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(54) DISCHARGE EXHAUST MUFFLER TIP FOR VEHICLE ENGINES

AUSPUFFSCHALLDÄMPFERSPITZE FÜR FAHRZEUGMOTOREN

EXTREMITE DE SILENCIEUX D'ECHAPPEMENT DE DECHARGE POUR MOTEURS DE VEHICULE

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Description

Field of the Invention

[0001] This invention concerns a terminal tip for exhaust mufflers for vehicle engines.

Prior Art

[0002] There are already some well known tubular tips, also made of stainless steel, which are applied in series, or in addition as an accessory, to the exhaust of vehicles on the side of the muffler discharge. So as they have been produced up to now, said tips can have different shaped cross sections, cylindrical, elliptical, etc. and a discharge end at right angles or sloping with respect to the longitudinal axis.

[0003] They are mostly made up of a tubular element forming a single wall and with the discharge end the edges of which are turned inwards forming a simple rim.

[0004] This shape however appears to be detrimental in that the rim of the tip narrows the passage formed by the tip and as such forms a barrier which tends to block and make the particles deposit on the inner surface causing it to blacken.

[0005] In truth, tips for the same purpose as the ones taken into consideration in this invention have been made with a double internal and external wall but made up of several elements requiring welding operations to assemble them together which in the end make them relatively complex and expansive.

[0006] *The documents* DE 102 33 498 A1 *and* DE 101 435 C1 *are representative of the prior art, which however disclose a discharge tip for mufflers formed of an internal wall and an external wall, but wherein these walls are not joined together at their rear extremities also, so that they define a chamber that is open towards the muffler.*

Obiect of the Invention

[0007] It is instead one objective of this invention to propose and provide a stainless steel tip for discharge exhaust mufflers for internal combustion engines of vehicles without the drawbacks and disadvantages of the known technique, made essentially of one piece, not subject to particles depositing inside it and having at the same time a double wall.

[0008] This objective is achieved with a tip for discharge mufflers *as recited in claim 1*.

Brief Description of the Drawings

[0009] More details of the invention will become more evident in the continuation of this description made in reference to the enclosed indicative drawings. In said drawings:

Fig. 1 shows a first shape of a tip of the invention seen from one side with a part in a longitudinal section; and

Fig. 2 shows a similar view of a non inventive shaped tip; and

Fig. 3 shows again a similar view of another shape of the tip.

Detailed Description of the Invention

[0010] As shown, the tip proposed is made up essentially of a tubular piece 11 which can be made of stainless steel. The tubular piece 11 is forged, drawn and re-bent so as to form a terminal body with an external wall 12 and an internal wall 13 in continuation one with the other. The external walls 12 and Internal 13 form between them a chamber or hollow space 14, and for its part the internal wall 11 forms a central longitudinal passage 15 that extends from a proximal end with an inlet 16 to a distal end with an outlet 17.

[0011] In the shape shown in Fig. 1 the two external and internal walls 12, 13 at the distal end with the output 17 of the central passage, the two external and internal walls 12, 13 are joined by a fitting area 18, whereas the proximal end with the input 16 of the central passage 15, the external and internal walls 12, 13 converge and overlap closely for the final length 19. Some radial holes 20 can be drilled in this length.

[0012] Also in the shape shown in Fig. 2 which is useful for understanding the invention, the two external and internal walls 12, 13 are joined by a fitting area 18 on the output part 17 of the central passage 15; on the opposite part however, the external wall terminates 12 with a peripheral flange 21.

[0013] Also in the shape shown in Fig. 3, the two external and Internal walls, 12, 13 join by means of a fitting area 18 on the output side 17 of the central passage 15; on the opposite part however, the external wall 12 is joined and fixed to the internal wall 13 by means of an inserted flange 22 that can be pressure assembled and fixed by welding.

[0014] The sizes of the tips can be chosen as required.

[0015] Its cross section can be cylindrical, elliptical or another shape as required.

[0016] The end part of the tip on the output side 17, can be square or sloping, as shown by dotted lines, with respect to the axes of the passage 15, and if required flared as shown in Fig. 3.

[0017] When placed in position, the tip is joined and fixed to the muffler outlet of an engine for vehicles.

[0018] Anchoring can be carried out either by using screws - not shown - screwed into the radial holes 20 or by welding according to needs.

[0019] In any case, the tip in one piece is simple and easy to produce, without the need for inserted and welded elements.

[0020] Furthermore it has an outlet passage which is smooth and continuous and the external part isolated to a certain extent from the internal wall by the intermediate

chamber.

Claims

1. Discharge tip for mufflers of vehicle engines, comprising a body substantially in one piece of stainless steel, providing an external wall (12) and an internal wall (13) without discontinuity between them and defining a longitudinal central passage (15) which extends from an inlet (16) to an outlet (17) ends, **characterized in that**
the external and internal walls (12, 13) of said body are joined together both at the inlet end (16) and through a fitting area (18) at the outlet end (17) to form between them a closed annular chamber or hollow space (14).

2. Discharge tip for mufflers according to claim 1, in which on the input side (16) of the longitudinal passage (15) the external and internal walls (12, 13) converge and overlap for a length (19), said length being provided with radial holes to receive anchoring screws.

3. Discharge tip for mufflers according to claim 1, in which on the input part (16) of the longitudinal passage (15) the external and internal walls (12. 13) are joined by means of an inserted flange (22) preferably assembled using pressure.

4. Discharge tip for mufflers according to any one of the preceding claims, in which said body can have a section of any cylindrical, elliptical or similar shape and the longitudinal passage outlet end can be square or sloping with respect to the axis of the passage.

5. A process to manufacture a discharge tip for mufflers comprising the steps of
providing a tubular member of a length,
bending one portion of the tubular member inside the remaining portion thereof so as to form a body having an external wall and an Internal wall in continuation one with the other whereby the external walls and internal form between them a chamber or hollow space, and the internal wall forms a central longitudinal passage that extends from a proximal end with an inlet to a distal end with an outlet of the body, and
fixing the external wall to the internal wall at the proximal end with the inlet of the longitudinal passage in the body to close said chamber or hollow space.

Patentansprüche

1. Auspuffschalldämpferspitze für Fahrzeugmotoren mit einem Korpus, der im Wesentlichen aus einem einzigen Stück rostfreien Stahls besteht, aus dem eine Außenwand (12) sowie eine Innenwand (13) gebildet werden, die durchlaufend sind und ein längsgerichtetes zentrales Rohr (15) von der Eintrittsstelle (16) zur Austrittsstelle (17) mit der Besonderheit formen, **dadurch gekennzeichnet, dass** sowohl die Außen- als auch die Innenwand (12, 13) des genannten Korpus durch einen Anschlussbereich (18) mit der Eintrittsstelle (16) und der Austrittsstelle (17) verbunden sind und zusammen eine geschlossene ringförmige Kammer oder Aussparung (14) bilden.

2. Auspuffschalldämpferspitze nach Anspruch 1, wobei der an der Eintrittsseite (16) des längsgerichteten Rohrs (15) die Außen- und Innenwand (12, 13) zusammenlaufen und sich ein Stück überlagern (19). Dieser Abschnitt ist mit radialen Öffnungen für Befestigungsschrauben versehen.

3. Auspuffschalldämpferspitze nach Anspruch 1, wobei der an der Eintrittsseite (16) des längsgerichteten Rohrs (15) die Außen- und Innenwand (12, 13) durch einen eingesetzten, vorzugsweise eingepressten Flansch verbunden werden.

4. Auspuffschalldämpferspitze nach allen vorgenannten Ansprüchen, wobei der der genannte Korpus einen zylindrischen, elliptischen oder ähnlichen Querschnitt aufweisen kann und die Austrittsstelle des längsgerichteten Rohrs orthogonal bzw. schräg zur Rohrachse ausgerichtet ist.

5. Methode zur Herstellung einer Auspuffschalldämpferspitze:

zunächst wird ein Rohrteil in bestimmter Länge bereitgestellt.
danach wird ein Stück dieses Rohrteils über das andere Stück gebogen, so dass ein Korpus mit einer Außen- und einer Innenwand entsteht, die durchgehend sind und somit zusammen eine Kammer oder Aussparung bilden. Die Innenwand bildet ein längsgerichtetes zentrales Rohr, das von einer proximalen Eintrittsstelle bis zu einer distalen Austrittsstelle des Korpus reicht, und
zuletzt wird die Außenwand an der Innenwand befestigt, und zwar an der proximalen Eintrittsstelle des längsgerichteten Rohrs in den Korpus, um die genannte Kammer oder Aussparung zu schließen.

Revendications

1. Extrémité de silencieux d'échappement de décharge

pour véhicules motorisés, comprenant un corps composé essentiellement d'une seule pièce en acier inoxydable délimitant une paroi extérieure (12) et une paroi intérieure (13) sans interruption entre elles et circonscrivant un conduit central longitudinal (15) qui s'étend d'une extrémité d'entrée (16) à une extrémité de sortie (17), **caractérisé en ce que** les parois extérieure et intérieure (12, 13) dudit corps sont reliées entre elles à l'extrémité d'entrée (16) et à l'extrémité de sortie (17) par une zone de raccord (18), formant entre elles une chambre ou espace (14) annulaire fermée.

2. Extrémité de silencieux d'échappement selon la revendication 1, en ce que, du côté de l'entrée (16) du conduit longitudinal (15), les parois extérieure et intérieure (12, 13) convergent et se superposent pendant un tronçon (19), ledit tronçon est pourvu de trous radiaux pour y loger des vis de fixation.

3. Extrémité de silencieux d'échappement selon la revendication 1, en ce que, du côté de l'entrée (16) du conduit longitudinal (15), les parois extérieure et intérieure (12, 13) sont unies par l'intermédiaire d'une bride intégrée (22), de préférence montée sous pression.

4. Extrémité de silencieux d'échappement selon l'une des revendications précédentes, en ce que ledit corps peut avoir une section d'une quelconque forme cylindrique, elliptique ou similaire et en ce que l'extrémité de sortie du conduit longitudinal peut être orthogonale ou inclinée par rapport à l'axe du conduit.

5. Méthode de production d'une extrémité de silencieux d'échappement, comprenant les étapes de :

fourniture d'un élément tubulaire de longueur appropriée,
pliage d'une portion de l'élément tubulaire sur la portion restante de manière à former un corps ayant une paroi extérieure et une paroi intérieure sans interruption entre elles, de façon à ce que les parois extérieure et intérieure forment entre elles une chambre ou espace, et que la paroi intérieure forme un conduit longitudinal central s'étendant d'une extrémité proximale d'entrée à une extrémité distale de sortie du corps, et
fixation de la paroi extérieure à la paroi intérieure à l'extrémité proximale d'entrée du conduit longitudinal dans le corps pour fermer ladite chambre ou lame d'air.

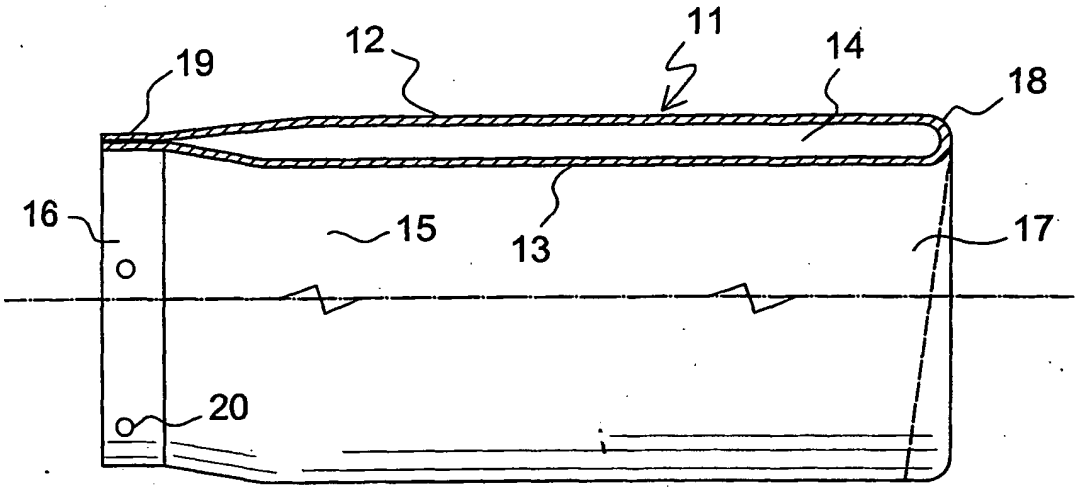

FIG. 1

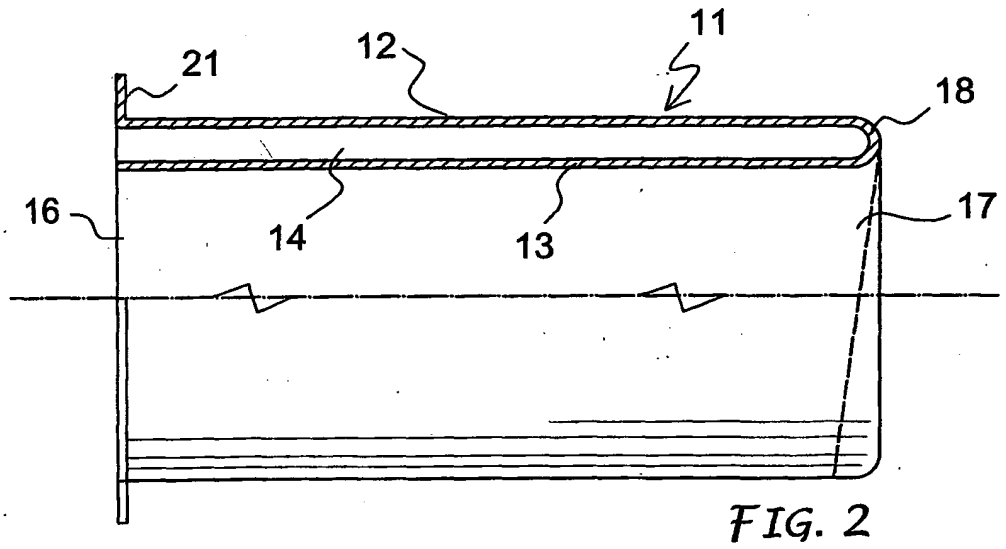

FIG. 2

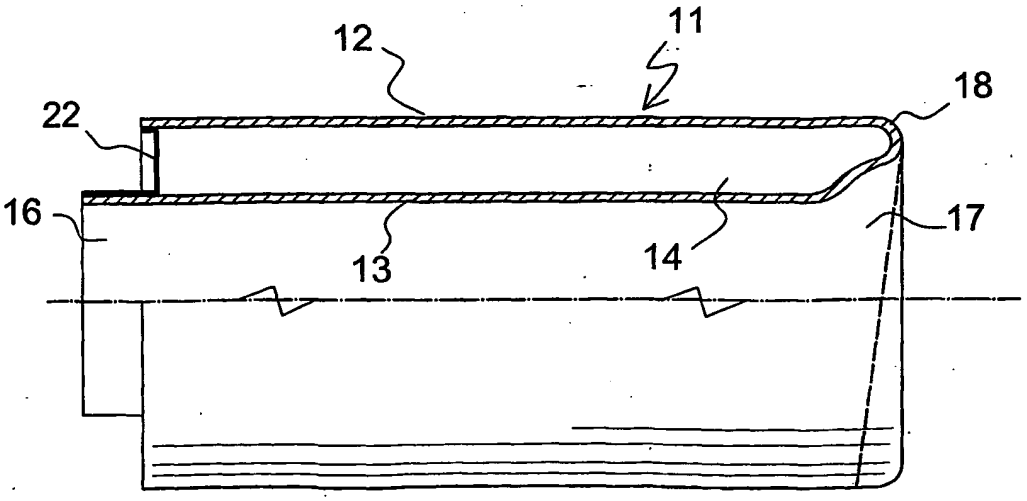

FIG. 3

REFERENCES CITED IN THE DESCRIPTION

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