator, this generator differing from that of Fig. 1, in that it is a separate attachment instead of an integral part of the exhaust manifold.

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

In the drawings I have used the reference character 10 to designate an engine block, and have shown it mounted under the ordinary hood 11 of a car which extends from the dashboard 12 to the radiator 12^a. The exhaust manifold 13 of the engine communicates with an exhaust pipe 14, and the heat from this exhaust pipe or manifold is used in the present case to generate the required steam delivered to the hot air intake pipe 15 of the carburetor (not shown).

The steam generator includes a jacket portion 16 partially filled with water. This water jacket may be an independent removable section of the exhaust pipe as shown in Fig. 1, or may be made as a separate semi-cylindrical attachment as in the case of Figs. 3 and 4, in which instance it will be secured by the use of a clamp 17. If the device is an integral part of the exhaust pipe as in Fig. 1, the water chamber will be of annular formation completely encircling the pipe.

In either event a water supply pipe 18 enters the lower end of the steam generating jacket 16 and a steam offtake pipe 19 leaves the upper end of the jacket.

The water supply is preferably carried in a tank or reservoir 20 mounted upon a suitable bracket 21 fixed to the dashboard 12 of the car, and delivering water into a float tank 22. This float tank carries a float 23 regulating the water lever therein and incidentally regulating the water level in the jacket 16, since the float tank and jacket are directly connected through a pipe 24 entering the pipe 18.

The steam escaping through the pipe 19 enters a steam trap 25 from which condensate drains back to the pipe 18 through a pipe 26, and steam escapes through a pipe 27 connected by a coupling 28 to a vertical pipe 29. The lower end of the open ended pipe 29 is disposed within a condensate trap 30, the water in which normally seals the pipe end. The upper end of the pipe 29 is encircled by a spaced apron 31 carried by the lower end of a pipe 32 communicating directly with the hot air intake pipe 15 of the carburetor. The use of the apron permits any water which might be sucked upwardly through the pipe 29 to escape through the space between the apron and pipe, and assures that only steam will be carried into the hot air pipe 15.

The steam trap 25 is preferably connected to the condensate return pipe 26 by a relatively short stand pipe 33 carrying off condensate when the same has reached a certain level in the trap. The upper end of the stand pipe 33 is covered by a cap 34, the flanges 35 of which extend well below the top of the stand pipe and are carried by a skeleton framework 36. By virtue of this construction, when the condensate has covered the bottom of the flanges 34, there will be no danger of steam escaping through the stand pipe 33 and being returned to the jacket 16. Preferably jacket 16, trap 25, and if desired all of the exposed steam conveying pipes may be covered with asbestos or other suitable heat

insulating material, in order to prevent the fan from condensing the steam before it reaches the pipe 15.

Obviously, various changes and alterations might be made in the general form and arrangement of parts described without departing from the invention. Hence I do not wish to limit myself to the details set forth, but shall consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

I claim:

1. In an internal combustion engine, an exhaust pipe and an intake pipe for the carbureter, a steam generator intimately associated with the exhaust pipe and heated thereby, a steam trap connected with the generator and with the intake pipe, a float chamber for water connected with the generator for controlling the level of water in the generator, said trap having a drain for condensate for maintaining a predetermined level of condensate in the trap to prevent the escape of steam through the drain.

2. In an internal combustion engine, an exhaust pipe and an intake pipe for the carbureter, a steam generator intimately associated with the exhaust pipe and heated thereby, a steam trap connected with the generator and with the intake pipe, a float chamber for water connected with the generator for controlling the level of water in the generator, the connection between the trap and the intake pipe including a vertically disposed pipe open at its upper end, and a pipe having a flanged apron receiving the free end of the first mentioned pipe in spaced relation, the opposite end of the vertically disposed pipe being provided with a seal to receive condensate and prevent the loss of steam through said end of the pipe.

FRANK H. FRITZ.