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(54) **Connecting system for the lubrication oil aspiration conduit of an internal combustion engine**

(57) Connecting system for the aspiration conduit (8) of the lubrication oil from the sump (2) of an internal combustion engine, said conduit (8) includes a connection flange (10) at one end, for connection to a conduit obtained from the wall (6) of said sump, the other end being equipped with an aspiration conduit end section located in the proximity of the bottom of said sump,

where said aspiration conduit end (16) section presents a threaded nut (17) corresponding to the outlet slot of said sump, in order that the threaded shank of the bolt (20), covering the said outlet slot (19), may be screwed in said slot.

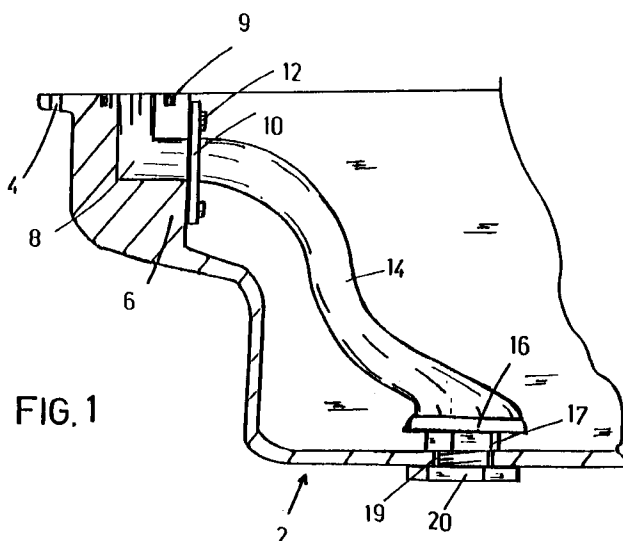


FIG. 1

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Description

This invention relates to a connecting system for an aspiration conduit of lubrication oil from the sump of an internal combustion engine.

In engines of the known type, the pump for oil circulation is connected to the conduit that includes an aspiration conduit end section on one end, located in the lower section of the sump containing engine oil, almost in contact with the bottom.

In this type of configuration, the aspiration conduit is located in such a way that it has to be maintained at a precise distance from the bottom. A point inside the sump is also required to connect the end section, before the sump itself is mounted on the engine. Where vibrations are present loosening of this type of connection can occur, particularly if it is not carried out appropriately.

It is an object of the present invention to provide an oil aspiration conduit fixing assembly and, in particular, of the aspiration conduit end section, to overcome disadvantages mentioned

According to this invention, this can be achieved by a fixing assembly for an aspiration conduit that presents the characteristics mentioned in the first claim.

Other characteristics and advantages will appear clear in the following description, given by way of example and referred to the accompanying drawings in which

Figure 1 is a partially sectional side elevation view of the oil sump, equipped with a conduit, according to the invention, and

Figure 2 is an enlarged view of a section of figure 1.

Reference being made to the figures, in which 2 is used to indicate the oil sump of an internal combustion engine, connected to the block of said engine (not illustrated) by way of connecting seats 4. Said sump 2 includes, on the side section, an internal protrusion 6, on which conduit 8 is obtained, for oil circulation, into the aspiration opening of the oil pump located on the upper section of the block. The sealtightness of said connection is guaranteed by seal 9. The other end of the first section of conduit 8 opens on the inside of the sump, below the upper border, leaning on the bottom section of the engine block. To this is connected, by way of flange 10, fixed in place with bolts 12, the second section 14 of said aspiration conduit adequately shaped according to the shape of the sump, ending in aspiration conduit end section 16.

On the end turned towards the bottom of the sump, said end section includes a threaded nut 17, maintained fixed on the sump by way of plates 18 (four, in the case illustrated). Conduit 14 is shaped so that nut 17 can be positioned corresponding to slot 19 for the emptying of the oil (outlet) contained in the sump, in order that bolt 20 covering the outlet point be screwed on the latter,

with the shank of the bolt through slot 1 g. In this way, only one bolt can be used to fix both conduit 14 and end section 16, in the position and at the distance required - 1 and the closing point of oil outlet 19. Usually the nut will be provided with sealing gasket.

Blocking of the aspiration conduit of engine oil obtained in this way not only presents the advantages already mentioned, it also facilitates engine assembly, in that it reduces and simplifies necessary operations. Also, the distance between the aspiration conduit end section and the bottom of the sump is determined only by the thickness of nut 17. This also allows for a more appropriate location of the conduit, also reducing the total weight of the system.

It is, of course, possible to vary the different components, as will appear clear to a field technician, whilst respecting the object of the invention provided here.

Claims

1. Fixing assembly for the lubrication oil aspiration conduit of the sump of an internal combustion engine, said conduit presenting an end section equipped with a connection flange, for connection to a conduit obtained in the wall of said sump, the other end being equipped with an aspiration conduit end section (16) located close to the bottom of said sump (2), characterised by the fact that said end section presents a threaded nut (17) located corresponding to the outlet slot (19) of the oil of said sump (2), so that the threaded shank of the bolt acting as a cover (20) of said outlet slot (19) can be screwed to said nut (17).
2. System according to claim 1, characterised by the fact that the outlet slot (19) has a diameter larger than that of the shank of the bolt also used as a cover (20).
3. System according to claim 1, characterised by the fact that nut (17) is connected to the end section of the conduit by way of plates (18).

FIG.2

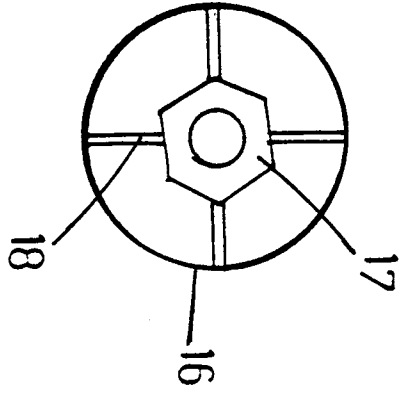
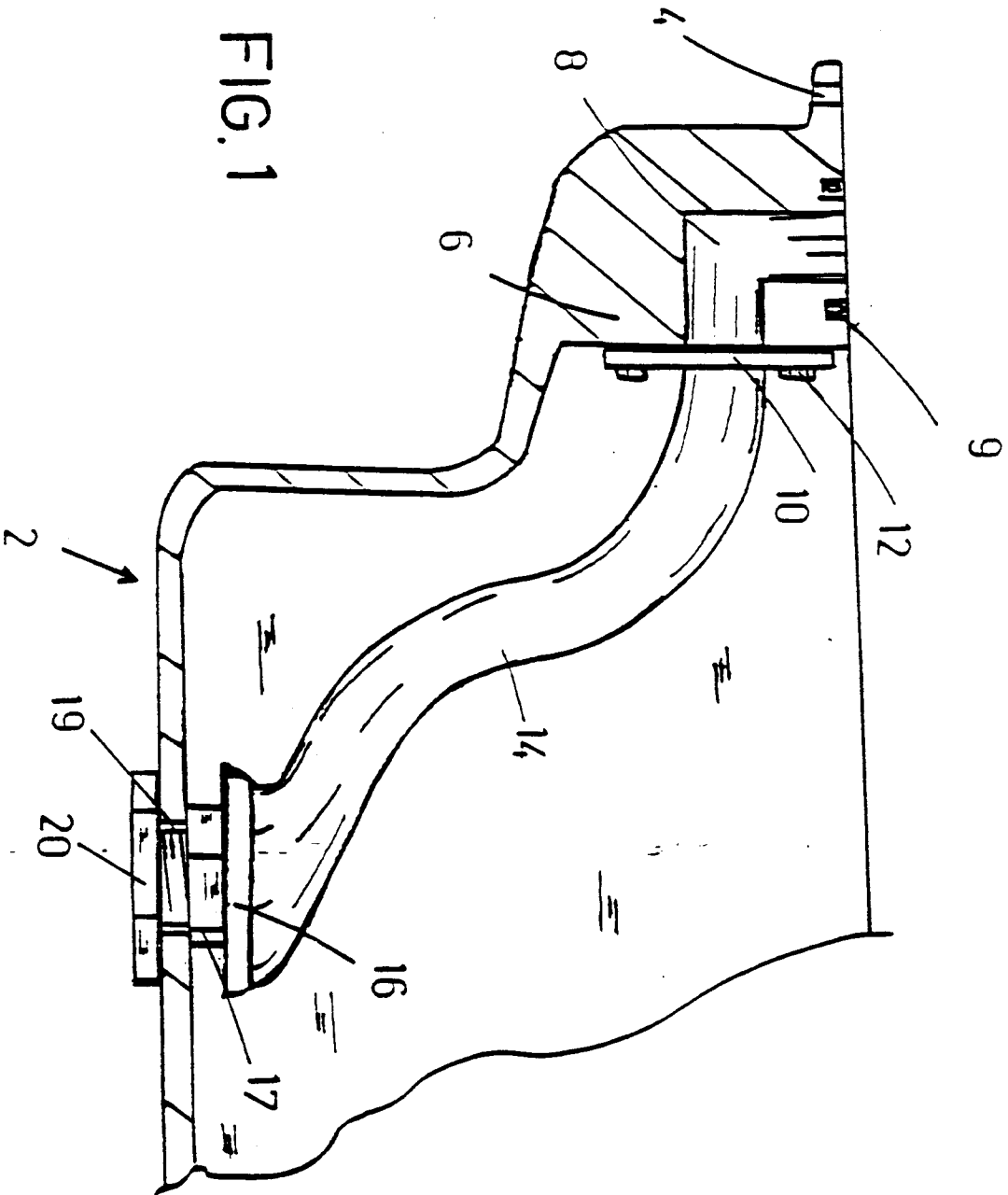


FIG. 1





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EUROPEAN SEARCH REPORT

Application Number
EP 98 11 0801

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	FR 2 639 089 A (FIAT AUTO SPA) 18 May 1990 * abstract: figures * ---	1	F01M11/04
A	US 2 372 286 A (MIERAS) 27 March 1945 * the whole document * ---	1	
A	US 4 479 463 A (CURLEY LAURENCE D ET AL) 30 October 1984 * the whole document * ---	1	
A	US 5 601 060 A (SMIETANSKI RICHARD A ET AL) 11 February 1997 * the whole document * -----	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6) F01M F16L
Place of search THE HAGUE		Date of completion of the search 22 October 1998	Examiner Mouton, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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