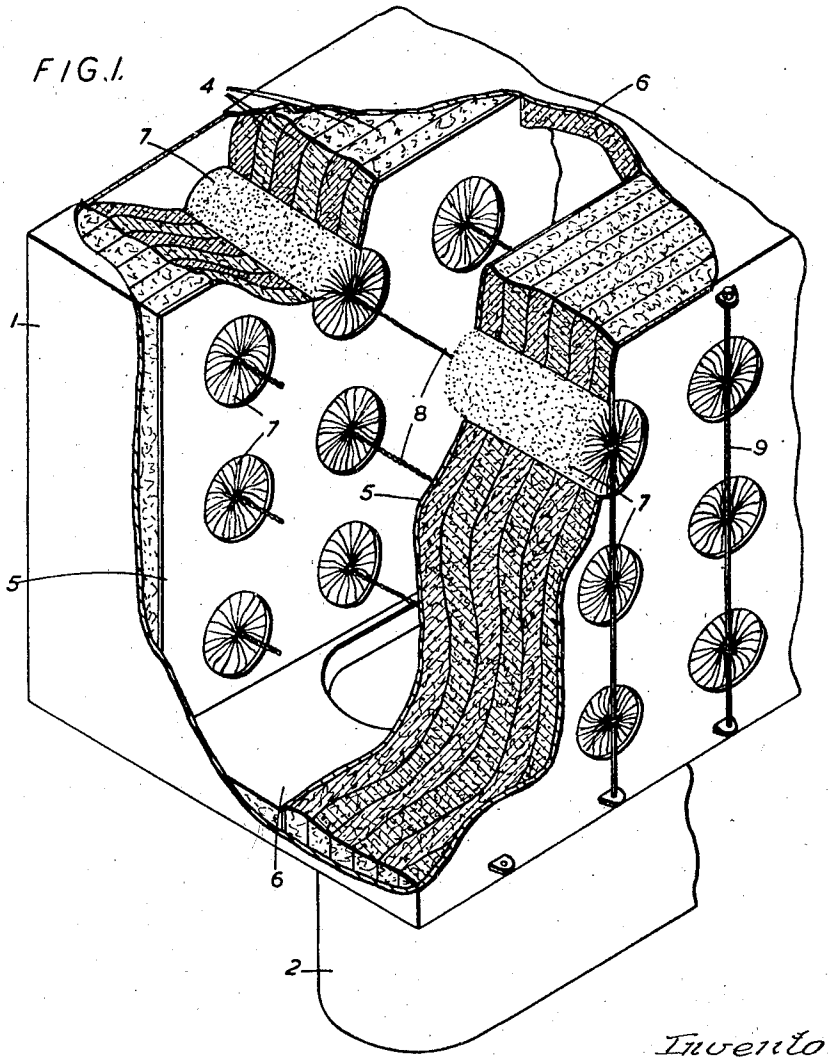
March 27, 1945. C. G. VOKES 2,372,618

COMBINED AIR FILTER AND SILENCER

Filed Jan. 3, 1944 2 Sheets-Sheet 1

FIG. 1.



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FIG. 3.

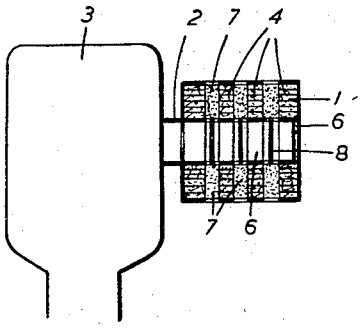
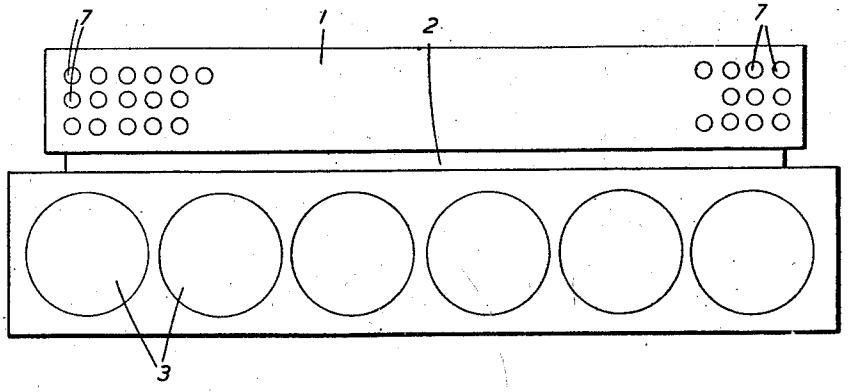


FIG. 2.



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UNITED STATES PATENT OFFICE

2,372,618

COMBINED AIR FILTER AND SILENCER

Cecil Gordon Vokes, London, England

Application January 3, 1944, Serial No. 516,814
In Great Britain December 28, 1942

3 Claims. (Cl. 183—44)

This invention relates to combined filters and silencers, more especially designed for air intake of internal combustion engines or compressors. It lends itself to a particularly neat and effective filter and silencer for multi-cylinder Diesel and like engines in which outside air is drawn into the cylinders.

In arrangements according to the invention (as applied to air intakes) the air is drawn in through passages formed in substantial thicknesses of sound-absorbing material and filled with easily removable and replaceable filtering material into a space of which the walls are of sound deadening or absorbing nature and from which the outlet leads. In preferred forms, the passages are formed in two opposite walls, which may be parallel, and the outlet is, broadly speaking, perpendicular to the flow of the air into the space from which it leads. In some cases it may be convenient to carry the plugs or lengths of filtering material disposed in passages in two opposite walls on a common stem or to mount a number of them or of such stems on a common backing or finger grip, so that they can be simultaneously withdrawn and replaced. The material can be of the nature of tufts of wire or bristle or the like radiating from a stem; or a coil or roll of suitable woven or spun or crinkled or twisted metallic or textile or animal filaments or asbestos or mixed materials like decorative tinsel; or a foraminated container filled with such materials or any other appropriate material according to the nature and degree of filtration and silence required, the idea being to use something of the nature of a plug of looser more permeable material in each passage through the felt or other sound absorbing thickness.

Other parts of the invention are embodied in the typical form shown by the accompanying drawings, the parts for which a monopoly is desired being those delimited by the claims.

Referring to the drawings:

Fig. 1 is a fragmentary isometric view cut away to show the interior construction.

Fig. 2 is a diagrammatic plan view drawn to a small scale showing the invention applied to a multi-cylinder engine, and

Fig. 3 is a fragmentary end elevation of the same with the filter-silencer portion in section.

An elongated casing 1 of rectangular cross-section has an elongated opening 2 along one side designed to fit over the air intakes to a number of in-line cylinders 3 of a Diesel engine. The top and bottom walls are both lined with a number of layers 4 of felt retained by an inner wall 5 and a number of holes are formed right through these walls and the felt filling. The side and end walls can be lined with felt as indicated at 6. The filtering plugs 7 can be mounted in pairs on a common stem 8 so that all can be inserted from the top, where simple retaining rods 9 may be used to keep them in position. In other forms as will be obvious without illustration, the holes in the opposite walls can be staggered or there could be holes and plugs in one flat wall only. It will be understood that the only access to the casing when the apparatus is assembled and fitted is through the filtering plugs.

I claim:

1. A combined filter and silencer having a casing with substantially flat walls and formed with an outlet, sound absorbing material lining the walls in substantial thickness, said material being formed with a plurality of passages extending therethrough with the passages alined through the material on opposite sides of the casing, readily replaceable plugs of filtering material filling the said passages, and common stems carrying the plugs in the alined passages.

2. A combined filter and silencer including a casing having substantially flat walls and formed with an outlet, multiple thicknesses of sounding material lining the said walls, said material being formed with a plurality of passages extending therethrough and alined with openings in the walls, and plugs of filtering material filling said passages in the material and readily removable and replaceable through the openings in the said walls, the said walls being alined at opposite sides of the casing and the outlet being arranged transverse to said walls.

3. A combined filter and silencer as described in claim 2 wherein the outlet is elongated to simultaneously cooperate with a number of cylinder intakes.

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