

Feb. 5, 1929.

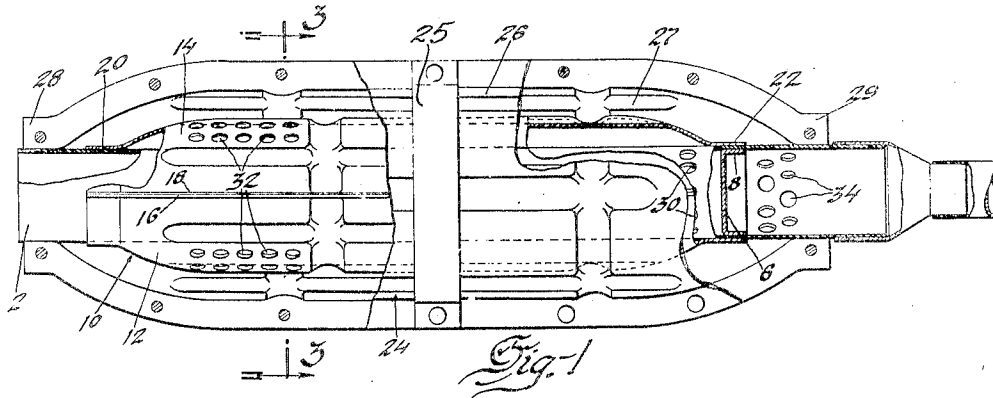
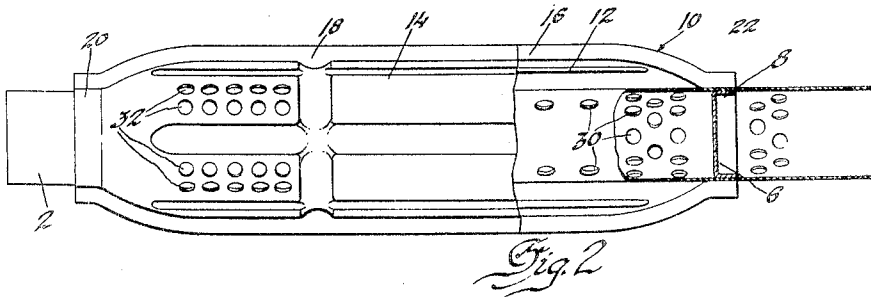
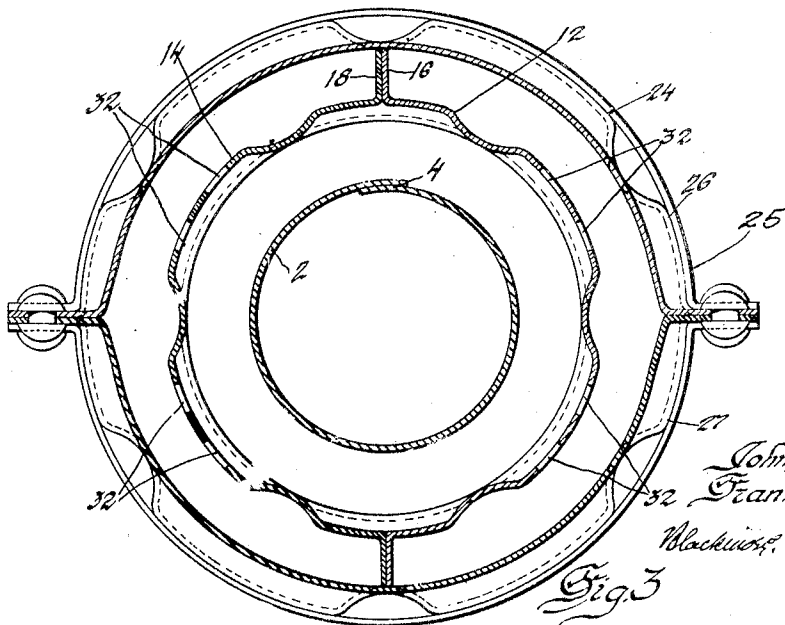
J. T. TRUMBLE ET AL

1,701,397

MUFFLER

Filed Sept. 16, 1925

2 Sheets-Sheet 1



Inventors
John S. Trumble &
Frank U. Winchester
Blackhawk, Wis. Attorneys

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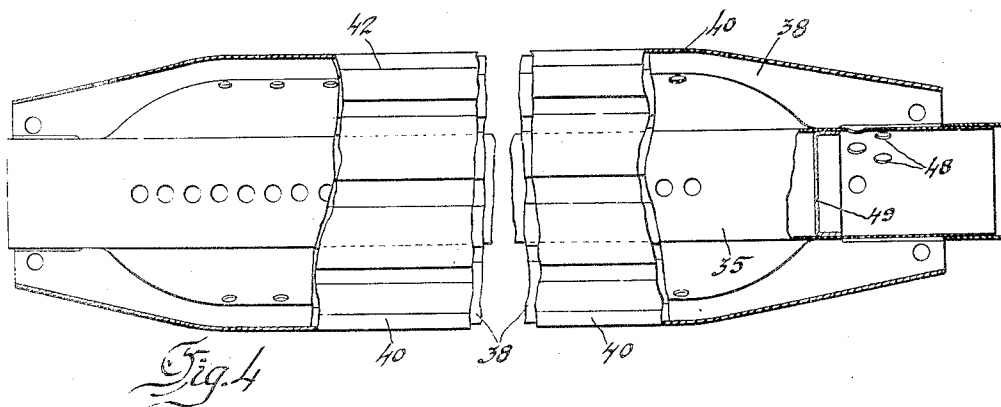
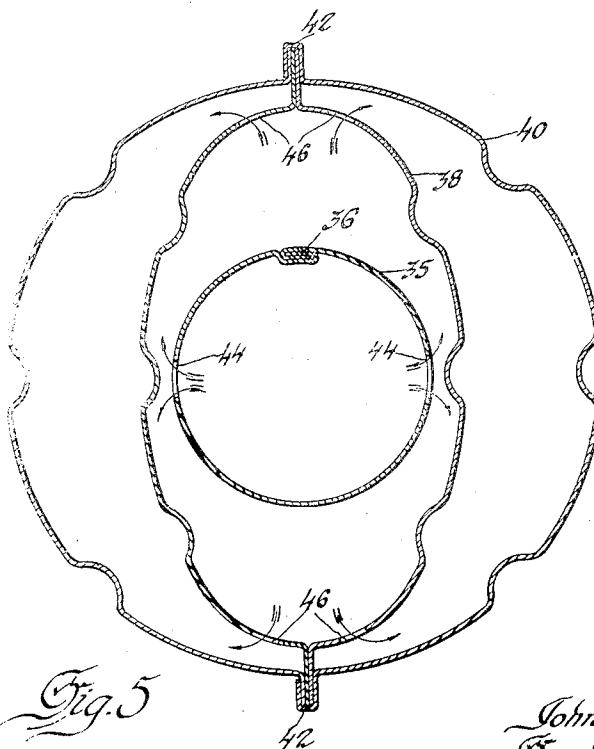
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2 Sheets-Sheet 2



Inventors
John S. Grumble &
Frank W. Winchester

By Blackman, Spencer & Flint

Attorneys

UNITED STATES PATENT OFFICE.

JOHN T. TRUMBLE AND FRANK U. WINCHESTER, OF LANSING, MICHIGAN; SAID TRUMBLE ASSIGNOR TO GENERAL MOTORS CORPORATION, OF DETROIT, MICHIGAN, A CORPORATION OF DELAWARE.

MUFFLER.

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This invention relates to mufflers and it is the object of the invention to provide an effective muffler which can be cheaply made out of sheet metal and easily assembled but will nevertheless have embodied in it such features of construction as to enable it to give satisfactory service throughout the life of the car.

In detail, we have provided a muffler comprising a tubular member, preferably in the form of a sheet metal pipe, in which is provided the customary partition; surrounding this we have provided an inner shell member composed of two longitudinal sections secured together at their edges and having reduced ends to enable it to snugly embrace the tubular member to which it is either riveted or welded; surrounding the inner shell member and preferably spaced from it is the outer shell member likewise made of two longitudinal sections and having its ends also reduced and secured to the tubular member. The end of the inner shell member remote from the engine embraces the tubular member and is secured to it at the point where the partition is located, while the corresponding end of the outer shell member embraces and is secured to the tubular member on the side of the partition remote from the engine. The muffler so constructed is apertured in a manner to be later described so as to provide a tortuous path for the exhaust gases.

Referring now to the drawings which show two different forms which our invention may assume:

Figure 1 is a plan view of our improved muffler with parts of the outer shell member shown broken away;

Figure 2 is a plan view of our muffler with the outer shell member removed and the inner shell member shown partly broken away;

Figure 3 is a section on line 3—3 of Figure 1; and

Figures 4 and 5 are views corresponding to Figures 1 and 3 and showing the modified form of our invention.

Our muffler comprises a tubular member 2, formed from a strip of sheet metal. Within this tubular member and preferably toward the end thereof remote from the engine is located a partition 6 constituted by a disk of sheet metal having an annular flange 8 closely fitting the interior of the tubular member. Surrounding the tubular member is the in-

ner shell member 10 composed of longitudinal sections 12 and 14, preferably counterparts, having outwardly extending flanges 16 and 18 respectively, which are adapted to be secured together as by riveting or welding. The ends of the inner shell member 10 are preferably reduced as shown at 20 and 22 in order that they may snugly embrace the tubular member and may be securely fastened thereto. It will be noted that the part 22 encircles the tubular member at the point where the partition 8 is located so that this part may be secured to the tubular member 2 and the flange 8 of the partition 6 by one riveting or welding operation if desired.

The inner shell member 10 is surrounded by the outer shell member 24 which is of substantially the same construction as the member 10; that is, it is composed of counterpart longitudinal sections 26 and 27 having outwardly extending flanges which are secured together in any suitable manner, the sections having their ends reduced at 28 and 29 to snugly embrace the tubular member to which they are secured. In this embodiment in the assembled muffler the flanges of the inner shell member are spaced 90° from the flanges of the outer shell member. It is to be noted that the end 29 of the outer shell member embraces the tubular member on the side of the partition remote from the engine. Both the inner shell member 10 and the outer shell member 24 are preferably ribbed transversely and longitudinally for the purpose of strengthening them. A pair of semi-circular bands or straps 25—25 may be provided to reinforce the outer shell member 24, each band having outwardly disposed flanges for attachment by riveting or otherwise, to the abutting flanges of the sections 26 and 27.

In the operation of the muffler the exhaust gases pass through the tubular member from the left, strike the partition 6 and are deflected through the apertures 30 formed therein, whereupon they are redirected in the opposite direction and traverse the length of the inner shell member 10 passing out through apertures 32 into the interior of the outer shell member 24 where they are again redirected and finally pass out through the apertures 34 on the far side of the partition 6 into the tubular member whence they escape into the atmosphere.

In the form shown in Figures 4 and 5, 35

is the tubular member the meeting edges of which are preferably interlocked as at 36. Surrounding the tubular member are the inner and outer shell members 38 and 40, respectively, corresponding generally to the inner and outer shell members 10 and 24 of the preferred form of our invention. In this form the flanges of the inner and outer shell members are arranged in overlapping relation, the flanges of one of the sections of the outer shell member preferably being wider than the flanges of the other members so that they may be turned over as at 42 to hold the sections in assembled relation.

It will also be noted that the inner shell member 38 is of elliptical formation. The purpose of this change is to permit a different arrangement of passages for the exhaust gases. Thus the exhaust gases entering the tubular member 35 are afforded outward passage through the apertures 44 in the tubular member, these passages being arranged in longitudinal alinement opposite the nearest portions of the member 38. The gases passing through these passages then find their way to the portions of the member 38 farther removed from the tubular member 35 where they are discharged through passages 46 into the interior of the outer shell member 40. They are discharged from the interior of this member into the interior of the tubular member 35 through apertures 48 in the latter on the far side of the partition 49.

While we have shown and described several illustrative embodiments of our invention, it is not our intention to limit its scope to those particular embodiments, or otherwise than by the terms of the appended claims.

What we claim is:

1. A sheet metal muffler comprising an outer shell member composed of longitudinal sections secured together at their edges, an inner shell member composed of longitudinal sections secured together at their edges and located entirely within the outer shell member, said members being apertured for the passage of exhaust gases from the interior of one shell member to the interior of the other shell member, and a tubular member passing through the inner shell member and the outer shell member and to which each of said members is independently secured one beyond the other, and means for establishing independent communication between said tubular member and each of said shell members.

2. A sheet metal muffler comprising an outer shell member composed of longitudinal sections secured together at their edges, an inner shell member composed of longitudinal sections secured together at their edges and located entirely within the outer shell member, said members being apertured for the passage of exhaust gases from the interior of one shell member to the interior of the other shell member, and a tubular member passing through the inner shell member and the outer shell member and to which each of said members is independently secured one beyond the other, said tubular member having a partition arranged therein and having independent communication with said shell members on opposite sides of said partition.

3. In a sheet metal muffler, the combination of a tubular member having a partition therein, an inner shell member surrounding said tubular member and having its ends reduced for snug engagement with said tubular member, one of said reduced ends engaging said member at the partition, and means for securing said members in assembled relation, said members being apertured for the passage of exhaust gas, and an outer shell member surrounding said inner shell member and having its ends reduced for snug engagement with said tubular member beyond the ends of the inner shell, and means for establishing communication between the interior of said outer shell member and the interior of said tubular member.

4. A sheet metal muffler including a tubular member having a partition therein, a pair of semi-cylindrical longitudinal sections secured together at adjacent edges to form a shell surrounding said tubular member and having its ends reduced for snug engagement with said tubular member, one of said reduced ends engaging the tubular member at said partition, and a pair of semi-cylindrical longitudinal sections of greater extent than the first mentioned sections, secured together at adjacent edges to form a second shell completely enclosing the first mentioned shell and surrounding the tubular member, and having its ends reduced for snug engagement with said tubular member beyond the ends of the first mentioned shell.

In testimony whereof we affix our signatures.

FRANK U. WINCHESTER.
JOHN T. TRUMBLE.