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(54) Subjection system from the engine to the washing machine tank

(57) Subjection system from the engine to the washing machine tank, being of the kind of those whose engine has some pairs of radial lugs that are endowed of a hole in which a tubular body of gum is geared for doing its fastening to the washing machine tank, since the washing machine is endowed of the respective lugs for their fixing to the corresponding radial projectings of the engine, so that the subjection system has a pair of radial lugs that are materialized in the own manufacture process of the plastic tank, so that they have an axial prolongation (2) whose extemal surface has a conical shape in its initial part, being the cited prolongation (2) endowed of an axial central hole (3), and the fastening means from a pair of ring-shaped lugs (4) of the engine to the cited axial prolongation (2) of the radial lugs of the tank (1).

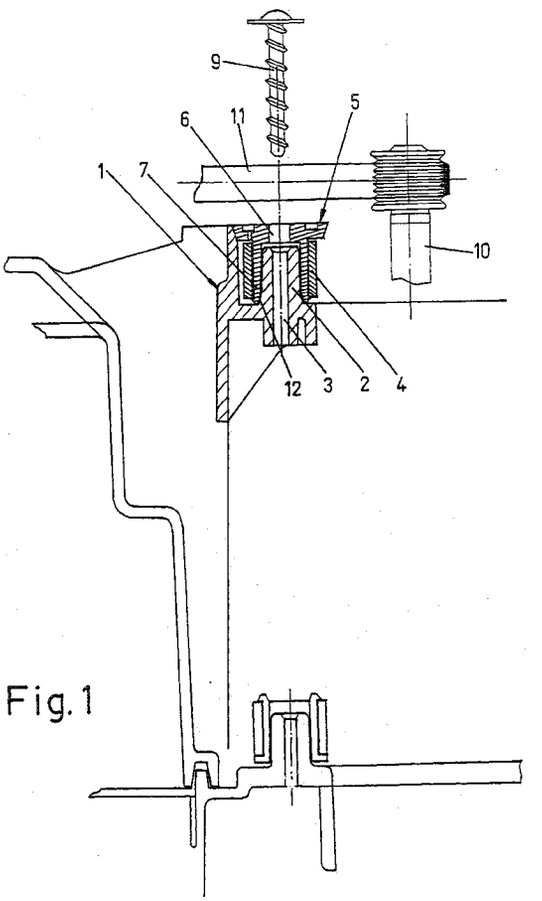

Fig.1

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Description

OBJECT OF THE INVENTION.

[0001] As is expressed in the title of the present descriptive report, the fc!lowing invention consists on a subjection system from the engine to the washing machine tank, being of the kind of those engines that have some ring-shaped radial projectings, according to two pairs that are axially aligned, by pairs, whose projectings have a hole in which a tubular piece of gum is geared, which is fastened to the tank body, so that the subjection system is essentially based on the incorporation of a pair of plastic ferrules that are necessary for materializing the fixing of the engine.

[0002] An important economic saving is obtained through the present subjection system because of the smaller amount of pieces that are used for the fixing, as well as the considerable lower amount of labour that is required for realizing the cited operation.

[0003] Thus, the engine is only joined by means of two radial projectings of its surface, which have a passing hole so that in relationship to the defined ring-shaped body, the fastening takes place because a tubular prolongation of a radial lug of the tank remains in relationship to the same one, having the external surface of the cited prolongation a conical shape in its initial part, and being cylindrical the rest of its length, so that there is an space, between the cited prolongation and the ring-shaped projecting of the engine, that is perimetrically free for gearing the corresponding fixing plastic ferrule in it.

[0004] The cited plastic ferrule has a head that is the initial part of the tubular ferrule, strictly speaking, whose surface is endowed of some axial cuts that define several sectorial bodies, which allows their opening during the fastening operation on affectting on the conical stretch of the prolongation of the fastening lug of the engine, bumping and pressing on the ring-shaped fixing body of the engine, having finally a threaded screw that collaborates in the opening of the sectorial segments of the ferrule.

FIELD OF APPLICATION.

[0005] The showed subjection system is applicable for the subjection from the engine to the washing machine tank, being especially applicable for those washing machines whose plastic tank is defined by two halves that are joined between them, whith the possibility of the disassembly.

BACKGROUND OF THE INVENTION.

[0006] Conventionally, the engines that are manufactured for their assembly in washing machines have two pairs of radial projectings or lugs, that are axially aligned by pairs, so that the cited lugs have the corresponding holes in which the respective bodies of gum, with tubular general shape, are placed, while the two halves that form the plastic tank of the washing machine have two pairs of projecting lugs in a radial sense, that are endowed of a hollow cylindrical orthogonal prolongations.

[0007] In this way, during the assembly of the engine between both lugs, the hollow cylindrical orthogonal prolongations of the same ones are geared into the bodies of gum of the radial projectings of the engine, so that once they are placed in this way, a washer is placed in relationship to one of the bodies of gum, and a long autothreaded screw is placed for being fastened to the opposed lug.

[0008] Thus, the utilized elements are a gum that is internal with regard to the four ring-shaped fastening lugs of the engine, a plastic ring on which bumps the head of the corresponding screw, and these screws, that are two, autothreaded and with long length, and that must be placed by a worker which requires an important amount of labour.

[0009] With this structure, the pair of long autothreaded screws act equally as fixing elements of the two tank halves.

DESCRIPTION OF THE INVENTION.

[0010] In the present report, a subjection system from the engine to the washing machine tank is described, being of the kind of those in which the engine has two pairs of radial lugs that are endowed of a hole where a tubular body of gum is geared for doing its fastening to the washing machine tank, since it is endowed, in each one of the tank halves, of the respective lugs for the fixing, so that the subjection system is made up of a pair of lugs that are materialized in the own manufacture process of the plastic tank and that have an axial prolongation with a conical shape in its initial part according to its external surface, being cylindrical the rest of its length, being the cited prolongation of an axial central hole and the fastening means from the pair of ring-shaped lugs of the engine to the cited axial prolongations of the radial lugs of the tank.

[0011] The fastening means of the pair of ring-shaped lugs of the engine are defined by the respective ferrules that are made up of a head with dialed general shape, with a tubular ledge, with regard to one of its bases, that is endowed of some axial openings, according to all its length, and with a central hole in the head of the cited ferrule.

[0012] The fastening from the engine to the lugs of the tank takes place because the cited lugs of the tank have the axial prolongation in relationship to the ring-shaped body of the fastening lugs of the engine, so that there is a free space between them in which the fastening ferrule is geared in relationship to its tubular prolongation that is endowed of some openings so that when the ferrule is introduced, the extremes of the sectorial stretches affect on the conical stretch of the axial prolongation of

the corresponding radial lug of the tank, taking place the opening of thesectoral segments of the tubular prolongation of the ferrule on the ring-shaped body made of aluminium of the engine lugs, collaborating in the cited fixing the intoduction of an screw through the hole of the ferrule head and through the axial central hole of the prolongation.

[0013] In order to complement the description which is done hereinafter and with the purpose of providing a better understanding of its characteristics, the present descriptive report is accompanied by a set of drawings, in whose figures the most significant details of the invention are defined, in an illustrative and not limitative way.

BRIEF DESCRIPTION OF THE DESIGNS.

[0014] Figure 1.- It shows a sectioned view of the subjection system from the engine to the washing machine tank, where it is observed the tubular projecting, with a conical surface in its initial part that is joined to the corresponding radial lug of the tank, so that the engine is fastened to the projecting since between the cited tubular projecting and the ring-shaped prolongation made of aluminium of the engine, there is a plastic ferrule that does the fastening in collaboration with the respective screw.

[0015] Figure 2.- It shows a plan view of the ferrule that materialize the fixing of the engine, which is defined by a head with a dialed general shape, endowed of a central hole and with a tubular projecting in relationship to one of its bases, which is endowed of some axial grooves according to all its height that form several sectorial segments.

[0016] Figure 3.- It shows a view according to a diametrical cut through the spindle of the ferrule of the previous figure, where it is observed as the stretches that are defined in the tubular projecting are outwardly finished off like a tip of harpoon, as well as the central hole of the head for the pass of the fixing screw, showing in detail the way as the sectors of the tubular projection are finished off by a little external radial prolongation like a tip of harpoon.

DESCRIPTION OF A PREFERRED EMBODIMENT.

[0017] In view of the above cited figures and in accordance with the adopted numbering, it is observed as the half (1) that shapes the plastic tank of the washing machine has some projectings (2), preferably in number of two, so that the cited projecting (2) has a conical stretch (12) in its initial part, having the rest of its length a cylindrical general shape. These projectings are endowed of a passing central hole (3) so that in relationship to the same ones there are a pair of ring-shaped projectings (4) of the engine body, so that there is a perimetral free space between them in which the plastic ferrule (5) will be placed.

[0018] The plastic ferrule (5) has a head with dialed shape which is endowed of a central hole (6) and of a tubular projecting, with regard to one of its bases, that is endowed of some axial cuts that shape several segments or sectors (7), so that three sectors at 120° are showed, that are finished off in their external part by a little projecting (8) like a tip of harpoon.

[0019] With this structure, the sectors (7) of the plastic ferrule (5) will be placed between the space that is done by the corresponding projecting (2) related to the corresponding radial lug of the tank half (1) and the ring-shaped projecting (4) of the engine, so that in their fit, the pressure of the sectors (7) on the more internal stretch (12) of the projecting (2) causes their opening on the ring-shaped projecting (4) of the engine, materializing a perfect fixing with the collaboration of the corresponding screws (9).

[0020] In this way, the engine is joined by means of two ring-shaped radial projectings of the same one, so that it is jutting out and the cost is reduced because of the smaller amount of used pieces, as well as because of the elimination of the amount of labour.

[0021] In the figure 1 of the designs, it is observed as the free extremes of the sectors (7) of the plastic ferrule (5) are so that the external radial prolongation of the same ones is placed on the internal base of the ring-shaped projecting of the engine, remaining perfectly fixed when the corresponding screw (9) is threaded, opening the sectorial extremes (7) on the internal surface of the ring-shaped projectings of the engine.

[0022] Likewise, in the cited figure 1 it is observed as the movement is transmited from the spindle (10) of the engine by means of the belt (11).

[0023] Definitively, with the described subjection system from the engine to the washing machine tank, there is a considerable economic saving with respect to the used materials, and likewise the amount of labour is reduced, which implies a considerable smaller economic cost, and besides it let obtain an optimum and reliable fixing, so that the noises are avoided.

Claims

1. SUBJECTION SYSTEM FROM THE ENGINE TO THE WASHING MACHINE TANK, being of the kind of those whose engine has some pairs of radial lugs that are endowed of a hole in which a tubular body of gum is geared for doing its fastening to the washing machine tank, since it is endowed of the respective lugs for its fixing to the corresponding radial projectings of the engine, and characterized because the subjection system has a pair of radial lugs that are materialized in the own manufacture process of the corresponding half that is part of the plastic tank, so that they have an axial prolongation (2) with a first conical stretch (12) in relationship to its initial part, being cylindrical the rest of its length, being the

cited prolongation (2) endowed of an axial central hole (3), and the fastening means from a pair of ring-shaped lugs (4) from the engine to the cited axial prolongation (2) of the radial lugs of the tank (1).

2. SUBJECTION SYSTEM FROM THE ENGINE TO THE WASHING MACHINE TANK, according to the first claim and characterized because the fastening means of the pair of ring-shaped lugs (4) of the engine are defined by the respective plastic ferrules (5) that are made up of a dialed head with a tubular ledge with regard to one of its bases that is endowed of some axial openings, according to all the height, that define some sectorial elements (7) and likewise the head of the cited ferrule has a central hole (6).

3. SUBJECTION SYSTEM FROM THE ENGINE TO THE WASHING MACHINE TANK, according to the previous claims and characterized because the fastening from the engine to the lugs of the tank takes place because of the axial prolongation (2) of the cited lugs of the tank in relationship to the ring-shaped body (4) that defines the fastening lugs of the engine, so that there is a free space between them in which the fastening ferrule (5) is geared in relationship to its tubular prolongation that is defined by some sectorial elements (7), so that when the sectors (7) affect on the conical stretch (12) of the projecting (2), the opening of the sectorial elements (7) of the tubular prolongation of the ferrule takes place on the ring-shaped body (4) made of aluminium of the lugs of the engine, collaborating in the cited fixing, the corresponding screw (9) that passes through the central hole (6) of the ferrule head (5) and through the hole (3) of the axial prolongation of the radial lug of the tank.

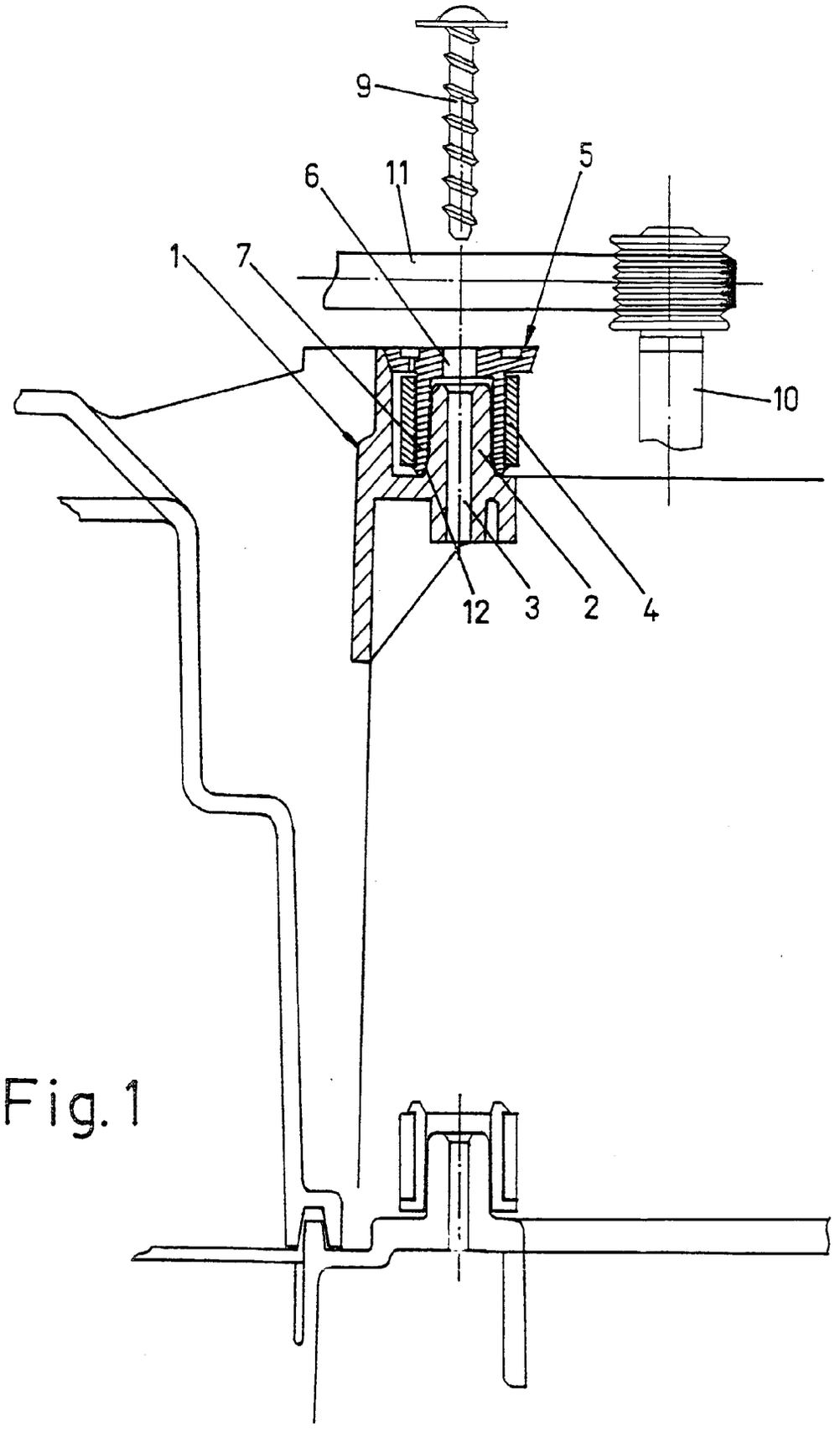

Fig. 1

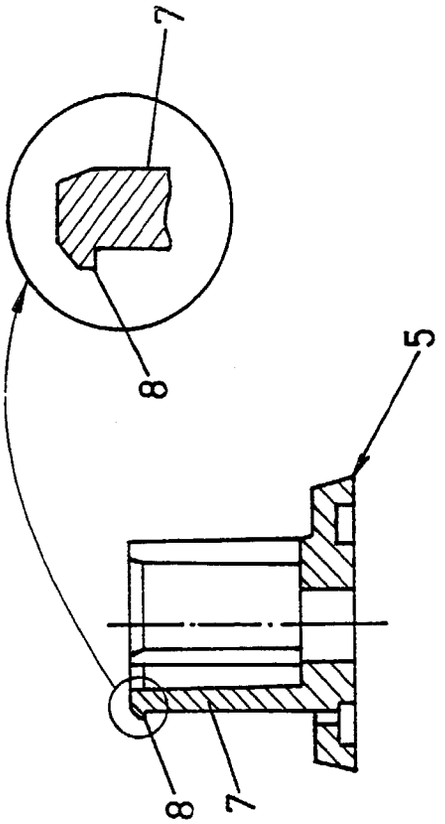

Fig. 3

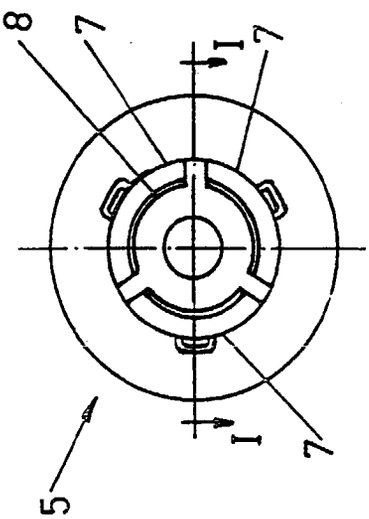

Fig. 2

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EUROPEAN SEARCH REPORT

Application Number
EP 99 50 0015

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	EP 0 152 745 A (INDUSTRIE ZANUSSI S.P.A.) 28 August 1985 * page 7, line 14 - line 17; figure 2 *	1	D06F37/20 D06F37/26
A	EP 0 750 064 A (WHIRLPOOL EUROPE B.V.) 27 December 1996 * abstract; figures *	1	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

D06F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	29 April 1999	Courrier, G

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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29-04-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 152745 A	28-08-1985	AT 45776 T	15-09-1989
EP 750064 A	27-12-1996	NONE	

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82