March 2, 1926. 1,575,292

D. C. TYLER

AIR WASHER

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Fig. 1.

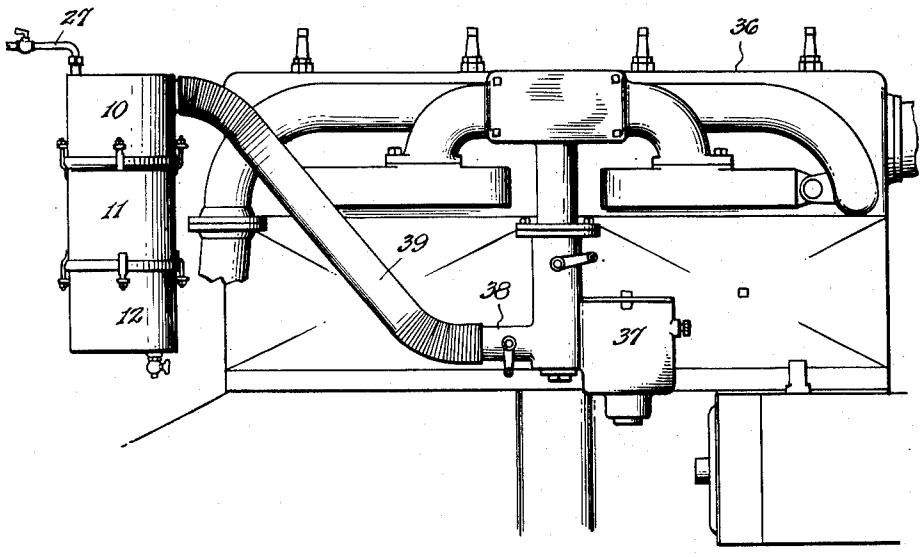


Fig. 4.

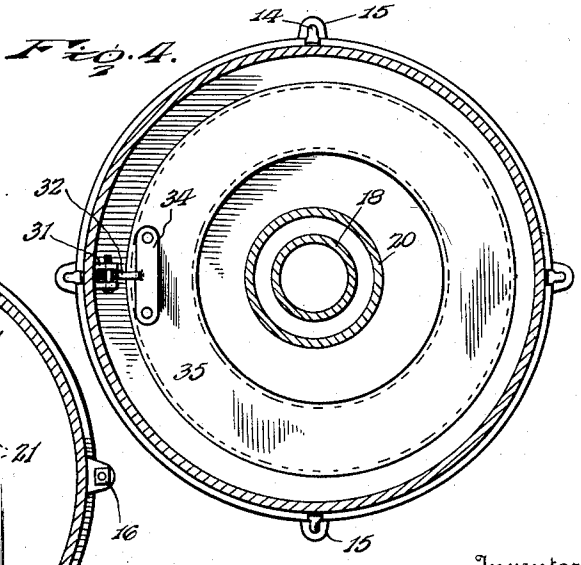
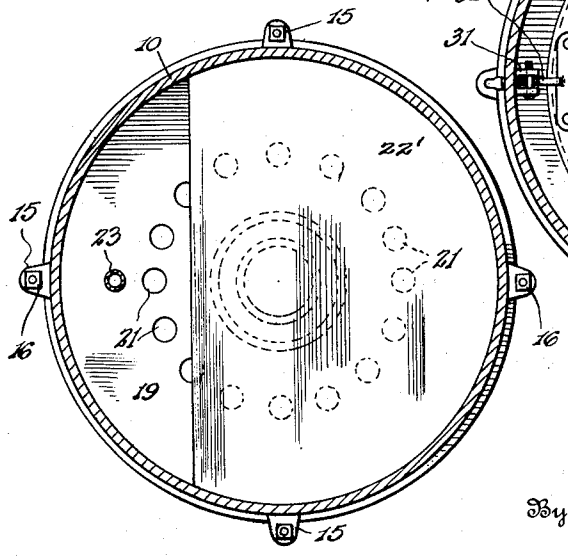


Fig. 3.



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Fig. 2.

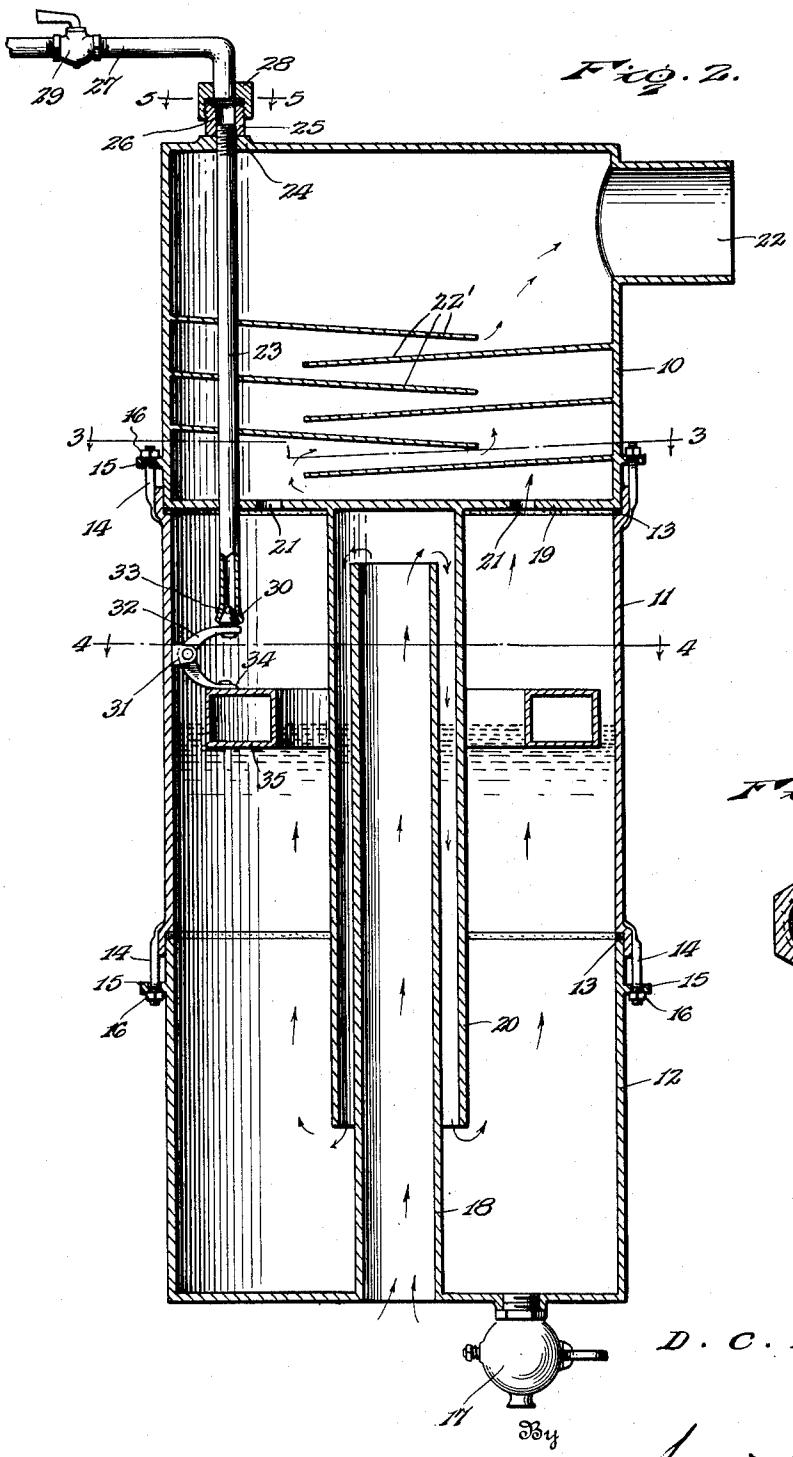
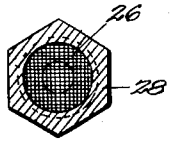


Fig. 5.



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UNITED STATES PATENT OFFICE

DANIEL C. TYLER, OF OKLAHOMA CITY, OKLAHOMA.

AIR WASHER.

Application filed April 30, 1925. Serial No. 27,091.

To all whom it may concern:

Be it known that I, DANIEL C. TYLER, a citizen of the United States, residing at Oklahoma City, in the county of Oklahoma and State of Oklahoma, have invented certain new and useful Improvements in Air Washers, of which the following is a specification.

This invention relates to an improved air washer for internal combustion engines and seeks, among other objects, to provide a device which will deliver a supply of uniformly clean moistened air to the engine carbureter for thus reducing wear which would otherwise be caused by impurities in the air while enhancing the combustibility of the fuel mixture.

The invention seeks, as a further object, to provide a device wherein the level of the water within the device will be automatically maintained relatively constant and wherein means will be provided for preventing the water from discharging through the air outlet of the device.

A still further object of the invention is to provide a device so constructed that access may be readily had to all of the parts of the device and wherein the device may be readily taken apart and cleaned.

And the invention seeks as a still further object, to provide a device adapted for general use in connection with internal combustion engines.

Other and incidental objects will appear hereinafter.

In the accompanying drawings:

Figure 1 is a side elevation showing my improved air washer in connection with a conventional internal combustion engine.

Figure 2 is a vertical sectional view taken medially through the device.

Figure 3 is a transverse sectional view on the line 3—3 of Figure 2, looking in the direction indicated by the arrows.

Figure 4 is a transverse sectional view on the line 4—4 of Figure 2, looking in the direction indicated by the arrows, and particularly showing the float.

Figure 5 is a detail sectional view on the line 5—5 of Figure 2, looking in the direction indicated by the arrows.

In carrying the invention into effect, I employ a preferably cylindrical casing which is formed of mating top, middle and bottom sections respectively providing an air chamber 10, a float chamber 11, and a sediment chamber 12. The chamber 11 is flanged at its ends to fit over the adjacent ends of the chambers 10 and 12, and interposed between said chambers are appropriate gaskets 13. Fixed to the end portions of the chamber 11 are oppositely directed clamping bolts 14 arranged at spaced points about said chamber while the chambers 10 and 12 are formed with ears 15 to freely receive said bolts, and screwed on the bolts are nuts 16 rigidly clamping the several chambers together.

Connected to the bottom wall of the sediment chamber 12 is a drain cock 17 and rising from said wall is, as particularly shown in Figure 2, an axially disposed air inlet tube 18 extending at its upper end to a point near the bottom of the air chamber 10. This air chamber is, as shown in Figures 2 and 3, provided with a bottom wall 19 which forms a partition between the air chamber and the float chamber 11, and depending from said bottom wall is an axially disposed air tube 20 surrounding the tube 18 in spaced concentric relation and extending at its lower end to a point near the bottom of the chamber 12. The tube 20 is closed at its upper end by the wall 19 and formed in said wall in concentric relation to the tube is an annular series of air passages 21 establishing communication between the float chamber 11 and the air chamber 10. Leading from the air chamber at one side thereof is an air outlet 22 and mounted in said chamber below said outlet are overlapping baffles 22′ for preventing the escape of water through said outlet. The baffles are tilted downwardly toward their free edges so that any moisture collecting on the baffles will drain to the bottom of said chamber to return through the openings 21 into the chamber 11.

Extending through the bottom wall 19 of the chamber 10, adjacent one side of said chamber, is a vertically disposed water inlet pipe 23 screwed at its upper end through a boss 24 on the top wall of said chamber, and screwed over the projecting outer end of said pipe is a sleeve 25 which, as particularly shown in Figure 5, mounts a screen 26. Communicating with the pipe 23 is a water supply pipe 27 connected with the sleeve 25 by a nut 28 and interposed in said pipe is a suitable shut-off valve 29. The pipe 27 may be connected to any suitable source of water supply, as for instance the radiator

or water jacket of the engine with which the device is associated, so that when the valve 29 is open, water will gravitate through the pipe 27 to the inlet pipe 23. This inlet pipe terminates at its lower end near the upper end of the float chamber 11 and is formed with a valve seat 30. Projecting from the wall of the float chamber at the adjacent side thereof is a pair of spaced ears 31 and pivoted between said ears in a bell crank 32 to the upper arm of which is fixed a needle valve 33 adapted to fit the seat 30 of the pipe 23, closing said pipe. The lower arm of the bell crank is, as particularly shown in Figure 4, provided with a head 34 and fixed to said head is a suitable float 35 surrounding the air tube 20 in spaced concentric relation. Thus, as will be seen, when the level of the water in the casing drops, the float will be lowered, so that the valve 33 will be opened to admit additional water through the pipe 23 while, as the level of the water in the casing rises, the float will be elevated for closing said valve and cutting off the water supply. Thus, the level of the water in the casing will be maintained relatively constant.

In Figure 1 of the drawings, I have shown my improved washer in connection with a conventional internal combustion engine 36. The engine carbureter is conventionally illustrated at 37 and the primary air intake of the carbureter at 38. The air washer is mounted in any appropriate manner, preferably at a point adjacent the engine, and connecting the air outlet 22 of the air washer with the primary air intake 38 of the carbureter 37 is a preferably flexible air hose or pipe 39. Thus, engine suction will be communicated through this pipe so that air will be drawn in through the air inlet tube 18 of the air washer to thence flow downwardly through the air tube 20, when the air will rise through the body of water in the casing of the washer to thence flow upwardly through the openings 21 in the bottom wall 19 of the air chamber 10 into said chamber, when the air will flow out through the outlet 22 and through the pipe 39 into the primary air intake of the engine carbureter. As will be appreciated, the air will, as it rises through the body of water in the air washer, be thoroughly cleaned and moistened so that the device will thus function to deliver a constant supply of clean, moistened air to the carbureter of the engine. Furthermore, attention is directed to the fact that the bottom wall 19 of the chamber 10 will tend to prevent the splashing of the water upwardly into said chamber so that the water will be prevented from finding its way into the air outlet 22.

It is now to be observed that the chamber 10 of the device may be readily detached from the chamber 11 so that access may be had to the air tube 20 as well as to the float 35 and associated parts. Likewise, the sediment chamber 12 may be readily detached from the chamber 11 so that the sediment chamber may be readily cleaned, while access may be had to the air inlet tube 18. Furthermore, if found necessary, all of the chambers may be detached from each other so that the device may be repaired with facility.

Having thus described the invention, what I claim is:

1. An air washer comprising a casing having an air outlet in its upper portion and an air inlet in its bottom, a partition dividing the casing into an upper air chamber and a lower water chamber and having openings for inter-communication between the two chambers, baffles within the air chamber, means for supplying water in regulated quantity to the water chamber, a tube depending from the said partition and closed at its upper end thereby and extending into the water chamber to within a short distance of the bottom thereof, and a tube in line with the air inlet and extending upwardly from the bottom of the casing within the depending tube and terminating a distance from the said partition.

2. An air washer comprising a casing having an air outlet in its upper portion and an air inlet in its bottom, a partition dividing the casing into an upper air chamber and a lower water chamber and having openings for intercommunication between the two chambers, oppositely disposed and inclined baffles within the air chamber having their inner portions overlapped, means for supplying water to the water chamber and automatically controlled by the change of level of the water therein, a tube rising from the bottom of the casing in line with the air inlet therein and open throughout and terminating short of the said partition, and a second tube surrounding the aforesaid tube and depending from and closed at its upper end by the said partition and terminating at its lower end a distance from the bottom of the casing.

In testimony whereof I affix my signature.

DANIEL C. TYLER. [L. S.]