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(71) Applicant: **Liccese, Domenico**  
**75016 Pomarico (MT) (IT)**

(72) Inventor: **Liccese, Domenico**  
**75016 Pomarico (MT) (IT)**

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(54) **Device for energetic recovery on gas fed motors**

(57) Energy recovering device on gas fed engines characterised by being constituted of a cylindrical element 1 which external circular dimension 1 must coin-

cide with the vehicle discharge duct's internal dimension 7 while the cylindrical element internal dimension 2 is calibrated according to the engine type.

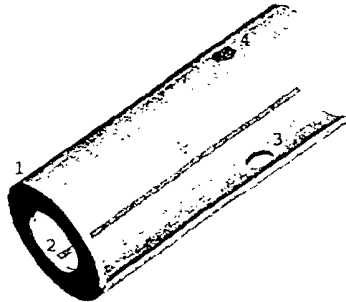


Fig. 1

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**Description**

of the vehicle where the device, object of present invention, must be inserted.

**Technical field**

**[0001]** The energy recovering system on gas fed engines, object of invention, is applied to internal combustion engines, projected for gasoline operation, with subsequent gas fed systems installation.

**State of the art**

**[0002]** The basic concept of the device operation is the variation of determined engine parameters in order to adjust it to the characteristics of the new fuel for which the engine has not been projected. In past, the fuel consumption decreasing devices have been studied for internal combustion engines. Its major part work on feeding and the result is both consumption and power reduction. The invention aims to overwhelm the difficulties and disadvantages of actual devices in commerce.

**[0003]** The main aim of the present invention is to construct an energy recovering device on gas fed engines characterised by being constituted of a cylindrical element, which external circular dimension must coincide with the vehicle discharge duct's internal dimension while the cylindrical element internal dimension is calibrated according to the engine type.

**[0004]** Other characteristics of the invention are:

- a not threaded hole is done on the discharge duct while a threaded one is applied to the piece;
- a quarry on the face adjacent to the threaded hole is present;
- a small cone-form thorn on the external piece surface is realised;
- a screw is inserted into the threaded and not threaded hole;
- the fixation is guaranteed on one side by the screw and on the other side by the discharge duct deformation, where the small cone is fixed

**[0005]** Other characteristics and advantages of the invention will be clear from the following description of different invention realisation modes and from the figures 1, 2, 3 and 4 of the invention exposed consecutively. The description is not limitative.

**Brief description****[0006]**

The figure 1 represents the axonometric view of the device, object of present invention;  
The figure 2 represents the fixing screw of the device, object of present invention;  
The figure 3 is another axonometric view of the device, object of present invention;  
The figure 4 represents one view of discharge duct

**Detailed invention description**

**[0007]** The device application, as showed below, produces two main effects which lead to consumption reduction, engine performance increasing and reduction of polluting emissions. These effects are the increasing load of the discharge duct and a smaller emptying of the cylinder. This latter aspect is characterised by the following phenomena: the unburnt gases, thanks to the different density from the burnt ones, decrease their leakage outside of the combustion chamber, which decreases the gas mixture input and increases the performance in the following blast phase, thanks to the energetic gradient apported by the not discharged fluids.

**[0008]** The element 1 (figure 1) is applied in the discharge duct 7 (figure 4). Obviously, the point of application is determined by the type of engine; the external circular dimension 1 of the element (figure 1) and the internal dimension of the discharge duct 7 (figure 4) coincide, while the internal dimension 2 of the element 1 must be calibrated according to the engine type. The device should be applied making a hole on the discharge duct 7 (fig.4) in order to insert a threaded screw 6 in the hole 3 of the threaded piece in fig.1. After that, the screw must be spinned up to the quarry 5 situated on the face adjacent to the threaded hole 3, and locked up in order to fix the piece with the internal part of the duct 7 (fig. 4) by means of thorn 4 (a small cone on the external surface of piece 1). This thorn, by the pressure of the screw 6, deforms both the internal surface of the duct 7 making a fixation and the screw itself, so the fixation is guaranteed on one side by the screw 6 and on the other side by the deformation of the duct (fig.4) where the small cone remains fixed. The thorn is not mobile but fixed. The hole on the duct (not showed on the figure) is not threaded, while the hole 3 is threaded. Actually, the slightly closed fins allow the piece insertion into the discharging duct, making coincide the external duct and internal piece circumferences. After, spinning the screw head in the hole 3, already inserted in the duct hole, boosts the quarry 5 and the thorn 3 slightly deforming the duct and fixing the piece. In such a way the thorn fin makes adhesion with the duct walls in for not create the turbulence and the thorn width deforming the duct does not interfer.

**[0009]** The invention is not restricted only to the representation of the figures, but can be improved and changed by the technicians, remaining in the frame of the patent. This invention allows to achieve numerous advantages and to overwhelm the difficulties that the actual systems in commerce present.

**Claims**

1. Energy recovering device on gas fed engines **characterised by** being constituted of a cylindrical element 1 which external circular dimension 1 must coincide with the vehicle discharge duct's internal dimension 7 while the cylindrical element internal dimension 2 is calibrated according to the engine type.  
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2. Energy recovering device on gas fed engines according to the claim 1 **characterised by** the fact that a not threaded hole is done on the discharge duct 7 while a threaded one 3 is applied to the cylindrical element 1, that a quarry 5 on the face adjacent to the threaded hole 3 is present; that a small cone-form thorn 4 on the external surface of the cylindrical element 1 is realised; that a screw 6 is inserted into the threaded hole 3 of the cylindrical element 1, that the fixation is guaranteed on one side by the screw 6 and on the other side by the discharge duct 7 deformation, where the small cone 4 is fixed.  
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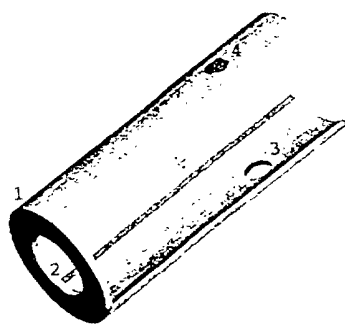


Fig. 1

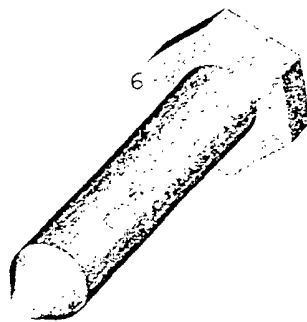


Fig. 2

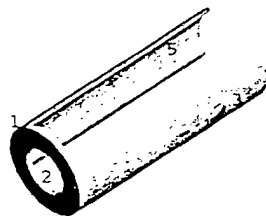


Fig. 3

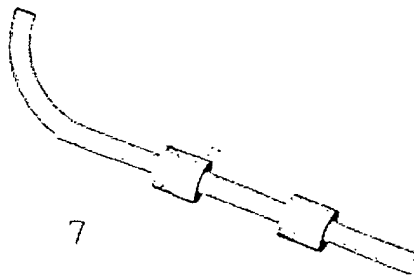


Fig. 4