June 11, 1957 G. JENISON 2,795,103

HEALTH MUFFLER

Filed July 26, 1956 2 Sheets-Sheet 1

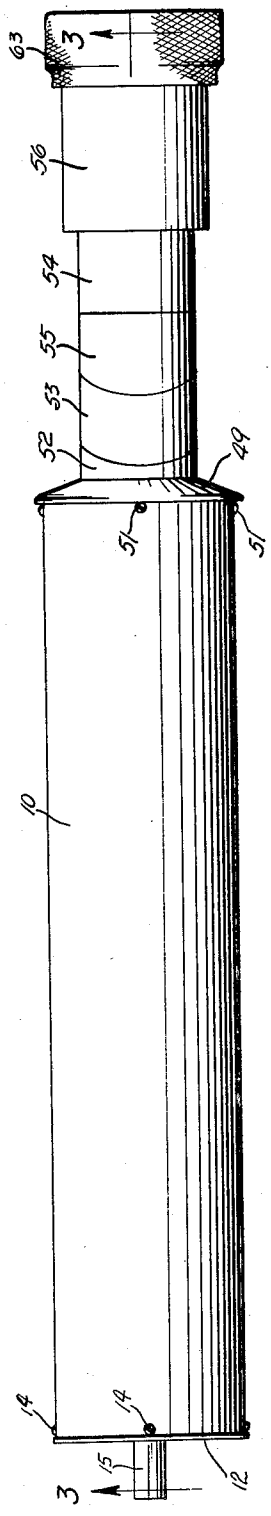


Fig. 1

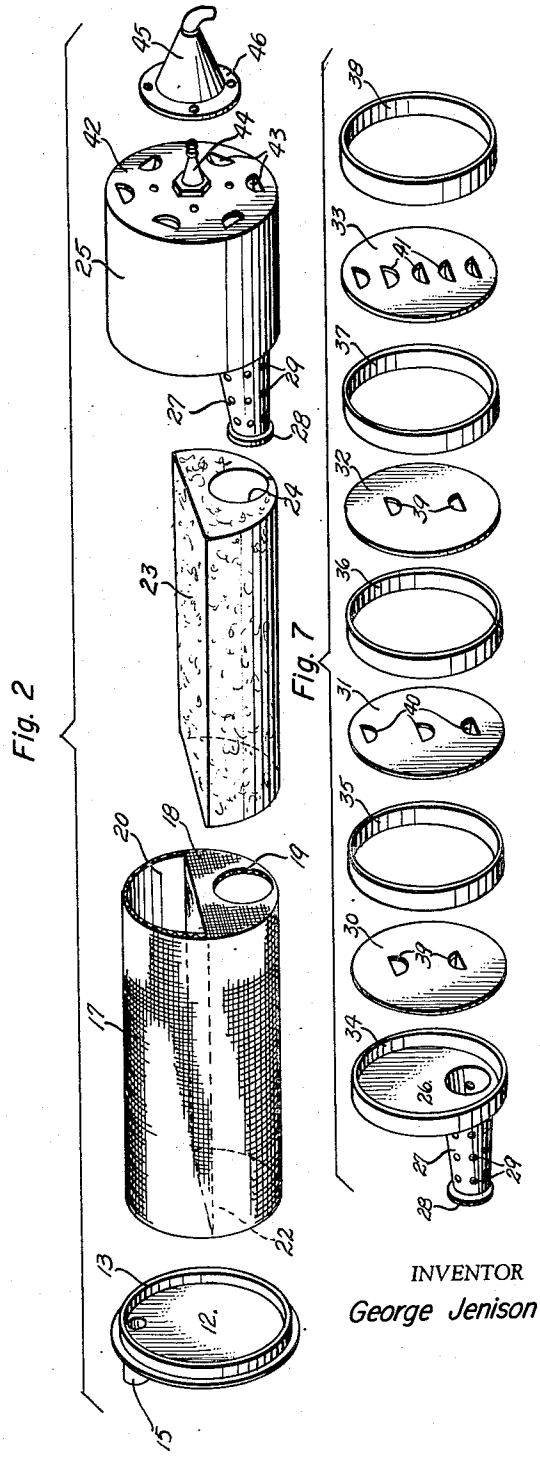


Fig. 2

Fig. 7

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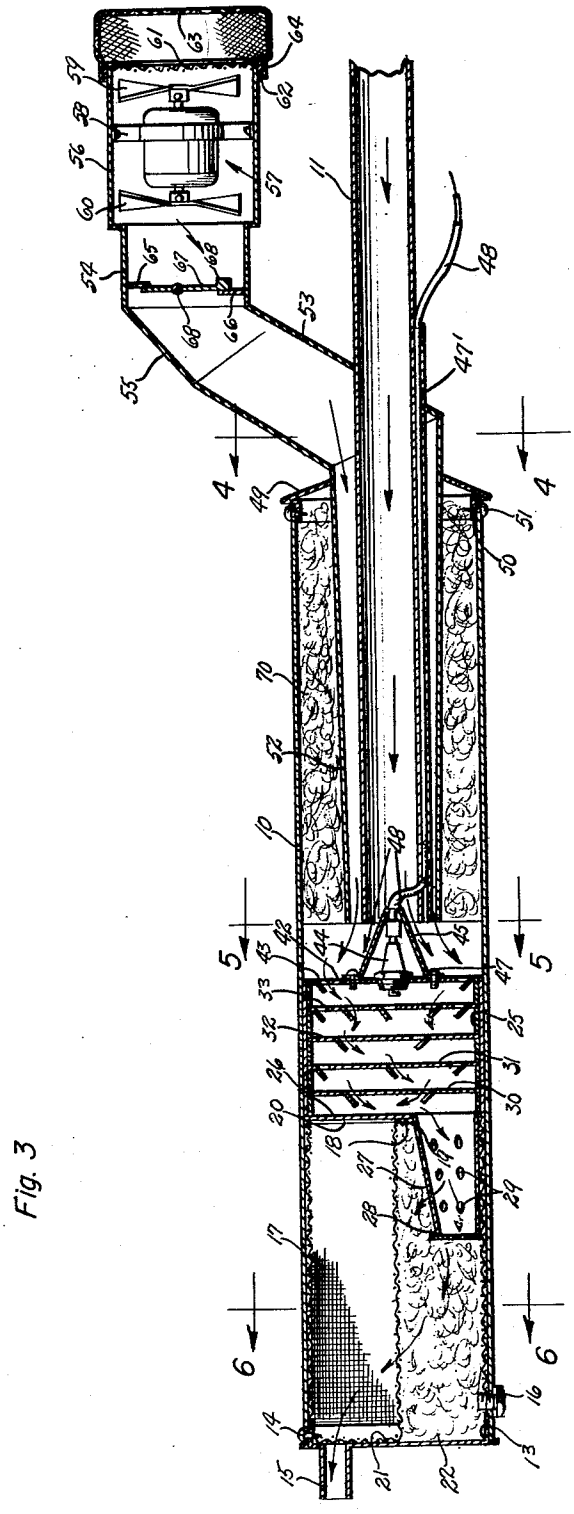


Fig. 3

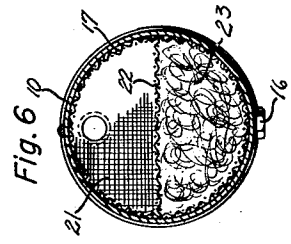


Fig. 6

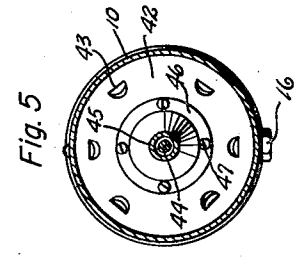


Fig. 5

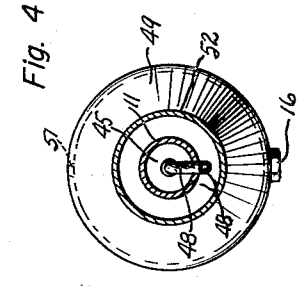


Fig. 4

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HEALTH MUFFLER

George Jenison, Yuba City, Calif.

Application July 26, 1956, Serial No. 600,348

8 Claims. (Cl. 60—30)

This invention relates to mufflers for vehicles.

It is an object of the present invention to provide an improved muffler for vehicles which will eliminate and neutralize poisonous carbon monoxide gases discharged from internal combustion engines whereby to render the exhaust gases harmless.

It is another object of the present invention to provide a muffler of the above type wherein the carbon monoxide gas from the internal combustion engine is admixed with fresh air and then converted to carbon dioxide, a harmless gas.

It is still another object of the present invention to provide a muffler of the above type wherein the exhaust gases are filtered after the carbon monoxide has been converted to carbon dioxide whereby to render the exhaust gases harmless in a more complete manner.

Other objects of the invention are to provide a muffler bearing the above objects in mind which is of simple construction, has a minimum number of parts, is inexpensive to manufacture and efficient in operation.

For other objects and for a better understanding of the invention, reference may be had to the following detailed description taken in connection with the accompanying drawing, in which:

Figure 1 is a top plan view of a preferred embodiment of the present invention;

Fig. 2 is an exploded perspective view of certain of the parts of the invention;

Fig. 3 is a longitudinal vertical sectional view taken along the line 3—3 of Fig. 1;

Fig. 4 is a transverse sectional view taken along the line 4—4 of Fig. 3;

Fig. 5 is a transverse sectional view taken along the line 5—5 of Fig. 3;

Fig. 6 is a transverse sectional view taken along the line 6—6 of Fig. 3; and

Fig. 7 is an exploded perspective view of certain of the parts of the invention.

Referring now more in detail, 10 represents an elongated hollow cylindrical casing while 11 represents the exhaust pipe from the internal combustion engine, substantially as illustrated.

The casing 10 is provided, at the rear end, with a closure 12 (Fig. 2) having a reduced depending skirt portion 13 which fits snugly within the end of the casing and which is secured thereto by the fastening means 14 (Fig. 3). The closure plate 12 at the top thereof is provided with the outlet pipe 15 opening onto the surrounding atmosphere.

A drain plug 16 is provided at the bottom of the casing 10 adjacent the rear end closure 12.

As shown in Fig. 2, a hollow cylindrical screen 17 having a front end closure 18 of semicircular shape and having a central opening 19 is adapted to fit within the casing 10 into abutment with the end closure plate 12, the screen having the semicircular top opening 20. The screen 17 is provided with the rear closure 21 (Fig. 3)

having a semicircular bottom opening 22. A semicylindrical filter medium 23 is adapted to fit within the lower portion of the screen 17 through the rear opening 22 and is provided at the forward end thereof with the frusto-conical bore 24.

A baffle assembly fits into the casing 10 adjacent the screen and includes the hollow cylindrical casing 25 having a rear end closure 26 provided with a frusto conical spout 27 which fits within the opening 19 of the screen and the bore 24 of the filter medium, the spout 27 having an end closure 28 as well as perforations 29.

A plurality of circular baffle plates 30, 31, 32 and 33 (Fig. 7) are positioned within the casing 25 in longitudinally spaced relationship by means of the spacer rings 34, 35, 36, 37 and 38. The baffle plates 30 and 32 are provided with a pair of semicircular rearwardly struck openings 39 having the rearwardly struck portions inclined to the plates themselves, as shown in Fig. 3, while the baffle plate 31 is provided with three such rearwardly struck openings 40. The baffle plate 33 is provided with five such rearwardly struck openings 41. The casing 25 is provided with a front end closure 42 having a plurality of angularly spaced, rearwardly struck semicircular openings 43 and the central portion thereof mounts the spark plug 44 having the spark gap disposed on the inner face of the end closure 42. A frusto conical shield 45 surrounds the spark plug and is secured to the end closure 42 by means of the flange 46 and the mounting means 47, the outer end of the shield 45 being open. A stainless steel pipe 47′ is secured to the bottom of the exhaust pipe 11, the latter being provided with an opening therethrough which receives therewithin the wire 48 which passes through the tube 47′ for connection with the ignition system of the car.

A frusto conical closure plate 49 is secured to the front end of the casing 10 by means of the depending skirt 50 and fastening means 51, the closure 49 having a circular central opening which receives therethrough a frusto-conical pipe or conduit 52 concentrically disposed about the exhaust 11, the rear end of which terminates at the same point as the rear end of the exhaust pipe 11. An upwardly extending conduit 53 is mounted on the forward end of the conduit 52 and connects with the horizontal cylindrical member 54 by means of the joint 55, the latter being above and parallel to the exhaust pipe 11. The forward end of the hollow cylindrical portion 54 is connected to the rear end of the enlarged, hollow cylindrical casing 56 within which is mounted the blower 57 by means of the braces 58, the blower 57 including the forward vein or fan 59 and the rear fan 60 which communicate with the interior of the cylindrical casing 54. A circular screen 61 is mounted on the forward open end of the casing 57 by means of the rim flange 62 while a hollow, cylindrical enlarged screen 63 is in turn mounted on the outside of the rim flange 62 by means of the flange portion 64. The plates 65 and 66 are mounted within the casing 54 and abut the ends of the valve member 67 rotatably mounted on the pin 68 whereby to control the passage of fresh air through the screen 63 and 61 drawn rearwardly due to the motion of the vehicle and due also to the blowing action of the blower 57, which air will pass downwardly through the conduits 55 and 53 into the conduit 52 where it will mix at the rear end thereof at the portion surrounding the shield 45 with the exhaust gases from the engine to pass into the baffle member through the baffle openings therewithin where the carbon monoxide will be ignited by the spark plug 44 to combine with the oxygen from the fresh air to produce harmless carbon dioxide. This treated exhaust gas will then pass into the spout 27 where it will pass into the filter medium 23 through the perforations 29 and then up-

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wardly into the screen **17** where it will be released into the atmosphere through the outlet **15**.

The casing **10** and casing **56** will be suitably mounted on the bottom of the vehicle frame, as will be obvious.

The muffler parts will preferably be formed of stainless steel and may be of any shape in cross section, for example, round, oval or square according to the space requirements.

The filter medium **23** is preferably of aluminum to precipitate the small amount of hydrocarbon.

The damper **67** is normally retained in the closed position by a weight **68** at the bottom thereof and is opened by the air pressure from the fan **57** and the movement of the vehicle. The filter medium **23** is composed of aluminum filings which may be fed upwardly through the screen opening **22**.

Suitable filter mediums will be disposed in the upper portion of the screen **17** to complete the filtering action on the exhaust gases before their exit through the outlet **15**. Such filter materials may consist of raw sheep wool, asbestos fiber, rock wool, or lime with bone ash. These filter materials can be sprayed with sodium sulphate as a dense solution which prevents the ignition of the same and will filter out the petrol or gasoline gases. The drain plug **16** will be used for washing out hydrocarbon through the exhaust pipe. The filter material need never be changed. The rock wool will protect and cool the muffler. The filter material may be charged through the opening **20** at the forward end of the screen above the closure portion **18**. The filter materials to be placed within the upper portion of the screen **17** may be mixed with powdered charcoal, plaster of Paris, or gypsum and a strong solution of sodium sulphate, which will bind the filter material into a porous cake-like mass.

The above muffler and its filter have been tested for 78,000 hours on various engines and when the filter was inspected, it was substantially the same as when originally placed in the muffler compartment. The filter material elements of bone ash, slaked lime (dry) and powdered charcoal are mixed dry and then mixed with a strong solution of sodium sulphate into a dough-like mass which is dried and then inserted into the upper filter compartment of the screen **17** with the wool, and asbestos.

The damper **67** due to the weight **68** will automatically close when the device is not in use to prevent the gases or smoke from escaping.

The shield **45** will prevent the spark plug from carbonizing.

While various changes may be made in the detail construction, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claims.

Packing material **70** surrounds the fresh air conduit **52** within the forward portion of the casing **10** and preferably consists of rock wool.

What I claim as new and desire to protect by Letters Patent of the United States is:

1. A muffler for an internal combustion engine comprising an elongated hollow casing having a front closure and a rear closure, an outlet associated with said rear closure communicating with the atmosphere, baffle means mounted within said casing near the center thereof and including a rearwardly extending spout at the bottom thereof, said spout being perforated, spark plug means mounted at the forward end of said baffle means whereby to ignite the gases passing through said baffle means, filter means within said casing rearwardly of said baffle means adapted to remove hydrocarbons from the ignited gases before they pass through said outlet, conductor means connected to said spark plug means with the ignition system of said engine, a fresh air conduit positioned within the forward end of said casing and extending forwardly thereof, said front closure means surrounding the forward end of said casing and fresh air conduit, the exhaust pipe of the vehicle at the rear end thereof being received within said fresh air pipe with the rear end of the exhaust pipe lying substantially in the same plane as the rear end of said fresh air pipe, and blower means for drawing fresh air into said fresh air pipe, said baffle means comprising a hollow casing fitting within said first casing and having a front and rear closure, said spout being mounted at the bottom of said rear closure, said front closure having a plurality of openings adapted to permit the passage of mixture of fresh air and exhaust gases from said exhaust pipe and fresh air conduit, and a plurality of longitudinally spaced baffle plates within said casing, each of said baffle plates having openings adapted to permit the passage therethrough of the fresh air and exhaust mixture and the ignition of the same to convert carbon monoxide to carbon dioxide.

2. A muffler according to claim 1, said spark plug means comprising a spark plug mounted in the center of said front closure plate and having the spark gap disposed on the inner face thereof, and a frusto conical shield surrounding said spark plug having its larger end secured to said front closure whereby to protect the spark plug against carbonization, the smaller end of said shield being open, an elongated tube secured to the lower end of said exhaust pipe, said tube and exhaust pipe having openings, receiving therethrough said conductor means connecting the spark plug with the ignition system.

3. A muffler according to claim 2, said blower means comprising an upwardly and forwardly extending conduit connected to the forward end of said fresh air conduit, said forwardly and upwardly extending conduit being connected to a first horizontal casing, a damper positioned within said casing normally closed by its own weight but adapted to be opened upon operation of the vehicle and muffler, and a second casing connected to the forward end of said damper casing, the forward end of said second casing being open, screen means secured across the forward end of said second casing, an electric blower means positioned within said second casing adapted to draw fresh air inwardly through said screen and downwardly through said damper into said fresh air conduit, said blower including a forward suction vein and a rear push vein.

4. A muffler according to claim 3, including a second screen surrounding said first screen.

5. A muffler according to claim 3, said filter means comprising a hollow screen adapted to fit within the rear end of said casing and having the front and rear closures, said rear closure having a lower opening, said front closure having an upper opening, said front closure also having a lower opening receiving said spout therethrough, and semicylindrical filter material disposed within said screen at the lower portion thereof adapted to remove hydrocarbons from the ignited gases.

6. A muffler according to claim 5, said semicylindrical filter material comprising aluminum filings.

7. A muffler according to claim 6, including further filter material in the upper portion of said screen adapted to further filter the gases after passing through said aluminum filings, said further filter material comprising bone ash, slaked lime, powdered charcoal mixed with a strong solution of sodium sulphate, wool and asbestos.

8. A muffler according to claim 7 including rock wool packing surrounding said fresh air conduit within the forward portion of said casing, said further filter material being formed into cakes and dried.

References Cited in the file of this patent

UNITED STATES PATENTS

1,612,915	Goggin	Jan. 4, 1927
2,203,554	Uhri et al.	June 4, 1940

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