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J. GOLDSTEIN
TREATMENT OF GASES
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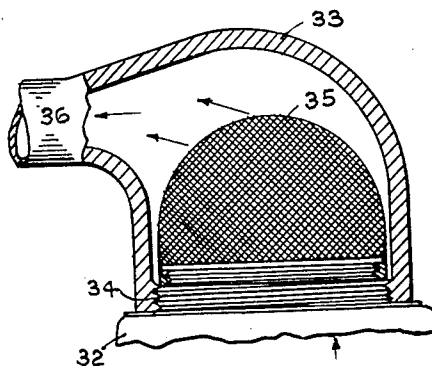
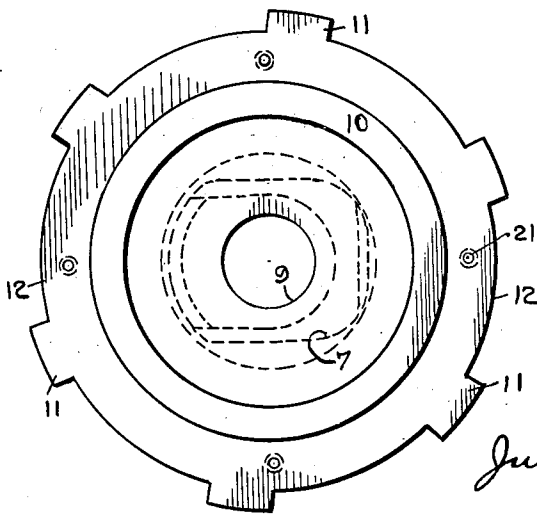
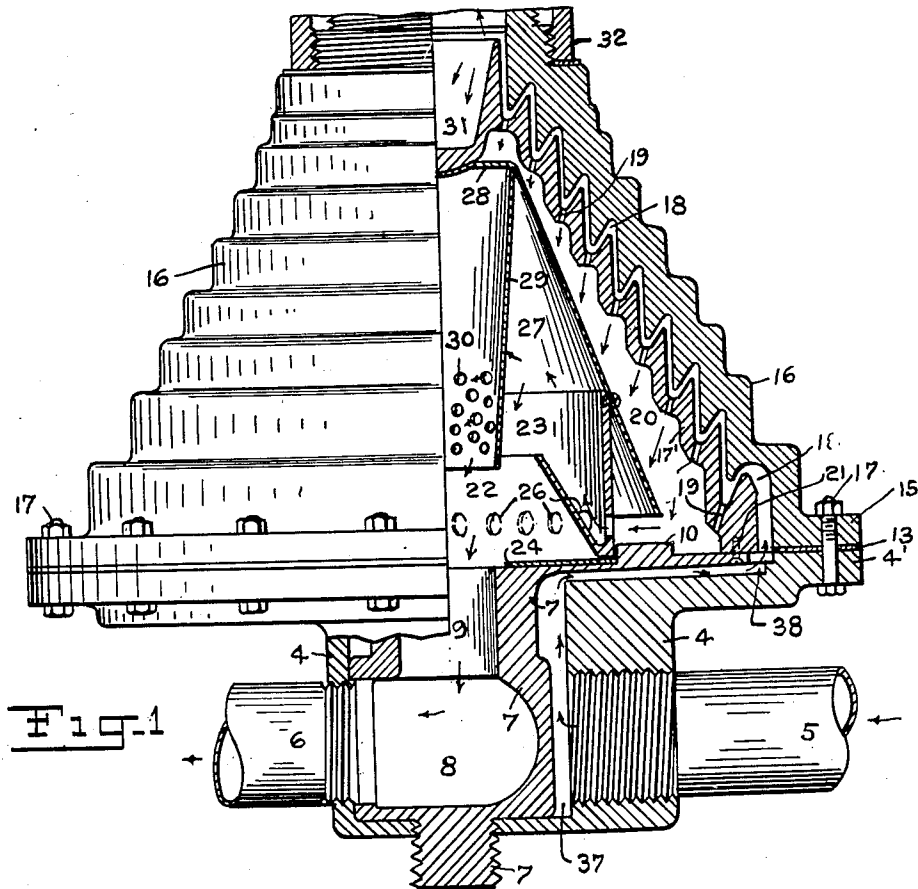


Fig-3

Julius Goldstein, Inventor

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UNITED STATES PATENT OFFICE

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TREATMENT OF GASES

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My invention relates to improvements in devices for the treatment of gases and more particularly has reference to and is illustrated in the accompanying drawings in its application to a device adapted to receive and separate the harmless from the harmful constituents of the exhaust gases such as are discharged from an internal combustion motor and is designed in the present application for use on the exhaust line of an automobile.

It is well known that the exhaust gases from an automobile are poisonous and otherwise highly injurious so much so that if the engine is run free while in a private garage in a short time the atmosphere would become so charged as to bring certain death to those present. It has been found, however, that these gases can be separated in such a manner that a person or an animal can live for a considerable length of time in an enclosed garage while the engine is running, and one of the objects of this invention is to thus separate the injurious from the non-injurious gases to such an extent as to minimize the harmful effects in breathing the same, not only in a garage but on the public thoroughfares, etc.

Referring to the accompanying drawings Fig. 1 illustrates in side elevation partly in longitudinal section, with parts broken away, a suitable form of device, embodying an application of my invention. Fig. 2 is a plan view of one of the interior parts, and Fig. 3 is a similar view to Fig. 1, illustrating the top portion thereof.

4 indicates a base casting or housing into which the exhaust inlet pipe 5 and outlet pipe 6 to the muffler may be secured, as shown. This housing 4 is provided with a hole which is threaded to screw over the plug 7 which may be provided with a lock-nut if desired, the pipe 6 passing through the left side of the housing 4 and registering with an opening through the plug structure 7 which has an internal chamber 8 and upwardly extending passage 9 as shown. Extending laterally is a circular plate 10, shown to advantage in Fig. 2. This plate has peripheral segments or sections 11 providing openings or cutaway portions 12 therebetween and is secured above

the housing 4 which is also circular at the top as indicated at 4', and which is provided with a gasket 13 secured between the periphery of same and the base 15 of the pyramid-like super structure 16, same being secured at points around the periphery by any suitable means such as the bolts 17.

Within the outer pyramid 16 is secured an inner pyramid 17' slightly smaller to provide spaces 18 between the same in the form of a zigzag passage, as shown. At each step through the inner pyramid 17' are provided openings 19, giving passage to an internal chamber 20 within the inner pyramid and this inner pyramid may be secured to the plug and plate structure 7 by any suitable means such as the screws 21.

Upon the center of the plate-like structure 10 a circular V structure 22, 23 is provided and preferably rests upon a circular plate 20 or ring 24 and is provided with holes or ports 26. Around the top of this structure may be secured an inverted cone-like deflector structure 27 preferably closed at the top as indicated at 28 and provided with a depending tubular structure 29 perforated as indicated at 30. The top of the inner pyramid structure is also preferably provided with a cup-like receptacle 31 and upon the outside of the outer pyramid structure is preferably secured a housing 32, threaded, to engage the same as shown. Referring now more particularly to Fig. 3 a housing 33 is provided and the base portion 32 thereof is secured upon the outer pyramid as stated, the interior of the housing 33 being threaded at the base as indicated at 34 to receive the dome screen 35, said housing terminating in a tubular outlet 36 at the left.

From the foregoing it will be readily understood that the exhaust gases enter from right to left through the tube 5, strike against the inner plug-like portion 7, passing upwardly through the passage 37 to the lateral passage 38 where they travel upwardly through the zigzag passage 18, some of them being thrown down at each step on the way up, the solid particles dropping down through the openings 19 into the chamber 20 where they strike the cone-like deflector

structure 27, again falling downwardly and escaping beneath the cone through the openings 26, and from there travel upwardly out of the chamber 22 beneath the deflector structure 27 or through the perforations 30, in either case finally dropping down through the passage 9 into chamber 8 and leftwardly through the outlet 6 to the muffler. The lighter gases and particles will continue upwardly through the entire zigzag passage 18, striking or passing through the screen 35, the particles depositing in the cup-like chamber 31 where they may be removed when the housing shown in Fig. 3 is removed. In the meantime, the lighter gases, having combustible properties pass off through the outlet 36 to the carburetor for reuse in the engine.

It has been found that the harmful gases are for the most part the combustible gases which can be reused by carburetion in the engine, whereas the unharmed products, consisting largely of carbon particles and other foreign matter, are baffled back and down into the passage 8 from which they escape through the muffler, and it has been found that an exhaust line so equipped substantially eliminates the discharge of the more poisonous gases heretofore endangering life and property where such exhaust is discharged.

It will, of course, be understood that a separator substantially of the principle described, is susceptible of use for separating gases and exhaust or the like, otherwise than in connection with the exhaust of an internal combustion engine. In fact, various modifications may be made in the construction and arrangement of parts without departing from the spirit of invention as claimed.

I claim:

1. In a device of the class described, a pair of hollow pyramid-like structures, providing a zigzag passage between the same, an inlet for gas thereto, and outlets from the lower portions of said zigzag passage, a chamber within the pyramid like structures, a deflector in said chamber, and a passage through said chamber to an outlet.

2. In a device of the class described, a pair of hollow pyramid-like structures, providing a zigzag passage between the same, an inlet for gas thereto, and outlets from the lower portions of said zigzag passage, a chamber within the pyramid like structures, a deflector in said chamber, and a passage through said chamber to an outlet, said deflector having interior baffle structures, and means for connecting said device to a muffler.

3. In a device of the class described, the combination of an outer and an inner pyramid like structure providing a zigzag passage between them, an inlet for gas to said passage and outlets from the lower portions of said zigzag passage, a chamber within the pyra-

mid like structures, a deflector in said chamber, a passage through said chamber to an outlet, a baffle structure within said deflector, means for connecting said device to a muffler, a cup like receptacle formed at the upper end of said inner pyramid like structure, a housing connected to the upper end of the outer pyramid like structure, an outlet for said housing and a dome screen within said housing positioned over said cup like receptacle.

4. In a device of the class described the combination of an outer and an inner pyramid like structure providing a zigzag passage between them, an inlet for gas to said passage and outlets from the lower portions of said zigzag passage, a chamber within the pyramid like structures, a deflector in said chamber, a passage through said chamber to an outlet, a baffle structure within said deflector, means for connecting said device to a muffler, a cup-like receptacle formed at the upper end of said inner pyramid like structure, a housing connected to the upper end of the outer pyramid like structure, an outlet for said housing to conduct gases to the carburetor for reuse of the engine with which said device is used, and a dome screen within said housing positioned over said cup like receptacle.

In testimony whereof I hereunto affix my signature.

JULIUS GOLDSTEIN.